AMX by HARMAN

INSTRUCTION MANUAL

VISION² V8.2®

VIDEO MANAGEMENT AND DISTRIBUTION

AV FOR AN IT WORLD®

IMPORTANT SAFETY INSTRUCTIONS

1. READ these instructions.
2. KEEP these instructions.
3. HEED all warnings.
4. FOLLOW all instructions.
5. DO NOT use this apparatus near water.
6. CLEAN ONLY with dry cloth.
7. DO NOT block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. DO NOT install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. DO NOT defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wider blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. PROTECT the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. ONLY USE attachments/accessories specified by the manufacturer.
12. USE ONLY with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. UNPLUG this apparatus during lightning storms or when unused for long periods of time.
14. REFER all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. DO NOT expose this apparatus to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the apparatus.
16. To completely disconnect this apparatus from the AC Mains, disconnect the power supply cord plug from the AC receptacle.
17. Where the mains plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.
18. DO NOT overload wall outlets or extension cords beyond their rated capacity as this can cause electric shock or fire.

The exclamation point, within an equilateral triangle, is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electrical shock to persons.

ESD Warning: The icon to the left indicates text regarding potential danger associated with the discharge of static electricity from an outside source (such as human hands) into an integrated circuit, often resulting in damage to the circuit.

WARNING: To reduce the risk of fire or electrical shock, do not expose this apparatus to rain or moisture.
WARNING: No naked flame sources - such as candles - should be placed on the product.
WARNING: Equipment shall be connected to a MAINS socket outlet with a protective earthing connection.
WARNING: To reduce the risk of electric shock, grounding of the center pin of this plug must be maintained.

COPYRIGHT NOTICE

LIABILITY NOTICE

No patent liability is assumed with respect to the use of information contained herein. While every precaution has been taken in the preparation of this publication, AMX assumes no responsibility for error or omissions. No liability is assumed for damages resulting from the use of the information contained herein. Further, this publication and features described herein are subject to change without notice.

AMX WARRANTY AND RETURN POLICY

The AMX Warranty and Return Policy and related documents can be viewed/downloaded at www.amx.com.

Table of Contents

Overview

Vision^2 is a sophisticated, fully-integrated video capture, management, and broadcast system for organizations and homeowners wanting a comprehensive, yet simple-to-use, IP video delivery solution. Vision^2 offers live, scheduled, or on-demand video, all managed from a convenient web interface. Through the web interface, you can perform the following:

- Capture and encode content
- Upload, archive, manage, and publish content
- Schedule programming
- Broadcast at selectable bitrate to any platform
- Provide live TV and video on-demand over Intranet to PCs and Set-top boxes attached to displays
- Provide video on-demand to supported tablets

Live Channels

Vision^2 services output one or more multicast video streams, called Live Channels, which can be viewed by PC or Set-top box users. Live Channels are managed by Vision^2 and so they are referred to as managed channels. If using a third party multicast video stream source, it can be added to Vision^2 as an unmanaged channel. Unmanaged refers to the fact that Vision^2 does not control the channel. Unmanaged channels also appear in the list of Live Channels available to PC and Set top box users.

Vision2 Services

Vision^2 consists of a number services which correspond to the main video functions. See the table below for a description of each service.

Vision2 Services	
Service	Description
Archive	Video archive used for viewing videos on demand
DVB	Add Digital Tuner channels to your Vision^2 system
Record	Record any of the channels in your system to a selected Archive
Producer	Create a scheduled TV channel using video stored in your archives
Reflector	Transmit your Vision^2 channels over the internet or onto another subnet
MAX CSE Encoder	Use a MAX CSE encoder to add an analogue video source to your Vision^2 system

Components of a Vision2 system

A Vision^2 system can consist of one or more Vision^2 servers. One of the Vision2 servers must be set as the master server, the other servers known as clients are subordinate to this server. Typically a V2-MASTER-xxxx server is used as the Master server but it is possible to use other servers as the master server in smaller installations. User access the Vision2 user interface through a web page on the master server,

`http://<master server name>/v2.aspx. Tablet users connect to http://<master server name>/tablet.aspx`

Similarly set-top boxes connect to the master server using the url http://<master server name>/v2.aspx.

The following table lists the different Vision^2 servers:

Vision2 Server		
	Description	FG number
Master Server (note can also be used as a Client Server in a system which already has a Master Server) V2-MASTER-0300 FG3106-03 V2-MASTER-1200 FG3106-12 V2-MASTER-2400 FG3106-24 V2-MASTER-3600 FG3106-36	Hosts VOD Archive, Reflector, Producer, and Record Services. You can only have one Master Server per Vision2 installation, however the same hardware can be used as a Client Server. Access point for Vision2 user interface. The V2-MASTER is available with different amounts of archive storage (Note the storage amounts quoted in TB are the amounts available for use by all Archives on the system, not the hard drive space)	FG3106-03K 1.8 TB FG3106-12K 9.1 TB FG3106-24K 18.2TB FG3106-36K 27.3TB

Format Compatibility

The following tables list the formats that are compatible with Live channels and Video on Demand.

Live Channel Compatibility					
	Amino	*VLC*	*PC Client*	*WMP*	**Tablet**
WMV	No	No	Yes	Yes	No
MPEG-2/MPEG-2 TS	Yes	Yes	Yes	Yes	No
H.264 (AVC)/MPEG-2 TS	Yes	Yes	No	No	No
H.264 (AVC)/MP4	Yes	Yes	No	No	No

Video on Demand Compatibility					
	Amino	*VLC*	*PC Client*	*WMP*	**Tablet**
WMV	No	Yes	Yes	Yes	No
MPEG-2/MPEG-2 TS	Yes	Yes	Yes	Yes	No
H.264 (AVC)/MPEG-2 TS	Yes	Yes	Yes	Yes	No
H.264 (AVC)/MP4	No	Yes	Yes	No*	Yes
FLV (On2 VP6/FLV)	No	Yes	Yes	Yes	No
MP3	Yes	Yes	Yes	Yes	Yes

* - Some Windows 7 Media Players support MP4.

Server Specifications

The following table lists the specifications for the V2-SERVER-0300 (**FG3106-03**), V2-SERVER-1200 (**FG3106-12**), V2-SERVER-2400 (**FG3106-24**), and V2-SERVER-3600 (**FG3106-36**) servers:

V2-SERVER Specifications	
Processor:	2 x Intel® Xeon® E5-2620, 2.00 GHz processors
Memory:	16GB RAM
Storage (available):	• 1.8 TB (7.2K RPM) (V2-SERVER-0300, **FG3106-03**) • 9.1 TB (7.2K RPM) (V2-SERVER-1200, **FG3106-12**) • 18.2 TB (7.2K RPM) (V2-SERVER-2400, **FG3106-24**) • 27.3 TB (7.2K RPM) (V2-SERVER-3600, **FG3106-36**)
Power:	1100W (100-240 VAC), 50/60 Hz **NOTE:** *You can add one additional power supply (V2-POWER-1100) to your server to provide power supply redundancy.*
Front Panel Components:	
USB ports	2 USB 2.0 ports for mouse, keyboard, or external peripheral devices
Video connector	1 15-pin (female) video connector for connecting a video output device such as a PC monitor
Power button	Press to power on server.
Rear Panel Components:	
Video connector	2 15-pin (female) video connectors for connecting a video output device such as a PC monitor
Serial connector	1 9-pin (male) serial connector
USB port	3 USB 2.0 ports for mouse, keyboard, or external peripheral devices
LAN connectors	4 RJ-45 LAN ports for connecting to a network router (10/100/1000 Ethernet)
Rack Mount	Sliding Ready™ rails with Cable Management arm
Operating Environment:	• Operating Temperature: 10º C to 35º C (50º F to 95º F) • Storage Temperature: -40º C to 65º C (-40º F to 149º F) • Operating Relative Humidity (non-condensing twmax=29º C): 10% to 80% non-condensing • Maximum Humidity Gradient: 10% per hour, operational and non-operational • Storage Relative Humidity: 5% to 95% non-condensing (twmax=38º C) • Heat Dissipation: 4100 BTU/hr max
Dimensions (HWD):	3 7/16" (8.73cm) H x 19" (48.24cm) W x 29 3/4" (75.5cm) D
Weight:	71.5 lbs (32.5 kg)
Certifications:	CE, NRTL, FCC Class A

Vision² Expansion Storage

The Vision² Expansion Storage V2-STORAGE-2400 (**FG3102-01**) is an optional accessory that connects directly to your Master server to allow you to grow the storage capacity of your system. The Expansion Storage is shipped in a RAID configuration in order to provide resiliency in the event of a disk failure.

