

QUICK START GUIDE

JS200-FX V3.0
Embedded Asterisk Appliance

X100P.com

Revision Sheet

Release No.	Date	Revision Description
Rev. 1	09/14/12	Initial release
Rev. 2	02/13/15	Updated for V3 (default IP changed from 192.168.1.1 to 192.168.10.1)

QUICK NOTE

WAN port = ETH1

LAN port = ETH2

Default LAN IP address = 192.168.10.1.

Default username is **admin**, and the default password is **password**.

Default WIFI SSID is **JS200FX**

Default WIFI mode = "WEP"

Default WEP encryption key = 37373538393436333231353630

USER'S MANUAL

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1.0 OVERVIEW

1.0 OVERVIEW

A featured-rich, low cost Internet Telephony solution in a compact embedded package.

Featuring the first Digium-developed, X100P.com-Enhanced AsteriskGUI™ framework (Accelerated GUI for Asterisk), JS200-FX integrates all the telephony and network needs of a home / small business into a single platform by effectively combining the benefits and reliability of today's high-quality voice infrastructures with access to low-cost VoIP and networking hardware.

Whether you want to add VoIP feature onto your existing network or to evaluate Asterisk solutions before migrating to full solutions, JS200-FX can serve your needs. The JS200-FX can function not only as a standalone embedded Asterisk-based PBX, but also as a drop in replacement of a standalone Wireless Router, or as a Wireless Ethernet Bridge while offering 2 FXS ports for your application. AcceleratedGUI for Asterisk simplifies configuration, management, and fine tuning of your JS200-FX system resulting in reduced support cost and enhanced ROI for your small business.

The JS200-FX is easy-to-install and feature-rich without the expense of a traditional system while providing a Turn-Key Asterisk PBX instance that can be connected anywhere, anytime.

1.1 Technical Specifications

- Embedded Asterisk Server v1.4 with AcceleratedGUI for Asterisk
- Built-in Router (Wired / Wireless) Ideal for Home and Small Offices
- Dual Wireless Antenna
- Standard 2 FXS analog ports
- User Capacity: Up to 4 concurrent calls and users
- PSTN Lifeline for emergency calls on traditional land line
- 2 x 10/100Mbps Ethernet Ports (1 LAN, 1 WAN)
- 802.11b/g Wireless Connectivity
- Power Consumption: 12V / 2A
- Dimensions and Weight: 20.4 x 17.0 x 4.8 cm, 450g
- Shipping Weight: 900g

1.2 Requirements

The AsteriskGUI™ supports the following browsers:

- Firefox
- Chrome
- Safari
- Opera
- IE 11

NOTE: It is NOT recommended to use IE 10 or below with the JS200-FX Embedded Asterisk Appliance.

2.0 UNIT INSTALLATION

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This chapter provides the following information:

- Unpacking the Unit
- Inspecting Your Shipment
- Identifying Communication Ports
- Understanding the LEDs
- Using the Configuration Reset Switch
- Installing the JS200-FX Embedded Asterisk Appliance

2.1 Unpacking the Unit

When you unpack your unit, carefully inspect it for any damage that may have occurred during shipment. If damage is suspected, file a claim with the carrier and contact your reseller from which the unit was purchased or our technical support at <http://www.x100p.com>. Keep the original shipping container to use for future shipment or proof of damage during shipment.

Note: Only qualified service personnel should install the unit. Users should not attempt to perform this function themselves.

2.2 Inspecting Your Shipment

The following items are included in shipment of the JS200-FX Embedded Asterisk Appliance:

- Brand New in Original Box
JS200-FX Embedded VoIP PBX Asterisk Appliance x 1
- Worldwide Universal Voltage (110-220v) Power Adapter x 1
- RJ45 Ethernet cable x 1
- RJ11 Telephone cable x 2
- 1 Year Limited Hardware Warranty

2.3 Identifying Communication Ports

The JS200-FX Embedded Asterisk Appliance unit consists of two RJ11 analog ports which are configured as FXS port, one 802.11b/g wireless module, one 10/100BaseT LAN port and one 10/100BaseT WAN port, providing the necessary functionality to connect to the local network as well as allowing the JS200-FX Embedded Asterisk Appliance to act as a wired/wireless router.

See Figure 1 on page 2-3 to locate the ports.

2.4 Understanding the LEDs

There are 10 LEDs on the front panel of the JS200-FX Embedded Asterisk Appliance. The definition of each LED and its color representation is explained in Table 1.

Table 1: LED Definitions

LED	Color	Description
Power	Green	The unit is powered on.
System	Amber	Saving settings, flashing firmware or other internal system tasks. First time boot-up complete after factory defaults reset
	Off	Normal Operation
ADSL	Off	(Reserved)
WiFi	Green, flashing	Wireless network interface is active
WAN	Green, flashing	WAN network interface is active
	Off	Disconnected or the interface is inactive
LAN	Green, flashing	LAN network interface is active
	Off	Disconnected or the interface is inactive
TEL1	Green	Phone handset is Off-hook
	Off	Phone handset is On-hook or disconnected
TEL2	Green	Phone handset is Off-hook
	Off	Phone handset is On-hook or disconnected
Status	Off	Prior to system boot-up
	Green, flashing Slow	First stage of system boot-up
	Green, flashing Rapid	Second stage of system boot-up
	Green	Boot-up sequence complete and normal operation
USB	Off	(Reserved)

2.5 Using the Configuration Reset Switch

The Configuration Reset (RESET) switch (rear panel) will reset the current JS200-FX Embedded Asterisk Appliance configuration to the factory defaults when pressed. The switch must be pressed and held for **over 15 seconds**. This will force the unit to delete all configuration data. The administrator password will also be reset. See Figure 1 on page 2-3 to locate the **RESET** switch.

NOTE1: Upon successful factory reset and after the first boot-up sequence completes, the System LED would glow to indicate a system clean state. Please power-cycle the unit one more time to reset this indicator.

NOTE2: You can also reset the configuration using the reset menu. See section 3.5.



Caution.

Pressing the RESET switch will cause loss of all configuration settings and reset administration passwords.

