

# STBi3

## 3rd Generation Set Top Box



Updated July 2022  
Firmware version 3.1.0.5

# Notice

## Warnings Cautions and Notes

Throughout the entire user's manual, pay special attention to the following marks that indicate hazardous situations:

### Warning

Indicates a hazardous situation which could result in serious injury

### Caution

Indicates a situation which could damage the equipment or other apparatus.

### Note

Indicates additional information to make the user aware of possible problems and important information to help understand, use and maintain the installation.

## Important Symbols



To reduce risk of electric shock, do not open unit or breach power supply enclosure. There are no user serviceable parts inside. Contact ZeeVee support at +1.877.493.3833.



### **DANGEROUS VOLTAGE**

This symbol indicates dangerous voltage inside the receiver that presents a risk of electric shock or personal injury.



### **IMPORTANT INSTRUCTIONS**

This symbol indicates important instructions accompanying the receiver.

# Safety Instructions and Precautions

This receiver has been manufactured to comply with international safety standards. Please read the safety precautions carefully.

## 1. Main Supply (100-240V ~50-60Hz AC)

- Operate this product only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to the location where the receiver is to be used, consult your local power company. Disconnect the product from the main power source before you start any maintenance or installation procedures.

## 2. Connection to the network feed

- Disconnect the product from AC Power before connecting or disconnecting the Ethernet cable.

## 3. Overloading

- Do not overload a wall outlet, extension cord or adapter as this may result in electric fire or shock hazard.

## 4. Liquids

- This product should not be exposed to liquid of any kind. In addition, no objects filled with liquid should be placed on the apparatus.

## 5. Cleaning

- Disconnect the product from the wall outlet prior to cleaning.
- Use a light, damp cloth (no solvents) to dust or clean the product.

## 6. Ventilation

- The slots and openings on the case of the product must be left uncovered to allow for air to pass in and out for proper cooling.
- Do not operate the product on soft furnishings or carpet.
- Do not stack anything on top of the product.

## 7. Attachments

- Do not use unsupported attachments as these may be hazardous or cause damage to the product.

## 8. Extraneous Objects

- Do not insert anything into the openings of the unit.

## 9. Location

- Place the product indoors and avoid exposing it to lightning, rain, or direct sunlight.
- Do not place the product near a radiator or heat register.
- Try to place the unit at least 2 inches (~10cm) from any appliance susceptible to electromagnetic influences, such as a television or radio.
- Insure the ventilation considerations are followed when the unit is in service.
- Do not place the product on an unstable cart, stand, tripod, or bracket where it can fall. A falling object can cause injury and may cause serious damage to the product.

## 10. Lightning, Storm, or Not in Service

- Unplug the product from the wall outlet and disconnect the aerial during a thunderstorm or when left unattended and unused for long periods of time. This will prevent damage due to lightning or power surges.

# Contents

1 Introduction .....	8
2 Quick Setup .....	9
3 STBi3 Ports .....	10
4 Remote Control .....	11
3.1 BUTTON DEFINITIONS .....	12
3.2 PROGRAMMABLE BUTTONS .....	13
3.3 PROGRAMMING THE P1-P5 BUTTONS .....	13
5 Adjusting the TV Screen .....	15
6 Configuring the Network .....	19
7 Configure RF Channels .....	24
8 Installing Applications .....	27
9 Running Applications .....	28
10 Custom Channel List Deployment .....	29
10.1 BACKGROUND .....	29
10.2 CHANNEL GUIDE MODES .....	30
10.3 SERVER REQUIREMENTS .....	31
10.4 SETUP ON STBi3 FOR REMOTE GUIDE .....	32
11 Remote Access .....	37
11.1 REMOTE ACCESS COMMANDS .....	37
11.2 POWER ON/OFF DISPLAY USING CEC .....	40
11.3 LOADING AND DISPLAYING A STATIC IMAGE .....	41
12 Updating System .....	42
13 Channel Guide File Specification .....	43
14 RF Channel Remap File Specification (JSON) .....	50

# Contents

15 Factory Reset .....	52
16 Troubleshooting .....	53
17 Technical Specifications .....	54
18 Declaration of Conformity .....	55
19 Contact ZeeVee .....	56

Latest firmware can be found by visiting the ZeeVee website:

<https://www.zeevee.com/support/firmware-updates/>

## Firmware Release 3.1.0.4 Notes

### RF channel remap feature

- New menu item added to the On Screen User Interface 'RF Channels Remap'
  - Can upload a .json formatted file via USB or webserver.
  - New Web Management commands
  - New ability to use a curl command to upload a local RF Channels Remap file and IP Channel file without the need of a webserver

New Help command to return a listing of the Web Management commands.

### New web management commands

- `http://:8080/help` Brings up a list of Web Management Commands
- `http://:8080/RFRemap=http://[ip-of-file-server]/[rf-reamp.json]` Uploads the RF channel number remap file from a local webserver
- `curl -H 'Expect: 100-continue' -X POST -data-binary @/rfremap.json http://:8080/rfremap` Uploads the RF channel number remap file from a local filesystem>
- `curl -H 'Expect: 100-continue' -X POST -data-binary @/ http://:8080/loadchannels` Uploads the IP Channel List file from a local filesystem
- `http://:8080/eraseRFRemap` Erases the RF channel number remap file and reboots the STBi3
- `http://:8080/doRFScan` Initiate a QAM Cable RF channel scan

Update for CEC power off on some Samsung TVs

ADB disabled to limit error messages

Text changed from "No Signal" to "Channel Not Available"

Latest firmware can be found by visiting the ZeeVee website:

<https://www.zeevee.com/support/firmware-updates/>

## Firmware Release 3.1.0.1 Notes

### New Web management Commands

- help - Brings up a list of Web Management Commands
- RFRemap - Uploads the RF channel number remap file from a local webserver
- doRFScan - Initiate a QAM Cable RF channel scan
- eraseRFRemap - Erases the RF channel number remap file and reboots the STBi3

### New User Menu Commands

- RF Channels Remap
  - Offers the user to choose to upload the remap file from a local USB stick or from an external web server.
  - Requires the user to reboot the STBi3 in order to have the change take effect

## Firmware Release 3.04 Notes

- Closed Captioning over RF (QAM)
- Synced video playback
  - Multiple STBi3 units playing the same stream will automatically synchronize with each other.
- Ability to view MJPG streams created by ZeeVee ZyPerMX2/ ZyPerMX4 and ZeeVee 3KHVM4i/3KHXM4i blades for HDB3000.
- WiFi feature enabled for web management and Unicast streams. Including MJPG stream mentioned above.
- New web management controls.

# 1 Introduction

The STBi3 IP Set Top Box is a small, powerful, unit designed to receive IP streams, decode, and present to the user the IP and RF delivered content as simply as if they were watching broadcast television.

The STBi3 is designed to work in tandem with ZeeVee ZyPerMX, ZyPerMX2/4, HDbridge and ZvPro iSeries streams; as well as RF modulated signals from ZeeVee HDbridge and ZvPro series products. STBi3 features include:

- STBi3 auto-discovers the ZyPerMX, ZyPerMX2/4, HDbridge and ZvPro iSeries streams, which are added automatically to the channel lineup.
- Additional channels/streams can be added manually.
- PoE power
- Supports common compressed HD formats: H.265, H.264, MPEG-2, MPEG-4, and others.
- Supports many kinds of IPTV programs.
- Infrared remote control with programmable buttons allows direct control of the television (unified remote control for controlling user experience).
- Built in QAM and ATSC Tuner.



## 2 Quick Setup

Connect the STBi3 to power and connect the STBi3 to a display using an HDMI cable. Use a standard Ethernet cable to connect to the Network Router or Switch. If streaming RF signals; connect a Coax cable from the modulated signal network.

Prior to streaming video, you must first configure the Network settings on the STBi3.

Using the remote control, hit the MENU button to access the Main options screen. Using the arrow keys navigate to the setup icon (the GEARS) and click there. See details below in the section “Configuring the Network”.

**Tip:** The STBi3 can make use of a USB HID device. Simply connect a standard USB keyboard to one of the USB-Type A ports on the STBi3. The on-screen keyboard can be used with the remote control, but it is slow and cumbersome for anything more than a single box.

**Note:** It is critical to ensure that the STBi3 is assigned an IP address either statically or using DHCP before you will be able to stream video.

Once the Network is configured the STBi3 will automatically detect and add to the channel lineup any multicast video stream from ZyPerMX, ZyPerMX2/4, HDbridge and ZvPro iSeries devices on the same network. To add video streams from other sources the Channel Guide must be updated manually. Please see the “Channel Guide File Specification” chapter for details.

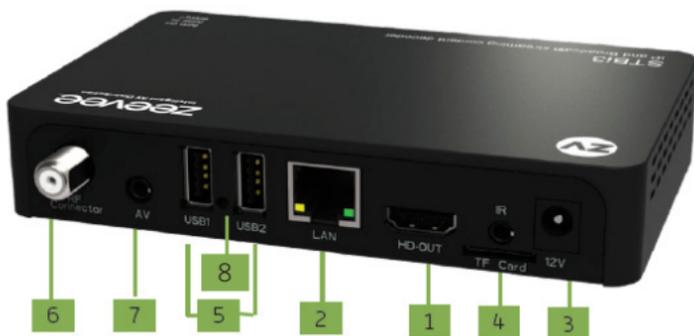
See the section on Configuring RF channels to add RF channels to the lineup.

**Note:** The STBi3 can be configured to receive some IP streams over a WiFi Network. Please test WiFi bandwidth to ensure acceptable streaming performance.

**Important Note:** If using PoE with STBi3 units; the STBi3 must have a path to ground. This grounding can be accomplished by using a shielded (F/UTP) network cable or by making sure the STBi3 itself or the connected HDMI display is grounded. (i.e. A 3-prong power connector on display)

## 3 STBi3 Ports

The image below provides information on the ports available on the STBi3 unit.

