



## Grandstream Networks, Inc.

---

Analog IP Gateway GXW400x  
4 or 8 FXS Ports



## TABLE OF CONTENTS

### GXW400x User Manual

|                                                                                          |           |
|------------------------------------------------------------------------------------------|-----------|
| <b>WELCOME.....</b>                                                                      | <b>4</b>  |
| GATEWAY GXW400x OVERVIEW .....                                                           | 4         |
| SAFETY COMPLIANCES.....                                                                  | 4         |
| WARRANTY .....                                                                           | 4         |
| <b>CONFIGURE YOUR GXW400X .....</b>                                                      | <b>5</b>  |
| EQUIPMENT PACKAGING .....                                                                | 5         |
| CONNECT THE GXW400x .....                                                                | 5         |
| <b>APPLICATION DESCRIPTION .....</b>                                                     | <b>7</b>  |
| EXAMPLES OF GXW400x CONFIGURATIONS .....                                                 | 7         |
| APPLICATION ONE: GXW-400x FXS GATEWAY CONFIGURATION.....                                 | 7         |
| APPLICATION TWO: GXW400x & GXW410x SCENARIO / TOLL - FREE CALLING BETWEEN LOCATIONS..... | 7         |
| <b>GXW400X FEATURES.....</b>                                                             | <b>8</b>  |
| SOFTWARE FEATURES OVERVIEW .....                                                         | 8         |
| HARDWARE SPECIFICATION .....                                                             | 8         |
| <b>BASIC OPERATIONS .....</b>                                                            | <b>10</b> |
| UNDERSTANDING GXW VOICE PROMPTS .....                                                    | 10        |
| PLACING A PHONE CALL .....                                                               | 11        |
| PHONE OR EXTENSION NUMBERS .....                                                         | 11        |
| DIRECT IP CALLS.....                                                                     | 11        |
| CALL HOLD .....                                                                          | 12        |
| CALL WAITING .....                                                                       | 12        |
| CALL TRANSFER .....                                                                      | 12        |
| 3-WAY CONFERENCING.....                                                                  | 13        |
| HUNTING GROUP .....                                                                      | 13        |
| PSTN PASS THROUGH/LIFE LINE .....                                                        | 14        |
| SENDING AND RECEIVING FAX .....                                                          | 14        |
| <b>CALL FEATURES .....</b>                                                               | <b>15</b> |
| <b>CONFIGURATION GUIDE .....</b>                                                         | <b>16</b> |
| CONFIGURING GXW400x VIA VOICE PROMPT.....                                                | 16        |
| CONFIGURING GXW400x WITH WEB BROWSER .....                                               | 17        |
| ACCESS THE WEB CONFIGURATION MENU .....                                                  | 17        |
| END USER CONFIGURATION .....                                                             | 17        |
| IMPORTANT SETTINGS .....                                                                 | 18        |
| NAT SETTINGS.....                                                                        | 18        |
| DTMF METHODS.....                                                                        | 18        |
| PREFERRED VOCODER (CODEC) .....                                                          | 18        |
| <b>END USER CONFIGURATION .....</b>                                                      | <b>19</b> |
| ADVANCED USER SETTINGS .....                                                             | 21        |
| SAVING THE CONFIGURATION CHANGES.....                                                    | 31        |
| REBOOTING FROM REMOTE .....                                                              | 31        |
| CONFIGURATION THROUGH A CENTRAL SERVER .....                                             | 32        |
| <b>SOFTWARE UPGRADE.....</b>                                                             | <b>33</b> |
| FIRMWARE UPGRADE THROUGH TFTP/HTTP .....                                                 | 33        |
| CONFIGURATION FILE DOWNLOAD .....                                                        | 34        |
| FIRMWARE AND CONFIGURATION FILE PREFIX AND POSTFIX.....                                  | 34        |
| MANAGING FIRMWARE AND CONFIGURATION FILE DOWNLOAD .....                                  | 34        |
| RESTORE FACTORY DEFAULT SETTING .....                                                    | 35        |

## TABLE OF FIGURES GXW400x User Manual

|                                                          |    |
|----------------------------------------------------------|----|
| FIGURE 1: DIAGRAM OF GXW400X BACK PANEL .....            | 5  |
| FIGURE 2: DIAGRAM OF GXW400X DISPLAY PANEL .....         | 6  |
| FIGURE 3: SCREENSHOT OF ADVANCED USER CONFIGURATION..... | 21 |
| FIGURE 4: SCREEN-SHOT OF SAVE CONFIGURATION PAGE.....    | 31 |
| FIGURE 5: SCREEN-SHOT OF REBOOTING PAGE.....             | 31 |

## TABLE OF TABLES GXW400x User Manual

|                                                        |    |
|--------------------------------------------------------|----|
| TABLE 1: DEFINITIONS OF THE GXW CONNECTORS.....        | 5  |
| TABLE 2: DEFINITIONS OF THE GXW DISPLAY PANEL .....    | 6  |
| TABLE 3: GXW400X SOFTWARE FEATURES .....               | 9  |
| TABLE 4: HARDWARE SPECIFICATION OF GXW400X .....       | 8  |
| TABLE 5: DEFINITIONS OF THE GXW VOICE PROMPTS.....     | 10 |
| TABLE 6: CALL FEATURES TABLE (STAR CODE) .....         | 15 |
| TABLE 7: BASIC SETTINGS PAGE DEFINITIONS .....         | 19 |
| TABLE 8: STATUS PAGE DEFINITIONS .....                 | 21 |
| TABLE 9: ADVANCED CONFIGURATION PAGE DEFINITIONS ..... | 22 |
| TABLE 10: FXS PORTS CONFIGURATION DEFINITIONS.....     | 25 |
| TABLE 11: PROFILE PAGE DEFINITIONS .....               | 26 |

## CONFIGURATION GUI INTERFACE EXAMPLES GXW400x User Manual

[http://www.grandstream.com/user\\_manuals/GUI/GUI\\_GXW400x.rar](http://www.grandstream.com/user_manuals/GUI/GUI_GXW400x.rar)

1. SCREENSHOT OF ADVANCED USER CONFIGURATION PAGE
2. SCREENSHOT OF BASIC SETTINGS CONFIGURATION PAGE
3. SCREENSHOT OF FXS PORTS CONFIGURATION LOGIN PAGE
4. SCREENSHOT OF PROFILE 1 CONFIGURATION PAGE
5. SCREENSHOT OF PROFILE 2 CONFIGURATION PAGE
6. SCREENSHOT OF STATUS CONFIGURATION LOG-IN PAGE

## WELCOME

Thank you for purchasing the Grandstream GXW400x Analog FXS IP Gateway. The GXW400x offers an easy to manage, easy to configure IP communications solution for any business with virtual and/or branch locations. The GXW400x supports popular voice codec and is designed for full SIP compatibility and interoperability with 3<sup>rd</sup> party SIP providers, thus enabling you to fully leverage the benefits of VoIP technology, integrate a traditional phone system into a VoIP network, and efficiently manage communication costs.

This manual will help you learn how to operate and manage your GXW FXS Analog IP Gateway and make the best use of its many upgraded features including simple and quick installation, multi-party conferencing, and direct IP-IP Calling. This IP Analog Gateway is very easy to manage and scalable, specifically designed to be an easy to use and affordable VoIP solution for the small – medium business or enterprise.

### Gateway GXW400x Overview

The new GXW400x series has a compact and quiet design (no fans) and offers superb audio quality, rich feature functionality, strong security protection, and good manageability. It is auto-configurable, remotely manageable and scalable.

The GXW400x features 4 or 8-port FXS interface for analog telephones, dual 10M/100Mbps network ports with integrated router, PSTN life line in case of power failure, and an RS232 serial port for administration. In addition, it supports the option of 2 SIP Server profiles, caller ID for various countries/regions, T.38 fax, flexible dialing plans, security protection (SIPS/TLS), comprehensive voice codec including G.711 (a/u-law), G.723.1, G.726(16/24/32/48 bit rates), G.729A/B/E and iLBC.

### Safety Compliances

The GXW400x is compliant with various safety standards including FCC/CE. Its power adaptor is compliant with UL standard. **Warning:** use only the power adapter included in the GXW400x package. Using an alternative power adapter may permanently damage the unit.

### Warranty

Grandstream has a reseller agreement with our reseller customer. End users should contact the company from whom you purchased the product for replacement, repair or refund.

If you purchased the product directly from Grandstream, contact your Grandstream Sales and Service Representative for a RMA (Return Materials Authorization) number. Grandstream reserves the right to remedy warranty policy without prior notification.

**Caution:** *Changes or modifications to this product not expressly approved by Grandstream, or operation of this product in any way other than as detailed by this User Manual, could void your manufacturer warranty.*

- This document contains links to Grandstream GUI Interfaces. Please download these examples [http://www.grandstream.com/user\\_manuals/GUI/GUI\\_GXW400x.rar](http://www.grandstream.com/user_manuals/GUI/GUI_GXW400x.rar) for your reference.
- This document is subject to change without notice. The latest electronic version of this user manual is located @ [http://www.grandstream.com/user\\_manual/GXW400x\\_User\\_Manual.pdf](http://www.grandstream.com/user_manual/GXW400x_User_Manual.pdf)

*Reproduction or transmittal of the entire or any part, in any form or by any means, electronic or print, for any purpose without the express written permission of Grandstream Networks, Inc. is not permitted.*

## CONFIGURE YOUR GXW400X

Connecting your GXW400x is easy. Before you begin, please verify the contents of the GXW400x package.

### EQUIPMENT PACKAGING

Unpack and check all accessories. Equipment includes:

- one 12V universal power adapter
- one Ethernet cable
- one device unit

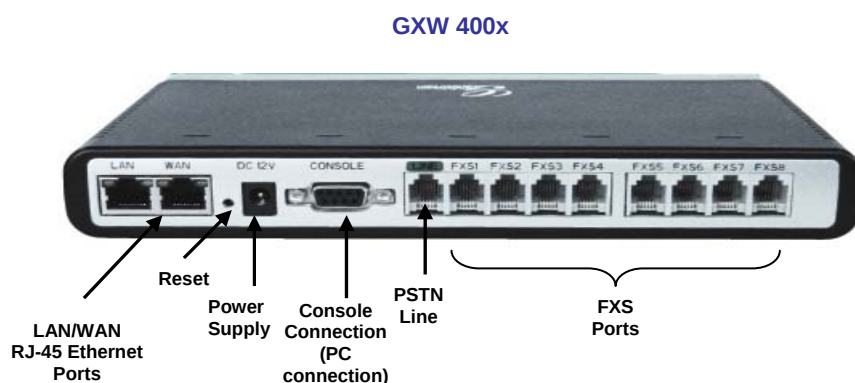
### CONNECT THE GXW400X

Managing the GXW and connecting the unit to the VoIP network is very simple. Follow these four (4) steps to connect your GXW to the Internet and access the unit's configuration pages.

1. Connect standard touch-tone analog phones to the FXS1-FXS8 ports.
2. Insert the Ethernet cable into the WAN port of GXW400X and connect the other end of the Ethernet cable to an uplink port (a router or a modem, etc.)
3. Connect a PC to the LAN port of GXW400X for initial configuration or if it is being used as a router.
4. Insert the power adapter into the GXW400X and connect it to a wall outlet.

Follow instructions from topic "[Configuring GXW 400X with Web Browser](#)" for initial configuration. The GUI pages will guide you through the remaining steps to set-up your gateway. Examples of the GUI Interfaces can be downloaded from: [http://www.grandstream.com/user\\_manuals/GUI/GUI\\_GXW400x.rar](http://www.grandstream.com/user_manuals/GUI/GUI_GXW400x.rar).

