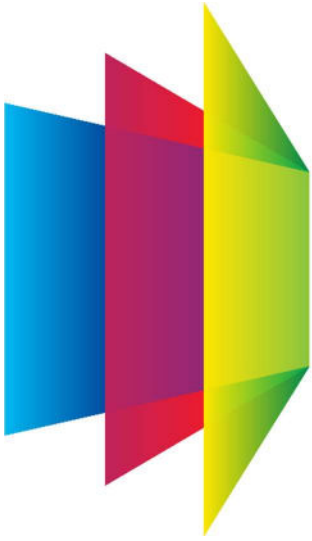
vantiva



mediatune

Integrator's Manual

"Just Drag and Drop"

COMMERCIAL USE This product is designed to go into areas that are not accessible to the public at large and are not for home use.

Vantiva COM3000 Products provide Head-End systems for distribution solutions for the AT&T / DIRECTV Commercial and Lodging and Institutions (L&I) markets

Note to System Installer – This reminder is provided to call the systems installer's attention to Section 820-93 of the National Electric Code which provide guidelines for proper grounding and, in particular, specify that the Coaxial cable shield shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

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Revision Record			
Revision	Date	Revision Editor	Revision Description
1.0	1/25/2024	Angelo Peruch	

1. MEDIATUNE OVERVIEW

Mediatune command and control software controls the COM51 card in a COM3000 system.

- The software routes programming from one or more tuners on the COM51 to televisions located in a Bar or Restaurant.
- The system intuitively routes programming from one tuner to all televisions requesting that programming. This creates a matrix type system that best utilizes the Tuner : TV ratio.
- TVs can be grouped into zones to further simplify operation.
- Mediatune will work with RF QAM based distribution systems and IPTV systems.
- LG Pro:Centric TVs and STB will offer advanced functionality in IP distribution environments.

Example:

- TVs 1, 5, 9, 11 and 36 are all requesting ESPN.
- One COM51 tuner will provide ESPN programming to all 5 TVs leaving other tuners free to provide programming to other televisions.

It is important to understand the number of TVs at an installation drives the QAM count not the number of tuners needed.

- Normally each QAM can supply signal to two TVs (TV count / 2 = QAM count)

Each COM51 card can route HD video to up to 40-50 TVs at which point a second card is required. If 4K programming is desired, then each COM51 can route 4K video a maximum of 25 TVs, so additional COM51s would be required to accommodate the number of simultaneous 4K streams needed.

One QAM4 fully licensed for 48 QAMs can provide HD signal to 96 televisions.
Note: 4K channels will require one QAM per TV, thus for 4K support in QAM mode, the ratio is 1:1 for TVs to QAM carriers. For this reason 4K distribution on QAM is not recommended.

Two COM51 cards will provide up to 46 tuners to be "shared" on up to 96 televisions.

Mediatune is designed to work with the CHROME browser on the PC and the Safari browser on the iPad. While you may be able to get other browsers to work, you will have the best experiences using the devices recommended.

2 INTRODUCTION

This document will guide you through a typical installation process for Mediatune 4.1.

Mediatune can be used with COM3000 system to direct content from any source tuner to any output QAM channel and allow for a simple tuning interface for both IP and RF installations.

The system is based on a web server within the COM51 card. Any browser-based device can interact and become a control point, allowing for maximum flexibility for the users. You can have several PCs, iPads, and other tablet devices which all will synchronize with the interface running on the COM3000.

Note: Control devices need to support drag and drop function either via a touch pad or mouse.

Note: Throughout this document, the default IP address for Card 1 in Chassis 1 is referenced. If you are using a different card in a different chassis or have changed the IP configuration, the 192.168.3.18 default address will be different.

It is assumed that technicians installing Mediatune are well versed in all aspects of COM3000, DIRECTV MFH2, and industry standard RF and/or IP distribution technology.

3 INSTALLING MEDIATUNE ON COM51

3.1 COM51 LICENSING

Mediatune can only be installed on COM51 cards which have been enabled with the "MT" feature. Features are added to the COM51 cards by uploading a license file obtained from your Authorized Vantiva Distributor.

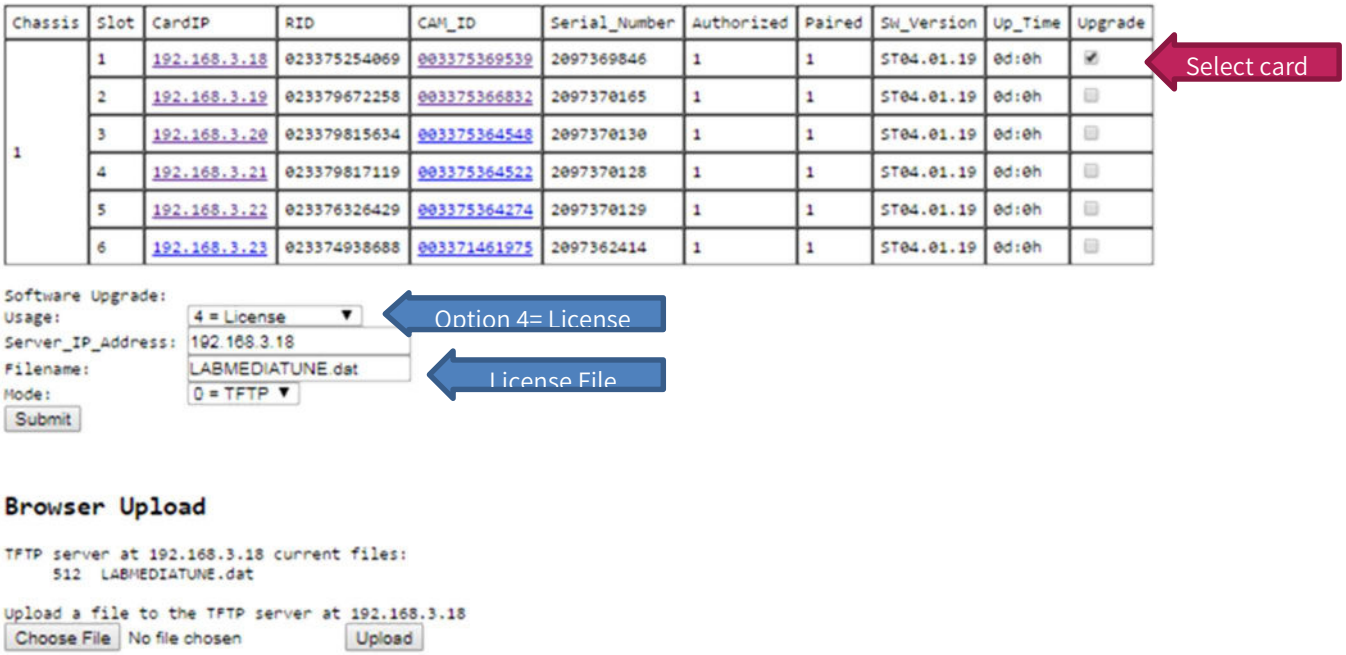
- Mediatune license is needed only for the "master" COM51 card in the system that is running the Mediatune software. Additional COM51 cards will run as "slave" cards controlled by the Mediatune software and do not require the Mediatune license.
- Mediatune MMS license includes authorization for 10 end points (TVs). Additional endpoint licenses must be purchased through your Vantiva Distributor

3.2 LICENSE INSTALLATION

In most cases the system will be delivered from the Distributor with all license and Software preinstalled. However, it is important to know how to install the Mediatune license and software.

From the COM51 Pairing Info tab, select CHOOSE FILE and browse your PC for the license file (.dat) you received from your distributor.

Once selected, press UPLOAD to transfer this file to the COM51 card's internal TFTP server. You will see that the Software Upgrade settings for the card have changed, and the file will be listed under 'Filename:'. Make sure to check the Upgrade box for the intended card, select 4=License, and press SUBMIT.