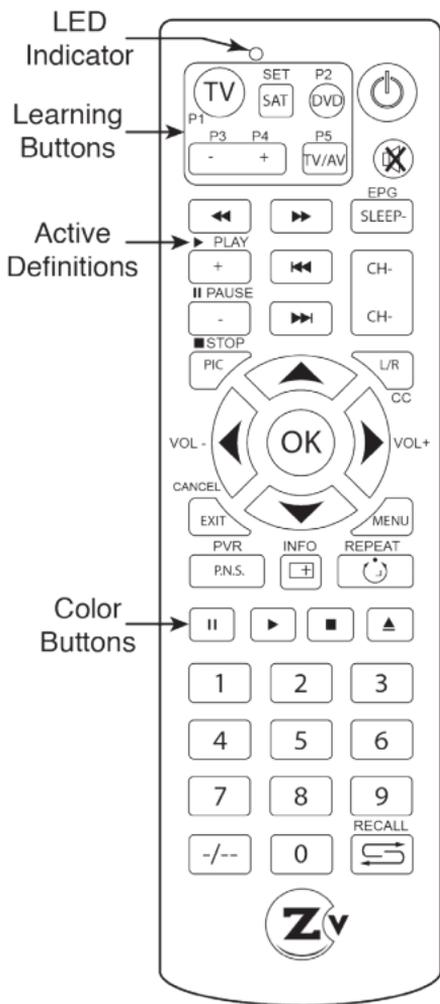


- |                              |                                     |
|------------------------------|-------------------------------------|
| 1. HDMI Cable, Connect to TV | 5. USB Ports                        |
| 2. Ethernet Cable, [PoE]     | 6. QAM & ATSC 2.0 Input             |
| 3. Power Connector           | 7. Analog Audio Output [3.5mm jack] |
| 4. IR Receiver Input         | 8. Factory Reset [See section 15]   |

The STBi3 decoder includes an integrated IR Receiver. An external IR receiver can be connected to the provided IR Receiver input port. The specific IR Receiver to be used can be found here:

[https://www.amazon.com/gp/product/B01N22400J/ref=ppx\\_yo\\_dt\\_b\\_asin\\_title\\_o00\\_s01?ie=UTF8&psc=1](https://www.amazon.com/gp/product/B01N22400J/ref=ppx_yo_dt_b_asin_title_o00_s01?ie=UTF8&psc=1)

## 4 Remote Control



The STBi3 decoder is supplied with a partial learning remote control device. Buttons P1-P5 can be programmed to mimic the functions of a select set of buttons from another remote control unit.

The intention is that the TV viewing experience can be controlled from a single handset to include power and volume control of the television set and all other functions directed at controlling the STBi3 decoder.

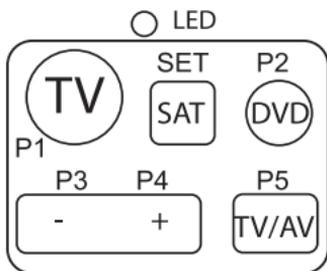
**Note:** The Dash button does not work with the STBi3 RF tuner app.

Users must use the “red” button to insert a dash.

## Button Definitions

Key	Definition
	Power. Pressing once turns on STBi3 again turns it off
	Mute. Disables/Enables audio
	Displays Electronic Program Guide information
	Quick channel up and down buttons when watching television programs.
	Cancels/Exits menu levels when navigating interface.
	Displays current playback information
	Causes repeat mode to be entered when playing stored media
	Color buttons. Program specific meaning. Red button used to insert a dash for RF tuner channels.
	The Dash button does not work with the STBi3 RF tuner app. Users must use the "red" button to insert a dash.
	Recall last channel being played
0-9	Numeric digits for entering channel numbers
	Navigation buttons when driving configuration interface. During normal playback Up/Down sets channels, Left/Right sets volume and OK displays channel list.

## Programmable Buttons



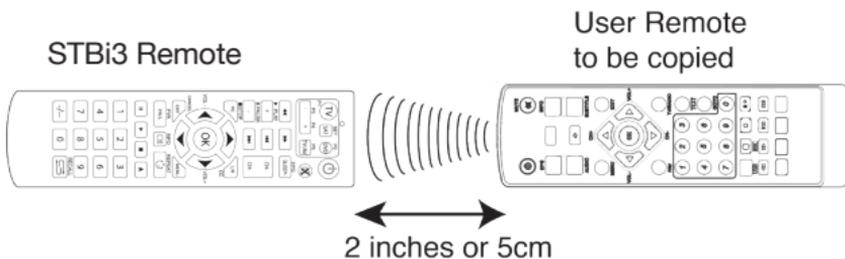
The upper-left portion of the remote houses a set of programmable keys. The intent is to allow for common television functions to be programmed so the user only needs to use a single remote control device to manage their television experience when using the STBi3 receiver/decoder.

Keys P1 through P5 can be set to any function the user desires. The labeling is present only to provide visual cues the user may use to help remember which key has been programmed to which function.

The “SET” key has a fixed function that is not programmable. It initiates the programming process for setting the P1-P5 key functions.

## Programming P1-P5 Buttons

The STBi3 remote has been tested to be compatible with a large number of remotes. However, some manufacturers use infrared codes that are obscure and cannot be “copied” into the programmable keys of the STBi3 remote.



To program a key the following sequence shall be executed:

**Step 1: Press and hold the "SET" button for three seconds**

- The RED LED lights immediately when the button is pressed
- After 3 seconds the LED changes to a very bright state

**Step 2: Press the key you wish to program (P1-P5)**

- The RED LED changes to a slow flash (1/second)

**Step 3: Press the key on the remote that you are copying**

- The RED LED performs three quick flashes to acknowledge
- RED LED turns on solid again.
- Repeat steps 2 and 3, or simply wait for light to extinguish

**Step 4: Test Programmed key on television or device to be controlled**

- If command is not executing properly, repeat steps 1-3

## 5 Adjusting the TV Screen

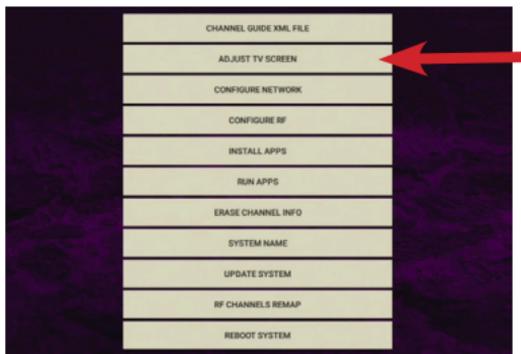
While watching television -> Hit the MENU button

That brings up the Main options screen.

Then navigate over to the Setup icon (the GEARS) and click there.

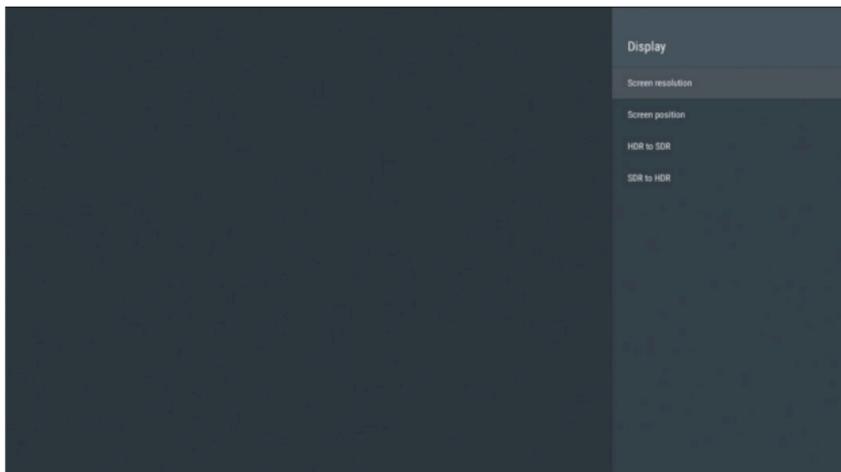


After the Gear icon has been clicked, the Configuration Screen appears.

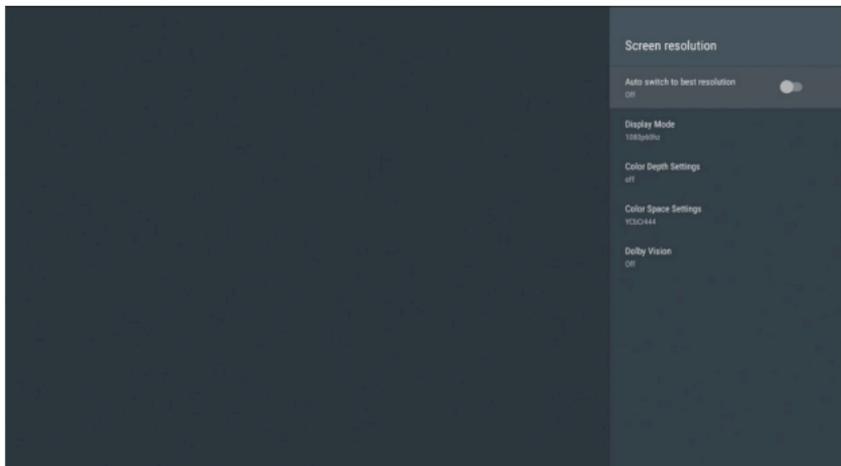


Click on the "ADJUST TV SCREEN" button.