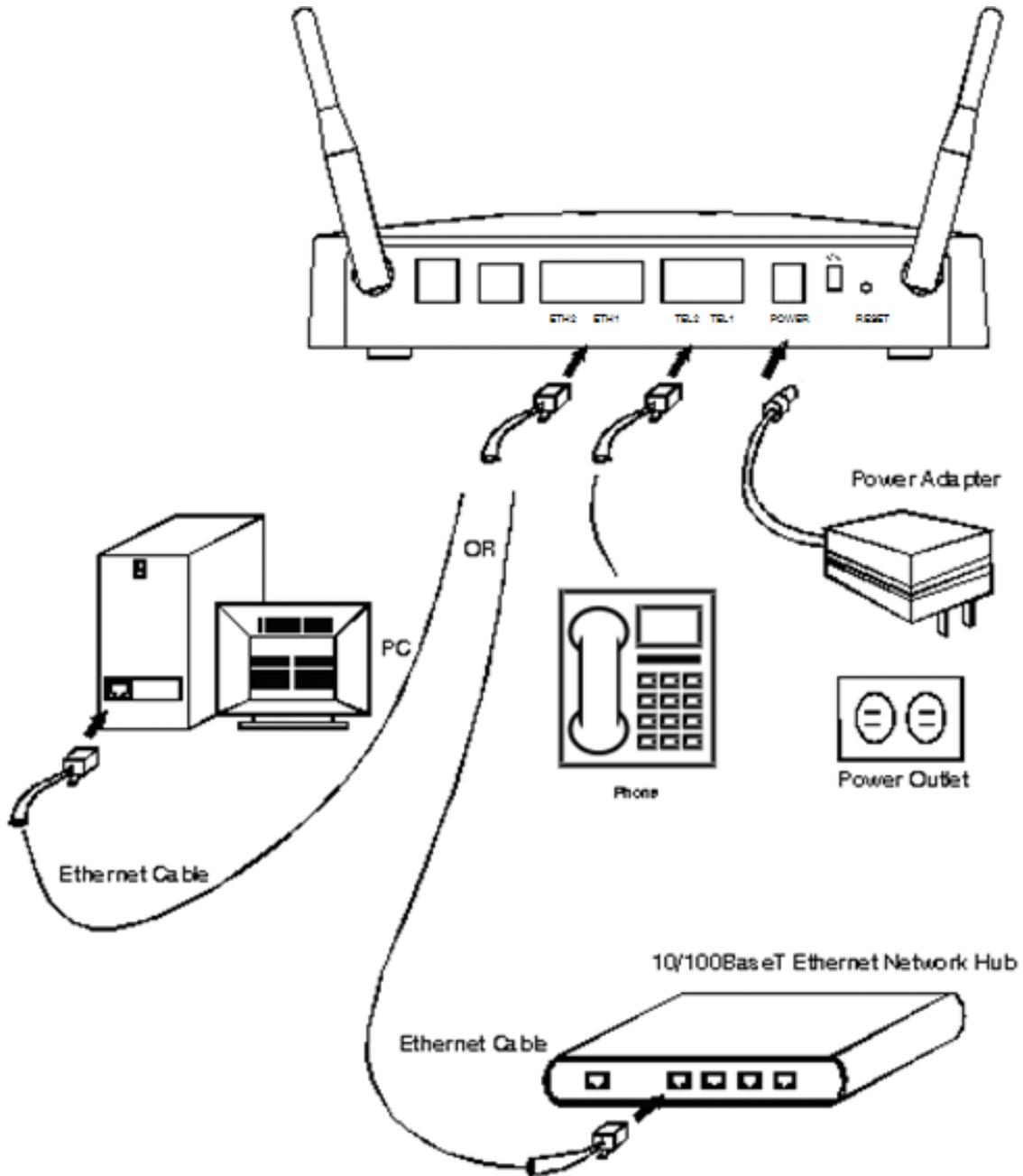
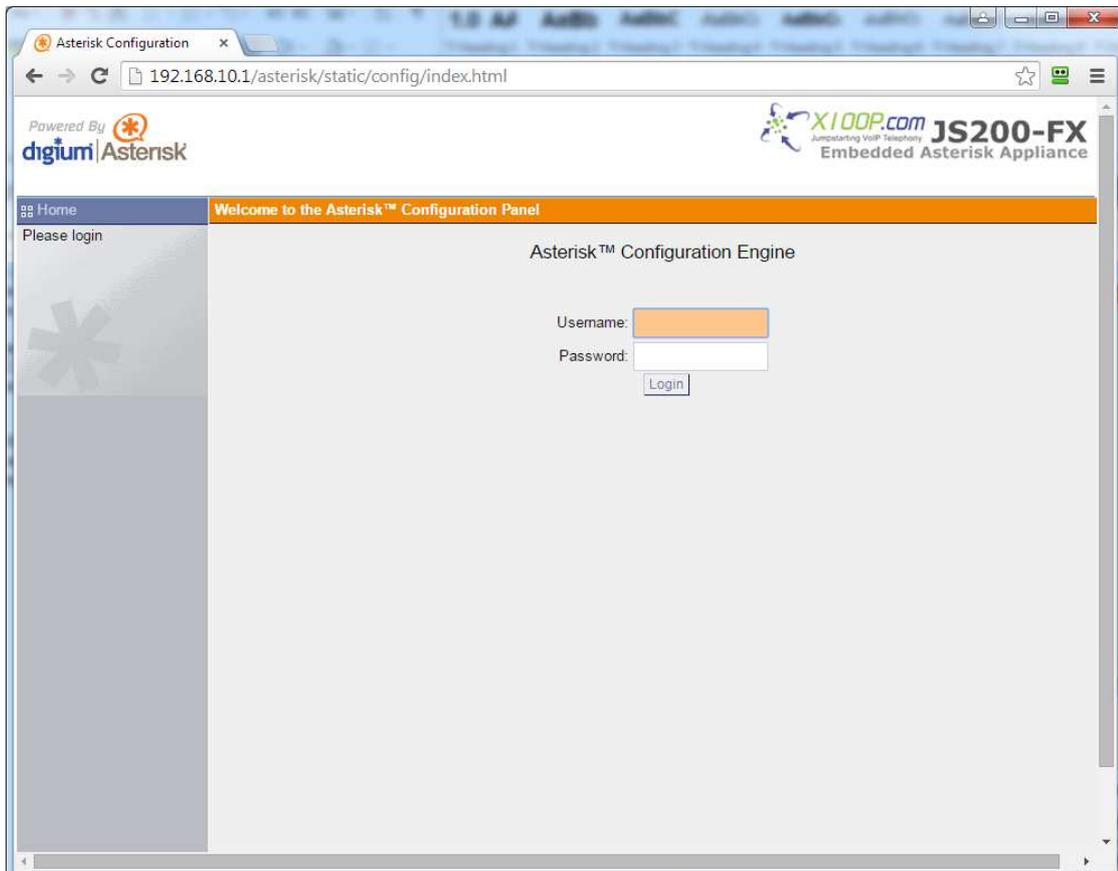