**FIGURE 1: DIAGRAM OF GXW400X BACK PANEL**



**TABLE 1: DEFINITIONS OF THE GXW CONNECTORS**

|                           |                                                                                                                     |
|---------------------------|---------------------------------------------------------------------------------------------------------------------|
| <b>LAN (or PC)</b>        | Connect the LAN port with an Ethernet cable to your PC.                                                             |
| <b>WAN (or LAN)</b>       | Connect to the internal LAN network or router.                                                                      |
| <b>RESET</b>              | Factory Reset button. Press for 7 seconds to reset factory default settings.                                        |
| <b>DC 12V</b>             | Power adapter connection                                                                                            |
| <b>CONSOLE</b>            | Console connection for a PC.                                                                                        |
| <b>PSTN Failover port</b> | When the unit loses power, FXS port 1 will be able to make/receive calls from the PSTN line connected to this port. |
| <b>FXS1 - FXS8</b>        | FXS port to be connected to analog phones / fax machines.                                                           |

Once the GXW is turned on and configured, the front display panel indicates the status of the unit.

**FIGURE 2: DIAGRAM OF GXW400x DISPLAY PANEL**



**TABLE 2: DEFINITIONS OF THE GXW DISPLAY PANEL**

|                   |                                                                                                                                                                                         |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Power LED</b>  | Indicates Power. Remains ON when Power is connected and turned ON.                                                                                                                      |
| <b>Ready LED</b>  | Remains ON after boot-up.                                                                                                                                                               |
| <b>Console</b>    | Turns ON when Console port is being used.                                                                                                                                               |
| <b>LAN LED</b>    | Indicates LAN (or WAN) port activity                                                                                                                                                    |
| <b>WAN LED</b>    | Indicates PC (or LAN) port activity                                                                                                                                                     |
| <b>LEDs 1 - 8</b> | Indicate status of the respective FXS Ports on the back panel<br><b>Busy</b> - ON (Solid Green)<br><b>Available</b> - OFF<br>Slow blinking FXS LEDs indicates Voice Mail for that port. |

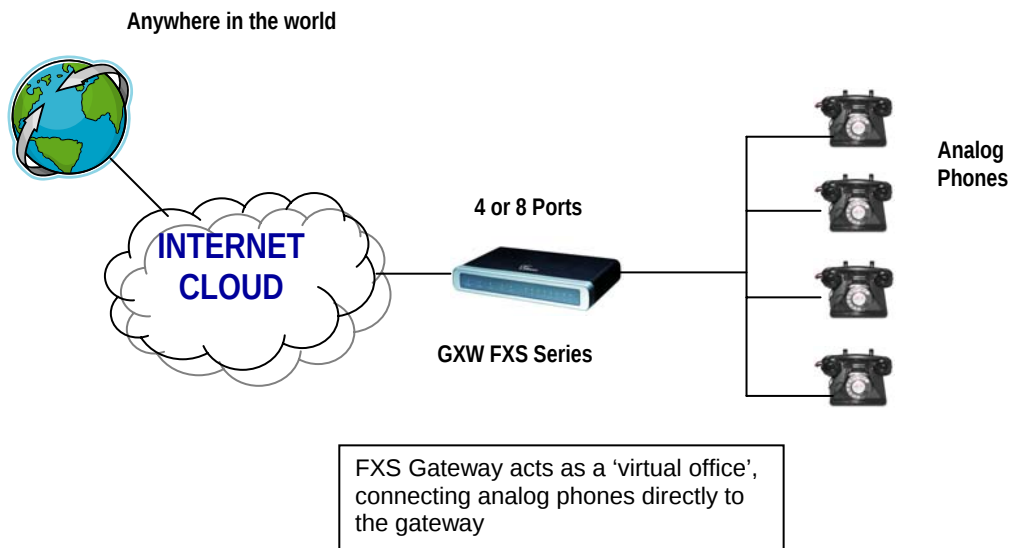
**NOTE:** All LEDs display green when ON. Slow blinking of READY, WAN and LAN LED together indicates a firmware upgrade or provisioning state. LEDs POWER, READY and WAN are ON when device is up and running and successfully registered to the SIP Server. Slow blinking of READY LED indicates that device has not registered with any SIP Service provider.

## APPLICATION DESCRIPTION

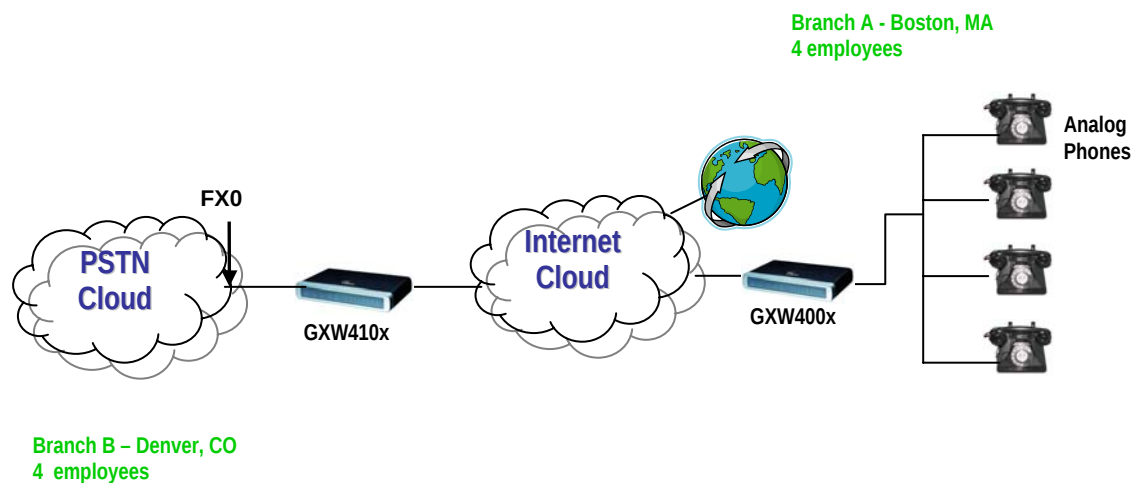
There are two scenarios where the GXW400x series can be effectively used to enable any business to leverage the benefits of VoIP and the Internet.

### EXAMPLES OF GXW400x CONFIGURATIONS

#### Application One: GXW-400x FXS Gateway Configuration



#### Application Two: GXW400x & GXW410x Scenario / Toll- Free Calling Between Locations



## GXW400X FEATURES

The GXW400x is a next generation IP voice gateway that is interoperable and compatible with leading IP-PBXs, Softswitches and SIP platforms. The GXW400x FXS series is auto-configurable, remotely manageable and scalable. There are two FXS models, the GXW-4004 and GXW-4008, each offering superb voice quality, traditional telephony functionality, easy deployment, and 4 or 8 FXS ports respectively. Each model features flexible dialing plans, PSTN failover, integrated call routing to support a pure IP network call and an external power supply.

### SOFTWARE FEATURES OVERVIEW

- 4 or 8 FXS ports
- Two RJ-45 ports (switched or routed)
- Multiple SIP accounts & profiles (4 or 8 accounts / choice of 2 profiles per account)
- Supports Voice Codecs:  
G711(a/μ, Annex I & II), G723.1A, G726 (ADPCM with 16/24/32/40 bit rates), G729 A/B/E, iLBC
- T.38 Fax
- Comprehensive Dial Plan support for Outgoing calls.
- G.168 Echo Cancellation
- Voice Activation Detection (VAD), Comfort Noise Generation (CNG), and Packet Loss Concealment (PLC)
- Supports PSTN/PBX analog telephone sets or analog trunks

### HARDWARE SPECIFICATION

The hardware specifications of the GXW FXS series are detailed in Table 4.

**TABLE 4: HARDWARE SPECIFICATION OF GXW400X**

|                                          |                                                                                                     |
|------------------------------------------|-----------------------------------------------------------------------------------------------------|
| <b>Ports</b>                             | 4 or 8 FXS Ports                                                                                    |
| <b>LAN interface</b>                     | 2 x RJ45 10/100Mbps (switched or routed)                                                            |
| <b>PSTN Port</b>                         | PSTN fail-over port                                                                                 |
| <b>LED</b>                               | 4 or 8 LEDs (GREEN)                                                                                 |
| <b>Console</b>                           | Console port for Hyperterminal login                                                                |
| <b>Universal Switching Power Adaptor</b> | <b>Input:</b> 100-240V AC, 50/60Hz, 0.5A Max<br><b>Output:</b> 12V DC, 1.25A<br><b>UL</b> certified |
| <b>Dimension</b>                         | 225mm (L) x 135mm (W) x 35mm (H)                                                                    |
| <b>Weight</b>                            | 0.29 lbs (3.5 oz)                                                                                   |
| <b>Temperature</b>                       | 32~104°F / 0~40°C                                                                                   |
| <b>Humidity</b>                          | 10% - 90% (non-condensing)                                                                          |
| <b>Compliance</b>                        | FCC, CE                                                                                             |

**TABLE 3: GXW400x SOFTWARE FEATURES**

|                                       | <b>GXW400x FXS Analog Gateway Series</b>                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Telephone Interfaces</b>           | GXW4004: 4 ports, 4 SIP accounts & choice of 2 profiles<br>GXW4008: 8 ports, 8 SIP accounts & choice of 2 profiles<br>FXS, RJ-11                                                                                                                                                                                                                                                                           |
| <b>Network Interface</b>              | Two (2) 10M/100 Mbps, RJ-45                                                                                                                                                                                                                                                                                                                                                                                |
| <b>LED Indicators</b>                 | Power and Line LEDs                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Voice over Packet Capabilities</b> | Voice Activity Detection (VAD) with CNG (comfort noise generation) and PLC (packet loss concealment), AEC with NLP<br>Packetized Voice Protocol Unit (supports RTP/RTCP and AAL2 protocol),<br>G.168 compliant Echo Cancellation, Dynamic Jitter Buffer, Modem detection & auto-switch to G.711                                                                                                            |
| <b>PSTN Fail-over</b>                 | PSTN failover port on power failure                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Voice Compression</b>              | G.711 + Annex I (PLC), Annex II (VAD/CNG format) encoder and decoder,<br>G.723.1A, G.726(ADPCM with 16/24/32/40 bit rates), G.729A/B/E, iLBC<br>G.726 provides proprietary VAD, CNG, and signal power estimation<br>Voice Play Out unit (reordering, fixed and adaptive jitter buffer, clock synchronization), AGC (automatic gain control),<br>Status output, Decoder controlling via voice packet header |
| <b>DHCP Server/Client</b>             | Yes, NAT Router or Switched Mode                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Fax over IP</b>                    | T.38 compliant Group 3 Fax Relay up to 14.4kbps and auto-switch to G.711 for Fax Pass-through,<br>Fax Datapump V.17, V.19, V.27ter, V.29 for T.38 fax relay                                                                                                                                                                                                                                                |
| <b>QoS</b>                            | Diffserve, TOS, 802.1 P/Q VLAN tagging                                                                                                                                                                                                                                                                                                                                                                     |
| <b>IP Transport</b>                   | RTP/RTCP                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>DTMF Method</b>                    | flexible DTMF transmission method, User interface of In-audio, RFC2833, and/or SIP Info                                                                                                                                                                                                                                                                                                                    |
| <b>IP Signaling</b>                   | SIP (RFC 3261)                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Provisioning</b>                   | TFTP, HTTP, HTTPS (pending)                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Control</b>                        | TLS/SIPS                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Management</b>                     | Syslog support, HTTPS (pending), Telnet, remote management using Web browser                                                                                                                                                                                                                                                                                                                               |
| <b>Dial Plan</b>                      | Yes                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>UPnP Support</b>                   | Yes                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Power</b>                          | Output: 12VDC / Input: 100–240 VAC/50-60 Hz                                                                                                                                                                                                                                                                                                                                                                |
| <b>Mounting</b>                       | Rack mount, Wall mount, Desktop                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Short and long haul</b>            | REN3: Up to 150 ft on 24 AWG line                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Caller ID</b>                      | Belcore Type 1 & 2, ETSI, BT, NTT, and DTMF-based CID                                                                                                                                                                                                                                                                                                                                                      |
| <b>Polarity Reversal / Wink</b>       | Yes                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>EMC</b>                            | EN55022/EN55024 and FCC part15 Class B                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Safety</b>                         | UL                                                                                                                                                                                                                                                                                                                                                                                                         |

## BASIC OPERATIONS

### UNDERSTANDING GXW VOICE PROMPTS

GXW400x has a stored voice prompt menu for quick browsing and simple configuration. To enter the voice prompt menu, **press \*\*\*** on the standard analog phone connected to any FXS port.