This will bring up the Display menu for adjusting Screen Resolution, Screen Position and HDR

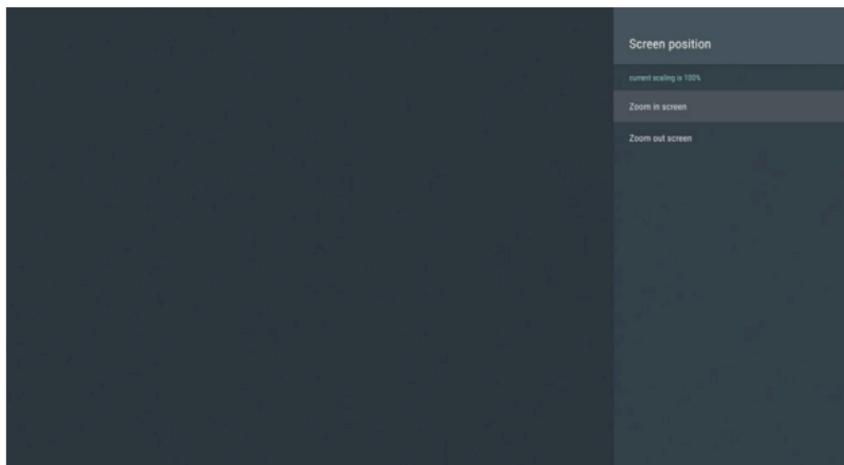


Screen Resolution information:

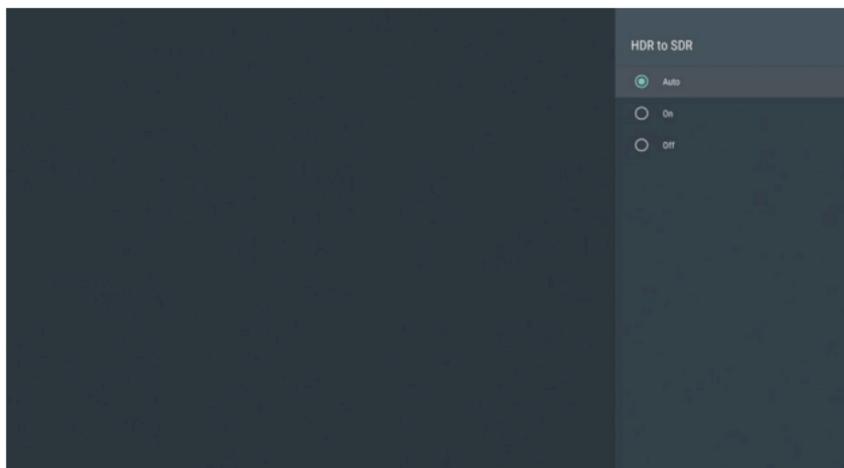


Note: Auto select will read display EDID to set resolution. Manually selecting a resolution not supported by the display can result in loss of image.

## Screen Position control:

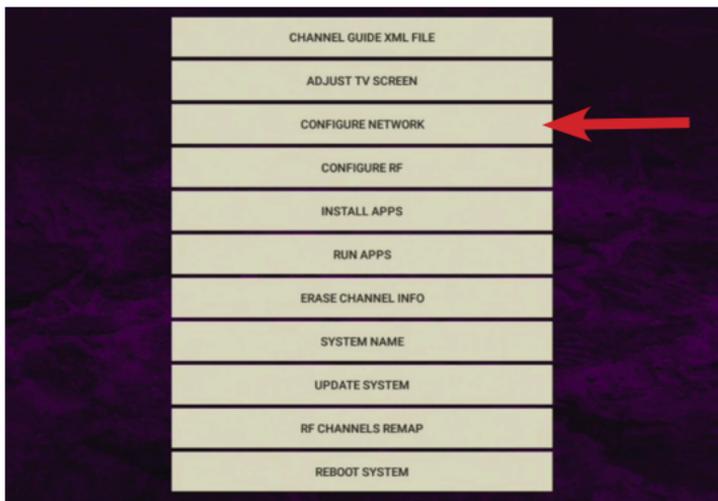


## HDR Settings:



## 6 Configuring the Network

Navigate to, and click on the “CONFIGURE NETWORK” button.

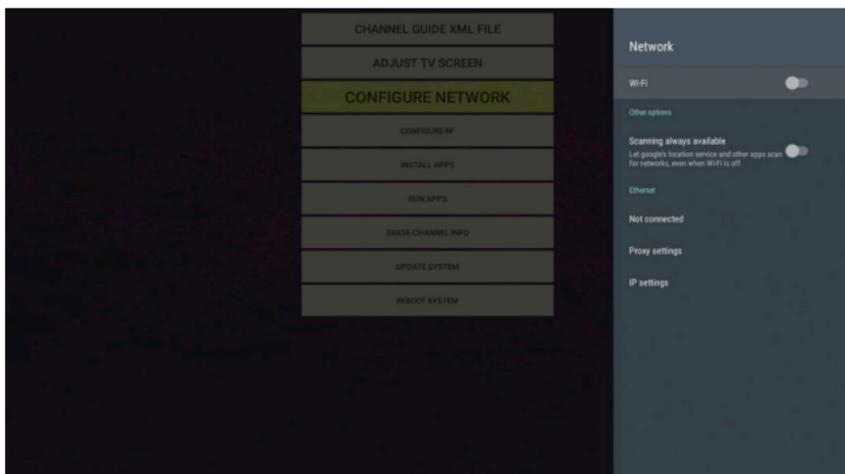


This will bring up the Network Select menu for configuring Ethernet and Wi-Fi.

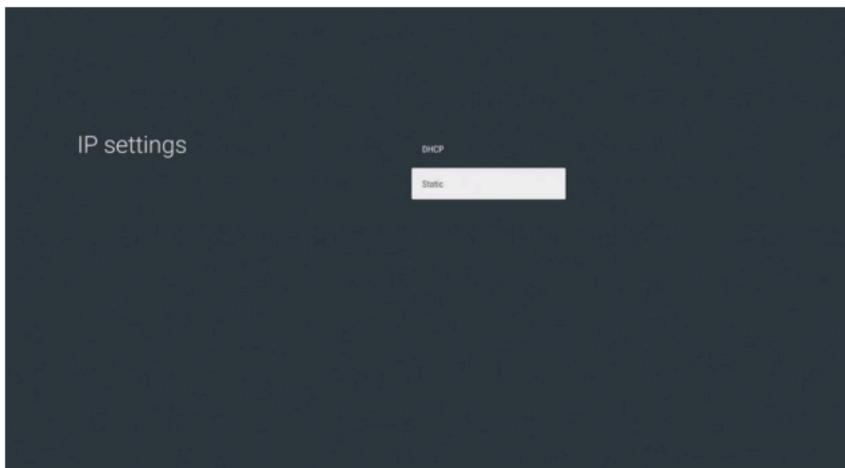
Select the Ethernet option from the menu to configure Network settings for the STBi3.

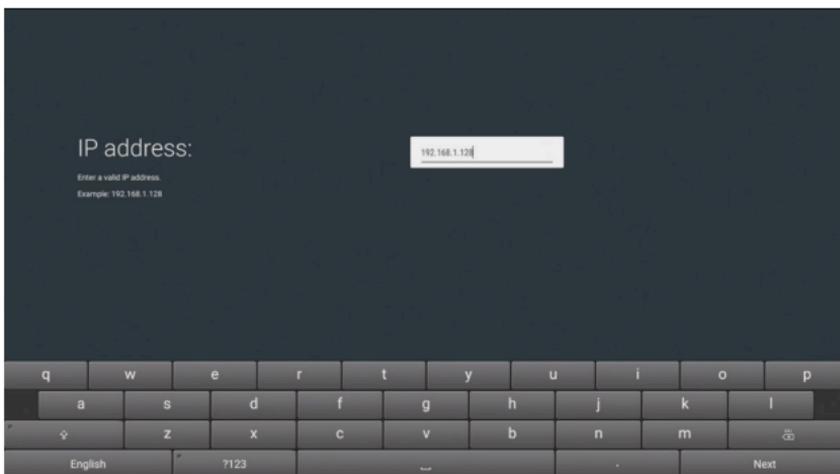
**Important Note:** Even if the STBi3 is only used for QAM or ATSC tuning, you still **MUST** assign it an IP Address. Any static IP Address is fine.

**Note:** The STBi3 can be configured to receive some IP streams over a WiFi Network. Please test WiFi bandwidth to ensure acceptable streaming performance.

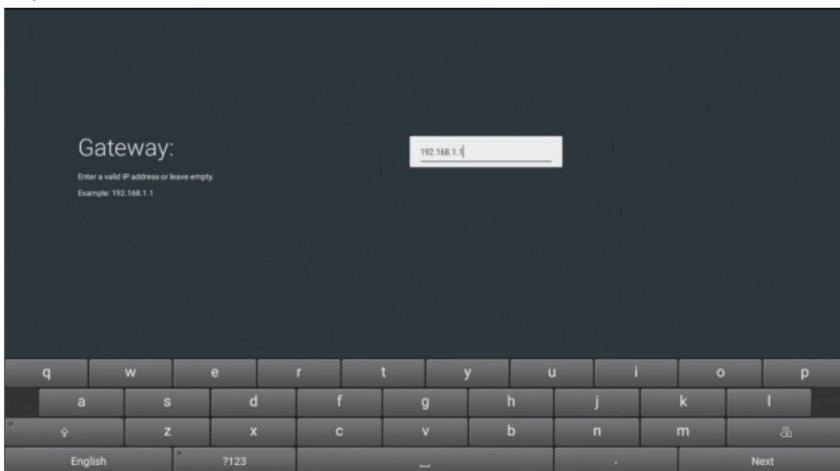


If a DHCP server is on the network, the IP address and associated fields will automatically be filled in. Otherwise the fields must be manually entered. Scroll down to IP setting and click the OK button on the remote. Then choose static.