Figure 1

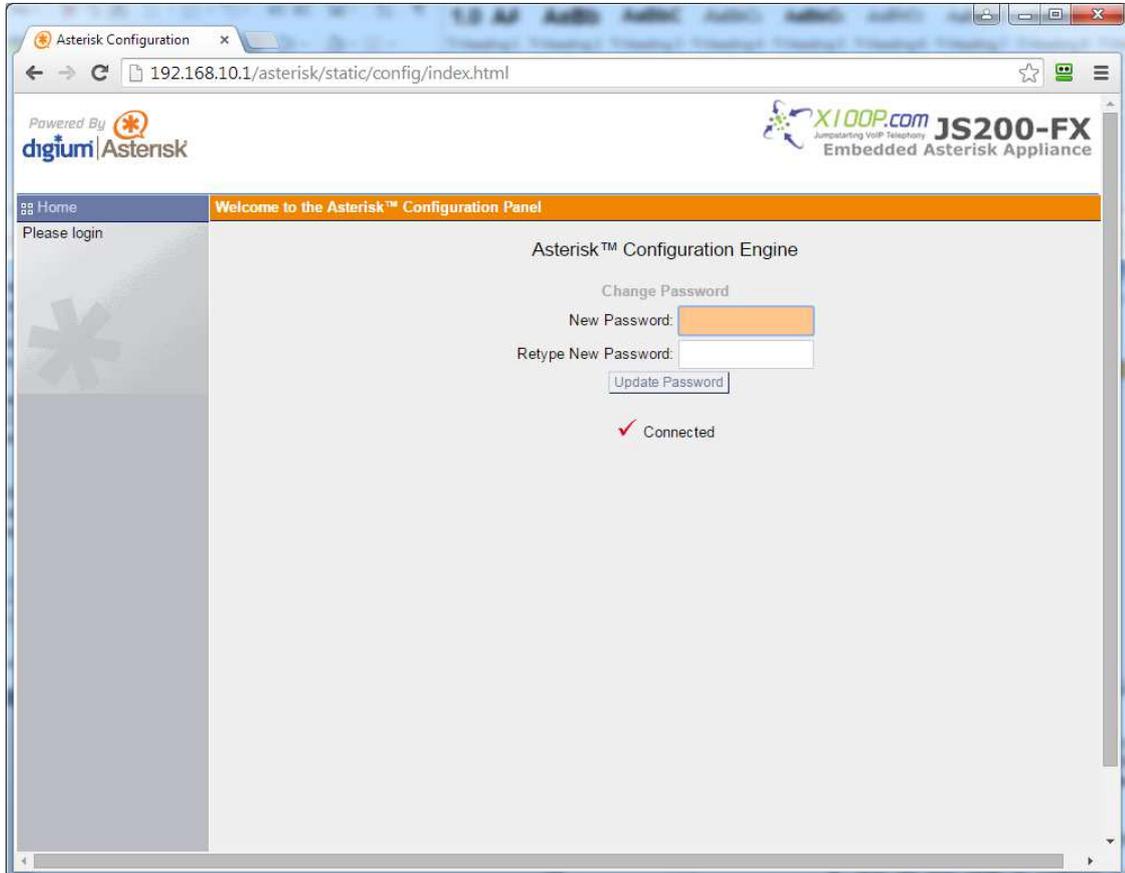
2.6 Installing the Asterisk Appliance

NOTE: To install and configure the JS200FX for the first time, you must connect to it via LAN port (ETH2).

1. Connect one end of an Ethernet cable to the JS200-FX Embedded Asterisk Appliance LAN port (ETH2), and one end to an Ethernet connection on a computer configured to obtain an IP address automatically (DHCP). This step will connect your JS200-FX Embedded Asterisk Appliance to your computer so that you may access the JS200-FX Embedded Asterisk Appliance GUI from your computer.
2. Connect the provided power cable to the power supply. You can then connect the power supply to the JS200-FX Embedded Asterisk Appliance's DC power connector. Turn on the JS200-FX unit by flipping the On/Off switch. The JS200-FX Embedded Asterisk Appliance should immediately power on.
3. Using a JS200-FX Embedded Asterisk Appliance supported web browser, open a browser window and enter the IP address for the JS200-FX Embedded Asterisk Appliance. The default LAN IP address is 192.168.10.1. The default username is **admin**, and the default password is **password**.



NOTE: The first time you log on you will be prompted to change your password from the default. Once you changed the password, you will then be prompted to log on with the new password. When the log on process is completed the AsteriskGUI™ home page will be displayed.



4. Connect one end of another Ethernet cable to JS200-FX Embedded Asterisk Appliance WAN port (ETH1). Connect the other end of the cable to the appropriate internet connection (will vary depending on your setup). This will connect the JS200-FX Embedded Asterisk Appliance to the internet.
5. Connect telephones to the analog voice ports. TEL1 port should be used first.
6. You are now ready to configure your JS200-FX Embedded Asterisk Appliance via the AsteriskGUI™.



Caution.

This unit must be connected to the Telecommunications Network in your country using an approved line cord, e.g.: for Australia use only line cords complying with ACA Technical Standard TS008

3.0 QUICK START CONFIGURATION

3.0 QUICK START CONFIGURATION

This chapter provides information on how to quickly set up your JS200-FX Embedded Asterisk Appliance via the AsteriskGUI™. The following topics are covered:

- **Network Settings**
- **Wireless Settings**
- **Google Voice Settings**
- **Date and Time Settings**
- **Reset and Reboot Settings**

This section is intended to help the users to setup the system with minimum configuration for up and running within the shortest time. For detailed instructions on other topics, please refer to the User Manual or documentation on <http://www.x100p.com>.

