



# MDU Solutions™

---

## Visium Set-Back Box - VSBB100

INSTALLERS OPERATION MANUAL

# General Guide Notes

## Proprietary Notice

The information contained herein is property of ATX, or third-party proprietary information which ATX is obliged to protect and shall not be disclosed in whole or in part without the prior written permission of ATX or the appropriate third party. Discussions contained in this document are covered under NDA with ATX.

|                      |                      |
|----------------------|----------------------|
| <b>Document</b>      | <b>ANW2013</b>       |
| <b>Release Date</b>  | <b>March 13 2023</b> |
| <b>Revision Date</b> | <b>May 8, 2023</b>   |

## Copyright Notice

© 2023 by ATX Networks Corp. and its affiliates (collectively "ATX Networks Corp."). All rights reserved. This material may not be published, broadcast, rewritten, or redistributed.

Although every effort has been taken to ensure the accuracy of this document it may be necessary, without notice, to make amendments or correct omissions. Specifications subject to change without notice.

The MDU Solutions product line and all individual products within the family are patented.

MDU Solutions is a registered trademark of ATX in Canada, the United States and/or other countries. Products or features contained herein may be covered by one or more U.S. or foreign patents. Other non-ATX product and company names mentioned in this document are the property of their respective companies.

# TABLE OF CONTENTS

|  |            |
|--|------------|
| <b>GENERAL GUIDE NOTES</b> .....   | <b>II</b>  |
| <b>1. IMPORTANT SAFETY INSTRUCTIONS</b> .....  | <b>1-1</b> |
| 1.1 <a href="#">General Safety Precautions</a> .....   | 1-1        |
| 1.2 <a href="#">Electrical Safety</a> .....  | 1-1        |
| 1.3 <a href="#">Equipment Placement</a> .....  | 1-1        |
| 1.4 <a href="#">Service</a> .....  | 1-2        |
| 1.5 <a href="#">Batteries</a> .....  | 1-2        |
| <b>2. PRODUCT OVERVIEW</b> .....   | <b>2-1</b> |
| 2.1 <a href="#">Benefits</a> .....   | 2-1        |
| 2.2 <a href="#">Features</a> .....   | 2-2        |
| <b>3. IR LEARNING REMOTE CONTROLS</b> .....  | <b>3-1</b> |
| 3.1 <a href="#">Legacy Version 1 Learning Remote</a> .....   | 3-1        |
| 3.2 <a href="#">Version 2 Learning Remote</a> .....  | 3-2        |
| 3.3 <a href="#">Version 2 Remote - Erase Learned Functions</a> .....                                   | 3-3        |
| 3.4 <a href="#">Closed Caption Menu</a> .....  | 3-3        |
| 3.5 <a href="#">Audio/Subtitles Menus</a> .....  | 3-4        |
| <b>4. INSTALLATION AND NETWORK SETUP</b> .....   | <b>4-1</b> |
| 4.1 <a href="#">Specialized Tools Required</a> .....   | 4-1        |
| 4.2 <a href="#">Product Physical Installation</a> .....  | 4-1        |
| 4.3 <a href="#">Upgrading the VSBB100 with a USB Drive</a> .....                                       | 4-2        |
| 4.4 <a href="#">Network Setup</a> .....  | 4-2        |
| 4.5 <a href="#">Editing the Network Config File</a> .....  | 4-3        |
| 4.6 <a href="#">Applying Network Changes &amp; Enrolling the VSBB100 with the Visium Manager</a> ..... | 4-4        |
| <b>5. INSTALLER CONFIGURATION</b> .....  | <b>5-1</b> |
| 5.1 <a href="#">Remote Controls</a> .....  | 5-1        |
| 5.2 <a href="#">Main Menu</a> .....  | 5-2        |
| 5.3 <a href="#">Setup Menu</a> .....   | 5-3        |
| 5.4 <a href="#">Configuring "Offline Mode"</a> .....   | 5-6        |
| 5.5 <a href="#">Exporting &amp; Modifying a Channel Plan in "Offline Mode"</a> .....                   | 5-8        |
| 5.6 <a href="#">Editing the Encryption Type on the Channel Map</a> .....                               | 5-12       |
| 5.7 <a href="#">Special Considerations</a> .....   | 5-13       |
| <b>6. THEMES</b> .....   | <b>6-1</b> |
| 6.1 <a href="#">Create and Install a Theme</a> .....   | 6-1        |
| 6.2 <a href="#">Remove a Theme</a> .....   | 6-2        |
| <b>7. SERVICE &amp; SUPPORT</b> .....  | <b>7-1</b> |
| 7.1 <a href="#">Contact ATX Networks</a> .....   | 7-1        |

# IMPORTANT SAFETY INSTRUCTIONS

## 2. Important Safety Instructions

**WARNING! FAILURE TO FOLLOW THE SAFETY PRECAUTIONS LISTED BELOW MAY RESULT IN PROPERTY DAMAGE OR PERSONAL INJURY.**

This set-back box has been manufactured to meet international safety standards. However, safety precautions as outlined here must be followed to ensure the safe and reliable operation of the device.

### 2.1 General Safety Precautions

- Follow all installation and operating instructions. Pay attention to all warnings and cautions in the user guide.
- Do not install or operate the device if damage to any components is suspected.
- Care should be taken to prevent entry of splashed or dripping water, other liquids, and physical objects through housing openings.
- The device should be installed and operated in compliance with all applicable local safety by-laws, codes and regulations.
- Avoid working on these products when there is a chance of local lightening storms for your own physical safety.

### 2.2 Electrical Safety



**WARNING:** To reduce risk of electric shock, perform only the instructions that are included in the operating instructions described in this manual. Refer all servicing to qualified adequately trained service personnel only.

- This device operates with an electrical power supply in the range of 100 to 240V AC, 50/60 Hz. Use a standard AC wall outlet; a DC power source cannot be used.
- Ensure that all electrical connections are properly made before connecting the device to the power supply (the mains). Remember that contact with a 110/240 Volt AC power supply can be lethal.
- Always unplug the device before connecting or disconnecting any cables.
- Whenever you connect the device to the power supply (the mains), always connect the power lead to the power input connector on the rear panel of the device before you connect the power socket to the wall outlet.
- Whenever you disconnect the device from the power supply (the mains), always remove the power socket from the wall outlet before you remove the other end of the lead from the power input connector on the rear panel of the device.
- Do not touch any of the internal components that are covered by protective covers. These components may be sensitive to ElectroStatic Discharge (ESD) which can result from a buildup of static electricity on the human body.
- Be sure to disconnect the power source before working on this equipment.
- Do not operate this equipment by using an extension cord.

### 2.3 Equipment Placement



**WARNING:** Allow only qualified adequately trained service personnel to install this equipment. The installation must conform to all local codes and regulations.

- Place this equipment close enough to an AC mains outlet to accommodate the length of the provided power cord.
- Route all power cords and wiring so that people cannot walk on, place objects on, or lean objects against them.
- Ensure this equipment is securely fastened to the mounting surface and make sure the mounting surface is stable and can support the device.
- Do not place any object on top of the device that blocks device air vents and prevents free air circulation.
- Do not expose the device to extreme temperatures or humidity, place the device next to a radiator or any heat source.

such as direct sun light.

- Do not place the device on fabric furnishings, carpets or other flammable materials.
- Be extremely careful if this device is in contact with water. Immediately disconnect the power socket if possible.
- This device shall not be exposed to dripping or splashing and no objects filled with liquids shall be placed on the device.
- Where the mains plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.
- Unplug the device and have it checked by a qualified technician if anything falls into the casing.
- Allow adequate air circulation to prevent internal heat buildup.

## 2.4 Service

When servicing this unit, comply with the following:

- Do not open this equipment if there is a possibility of water or moisture entering while open.
- All servicing should be referred to qualified adequately trained service personnel.
- Modifications should not be made to the device or any of its components.

## 2.5 Batteries

- Batteries shall not be exposed to excessive heat such as sunshine, fire etc.
- Recycle batteries when exhausted. Do not dispose of in garbage or landfill.
- Contact <https://www.call2recycle.org/> in the USA and/or <https://www.call2recycle.ca/> in Canada for battery recycling instructions or contact your own local recycling depots outside the US and Canada.

## PRODUCT OVERVIEW

### 2. Product Overview

The Visium™ Set-Back Box (SBB) is a low-cost security adapter designed to enable commercial video service providers to bring hospitality and other commercial customers into compliance with security requirements through the delivery of encrypted bulk video to properties lacking Pro:Idiom™-capable TVs. The Visium SBB is an ideal solution for commercial accounts currently being served with clear QAM video which now allows MPEG4-based service delivery to properties with MPEG2-only capable TVs. The system features an Integrated Program Guide (IPG) designed to improve hotel guests' experiences by significantly simplifying the navigation of lengthy channel line-ups. Self-configuration and centralized management and monitoring capabilities through ATX's Visium Manager, a cloud-based element management system, simplify deployment and reduce operational complexity.



Figure 2-1: Visium VSBB100 Set Back Box

#### 2.1 Benefits

##### Security Compliance

Brings commercial properties being served with clear QAM video into compliance with content protection obligations by enabling non-commercial TVs to receive Pro:Idiom™ encryption.

##### Enhanced User Experience

Enables hospitality venues to enhance guest-viewing experiences by providing Interactive Program Guide functionality for customers with bulk video service delivered centrally or through a gateway.