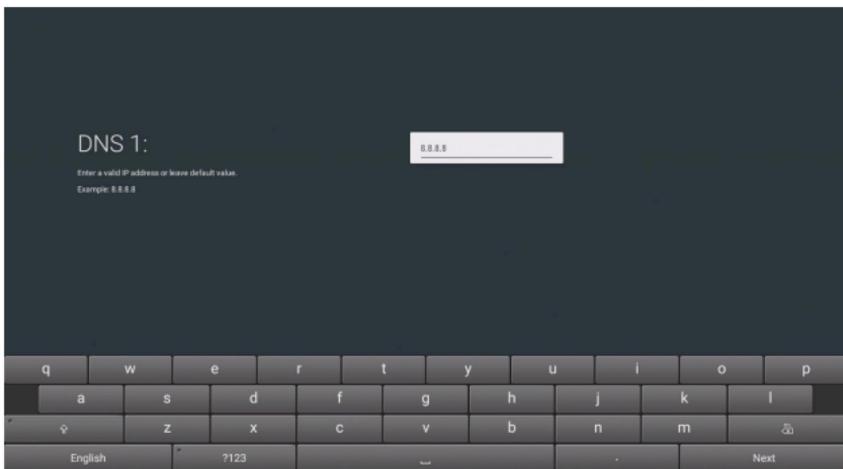


Enter the IP address manually. It is recommended to use a USB keyboard and mouse. Highlight the arrow key on the onscreen keyboard (where the enter key is normally found). Once it is selected, press enter on the keyboard or the OK button on the remote to move to the next line item.

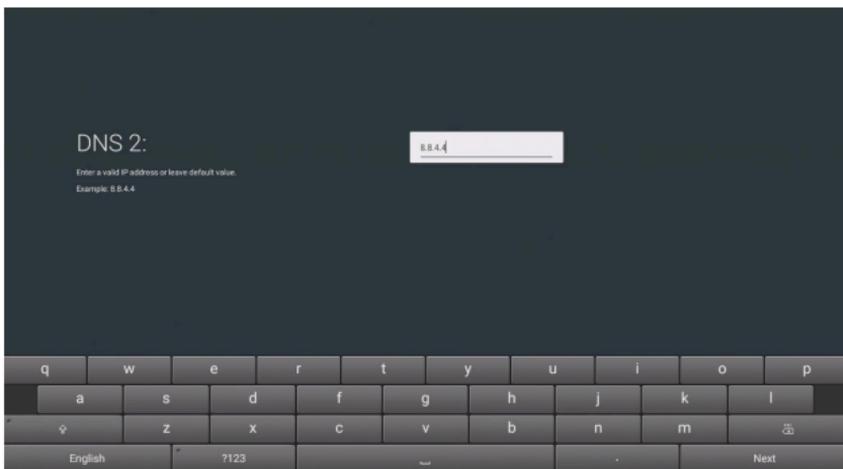




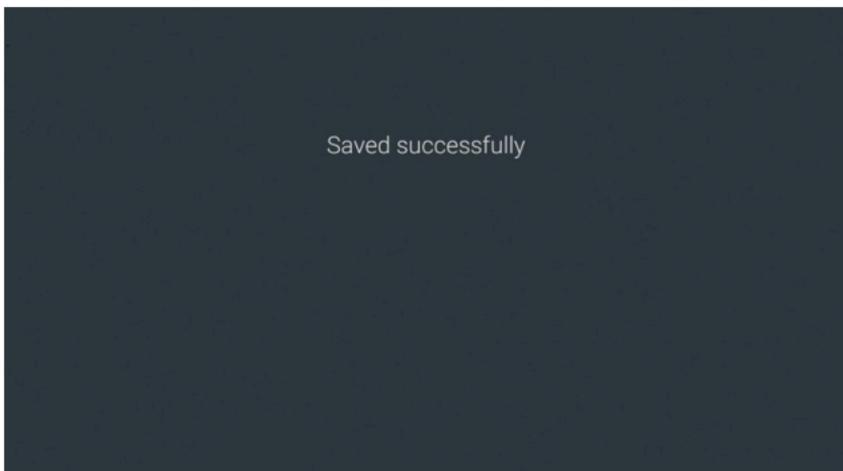
Network prefix length sets the network subnet mask. A setting of 24 is equivalent to setting the mask to 255.255.255.0



Enter a valid address for DNS 1 or leave the default value.



Enter a valid address for DNS 2 or leave the default value.

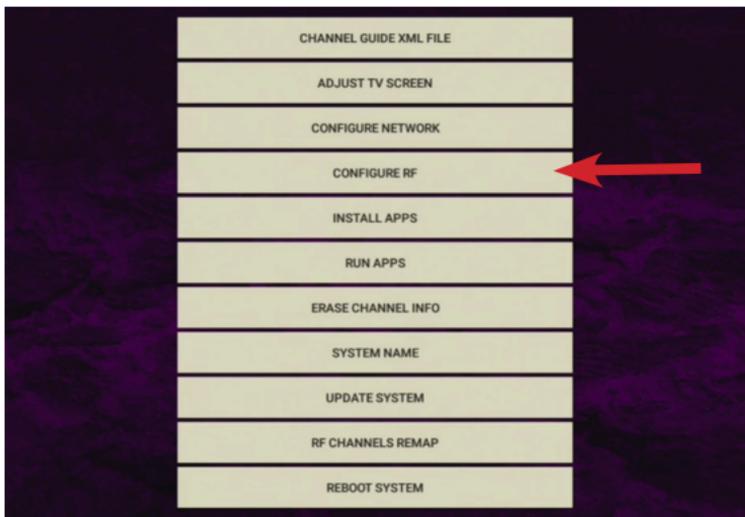


Once the IP address, Mask, Gateway and DNS are entered manually, hitting the “next” button after DNS2 will save the settings.

## 7 Configure RF Channels

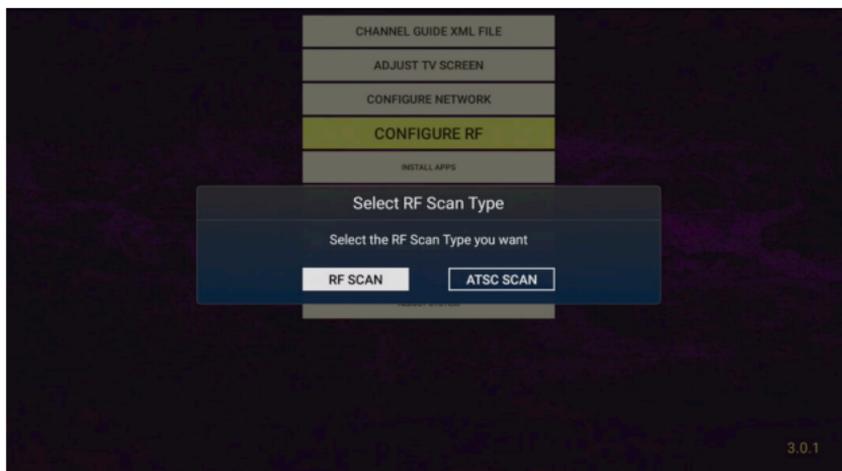
Click on the “Configure RF” button. This will bring up a menu to search for available RF channels. (North American QAM or over air ATSC)

**Note:** A coax cable must be connected to the STBi3 unit that is carrying the RF channels to be searched for.

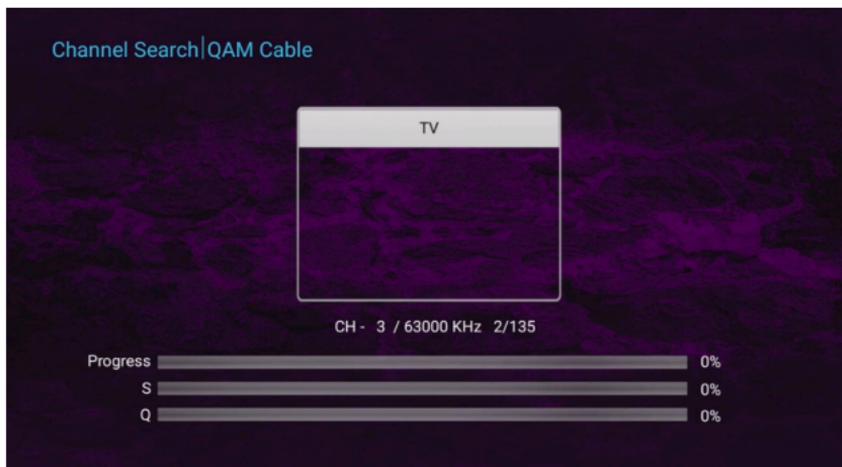


**Important Note:** Even if the STBi3 is only used for QAM or ATSC tuning, you still MUST assign it an IP Address. Any static IP Address is fine. See Section 6 of this document on Configuring the Network.

The first thing you need to do is select either RF Scan or ATSC Scan.

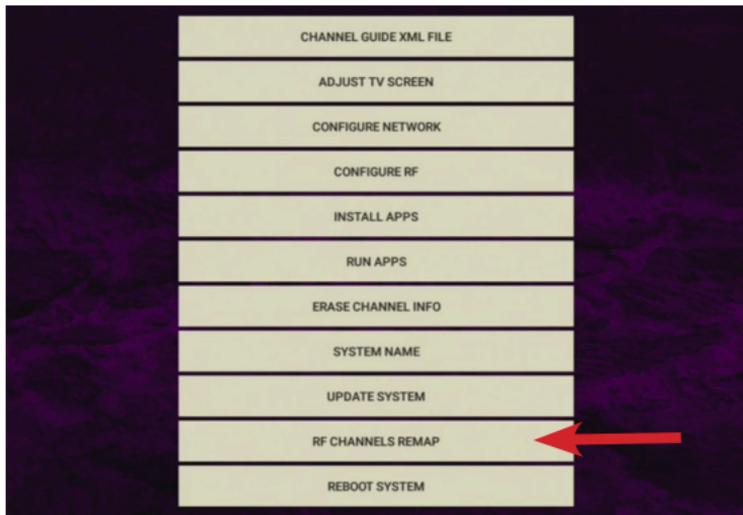


The scan will begin immediately. Note this process could take several minutes to complete..