The following table lists the specifications for the V2-STORAGE-2400 Expansion Storage (**FG3102-01**):

V2-STORAGE-2400 Expansion Storage Specifications	
Storage:	12 2TB 7.2K RPM NL SAS 6Gbps 3.5in HotPlug Hard Drives
Power:	• 488W maximum continuous; 550W peak • 90-264V • 47-63 Hz • 7.2A at 100V, 3.6A at 200V
Rear Panel Components:	
Output ports	2 SAS connectors for connection to a Master server
Expansion ports	2 SAS connectors for expansion to an additional V2 Expansion storage unit
Operating Environment:	• Operating Temperature: 10º to 35º C (50º to 95º F) • Storage Temperature: -40º to 65º C (-40º to 149º F) • Operating Relative Humidity: 8% to 85% (non-condensing) • Storage Relative Humidity: 5% to 95% (non-condensing) • 1181 BTU per hour
Dimensions (HWD):	3 7/16" (8.7 cm) H x 19" (48.2 cm) W x 23 3/8" (59.4 cm) D
Weight:	62.6 lbs (28.39 kg)

Please note that the V2-STORAGE-2400 is only compatible with a V2-MASTER Vision² Master Server (FG3106-XXK) which has a V2-STORAGE-EXT810 Vision² External RAID Controller (FG3102-03) installed.

STB-04 Set-Top Box

The following table lists the specifications for the STB-04 Set-Top Box (**FG3100-65**):

STB-04 Set-Top Box Specifications	
Memory:	128MB Flash, 256MB RAM
Power:	• 5V DC at 1.5A via external power supply • Less than 8W typical usage (external supply input voltage 100-240V AC 50-60Hz 3A max)
Front Panel LED:	Power on/IR command received (Red)
Rear Panel Components:	
Power connector	1 connector port for a 5V DC at 3A power supply
LAN ports	1 x Ethernet 10/100 BaseT via RJ-45 shielded connector
USB port	1 Type-A USB 2.0 port for peripheral connections
HDMI port	1 HDMI 1.3a with HDCP and CEC port
SPDIF port	1 S/PDIF(optical) port
AUDIO VISUAL port	1 10-way Mini-DIN for Composite video, Component (YPrPb), RGB, S-Video, and analog audio
IOIOIO port	1 IR extender and TVI port
Codecs:	• MPEG-2 MP@HL • MPEG-4 pt10 AVC/H.264 HP@L4
Video Resolution:	Up to 720p and 1080i. The video output resolution on the STB should be set to 720p.
Graphics Resolution:	HD graphics up to 1280x720
Audio:	• Analog stereo audio out • Stereo and Dolby 5.1 surround via S/PDIF and HDMI • Dolby Digital+ pass through to external decoder
Operating Environment:	• Operating Temperature: 0º to 40º C (32º to 104º F) • Storage Relative Humidity: 5% to 95% (non-condensing)
Dimensions (HWD):	1 9/16" (4cm) H x 5 1/2" (14cm) W x 4 1/2" (11.4cm) D
Weight:	0.70 lbs (0.32 kg)
Included Accessories:	• 1 Amino Universal Remote Control

Vision2 Network Switch Requirements

Vision^2 requires a Gigabit layer 2/3 network switch with IGMP Snooping/Querier support. The network switch should meet the following requirements:

Network Switch Requirements	
Physical Interfaces:	RJ-45 connectors for 10Base-T, 100Base-TX, 1000Base-T with 8, 16, 24, or 48 ports.
Layer 2 Services:	• IGMP Snooping V1 or V2 (Not router dependant for operation) • IGMP Querier • Layer 2/3 switching • Spanning Tree Protocol (STP)
Security:	• QoS • Storm Control Broadcast and Multicast
Performance Specifications:	Jumbo frame support
Switching Capacity:	Non Blocking 32Gbps (16Port) - 140Gbps (48Port)
Forward Rate:	24Mpps (16Port) - 96Mpps (48Port)
Internet Protocol:	IPv4 or IPv6
Optional:	• VLAN support • Web User Interface

Using Vision2 without a DNS Server

Using Vision^2 with a DNS Server is recommended. If a DNS Server is not available, the hosts file will need to be edited on each Vision^2 server and the names and IP addresses of all your Vision^2 servers added. The hosts file is located in the folder C:\windows\system32\drivers\etc. FIG. 1 shows a hosts file for a setup with one master server called V2MASTER with IP address 192.168.20.110 and one Digital TV Appliance called V2DVBGATEWAY with IP address 192.168.20.111.

```
# lines or following the machine name denoted by a '#' symbol.¶

#¶

# For example:¶

#¶

#      102.54.94.97     rhino.acme.com          # source server¶

#       38.25.63.10     x.acme.com              # x client host¶

¶

# localhost name resolution is handled within DNS itself.¶

#127.0.0.1        localhost¶

#::1             localhost¶

192.168.20.110 V2MASTER¶

192.168.81.111 V2DVBGATEWAY¶
```

FIG. 1 Example Hosts File

NOTE: *If a DNS server is not available and the name of a server needs to be changed, you will have to update the name of the server in the host file on each of the servers which make up the Vision^2 system.*

Wiring and Device Connections

V2-Master Server Rear Panel Connections

This section details the ports and connectors on the rear panel of the Vision^2 Master server.

Output port — LAN ports — Power connector
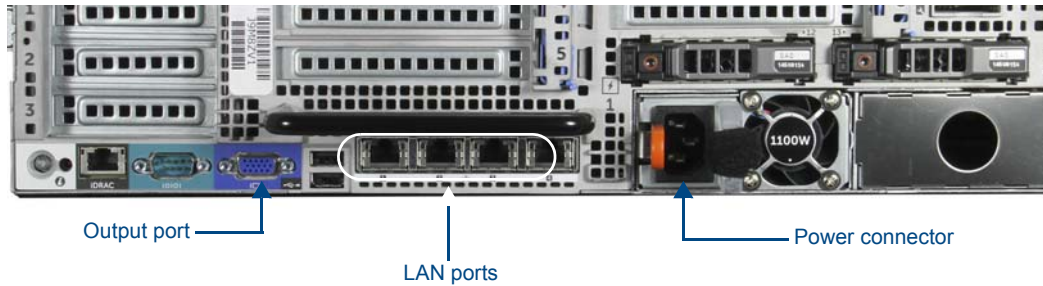
FIG. 2 Vision^2 Master Server Rear Panel

The two flex drives at the rear of the V2-Master server are fitted with 146GB 15K SAS 2.5in Hot-Plug Drives configured as Raid1 for the OS (Microsoft Windows Server 2008 Standard)

LAN (RJ-45) Port
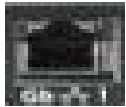
FIG. 3 LAN (RJ-45) Port

FIG. 4 describes the blink activity for the LAN 10/100/1000 Base-T RJ-45 connector and cable.

A - Activity LED (yellow) lights when receiving or transmitting LAN data packets

L - Link LED (green) lights when the LAN cables are connected and terminated correctly.
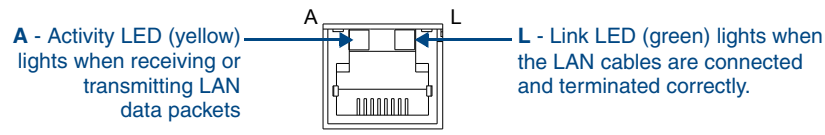
FIG. 4 LAN Connector / LEDs

NOTE: *Vision^2 uses typical Cat5/5e/6 cabling for RJ-45 connections.*

The following table lists the pinouts, signals, and pairing associated with the LAN connector.

LAN RJ-45 Pinouts and Signals				
Pin	*Signals*	*Connections*	*Pairing*	*Color*
1	TX +	1 --------- 1	1 --------- 2	Orange-White
2	TX -	2 --------- 2		Orange
3	RX +	3 --------- 3	3 --------- 6	Green-White
4	no connection	4 --------- 4		Blue
5	no connection	5 --------- 5	4 --------- 5	Blue-White
6	RX -	6 --------- 6		Green
7	no connection	7 --------- 7	7 --------- 8	Brown-White
8	no connection	8 --------- 8		Brown

FIG. 5 diagrams the RJ-45 pin-outs and signals for the LAN RJ-45 connector and cable.
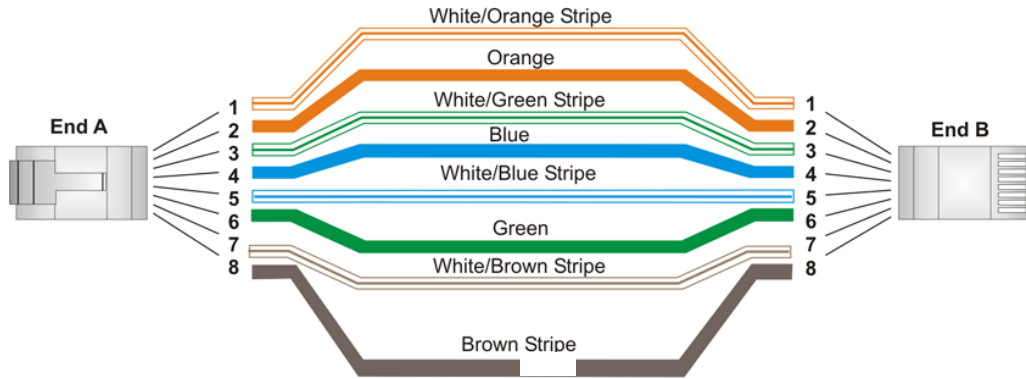
FIG. 5 RJ-45 Wiring Diagram

Set-Top Box Connections

The STB-04 Set-Top Box (**FG3100-65**) supports viewing the Live Channels from MAX CSE Encoders, Producers, Reflectors, or DVB Tuners. The set-top boxes access the Vision^2 server and display available programming on a connected video source. The set-top boxes are used only for MPEG 2 content. They support viewing MPEG Video on Demand Stop, Play, and Pause, Fast Forward and Rewind features.