##### Cost Efficiencies

Priced to enable service providers to deliver a secure and enhanced viewing experience at a price point that enables meaningful return on investment.

##### Legacy TV Adaptation

Enables commercial video service providers to deliver MPEG4-based service delivery to properties with MPEG2-only TVs.

##### Deployment Simplicity

Orchestrates basic bulk management without integration into MSO residential backend and conditional access control systems, vastly simplifying deployments into hospitality and commercial environments.

##### Network Simplification

The Visium SBB's support for IGMP v3 alleviates the need for dense-mode multicast switches throughout premises, enabling service providers to reduce network complexity and costs.

## 2.2 Features

- Small form-factor housing
- Professionally designed HTML5 UI
- F-port for QAM video ingest
- RJ45 for IP video ingest
- 802.11 b/g/n WiFi module for low bandwidth EPG update management and monitoring communication
- HDMI 2.0 output w/ HDCP encryption
- IR extender accommodates discrete box placement
- Full function programmable universal IR remote control works with any TV.

## IR REMOTE CONTROLS

### 3. IR Learning Remote Controls

There are two available IR (infrared) remote controls which have been available to work with the VSBB100. They both have similar VSBB functionality but differ in their learning capabilities.

#### 3.1 Legacy Version 1 Learning Remote

##### 3.1.1 Remote Control SBB mode

Before the remote control learning buttons **Volume +/-** and **Mute** are programmed, they control similar functions within the SBB.

##### 3.1.2 Remote Control TV mode

Once programmed, the **Volume +/-** buttons will only control the TV set they were programmed for. The **Mute** button will continue to mute the SBB.

This remote control button layout is illustrated in Figure 3-1.



**Note:** The mute button on the IR Remote control mutes the SBB, not the TV so does not need to be learned.

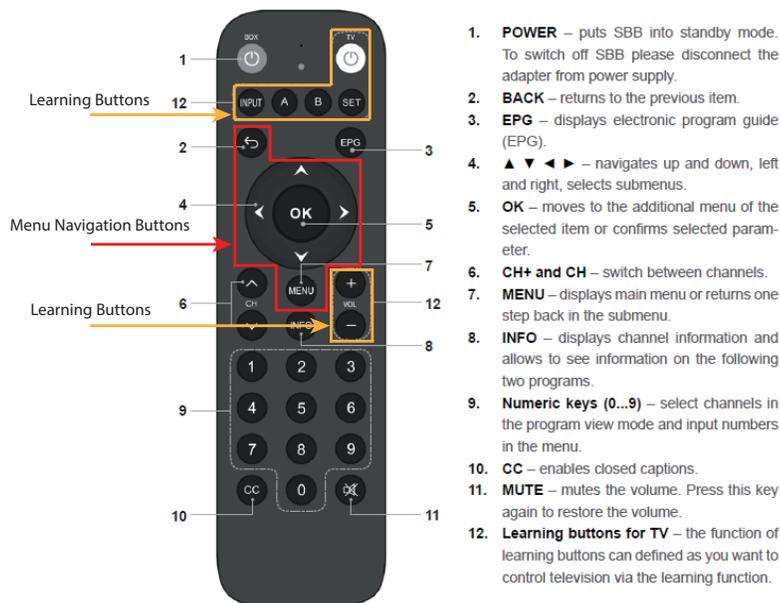


Figure 3-1: Version 1 Learning Remote

##### 3.1.3 Programming the Version 1 Learning Keys

1. Place the remote of the VSBB100 and the remote of the desired TV with the IR transmitter facing one another about 3 inches apart.
2. Press SET button on the SBB remote control for 3 seconds until the learning indicator lights up steady red.
3. Press one of the following learning buttons on the SBB remote control: TV, INPUT, A, B, VOL+, VOL-. If the red learning indicator starts flashing, the selected button on the remote control is ready to be programmed.

- Place the SBB remote control and the TV remote control facing each other on a flat surface making sure that both IR sensors are touching one another.



- Long-press the required button on your TV remote control. Once the learning indicator changes from flashing to steady red light, release the TV remote button.
- If the learning process was successful, the red learning indicator light will flash three times and will then become steady red. You can repeat steps 2 to 4 to program other TV remote control buttons.
- Repeat steps 1-5 if the SBB remote control does not learn successfully.
- After learning is complete, press SET button on the SBB remote control. The red light will disappear and the SBB remote control will exit learning mode.
- If the remote did not learn a button after the procedure, repeat the process. With some remotes, you may need to adjust the distance and/or angle of the TV remote so that it can be read properly by the VSBB100 remote.

### 3.2 Version 2 Learning Remote

#### 3.2.1 Remote Control SBB mode

Before the remote control learning buttons **Volume +/-** and **Mute** are programmed, they control similar functions within the SBB. This is referred to as STB mode.

#### 3.2.2 Remote Control TV mode

Once programmed, the **Volume +/-** and **Mute** buttons will only control the TV set they were programmed for. This remote control button layout is illustrated in Figure 3-2.

The control may be returned to the STB mode through a button sequence, see [“3.3 Version 2 Remote - Erase Learned Functions” on page 3-3](#). STB mode is the mode where the remote controls the SBB directly for volume and mute.

#### 3.2.3 Changes From Version 1

Principal changes from Version 1 Remote:

- This remote control does not have the ‘Box’ power button. The TV power button now uses CEC (Consumer Electronics

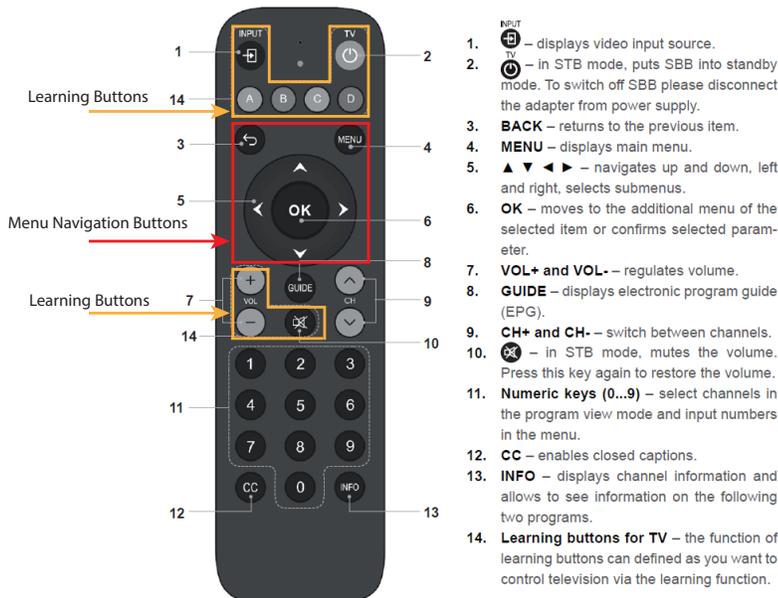


Figure 3-2: Version 2 Learning Remote

Control) protocol to turn off the TV while putting the box in standby mode. The TV button can also learn to turn off the TV directly.

- The learned functions may be 'forgotten' or erased through entering a button sequence, see "3.3 Version 2 Remote - Erase Learned Functions" on page 3-3.
- There are 2 additional 'wild card' buttons, 'C' & 'D' to support more TV control functions.

### 3.2.4 Programming the Version 2 Learning Keys

1. Place the remote of the VSBB100 and the remote of the desired TV with the IR transmitter facing one another about 3 inches apart.
2. Press the **INPUT** button on the SBB remote control for 3 seconds until the learning indicator lights up steady red.
3. Enter the button sequence '**9 8 7 8 6 8 INFO**' on the remote control. The learning indicator light will flicker then go steady red.
4. Press one of the following learning buttons on the SBB remote control: TV, INPUT, A, B, C, D, VOL+, VOL-, MUTE. If the red learning indicator starts flashing, the selected button on the remote control is ready to be programmed.
5. **Place the SBB remote control and the TV remote control facing each other on a flat surface making sure that both IR sensors are touching one another.**



6. Long-press the required button on your TV remote control. Once the learning indicator changes from flashing to steady red light, release the TV remote button.
7. If the learning process was successful, the red learning indicator light will flash three times and will then become steady red. You can repeat step 3 to 5 to program other TV remote control buttons.
8. If learning failed, the learning indicator light will flash five times and fade out. Repeat steps 1-5 if the SBB remote control does not learn successfully.
9. After learning is complete, press any button on the SBB remote control to exit learning mode.
10. If the remote did not learn a button after the procedure, repeat the process. With some remotes, you may need to adjust the distance and/or angle of the TV remote so that it can be read properly by the VSBB100 remote.

### 3.3 Version 2 Remote - Erase Learned Functions

The Version 2 learning remote has the ability to erase learned functions, returning the control to STB mode where it controls the SBB directly.

1. Press the **INPUT** button on the SBB remote control for 3 seconds until the learning indicator lights up steady red.
2. Enter the button sequence '**6 8 7 8 9 8 INFO**' on the remote control. The learning indicator lights will flash six times and fade out. The SBB will return to the default mode and the learning buttons can be used to control the SBB.

### 3.4 Closed Caption Menu

The closed caption menu is a user menu which is displayed when the CC button on the remote is pressed, see Figure 3-3.