**TABLE 5: DEFINITIONS OF THE GXW VOICE PROMPTS**

| Menu             | Voice Prompt                                      | User's Options                                                                                                                                                                                                                                                                                              |
|------------------|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Main Menu</b> | "Enter a Menu Option"                             | Enter "*" for the next menu option<br>Enter "#" to return to the main menu<br>Enter 01 – 05, 07, 10 - 17, 47, 86 or 99 Menu option                                                                                                                                                                          |
| <b>01</b>        | "DHCP Mode", "PPPoE Mode"<br>"or "Static IP Mode" | Enter '9' to toggle the selection<br><i>If user selects "Static IP Mode", user need configure all the IP address information through menu 02 to 05. If user selects "Dynamic IP Mode", the device will retrieve all IP address information from DHCP server automatically when user reboots the device.</i> |
| <b>02</b>        | "IP Address " + IP address                        | The current WAN IP address is announced<br>Enter 12-digit new IP address if in Static IP Mode.                                                                                                                                                                                                              |
| <b>03</b>        | "Subnet " + IP address                            | Same as Menu option 02                                                                                                                                                                                                                                                                                      |
| <b>04</b>        | "Gateway " + IP address                           | Same as Menu option 02                                                                                                                                                                                                                                                                                      |
| <b>05</b>        | "DNS Server " + IP address                        | Same as Menu option 02                                                                                                                                                                                                                                                                                      |
| <b>07</b>        | Preferred Vocoder                                 | Enter "9" to go to the next selection in the list: <ul style="list-style-type: none"> <li>• PCM U</li> <li>• PCM A</li> <li>• iLBC</li> <li>• G-726</li> <li>• G-723</li> <li>• G-729</li> </ul>                                                                                                            |
| <b>10</b>        | "MAC Address"                                     | Announces the Mac address of the unit.                                                                                                                                                                                                                                                                      |
| <b>12</b>        | WAN Port Web Access                               | Enter "9" to toggle between <b>enable</b> and <b>disable</b>                                                                                                                                                                                                                                                |
| <b>13</b>        | Firmware Server IP Address                        | Announces current Firmware Server IP address. Enter 12 digit new IP address.                                                                                                                                                                                                                                |
| <b>14</b>        | Configuration Server IP Address                   | Announces current Config Server Path IP address. Enter 12 digit new IP address.                                                                                                                                                                                                                             |
| <b>15</b>        | Upgrade Protocol                                  | Upgrade protocol for firmware and configuration update. Enter "9" to toggle between <b>TFTP</b> and <b>HTTP</b>                                                                                                                                                                                             |
| <b>16</b>        | Firmware Version                                  | Firmware version information.                                                                                                                                                                                                                                                                               |
| <b>17</b>        | Firmware Upgrade                                  | Firmware upgrade mode. Enter "9" to rotate among the following three options: <ol style="list-style-type: none"> <li>1. always check</li> <li>2. check when pre/suffix changes</li> <li>3. never upgrade</li> </ol>                                                                                         |
| <b>47</b>        | "Direct IP Calling"                               | Enter the target IP address to make a direct IP call, after dial tone. (See "Make a Direct IP Call".)                                                                                                                                                                                                       |
| <b>99</b>        | "RESET"                                           | Enter "9" to reboot the device; or<br>Enter MAC address to restore factory default setting (See <b>Restore Factory Default Setting</b> section)                                                                                                                                                             |
|                  | "Invalid Entry"                                   | Automatically returns to Main Menu                                                                                                                                                                                                                                                                          |

## Five Success Tips when using the Voice Prompt

1. "\*" shifts down to the next menu option
2. "#" returns to the main menu
3. "9" functions as the ENTER key in many cases to confirm an option
4. 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 192168**0000**26. No decimal is needed).
5. Key entry can not be deleted but the phone may prompt error once it is detected

## PLACING A PHONE CALL

### PHONE OR EXTENSION NUMBERS

1. Dial the number directly and wait for 4 seconds (Default "No Key Entry Timeout"); or
2. 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.

## DIRECT IP CALLS

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:

1. Both GXW400x and other VoIP Device, have public IP addresses, or
2. Both GXW400x and other VoIP Device are on the same LAN using private IP addresses, or
3. Both GXW400x and other VoIP Device can be connected through a router using public or private IP addresses (with necessary port forwarding or DMZ).

GXW400x supports two ways to make Direct IP Calling:

### Using IVR

1. Pick up the analog phone then access the voice menu prompt by dial "\*\*\*"
2. Dial "47" to access the direct IP call menu
3. Enter the IP address using format ex. **192\*168\*0\*160** after the dial tone.

### Using Star Code

1. Pick up the analog phone then dial "\*47"
2. Enter the target IP address using same format as above.

Note: **NO** dial tone will be played between step 1 and 2.

Destination ports can be specified by using "\*" (encoding for ".") followed by the port number.

### Examples:

- 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 for 4 seconds.

**NOTE:** When completing direct IP call, the “**Use Random Port**” should set to “NO”. You can not make direct IP calls between FXS1 to FXS2 since they are using same IP.

## CALL HOLD

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

Call waiting tone (3 short beeps) indicates an incoming call, if the call waiting feature is enabled. Toggle between incoming call and current call by pressing the “flash” button. First call is placed on hold. Press the “flash” button to toggle between two active calls.

## CALL TRANSFER

### Blind Transfer

Assume that call Caller A and B are in conversation. A wants to *Blind Transfer* B to C:

3. Caller A presses **FLASH** on the analog phone to hear the dial tone.
4. Caller A dials **\*87** then dials caller C’s number, and then # (or wait for 4 seconds)
5. Caller A will hear the confirm tone. Then, A can hang up.

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

Caller A can place a call on hold and wait for one of three situations:

1. A quick confirmation tone (similar to call waiting tone) followed by a dial tone. This indicates the transfer is successful (transferee has received a 200 OK from transfer target). At this point, Caller A can either hang up or make another call.
2. A quick busy tone followed by a restored call (on supported platforms only). This means the transferee has received a 4xx response for the INVITE and we will try to recover the call. The busy tone is just to indicate to the transferor that the transfer has failed.
3. Continuous busy tone. The phone has timed out. **Note:** continuous busy tone does not indicate the transfer has been successful, nor does it indicate the transfer has failed. It often means there was a failure to receive second NOTIFY – check firmware for most recent release.

### Attended Transfer

Assume that Caller A and B are in conversation. Caller A wants to *Attend Transfer* B to C:

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

**NOTE:** When Attended Transfer fails and A hangs up, the GXW400x 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 GXW400x supports Bellcore style 3-way Conference.

#### Instructions for 3-way conference:

Assuming that call party A and B are in conversation. A (GXW400x ) wants to bring C in a conference:

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

### HUNTING GROUP

This feature allows the user to setup a single SIP account on the gateway and have the ability to use all FXS ports to make/receive calls. Using this feature, all ports active in same hunt group will have the same phone number and incoming calls will be distributed in a round robin manner among the ports active in that hunt group. The number of hunting groups is limited by the number of ports each GXW model has - i.e. each port can be its own hunt group. The most practical and efficient way to use hunt groups is to assign 2 or 3 ports to separate hunt groups.

One additional and popular way to use the Hunting Group feature is called "*multiplexed analog lines*". In this configuration, a legacy PBX system with 8 FXO trunks can be connected to 8 GXW 4008 ports configured as a hunt group. The GXW can be registered to a SIP server provider using only one phone number. If the SIP service provider allows multiple calls to the same number, the GXW will allow 8 concurrent calls to the same SIP number. All office members can be reached remotely using the same phone number in round robin fashion.

#### Example Configuration of a typical Hunting Group:

1. Configure the SIP account from your VoIP Service Provider on **FXS port 1** under **FXS Ports** webpage.
2. Select **Active** under the **Hunting Group** drop box for FXS port 1.
3. For the remaining ports (say 2, 3 and 4) select **1** for **Hunting Group**. Ports 2, 3 and 4 are now active members of the hunting group associated with port 1.

This configuration will route all calls directed to FXS port 1 to ports 2, 3 and/or 4 in round robin fashion respectively if port 1 is busy or times out. You can configure the ring timeout on the **Profile** page.

**Note:** A single call directed to the SIP account will NOT result in all ports ringing at the same time. They will ring in the hunting group only. This feature is applicable to incoming calls only.

## PSTN PASS THROUGH/LIFE LINE

The RJ-11 line jack on the GXW400x side functions as a pass through jack when the GXW400x is out of power. The pass through/life line enables the user to use the analog phone for PSTN calls directly without using an access code.

## SENDING AND RECEIVING FAX

GXW400x supports fax in two modes: 1) T.38 (Fax over IP) and 2) Fax Pass through. T.38 is the preferred method because it is more reliable and works well in most network conditions. If the service provider supports T.38, please use this method by selecting T.38 as fax mode (default). If the service provider does not support T.38, pass-through mode may be used. If you have problems with sending or receiving Fax, toggle the Fax Tone Detection Mode setting.

## CALL FEATURES

The GXW400x supports the traditional telephony features available in a PBX as well as additional advanced telephony features.