NOTE: *The Set-Top Boxes support video up to a resolution of 720p or 1080i. Sending video with greater resolution could cause the set-top boxes to reset themselves periodically.*

FIG. 6 displays the rear panel of the STB-04 Set-Top box.
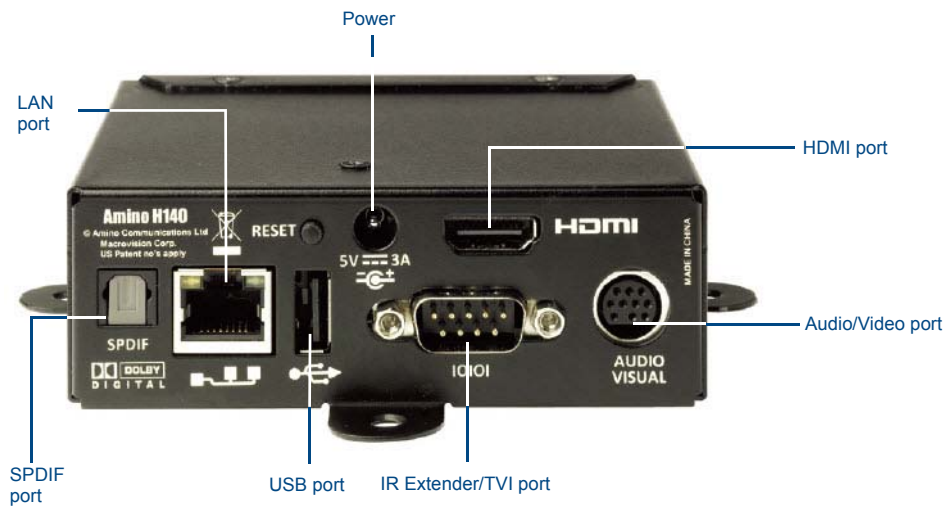
FIG. 6 STB-04 Set-Top Box (rear-view)

Installation

This section provides instructions on how to install the different Vision[2] accessories.

Installing Master Server Accessories

Optional accessories can be installed in the Master server for redundant power or for connection to an Archive server.

Installing a Secondary Power Supply

The V2-POWER-1100 (**FG3106-PS**) is a secondary power supply that can be used to add redundant power to FG3106-XX Vision[2] Master Servers. Master servers ship with a single 1100W power supply. One additional V2-POWER-1100 can be added to the server to provide power supply redundancy.

FIG. 7 V2-POWER-1100 Power Supply

NOTE: *The V2-POWER-1100 power supply is only compatible with the FG3106-XX Vision[2] Master servers*

Follow these steps to install a secondary power supply.

1. Remove the metal cover from the power supply expansion slot (see FIG. 8).

Remove metal cover
from expansion slot.

FIG. 8 Master Server Rear Panel

2. Slide the secondary power supply into the slot until the orange tab beside the power connector clicks into place.

Installing Expansion Storage

The following steps describe how to add an additional 24TB of Disk storage to an existing archive server.

1. Connect an SAS cable to the IN port on the rear of the V2-STORAGE-2400 Expansion Storage device (FIG. 10).
2. Connect the other end of the cable to the first SAS port on the rear of the Master server.

FIG. 9 Vision[2] Archive/Video on Demand server with V2-PVA (rear-view)

FIG. 10 V2-STORAGE-2400 Expansion Storage (rear-view)

Set-Top Boxes

The STB-04 (**FG3100-65**) Set-Top Box supports viewing live programming via a Producer channel, MPEG encoder, or DVB Tuner channel. The set-top boxes access the Vision^2 server and display available programming on a connected video source. The set-top boxes are used only for MPEG2 and MP3 content. They support viewing MPEG Video on Demand, but support only Stop, Play, Pause, Fast Forward, and Rewind features.

NOTE: *The Set-Top Boxes have a limit of 18Mbps. Heavy traffic loads can cause the set-top box to reset itself periodically.*

FIG. 11 displays the rear panel of the STB-04 Set-Top box.

FIG. 11 STB-04 Set-Top Box (rear-view)

NOTE: *Do not use the reset button on the back of your set-top box.*

Configuring the Set-Top Box

Before a set-top box can be used to view a video source, it must be configured to access the Vision^2 server. Plug a USB keyboard into the USB port on the front of the set-top box.

NOTE: *The set-top-box will need to be power cycled to allow it to recognize the keyboard.*

Perform these steps to configure the set-top box:

1. Connect the power supply to the power connector on the rear of the unit.
2. Choose one of the following methods to connect the set-top box to audio and video sources:
    ● Use an HDMI cable to connect the HDMI port on the set-top box to an HDMI port on the video source. HDMI also transmits an audio signal in addition to video.
    ● Use a breakout cable to connect the AUDIO VISUAL port on the set-top box to your audio and video sources. In place of connecting the breakout cable to your audio source, you can connect an optical audio cable from the SPDIF port on the set-top box to your audio source.
3. Connect an RJ-45 LAN cable to LAN port 1 on the rear of the unit. The other end of the cable connects to your LAN. This connection accesses your Vision^2 server and can be used to upload the latest firmware and Vision^2 menus to the set-top box.

Management Pages

Login to the management pages on your set-top box as follows:

1. Press **Alt-M** on the keyboard to access the Enter Management Pages login, see FIG. 12
2. In the Password text box, enter the password (the default is **leaves**) and press **Enter**. The Set-top box Management screen appears

FIG. 12 Enter Management Password (default password - leaves)

3. Check that your set-top box has the correct firmware and opera browser installed, using the arrow keys on the keyboard to access User Prefs and press the right arrow cursor key to enter this page
4. You are prompted whether you want to enter the User Preferences page. Press enter and use the right/left cursor keys to change this setting to Yes.

5. Press enter again to confirm the new setting. The unit will prompt for the write password for modifying settings in the space provided (the default is **snake**). You will need to enter this password whenever you change settings.

6. A new set of menus should now be visible. Select the info menu and check the software version. Ensure that Opera 10 version 2.34 or 2.5.2 is running (FIG. 13).

FIG. 13 Software Version

7. Select the back option and return to the main menu.

Set-Top Box Networking

Setup networking on the set-top box as follows:

1. Select the DHCP menu.

2. Change the DHCP setting to disabled.

3. Enter an IP address, Netmask, Gateway and (optional) DNS server setting for the set top box.

FIG. 14 Network Settings

Browser Homepage

Set the browser home page for your set-top box to point to a page on your Vision2 master server:

1. Use the arrow keys on the keyboard to access the Browser option, and press the **right arrow cursor key** to enter this page (FIG. 15).

FIG. 15 Set-Top Box Browser Configuration

2. Select the home page setting using the cursor keys and press the DEL key to start editing.

3. Delete any text using the backspace key and then enter the address of the Vision^2 master server. If using a DNS server, either enter the hostname of server, otherwise enter the server's IP address. The URL is as follows:

```
http://<master server name>/aminoH140.aspx
```

or if there is no DNS server

```
http://<master server IP>/aminoH140.aspx
```

NOTE: *The set-top box must be configured to point at the master server, not to any of the client servers*

4. Press enter and another Password prompt appears. Enter the password for modifying settings in the space provided (the default is **snake**).

5. Set Full screen mode setting to Disabled, and GFX resolution to 720 HD..

Video Settings

Configure the video settings as follows:

1. Return to the User Prefs menu and select the Video page (FIG. 16).

2. Change the TV type setting to the correct aspect ratio for the attached display (e.g. 16:9).

3. Change the output resolution to 720p.

4. Select the back option and choose yes to return to the main menu.
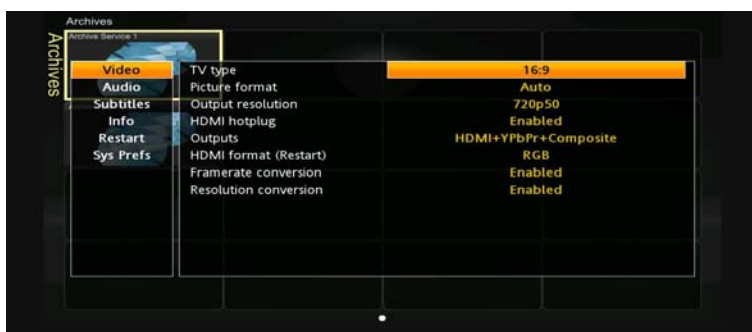
FIG. 16 Video Settings

Restart the set top box by selecting **Restart** followed by **Yes** and press **Enter** to reboot the set-top box.

NOTE: *The Amino Set-Top Box must have both its GFX resolution and Output resolution set to 720p in order to ensure proper operation.*

Using the Remote Control

The set-top box includes a universal remote control to control the video display and navigate through the Vision^2 menus. Not all buttons on the remote work with your Vision^2 setup. While Vision^2 supports Video on Demand, you can use only the Play, Pause, Stop, Fast-Forward, and Rewind features. FIG. 17 highlights some of the buttons you can use with Vision^2 and your set-top box.