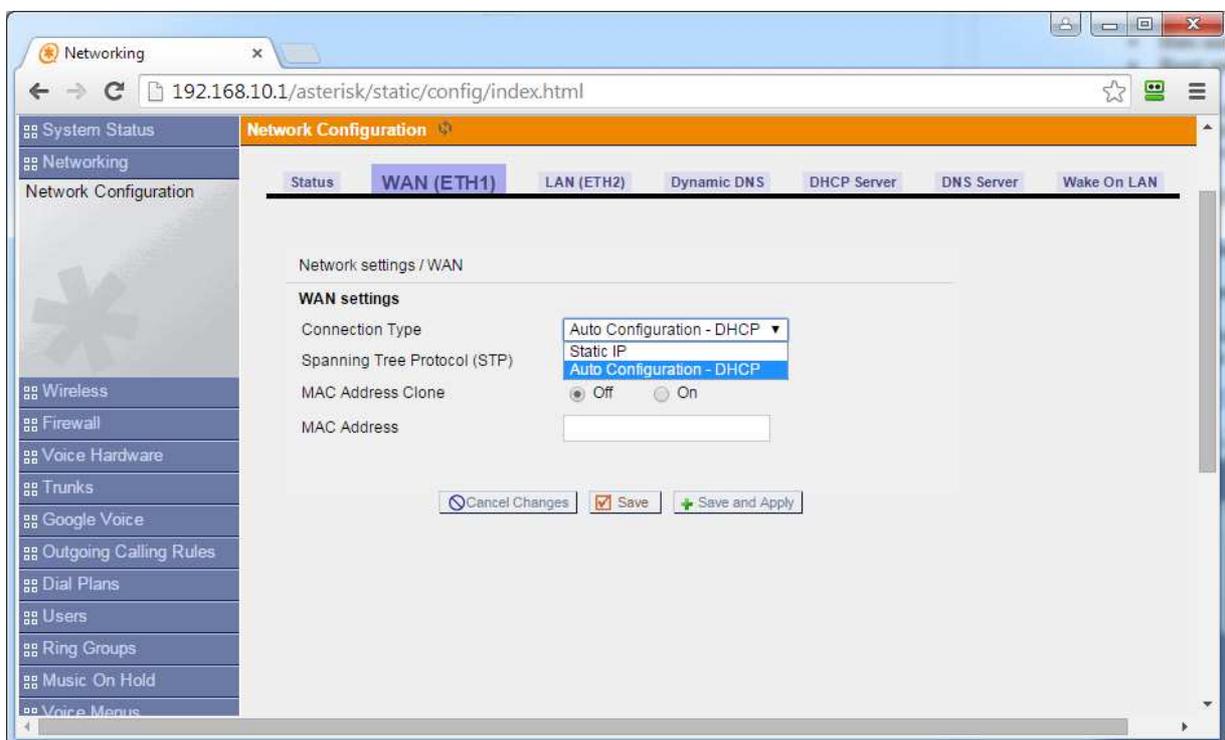
3.1 Network Settings

3.1.1 WAN Settings

WAN settings needs to be properly configured for your system to connect to the Internet.

NOTE: WAN port on this device is ETH1.

1. Login via the AsteriskGUI™. (Please refer to section 2.6)
2. Click on “Networking” on the left, and then go to the “WAN (ETH1)” Tab on the right.

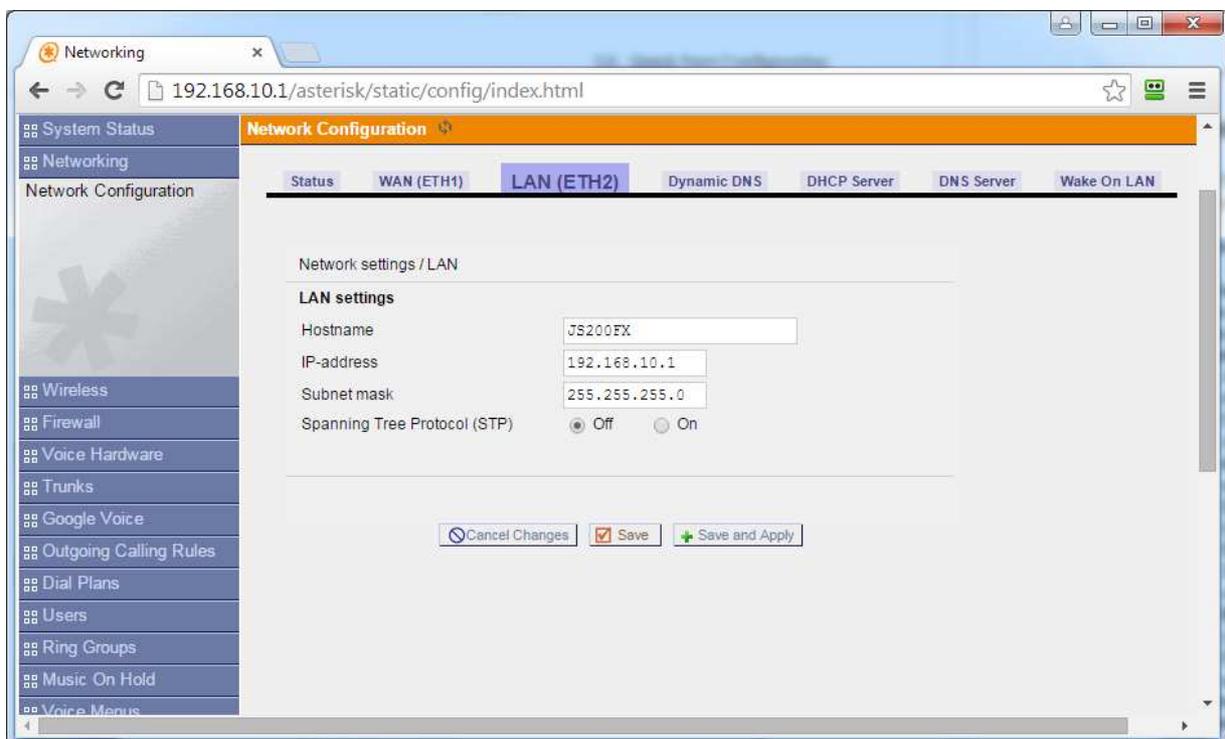


3. Select the “Connection Type”:
 - a. “Auto Configuration – DHCP” (default). This means the WAN IP address will be retrieved automatically via DHCP protocol.
 - b. “Static IP”. Please contact your System Administrator or Internet Service Provider for the required information.

3.1.2 LAN Settings

NOTE: LAN port on this device is ETH2.

1. Click on “Networking” on the left, and then go to the “LAN (ETH2)” Tab on the right.
2. By default, the IP-address of the JS200-FX Embedded Asterisk Appliance is set to **192.168.10.1**.



3.2 Wireless Settings

NOTE: JS200FX support WIFI 802.11b/g mode only. If you are connecting it to a WIFI 802.11n network, please ensure compatibility mode is turned on.