Once an RF scan is completed, they displayed channels can be remapped to use a different channel number by using a JSON or XML file from either a USB stick or from an external web server.

Click on the “RF Channel Remap” button. This will bring up a menu to search for available RF channels. (North American QAM or over air ATSC)



Click on either USB or Network server option to install the RF Remap file.

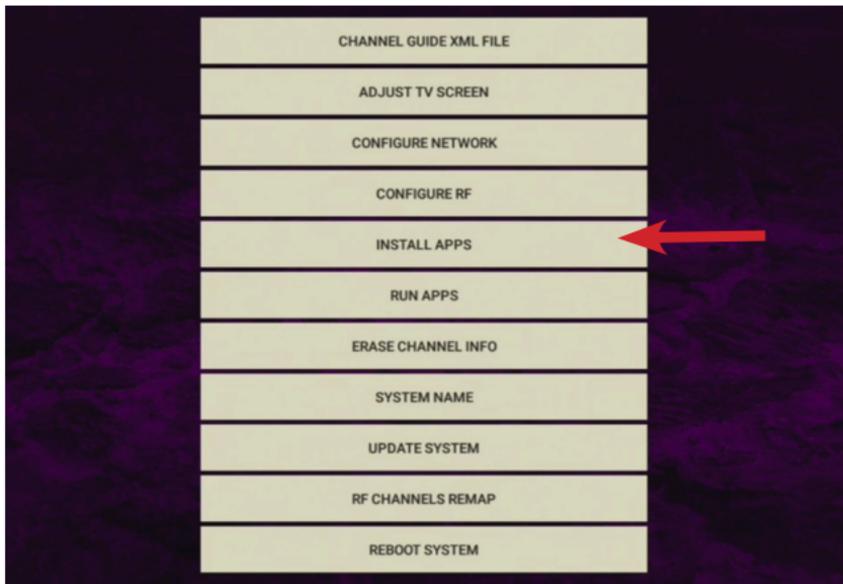


## 8 Installing Applications

Navigate to, and click on the “INSTALL APPS” button. This will bring up a menu to select any valid Android applications.

Note that any applications must be on a connected USB Flash device. The STBi3 cannot search for applications on the Network and cannot access the Play Store.

Please note that ZeeVee will not support the installation of any 3rd party applications on the STBi3. Please contact the software provider for the support of any applications.

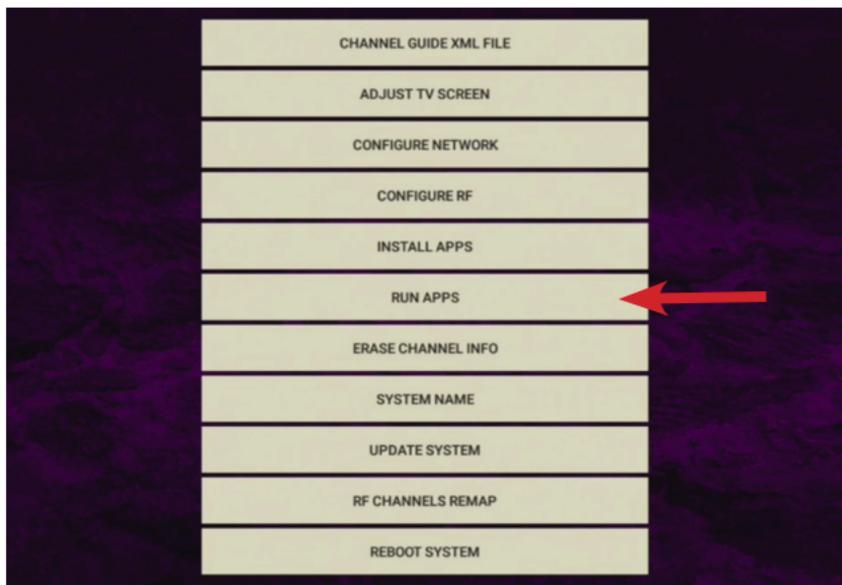


# 9 Running Applications

Navigate to, and click on the “RUN APPS” button. This will bring up a menu to showing all Android apks applications that have been installed on the STBi3.

Select one using the arrow keys on the remote and hit “OK” to run.

Please note that ZeeVee will not support the running of any 3rd party applications on the STBi3. Please contact the software provider for the support of any applications.



# 10 Custom Channel List Deployment

## 10.1 BACKGROUND

The STBi3 IP Set Top Box is a small, powerful, unit designed to receive IP streams, decode, and present to the user the IP-delivered content as simply as if they were watching broadcast television.

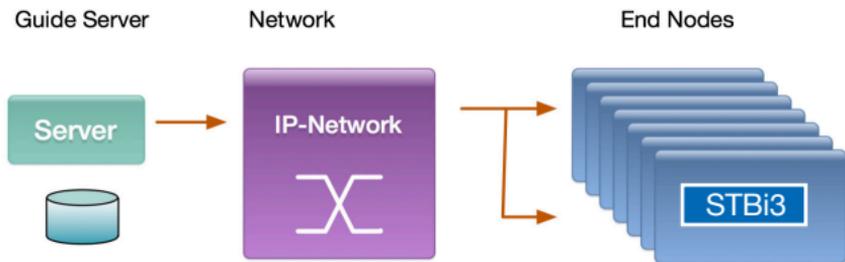
When decoding and displaying content generated by ZeeVee content sources, the discovery of the streams and the population of a channel list and plan is automatic. The sources send “beacons” and the STBi3 units receive those beacons, learn the sources, and populate a channel guide and list for selection by the user.

There are cases where a custom channel list is desired:

- Restricting User Access to certain channels
- Adding custom names and logos
- Adding content to the STBi3 channel list that is NOT sourced by ZeeVee
  - streaming video files from a server, for example

Requirements:

- ① All STBi3 units to participate in the remote guide must be connected to a common network.
- ② An accessible server capable of serving files.
- ③ A means for the manager to edit, install and manage the files on that server.



## 10.2 CHANNEL GUIDE MODES

### Full-Auto

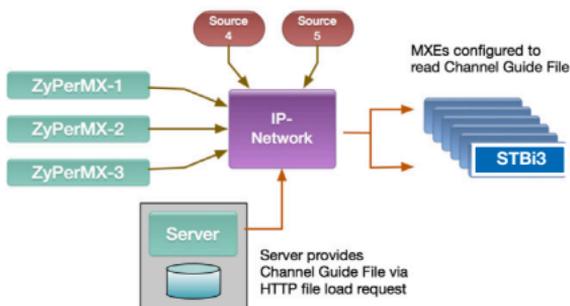
The default channel guide mode is “Full-Auto”. This mode is available when the streaming sources are ZeeVee products (ZvProxxx-I, ZyPerMX, HDb2920-i, or HDb3000 media module with IP options). The ZeeVee products automatically broadcast “Beacons” which contain information about the available stream.

The channel guide in the STBi3 will be populated based on information contained in the received beacon information from each of the sources. No the management is required. This is the baseline “Plug-and-Play” option and may be sufficient for the majority of installations.



### Additive

Normally, if a channel guide file is specified, the channels specified will be added to the plan. If channels are specified in the channel plan file that overlap those that correspond to Beacons being generated by ZeeVee equipment, the information in the channel plan file will supersede that being broadcast by the ZeeVee unit sending the beacons.

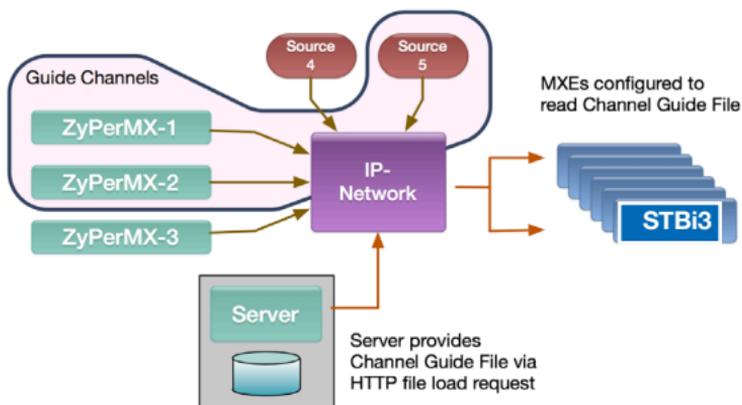


If the guide file is in “Additive” mode only the non-ZeeVee channels need to be specified in the guide file. The ZeeVee channels will send beacons that are learned by the STBi3 and those channels will automatically be added to the guide. In the diagram shown Source4 and Source5 are streams supplied by non-ZeeVee equipment. Only stream information for Source 4, and Source 5 need to be specified in the guide file.

Even in additive mode, the ZeeVee channels can be specified in the guide file. This allows for the channel number, label, icon, etc., to be altered in one common place without having to individually manage the ZeeVee sources. Information provided in a guide file supersedes the information contained in the beacon.

## Exclusive

A channel guide file can be specified such that it is “exclusive”. Guide files that are exclusive specify that ONLY the channels in the guide file are to be included in the channel lists presented to the user. Any beacons or self-advertised channels are to be ignored by the STBi3 if there is not an entry in the guide file.



In the diagram shown, if the guide file is specified as exclusive, and the only entries in that guide file are for ZyPerMX-1, ZyPerMX-2, and Source 5, then any other channel will be ignored and not included in the guide. The only stream the user will be able to select are for the channels described in the guide file.