Power

Play

Pause

Stop

Turn on Subtitles

Menu button for accessing the Vision^2 menu

Volume control

Navigational buttons for manuvering through the Vision^2 menus
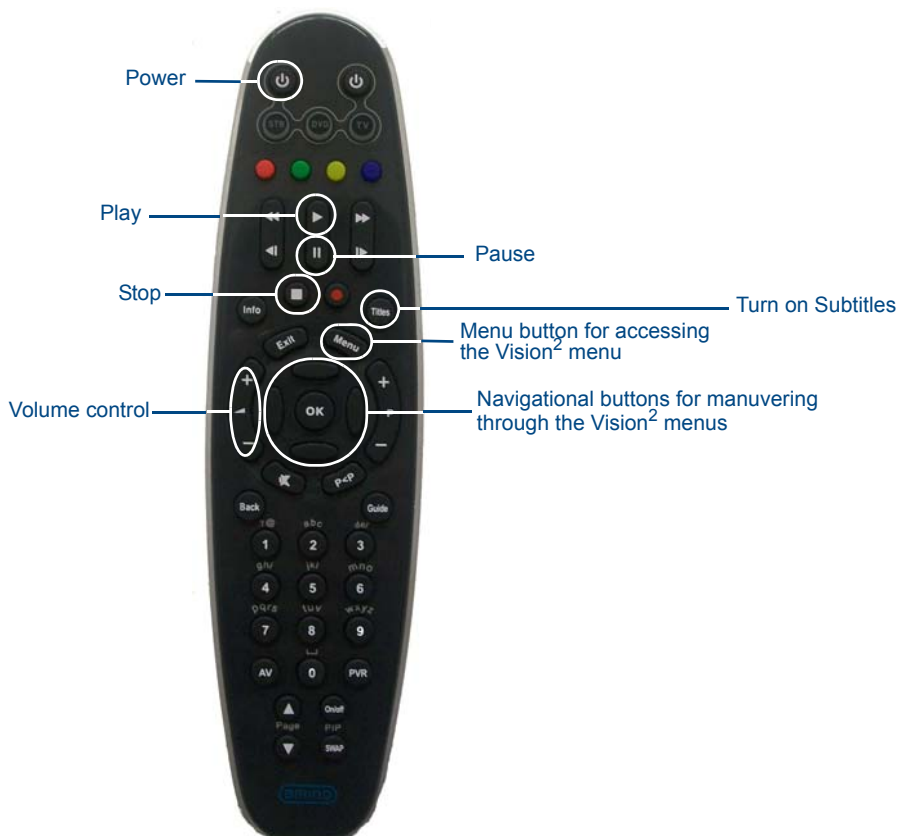
FIG. 17 Amino Remote Control

NOTE: *Subtitles are only supported on DTV streams.*

NOTE: *If using an STB-04 set-top box and you receive a "failed to load webpage" error, select the OK button on the remote and, using the remote, power the set-top box off and on again. Afterward, the Vision^2 main menu loads.*

After the set-top box reboots, it accesses the specified Vision^2 master server and downloads the latest Vision^2 menus.

NOTE: *Ensure the set top box has Opera version 10 installed. Opera 11 is not supported.*

The Vision^2 menus can be accessed by pressing the Menu button on the remote control. The Vision^2 Main Menu (FIG. 18) contains two options discussed in detail in the following sections: Live TV Feeds and Video on Demand..

FIG. 18 Vision^2 Main Menu

Live TV Feeds

The Live TV Feeds menu (FIG. 19) displays a listing of all Live Channels available in the Vision2 system. Use the remote control to scroll through the channels and press **OK** on the remote control to select and view a channel. See the *Using the Remote Control* section on page 11 for more information on using the remote.

FIG. 19 Live TV Channels

Video on Demand

The Video on Demand menu displays a listing of all available video archives (FIG. 20).
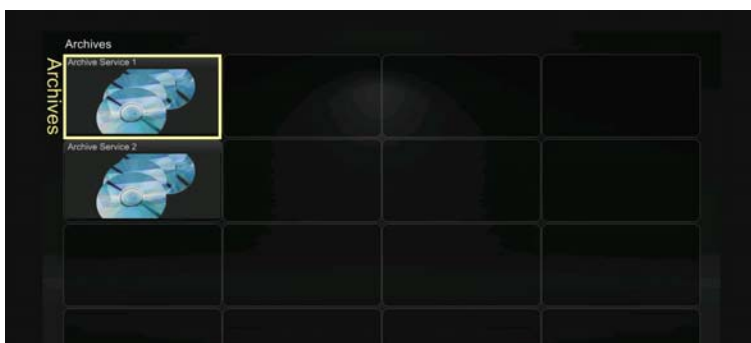
FIG. 20 Video On Demand Section - List of Archives

Use the remote control to scroll through the list of archives and press **OK** to enter an archive. Within an archive will be a number of categories. Use the cursor keys on the remote to navigate to and highlight the desired category. Click **OK** to navigate into the category.

Use the same method to select a video/audio file within a folder. Select a Video (FIG. 21) and click **OK** to view the video thumbnail fullscreen along with any metadata associated with the video (FIG. 22). Click **OK** again to play the video. See the *Using the Remote Control* section on page 11 for more information.
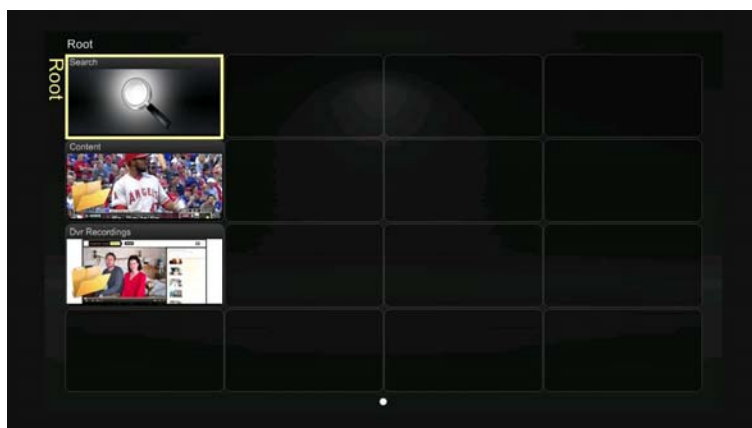
FIG. 21 Selecting a Video to Play
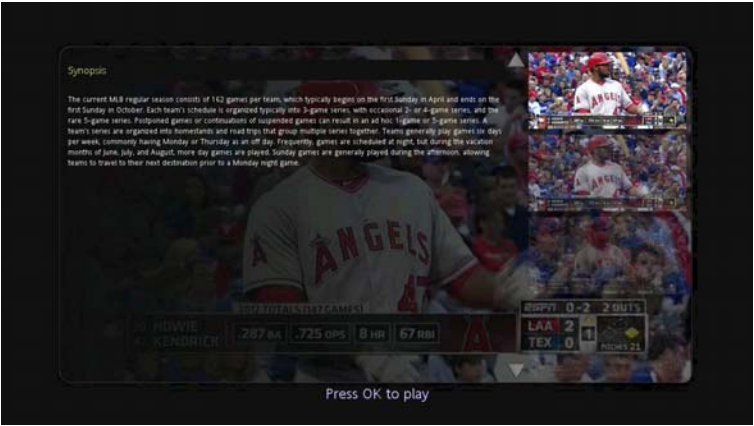
FIG. 22 Video Metadata

FIG. 23 displays an example of video on demand programming. While viewing video on demand programming, you can use the remote control to pause or stop the video stream. If you press OK on the remote control while a video is playing then a seek bar appears. Press Left or Right on the control while the seek bar is displayed to move to the correct location in the video and then press **OK** again to resume playback.

FIG. 23 Video Playback and Seek Bar

Use the Play button to resume viewing a paused video stream. To refresh your set top box to display new content in your archive or to refresh the template displayed, navigate away from the main menu into the Live Channels or Video on Demand pages and press and hold the menu button for a second or more. The screen should flash and will return to the main menu. The set-top box will refresh and the new template and new Archive content can be viewed.