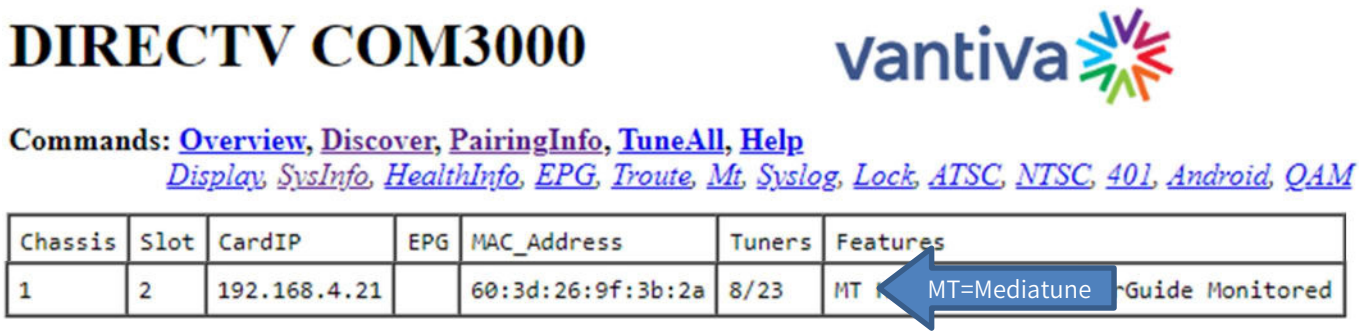


You will see the message below on screen.

```
Doing Software Upgrade
IP_Address=(192.168.3.18)
Usage=4
Filename=(LABMEDIATUNE.dat)
1-1: http://192.168.3.18:8080
```

Once the license file has been transferred, you can confirm the feature from the *SysInfo* page.

Click on Discover to update the information, then navigate to *SysInfo.*
Listed under the Features column, you will see "MT".



3.3 MMS MODE LICENSE

To work in IP mode and control IP endpoints such as an LG Pro:Centric TV, Mediatune needs MMS licenses in addition to the MT license provided above. By default, the MT license has 10 MMS licenses so that 10 unique IP endpoints can be used when installed. If more MMS licenses are needed, please contact your distributor to purchase. To determine how many MMS licenses are active, you can use the Misc Get/Set feature in Advanced Edit.

Type 'mms' in the Name field, then hit submit

3.4 MEDIATUNE SOFTWARE INSTALLATION

Mediatune Software consists of a .tar software file which is transferred to the licensed COM51 card within a COM3000 system. Transferring the Mediatune file is like the software upgrade process and utilizes the TFTP mechanism.

From the Pairing Info page on the COM3000 interface, select CHOOSE FILE and browse to the MT.TAR file on your PC.

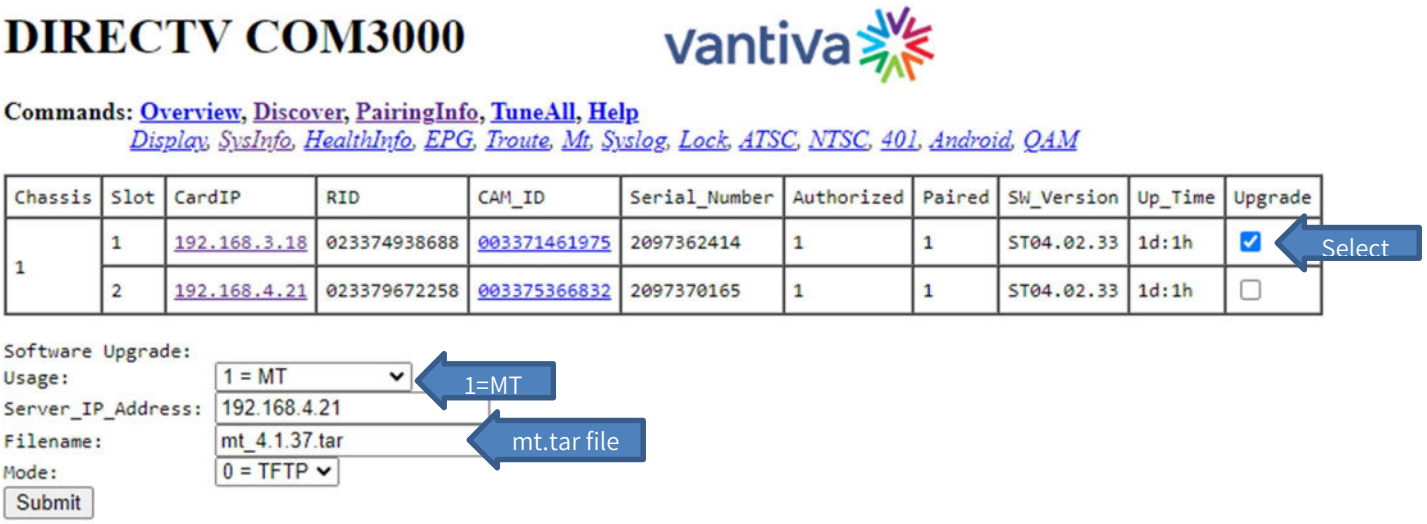
Press UPLOAD to transfer this file to the COM51's internal TFTP server.

Check the upgrade check box on the card to receive this file.

Select Usage: 1 = MT from the drop-down list

Mode: 0 = TFPT

Press SUBMIT



MT.tar is a big file with lots of zipped images. Please allow 30 seconds for a COM51 or 3-5 minutes for a COM46 after you have made this transfer before moving to the next step.

3.5 REMOVE PASSWORD REQUIREMENT FROM COM51

Each COM51 must have the password set to an empty string to disable password protection. Otherwise Mediatune running on an external device such as a tablet will not have the needed permissions to talk to the COM51 cards.

NOTE: If you overlook this step Mediatune will function normally for the 8-hour duration of the default password session, then become inaccessible.

Enter the default password (com3k) into the COM51 card, then navigate to the Lock tab.
Leave the Password field blank.
Click submit.

3.6 ACCESS THE MEDIATUNE WEBSERVER

Use the Chrome browser on the PC to browse to the following IP address.

192.168.3.18/mt/mediatune.html

This assumes 192.168.3.18 is the IP address of the card running Mediatune.

You will see the Mediatune interface with blank TV information as shown below:

4 CONFIGURING MEDIATUNE

Configuration of the Mediatune software is done using SETUP menu from the Mediatune interface and the Mediatune XML web server interface.

4.1 MEDIATUNE EDITOR

Mediatune editor allows editing the XML scripts that control the functions of the Mediatune interface.

Many features can be set up using the Mediatune setup menu user interface which will be covered in a later section of this manual.

You can access the editor at the following IP address, assuming 192.168.3.18 is the IP address of the COM51 card running Mediatune.

http://192.168.3.18/mt/MTeditor.html

4.2 TUNER FILTER

Tuner filters must be set up in the Mediatune editor.
The filter list is an XML script that lists all tuners available to Mediatune. Filters are necessary to prevent Mediatune from attempting to use unlicensed tuner on the COM51. They also facilitate the use of a shared COM400 chassis with COM51 cards not controlled by Mediatune.

Example:

A hotel could have 4 COM51 cards streaming free to guest channels to guestrooms and 2 COM51 cards providing Mediatune to a sports bar in the lobby from one COM400 chassis.

In the line below, we can see that the filter sets the following:

- Chassis number
- Slot number
- Tuner index

The text below sets chassis one, slot1 and tuner 1 to be accessed by Mediatune

```
<filterList>
<filter><chassis>1</chassis><slot>1</slot><index>1</index></filter>
</filterList>
```

By default, a COM51 is only licensed for 8 tuners. A license file can increase the licensed tuner count to 23. Don't include more tuners in the Tuner Filter list XML file than are enabled on a COM51.

The filter list below will set 16 tuners on a COM51 for use with Mediatune.

```
<filterList>
<filter><chassis>1</chassis><slot>1</slot><index>1</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>2</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>3</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>4</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>5</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>6</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>7</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>8</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>9</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>10</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>11</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>12</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>13</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>14</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>15</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>16</index></filter>
```

</filterList>

This filter list enables a COM51 card with 23 tuners

<filterList>
<filter><chassis>1</chassis><slot>1</slot><index>1</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>2</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>3</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>4</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>5</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>6</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>7</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>8</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>9</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>10</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>11</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>12</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>13</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>14</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>15</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>16</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>17</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>18</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>19</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>20</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>21</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>22</index></filter>
<filter><chassis>1</chassis><slot>1</slot><index>23</index></filter>
</filterList>

It is recommended best practice to edit the filter list in notepad. Then copy and paste the file into the editor as shown below. Remember to include the closing statement **</filterList>** at the end of each file

To apply the filter list, use the drop-down box in the Mediatune XML editor to select **tunerFilter.xml**

Selecting **Load** will cause the existing file to appear on the screen.

To load an edited file copy and paste the data into the field and select **Save**.

To verify an existing filter, select Load and the current filter will be displayed.

4.3 TV CONFIGURATION

Configuration of TVs can be set up in both the Mediatune setup menu and the XML editor.
In the section below we will discuss editing the tvs.xml file in the Mediatune editor.