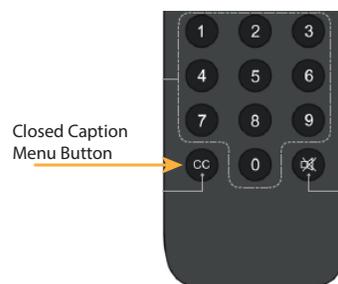


Figure 3-3: CC Menu Button

The closed captions may be changed from on to off by repeatedly pressing the CC button, see Figure 3-4 and Figure 3-5.



Figure 3-4: CC ON Menu



Figure 3-5: CC OFF Menu

### 3.5 Audio/Subtitles Menu

Audio and subtitles menus for any selected channel are accessed by pressing the Navigation UP button, see Figure 3-6. There may be only one item displayed, depending on availability on the selected channel.

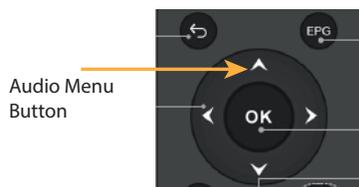


Figure 3-6: Menu Access Button

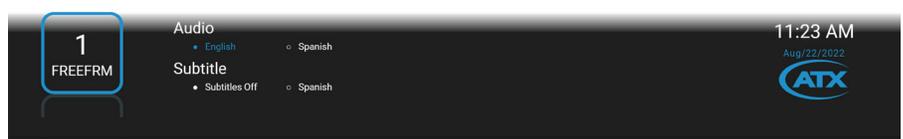


Figure 3-7: Audio Menu

Once the audio menu is open, the audio or subtitles menus may be selected with the Up/Down navigation buttons and selections may be changed, if available on the channel, with the Right/Left navigation buttons, see Figure 3-8.



Figure 3-8: Menu Navigation

# INSTALLATION AND NETWORK SETUP

## 4. Installation and Network Setup

This section details the initial network configuration of the VSBB100.

### 4.1 Specialized Tools Required

There are no specialized tools required for the installation and setup of the VSBB100.

### 4.2 Product Physical Installation

The physical installation of the Visium VSBB100 and connection to the television set is detailed in the **VSBB100 Quick Start Guide**. Please refer to that document for all physical installation guidance. Some of key installation information is reproduced here for your convenience.

#### 4.2.1 VSBB100 Connections

Make the following connections to the VSBB100, see Figure 4-1:

- Ethernet Cable (provided) to Wired Network for IPTV streaming applications
  - Wired Ethernet required for Multicast applications
  - Valid Internet access to the network connection of choice is required for proper operation and registration on the Visium Manager

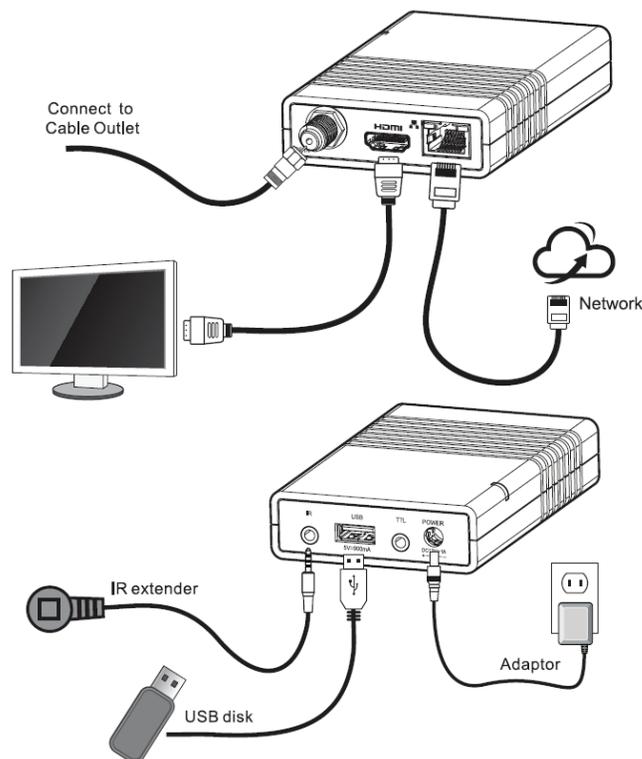


Figure 4-1: Connections to VSBB100

- Coaxial cable to Cable TV distribution network for QAM reception
- IR Extender (provided) to be attached with provided adhesive to front of television for remote infrared reception
- HDMI cable (Provided) to connect VSBB to TV HDMI input.

### 4.3 Upgrading the VSBB100 with a USB Drive

1. If downloading from the Visium Manager, on the left-hand menu click on the “Firmware.”
2. Click on the Firmware file under the “File” column of the release you want to use.

| Uploaded Firmware |      |               |               |          |   |           |                 |
|-------------------|------|---------------|---------------|----------|---|-----------|-----------------|
| Name              | Tags | Owners        | Resource Type | Version  | File                                    | File Size | MD5             |
| VSBB100           |      | view_firmware | VSBB Device   | 1.0.1.44 | 2022-08-05-VSBB100-1.0.1.44-develop.bin | 163.49MB  | 6598a098b672... |
| VSBB100           |      | view_firmware | VSBB Device   | 1.0.1.33 | 2022-07-12-VSBB100-1.0.1.33-develop.bin | 163.31MB  | 0ca39f080926... |
| VSBB100           |      | view_firmware | VSBB Device   | 1.0.1.10 | 2022-05-16-VSBB100-1.0.1.10-develop.bin | 162.92MB  | 4eac02af97d...  |

+ UPLOAD FIRMWARE

**If downloading the firmware from an alternate source, follow the rest of the instructions below:**

3. Save the Firmware file to a FAT32 formatted USB drive.
4. Rename File to “UpgradeFile.bin” (make sure to match the case as shown here).
5. Insert the USB into the VSBB and power cycle the device.
6. If the VSBB has detected the upgrade file properly, you should see an upgrade status animation on the screen.
7. When the upgrade has completed the VSBB will automatically reboot, immediately remove the USB drive to prevent a re-upgrade of the VSBB.

#### 4.3.1 Failed USB Upgrades

If the Upgrade with a USB drive fails, remove the USB drive and power cycle the device. The VSBB will reboot into the last working state.

**Below are two reasons for a failed upgrade:**

- The currently installed VSBB release is the **same release** as the Upgrade File
- The currently installed VSBB release is a **newer release** than the Upgrade File
- Certain USB sticks may have issues with the VSBB-100 so it is recommended to try one of a different make and model. If one cannot be found that works, contact ATX for a list of known good USB sticks.

### 4.4 Network Setup

The Visium VSBB100 will require an active network connection via Ethernet or WiFi to enable functionality and is required when enrolling new boxes. The VSBB100 supports static IP or DHCP for both network types. The user has the ability to disable one of the interfaces if desired although one is required to be connected and remain active for proper operation.

Initial setup entails saving a registration file and network configuration file to a USB memory device. The required files are:

- Enrollment file - **enrollment.json**  
This file contains the details required to register the box on the Visium cloud management server.
- Network Configuration - **networkconfig.json**  
This file contains the network configuration details to allow network access on your LAN.

The enrollment file will be downloaded from the Visium cloud manager and requires no changes. Contact ATX Networks to obtain the enrollment and network configuration files. The network configuration file will require some editing to define the network parameters applicable on your network, see Figure 4-1 and Figure 4-1.

The edited file setup illustrated in Figure 4-1 shows the use of the wifi network using DHCP service while Figure 4-1 shows a wired static IP configuration. These values are shown for illustrative purposes only and will not reflect the values you must enter for your network access.

```

1 {
2   "interfaces": [
3     {
4       "ipv4_enable": true,
5       "name": "eth0",
6       "dhcp": true,
7       "ip_address": "",
8       "mask": "",
9       "gateway": "",
10      "dns1": "",
11      "dns2": "",
12      "ssid": "",
13      "key": ""
14    },
15    {
16      "ipv4_enable": true,
17      "name": "ra0",
18      "dhcp": true,
19      "ip_address": "",
20      "mask": "",
21      "gateway": "",
22      "dns1": "",
23      "dns2": "",
24      "ssid": "WIFI_NAME",
25      "key": "WIFI_PASSWORD"
26    }
27  ]
28 }

```

Figure 4-1: Configure Wireless Network Settings

```

1 {
2   "interfaces": [
3     {
4       "ipv4_enable": true,
5       "name": "eth0",
6       "dhcp": false,
7       "ip_address": "192.168.0.25",
8       "mask": "255.255.255.0",
9       "gateway": "192.168.0.1",
10      "dns1": "1.1.1.1",
11      "dns2": "8.8.8.8",
12      "ssid": "",
13      "key": ""
14    },
15    {
16      "ipv4_enable": true,
17      "name": "ra0",
18      "dhcp": true,
19      "ip_address": "",
20      "mask": "",
21      "gateway": "",
22      "dns1": "",
23      "dns2": "",
24      "ssid": "",
25      "key": ""
26    }
27  ]
28 }

```

Figure 4-1: Configure Wired Network Settings

## 4.5 Editing the Network config file

Open the file `networkconfig.json` with a text editor such as Notepad++. The following table explains each line with guidance for values to be entered. There are two independent interfaces which may be configured depending on the installation environment. Do not change any formatting or add lines. Edit each parameter only within the quotes.