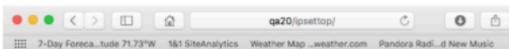
## 10.3 SERVER REQUIREMENTS

The STBi3 may be configured to fetch a channel list and supporting elements.

The channel list file and others (icon files, etc) must be served by a web server on a network accessible to the STBi3 units.

That server (LAMP, WAMP, whatever...) should be configured to serve a directory that contains the files that will be used to control the channel list of the STBi3 units.

If the Internet is accessible, a Google drive could even be used. The STBi3 units only fetch the channel guide files at power-up or upon direct request by the user. At all other times the STBi3 units use locally cached copies of the channel guide information.



### Index of /ipsettop

Name	Last modified	Size	Description
Parent Directory	-		
<a href="#">Bangles.mp4</a>	2016-09-07 17:24	24M	
<a href="#">FengTV.png</a>	2016-02-10 11:58	19K	
<a href="#">ICONS/</a>	2016-09-08 13:41	-	
<a href="#">JayneMansfield.mp4</a>	2016-09-07 17:24	26M	
<a href="#">LogoSmall.png</a>	2016-02-10 11:58	4.3K	
<a href="#">OfficePlanA.xml</a>	2016-09-07 17:29	1.4K	
<a href="#">OfficePlanA_djif.xml</a>	2016-09-08 16:07	2.1K	
<a href="#">SDM_73_s.png</a>	2016-02-10 11:58	39K	
<a href="#">SDM_75_s.png</a>	2016-02-10 11:58	41K	
<a href="#">SDM_170_s.png</a>	2016-02-10 11:58	49K	
<a href="#">SDM_171_s.png</a>	2016-02-10 11:58	49K	
<a href="#">ZeeVeeSwoosh.mp4</a>	2016-02-10 11:58	13M	
<a href="#">ZeeVee_Seasons_v5.mp4</a>	2016-09-08 15:59	66M	
<a href="#">ZeroDSZeroMotorcycle.&gt;</a>	2016-09-08 15:59	74M	
<a href="#">billchannels.xml</a>	2016-08-03 15:21	577	
<a href="#">billchannels2.xml</a>	2016-08-03 14:08	578	
<a href="#">captain_america_tra.&gt;</a>	2016-09-08 15:54	39M	
<a href="#">chan.lst</a>	2016-02-10 15:51	1.5K	
<a href="#">channels</a>	2016-05-31 13:32	1.3K	
<a href="#">djif_channels.xml</a>	2016-06-08 17:26	356	
<a href="#">djif_channels2.xml</a>	2016-08-10 13:00	335	
<a href="#">hbo.png</a>	2016-02-10 11:58	1.8K	
<a href="#">hisican.265</a>	2016-06-29 14:28	14M	
<a href="#">zymxe_channels.xml</a>	2016-06-08 17:20	1.2K	

**Easy Test:** Point a browser at the directory that will be used and make sure the supporting information is visible while on the same network as the STBi3 units.

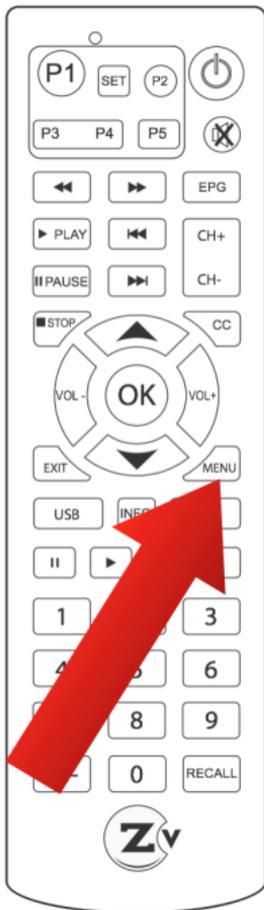
In the case shown, the server QA20 is serving a directory called "ipsettop" to the same network as the STBi3.

If a browser can see the files, the STBi3 units will be able to see the files.

All file accesses by the STBi3 device are via HTTP file requests.

## 10.4 SETUP ON STBi3 FOR REMOTE GUIDE

To configure the STBi3 to use a remotely specified guide, the device itself must be configured to point to the location from where the guide file(s) are being served. Note this is for IP channels only. RF channels must be scanned as detailed earlier in this document.



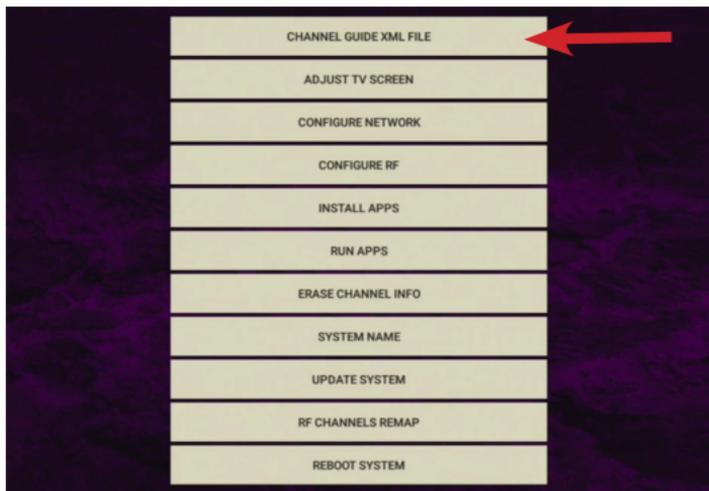
While watching television —> Hit the MENU button

That brings up the Main option screen.

Then navigate over to the Setup icon (the GEARS) and click there.



After the Gear icon has been clicked, the Configuration Screen appears. Navigate to, and click on the “CHANNEL GUIDE XML FILE” button.

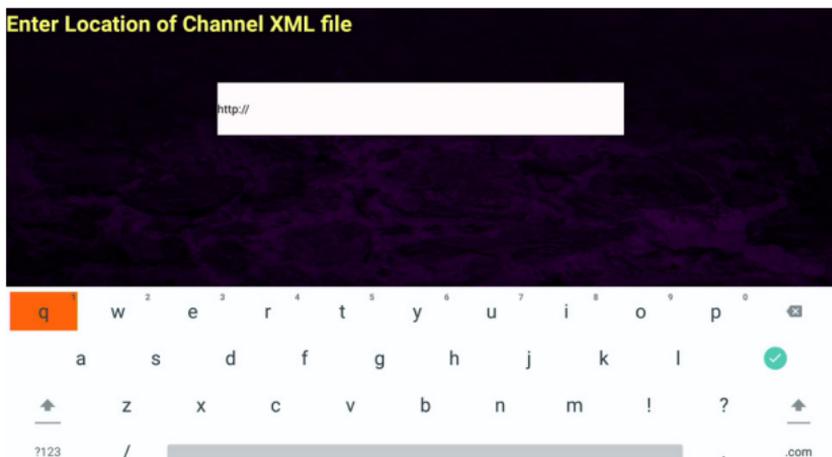


This will bring up a file dialog



In the dialog, enter the pointer to the location on the web server where you have placed the Channel Guide file. Local Channel List File would be located on a USB memory stick plugged into one of the STBi3 USB ports. The location of a Network Channel List file depends on where the IT admin has allowed HTTP file browsing to.

**Pro Tip:** The STBi3 can make use of a USB HID device. Simply connect a standard USB keyboard to one of the USB-Type A ports on the STBi3 and the name can be typed in. The on-screen keyboard can be used with the remote control, but it is slow and cumbersome for anything more than a single box.



Once the name is entered, navigate to and click the “Green Check” button.

The STBi3 device will read the remote Channel Guide file. The number of channels configure will be shown as below. Verify that this matches the expected number.



This completes all the setup required on the STBi3.

Hit the EXIT button once to return to the Configuration Buttons.

Hit the EXIT button again to return to the main Option Screen.

Then Navigate to the “Watch IPTV” icon and click that. You should be watching the streaming content.

At any time while watching television, the CHAN+ CHAN- keys will advance sequentially up or down the channel list.

At any time the up and down arrows can also be used to advance sequentially up and down the channel list.

Hitting the **EPG** button on the remote brings up the entire electronic program guide.

Scroll up and down with the arrow keys to verify presence of all the expected channels.

Hitting the **OK** button will tune directly to the highlighted channel.

# 11 Remote Access

## 11.1 REMOTE ACCESS COMMANDS

This feature allows the STBi3 to be controlled remotely.

Help

`http://ip_address:8080/help` Brings up a list of Web Management Commands

syntax: `http://[ip-address]:8080/[commands]`

Remote Access commands for a ZeeVee STBi3.