Mediatune comes configured for a basic 24 TV system.
If you look at the TV.XML section of the Mediatune editor, you will see the following page:

Each XML line represents a TV as shown below:

<tv> <tvid>1</tvid> <tvdesc>TV1</tvdesc> <ip>192.168.6.2</ip> <port>17</port> <group>MainBar</group> <hot></hot> </tv>

Editable fields
TV names and IP destinations can be edited from the XML page. Do not use symbols such as &, #, @, <, >, in TV names as these are recognized as XML script. Do not use spaces in TV names. Use underscore if spaces are needed as shown below

Each TV can be assigned to a group in the Mediatune interface.

In the example below we have edited the tvs.xml to reflect the following:

- TV1 is named BAR1, it plays on QAM port 17 and is attached to the group BAR:

<tv> <tvid>1</tvid> <tvdesc>BAR1</tvdesc> <ip>192.168.6.2</ip> <port>17</port><group>BAR</group> </tv>

- TV30 is named REST30, it plays on QAM port 242 and is attached to the group REST:

<tv> <tvid>30</tvid> <tvdesc>REST30</tvdesc> <ip>192.168.6.2</ip> <port>242</port> <group>REST</group> </tv>

- TV44 is named Patio44, it plays on QAM port 354 and is attached to the group Patio:

<tv> <tvid>44</tvid> <tvdesc>Patio44</tvdesc> <ip>192.168.6.2</ip> <port>354</port> <group>Patio</group> </tv>

4.4 MEDIATUNE SETTINGS

The Mediatune software has a settings section that can facilitate some setup parameters using a graphical use interface that may be more accessible to installers who are not comfortable with editing the XML script.

In the top right side of the Mediatune interface you will see the SETUP link.

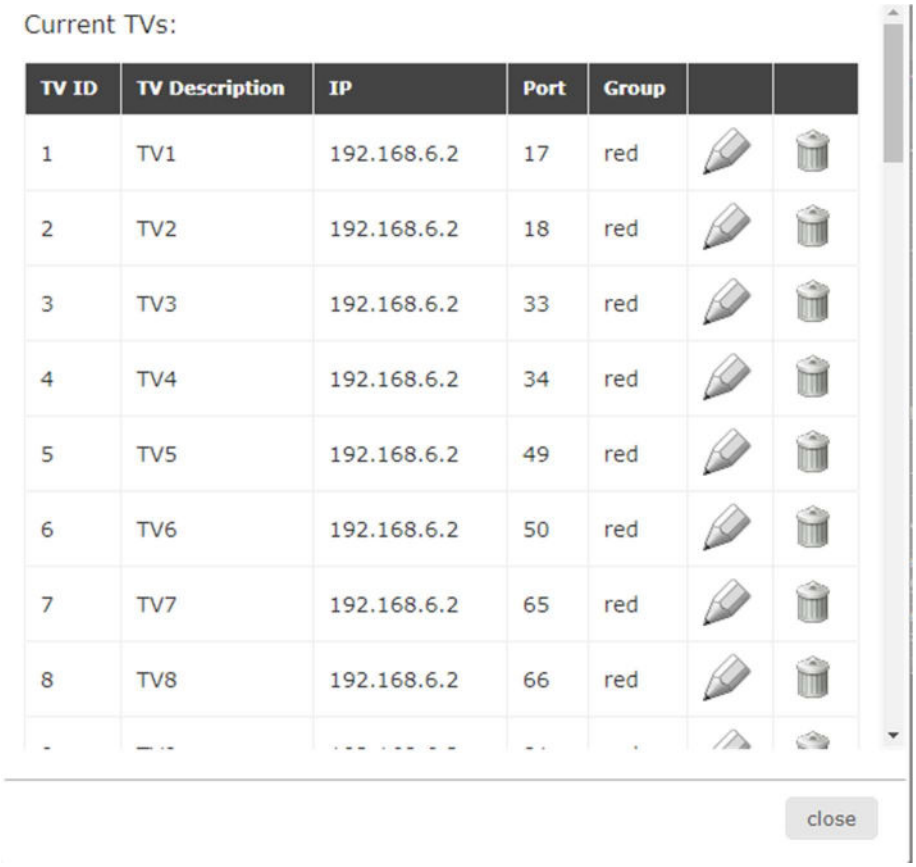
Clicking on the link will bring you to a login screen. The default password is 1234.

Once you have successfully entered the password you will access the SETUP menu shown below.

4.5 TV SETUP MEDIATUNE INTERFACE

From the setup menu select EDIT TVs.

By default, Mediatune is preconfigured for 24 TVs, a partial example of which is shown below:



QAM MODE

The TV configuration defines the TV name, where to send selected content, and assigns the TV location to a group.

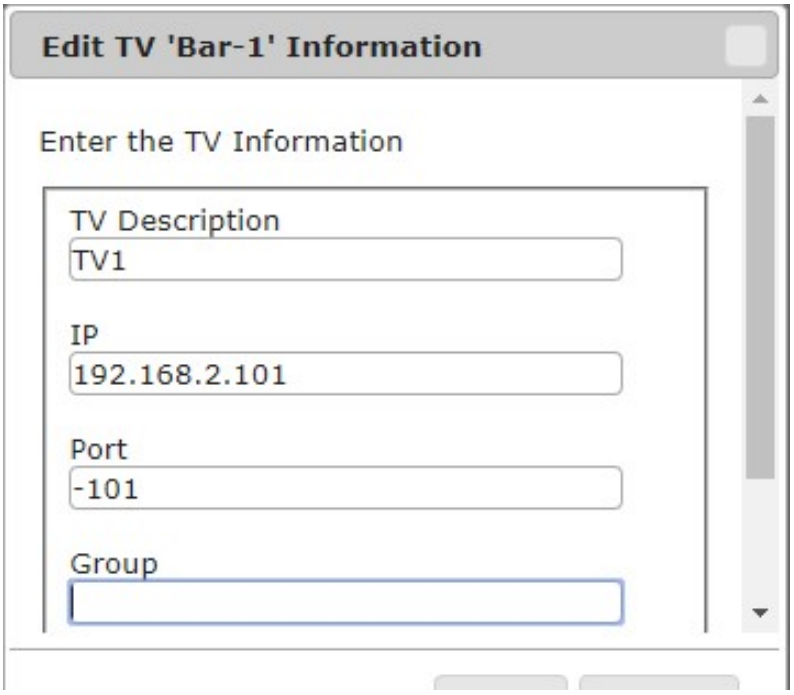
In the example above the first TV is called "TV1". The destination IP and UDP Port are 192.168.6.2 port 17 which is the destination IP of the first QAM20 modulator in the chassis, and the UDP port routes the video to the first QAM carrier.

If the QAM20 was set to output channel 23 on the first QAM carrier then TV 1 will receive programming on channel 23-1.
TV2 = QAM 1 port 18 or channel 23-2
The UDP port number is the QAM carrier index * 16 + the program number.

MMS MODE (IP)

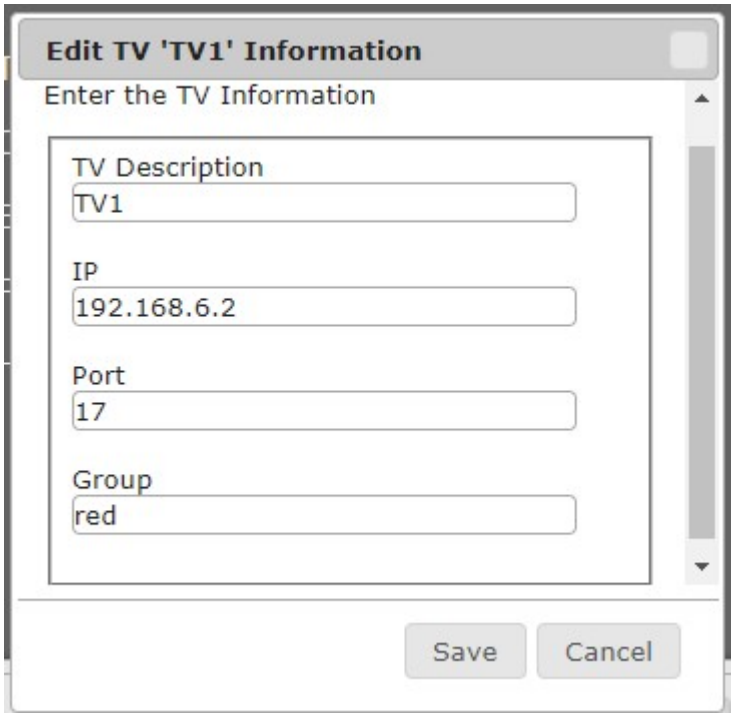
In MMS mode, the destination becomes the IP address of the TV, rather than the IP address of the QAM.