**TABLE 6: CALL FEATURES TABLE (STAR CODE)**

| Key               | Call Features                                                                                                                                                          |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>*30</b>        | <b>Block CallerID</b> (for all-config change)                                                                                                                          |
| <b>*31</b>        | <b>Send CallerID</b> (for all-config change)                                                                                                                           |
| <b>*67</b>        | <b>Block CallerID</b> (per call)                                                                                                                                       |
| <b>*82</b>        | <b>Send CallerID</b> (per call)                                                                                                                                        |
| <b>*47</b>        | <b>Direct IP Calling.</b> Dial “*47” + “IP address”. <b>No</b> dial tone will be played in the middle. Detail see Direct IP Calling section on page 12.                |
| <b>*50</b>        | <b>Disable Call Waiting</b> (for all-config change)                                                                                                                    |
| <b>*51</b>        | <b>Enable Call Waiting</b> (for all-config change)                                                                                                                     |
| <b>*69</b>        | <b>Call Return Service:</b> Dial *69 and the phone will dial the last incoming phone number received.                                                                  |
| <b>*70</b>        | <b>Disable Call Waiting</b> (Per Call)                                                                                                                                 |
| <b>*71</b>        | <b>Enable Call Waiting</b> (Per Call)                                                                                                                                  |
| <b>*72</b>        | <b>Unconditional Call Forward:</b> Dial “*72” and then the forwarding number followed by “#”. Wait for dial tone and hang up. (dial tone indicates successful forward) |
| <b>*73</b>        | <b>Cancel Unconditional Call Forward:</b> Dial “*73” and wait for dial tone, then hang up.                                                                             |
| <b>*74</b>        | <b>Enable Paging Call:</b> Dial “*74” and then the destination phone number you want to activate in Paging mode.                                                       |
| <b>*78</b>        | <b>Enable Do Not Disturb (DND):</b> When enabled all incoming calls will be rejected.                                                                                  |
| <b>*79</b>        | <b>Disable Do Not Disturb (DND):</b> When disabled, incoming calls will be accepted.                                                                                   |
| <b>*87</b>        | <b>Blind Transfer</b>                                                                                                                                                  |
| <b>*90</b>        | <b>Busy Call Forward:</b> Dial “*90” and then the forwarding number followed by “#”. Wait for dial tone then hang up.                                                  |
| <b>*91</b>        | <b>Cancel Busy Call Forward:</b> dial “*91”. Wait for dial tone. Hang up.                                                                                              |
| <b>*92</b>        | <b>Delayed Call Forward:</b> Dial “*92” and then the forwarding number followed by “#”. Wait for dial tone then hang up.                                               |
| <b>*93</b>        | <b>Cancel Delayed Call Forward:</b> Dial “*93” for a dial tone, then hang up.                                                                                          |
| <b>Flash/Hook</b> | If user hears call waiting beep, flash/hook will switch to the new incoming call. Also used to switch to a new channel for a new call.                                 |
| <b>#</b>          | Pressing pound sign will serve as <b>Re-Dial</b> key.                                                                                                                  |

## CONFIGURATION GUIDE

### CONFIGURING GXW400x VIA VOICE PROMPT

#### **DHCP MODE**

Select voice menu option 01 to enable GXW400x to use DHCP.

#### **STATIC IP MODE**

Select voice menu option 01 to enable GXW400x to use 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 voice menu option 15 to choose firmware and configuration upgrade protocol. User can choose between TFTP and HTTP.

#### **FIRMWARE UPGRADE MODE**

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

1) always check, 2) check when pre/suffix changes, and 3) never upgrade

#### **WAN PORT WEB ACCESS**

Select voice menu option 12 to enable WAN Port Web Access of the device configuration pages.

## CONFIGURING GXW400x WITH WEB BROWSER

GXW400x has an embedded Web server that will respond to HTTP GET/POST requests. It also has embedded HTML pages that allow users to configure the GXW400x through a Web browser such as Microsoft's IE and AOL's Netscape.

### ACCESS THE WEB CONFIGURATION MENU

The GXW400x HTML configuration menu can be accessed via LAN or WAN port:

#### From the LAN port:

1. Directly connect a computer to the LAN port.
2. Open a command window on the computer
3. Type in "ipconfig /release", the IP address etc. becomes 0.
4. Type in "ipconfig /renew", the computer gets an IP address in 192.168.2.x segment by default
5. Open a web browser, type in the default gateway IP address. <http://192.168.2.1>. You will see the login page of the device.

#### From the WAN port:

The WAN port HTML configuration option is disabled by default from factory. To access the HTML configuration menu from the WAN port:

1. Enable the "WAN Port Web Access" option via IVR option 12.
2. Find the WAN IP address of the GXW400x using voice prompt menu option 02.
3. Access the GXW400x Web Configuration page via WAN port using the following URL: <http://GXW400x-IP-Address> (the GXW400x IP-Address is the WAN IP address for the GXW400x).

**NOTE:** If using a web browser to enter the configuration page, strip the leading "0"s because the browser will parse in octet. (i.e. if the IP address is: 192.168.001.014, please type in: 192.168.1.14).

## END USER CONFIGURATION

Once the HTTP request is entered and sent from a Web browser, the user will see a log in screen. There are two default passwords for the login page:

| User Level:         | Password: | Web pages allowed:             |
|---------------------|-----------|--------------------------------|
| End User Level      | 123       | Only Status and Basic Settings |
| Administrator Level | admin     | Browse all pages               |

Only an administrator can access the "ADVANCED SETTINGS" configuration page.

1. There are six different tabs (Status, Basic Settings, Advanced Settings, Profile 1, Profile 2 and FXS Ports) on the top of the screen (after login). To open each page, click on the tab.
2. Click on Profile 1 to enter your SIP Server/ SIP Proxy/Registrar information. Enter the IP Address (or FQDN) of the Server under: **SIP Server** and/or **Outbound Proxy**.
3. Click on **FXS ports** to enter the extensions or account information. You will need to fill in the following information for each extension. Once the extensions are configured, you are finished.

| FXS Port | SIP User ID | Auth ID | Authentication Password | Name  | Profile  |
|----------|-------------|---------|-------------------------|-------|----------|
| 1        | 601         | 601     | ***                     | Ext 1 | Profile1 |
| 2        | 602         | 602     | ***                     | Ext 2 | Profile1 |
| 3        | 603         | 603     | ***                     | Ext 3 | Profile1 |
| 4        | 604         | 604     | ***                     | Ext 4 | Profile1 |
| 5        | 605         | 605     | ***                     | Ext 5 | Profile1 |
| 6        | 606         | 606     | ***                     | Ext 6 | Profile1 |
| 7        | 607         | 607     | ***                     | Ext 7 | Profile1 |
| 8        | 608         | 608     | ***                     | Ext 8 | Profile1 |

- Click **Update** after changing any setting and then **Re-boot** to confirm changes.
- After reboot, check the Status Page to confirm the extensions are successfully registered. You can now use your standard phones connected to ports FXS1 to FXS8 to make calls.

## IMPORTANT SETTINGS

The end-user must configure the following settings according to the local environment.

**NOTE:** Most settings on the web configuration pages are set to the default values.

### NAT Settings

If you plan to keep the gateway within a *private network* behind a firewall, we recommend using STUN Server. The following three (3) settings are useful in the STUN Server scenario:

- 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.
- Use Random Ports** (under Advanced Settings webpage)  
It really depends on your network settings, so set this parameter to Yes or No, whichever works. 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.
- NAT Traversal** (under the Profile web pages)  
Set this to Yes when gateway is behind firewall on a private network.

### DTMF Methods

DTMF Settings are in Profile pages.

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

Enable one or more DTMF methods based on your PBX system.

### Preferred VOCODER (Codec)

The GXW400x supports a broad range of voice codecs. Under Profile web pages, choose your preferred order of different codecs:

- PCMU/A (or G711μ/a)
- G729 A/B/E
- G723
- G726 (16/24/32/40)
- iLBC

## END USER CONFIGURATION

The GXW FXS Series uses an imbedded web-browser to simply the configuration process. There are six (6) screenshots that the end user should become familiar with during the configuration process. Download these pages now [http://www.grandstream.com/user\\_manuals/GUI/GUI\\_GXW400x.rar](http://www.grandstream.com/user_manuals/GUI/GUI_GXW400x.rar) and review the term definitions found in Tables 7 – 11.

**TABLE 7: BASIC SETTINGS PAGE DEFINITIONS**

|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>End User Password</b>      | Password to access the Web Configuration Menu. This field is case sensitive with a maximum length of 25 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Web Port</b>               | By default, HTTP uses port 80. This field is for customizable web port.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Telnet Server</b>          | Default is Yes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>IP Address</b>             | <p>There are two modes to operate the GXW400x :</p> <p><b>DHCP mode:</b> all the field values for the Static IP mode are not used (even though they are still saved in the Flash memory.) The GXW400x acquires its IP address from the first DHCP server it discovers from the LAN it is connected.</p> <p><u>Using the PPPoE feature:</u> set the PPPoE account settings. The GXW400x will establish a PPPoE session if any of the PPPoE fields is set.</p> <p><b>Static IP mode:</b> configure the IP address, Subnet Mask, Default Router IP address, DNS Server 1 (primary), DNS Server 2 (secondary) fields. These fields are set to zero by default.</p>                                                                                                                                                                                                                                                         |
| <b>DHCP hostname</b>          | This option specifies the name of the client. This field is optional but may be required by some Internet Service Providers. Default is blank.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>DHCP domain</b>            | This option specifies the domain name that client should use when resolving hostnames via the Domain Name System. Default is blank.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>DHCP vendor class ID</b>   | Used by clients and servers to exchange vendor-specific information. Default is HT500.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>PPPoE account ID</b>       | PPPoE username. Necessary if ISP requires you to use a PPPoE (Point to Point Protocol over Ethernet) connection.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>PPPoE password</b>         | PPPoE account password.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>PPPoE Service Name</b>     | This field is optional. If your ISP uses a service name for the PPPoE connection, enter the service name here. Default is blank.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Time Zone</b>              | Controls how the date/time is displayed according to the specified time zone.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Self Defined Time Zone</b> | <p>The syntax is <b>std offset dst [offset],start[/time],end[/time]</b><br/>         Default is set to : <b>MTZ+6MDT+5,M3.2.0,M11.1.0</b><br/> <b>MTZ+6MDT+5,</b><br/>         It indicates a time zone with 6 hours offset with 1 hour ahead which is the US central time.<br/>         It is positive (+) if the local time zone is west of the Prime Meridian and negative (-) if it is east.<br/> <b>Prime Meridian</b> (<i>International or Greenwich Meridian</i>)<br/> <b>M3.2.0,M11.1.0</b><br/>         The 1st number indicates Month: 1,2,3,...,12 (for Jan, Feb, ..., Dec)<br/>         The 2nd number indicates the nth iteration of the weekday: (1st Sunday, 3rd Tuesday etc)<br/>         The 3rd number indicates Weekday: 0,1, 2, ...,6(for Sun, Mon, Tue, ..., Sat)<br/>         Therefore, this example is the DST which starts from the second Sunday of March to the 1st Sunday of November.</p> |

|                                    |                                                                                                                                                                                                                |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Language</b>                    | Default is English. Languages supported with voice prompt.                                                                                                                                                     |
| <b>Device Mode</b>                 | This parameter controls whether the device is working in NAT router mode or Bridge mode. Save the setting and reboot prior to configuring the GXW.                                                             |
| <b>NAT maximum ports</b>           | Maximum NAT ports, typically one connection per port.                                                                                                                                                          |
| <b>NAT TCP timeout</b>             | NAT TCP timeout in seconds                                                                                                                                                                                     |
| <b>NAT UDP timeout</b>             | NAT UDP timeout in seconds.                                                                                                                                                                                    |
| <b>Uplink Bandwidth</b>            | ISP specified WAN uplink bandwidth                                                                                                                                                                             |
| <b>Downlink Bandwidth</b>          | ISP specified WAN downlink bandwidth                                                                                                                                                                           |
| <b>Enable UPnP support</b>         | If set to "Yes", the GXW400x would act as an UPnP gateway for your UPnP enable applications. <b>UPnP</b> - Universal Plug n Play                                                                               |
| <b>Reply to ICMP on WAN port</b>   | If set to "Yes", the GXW400x will respond to the PING command from other computers, but it also is vulnerable to the DOS attack. Default is <b>No</b> .                                                        |
| <b>WAN side HTTP/Telnet Access</b> | If set to "Yes", user can access the configuration page through the WAN port, instead of through the "PC" port. <u>Warning</u> : this configuration is less secure than default option. Default is <b>No</b> . |
| <b>Cloned WAN MAC Addr</b>         | This allows you to change/set the MAC address on the WAN interface.                                                                                                                                            |
| <b>Enable LAN DHCP</b>             | Default is Yes.                                                                                                                                                                                                |
| <b>LAN Subnet Mask</b>             | Sets the LAN subnet mask. Default value is 255.255.255.0                                                                                                                                                       |
| <b>LAN DHCP Base IP</b>            | Base IP for the LAN port which functions as a Gateway for the subnet. Default value is <b>192.168.2.1</b> .                                                                                                    |
| <b>LAN DHCP Start IP</b>           | Default is 100                                                                                                                                                                                                 |
| <b>LAN DHCP End IP</b>             | Default is 199                                                                                                                                                                                                 |
| <b>DHCP IP Lease Time</b>          | Value is set in units of hours. Default value is <b>120 hrs</b> (5 Days.) The time IP address is assigned to the LAN clients.                                                                                  |
| <b>DMZ IP</b>                      | Forward all WAN IP traffic to a specific IP address if no matching port is used by GXW400x or defined in port forwarding.                                                                                      |
| <b>Port Forwarding</b>             | Forwards a matching (TCP/UDP) port to a specific LAN IP address with a specific (TCP/UDP) port.                                                                                                                |

In addition to the Basic Settings configuration page, the end user also has access to the Device Status page.