The set-top box also has a search feature, select the search icon and click **OK** to open the search dialogue box, see FIG. 24. Enter the text you want to search for and click **GO**, this returns any matching videos. Note that the search is case-insensitive.
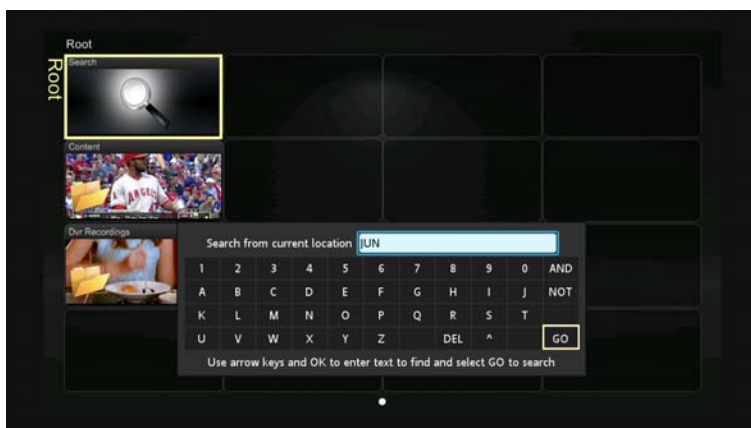
FIG. 24 Search Feature

Vision2 User Interface

This section provides a brief overview of the Vision^2 User interface under the following headings:

- Vision2 User Interface Requirements - Software and plugins needed to use Vision2
- Accessing the Vision^2 User Interface - Explains how to access the Vision2 User interface
- Vision^2 Menu Structure
- Access Control
- Loading and Enabling Vision^2 Services

Vision2 User Interface Requirements

PC Users who wish to connect to Vision2 must be aware that the interface has the following requirements:

- You must use Internet Explorer 9 32 bit. Note if you install IE9 64 bit on a 64 bit operating system then it will also install the 32 bit version. Create a shortcut to this version of Internet Explorer to use with Vision2. Vision2 only supports 32 bit browsers.
- Configure Internet Explorer to check for newer versions of stored pages every time a web page is visited as follows:
  - Press Alt+X and select internet options
  - Choose the settings option under Browsing History, and select *every time I visit the webpage*.
- VLC version 2.0.5 and the VLC Active X plugin must be installed to view Video on Demand and Live Channels. Later versions of VLC are not guaranteed to work. When you first use Internet Explorer after installing the VLC plugin, the VLC add-on will need to be allowed to work.

NOTE: *If a version of VLC is already installed on your PC, VLC must be un-installed before continuing.*

Install VLC version 2.0.5 as follows:

1. Go to http://download.videolan.org/pub/videolan/vlc/2.0.5 and select the appropriate version for your operating system.
2. Run the installer and accept all the options until you reach the choose components screen, see FIG. 25. Make sure you select the Active X plugin and Mozilla plugin options.
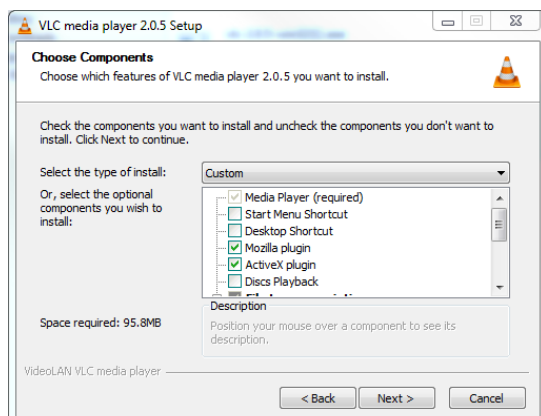
FIG. 25 Install Active X and Mozilla plugins

3. Click **Next** to continue.
4. Click **Install** to start the installation.
5. Vision^2 is now ready to use on this PC.

NOTE: *VLC version 2.0.6 is not supported*

Accessing the Vision^2 User Interface For the First Time

Perform these steps to access your Master Server for the first time:

1. Power on your Vision^2 server. It may take a few minutes to boot.
2. Test that you can access the server via the LAN. You can run this test by accessing a Command Prompt using the Ping command. For example:

   ```
   ping v2AMX-xxxxxxxx
   ```

   where v2AMX-xxxxxxxx is the master server name

3.   Using IE9 32bit, navigate to *http://*`v2AMX-xxxxxxxx`*/v2.aspx.* The Vision[2] login page appears(FIG. 26).

FIG. 26 Login Screen

4.   Enter username and password. The Vision[2] system has one administrator account. The default username and password are:
- Username - Administrator
- Password - Vision2

NOTE: *AMX recommends changing the default password. Connect via remote desktop to the Vision2 master server and change the password for the Administrator user account.*

5.   The first time logging into a machine, the Vision[2] interface will prompt you to make this server the master server.

NOTE: *Only one master server can be configured in a system.*

6.   Only access the Vision[2] interface by connecting to the web application on the master server. Click **OK** to convert this server to a master server.
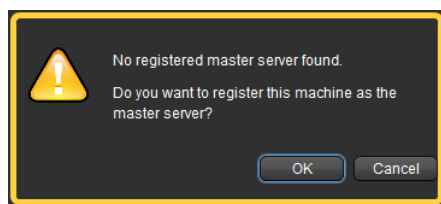
FIG. 27 Prompt to Convert Server to Master Server

7.   Follow the prompt to reboot the server.
8.   Optional - add more servers to the system if required. See the *Manage System* on page 27.
9.   License the server. See the *Licensing* on page 22.

NOTE: *The server must be rebooted after converting it to a master server or the server will be unable to be licensed.*

Vision[2] Menu Structure

The Vision2 menu has the following components:

Menu Structure		
Menus	**Sub Menus**	**Description**
Archives	Recent Updates	See the 100 most recent updates in each archive
	Browse	Play Video on Demand Upload Videos Manage Videos
	Configure Archive	(Administrator only) Setup Archive
	Archive Permissions	(Administrator only) Used to determine which users can carry out which operations in the different folders which make up your Archives
	Download FTP client	Use the FTP client to upload videos which are larger than 2GB

Menu Structure		
Live Channels	View	View Live Channels (managed channels) created by Vision[2] Services and unmanaged channels (multicast video streams from external devices)
	Channel Order	(Administrator only) Modify the order that Live Channels are shown to PC and Set top box users
	Manage MAX CSE	Manage MAX CSE Encoder to display an analogue video source as part
	Manage Digital Tuner	Manage DTV tuner to display Digital TV channels as part of Live Channels screen
	Manage MPEG Reflector	Transmit or Receive Vision[2] Live Channels over the Internet.
Producers	Manage Producer	Create a Live Channel by scheduling a mixture of live feeds and Archive videos
	Edit Schedule	Edit Schedule for Producer Channel
Video Recorders	Configure Recorder	Configure a Record Service, choose which Live Channel to record and whether to do a manual, continuous or scheduled record
	Manual Recording	Start and Stop a Manual Record
	Schedule Recording	Edit Record Schedule
Manage System (Administrator Only)	Manage Servers	Add/Remove servers to/from your Vision2 system
	Manage Licensing	Allocate/Remove Vision[2] service licenses to/from your servers
	View Logs	View system and service logs
	UI Configuration	Determine background and look and feel for Set-top box and Tablet users
	Manage STBs	Play Video on Demand or Live Channels on set-top boxes
	User Access	Use LDAP or Window NT groups for login authentication permissions
	V2 Services Permissions	Control access to Vision2 Services
	VOD Bandwidth	View bandwidth used for Video on Demand and Live Channels

Menu and Archive Access Restrictions

Menu access is restricted as follows:

- Only an administrator has access to the Manage System menu. The administrator also has access to all operations in all Archive folders even if user access is enabled on an archive.
- If access control is disabled in the v2 services permissions screen, non administrator users have access to all menus and menu tabs except Live Channel > Order, Archive > Metadata, Archive > Permissions, and Manage System.
- If the administrator enables v2 services access control, non administrators are restricted to only those services that access has been granted to in the V2 Services Permissions screen along with the Archive > Recent Updates, Archive > Browse, and Live Channels > View screens

By default all users can carry out all operations in all Archive folders. To restrict access to an archive you must use the Archives > Permissions screen to enable access control.

To see Vision[2] as a limited rights user

1. Go to **Manage System > User Access**, check that User Access is set to NT User Groups.

2. Create a windows user account called testuser on the master server. Set testuser to be a member of the Users windows user group.

3. Set user password for testuser to test123.

4. Go to **Manage System > V2 Services Permissions** and Enable V2 Service User Access control. Access to all service pages (Reflector, Recorder, Producer, DVB tuner, and MAX CSE encoder) is now restricted to users with permissions set in this screen. As user bob has no permissions for these services, he has no access to these screens.

5. Login to the Vision[2] user interface in a second browser tab by entering the standard URL, *http://*<master server name>*/v2.aspx* and enter username=testuser and password=test123. You will now see the menus available to a user with the lowest level of access rights. Note that the user can only access Archives > Browse, Archives > Recent Updates, and Live Channels > View

To allow a number of users to login, windows usergroups will need to be created on the master group for the different user types, and then create user accounts that belong to these usergroups.

View Live Channels

Vision2 Users can view all Live Channels configured in the system using the **Live Channels > View Menu.**

The available live channels are listed in the right hand column. You can watch selected channels by clicking on the channel name.

FIG. 28 View Live Channels

Tablet Users

Vision2 has been tested on and supports the following tablets:

- iPad4 with iOS 6.1.3
- Samsung Galaxy tab with Android V4.1.1
- Motorola Zoom 1.

Tablet users must use the following URL, http://<master server name>/tablet.aspx to access the Vision2 URL. Tablet users can only play MP3s or high bit-rate MPEG4 files. Tablet users only have access to Archive > Browsing.

NOTE: *The tablet user interface uses a caching mechanism when browsing archive contents. To see new content, changes made by other users, and permissions changes the users must login again.*

Loading and Enabling Vision2 Services

The typical steps the user must follow to load and enable Vision2 services are as follows:

1.   Select a service (FIG. 29).
2.   Click **Load** to load the service details. Once a service is loaded, a lock is gained on that service. This lock prevents any other users from modifying settings on this page and interfering with your work.
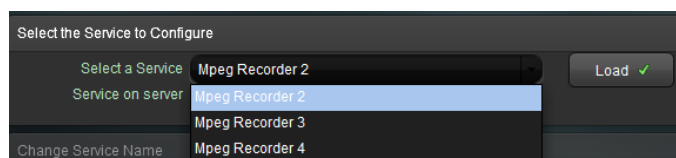

FIG. 29 Select and Load a Service

3.   Configure the service by changing the settings to the required values. The **Apply** button must be clicked in each section modified to save the changes. If Apply is not pressed, the changes will be lost.