**Table 4.5a: Network Configure Descriptions (See Figure 4-1)**

| Parameter                | Configurable                | Typical Setting  | Parameter Description   |
|--------------------------|-----------------------------|------------------|---|
| <code>ipv4_enable</code> | string                      | true             | Set to "true" to enable this interface(default), setting "false" disables the interface.  |
| <code>name</code>        | string                      | eth0 or ra0      | The name of the wired interface(eth0) or the wireless interface (ra0) on the VSBB. Do not change these values.  |
| <code>dhcp</code>        | string                      | Locally Assigned | Set to "true" to enable this interface to use a local DHCP service(default). Setting to "false" disables the use of DHCP on this interface. A static IP address must then be assigned.          |
| <code>ip_address</code>  | static IP address of device | Locally Assigned | Enter the static IPv4 address to be assigned; only IPv4 is expected. This is the address assigned to this Device on the local network and will be used for management via Visium cloud manager. |
| <code>mask</code>        | IP address mask             | Locally Assigned | Enter the subnet mask assigned. This identifies what sub-network the IP address resides on, identifying the number of significant IP address bits.  |
| <code>gateway</code>     | IP address of access router | Locally Assigned | IPv4 address identifying the router which allows access to internet networks which lie beyond the local network.  |
| <code>dns1</code>        | IP address of access router | Locally Assigned | Primary IPv4 address from which Domain Name Service is obtained. Required to allow the VSBB to connect to the Visium cloud manager.   |
| <code>dns2</code>        | IP address of access router | Locally Assigned | Optional. Secondary IPv4 address from which Domain Name Service is obtained. Required to allow the VSBB to connect to the Visium cloud manager if DNS1 is unreachable.                          |
| <code>ssid</code>        | network name                | Locally Assigned | The network name (SSID) for the wireless interface, not used for the wired interface. For wired networks, leave this blank.   |
| <code>key</code>         | network password            | Locally Assigned | The network password for the wireless interface, not used for the wired interface. For wired networks leave this blank.   |

## 4.6 Applying Network Changes & Enrolling the VSBB100 with the Visium Manager

After the network values have been saved to the `networkconfig.json` file, save the file to a FAT32 formatted USB memory device along with a proper `enrollment.json` file and plug it into the USB port of the VSBB100 while the device is powered on. Once inserted into the VSBB100, you should see a prompt informing you that a USB device has been connected. The VSBB100 will begin applying the network configuration and load the parameters defined in the `enrollment.json`. Once the network configuration has loaded, the VSBB100 will be able to access the Visium management server as long as the defined network has access to the Internet. Once you see that the activity light on the USB device has stopped flashing, you can remove the USB device and reboot the VSBB100 one more time so that it can apply its configuration and channel plan referenced in the enrollment file.



**NOTE:** Refer to the operation procedures for the Visium Manager in the appropriate manual on how to create an enrollment file and how to finalize device registration.



**NOTE:** If network changes are required at a future date, simply edit the `networkconfig.json` again and insert the USB to the VSBB100. For this, only the `networkconfig.json` is needed on the USB device as the VSBB100 would already be enrolled at this point. The TV will display on-screen status of the update and you do not need to reboot the VSBB100 to apply the change.

### 4.6.1 Activate Multiple VSBB100 Devices

Multiple individual VSBB100 devices may be registered with the same saved USB configuration files as long as the network parameters would still apply to all devices. If network parameters would be different, a new `networkconfig.json` must be created for the different network values.

# INSTALLER CONFIGURATION

## 5. Installer Configuration

After registration of the VSBB is complete as described in “4. Installation and Network Setup” on page 4-1 there are local configurations to be completed for each box in relation to the specific room and TV set. There are two menus to access:

- **Main Menu** - Selected using the Menu button on the remote control
- **Installer Menu** - Accessed using the keypad sequence ‘5011602 then OK’. This key sequence is the default but may be changed in the cloud manager.

### 5.1 Remote Controls

There are two remote controls with slightly different layouts available. Both are learning remotes and will both be covered here next.

#### 5.1.1 Version 1

This is the menu navigation button layout of the original IR Remote Control.

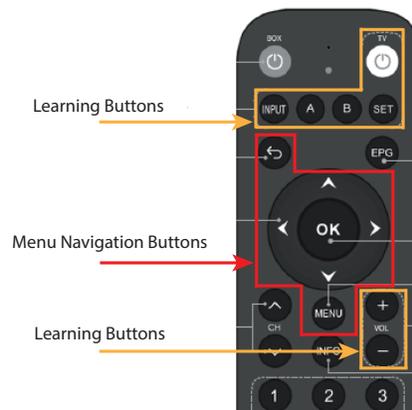


Figure 5-1: V1 Menu Navigation

#### 5.1.2 Version 2

This is the menu navigation button layout of the second version IR Remote Control.

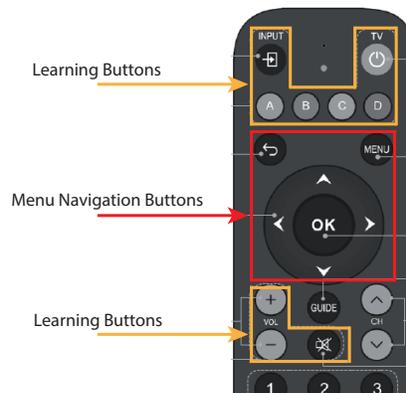


Figure 5-2: V2 Menu Navigation

- This remote control does not have the ‘Box’ power button. The TV power button now uses CEC (Consumer Electronics Control) protocol to turn off the TV while putting the box in standby mode. The TV button can also learn to turn off the TV directly.
- The learned functions may be ‘forgotten’ or erased. For details, see “3.3 Version 2 Remote - Erase Learned Functions” on page 3-3.
- EPG button is re-named simply “Guide”.
- Two additional ‘wild card’ learning buttons

## 5.2 Main Menu

The Main Menu, is accessed by pressing the **Menu** button on the remote control. These menus are accessible to the end user however, it may be necessary for the installer to initially set some of the options to a format that will give the best viewing experience.

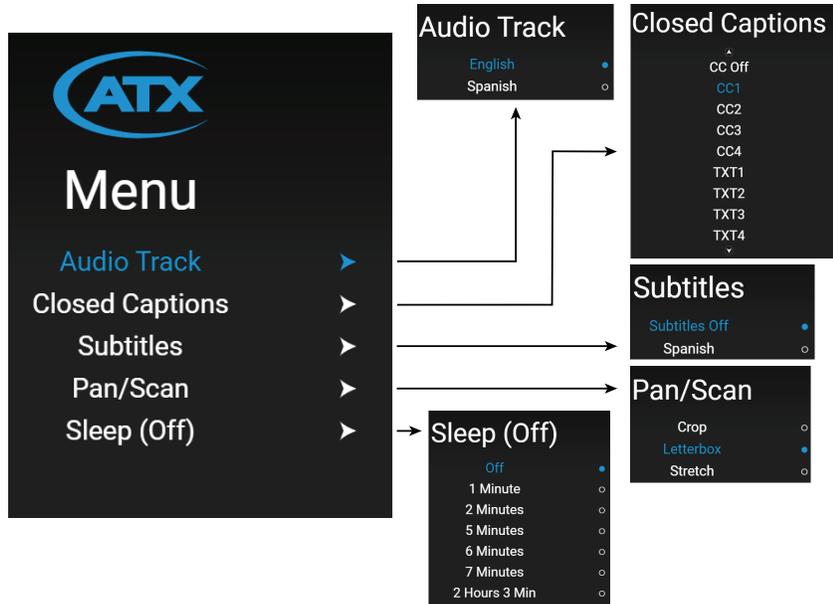


Figure 5-3: Main Menu & Sub Menus

Table 5.2a: Main Menu Options & Descriptions (See )

| Parameter       | Configurable                 | Typical Setting | Parameter Description   |
|-----------------|------------------------------|-----------------|---|
| Audio Track     | English<br>Spanish           | English         | Set to "true" to enable this interface(default), setting "false" disables the interface.  |
| Closed Captions | Multiple CC Choices          | Off             | Multiple Closed Caption types may be selected by the end user including CC1, CC2, CC3, CC4, TXT1, TXT2, TXT3, TXT4 etc.               |
| Subtitles       | Off<br>Spanish               | Off             | Spanish subtitles may be activated using this menu item if required by the end user.  |
| Pan/Scan        | Crop<br>Letterbox<br>Stretch | Letterbox       | Some video broadcast is not in full HD format. This selection will allow other formats to fill the screen if desired by the end user. |
| Sleep Timer     | Multiple Choices             | Off             | The end user may select a timer from the choices to turn off the set back box and TV after a set time period.                         |

### 5.3 Setup Menu

The Setup Menu is intended for installers only, Figure 6-4. This is a hidden menu that is only accessible by inputting a key sequence on the remote control. The default sequence is '5011602 then OK' but this may be changed in the Visium Manager or in menu on VSBB 100s with software version 1.0.1.171 and newer.

Press the **Key Sequence** on the remote control to reach the **Setup** menu. Press the **Left/Right** and **Up/Down** arrow buttons to select sub-menus. Accept changes with the **OK** key.