Command	Description
channel	Returns the STBi3 channel list. The current channel has an * next to it.
channel=n	Tunes STBi3 to specified channel number. Will return 'Invalid Channel Number' as appropriate
volumeup	Increases the audio volume
volumedown	Decreases the audio volume
volume	Returns current volume setting (0-15 range)
volume = n	Sets the volume to value N (0-15 range)
channelup	Tunes to the next highest channel
channeldown	Tunes to the next lowest channel
unmute	Unmutes the audio
mute	Mutes the audio
poweronsamsung	Sends poweron command to a USB cable connected Samsung display
poweroffsamsung	Sends poweroff command to a USB cable connected Samsung display

<b>Command</b>	<b>Description</b>
poweron	Sends HDMI CEC power on command to display
poweroff	Sends HDMI CEC power off command to display
imageon	Turns static image on
imageoff	Turns static image off
imagedelete	Deletes the static image
imageupload=http://[ip-of-file-server]/[image.jpg]	Uploads static image
firmwareupdate=http://[ip-of-file-server]/[firmware.apk]	Uploads new firmware to STBi3 from a local filesaver
firmwareupdate= zvservr	downloads latest firmware from ZeeVee
loadchannels=http://[ip-of-file-server]/[channel-list.xml]	Uploads channel guide.
erasechannels	Erases the channel lineup and reboots the STBi3
reboot	Reboots the STBi3
setname=[name]	Sets a unique name to the STBi3
getname	Retrieves the unique name of the STBi3
getchannelnumber	Retrieves the current channel number
RFRemap=http://[ip-of-file-server]/[rf-reamp.json]	Uploads the RF channel number remap file
eraseRFRemap	Erases the RF channel number remap file and reboots the STBi3
doRFScan	Initiate a QAM Cable RF channel scan

## RF Remap Related Commands

`http://<ip_address>:8080/RFRemap=http://[ip-of-file-server]/[rf-reamp.json]`

Uploads the RF channel number remap file from a local webserver

```
o curl -H 'Expect: 100-continue' -X POST --data-binary @<path_to_file>/rfremap.json http://<ip_address>:8080/rfremap
```

Uploads the RF channel number remap file from a local filesystem

```
o curl -H 'Expect: 100-continue' -X POST --data-binary @<path_to_file>/<ip_channel_file.xml> http://<ip_address>:8080/loadchannels
```

Uploads the IP Channel List file from a local filesystem

`http://<ip_address>:8080/eraseRFRemap`

Erases the RF channel number remap file and reboots the STBi3

## EXAMPLES

Assuming STBi3 IP Address is: 192.168.1.23

<code>http://192.168.1.23:8080/channel</code>	This will return STBi3 channel list
<code>http://192.168.1.23:8080/channel=77</code>	This will tune STBi3 to channel 77
<code>http://192.168.1.23:8080/mute</code>	This will mute the audio
<code>http://192.168.1.23:8080/unmute</code>	This will unmute the audio
<code>http://192.168.1.23:8080/volumeUp</code>	This will increase the audio
<code>http://192.168.1.23:8080/volumeDown</code>	This will decrease the audio
<code>http://192.168.1.23:8080/reboot</code>	This will reboot the STBi3

## 11.2 POWER ON/OFF DISPLAY USING CEC

There is a feature that allows STBi3 to remotely turn a display on or off using the HDMI CEC feature.

CEC power on/off feature:

`http://ip_address:8080/poweron` will power on the display

`http://ip_address:8080/poweroff` will power off the display

Note: The display must support CEC functionality for this feature to work properly.

### EXAMPLE

Assuming STBi3 IP Address is: 192.168.1.23

`http://192.168.1.23:8080/poweron`      This will turn display on

`http://192.168.1.23:8080/poweroff`      This will turn display off

## 11.3 LOADING AND DISPLAYING A STATIC IMAGE

There is a feature that allows an STBi3 channel to display a customer provided static image when not displaying video.

HTTP static image feature

The following commands are used to implement this feature:  
imageUpload, imageDelete, imageOn, imageOff.

The system status will persist across reboots in terms of being in image mode or video mode.

The imageUpload command expects an argument passed that specifies the path to the image file.

The syntax for each command is similar to the channel and volume commands and are shown below:

```
http://ip_address:8080/imageOn
```

```
http://ip_address:8080/imageOff
```

```
http://ip_address:8080/imageDelete
```

```
http://ip_address:8080/imageUpload=http://ip_of_file_server/image.jpg
```

### EXAMPLES

Assuming STBi3 IP Address is: 192.168.1.23

```
http://192.168.1.23:8080/imageOn
```

 This will display the image

```
http://192.168.1.23:8080/imageOff
```

 This will stop image display

```
http://192.168.1.23:8080/imageDelete
```

 This will delete current image from memory

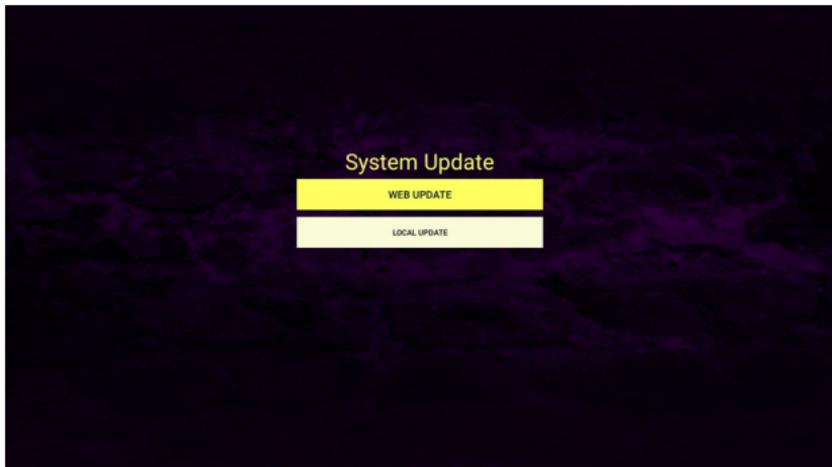
```
http://192.168.1.23:8080/imageUpload=http://192.168.1.25/ZeeVee.jpg
```

This will load an image named ZeeVee.jpg into memory

# 12 Updating System

Navigate to, and click on the “Update System” button. This will bring up a menu to showing options for updating the system firmware.

Select one using the arrow keys on the remote and hit “OK” to run.



Web Update will attempt to access the Internet to download the latest update. No update will be performed if the current firmware is up to date.

Local update will all you to install the update locally from a USB memory stick.

# 13 Channel Guide File Specification

The Channel Guide file is an XML files that describes the program information to be displayed as part of the channel guide to the STBi3 user.

## Basic File Format:

IP channel stream information will be describe with the following XML syntax.

```
<?xml version="1.0" encoding="UTF-8"?>
<ZVIP type=["guide" | "guideonly"] >
  <CHAN>
    <ip>streamIPAddr</ip>
    <port>streamPort</port>
    <srcip>sourceIPAddr</srcip>
    <tstype>[tsoverudp | tsoverrtsp | http]</tstype>
    <name>shortChanName</name>
    <icon>webLink</icon>
    <pnum>channelNumber</pnum>
  </CHAN>
  ...
</ZVIP>
```

## Header Line:

```
<?xml version="1.0" encoding="UTF-8"?>
```

The header line defines the file type and must appear exactly as shown as the first line in the file.

## ZVIP Type Line:

The second line must be the Type line and defines attributes that apply to the entire guide.

```
<ZVIP type=["guide" | "guideonly"] >
```

**type** is a required tag and must have one of the following options

**"guide"** - channels described are added to auto discovered channels to form STBi3 channel list. For duplicate channel descriptions (same stream address and port), the data in the guide file will supersede data from auto discovery.

**"guideonly"** - Disable auto discovery of Zeevee channels on the network. Only channels described in guide file will be presented in channel list of the STBi3.

### Channel Guide Information Block:

The following represents a block of data that would describe the associated guide information for a given stream.

```
<CHAN>
  <ip>streamIPAddr</ip>
  <port>streamPort</port>
  <srcip>sourceIPAddr</srcip>
  <tstype>[tsoverudp | tsoverrtsp | http]</tstype>
  <name>shortChanName</name>
  <icon>webLink</icon>
  <pnum>channelNumber</pnum>
</CHAN>
```

Note that there can be as many <CHAN> ... </CHAN> blocks in a Channel Guide file as the user wishes to add to the guide.

In the case of Additive operation (the **type** field set to **guide**) only those streams that are desired to be included that are not sourced by ZeeVee equipment need be described. The rest can be auto-discovered and the guide information included as it is delivered in the channel beacons.

Alternately, if it is desired to override the information that arrives in the ZeeVee source beacons, the information contained in the Channel Guide files will supersede the beacon data.

In the case of Exclusive operation (the **type** field set to **guideonly**) only those channels explicitly listed in the Channel Guide file will be included in the channel list presented to the STBi3 user. None of the auto-discovered beacons channels will appear in the user list.

### **IP Tag:** <ip>streamIPAddr</ip>

The IP tag indicates the stream address/pointer associated with the channel. \*required

**streamIPAddr** is a required value for the channel

String describing the IP address/string specification for the stream to be "tuned".'

For UDP or RTP multicast streams, the streamIPAddr represents the IP multicast address for the IP stream (example: <ip>224.1.2.99</ip>)

For files played from a server that allows serving of http requested media files the streamIPAddr is the URL describing the location of the file to be played (example: <ip>http://qa20/ipsettop/Bangles.mp4</ip>)

The STBi3 can play MJPEG files generated by the ZyPerMX2/MX4. See the ZyPerMX2/4 user guide for how to generate these streams. To play the files you need a channel list IP Tag to IP address of MX2/4 and the desired port.

Example: <ip>http://192.168.0.26:8080/port\_1.mjpg</ip>

**Port Tag:** <port>streamPort</port>

The Port tag indicates the stream data associated with the channel.

\*required when the streamIPAddr is a multicast IP address. Not required for when the tstype is http.

**streamPort** is a required value for non-http streams

String describing the IP port for the stream to be "tuned" (example: <port>21216</port>)

**SourceIP Tag:** <srcip>sourceIPAddr</srcip>

The SourceIP tag indicates the IP address associated with the channel.

Optional

**streamIPAddr** is a optional value for the channel

String describing the Source IP address specification for the stream to be "tuned".'

**TSTYPE Tag:** <tstype>[tsoverudp | tsoverrtp | http]</tstype>

The transport stream tag indicates the stream data associated with the channel.

**tstype** is a required tag for a channel description block

"tsoverudp" - indicates the stream is carried in UDP transport format

"tsoverrtp" - indicate that the stream is carried in RTP transport format.

"http" - indicate that the stream is delivered as a file from an http server.