4. Enable the service by changing the Enable setting from **Off** to **On**, in the majority of cases this will enable a multicast video stream which can be viewed in the **Live Channels > View** screen. A watch button will appear. Click it to jump directly to this screen.
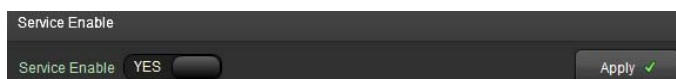
FIG. 30 Enabling a Service

NOTE: *Once a service is enabled, its license cannot be removed from a server.*

Loading a Service and Service Locking

Load a service as follows:

1. Use the select a service drop down to find the service to load. This shows a list of all services of a particular type (in this case Record) in the Vision^2 system which the current user has permissions for. The Service on Server label indicates which of the Vision^2 servers hosts this service.

2. Click **Load.**

Once a service is ;loaded, this service is locked to your user account. This prevents two different users from modifying the same service at the same time. No other user can load this service until the user with the lock loads another service, navigates away from the screen or closes their browser. If another user tries to access the service, Vision^2 will prevent access and tell them which user account has locked the service. Locks for all services except Record and Producer will be cleared after 20 minutes without activity. Record and Producer service locks are cleared after three hours without activity. These services have a longer timeout period to allow the user to set up schedules and to do long manual records.

If user has locked a service but has left their machine, then the administrator can release the lock using the following process:

1. Login as the Administrator.

2. Select the appropriate menu tabs for the service.

3. Select the locked service using the Select a Service drop down and click Load. The system responds that this service is currently locked and gives details of the user who has the lock.

4. Click **manual unlocking** to release the lock. Any user can now access the service.
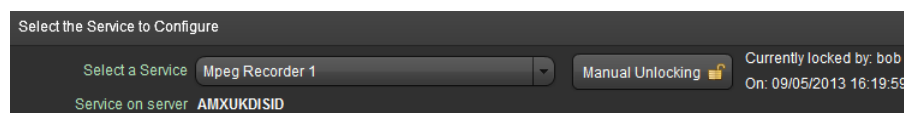
FIG. 31 Manually Unlocking a Locked Service

Renaming a Service.

Vision2 service names are used throughout the application, in the case of Encoders, Reflectors, and Producers, the service name is used as the name of any Live Channel created by enabling the service. Rename a service as follows:

1. Select and load the service.

2. Change the text in the Service Name text box to the new name.

3. Click **Apply**.

FIG. 32 Renaming a Service

Server Management

This section provides information on managing multiple Vision^2 servers. Small Vision^2 systems will only have one server, the Master server. However larger installations will have two or more servers. In this case one server is configured as a Master server and the other servers are known as Client servers as they are subordinate to the Master server. Vision^2 services can run on any server but are controlled through the master server. The Vision^2 user interface can only be accessed from the master server.

Adding a Server to the Vision2 System

To add a new server to the system, ensure that the machine is powered on and configured with the Vision^2 Server application running. Before trying to add the new server to the Vision^2 system, ensure that you can access the new server via the LAN. Perform these steps to add a server to your configuration:

1. Test access to the new server via the LAN by accessing a Command Prompt using the Ping command. For example:
   `ping V2AMX-xxxxxxxx`
   where V2AMX-xxxxxxxx is the client server name. If the server responds, continue

2. Using IE9 32bit on a PC with network access, navigate to *http://*`<master server name>`/*v2.aspx.* Login using the default administrator username and password (Administrator and Vision2 respectively).

NOTE: *AMX recommends changing the default settings*

3. Select **Manage System > Manage Servers** using the menu system.

4. Enter the name of the new server in the Name text box belonging to the Add Server dialogue box.

5. Select the server type using the type drop down menu from the following options:
   - Client Server - FG3106-XXK. This is the same hardware as the Master server but configured as a client server to provide additional services including archives.
   - DVB Gateway - Not supported currently.
   - Reflector Gateway - Not supported currently.

6. Click **Add to System** to add the new sever to your Vision2 system (FIG. 33).

7. The system prompts to reboot the new server. This step must be performed or the new server will not function correctly and you will not be able to add Licenses to it.

8. Once the new server reboots, return to the **Manage System > Manage Servers** screen to see the new client server. The status area indicates whether the server is offline or online (red or green circle).
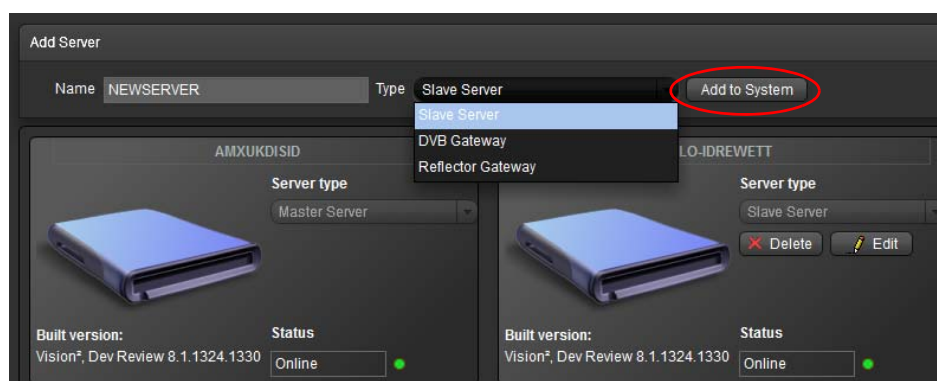
FIG. 33 Adding a Client Server to Vision2 System

NOTE: *If an incorrect server name is entered the system will attempt the connection for a number of seconds and if unsuccessful the following error message will appear. The server on the address you entered is not responding. Please check the server name and network and try again*

Accessing a Vision2 Server Directly (Troubleshooting Only)

Perform these steps to access the server directly:

1. Connect a monitor to the VGA port on the front of the server.

2. Connect a USB keyboard and USB mouse to the 2 USB ports on the front of the server.

NOTE: *There is also a 15-pin VGA port and 2 USB ports on the rear of the server. It makes no difference which set of ports used to connect peripherals.*

3. Power "on" the Vision^2 server. It may take a few minutes to boot.

4. Enter the username and password for the server. The default settings are:
   username: Administrator
   password: Vision2

5. Check that following applications are running Vision² Server and VLC Server. If they are not running, click the V2Server.exe icon on the desktop.

FIG. 34 Vision² Server Desktop

NOTE: *The server can only be accessed using a remote desktop. Always use the Connect to Console option when using a Remote desktop application, otherwise you will not see the v2server application running. The remote desktop should be configured to leave sound at the remote computer. If the server is kept running continuously, it should always be accessible via its web address.*

Changing a Server's Name

The server's name can be changed from the default name assigned to it. After changing the name, use the new server name to access the Vision² application. Perform these steps to change the server's name:

1. On the server's desktop, close the Vision² server application.
2. Click **Start**, right-click **Computer**, and select **Properties**. The System Properties window opens.
3. In the **Computer name, domain and workgroup settings** section, click **Change settings** to open the System Properties menu.
4. Click **Change**. The Computer Name Changes dialog box opens.
5. Enter the new name of the server in the **Computer Name** text box.
6. Click **OK**, and restart the server as requested. Next the new server name must be added to Windows Media Services.
7. Click **Start**, select **Administrative Tools**, and Open Windows Media Services. An RPC error box appears, click **OK** to bypass it.
8. In Windows Media Services, select **Action** from the top menu. Open **Add Server**, and enter the new server name and click **OK**.
9. Close the Windows Media Services window and reboot the server**.**

If DNS is not on the network, the appropriate entry in the hosts file will need to be changed on all of the Vision2 servers with the new name

If this machine is a master server, perform the following extra steps:

1. Login using the new servername as follows using Internet Explorer:
   `http://<new servername>/v2.aspx`
2. The system prompts to reboot the server for a second time. Reboot all the client servers as well.

If the machine is a client server, perform the following extra steps:

1. Connect to the Vision2 user interface by entering the following in Internet Explorer, http://<master server name>/v2.aspx
2. Login as the administrator.
3. Go to **Manage System > Manage Servers**.
4. Click the **Edit** button for the Client Server underneath Server Type and change the Server name. Click **Apply** when finished.

Removing a Client Server

Remove a client server as follows:

1. Connect to the Vision2 user interface by entering the following in IE9:
   `http://<master server name>/v2.aspx`
2. Login as the administrator.
3. Select **Manage System > Manage Servers** from the Vision² web interface.
4. Find the server to delete and click the **Delete** icon.

NOTE: *This will lose access to any archives configured on the server. Note that the data is still present, contact AMX support to recover your data,*

Licensing

This section explains how to License your Vision^2 system and allocate Licenses to your Vision2 servers. There are three typical steps to licensing a Vision^2 system:

1. Obtain a License Entitlement ID for a Vision^2 system from AMX.
2. Use the License Entitlement ID with the AMX License Manager on a Vision^2 Master server or a local Network License manager to activate your license.
3. Use the Vision2 License Management Screen **Manage System > Manage Licensing** within the Vision^2 user interface to allocate the services contained in your AMX license entitlement to different Vision^2 servers.