This menu is used by the installer primarily to set the following parameters:

- Room Number.
- Audio Output.
- Video Parameters such as Aspect Ratio, Resolution, and more.
- Offline mode which is used to configure the boxes to work independently of the Visium Manager.
- Channel Plan which is used to perform a QAM scan, export, and import channel plans.
  - Note that the Offline Mode – Local Config option must be enabled, otherwise the Channel Plan will be overwritten by the channel plan from the Visium Manager

Diagnostic functions are available from this menu such as for Device, Network, Visilink, Stream Diagnostics and the ability to save a diagnostic file to USB device for troubleshooting along with Logs and CEC information.

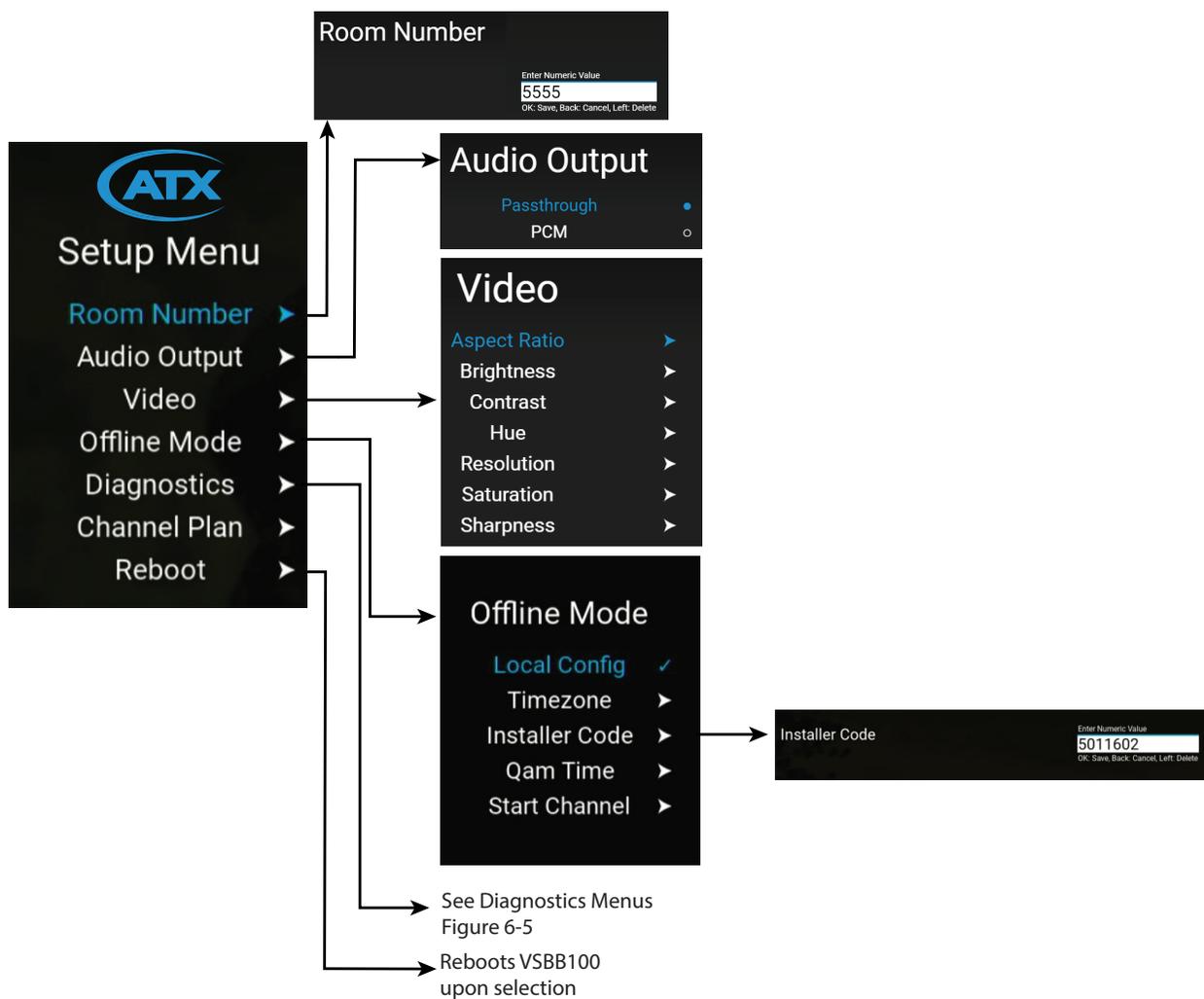


Figure 5-4: Setup Menu & Sub Menus

**Table 5.3a: Setup Menu Options & Descriptions (See )**

| Parameter    | Configurable   | Typical Setting | Parameter Description   |
|--------------|--|-----------------|---|
| Room Number  | Integer  | Room #          | Enter the room number to help identify this VSBB  |
| Audio Output | Passthrough<br>PCM   | Passthrough     | Set to Passthrough or PCM depending on TV set requirements.   |
| Video        | Aspect ratio<br>Brightness<br>Contrast<br>Hue<br>Resolution<br>Saturation<br>Sharpness |                 | These options may be adjusted to fine tune the video output to suit the television. Some of these settings can compensate for aging TV displays.<br><br>When setting Resolution to "1080p60", the Aspect ratio may need to also be changed to "16:9" instead of "Automatic". This should correct any issues with channels not filling in the entire viewing area of the television. |
| Offline Mode | Local Config,<br>Timezone,<br>Installer Code,<br>Qam Time,<br>Start Channel            |                 | When Local Config is enabled, the user can set parameters needed to configure the VSBB in "Offline Mode"  |
| Diagnostics  |  |                 | Diagnostics available include Device, Network, Visilink and QAM or IP Stream. When selecting a stream diagnostic, click OK to save the info to a USB device.  |
| Channel Plan | QAM Scan,<br>Import Plan,<br>Export Plan   |                 | When Offline Mode is configured, the user can then scan the RF QAM plant to add channels. The user can then export the channel plan and import it on other boxes.   |
| Reboot       |  |                 | By selecting this option, the VSBB100 will immediately reboot.  |

### 5.3.1 Diagnostics Menus

The diagnostics menus, , are accessed from the Setup menu using the programmed access code and may be used to provide network and device information plus the current status of the Visilink (cloud manager) connection and the currently displayed channel. When selecting a stream diagnostic, click OK to save the info to a USB device.

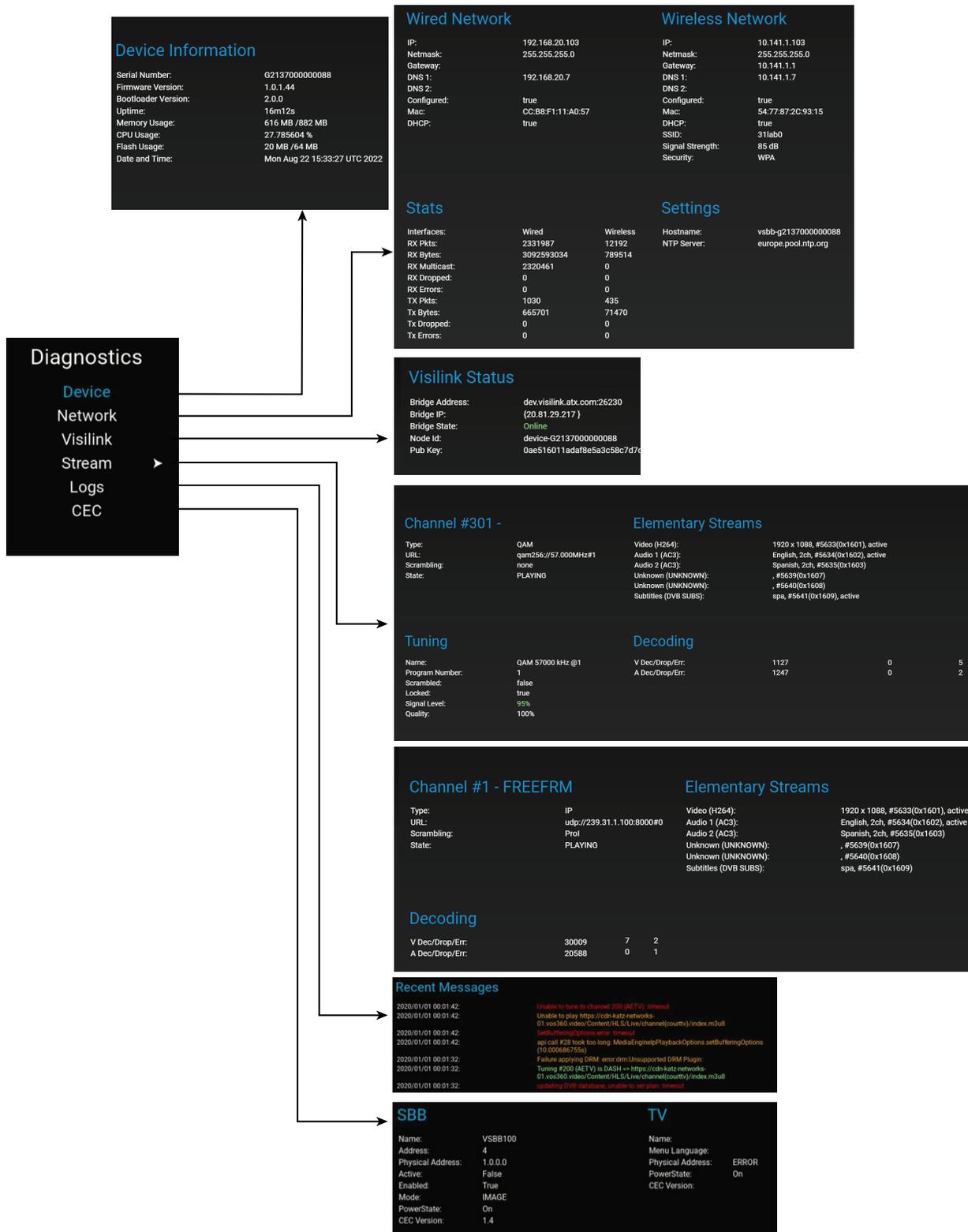


Figure 5-5: Diagnostics Menu & Sub Menus

## 5.4 Configuring “Offline Mode”

The VSBB has the ability to work independently from the Visium Manger in what is called “Offline Mode”. Below are instructions on how to activate and configure the boxes in “Offline Mode”.