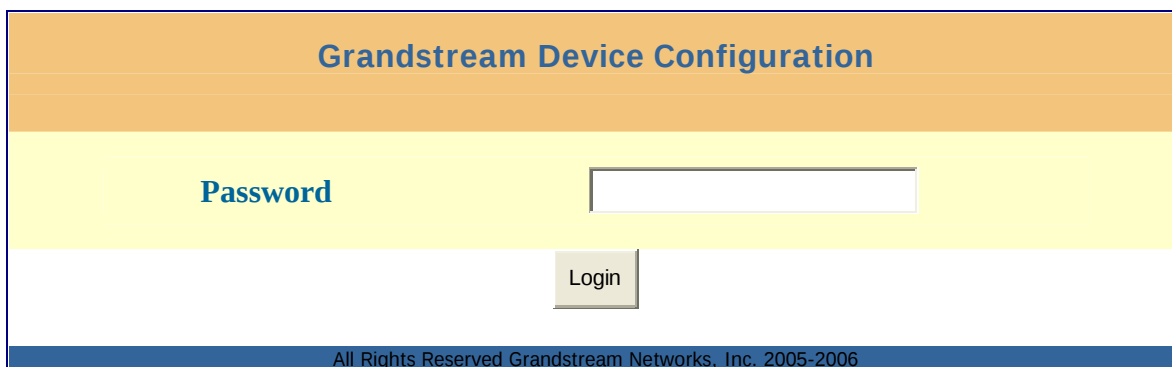
**TABLE 8: STATUS PAGE DEFINITIONS**

| MAC Address      | The device ID in HEX format. This is needed for ISP troubleshooting. Note there are separate MAC addresses for the WAN side and the LAN side. The LAN MAC address will be used for provisioning and can be found on the label coming with original box and on the label located on the bottom panel of the device.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |      |              |              |                 |              |                 |      |         |            |    |     |  |  |      |          |            |    |  |     |  |      |         |                |    |  |  |  |      |         |            |     |  |  |     |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------|--------------|--------------|-----------------|--------------|-----------------|------|---------|------------|----|-----|--|--|------|----------|------------|----|--|-----|--|------|---------|----------------|----|--|--|--|------|---------|------------|-----|--|--|-----|
| WAN IP Address   | Shows WAN IP address of GXW400x                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                |      |              |              |                 |              |                 |      |         |            |    |     |  |  |      |          |            |    |  |     |  |      |         |                |    |  |  |  |      |         |            |     |  |  |     |
| Product Model    | Contains the product model info.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                |      |              |              |                 |              |                 |      |         |            |    |     |  |  |      |          |            |    |  |     |  |      |         |                |    |  |  |  |      |         |            |     |  |  |     |
| Software Version | Program: This is the main software release. Boot and Loader are not changed often.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |      |              |              |                 |              |                 |      |         |            |    |     |  |  |      |          |            |    |  |     |  |      |         |                |    |  |  |  |      |         |            |     |  |  |     |
| System Up Time   | Shows system up time since the last reboot.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                |      |              |              |                 |              |                 |      |         |            |    |     |  |  |      |          |            |    |  |     |  |      |         |                |    |  |  |  |      |         |            |     |  |  |     |
| PPPoE Link Up    | Shows whether the PPPoE connection is running if connected to DSL modem.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                |      |              |              |                 |              |                 |      |         |            |    |     |  |  |      |          |            |    |  |     |  |      |         |                |    |  |  |  |      |         |            |     |  |  |     |
| NAT              | Shows type of NAT the GXW400x is connected to via its WAN port. It is based on STUN protocol.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |      |              |              |                 |              |                 |      |         |            |    |     |  |  |      |          |            |    |  |     |  |      |         |                |    |  |  |  |      |         |            |     |  |  |     |
| Port Status      | <div>Displays relevant information regarding the individual FXS ports. <u>Example</u>:</div> <table><tr><th>Port</th><th>Hook</th><th>Registration</th><th>DND</th><th>Forward</th><th>Busy Forward</th><th>Delayed Forward</th></tr><tr><td>FXS1</td><td>On Hook</td><td>Registered</td><td>No</td><td>613</td><td></td><td></td></tr><tr><td>FXS2</td><td>Off Hook</td><td>Registered</td><td>No</td><td></td><td>614</td><td></td></tr><tr><td>FXS3</td><td>On Hook</td><td>Not Registered</td><td>No</td><td></td><td></td><td></td></tr><tr><td>FXS4</td><td>On Hook</td><td>Registered</td><td>Yes</td><td></td><td></td><td>615</td></tr></table> <div>** FXS port 4 user has set Do Not Disturb.<br/>FXS port 1 user has set his calls to be forwarded unconditionally to ext 613<br/>FXS port 2 user has set his calls to be forwarded to 614 when his phone is busy.<br/>FXS port 3 user is not registered with his SIP Server.</div> | Port           | Hook | Registration | DND          | Forward         | Busy Forward | Delayed Forward | FXS1 | On Hook | Registered | No | 613 |  |  | FXS2 | Off Hook | Registered | No |  | 614 |  | FXS3 | On Hook | Not Registered | No |  |  |  | FXS4 | On Hook | Registered | Yes |  |  | 615 |
| Port             | Hook                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Registration   | DND  | Forward      | Busy Forward | Delayed Forward |              |                 |      |         |            |    |     |  |  |      |          |            |    |  |     |  |      |         |                |    |  |  |  |      |         |            |     |  |  |     |
| FXS1             | On Hook                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Registered     | No   | 613          |              |                 |              |                 |      |         |            |    |     |  |  |      |          |            |    |  |     |  |      |         |                |    |  |  |  |      |         |            |     |  |  |     |
| FXS2             | Off Hook                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Registered     | No   |              | 614          |                 |              |                 |      |         |            |    |     |  |  |      |          |            |    |  |     |  |      |         |                |    |  |  |  |      |         |            |     |  |  |     |
| FXS3             | On Hook                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Not Registered | No   |              |              |                 |              |                 |      |         |            |    |     |  |  |      |          |            |    |  |     |  |      |         |                |    |  |  |  |      |         |            |     |  |  |     |
| FXS4             | On Hook                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Registered     | Yes  |              |              | 615             |              |                 |      |         |            |    |     |  |  |      |          |            |    |  |     |  |      |         |                |    |  |  |  |      |         |            |     |  |  |     |

## ADVANCED USER SETTINGS

Log-in to the Advanced User Configuration Page the same way as for the basic configuration page. Log-in using the following default password: “**admin**”.

**FIGURE 3: SCREENSHOT OF ADVANCED USER CONFIGURATION LOGIN SCREEN**



The screenshot shows the 'Grandstream Device Configuration' login screen. It features a yellow header with the title 'Grandstream Device Configuration'. Below the header is a yellow section with the label 'Password' and a text input field. Underneath the input field is a 'Login' button. At the bottom of the screen, there is a blue footer bar containing the text 'All Rights Reserved Grandstream Networks, Inc. 2005-2006'.

Advanced User configuration includes the end user configuration and advanced configurations including: SIP configuration, Codec selection, NAT Traversal Setting and other miscellaneous configuration.

**Table 9: Advanced Configuration Page Definitions**

|                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Admin Password</b>                          | Administrator password. Only the administrator can configure the “Advanced Settings” page. Password field is purposely left blank for security reasons after clicking update and saved. The maximum password length is 25 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Layer 3 QoS</b>                             | This field defines the layer 3 QoS parameter which can be the value used for IP Precedence or Diff-Serv or MPLS. Default value is <b>48</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Layer 2 QoS</b>                             | Value used for layer 2 VLAN tag. Default setting is <b>blank</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>STUN Server</b>                             | IP address or Domain name of the STUN server.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Keep-alive interval</b>                     | This parameter specifies how often the GXW400x sends a blank UDP packet to the SIP server to keep the “hole” on the NAT open. Default is <b>20 seconds</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Firmware Upgrade &amp; Provisioning</b>     | Enables GXW400x to download firmware or configuration file through either the TFTP or HTTP server.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Via TFTP Server</b>                         | <p>This is the IP address of the configured TFTP server. If selected and it is non-zero or not blank, the GXW400x retrieves the new configuration file or new code image from the specified TFTP server at boot time. After 5 attempts, the system will timeout and then it will start the boot process using the existing code image in the Flash memory. If a TFTP server is configured and a new code image is retrieved, the new downloaded image is saved into the Flash memory.</p> <p><u>Note:</u> Please do NOT interrupt the TFTP upgrade process (especially the power supply) as this will damage the device. Depending on the network environment this process can take up to 15 or 20 minutes.</p> |
| <b>Via HTTP Server</b>                         | <p>The URL for the HTTP server used for firmware upgrade and configuration via HTTP.<br/> <i>For example,</i> ttp://provisioning.mycompany.com:6688/Grandstream/1.0.0.67<br/>         “:6688” is the specific TCP port where the HTTP server is listening; it can be omitted if using default port 80.</p> <p><u>Note:</u> If Auto Upgrade is set to No, GXW400x will only do HTTP download once at boot up.</p>                                                                                                                                                                                                                                                                                                |
| <b>Firmware Server Path</b>                    | IP address or domain name of firmware server.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Config Server Path</b>                      | IP address or domain name of configuration server.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Firmware File Prefix</b>                    | Default is blank. If configured, GXW400x will request firmware file with the prefix. This setting is useful for ITSPs. End user should keep it blank.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Firmware File Postfix</b>                   | Default is blank. End user should keep it blank.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Config File Prefix</b>                      | Default is blank. End user should keep it blank.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Config File Postfix</b>                     | Default is blank. End user should keep it blank.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Allow DHCP Option 66 to override server</b> | If set to “Yes”, configuration and upgrade server’s information can be obtained using DHCP option 66 from DHCP server located in customer’s environment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Automatic Upgrade</b>                       | Choose “Yes” to enable automatic upgrade and provisioning. In “Check for new firmware every” field, enter the number of days to enable GXW400x to check the server for firmware upgrade or configuration in the defined period of days. When set to No, GXW400x will only do upgrade once at boot up. “Always check for New Firmware.” Check New Firmware only when F/W pre/suffix changes”                                                                                                                                                                                                                                                                                                                     |