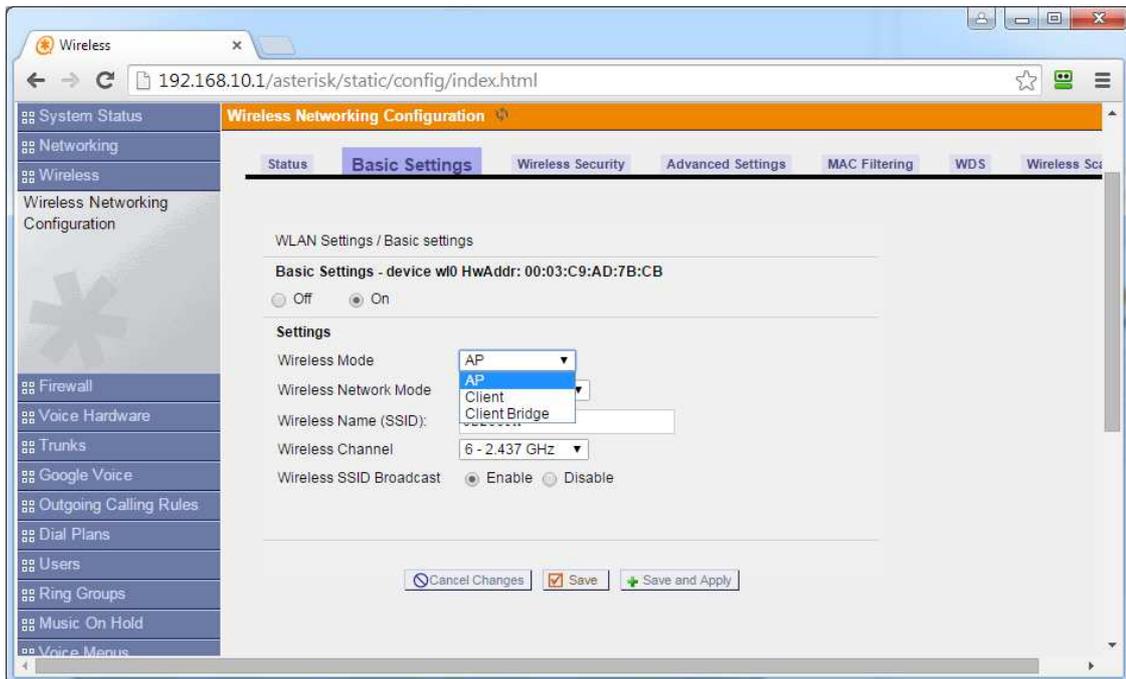
Follow the instructions below to set up basic wireless connectivity.

1. Login via the AsteriskGUI™. (Please refer to section 2.6)
2. Click on “Wireless” in the left menu of the router.
3. Click on Basic Settings tab on the right side of the menu
4. Set Wireless Mode
 - a. AP (Default). The JS200-FX Embedded Asterisk Appliance will be set as a primary wireless router.
 - b. Client. (Use this option if you intend to use JS200-FX as a wireless ATA)
 - i. In the Client mode, the wireless module on the JS200-FX Embedded Asterisk Appliance will be used to connect to another primary wireless router.
 - ii. **WAN settings will be disabled and both ETH1 and ETH2 will be configured as LAN ports.**
 - iii. The JS200-FX unit will still be providing NAT functionality to computers connected to it through both ETH1 AND ETH2 port.
 - c. Client Bridge. (Advanced)

NOTE: It is recommended that you configure and test to ensure “Client” mode works before you switch to “Client Bridge” mode.

 - i. In the Client Bridge mode, the wireless module on the JS200-FX Embedded Asterisk Appliance will be used to connect to another primary wireless router.
 - ii. **WAN settings will be disabled and both ETH1 and ETH2 will be configured as LAN ports.**
 - iii. **DHCP server on JS200-FX will also be disabled to avoid conflicts.**
 - iv. All computers connected to the JS200-FX unit (via ETH1 and ETH2 port) will be bridged to another primary wireless router through the JS200-FX unit and must be configured according to the settings of such primary wireless router.
5. Set Network Mode. The default value is “Mixed”.
6. Set Wireless Name (SSID). The default SSID is **JS200FX**.

NOTE: If you are setting the Wireless Mode to either “Client” or “Client Bridge” mode, the Wireless Name will be referring to the SSID on the primary wireless router that you are connecting to.



7. Set the Channel. Select the Channel in which the wireless interface will operate.

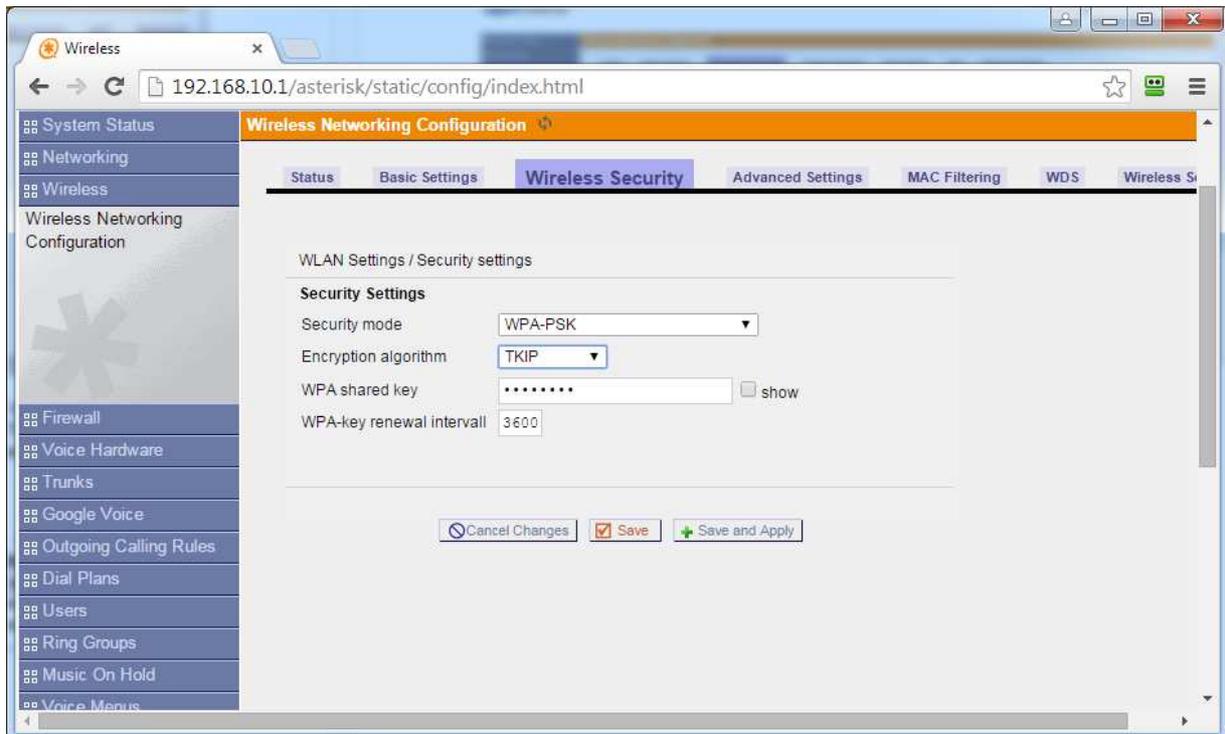
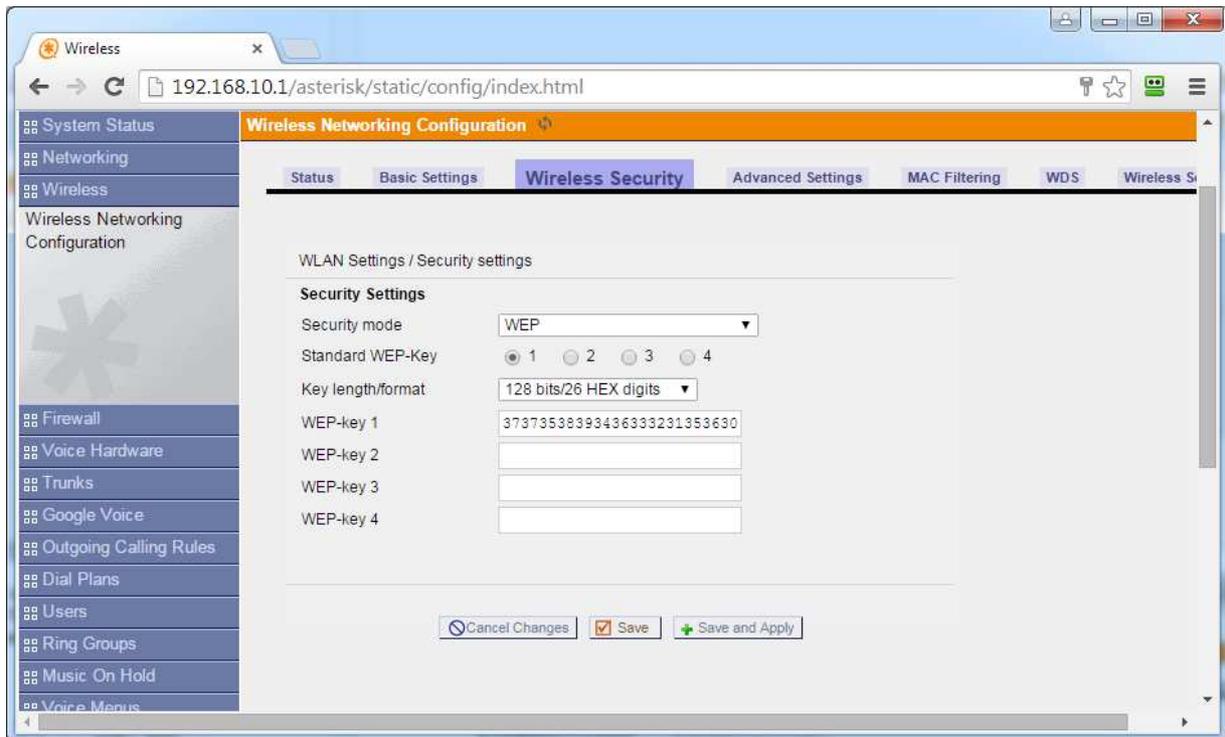
NOTE: If you are setting the Wireless Mode to either “Client” or “Client Bridge” mode, the Channel setting will be referring to the channel used by the other wireless router that you are connecting to. If unsure about Channel setting, you may use “Wireless Scanning” to find out or refer to the setting of your primary router.