**NAME Tag:** <name>shortChanName</name>

The name tag of the stream. The specified name will be displayed in the guide when browsing or tuning the channel. \*required

**shortChanName** is a required string of 7 ASCII characters or less.

String describing the short channel name for the stream to be "tuned" (example: <name>CNN-HD</name>)

**ICON Tag:** <icon>webLink</icon>

The file pointer to an icon picture to be used as a display icon when browsing channels on the STBi3 guide page. Optional.

**webLink** is a string representing the pointer to a file.

The file pointed to by webLink shall be a .PNG formatted file to be used as the channel icon when displaying the guide on the STBi3. The .PNG image size target is 128x128 pixels. Images smaller than this will be scaled up to 128x128. Larger images will be scaled down to fit. Images that require "on-the-fly" scaling may affect the performance when scrolling through the guide. (example: <icon>http://qa20/ipsettop/cnn128.png</icon>)

If no icon is specified the image shown will be the "ZVdot" logo.

**PNUM Tag:** <pnum>channelNumber</pnum>

The Program Number tag for the stream. The specified name will be displayed in the guide when browsing or tuning the channel. \*required

**channelNumber** is a required string representing the

program number for the stream .

Number in the range of 0-999. The number will represent the channel number of the stream. The number will determine the order the channels are displayed in the guide. Additionally, the use may enter the program number directly into the remote to tune immediately to the channel (example: <pnum>801</pnum>)

**The following is a complete Channel Guide File shown as an example.**

```
<?xml version="1.0" encoding="UTF-8"?>
<ZVIP type="guideonly">
  <CHAN>
    <ip>224.1.2.20</ip>
    <port>21216</port>
    <srcip>192.168.0.55</srcip>
    <tstype>tsoverudp</tstype>
    <name>ABC-HD</name>
    <icon>http://qa20/ipsettop/ICONS/abc.png</icon>
    <pnum>600</pnum>
  </CHAN>
  <CHAN>
    <ip>224.1.2.24</ip>
    <port>21216</port>
    <srcip>192.168.0.55</srcip>
    <tstype>tsoverudp</tstype>
    <name>Weather</name>
    <icon>http://qa20/ipsettop/ICONS/twc.png</icon>
    <pnum>601</pnum>
  </CHAN>
  <CHAN>
    <ip>224.1.2.25</ip>
    <port>21216</port>
    <srcip>192.168.0.56</srcip>
    <tstype>tsoverudp</tstype>
```

```
<name>History</name>
<icon>http://qa20/ipsettop/ICONS/history.png</icon>
<pnum>602</pnum>
</CHAN>
<CHAN>
<ip>224.1.1.73</ip>
<port>25600</port>
<srcip>192.168.0.56</srcip>
<tstype>tsoverudp</tstype>
<name>NFL-Net</name>
<icon>http://qa20/ipsettop/ICONS/nfl.png</icon>
<pnum>701</pnum>
</CHAN>
<CHAN>
<ip>224.1.1.75</ip>
<port>25600</port>
<srcip>192.168.0.57</srcip>
<tstype>tsoverudp</tstype>
<name>ESPN-HD</name>
<icon>http://qa20/ipsettop/ICONS/ESPN128.png</icon>
<pnum>702</pnum>
</CHAN>
<CHAN>
<ip>http://qa20/ipsettop/JayneMansfield.mp4</ip>
<port>0</port>
<tstype>http</tstype>
<name>5-6-7-8</name>
<icon>http://qa20/ipsettop/ICONS/badj128.png</icon>
<pnum>801</pnum>
</CHAN>
<CHAN>
<ip>http://qa20/ipsettop/Bangles.mp4</ip>
<port>0</port>
<tstype>http</tstype>
<name>Bangles</name>
<icon>http://qa20/ipsettop/ICONS/anubis128.png</icon>
<pnum>802</pnum>
</CHAN>
</ZVIP>
```

# 14 RF Channel Remap File Specification (JSON)

RF Channels can be remapped to any channel number with a JSON file. A simple example is shown below with the Original Channel (From Modulator) and Remapped Channel number for the STBi3.

```
[
  {"origChannel": "8-1", "mapChannel": "11"},
  {"origChannel": "8-2", "mapChannel": "12"},
  {"origChannel": "8-3", "mapChannel": "13"},
  {"origChannel": "9-1", "mapChannel": "14"},
  {"origChannel": "9-2", "mapChannel": "15"},
  {"origChannel": "9-3", "mapChannel": "16"},
  {"origChannel": "10-1", "mapChannel": "17"},
  {"origChannel": "10-2", "mapChannel": "18"},
  {"origChannel": "10-3", "mapChannel": "19"},
  {"origChannel": "11-1", "mapChannel": "20"},
  {"origChannel": "11-2", "mapChannel": "21"},
  {"origChannel": "11-3", "mapChannel": "22"},
  {"origChannel": "18-1", "mapChannel": "23"},
  {"origChannel": "18-2", "mapChannel": "24"},
  {"origChannel": "18-3", "mapChannel": "25"},
  {"origChannel": "20-1", "mapChannel": "26"},
  {"origChannel": "20-2", "mapChannel": "27"},
  {"origChannel": "21-1", "mapChannel": "42"},
  {"origChannel": "21-2", "mapChannel": "29"},
  {"origChannel": "22", "mapChannel": "30"},
  {"origChannel": "23-1", "mapChannel": "31"},
  {"origChannel": "23-2", "mapChannel": "32"},
  {"origChannel": "23-3", "mapChannel": "33"},
  {"origChannel": "24-1", "mapChannel": "34"},
  {"origChannel": "24-2", "mapChannel": "35"},
  {"origChannel": "24-3", "mapChannel": "36"},
]
```

```
{ "origChannel" : "25-1", "mapChannel" : "37"},  
{ "origChannel" : "25-2", "mapChannel" : "38"},  
{ "origChannel" : "26-1", "mapChannel" : "39"},  
{ "origChannel" : "27-1", "mapChannel" : "40"},  
{ "origChannel" : "27-2", "mapChannel" : "41"},  
{ "origChannel" : "28-1", "mapChannel" : "42"},  
{ "origChannel" : "28-2", "mapChannel" : "43"},  
{ "origChannel" : "29-1", "mapChannel" : "44"},  
{ "origChannel" : "29-2", "mapChannel" : "45"},  
{ "origChannel" : "30-1", "mapChannel" : "46"},  
{ "origChannel" : "30-2", "mapChannel" : "47"},  
{ "origChannel" : "31-1", "mapChannel" : "48"},  
{ "origChannel" : "31-2", "mapChannel" : "49"}
```

]

# 15 Factory Reset

To perform a hard factory reset of the STBi3 device; follow the procedure below.

1. Insert a USB keyboard into one of the USB ports of the STBi3. This is required because during the reset procedure, the hardware will not respond to the remote control.
2. Remove power from STBi3.
3. Insert a paperclip or SIM tool into reset pinhole located between the USB ports.
4. Reapply power.
5. Hold the pin in until the “Android Recovery” page loads (about 15 seconds)
6. The following steps can only be performed with the USB keyboard, not the remote.
  - a. Scroll down the list of options and highlight “Wipe data/factory reset” and press enter on the keyboard. (Sixth item in the list of blue text)
  - b. You will be prompted: “Wipe all user data?” select Yes and press enter on the keyboard.
  - c. An android animation will play while wiping data.
  - d. The list of options will appear once again. This time select “Reboot system now” and press enter on the keyboard. (First option in the list)
7. The player will reboot.

# 16 Troubleshooting

Problem	Potential Reason	Possible Action
No Picture	Power is not connected	Connect power supply Check wall source Ensure plugged into a PoE network port
	The power is switched off	Switch on Power to STBi3
No Sound from speaker	Incorrect or faulty connection with audio cable	Correctly connect the audio cables
	Sound on Mute	Select the mute/unmute on the remote
Remote control is not working	The battery is exhausted	Replace the remote control's batteries
	Remote control is not facing or visible to STBi3 sense window	Reorient STBi3 sense window and remote control
No channels found	No IP address assigned to the STBi3	Connect STBi3 to network with DHCP server or assign static IP address to STBi3
Not working over WiFi	WiFi bandwidth issue	Use a hardwired network only
"-" button not working	Function on remote is remapped to another key	Use the red button instead

# 17 Technical Specifications

Item	Sub-Item	Parameter
Video	Decoder Format	MPEG4 AVC/H.264 HP@I4 MPEG2 MP@ML/HL
	Output Format	480i, 480p, 576p/50, 720p/60, 1080i, 1080p/60, 2160p/30, 2160p/60.
	Aspect Ratio	4:3, 16:9, Auto
	Output Port	HDMI(v1.3C)
Audio	Decoder Format	MPEG-1(layer 1 & 2 & 3)
	Audio Output	Digital Audio over HDMI, RCAx2(L/R)
USB2.0	Supported Capacity	Unlimited
	Supported Media	MP3, WMA, JPEG, BMP, AVI
Power	Typical/Max	4.0 watts typical, 5.5 watts max

# 18 Declaration of Conformity

The Original Equipment Manufacturer herewith declares the conformity of the product with the following directives and standards:

## **Low Voltage Directive 2006/95/EC**

EN 60065:2002+A1:2006

## **EMC Directive 2004/108/EC**

EN 55 013:2001+A1:2003+A2:2006

EN 55 020:2007

EN 61 000-3-2:2006

EN 61 000-3-3:2008

FCC, CE, C-Tick

SK-903

# 19 Contact ZeeVee

## **Support**

Contact us for installation and technical support, repairs, and warranty service:

+1 (877) 4ZEEVEE (1.877.493.3833)

support@zeevee.com

Representatives are available from 9:00 AM to 6:00 PM, Monday through Friday (Eastern Time).

## **Sales**

North America:

+1 (347) 851-7364 Phone

sales@zeevee.com

EMEA:

+44 1494 956677 Phone

EMEAsales@zeevee.com