As an example, if the first TV is called "TV1", the destination IP would be IP address of the TV (192.168.2.101). Since you set up the TVs separately (Section 9), you can program Mediatune first, or come back to the TV setup once you've set IP addresses for all the TVs. The UDP Port field in the setup MUST be a negative number. It is suggested that you use the negative of the last octet of the IP address for the UDP Port number in this field.



4.6 ADD /EDIT TV SETTINGS

To add or change TV settings, select the Icon.

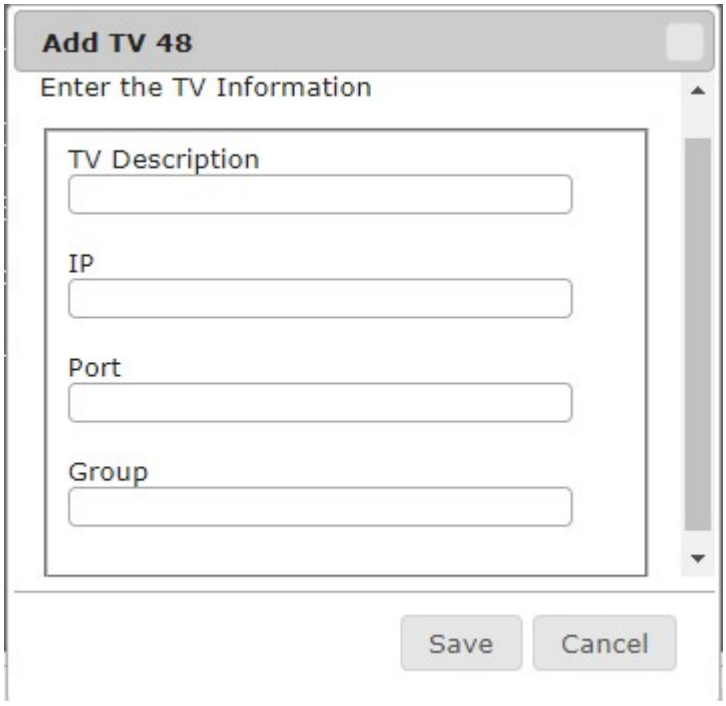


From this field you can change:

- The TV description
- QAM IP address
- Port Number
- Group

Once changes are made select Save

To add a TV to the list, scroll to the bottom of the TV list and select **Add New TV.**
Enter the information as you would in the edit TV field and select Save



Delete TV

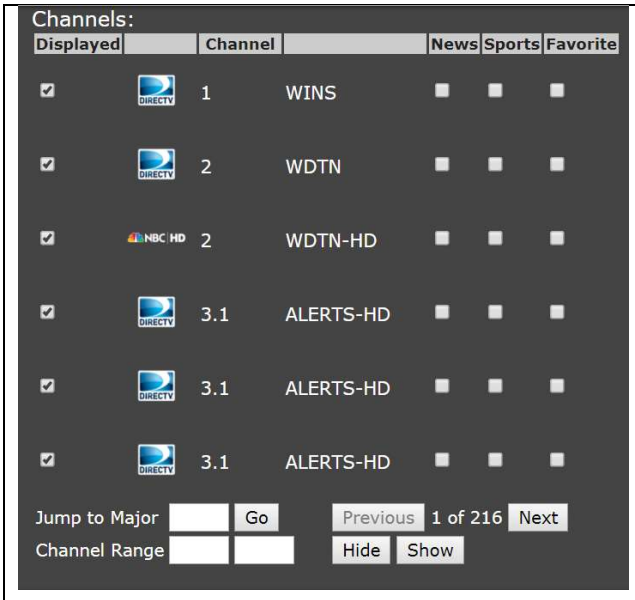
To delete a TV from the list, select the trashcan icon

4.7 CHANNEL EDIT

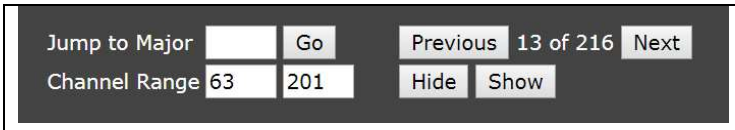
Mediatune configures the channel list from the APG guide data obtained by the COM51 card. The guide data displays all available channels in the continental United States. Consequently, the channel listings in the Mediatune guide display many channels not available or not desirable to the customer.

To make the guide more user friendly, channels can be eliminated or designated as News, Sports, Favorites in the Mediatune guide.

To edit guide settings, access the Mediatune setup menu and navigate to Edit Channels.



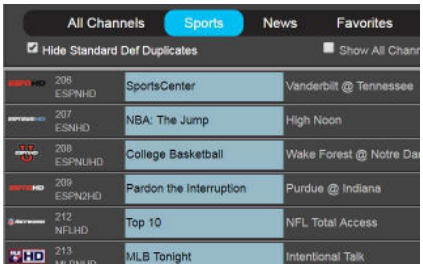
Use the checkboxes to determine channels to eliminate from the lineup, or designate as a special category, News, Sports, Favorites.

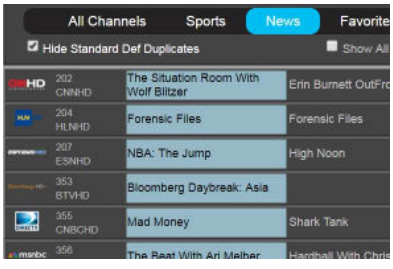
	Use the Jump to Major field to access a specific channel. Channel Range can hide or show a large range of channels from the guide as shown below:

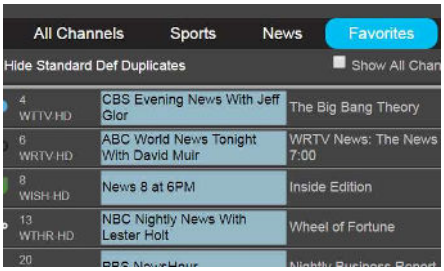
When you have completed your selections exit the setup menu and click on the Vantiva logo to refresh the screen.

The channel guide will now reflect your edits and make it much easier for your customer to navigate channels.

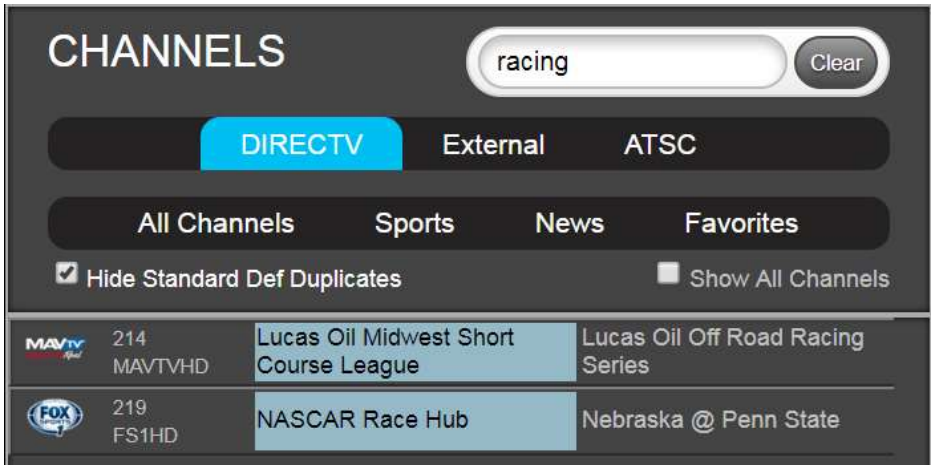
Use the icons across the top of the channel guide to display channels designated as Sports, News, and Favorites:







The guide page offers options to Hide Standard Def Duplicates and Show All Channels.



The Search function will query guide data for keywords and display programming

5 ATSC OFF-AIR TUNER

An additional external source you can bring into the Mediatune system is from off air antenna utilizing an ATSC to IP device.

An ATSC tuner allows the property to view and manage content which potentially is not available from DIRECTV or can serve as a backup source in the event of rain-fade or service interruptions.

ATSC channels should be configured as external sources as described in section 6.

There are multiple resources available for assistance with antenna selection and available channels. Links to two examples are below:
https://www.fcc.gov/media/engineering/dtvmaps
https://antennaweb.org/

6 EXTERNAL CONTENT

One of the most versatile features of Mediatune is the ability to accept an external input and route it through to any of the TVs, just as the interface handles the DIRECTV channels.

External sources are any device that can stream an MPEG2 transport stream (.TS) file to a specific IP and UDP port number.