Steps 2 and 3 above are described in more detail below. We also discuss how to upgrade your license to increase the number of services you can allocate.

AMX License Manager

To use Vision^2 you must first license the Master Server using the AMX License Manager. The AMX License Manager is used to install and manage software licenses for Vision^2 (as well as other AMX software applications). The local License Manager application communicates with a License server which can be based on the local machine or elsewhere on the network. Click the AMX License Manager shortcut on the master server desktop, once the License Manager launches you are shown the welcome page which lists the AMX Software you have installed. Select the product you want to license, in this case Vision^2 and click **Next** to proceed to the Select License Server dialog where you can either specify an AMX license server on your network if one exists, or install one locally.
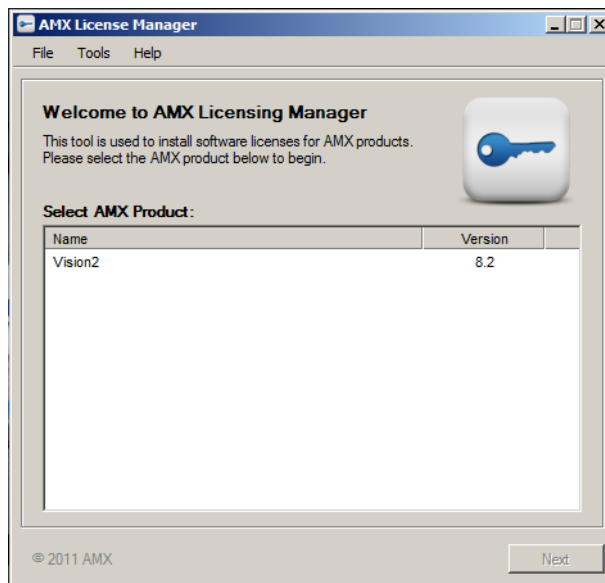
FIG. 35 Select a Product to License

Select A License Server

Use the options in this dialog, see FIG. 36, to install the AMX license Server application on this machine, or select an existing network license server.

NOTE: *Only one instance of Vision[2] can be had per AMX license server, otherwise there may be problems with license contention.*
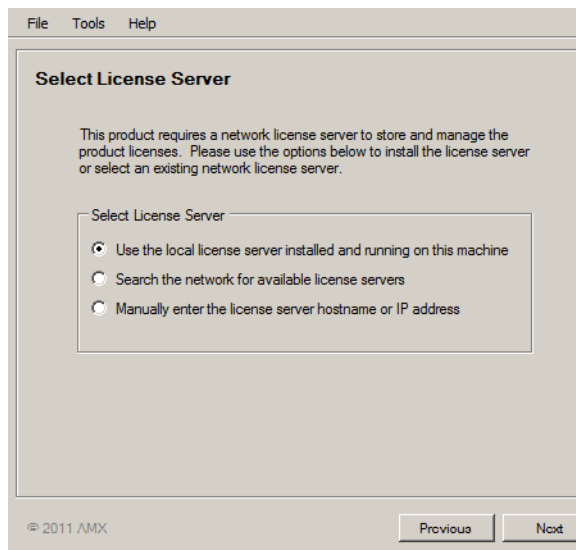
FIG. 36 Select License Server

Choose one of the Select License Server options:

- Use the local license server installed and running on this machine - This is the default option.
- Search the network for available license servers - Use this option if the AMX License Server application is already installed on your network, for example if you have other AMX products.
- Manually enter the license server hostname or IP address - Use this option if the AMX License Server is on the network and you know the hostname or IP address or are having problems using the previous option.

Search the Network for License Servers

Proceed as follows:

1. Select the first option and click **Next** to proceed to the Select License Server dialog. This dialog provides a listing of all AMX License Servers detected on the LAN.

2. Select the desired AMX License Server and click **Next** to proceed to the Select Licensing Option dialog.

3. If your server does not appear in the list, click **Refresh**. If after refreshing the server list, you still do not see your server, click on the link **My license server was not listed, let me specify the license server path** and enter the hostname or IP address of the license server manually.

Select Licensing Option Dialog

The options are as follows:

- **Register License By Entitlement ID** - Select this option if you are installing a new license.
- **Request a trial/evaluation license** - This option is not available with Vision[2].
- **View Existing Licenses** - View existing software licenses for this product.
- Register License By: Asset ID - Update existing software license/entitlement.

Option 1 is discussed in more detail below.
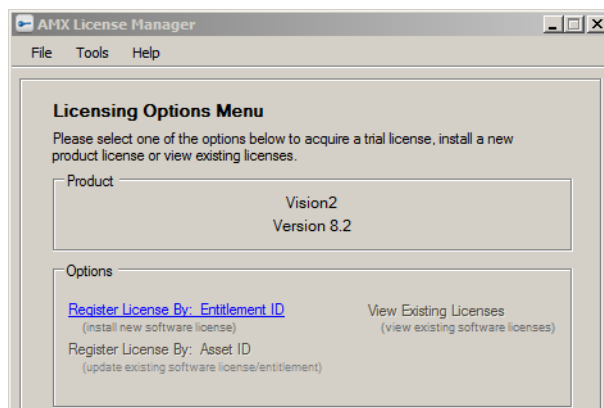
FIG. 37 Licensing Options Dialog

Register License By Entitlement ID

This option requires a valid Vision2 Entitlement ID (a license key obtained from AMX). Once this ID is obtained, proceed as follows:

1. In the Licensing Options Menu click **Register License by Entitlement ID**.
2. This selection opens the Contact Information window. Enter contact information. If already holding an amx.com account, click on Lookup Account to provide credentials (email address and password) to automatically populate the contact information for this license based on the AMX account information.
3. Click **Next** to proceed to the Customer Information window. Select your industry sector from the drop down menu.
4. Click **Next** to proceed to the *Install New AMX Product License* window, FIG. 38.
5. Enter your Entitlement ID in the text box provided.
6. Click **Next** to prompt the License Manager to contact the AMX Licensing Server and activate the license associated with the Entitlement ID. The License Activated window show if the license was activated.

NOTE: *An error message will be displayed if the entitlement has already been registered to another system or if the entitlement ID is invalid. Please contact AMX Technical support if you encounter any difficulties obtaining your product license.*

7. Click **Next** to return to the Licensing Options Menu window.
8. Proceed to the *Vision2 License Management Screen* on page 25.
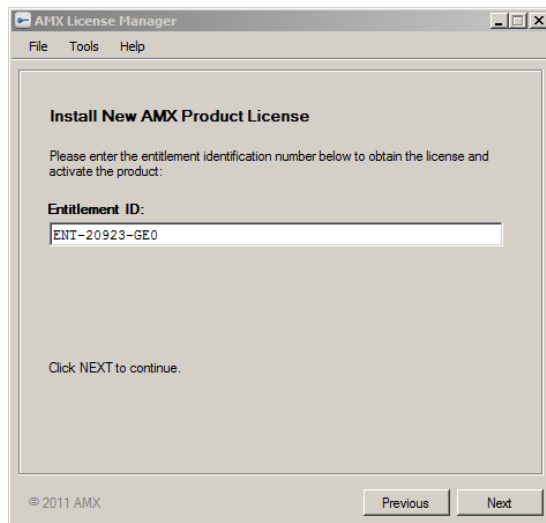
FIG. 38 Enter Entitlement ID

View Existing Licenses

Select the product you want to view licenses for in this case Vision^2 and click **Next**, this screen shows the contents of your license. In this case of Vision^2 it shows the names and quantities of each Vision^2 service that you can install on the servers in your Vision^2 system. Now that you have licensed your Vision^2 system the next step is to apply the services that are contained in your license to the relevant Vision^2 servers.

Upgrade License

Upgrade your Vision2 license to add more services as follows:

1. Obtain an Asset ID from AMX. A separate Asset ID is needed for each Service to upgrade.
2. Connect to the Master Server.
3. Click AMX License Manager on your master server desktop.
4. Choose the product to license, in this case Vision2.
5. Choose either a local License Server (default option) or a network license server. Use the same option used when installing Vision2.
6. Click **Next** to go to the Licensing Status screen which shows the contents of the current license.
7. Click on **Click here if you want to add additional or manage existing licenses**.
8. Click **Register License by: Asset ID (update existing software license/entitlement)**.
9. Select your Vision2 Entitlement and click **Next**.
10. Enter the Asset ID obtained from AMX in the text box provided.
11. Click **Next**, your new asset is now installed.
12. Proceed to the *Vision2 License Management Screen* on page 25.

Vision2 License Management Screen

Login to the Vision[2] user interface using Internet Explorer and go to:

`http://<server name>/v2.aspx`

where server name is the name of your Vision[2] master server.