Access the installer menu by entering in **5-0-1-1-6-0-2** and pressing **OK** on the VSBB remote. This value can be changed in the **Offline Mode -> Installer Code** menu.

Once in the Offline Mode menu, you can select **Local Config** to enable offline mode and all the features associated with it.

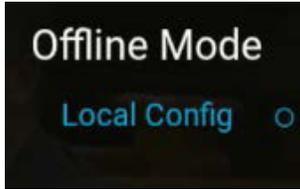


Figure 5-6: Offline Mode Disabled

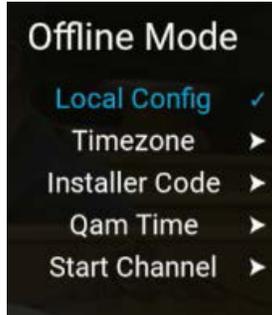


Figure 5-7: Offline Mode Enabled

### 5.4.1 Offline Mode Descriptors

Below is a description of all the configurable sub-menus that will appear once Local Config is enabled.

#### 5.4.1.1 Timezone

This can be used to change the Time zone of the VSBB and should be configured properly so that the Time and EPG data are shown correctly.

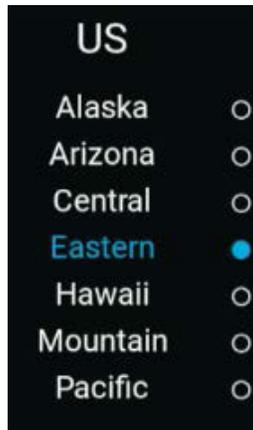


Figure 5-8: Timezone

#### 5.4.1.2 Installer Code

Here the user can change the Installer menu code to enter the Installer menu.



Figure 5-9: Installer Code

### 5.4.1.3. QAM Time

Once the user has scanned for channels, the user will be able to configure the Qam Time Sync options. As of software version 1.0.1.171 and older, the user will not see any options here until the user has performed a channel scan.

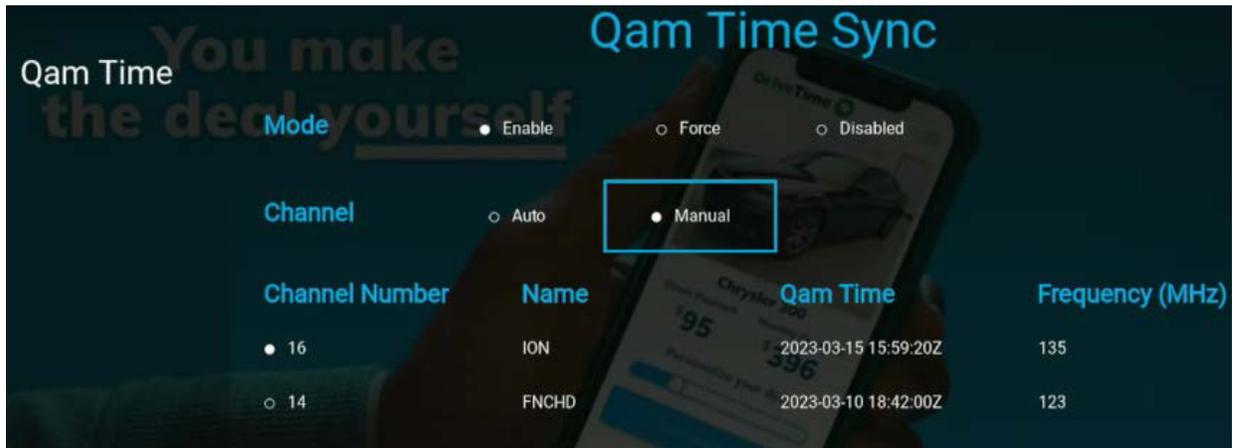


Figure 5-10: QAM Time

#### Mode:

|          |   |                          |
|----------|---|--------------------------|
| Enable   | When in use QAM scan will detect STT,ETT and EIT pids and uses the to build a channel map with PSIP Data. | Default                  |
| Force    | This mode will force the VSBB to use the STT time received as the real UTC clock.                         | Needed for COM300 System |
| Disabled | Will disable all PSIP ingestion, no clock or PSIP data will be displayed.                                 |                          |

#### Channel:

|        |   |  |
|--------|---|--|
| Auto   | The VSBB will detect and display STT, ETT, and guide information on the channel that provided the most information. |  |
| Manual | The VSBB will continuously use the STT and ETT information from the selected channel.                               |  |

### 5.4.1.4. Start Channel

Here, the user can enter the channel that the box will tune to once the box is turned on. As of software version 1.0.1.171 and older, only whole channel numbers will work. Channel numbers with a minor channel (such as 51.2 or 51-2, etc.) can not be entered.



Figure 5-11: Start Channel

## 5.4.2 Scan for Channels

Once “Offline Mode” has been configured, the user can then scan for channels and go back to adjust Qam Time Sync if needed.

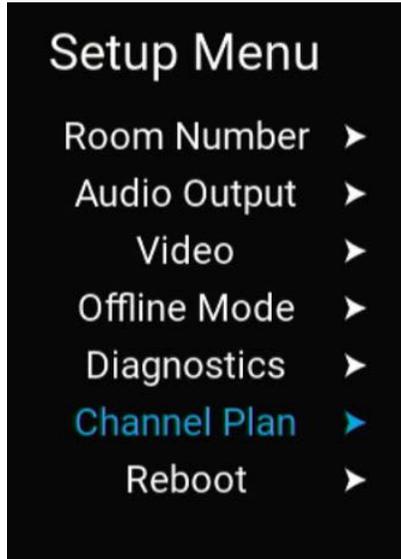


Figure 5-12: Scan for Channels

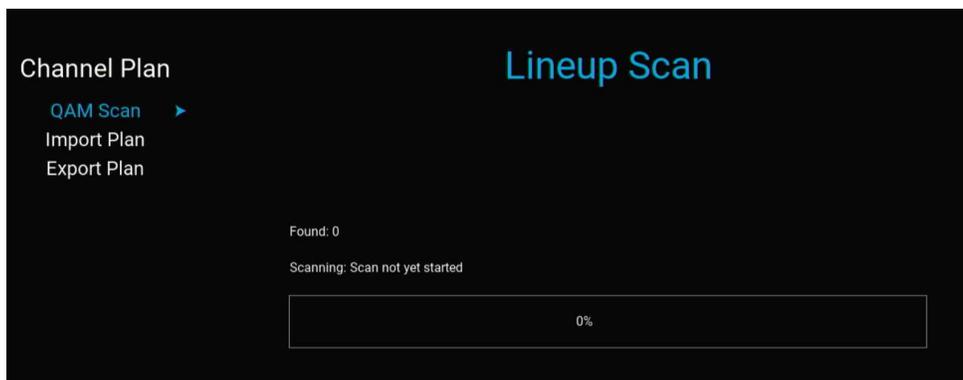


Figure 5-13: Lineup Scan

The user can also export the channel plan to a USB stick if one is inserted then loaded onto other boxes using this menu.

## 5.5 Exporting & Modifying a Channel Plan in “Offline Mode”

When configuring a site using “Offline Mode”, a way to speed up deployment is to fully configure one VSBB, export the channel plan within the Installer Menu then apply the channel plan to subsequent VSBBs at the site. This is especially useful when pairing with a headend that does not output Virtual Channel Numbers, Channel Names or Channel Descriptors. The installer can export the channel plan, modify or change it to include details such as Virtual Channel Numbers, Channel Names, or Channel Descriptors then upload to the original VSBB and any other VSBBs that will have the same channel map and plan.

It is important to note that if the channel plan is to be applied to VSBBs at other sites, the channels must be outputting to same frequency and have the same program numbers as the original site the channel map was pulled from. Otherwise, there will be a mismatch and some channels may not map properly and display no output or have mismatched information.

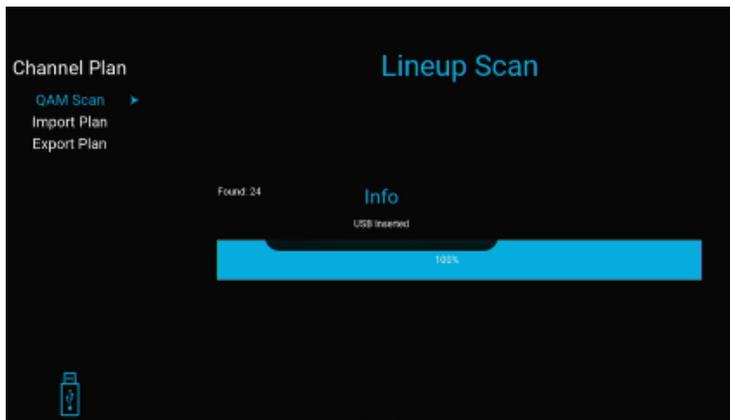
In addition, it is important to note that the procedure below will only work properly if the headend does not output virtual channels, and channel names to the RF plant. If a headend does output this information, the VSBB will eventually overwrite the custom channel plan with the one on the RF plant. In this situation, the recommendation will be to adjust these values at the headend.