8. Click “Save”
9. Click on Wireless Security tab on the right side of the menu
10. Set Security Mode. The default is “WEP” and the default WEP-Key is “37373538393436333231353630”. **NOTE: It is highly recommended to use WPA-PSK or other Security mode as they are more secure than the default WEP setting.**

NOTE: If you are setting the Wireless Mode to either “Client” or “Client Bridge” mode, the Security Mode will then be referring to the security mode on the primary wireless router that you are connecting to. Please ensure ALL the settings such as Encryption Algorithm and Key are correctly selected and entered.

11. Click “Save and Apply”. You will be asked to reboot. Click on “Reboot Now”.
12. You may be prompted further for unsaved changes. Click on “Yes” to save changes.

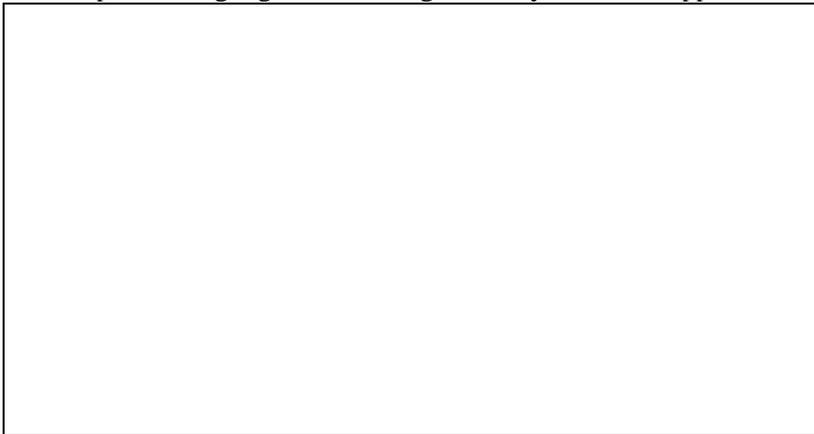
3.0 Quick Start Configuration



3.3 Google Voice Settings

Before you begin:

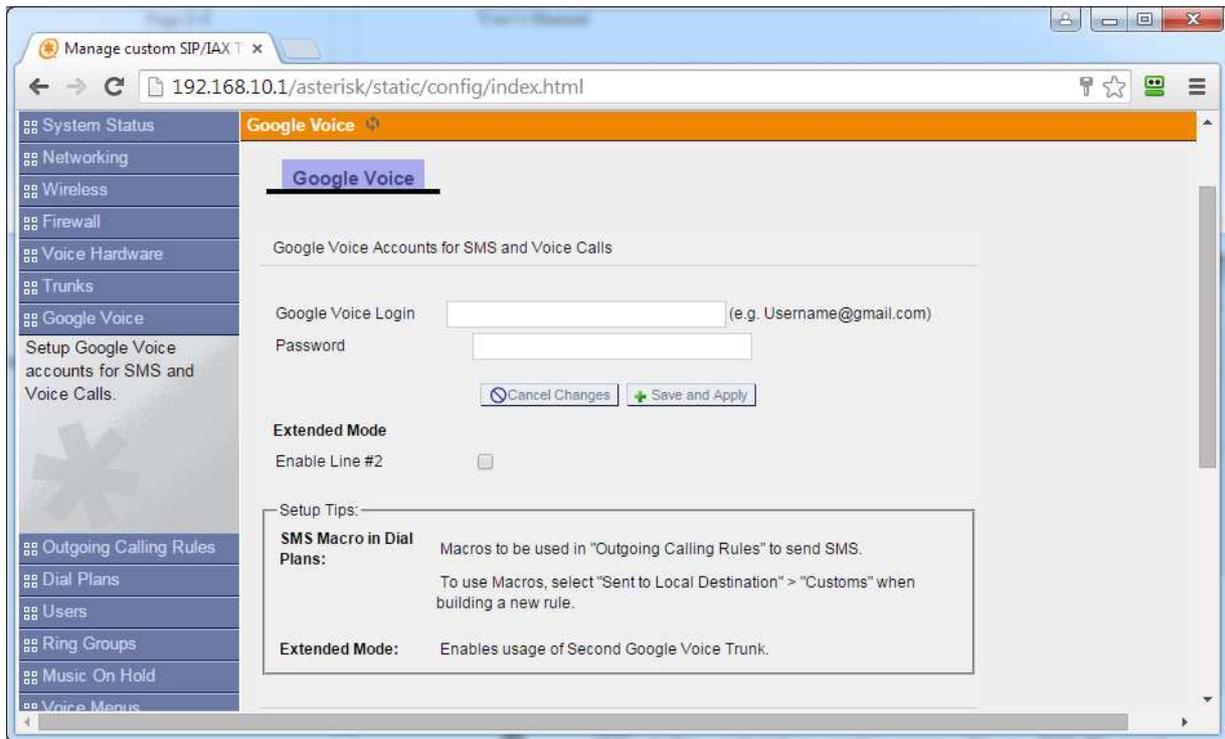
1. Login to your Google Account
2. Visit <https://www.google.com/settings/security/lesssecureapps> to enable the access option:



3. If your Google Account has enabled 2-steps verifications, please create an app specific password to be used with JS200-FX.
4. Make sure you do not have other web browser logging onto the Google Account with Google Voice.

Follow the instructions below to set up Google Voice.

1. Login via the AsteriskGUI™. (Please refer to section 2.6)
2. Click on “Google Voice” on the left.
3. On your right, please enter your Google Voice Login and your password.
4. Click on “Save and Apply”
5. JS200-FX will attempt to connect to Google Voice with your given credentials, upon validation, it will prompt you a successful notice. Click “OK”
6. A set of default outgoing calling rules will be created automatically for North America number dialing and Google Voice Voicemail direct access. (see step 9)
7. Upon successful setup, your Google Voice Number will be displayed in this setting page.
8. At this point, your Google Voice account is completely integrated with JS200-FX. Both incoming and outgoing calls is now working.
9. **To make a call using Google Voice, dial prefix 941 (“9” denotes outside line, “41” denotes “G1” which is the first Google Voice line setting in JS200-FX.), followed by 1-Area Code-Phone Number.** e.g. If you are trying to reach US Number (408)123-4567, dial 94114081234567.
10. To access Google Voice Voicemail directly, dial 41 (again, “41” denotes “G1”).
11. JS200-FX supports a maximum number of two Google Voice accounts. Click on “Enable Line #2” to access setup for the second line. The automatically generated dialing prefix and voicemail access would be “942” and “42” respectively

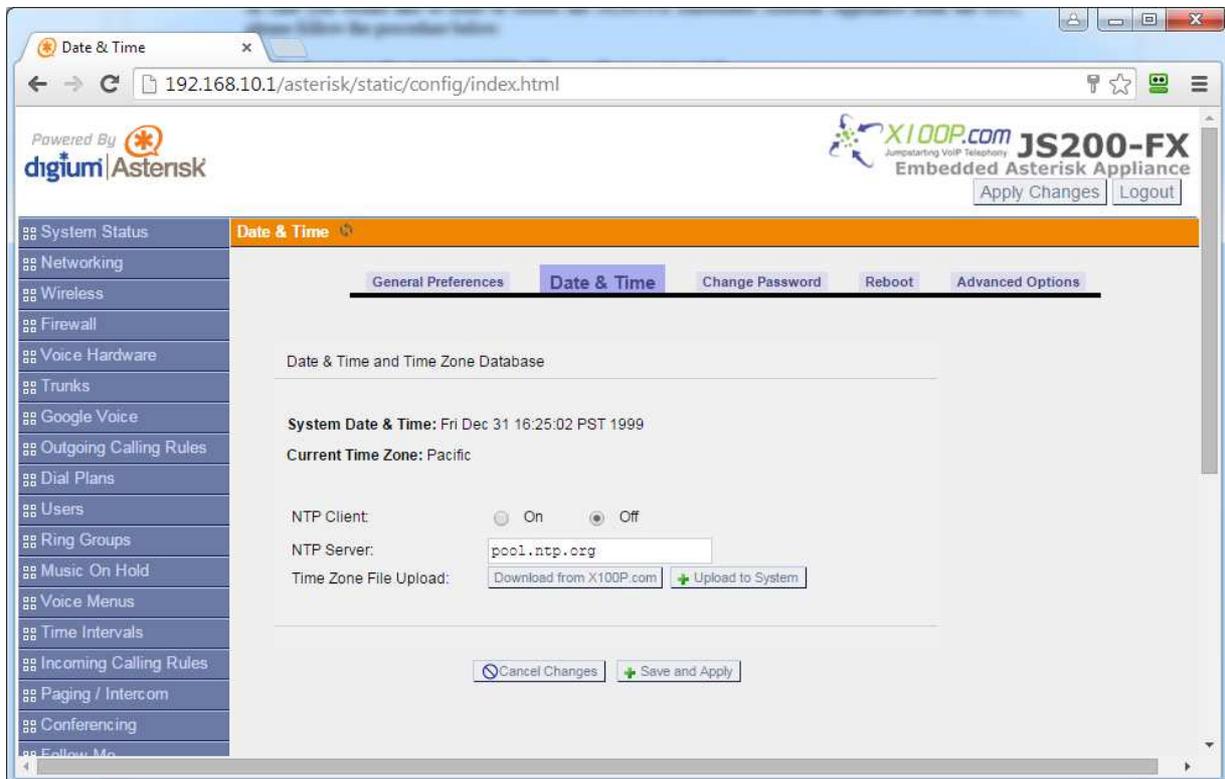


Note.
All Google Voice credentials are stored on-premise within your JS200-FX unit only.

3.4 Date & Time Settings

Setting up the correct Date & Time is required for the JS200-FX to work properly.