|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Authenticate Conf File</b>       | If set to Yes, config file is authenticated before acceptance. This protects the configuration from an unauthorized change.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Firmware Key</b>                 | For firmware encryption. It should be 32 digit in Hexadecimal Representation. End user should keep it blank.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>SSL Certificate</b>              | The GXW400x series supports SIP over TLS. It has built-in private key and SSL certificate. The user specified SSL certificate used for SIP over TLS is in X.509 format.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>SSL Private Key</b>              | You may also customize the SSL Private Key. The user specified SSL private key used for SIP over TLS is in X.509 format.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>SSL Private Key Password</b>     | Enter SSL Private Key password here.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>System Ring Cadence</b>          | Configuration option for all FXS ports ring cadence for all incoming calls. (Syntax: c=on1/off1-on2/off2-on3/off3; [...]) Default is set to c=2000/4000; (US standards)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Call Progress Tones</b>          | <p>Using these settings, user can configure tone frequencies according to user preference. By default, the tones are set to North American frequencies. Frequencies should be configured with known values to avoid uncomfortable high pitch sounds. ON is the period of ringing (ON time in ms) while OFF is the period of silence. In order to set a continuous ring, OFF should be zero. Otherwise it will ring ON ms and a pause of OFF ms and then repeat the pattern.</p> <ul style="list-style-type: none"> <li>• “Dial tone”</li> <li>• “Ringback tone”</li> <li>• “Busy/Re-order tone”</li> <li>• “Confirmation tone”</li> </ul> <p>Please refer the document below to determine your local call progress tones:-<br/><a href="http://www.itu.int/ITU-T/inr/forms/files/tones-0203.pdf">http://www.itu.int/ITU-T/inr/forms/files/tones-0203.pdf</a></p> |
| <b>Lock Keypad Update</b>           | If set to “Yes”, the configuration update via keypad is disabled.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Disable Voice Prompt</b>         | Disables the voice prompt configuration. Default is “No”. If set to “Yes” accessing integrated voice menu will be impossible.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Disable Direct IP-IP Calling</b> | Disables the Direct IP Call function. Default is “No”. If set to “Yes” to make direct IP call will be impossible.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Lifeline Mode</b>                | <p>Life line feature ensures user can place/receive a PSTN call in an emergency situation.</p> <ol style="list-style-type: none"> <li>1. If set to “<b>Auto</b>”, in case of power loss or loss of SIP registration, the PSTN line will be seamlessly connected to analog phone connected to FXS port.</li> <li>2. If set to “<b>Always Connected</b>” the PSTN line will be always connected to the phone connected to FXS port. VoIP calls will not be allowed in this configuration.</li> <li>3. If set to “<b>Always Disconnected</b>”, user can only place VoIP calls, regardless of any power loss and/or SIP registration problems. User will be <u>unable</u> to place/receive any PSTN calls.</li> </ol>                                                                                                                                                |
| <b>Failover to FXO Gateway</b>      | This feature allows users to place an outgoing PSTN call in case there is a loss of registration (SIP server unreachable) of all FXS profiles. If set to “YES”, when GW recognizes a loss of registration, all outgoing calls will be routed over the to preconfigured FXO gateway.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>FXO Gateway</b>                  | IP Address or URI of the FXO GW.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>NTP server</b>                   | URI or IP address of the NTP (Network Time Protocol) server. Used by the phone to synchronize the date and time.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Syslog Server</b>                | The IP address or URL of System log server. This feature is especially useful for the ITSP (Internet Telephone Service Provider)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

|                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syslog Level</b>                  | <p>Select the GXW400x to report the log level. Default is NONE. The level is one of DEBUG, INFO, WARNING or ERROR. Syslog messages are sent based on the following events:</p> <ol style="list-style-type: none"> <li>1. product model/version on boot up (INFO level)</li> <li>2. NAT related info (INFO level)</li> <li>3. sent or received SIP message (DEBUG level)</li> <li>4. SIP message summary (INFO level)</li> <li>5. inbound and outbound calls (INFO level)</li> <li>6. registration status change (INFO level)</li> <li>7. negotiated codec (INFO level)</li> <li>8. Ethernet link up (INFO level)</li> <li>9. SLIC chip exception (WARNING and ERROR levels)</li> <li>10. memory exception (ERROR level)</li> </ol> <p>The Syslog uses USER facility. In addition to standard Syslog payload, it contains the following components:</p> <p>GS_LOG: [device MAC address][error code] error message</p> <p><i>Example:</i> May 19 02:40:38 192.168.1.14 GS_LOG: [00:0b:82:00:a1:be][000] Ethernet link is up</p> |
| <b>Download Device Configuration</b> | <p>This setting allows user to download a text file containing all the P values of each setting as configured on the unit.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

**TABLE 10: FXS PORTS CONFIGURATION DEFINITIONS**

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>FXS Port</b>        | FXS Port Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>SIP User ID</b>     | User account information, provided by VoIP service provider (ITSP). Usually in the form of digit similar to phone number or actually a phone number.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Authenticate ID</b> | SIP service subscriber's Authenticate ID used for authentication. Can be identical to or different from SIP User ID.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Password</b>        | SIP service subscriber's account password for GXW400x to register to (SIP) servers of ITSP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Name</b>            | Any Name to identify this specific user.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Profile ID</b>      | Select the corresponding Profile ID (1/2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Hunting Group</b>   | <p>This feature enables the gateway to register all existing FXS ports with the same phone number. Each incoming call will be routed to first available port in round robin mode. User may configure all ports as members of the same Hunt Group or it may configure different port combinations for more than one Hunt Group.</p> <p><u>For example:</u> Ports 1, 3 and 5 may be members of the same hunt group, the rest of the ports may have separate numbers and may be reached independently.</p> <p>Select appropriate value for Hunting Group feature. The original SIP account should be set to Active while the group members should be set to the port number of the Active Port.</p> <p><u>Example configuration of a multiple hunt group:</u></p> <p>FXS Port #1: SIP UserID and Authenticate ID entered, Hunting group set to "<b>Active</b>"<br/> FXS Port #2: SIP UserID and Authenticate ID left blank, Hunting Group set to "<b>1</b>"<br/> FXS Port #3: SIP UserID and Authenticate ID left blank, Hunting Group set to "<b>1</b>"<br/> FXS Port #4: SIP UserID and Authenticate ID entered, Hunting group set to "<b>Active</b>"<br/> FXS Port #5: SIP UserID and Authenticate ID left blank, Hunting Group set to "<b>4</b>"<br/> FXS Port #6: SIP UserID and Authenticate ID left blank, Hunting Group set to "<b>4</b>"<br/> FXS Port #7: SIP UserID and Authenticate ID entered, Hunting group set to "<b>Active</b>"<br/> FXS Port #8: SIP UserID and Authenticate ID left blank, Hunting Group set to "<b>7</b>"<br/> Hunt Group 1 contains ports 1, 2, 3. Hunt Group 4 contains ports 4, 5, 6. Hunt Group 7 contains ports 7, 8.</p> |

**TABLE 11: PROFILE PAGE DEFINITIONS**

|                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Profile Active</b>                 | When set to Yes the SIP Profile is activated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>SIP Server</b>                     | SIP Server's IP address or Domain name provided by VoIP service provider.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Outbound Proxy</b>                 | IP address or Domain name of Outbound Proxy, or Media Gateway, or Session Border Controller. Used by GXW400x for firewall or NAT penetration in different network environments. If symmetric NAT is detected, STUN will not work and ONLY outbound proxy can correct the problem.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>SIP transport</b>                  | User can select UDP or TCP or TLS. Please make sure you're SIP Server or network environment supports SIP over the selected transport method. Default is UDP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>NAT Traversal</b>                  | <p>This parameter defines whether the GXW400x NAT traversal mechanism is activated or not. If activated (by choosing "Yes") and a STUN server is also specified, then the GXW400x performs according to the STUN client specification. Under this mode, the embedded STUN client will detect if and what type of firewall/NAT is being used. If the detected NAT is a Full Cone, Restricted Cone, or a Port-Restricted Cone, the GXW400x will use its mapped public IP address and port in all of its SIP and SDP messages.</p> <p>If the NAT Traversal field is set to "Yes" <i>with no specified STUN server</i>, the GXW400x will periodically (every 20 seconds or so) send a blank UDP packet (with no payload data) to the SIP server to keep the "hole" on the NAT open.</p> |
| <b>Use DNS SRV:</b>                   | Default is <b>No</b> . If set to "Yes" the client will use DNS SRV to look up server.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>User ID is Phone Number</b>        | If the GXW400x has an assigned PSTN telephone number, this field should be set to "Yes". Otherwise, set it to "No". If "Yes" is set, a "user=phone" parameter will be attached to the "From" header in SIP request.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>SIP Registration</b>               | This parameter controls whether the GXW400x needs to send REGISTER messages to the proxy server. The default setting is "Yes".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Unregister on Reboot</b>           | Default is <b>No</b> . If set to "Yes", the SIP user's registration information is cleared on reboot.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Outgoing Call w/o Registration</b> | Default is <b>No</b> . If set to "Yes," user can place outgoing calls even when not registered (if allowed by ITSP) but is unable to receive incoming calls.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Register Expiration</b>            | Allows the user to specify the time frequency (in minutes) for the GXW400x to refresh its registration with the specified registrar. The default interval is 60 minutes (or 1 hour). The maximum interval is 65535 minutes (about 45 days).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Local SIP port</b>                 | Defines the local SIP port the GXW400x will listen and transmit. The default value for Profile 1 is 5060 and 6060 for Profile 2.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Local RTP Port</b>                 | Defines the local RTP-RTCP port pair the GXW400x will listen and transmit. It is the base RTP port for channel 0. When configured, channel 0 will use this port_value for RTP and the port_value+1 for its RTCP; channel 1 will use port_value+2 for RTP, port_value+3 for its RTCP and so on. The default value for Profile 1 is 5004 and 6004 for Profile 2.                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Use random port</b>                | Default is <b>No</b> . If set to Yes, the device will pick randomly-generated SIP and RTP ports. This is usually necessary when multiple HandyTone ATAs are behind the same NAT.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Refer to Use Target Contact</b>    | Default is <b>NO</b> . If set to YES, then for Attended Transfer, the "Refer-To" header uses the transferred target's Contact header information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Validate incoming message</b>      | Default is <b>No</b> . If set to yes all incoming SIP messages will be strictly validated according to RFC rules. If message does not pass validation process, call will be rejected.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