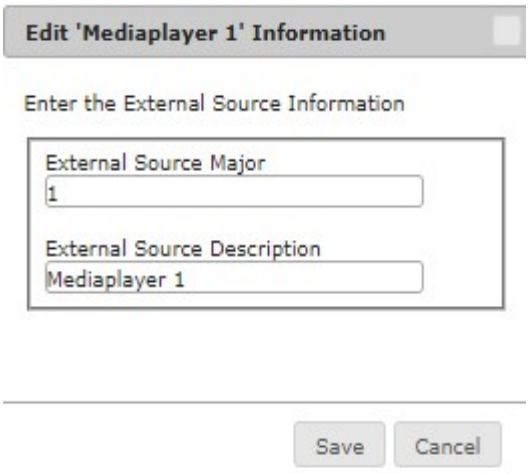
The COM51 card running Mediatune has set port numbers tied to the input of these sources shown below:
The IP address input is to be the IP address of the COM51 card running Mediatune
Incoming streams will be accepted on one of two port schemes, 9XX or 30XX as shown below.

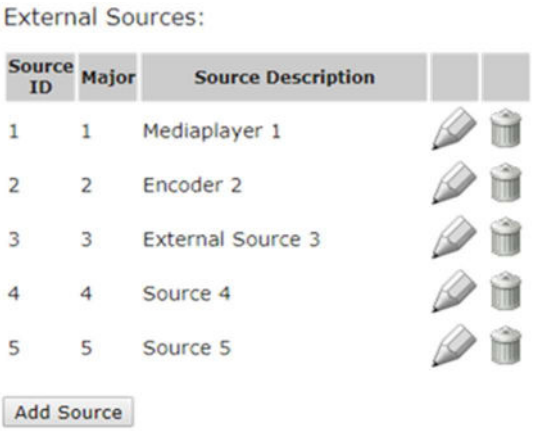
By default, there are 4 external source identifiers pre-configured in the interface,

EXT 1 <COM51 card IP>Port 999 - 192.168.3.18:999 (or :3000)
EXT 2 <COM51 card IP>Port 998 - 192.168.3.18:998 (or :3001)
EXT 3 <COM51 card IP>Port 997 - 192.168.3.18:997 (or :3002)
EXT 2 <COM51 card IP>Port 996 - 192.168.3.18:996 (or :3003)

6.1 EDIT EXTERNAL SOURCE DESCRIPTIONS

You can edit the names of these in the SETUP screens.



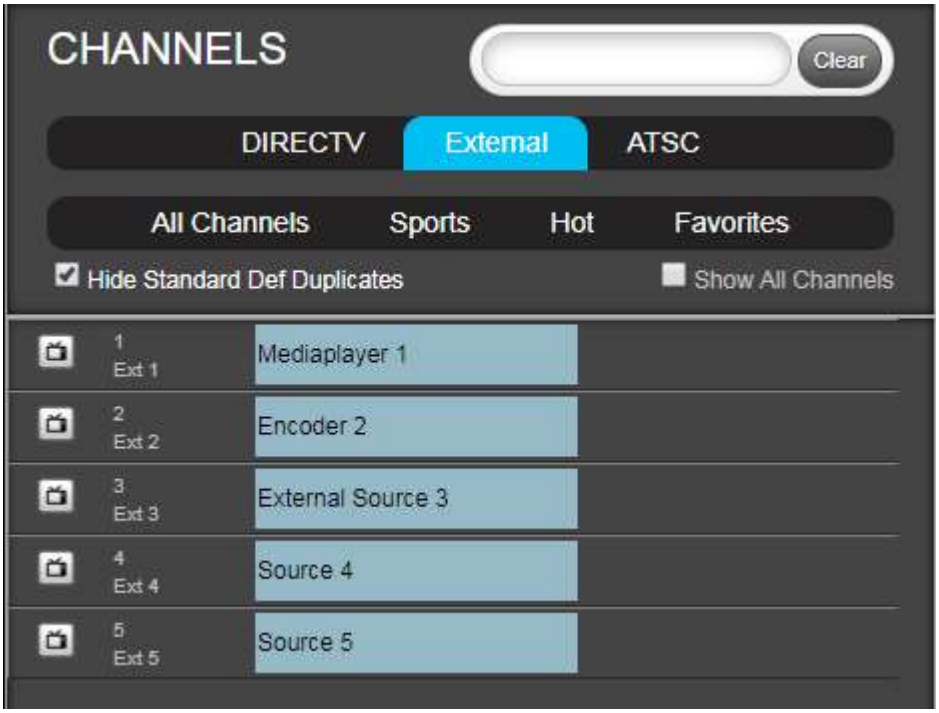


Or in the XML Editor

extsourceDesc.xml

Load | Save

```
<extsourceList>
  <externalsource>
    <extsourceid>undefined</extsourceid>
    <extsourcedesc>IP_Source</extsourcedesc>
    <extsourcemajor>1</extsourcemajor>
    <enabled>true</enabled>
  </externalsource>
  <externalsource>
    <extsourceid>undefined</extsourceid>
    <extsourcedesc>Transcoder1</extsourcedesc>
    <extsourcemajor>2</extsourcemajor>
    <enabled>true</enabled>
  </externalsource>
  <externalsource>
    <extsourceid>undefined</extsourceid>
    <extsourcedesc>Transcoder2</extsourcedesc>
    <extsourcemajor>3</extsourcemajor>
    <enabled>true</enabled>
  </externalsource>
  <externalsource>
    <extsourceid>undefined</extsourceid>
    <extsourcedesc>Signage1</extsourcedesc>
    <extsourcemajor>4</extsourcemajor>
    <enabled>true</enabled>
```



7 TV SETUP FOR MEDIATUNE

Mediatune outputs encrypted content requiring TVs capable of decrypting Pro:Idiom signals, or the use of a Pro:Idiom enabled set-back box will be required. There are multiple Pro:Idiom enabled set-back boxes available. For this manual a Vantiva DCI401MCS will be used.

Mediatune is designed such that a TV is set to a specific QAM channel and does not change. Once set to the correct channel, there is no reason to change the channel on the TV or the DCI401MCS.

Each TV or set-top box should be assigned a unique RF channel and if possible be locked on that channel to prevent channel changes. Most commercial televisions allow setting a "start channel", if so, each TV should be set to start on its assigned operational channel.

It is recommended best practice to keep documentation of TV locations, designated RF channel and DCI401 Unit Identifier number (if used) and any other relevant information.

It can also be useful to label the TVs with their assigned TV number

Example:

TV Location	TV Number / Name	RF Channel	DCI401 ID
BAR Left	Bar Left - 1	23-1	0413843855
BAR Center	Bar Center -2	23-2	0413843548
Above table 12	Table12 - 3	24-1	0413845684

Section 12 details programing for LG STB boxes and is informational only. Vantiva recommends you contact the vendor of any set back box for guidance before proceeding.

Set back boxes generally connect to the TV via HDMI.
Be sure all TVs are HDCP compliant.

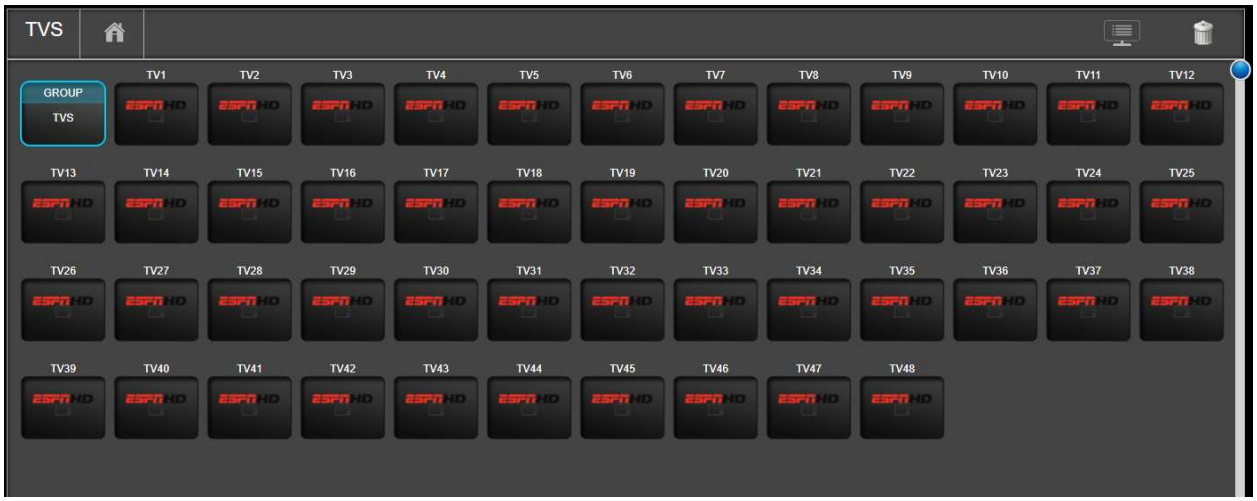
8 USING MEDIATUNE

Mediatune was designed to be a simple drag and drop user interface. Click on the desired channel to watch. Drag and drop it on the TV you would like to watch it on. Mediatune will do the rest to assign a tuner, tune the content, and route the content to the desired output. Note: Control devices must support drag and drop feature or use an appropriate pointing device (mouse).