Lastly, it is crucial to understand that any changes made to the RF plant after the channel map was downloaded can result in mismatched, incorrect or erroneous information, or issues with channel playback. An example of this would be if the user scanned a box for channels that had no encryption and then at a later point enabled encryption at the headend after the channel maps were loaded to subsequent VSBBs.

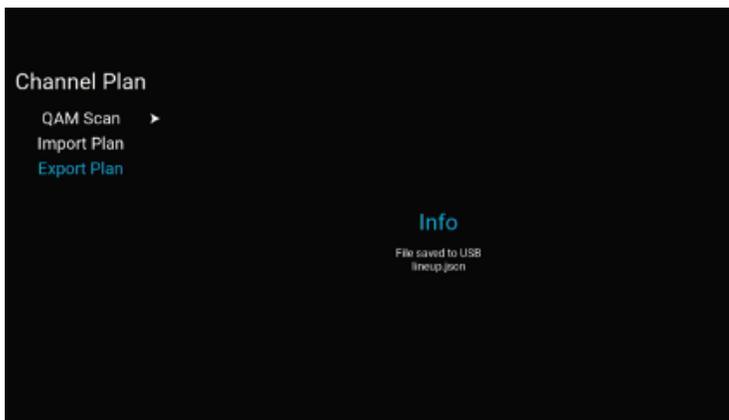
The procedure below outlines the process of exporting, editing and importing the channel plan.

### 5.5.1 Exporting, Modifying & Importing a Channel Plan

1. Follow the instructions in section 5.4 Configuring “Offline Mode” to ensure the VSBB is operating in the correct mode.
2. Scan for channels as outlined in section 5.4.2 Scan for Channels
3. Connect an empty FAT32 formatted USB into the VSBB



4. Go to “Export Plan” and hit the “OK” button on the VSBB remote.



5. **Connect the USB to a computer and open up the “lineup.json” file in a notepad or text editor. The fields that would need to be edited would be the following:**
  - a. “channelid”: ← This would be where the Virtual Channel would be entered.
    - i. Example: “channelid”: “102” ← The Virtual Channel will be ‘102’.
  - b. “label”: ← This would be the channel description that would show up in the channel guide.
    - i. Example: “label”: “Home Garden Network TV” ← This would show up in the guide for this channel when pushing the ‘EPG’ button on the Gen 1 remote or ‘GUIDE’ button on the Gen 2 remote.

- c. "callsign": ← This would be the short channel name that would show under the Virtual Channel Number in the VSBB GUI.
  - i. Example: "callsign": "HGTV" ← This would show under the Virtual Channel Number in the VSBB GUI.
- d. "scanner": ← This is a backend feature used for scanning background data in the QAM stream. By default, it will show "tables", indicating that it is pulling information from the QAM streams. This should be cleared so the VSBB does not attempt to pull additional data for these channels. Set it to the following:
  - i. BEFORE – "scanner": "tables",
  - ii. AFTER – "scanner": "",

Below is an example of a channel lineup pulled directly from a VSBB after scanning:

```

"scanresults": [
  {
    "scanner": "tables",
    "percent": 100,
    "foundservices": 24,
    "currentstate": "Exported from G2234000008217 on 2023-04-28 17:38",
    "config": {
      "egg": {
        "stations": null,
        "programs": null,
        "schedules": null
      },
      "channelplan": {
        "channels": [
          {
            "index": 0,
            "channelid": "3.3", < Modify this value with the desired Virtual Channel Number
            "cmsid": "Q-3.69664771",
            "cmsidisplay": "Q-3.69664771",
            "label": "Cable Channel 3 Program #3", < Modify this value with the desired Channel Description
            "callsign": "3.3", < Modify this value with the desired Channel Name
            "lang": "",
            "location": "",
            "vot_major": 3,
            "vot_minor": 3,
            "cunlotype": "qam",
            "cyphtype": "cleartext",
            "programid": 3,
            "qammode": "qam256",
            "qamfrequency": 63000000,
            "drmconf": {
              "Plugin": "",
              "CustomDataMetadata": "",
              "Vendor": ""
            },
            "scanner": "tables", < Modify so it reads as "scanner": ""
            "qam_time_source": "162650e0"
          },
          {
            "index": 1,
            "channelid": "3.4", < Modify this value with the desired Virtual Channel Number
            "cmsid": "Q-3.69664772",
            "cmsidisplay": "Q-3.69664772",
            "label": "Cable Channel 3 Program #4", < Modify this value with the desired Channel Description
            "callsign": "3.4", < Modify this value with the desired Channel Name
            "lang": "",
            "location": "",
            "vot_major": 3,
            "vot_minor": 4,
            "cunlotype": "qam",
            "cyphtype": "cleartext",
            "programid": 4,
            "qammode": "qam256",
            "qamfrequency": 63000000,
            "drmconf": {
              "Plugin": "",
              "CustomDataMetadata": "",
              "Vendor": ""
            },
            "scanner": "tables", < Modify so it reads as "scanner": ""
          }
        ]
      }
    }
  }
]

```

Below is an example of some modifications that have been applied to the channel plan:

```

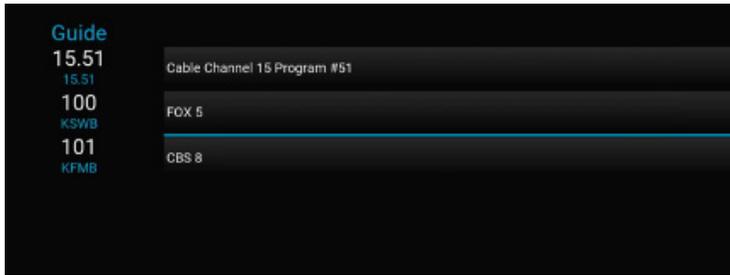
"scanresults": [
  {
    "scanner": "table",
    "percent": 100,
    "foundservices": 24,
    "currentstate": "Exported from 62234000008217 on 2023-04-28 17:38",
    "config": {
      "spg": {
        "Stations": null,
        "Programs": null,
        "Schedule": null
      },
      "channelplan": {
        "channels": [
          {
            "index": 0,
            "channelid": "100", < Modify this value with the desired Virtual Channel Number
            "cmsid": "Q-2.69271553",
            "cmsidisplay": "Q-2.69271553",
            "label": "FOX 5", < Modify this value with the desired Channel Description
            "callsign": "KSWB", < Modify this value with the desired Channel Name
            "lang": "",
            "location": "",
            "vct_major": 3,
            "vct_minor": 1,
            "tuningtype": "qam",
            "cypertype": "cleartext",
            "programid": 1,
            "qammode": "qam256",
            "qamfrequency": 57000000,
            "drmcconfig": {
              "Plugin": "",
              "CustomDataMetadata": "",
              "Vendor": ""
            },
            "scanner": "", < Modify so it reads as "scanner": ""
            "qam_time_source": 104866400136480101
          },
          {
            "index": 1,
            "channelid": "101", < Modify this value with the desired Virtual Channel Number
            "cmsid": "Q-2.69271554",
            "cmsidisplay": "Q-2.69271554",
            "label": "CBS 5", < Modify this value with the desired Channel Description
            "callsign": "KFMB", < Modify this value with the desired Channel Name
            "lang": "",
            "location": "",
            "vct_major": 3,
            "vct_minor": 1,
            "tuningtype": "qam",
            "cypertype": "cleartext",
            "programid": 2,
            "qammode": "qam256",
            "qamfrequency": 57000000,
            "drmcconfig": {
              "Plugin": "",
              "CustomDataMetadata": "",
              "Vendor": ""
            },
            "scanner": "", < Modify so it reads as "scanner": ""
            "qam_time_source": 104866400136480101
          }
        ]
      }
    }
  }
]

```

6. Once the changes have been made, save the file back to the USB stick and insert it into the VSBB.
7. On the VSBB, go back to the Channel Plan menu where the Channel Plan was exported.
8. Highlight "Import Plan" and hit the "OK" button on the VSBB remote to import the channel plan.



9. Exit out of the menus and open the guide to confirm the plan was uploaded accordingly.



- a. The 2 channels that were modified in the Channel Plan have been updated on the VSBB. In this specific example, all other channels remain the same.
10. Once confirmed, the installer may now load the Channel Plan to other VSBBs at the site.
    - a. Make sure to enable "Offline Mode" and configure all "Offline Mode" variables before loading the channel plan on subsequent VSBBs.

## 5.6 Editing the Encryption Type on the Channel Map

If the user needs to enable or disable encryption for channels on the RF plant, rather than rescanning the VSBBs and potentially losing the adjusted virtual channel and channel names from a previously loaded channel map, the user can modify an existing channel map file and reload them to the VSBBs.