|                                          |                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SIP T1 Timeout</b>                    | T1 is an estimate of the round-trip time between the client and server transactions. If the network latency is high, select larger value for more reliable usage.                                                                                                                                                                                                      |
| <b>SIP T2 Interval</b>                   | Maximum retransmission interval for non-INVITE requests and INVITE responses.                                                                                                                                                                                                                                                                                          |
| <b>DTMF Payload Type</b>                 | Sets the payload type for DTMF using RFC2833.                                                                                                                                                                                                                                                                                                                          |
| <b>DTMF in-audio</b>                     | Send DTMF as inband (in-audio).                                                                                                                                                                                                                                                                                                                                        |
| <b>DTMF via RFC2833</b>                  | Send DTMF via RTP (According to RFC 2833).                                                                                                                                                                                                                                                                                                                             |
| <b>DTMF via SIP INFO</b>                 | Send DTMF via SIP INFO message.                                                                                                                                                                                                                                                                                                                                        |
| <b>Send Hook Flash Event</b>             | Default is <b>NO</b> . If set to yes, flash will be sent as DTMF event.                                                                                                                                                                                                                                                                                                |
| <b>Enable Call Features</b>              | Default is <b>Yes</b> . (If Yes, call features using star codes will be supported locally)                                                                                                                                                                                                                                                                             |
| <b>Off-Hook Auto Dial</b>                | Allows the user to configure a User ID or extension number to be automatically dialed upon off-hook. Only the user part of a SIP address needs to be entered here. The phone will automatically append the "@" and the host portion of the corresponding SIP address.                                                                                                  |
| <b>Proxy Require</b>                     | SIP Extension to notify SIP server that the unit is behind the NAT/Firewall.                                                                                                                                                                                                                                                                                           |
| <b>Use NAT IP</b>                        | NAT IP address used in SIP/SDP message. Default is blank.                                                                                                                                                                                                                                                                                                              |
| <b>Distinctive Ringtone</b>              | Custom Ring Tone 1 to 3 with associate Caller ID: when selected, if Caller ID is configured, then the device will <b>ONLY</b> uses this ring tone when the incoming call is from the Caller ID. System Ring Tone is used for all other calls. When selected but no Caller ID is configured, the selected ring tone will be used for <b>all</b> incoming calls.         |
| <b>Disable Call Waiting</b>              | Default is <b>No</b> .                                                                                                                                                                                                                                                                                                                                                 |
| <b>Disable Call Waiting Tone</b>         | Default is <b>No</b> . This is to disable the stutter Call Waiting Tone when a Call Waiting call arrives. The CWCID will still be displayed.                                                                                                                                                                                                                           |
| <b>Disable Visual MWI</b>                | Visual message indicator is a special on-hook caller ID type message that enables and disables the message waiting light on certain phones. GXW400x has this feature enabled by default. However, certain phones (rare) that do not support it may mistakenly treat this CID signal as an incoming call. A configuration option is needed to turn on MWI in this case. |
| <b>Ring Timeout</b>                      | Incoming call will stop ringing when not picked up given a specific period of time.                                                                                                                                                                                                                                                                                    |
| <b>Hunting Group Ring Timeout</b>        | Default is <b>20 seconds</b> . If call is not answered within this designated time period, the call will be forwarded to the next member of a Hunt Group.                                                                                                                                                                                                              |
| <b>Delayed Call Forward Wait Timeout</b> | Default is <b>20 seconds</b> .                                                                                                                                                                                                                                                                                                                                         |
| <b>No Key Entry Timeout</b>              | Default is <b>4 seconds</b> . Call will be completed within this time interval if no additional key entry occurs.                                                                                                                                                                                                                                                      |

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Early Dial</b>               | <p>Default is <b>No</b>. Use only if proxy supports 484 response. This parameter controls whether the phone will send an early INVITE each time a key is pressed when a user dials a number. If set to "Yes", an INVITE is sent using the dial-number collected thus far; Otherwise, no INVITE is sent until the "(Re-)Dial" button is pressed or after about 5 seconds have elapsed if the user forgets to press the "Re-Dial" button. The "Yes" option should be used ONLY if there is a SIP proxy configured and the proxy server supports 484 Incomplete Address response. Otherwise, the call will likely be rejected by the proxy (with a 404 Not Found error).</p> <p><u><i>This feature is NOT designed to work with and should NOT be enabled for direct IP-to-IP calling.</i></u></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Dial Plan Prefix</b>         | Sets the prefix added to each dialed number.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Use # as Dial Key</b>        | Allows users to configure the "#" key as the "Send" (or "Dial") key. If set to "Yes", "#" will send the number. In this case, this key is essentially equivalent to the "Dial" key. If set to "No", this "#" key can be included as part of number.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Dial Plan</b>                | <p><b>Dial Plan Rules:</b></p> <ol style="list-style-type: none"> <li>Accept Digits: 1,2,3,4,5,6,7,8,9,0 , *, #, A,a,B,b,C,c,D,d</li> <li>Grammar: x - any digit from 0-9; <ol style="list-style-type: none"> <li>xx+ - at least 2 digits number;</li> <li>xx. – at least 2 digits number;</li> <li>^ - exclude;</li> <li>[3-5] - any digit of 3, 4, or 5;</li> <li>[147] - any digit 1, 4, or 7;</li> <li>&lt;2=011&gt; - replace digit 2 with 011 when dialing</li> </ol> <ul style="list-style-type: none"> <li><b>Example 1:</b> {[369]11   1617xxxxxxx} –<br/>Allow 311, 611, 911, and any 10 digit numbers of leading digits 1617</li> <li><b>Example 2:</b> {^1900x+   &lt;=1617&gt;xxxxxxx} –<br/>Block any number of leading digits 1900 and add prefix 1617 for any dialed 7 digit numbers</li> <li><b>Example 3:</b> {1xxx[2-9]xxxxxx   &lt;2=011&gt;x+} –<br/>Allow any length of number with leading digit 2 and 10 digit-numbers of leading digit 1 and leading exchange number between 2 and 9; If leading digit is 2, replace leading digit 2 with 011 before dialing.</li> </ul> </li> <li>Default: Outgoing - {x+}</li> </ol> <p><u>Example of a simple dial plan used in a Home/Office in the US:</u></p> <p><b>{ ^1900x.   &lt;=1617&gt;[2-9]xxxxxx   1[2-9]xx[2-9]xxxxxx   011[2-9]x.   [3469]11 }</b></p> <p><b>Explanation</b> of example rule (reading from left to right):</p> <ul style="list-style-type: none"> <li><b>^1900x.</b> - prevents dialing any number started with 1900</li> <li><b>&lt;=1617&gt;[2-9]xxxxxx</b> - allows dialing to local area code (617) numbers by dialing 7 numbers and 1617 area code will be added automatically</li> <li><b>1[2-9]xx[2-9]xxxxxx  </b> - allows dialing to any US/Canada Number with 11 digits length</li> <li><b>011[2-9]x.</b> - allows international calls starting with 011</li> <li><b>[3469]11</b> - allow dialing special and emergency numbers 311, 411, 611 and 911</li> </ul> |
| <b>Subscribe for MWI</b>        | Default is <b>No</b> . When set to "Yes" a SUBSCRIBE for Message Waiting Indication will be sent periodically.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Send Anonymous</b>           | If this parameter is set to "Yes", the "From" header along with Privacy and P_Asserted_Identity headers in outgoing INVITE message will be set to anonymous, blocking Caller ID.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Anonymous Call Rejection</b> | Default is <b>No</b> . If set to Yes, incoming calls with anonymous Caller ID will be rejected with 486 Busy message.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

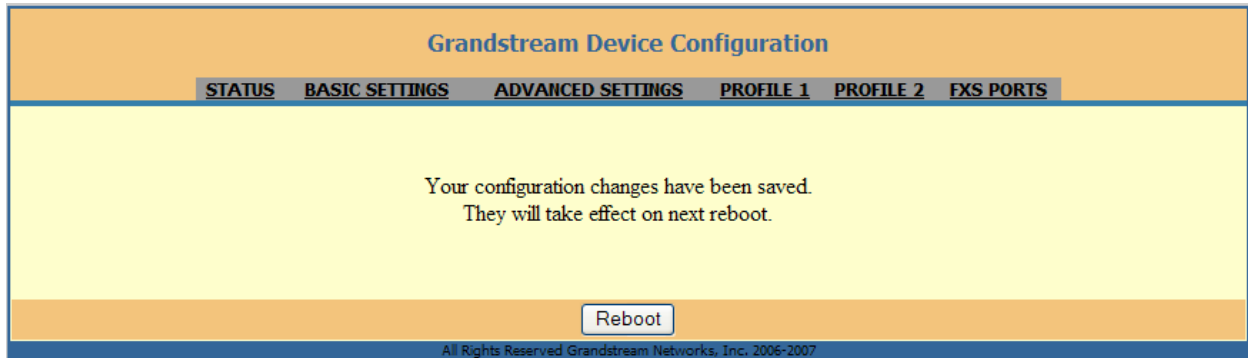
|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Special Feature</b>        | Default is <b>Standard</b> . Choose the selection to meet some special requirements from Softswitch vendors. Example of vendors - CBCOM, RNK.                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Session Expiration</b>     | <p>Grandstream implemented SIP Session Timer. The session timer extension enables SIP sessions to be periodically “refreshed” via a SIP request (UPDATE, or re-INVITE. When the session interval expires, if there is no refresh via a UPDATE or re-INVITE message, the session will be terminated.</p> <p>Session Expiration is the time (in seconds) at which the session is considered timed out, if no successful session refresh transaction occurs beforehand. The default value is <b>180 seconds</b>.</p> |
| <b>Min-SE</b>                 | The minimum session expiration (in seconds). The default value is <b>90 seconds</b> .                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Caller Request Timer</b>   | If selecting “Yes” the phone will use session timer when it makes outbound calls if remote party supports session timer.                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Callee Request Timer</b>   | If selecting “Yes” the phone will use session timer when it receives inbound calls with session timer request.                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Force Timer</b>            | <p>If selecting “Yes” the phone will use session timer even if the remote party does not support this feature. Selecting “No” will allow the phone to enable session timer only when the remote party support this feature.</p> <p>To turn off Session Timer, select “No” for Caller Request Timer, Callee Request Timer, and Force Timer.</p>                                                                                                                                                                    |
| <b>UAC Specify Refresher</b>  | As a Caller, select UAC to use the phone as the refresher, or UAS to use the Callee or proxy server as the refresher.                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>UAS Specify Refresher</b>  | As a Callee, select UAC to use caller or proxy server as the refresher, or UAS to use the phone as the refresher.                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Force INVITE</b>           | Session Timer can be refreshed using INVITE method or UPDATE method. Select “Yes” to use INVITE method to refresh the session timer.                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Preferred Vocoder</b>      | The GXW400x supports up to 5 different Vocoder types including G.711 A-/U-law, G.726 (Supports bit rates 16, 24, 32 and 40), G.723.1, G.729A/B/E and iLBC. The user can configure Vocoders in a preference list that will be included with the same preference order in SDP message. The first Vocoder is entered by choosing the appropriate option in “Choice 1”. The last Vocoder is entered by choosing the appropriate option in “Choice 8”.                                                                 |
| <b>G723 Rate</b>              | Defines the encoding rate for G.723 vocoder. By default, 6.3kbps rate is chosen.                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>iLBC Frame Size</b>        | Sets the iLBC frame size in 20ms or 30ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>iLBC Payload type</b>      | Default value is <b>97</b> . Defines payload type for iLBC. The valid range is between 96 and 127.                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>G726-16 Payload type</b>   | Default value is <b>98</b> . Range is from 96 to 127.                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>G726 - 24 Payload type</b> | Default value is <b>99</b> . Range is from 96 to 127.                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>G726 - 32 Payload type</b> | Default value is <b>100</b> . Range is from 96 to 127.                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>G726 - 40 Payload type</b> | Default value is <b>103</b> . Range is from 96 to 127.                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>G729E payload type</b>     | Default value is <b>102</b> . Range is from 96 to 127.                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>VAD</b>                              | Default is <b>No</b> . VAD allows detecting the absence of audio and conserve bandwidth by preventing the transmission of "silent packets" over the network.                                                                                                                                                                                                                                                                                                   |
| <b>Symmetric RTP</b>                    | Default is <b>No</b> . When set to Yes the device will change the destination to send RTP packets to the source IP address and port of the inbound RTP packet last received by the device.                                                                                                                                                                                                                                                                     |
| <b>Fax Mode</b>                         | T.38 (Auto Detect) FoIP by default, or Pass-Through (must use codec PCMU/PCMA)                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Fax Tone Detection Mode</b>          | Default is Callee. This decides whether Caller or Callee sends out the re-INVITE for T.38 or Fax Pass Through.                                                                                                                                                                                                                                                                                                                                                 |
| <b>Jitter Buffer Type</b>               | Select either Fixed or Adaptive based on network conditions.                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Jitter Buffer Length</b>             | Select Low, Medium or High based on network conditions.                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>SRTP Mode</b>                        | Default is <b>Disabled</b> . Other options are <b>Enabled but not forced</b> , and <b>Enabled and forced</b> .<br><br>It uses SDP Security Description to exchange key. Please refer<br><br>SDES: <a href="http://tools.ietf.org/id/draft-ietf-mmusic-sdescriptions-12.txt">http://tools.ietf.org/id/draft-ietf-mmusic-sdescriptions-12.txt</a><br><br>SRTP: <a href="http://www.apps.ietf.org/rfc/rfc3711.html">http://www.apps.ietf.org/rfc/rfc3711.html</a> |
| <b>SLIC Setting</b>                     | Depends on standard phone type (and location)                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Caller ID Scheme</b>                 | <ul style="list-style-type: none"> <li>• Bellcore/Telcordia</li> <li>• ETSI-DTMF</li> <li>• ETSI-FSK</li> <li>• SIN 227 - BT</li> <li>• NTT Japan</li> </ul>                                                                                                                                                                                                                                                                                                   |
| <b>Polarity Reversal</b>                | Default is <b>No</b> . If set to "Yes", polarity will be reversed upon call establishment and termination.                                                                                                                                                                                                                                                                                                                                                     |
| <b>Loop Current Disconnect</b>          | Set to Yes if the traditional PBX you are using with GXW400x uses this method for signaling call termination. Default is <b>No</b> .                                                                                                                                                                                                                                                                                                                           |
| <b>Loop Current Disconnect duration</b> | Default is <b>200</b> . In 100 - 1 0000 milliseconds range.                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Hook Flash timing</b>                | Time period when the cradle is pressed (Hook Flash) to simulate FLASH. To prevent unwanted activation of the Flash/Hold and automatic phone ring-back, adjust this time value.                                                                                                                                                                                                                                                                                 |
| <b>On Hook Timing</b>                   | On-hook timing is the minimum time for an on-hook event to be validated.                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Gain</b>                             | Handset volume adjustment. RX is for receiving volume (direction FXS→to analog phone), TX is for transmission volume(Analog phone→ to FXS). Default values are <b>0dB</b> for both parameters. Loudest volume: +6dB Lowest volume: -6dB.                                                                                                                                                                                                                       |
| <b>Ring Tones</b>                       | Configure ring cadences according to preference.                                                                                                                                                                                                                                                                                                                                                                                                               |