Controls are via 7 icons on the Mediatune interface. In this section we will cover setup and use of each control icon.

Changing Display Size

Clicking on the Mediatune logo in the center of the display will revert the screen to a larger format as shown below:



This format does not work on most tablets and should be reserved for PC use with a larger monitor.
Clicking on the Vantiva logo on the left side of the screen reverts the display back to the default 4 row interface.

TVS Icon

Clicking on the TVS button will scroll through all TV Zones setup. If you assigned different zones in the TV.xml file, they would appear as shown in the examples below:

Note the GROUP icon in the TV field.

vantiva
mediatune
SETUP
v. 4.1.23
TVs
GROUP
TVs
TV1
TV2
TV3
TV4
TV5
TV6
TV7
TV8
TV9
TV10
TV11
TV12
TV13
TV14
TV15
CHANNELS
Clear
DIRECTV
External
ATSC
All Channels
Sports
News
Favorites
Hide Standard Def Duplicates
Show All Channels
243 XPLOR
Coin Collecting with Mike Mezack
Coin Collecting with Mike Mezack
244 SyfyHD
The Last Witch Hunter
I Am Number Four
245 TNTHD
Supernatural
Supernatural
245.1 TNTWHD
Charmed
Charmed
246 truTVHD
World's Dumbest ...
World's Dumbest ...
247 TBSHD
Friends
Friends
247.1 TBSWHD
Young Sheldon
Young Sheldon
248 FXHD
Cast Away
249 COMHD
South Park
South Park

MainBar
GROUP
MainBar
TV1
TV2
TV3
TV4
TV5
TV6
TV7
TV40

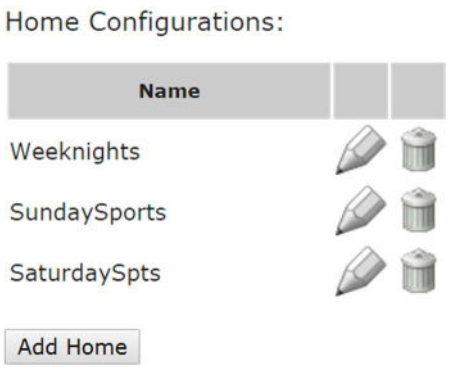
Grill
GROUP
Grill
TV8
TV9
TV10
TV11
TV12
TV13

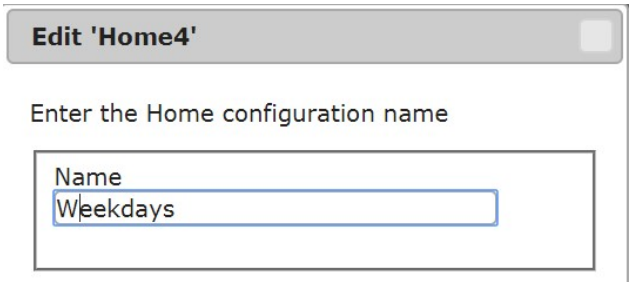
Home Button

The Home channel function stores TV channel settings and will automatically tune all TVs to a preset channel.

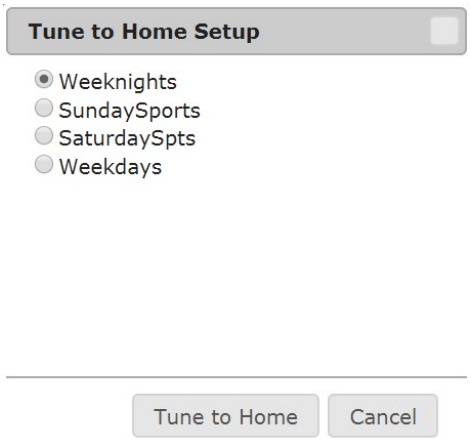
To configure home screens:

- Tune all TVs to a desired channel
- Enter SETUP and click "Save Home Setup". Multiple Home configurations can be set up and labeled as shown below:





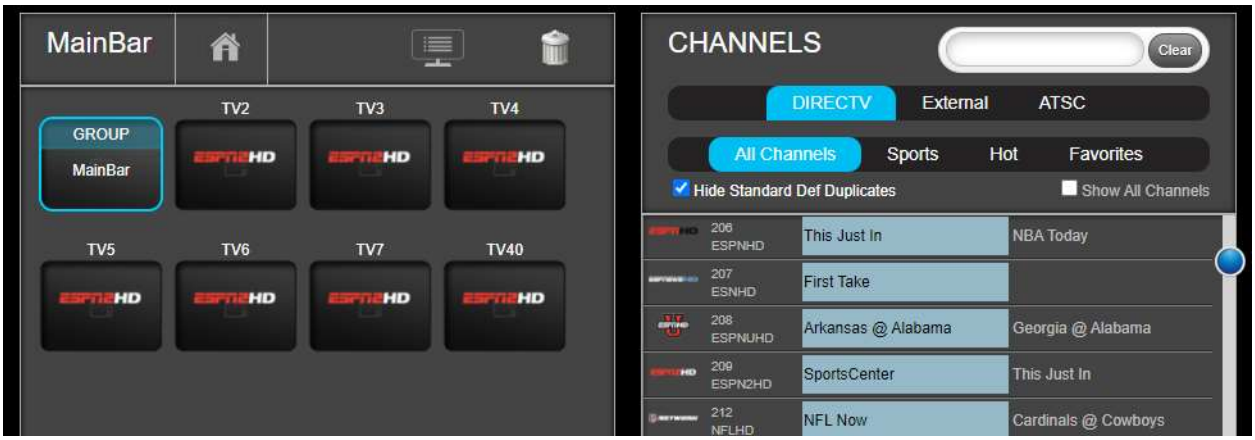
- Once configured Mediatune will revert to this known desired channel configuration when a home screen is selected.
- When the home button is clicked the system will offer home screen options. Select which home screen is desired and click Tune to Home.



Group Tuning

Group Tuning will tune all TVs or TVs in a specific zone to one channel. If you'd like all the TVs or zones to play the same channel, drag the desired channel to the Group button. If the group button is displaying TVS then all TVs will tune to the selected channel.

Dragging a channel to a group icon will tune all the TVs in that group



Clear Tuner

Clear Tuner will close tuning for a selected TV, Group, or all TVs. Drag a TV, Group or TVs icon to the trashcan and the associated tuners will close. You will be prompted to confirm. If Mediatune exhibits any odd functionality this is a good first step in troubleshooting.

Vantiva Logo

Clicking on the Vantiva logo will refresh the page and revert the display back to the 4-column display. This should always be done after a software update.

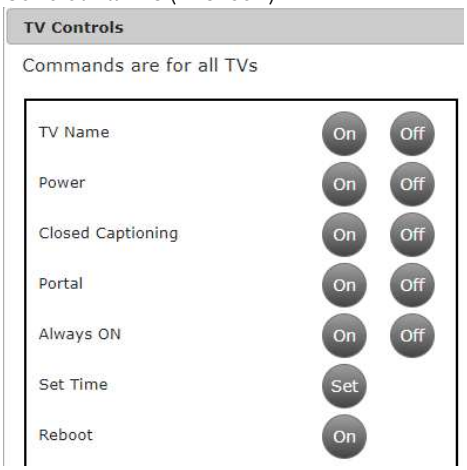
TV Controls

The TV controls Icon will display a menu of controls for use with LG Pro:Centric TVs and set back boxes connected to an ethernet distribution network.

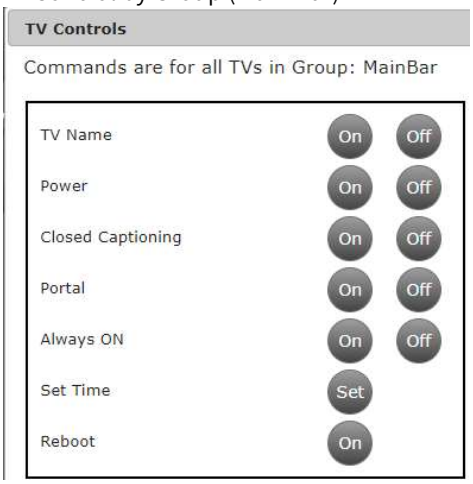
Clicking on the TV control icon toggles displaying the TV name on the display screen.