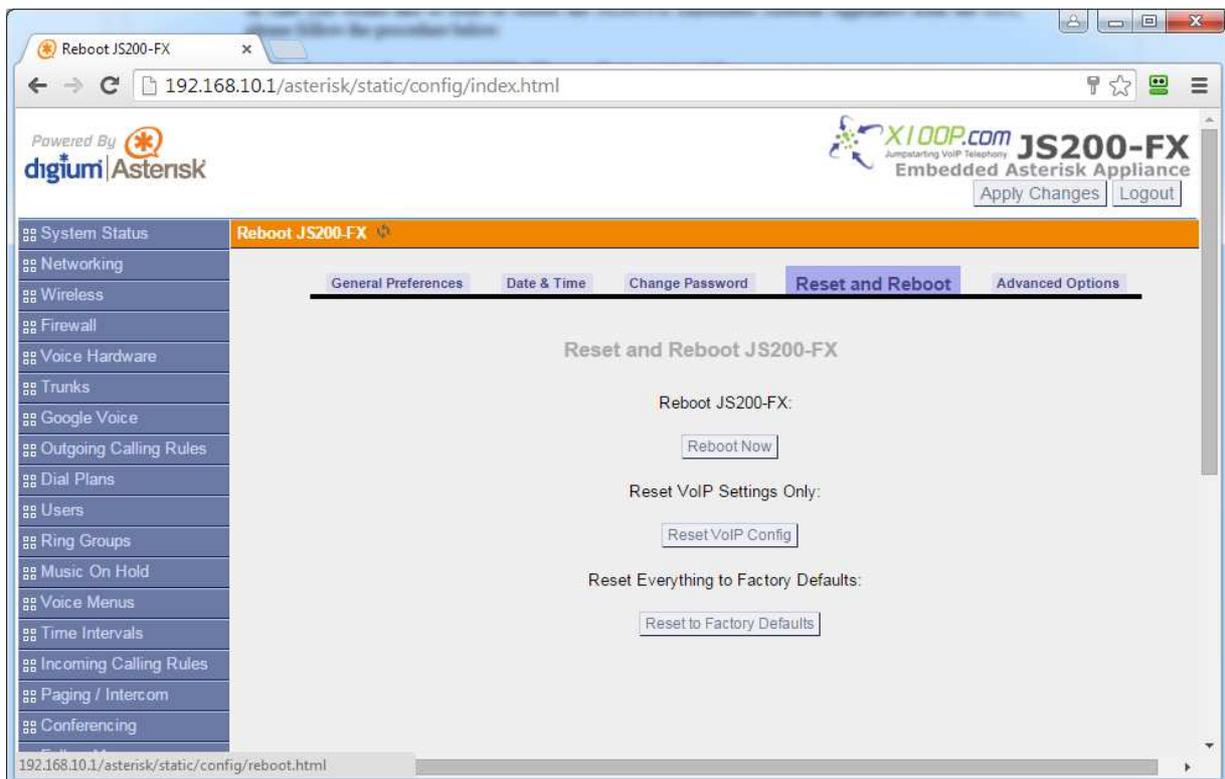
1. Login via the AsteriskGUITM. (Please refer to section 2.6)
2. Click on “Options” on the left.
3. Click on “Date & Time” tab.
4. Turn on NTP by select “On” for NTP Client.
5. Download the correct Time Zone File from x100p.com by clicking on the button.
6. Click “Upload to System” and then select the file you downloaded from x100p.com.
7. Click on “Save and Apply”.



3.5 Reset and Reboot Settings

In case you would like to reset or reboot the JS200-FX Embedded Asterisk Appliance from the GUI, please follow the procedure below:

1. Login via the AsteriskGUI™. (Please refer to section 2.6)
2. Click on “Options” on the left.
3. Click on “Reset and Reboot” tab.
4. There are 3 options:
 - a. Reboot JS200-FX. Only rebooting the JS200-FX unit.
 - b. Reset VoIP Settings Only. Clicking this option will reset only the VoIP related settings to factory defaults, leaving other setting such as Networks and Wireless settings intact.
 - c. Reset Everything to Factory Defaults. Clicking this will wipe all the settings and set all the settings to factory defaults. This option will be the same as pressing the RESET button on the back of the JS200-FX unit.



4.0 APPENDIX A

4.0 APPENDIX A

4.1 Optimized Asterisk VOIP Features

Call Features

- Authentication
- Basic Automated Attendant
- Blacklists
- Blind Transfer
- Call Detail Records
- Call Forward on Busy
- Call Forward on No Answer
- Call Forward Variable
- Call Parking
- Call Retrieval
- Call Routing
- Call Snooping
- Call Transfer
- Call Waiting (VoIP Only)
- Caller ID
- Caller ID Blocking
- Caller ID on Call Waiting (VoIP Only)
- Basic Conference Bridging
- Database Store / Retrieve
- Direct Inward System Access
- Do Not Disturb
- Emergency Calls (e.g. 911) Lifeline Auto Switch
- ENUM
- Flexible Extension Logic
- **Google Voice Integration**
- Basic Interactive Voice Response (IVR)
- Macros
- Preset Music On Hold
- Music On Transfer
- Privacy
- Overhead Paging
- Protocol Conversion
- Remote Call Pickup
- Remote Office Support
- Roaming Extensions
- Route by Caller ID
- Supervised Transfer
- Talk Detection
- Three-way Calling (VoIP Only)
- Time and Date
- Transcoding
- Trunking (VoIP Only)
- VoIP Gateways
- VoIP Server or Client Deployments

Computer-Telephony Integration

- AGI (Asterisk Gateway Interface)
- Outbound Call Spooling
- TCP/IP Management Interface

Scalability

- Voice-over IP
 - Allows for integration of physically separate installations
 - Uses commonly deployed data connections
 - Allows a unified dialplan across multiple offices

Codecs

- G.711 (A-Law & μ -Law)
- GSM
- G.726
- G.729a (Hardware-Assisted, Pass Through)
- G.723.1 (Hardware-Assisted, Pass Through)

Protocols

- IAX (Inter-Asterisk Exchange)
- SIP (Session Initiation Protocol)

4.2 Core System Features

Wired Network Connectivity

- WAN Connection (10/100Mbps)
 - Static IP
 - DHCP
 - MAC Address Clone
- LAN Connection (10/100Mbps)
- Wake On LAN Broadcast

Wireless Network Connectivity

- 802.11b/g Wireless Mode
 - Access Point
 - Client
 - Client Bridge
- Wireless Security Mode
 - WEP
 - WPA Enterprise
 - WPA PSK
 - WPA2 Enterprise
 - WPA + WPA2 Enterprise Mixed
 - WPA2 PSK
 - WPA + WPA2 PSK Mixed
- Wireless Encryption Algorithm
 - TKIP
 - AES
 - TKIP + AES
- Wireless MAC Filtering
- WDS
- Wireless Scanning Site Survey

Stateful Inspection Firewall

- Port Forwarding
- Port Range Forwarding
- Forwarding by Protocol
- Configurable Remote Web Administration
- Custom Firewall Rules

Network Services

- DHCP Server
- DNS Server

Network Clients

- Dynamic DNS Services Update Client
- NTP Client for system time synchronization

System Maintenance

- Firmware Upgradable
- System Configuration Backup and Restore
- Factory Reset Pin