If the channels will be changing from non-encrypted to encrypted and back and forth or it is not known whether this may change in the future, the user may elect to enable encryption on all channels. The video will play fine regardless if channels are coming in encrypted or non-encrypted when encryption is enabled in the channel's map file.

To modify the encryption type, download the channel map as indicated above and look for "cyphertype": under every program that needs adjusting.

To disable encryption enter → "cyphertype" : "cleartype",

```

"index": 1,
"channelid": "3.4",
"tmsid": "Q-3.69664772",
"tmsiddisplay": "Q-3.69664772",
"label": "Cable Channel 3 Program #4",
"callsign": "3.4",
"lang": "",
"location": "",
"vct_major": 3,
"vct_minor": 4,
"tuningtype": "qam",
"cyphertype": "cleartext",
"programid": 4,
"qammode": "qam256",
"qamfrequency": 63000000,
"drmconfig": {
  "Plugin": "",
  "CustomDataMetadata": "",
  "Vendor": ""
},
"scanner": "tables",
"qam_time_source": -16265060

```

To enable Pro:Idiom encryption enter → “cyphertype”: proidiom”,

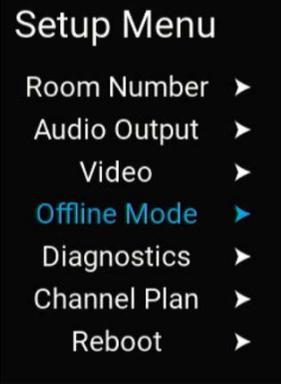
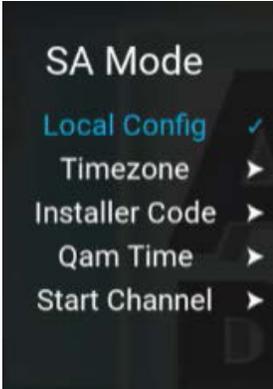
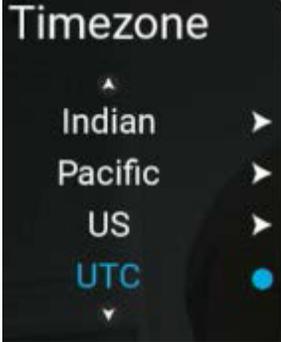
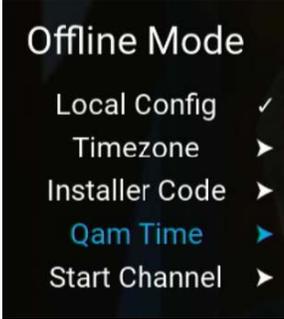
**Example:**

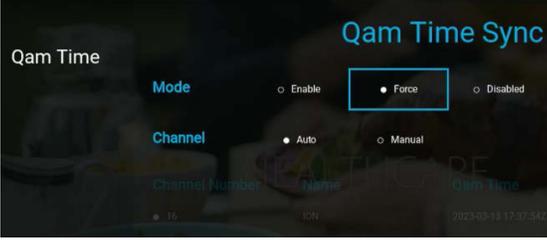
```
"index": 0,  
"channelid": "4",  
"tmsid": "Q-4.70057992",  
"tmsiddisplay": "Q-4.70057992",  
"label": "Cable Channel 4 Program #8",  
"callsign": "4.8",  
"lang": "",  
"location": "",  
"vct_major": 4,  
"vct_minor": 1008,  
"tuningtype": "qam",  
"cyphertype": "proidiom",  
"programid": 8,  
"qammode": "qam256",  
"qamfrequency": 69000000,  
"drmconfig": {  
  "Plugin": "",  
  "CustomDataMetadata": "",  
  "Vendor": ""  
},  
"scanner": "tables",  
"qam_time_source": 9692559
```

## 5.7 Special Considerations

### 5.7.1 Using the COM3000

When configuring the VSBB100 in conjunction with the COM3000 system, special considerations must be used so that time is displayed properly on the VSBB100. If using mode “0” with a TimeZoneOffset set to a value other than “0” on the COM3000, use the steps below to configure the VSBB100 properly:

| Steps  |  |  |
|--------|--|--|
| Step 1 | Enter the Installers Menu using the default or user configured code. |  |
| Step 2 | Go into the <b>Offline Mode</b> menu                                 |    |
| Step 3 | Enable <b>Local Config</b> if not already enabled                    |   |
| Step 4 | Change <b>Timezone</b> to UTC  |  |
| Step 5 | Enter <b>Qam Time</b>  |  |

|        |   |  |
|--------|---|--|
| Step 6 | Change <b>Mode</b> to <b>Force</b> and set <b>Channel</b> on <b>Auto</b>              |  A screenshot of the 'Qam Time Sync' settings menu. The title 'Qam Time Sync' is at the top right. Under the heading 'Qam Time', there are two sections: 'Mode' and 'Channel'. The 'Mode' section has three radio button options: 'Enable', 'Force', and 'Disabled'. The 'Force' option is selected and highlighted with a blue box. The 'Channel' section has two radio button options: 'Auto' and 'Manual'. The 'Auto' option is selected. Below these sections, there are labels for 'Channel Number', 'Name', and 'Qam Time'. At the bottom right, the date and time '2023-03-13 17:37:54Z' are displayed. |
| Step 7 | EPG should now display the correct Time and show correct EPG guide info if available. |  |

# THEMES

## 6. Themes

The entire On Screen Display for the SBB may be updated with different colors, icons, and the customer logo. The icons and logos must be in an SVG format. Updating the theme requires knowledge of Cascade Style Sheets (CSS).



**WARNING: Missing or incorrect CSS styles will result in OSD not displaying correctly. CCS is based on Chromium 55.0.2883.7**

### 6.1 Create and Install a Theme

The process of changing themes within a set back box involves:

1. Create a new theme in SVG format within a zip file.
2. Save the **theme.zip** file to the root of a USB memory device.
3. Insert the USB device into a booted VSBB100 box.
4. Wait for at least 5 seconds then remove the USB device.
5. Reboot the VSBB box using the option in the installer menu or hold the 'Box' button on a Version 1 remote control for 10 seconds.

#### 6.1.1 Theme File Structure

The theme.zip file MUST contain these folders and subfolder.

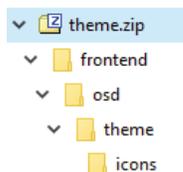


Figure 6-1: Folder Structure

#### 6.1.2 Theme Files

These are the files within the “theme” directory. Missing files will result in using the VSBB default files

- operator.svg – the customer/operator logo
- osd-font.ttf – font file to be used on the OSD
- bundle.css – the CSS file used to make formatting changes

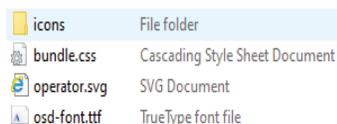


Figure 6-2: Theme Files

### 6.1.3 Theme Icon Files

These are files within the “icon” directory. Missing files will result in using the VSBB default files.

|  |              |
|--|--------------|
|  Back.svg               | SVG Document |
|  CC.svg                 | SVG Document |
|  Down.svg               | SVG Document |
|  EPG.svg                | SVG Document |
|  HD.svg                 | SVG Document |
|  Info.svg               | SVG Document |
|  Left.svg               | SVG Document |
|  Menu.svg               | SVG Document |
|  MenuRight.svg          | SVG Document |
|  MenuRightHighlight.svg | SVG Document |
|  Mute.svg               | SVG Document |
|  OK.svg                 | SVG Document |
|  Right.svg              | SVG Document |
|  Up.svg                 | SVG Document |
|  USB.svg                | SVG Document |
|  USBMissing.svg         | SVG Document |
|  VolHigh.svg            | SVG Document |
|  VolLow.svg             | SVG Document |
|  VolMed.svg             | SVG Document |

Figure 6-3: Theme Icon Files

## 6.2 Remove a Theme

Create an empty theme.zip file that only contains the directory structure then follow the instruction for installing the theme.

## SERVICE & SUPPORT

### 7. Service & Support

#### 7.1 Contact ATX Networks

Please contact ATX Technical Support for assistance with any ATX products. Please contact ATX to obtain a valid RMA number for any ATX products that require service and are in or out-of-warranty before returning a failed module to ATX.

##### TECHNICAL SUPPORT

Tel: 289.204.7800 – press 1  
Toll-Free: 866.YOUR.ATX (866.968.7289) USA & Canada only  
Email: [support@atx.com](mailto:support@atx.com)

##### SALES ASSISTANCE

Tel: 289.204.7800 – press 2  
Toll-Free: 866.YOUR.ATX (866.968.7289) USA & Canada only  
Email: [insidesales@atx.com](mailto:insidesales@atx.com)

##### FOR HELP WITH AN EXISTING ORDER

Tel: 289.204.7800 – press 3  
Toll-Free: 866.YOUR.ATX (866.968.7289) USA & Canada only  
Email: [orders@atx.com](mailto:orders@atx.com)  
Web: [www.atx.com](http://www.atx.com)



© 2023 by ATX Networks Corp. and its affiliates (collectively "ATX Networks Corp."). All rights reserved. This material may not be published, broadcast, rewritten, or redistributed. Information in this document is subject to change without notice.

Rev. 05/23 (ANW2013) Rev. E



**ATX Networks**

Tel: 289.204.7800 | Toll-Free: 866.YOUR.ATX (866.968.7289) | [support@atx.com](mailto:support@atx.com)

[www.atx.com](http://www.atx.com)