TV controls can be accessed by dragging a TV, Group of TVs icon to the TVs control icon.

Control All TVs (TVs icon)



Control by Group (Main Bar)



TV Controls

TV controls will operate all TVs, Groups, or individual TVs

TV Name On Off	Turning this function on will display the Mediatune TV name on screen.
Power On Off	Sends power on / off commands to LG TV / Set top box.
Closed Captioning On Off	Reserved for future use
Portal On Off	Displays LG Pro:Centric Portal on display
Always ON On Off	Sets TV function for required daily reboot. Normally operation should be set to off. TVs will reboot after power off. If TV is not shut off the unit will failsafe reboot after 26 hours If set to "ON" TV will not respond to on/off commands and will reboot every 24 hours at 2:00AM based on network time.
Reboot On	Sends reboot command to individual TV or set back box, group, or all TVs.

8.1 LOGGING INTO SPECIFIC GROUP ACCESS

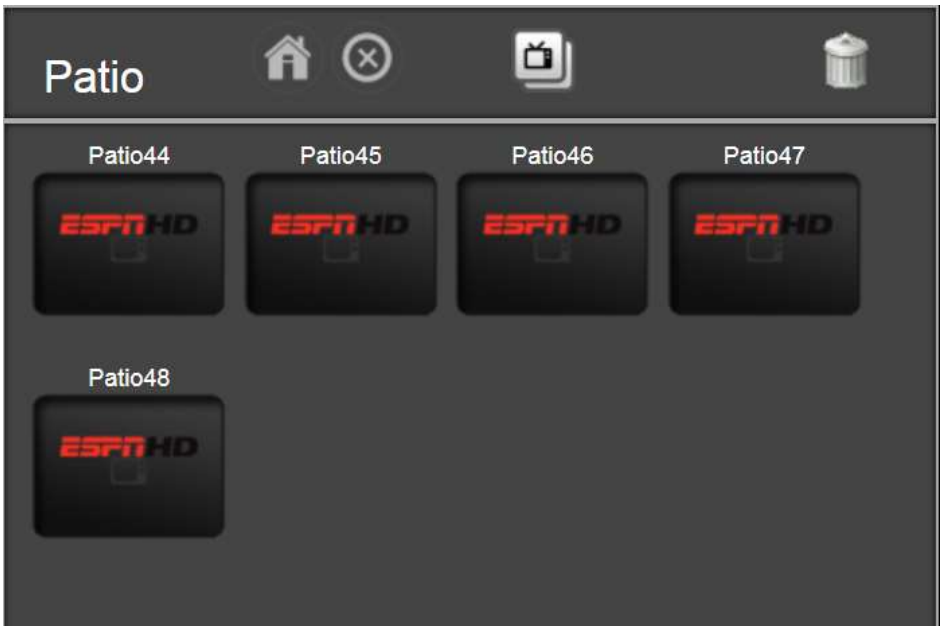
Access to Mediatune can be restricted to only specific TV groups.

A user can be limited to seeing only specific TV groups by using a specific URL for that group, add "?group=(groupname)" to the Mediatune URL and only the TVs in that group will display.
The user will not be able to access other groups of TVs.

Example:

http://192.168.3.18/mt/mediatune.html?group=patio

This URL will only allow access to Patio TVs, the user cannot access BAR or REST TV groups



This feature is extremely valuable in large properties such as casinos where you would like to prevent someone in the bar from accidentally changing a TV in the Sports Book or Poker area.

The URLs are not password protected unless the tuning device has a protection on it. This is a convenience feature, not a hardened security feature.

9 MEDIATUNE USING LG PRO:CENTRIC TELEVISIONS

Vantiva has partnered with LG Electronics to bring the next evolution of Mediatune to the market.

The Mediatune MMS (Multi-Cast Matrix Switch) uses IP Multicast technology to stream DIRECTV channels to a TV.

Unlike the RF QAM version of Mediatune the MMS version does not use QAM. Instead, it assigns a multicast IP address to each tuner. Mediatune then controls the TV via the LG Pro:Centric Technology and changes the TV channel to tune to the stream requested.

This is a more efficient method of signal distribution, especially considering the new DIRECTV 4K programming that will require much more bandwidth on the RF network. With the advent of 4K, RF systems will require a dedicated QAM carrier per TV, effectively doubling the QAM cost when delivering 4K.

9.1 COM 51 SOFTWARE REQUIREMENTS

COM51 Software Version 04.02.05 or newer
Mediatune version 3.0.20 or newer

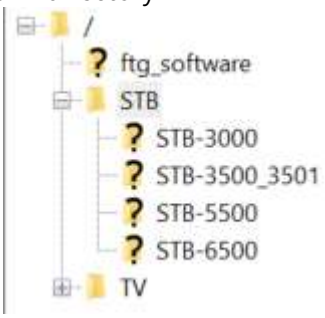
9.2 LG SOFTWARE REQUIREMENTS

It is critical to the success of the installation that the LG TV or STB is running the most recent software. Below are instructions on upgrading the software for LG Pro:Centric televisions and STBs. Consult your distributor or LG for further assistance

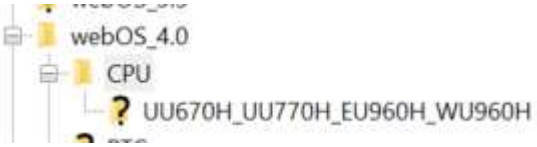
Updating LG software
Required Tools
LG service remote
LG remote control receiver (STBs only)

9.3 LG SOFTWARE UPDATE PROCEDURE

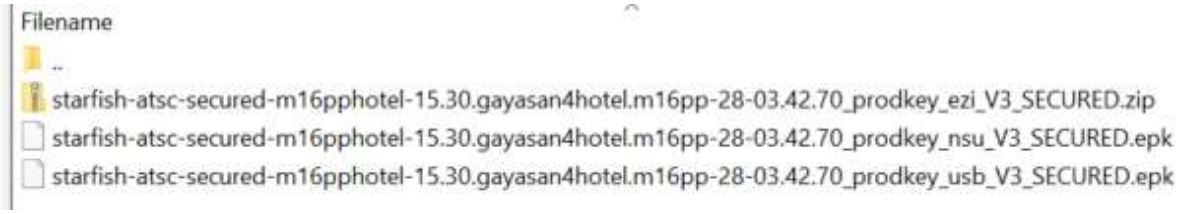
1. Download LG software
    a. You will need an FTP program such as filezilla
    b. Determine the full model number of the LG TV from the In-start or PTC installer menu
    c. Go to **ftp://apd.float-zone.com:52121**
        Username: lgmpsw
        Password: jij04j94jf
    d. Find the model of your LG TV or STB6500.
    In the FTP file you will see folders for STB and TV
    For an LG STB open the STB directory



    For a TV open the TV subdirectory and click on webOS. If you do not know what webOS version your TV is click on the webOS versions listed and expand the CPU folder. TV models will be listed.



    e. Click on the TV model number folder and the available CPU software folders will be listed. There will be 3 CPU files listed for each model, use the file with **prodkey_usb** in the file name.
    f. Transfer the file with **_prodkey_usb_**in the name
    g. Double click on the CPU software and the files will be loaded in the FTP filename field below.
    h. Open the PTC directory in the FTP program and click on the TV model number. Click on the appropriate folder and the PTC software will be displayed in the filename field

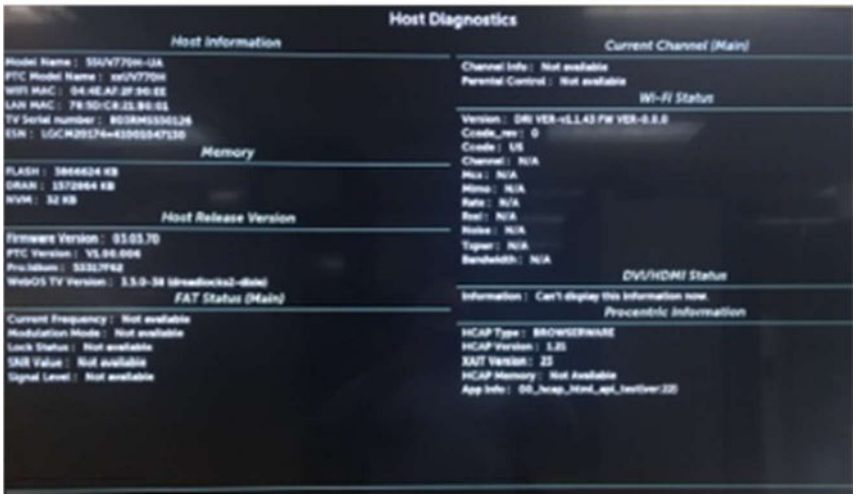


Create a directory on a clean USB thumbdrive named LG_DTV
Load the CPU and PTC software on the drive in the directory you created.