## SAVING THE CONFIGURATION CHANGES

Once a change is made, press the “Update” button in the Configuration Menu. The following screen will confirm that the changes have been saved. To activate changes, reboot or power cycle the GXW400x after changes are made.

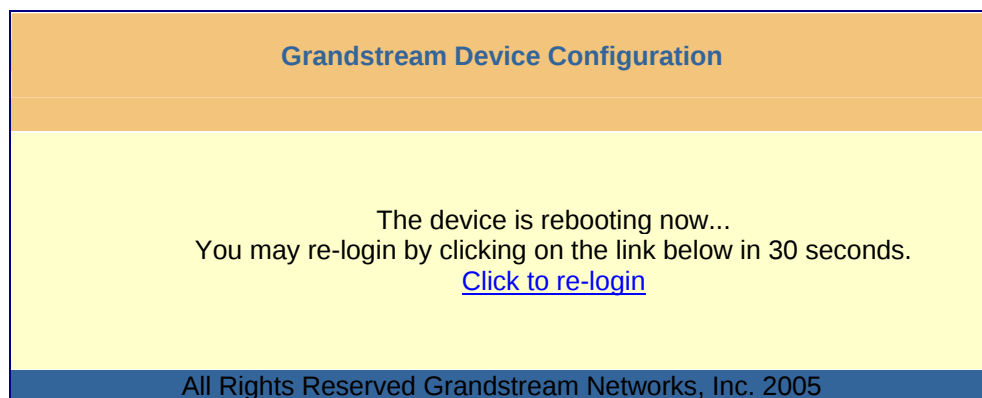
**FIGURE 4: SCREEN-SHOT OF SAVE CONFIGURATION PAGE**



## REBOOTING FROM REMOTE

The administrator can remotely reboot the unit by pressing the “Reboot” button at the bottom of the configuration menu. The user can re-login to the unit after waiting for about 30 seconds.

**FIGURE 5: SCREEN-SHOT OF REBOOTING PAGE**



## CONFIGURATION THROUGH A CENTRAL SERVER

Grandstream GXW400x s can be automatically configured from a central provisioning system.

When the GXW400x boots up, it will send TFTP or HTTP request to download configuration file, "cfg000b82xxxxxx", where "000b82xxxxxx" is the LAN MAC address of the GXW400x .

The configuration files can be downloaded via TFTP or HTTP from the central server. A service provider or an enterprise with large deployment of GXW-400x can easily manage the configuration and service provisioning of individual devices remotely from a central server.

Grandstream has a provisioning system called GAPS (Grandstream Automated Provisioning System) that is used to support automated configuration of Grandstream devices. GAPS uses enhanced (NAT friendly) TFTP or HTTP (thus no NAT issues) and other communication protocols to communicate with each individual Grandstream device for firmware upgrade, remote reboot, etc.

Grandstream provide GAPS (Grandstream Automated Provisioning System) service to VoIP service providers. It could be either simple redirection or with certain special provisioning settings. Initially upon booting up, Grandstream devices by default point to Grandstream provisioning server GAPS, based on the unique MAC address of each device, GAPS provision the devices with redirection settings so that they will be redirected to customer's TFTP or HTTP server for further provisioning. Grandstream also provide GAPSLITE software package which contains our NAT friendly TFTP server and a configuration tool to facilitate the task of generating device configuration files.

The GAPSLITE configuration tool is now free to end users. The tool and configuration template are available for download from <http://www.grandstream.com/configurationtool.html>

## SOFTWARE UPGRADE

Software upgrade can be done via either TFTP or HTTP. The corresponding configuration settings are in the ADVANCED SETTINGS configuration page.

### FIRMWARE UPGRADE THROUGH TFTP/HTTP

To upgrade via TFTP or HTTP, the "Firmware Upgrade and Provisioning upgrade via" field needs to be set to TFTP or HTTP, respectively. "Firmware Server Path" needs to be set to a valid URL of a TFTP or HTTP server, server name can be in either FQDN or IP address format. Here are examples of some valid URL.

e.g. firmware.mycompany.com:6688/Grandstream/1.0.0.67  
e.g. 168.75.215.189

#### NOTES:

- TFTP server in IP address format can be configured via IVR. Please refer to section CONFIGURATION GUIDE for instructions. If TFTP server is in FQDN format, it must be set via web configuration interface.
- Grandstream recommends end-user use the Grandstream TFTP server. Its address can be found at <http://www.grandstream.com/firmware.html>. Currently, the TFTP server, your GXW400x can be upgraded from has an IP address 168.75.215.189. For large companies, we recommend to maintain their own TFTP/ HTTP server for upgrade and provisioning procedures.
- Once a "Firmware Server Path" is set, user needs to update the settings and reboot the device. If the configured firmware server is found and a new code image is available, the GXW400x will attempt to retrieve the new image files by downloading them into the GXW400x's SRAM. During this stage, the GXW400x's LEDs will blink until the checking/downloading process is completed. Upon verification of checksum, the new code image will then be saved into the Flash. If TFTP/HTTP fails for any reason (e.g. TFTP/HTTP server is not responding, there are no code image files available for upgrade, or checksum test fails, etc), the HT ATA will stop the TFTP/HTTP process and simply boot using the existing code image in the flash.
- Firmware upgrade may take as long as 1 to 20 minutes over Internet, or just 20+ seconds if it is performed on a LAN. It is recommended to conduct firmware upgrade in a controlled LAN environment if possible. For users who do not have a local firmware upgrade server, Grandstream provides a NAT-friendly TFTP server on the public Internet for firmware upgrade. Please check the Services section of Grandstream's Web site to obtain our public TFTP server's IP address.
- Alternatively, user can download a free TFTP or HTTP server to upgrade local firmware. Download a free TFTP server (windows version) from <http://support.solarwinds.net/updates/New-customerFree.cfm>. Download a free HTTP server from <http://httpd.apache.org> or use Microsoft IIS web server. Grandstream's latest firmware is available <http://www.grandstream.com/firmware.html>.

#### Directions to Download Server:

1. Unzip the file and put all of them under the root directory of the TFTP server.
2. Put the PC running the TFTP server and the GXW400x device in the same LAN segment.
3. Please go to File -> 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, in the phone's web configuration page.
5. Configure the Firmware Server Path with the IP address of the PC
6. Update the change and reboot the unit.

## CONFIGURATION FILE DOWNLOAD

Grandstream SIP Device can be configured via Web Interface as well as via Configuration File through TFTP or HTTP. "Config Server Path" is the TFTP or HTTP server path for configuration file. It needs to be set to a valid URL, either in FQDN or IP address format. The "Config Server Path" can be same or different from the "Firmware Server Path".

A configuration parameter is associated with each particular field in 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 "Admin Password" in the ADVANCED SETTINGS page. For a detailed parameter list, please refer to the corresponding firmware release configuration template.

When Grandstream Device boots up or reboots, it will issue request for configuration file named "cfgxxxxxxxxxxx", where "xxxxxxxxxxx" is the LAN side MAC address of the device, i.e., "cfg000b820102ab". The configuration file name should be in lower cases.

## FIRMWARE AND CONFIGURATION FILE PREFIX AND POSTFIX

Firmware Prefix and Postfix allows device to download the firmware name with the matching Prefix and Postfix. This makes it the possible to store ALL of the firmware with different version in one single directory. Similarly, Config File Prefix and Postfix allows 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 firmware upgrade request if there are changes in the firmware Prefix or Postfix.

## MANAGING FIRMWARE AND CONFIGURATION FILE DOWNLOAD

When "Automatic Upgrade" is set to "Yes", Service Provider can use P193 to have the devices periodically check with either Firmware Server or Config Server, whenever they are defined. This allows the device periodically check if there are any new changes need to be taken.

Automatic



No



Check every day



Check every week

Upgrade:

## RESTORE FACTORY DEFAULT SETTING

**WARNING!** Restoring the Factory Default Setting will DELETE all configuration information of the phone. Please BACKUP or PRINT out all the settings before you approach to following steps. Grandstream will not take any responsibility if you lose all the parameters of setting and cannot connect to your VoIP service provider.

## FACTORY RESET

There are two (2) methods for resetting your unit:

### Reset Button

Reset default factory settings following these four (4) steps:

1. Unplug the Ethernet cable.
2. Locate a needle-sized hole on the back panel of the gateway unit next to the power connection.
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.

### IVR Command

Reset default factory settings using the IVR Prompt (Table 5):

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.

### Encoding 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:  
0-9: 0-9
  - a. A: 22 (press the “2” key twice, “A” will show on the LCD)
  - b. B: 222
  - c. C: 2222
  - d. D: 33 (press the “3” key twice, “D” will show on the LCD)
  - e. E: 333
  - f. F: 3333

*For example:* if the MAC address is 000**b**8200**e**395, it should be keyed in as “000**222**8200**333**395”.

### NOTE:

1. Factory Reset will be disabled if the “**Lock keypad update**” is set to “Yes”.
2. Please be aware by default the GXW400x WAN side HTTP access is disabled. After a factory reset, the device's web configuration page can be accessed only from its LAN port.