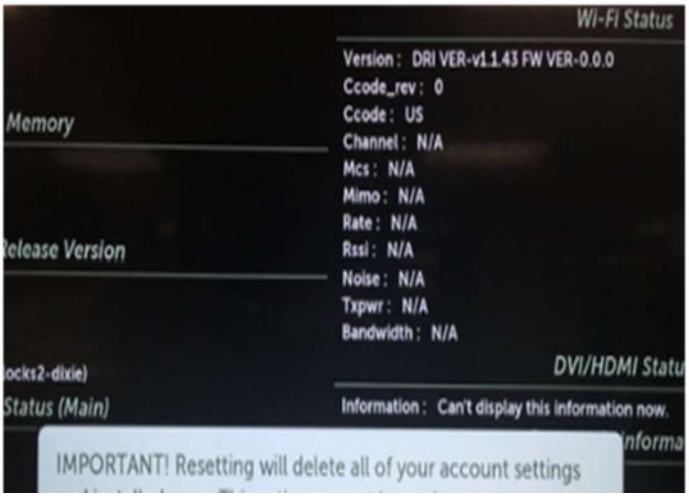
Load CPU software
Load PTC software

9.4 LG PRO:CENTRIC TV PROGRAMMING

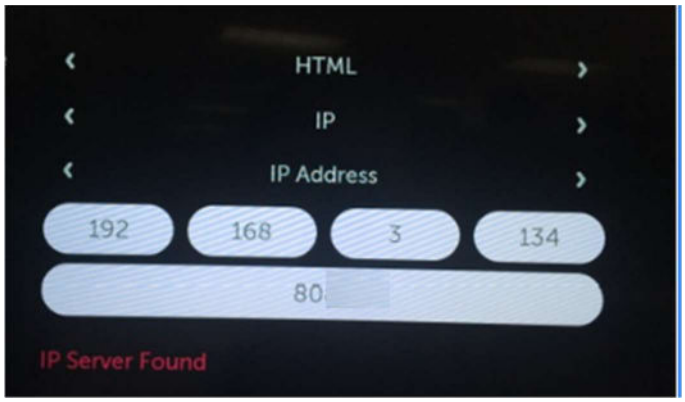
Turn on LG IP TV.
Press the MENU button.
If icons appear on the right, select "…"
If icons appear on the left, high light "General".
Press the 1 button 15-30 times until the Host Diagnostics screen appears.
If unsuccessful repeat the process on the Safety Icon



Press '0' to complete IN-STOP (reset to factory default)
Select "YES"
TV will reset and turn off



Enter Pro:Centric Settings



Turn TV on.
Select NEXT
Select Manual PRO:CENTRIC
Set Pro:Centric Mode to "HTML"
Set Media Type to "IP"
Set Server Address to "IP Address"
Set IP Address to COM51 IP address (192.168.3.18)
Set IP port to "80"
Select SEARCH

TV will search for Pro:Centric server on the COM51 card and report Server Found
Select NEXT
Select TURN OFF
Turn TV on

It is recommended to set each TV with a fixed IP address. This address will need to be included in the TV.XML config file in Mediatune.
If a DHCP server is used the TVs and the COM system must be in the same subnet.
Reserve IP address in the DHCP Mac address table.
If the TV's IP address and the IP address in the TV.XML file to not match the TV will cease to function with Mediatune

Set fixed IP on TV.
Enter LG Installer Menu
Hit "Menu" or "Settings" over and over until TV does not respond
Press "9-8-7-6-Enter"
Navigate to option 119 Data Channel 253"
Press "2-5-3-Menu" or "2-5-3-Settings" to enter the Network settings menu
Select edit in the network menu and De-select the automatic IP settings.
Enter correct IP information
This setting will be saved after the exit.
Change the tvs.xml file to have the new IP address.

TVs IP address can be verified by pressing the PORTAL button. The TV's IP address will be displayed.
In tvs.xml set the TV's IP address.
Power cycle TV
Press PORTAL
Use Mediatune to change channels.

10 EXTERNAL TUNERS

There are several set back boxes available that will allow Pro:Idiom content to be displayed on a residential model TV. Each should be set up per the manufacturer's specifications and tested carefully in a lab environment before deployment.

11 GENERAL TIP, TRICKS AND BEST PRACTICES

- Mediatune is always accessed via the web page XXX.XXX.XXX.XXX/mt/mediatune.html where XXX.XXX.XXX.XXX is the IP address of the card containing the Mediatune files.
- If you are using a wireless network to connect an iPad or other tablet device, you must make sure you have a very good wireless signal in all areas where the wireless devices are used.
- It is good practice to always have a connected PC running Chrome wired directly into the network to insure a good connection to the interface.
- Like all COM systems, support requires a method to remotely access the system. Vantiva, Distributors, Dealers cannot support a site that is not remotely accessible.
- On the iPad, you can save the Mediatune web interface to the home screen by selecting "Add to Home Screen". This will provide an icon you can click on the home screen which takes you directly to Mediatune.
- If you are using an iPad, it is helpful to permanently mount the device with a connected power supply. If connected to a power supply, you can prevent the interface from timing out by setting the Auto-Lock to Never. You can turn on and off the device from the Sleep/Wake button on the top corner.

Let's Double Check

- You must set the password to a blank string on a COM51 cards.
- Please use a PC and CHROME to configure Mediatune as some of the items do not display well on an iPad running Safari.
- Remember, 2 streams only per QAM carrier!
- There is no reason to change the channel on the TV or on the DCI401MCS. Throw the remotes AWAY!

Mediatune was designed to work with the CHROME browser on the PC and the Safari browser on the iPad. While you may be able to get other browsers to work, you will have the best experiences using the devices which Vantiva actively supports.

12 QAM LOG CHECK

If the system is incorrectly configured it is possible that multiple video sources may be sent to the same QAM UDP port. This can cause system wide video issues. To determine if the QAM is in a good state, access the QAM tab from a COM51 web page. The QAM's IP address is 192.168.6.1+chassisId so the first QAM is normally at 192.168.6.2.

Click on the qamLog button to see the QAM's syslog. Notice that every time you click the qamLog button that the letters "CCC" are added to the end of the log.
To verify that the QAM is stable, click the qamLog button three times with a few seconds between presses. Verify that the QAM syslog contains a long sequence of "CCCCCCCCC".

If the QAM syslog contains "P## P## P##" or "T## T## T##" there is probably a system configuration problem. The first number refers to the QAM index (zero based). The second number refers to the program index (zero based). Therefore, the message "P21" means that the third QAM carrier, second program might be receiving packets from two different channels at the same time. Frequent overflow messages also indicate a problem.

In order to understand which channels are conflicting, remove channels until the QAM syslog is clean. Start adding back channels until the problem occurs again.

13 TRANSPORT STREAM ROUTER (TROUTE) [ADVANCED DEBUGGING]

Mediatune works by sending UDP packets from the tuners to the Troute application. The Troute application then duplicates the UDP packets to each of the TVs. The status of Troute can be determined by accessing the URL http://192.168.3.18:8082/troute?aaa. Right click on the resulting screen and select "View page source":

```
<dupList>
<dup><in>1000</in> <ip>192.168.6.2</ip> <port>17</port></dup>
<dup><in>1000</in> <ip>192.168.6.2</ip> <port>18</port></dup>
<dup><in>1001</in> <ip>192.168.6.2</ip> <port>33</port></dup>
</port></dup>
</dupList>
```

This example indicates that every UDP packet received on UDP port 1000 is forwarded to 192.168.6.2:17 and 192.168.6.2:18. To add or remove stream duplication:

http://X.X.X.X:8082/troute?portIn=<portIn>&ipOut=<IPin>&portOut=<portOut>&stop=<stop>

For example, to stop the first duplication:

http://X.X.X.X:8082/troute?portIn=1000&ipOut=192.168.6.2&portOut=17&stop=1

To stop all duplications on a card set stop to 2.