Go to **Manage System > Manage Licensing** to open the License Management Screen, (FIG. 39).
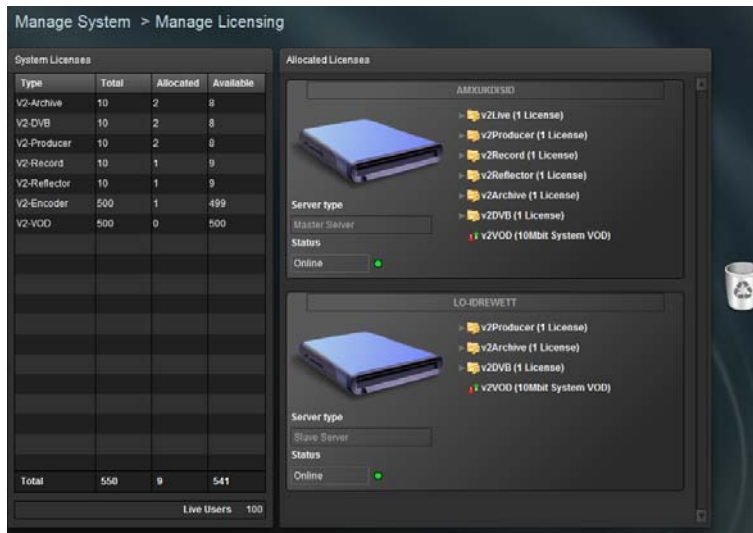
FIG. 39 License Management

The screen consists of two columns. On the left is the System license column which shows all the licenses available/allocated for your Vision[2] system. Each Vision[2] service has its own license. Allocating a license to a server allows users to use a service on that server. On the right of the screen is the Allocated licenses column showing the list of Vision[2] servers installed in your system and a list of licenses of each type allocated to each server.

NOTE: *There is one special row called V2-VOD this is used to allocated video on demand bandwidth to the servers in units of 10Mb/s to determine how much video on demand bandwidth each machine can support. All servers which can support Archives are provided with 10Mb/s by default (this does not come out of the Users VOD license allowance).*

NOTE: *Live-Users indicates the number of users who are licensed to view Vision2 live channels using the Live Channels > View page.*

System Licenses Table Columns	
Type	**License name**
Total	Total number of licenses of this type - this is determined by your AMX license
Allocated	Number of licenses allocated to Vision[2] Servers
Available	Number of licenses of this type still available to allocate to Vision2 servers

Adding a License to a Vision2 Server

To add a license to a server, click on the row for the particular license in the System License table and drag and drop the license onto the Server. licenses are ordered by type on the server, click the arrow to the left of the license name to view all the licenses of this type.
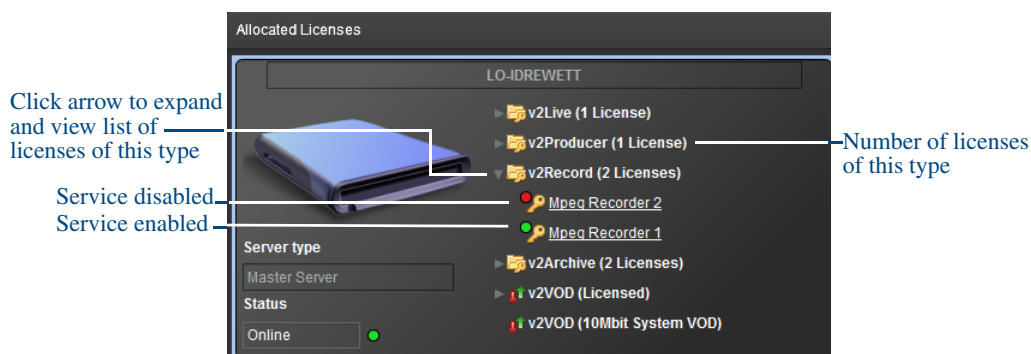
FIG. 40 Adding a license to a server - drop the new license on to the Server

The status of each service is indicated by a coloured circle:

- Red indicates the service is disabled
- Green indicates it is enabled.

NOTE: *Double click a service e.g. MPEG Recorder 1 to jump to the configuration page for that service.*

Removing a License from a Vision2 Server

To remove a license from a server expand the arrow to the left of the service type (e.g. v2Record) to reveal all the licenses of that type on the server. Select the license to remove and drag it to the trashcan. A service that is enabled cannot be removed. Double-click the service to go to the configuration page and Disable it prior to removal. After removing one or more licenses from a server, reboot the server.

NOTE: *If removing an Archive license, access to the contents of that Archive will be lost.*

License Rules Engine

Vision^2 operates a rules engine which limits the number of licenses of each type that can be had per server to avoid performance problems.

System Limits

- A maximum of 10 Record services can be had per Archive service in your Vision^2 system. For example if you have two Archives services you can have a maximum of 20 Record Services in your system.
- A maximum of 10 Producer services can be had per Archive service on the Vision^2 system.

Rules for V2-Master-XXXX Servers

- This is the only server type which supports Archive services.
- The server can support a maximum of 300Mbits/s VOD bandwidth.
- The FG3106-03 and FG3106-03K are limited to 20 simultaneous VoD accesses.
- Producer/Record services cannot be added to the server unless there is at least one archive in the system.
- More VOD Bandwidth cannot be added to a server unless there is at least one archive on the server.

There area number of other rules depending on how much VOD Bandwidth is allocated to the V2-Master-XXXX Server.

Less than or equal to 50MBits of VOD Bandwidth

A maximum of 50 Max CSE Encoders and 19 other services with the following limitations:

- The server can have no more than 10 Reflector services.
- The server can have no more than 10 Record services.
- The server can have no more than 10 Producer services.
- A maximum of 6 Archive services

Greater than 50MBits of VOD Bandwidth

A maximum of 50 Max CSE Encoders and 9 other services with the following limitations:

- The server can have no more than 9 Reflector services.
- The server can have no more than 6 Record services.
- The server can have no more than 9 Producer services.
- A maximum of 6 Record services
- A maximum of 9 Producer services
- A maximum of 6 Archive services

Manage System

We have already discussed two sub menus contained in the Manage System menu, Licensing and Managing Vision^2 servers, Manage Servers and Manage Licensing. This section of the manual discusses the remaining sub menus.

View Logs

The view logs screen is used to view the logs for Vision2 services and for your Vision2 servers. The two types of log are:

- Service Logs - logs for specific Vision^2 service
- Server Logs - logs for specific Vision^2 servers

View a Server log as follows:

1. Set the Servers Logs checkbox.
2. Select the server whose log you want to view from the drop down menu.
3. Click **Apply**.

View a Service log as follows:

1. Set the Services Logs checkbox.
2. Select the service to view from the drop down menu.
3. Click **Apply**.

Click **Download** to download the complete log file to a local machine. Click **Refresh** to view the latest entries in the log.

FIG. 41 Event Log

User Interface Configuration

The *User Interface Configuration* screen allows the administrator to configure the background screen and cursor colors, etc for Set-top box and tablet users. This is known as the template. There are two columns in this screen:

- On the left is a column used to configure the Tablet background. Use the Templates drop down menu to select a new template. Click **Apply** to update the template. Tablet users will see the new Template next time they login to the Vision^2 system.
- On the right is a column used to configure the Set-top box templates. Use the Templates drop down menu to select a new template. Click **Apply** to update the Template. Exit the main Set-top box menu and press and hold the menu button to force it to refresh the Template.

Templates are loaded from C:\inetpub\wwwroot\v2Services\ui\Generic\Templates on the master server. Each template has its own folder. Template folders can be renamed to change the names of the templates and change the images used by the template if required.

Note the template image filenames, dimensions, and file types must remain the same if you make any changes.
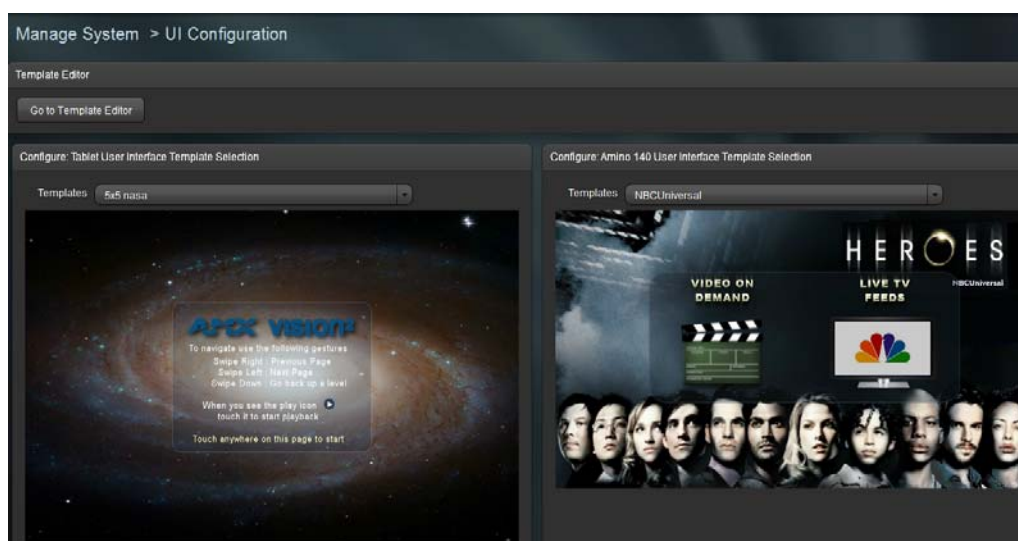
FIG. 42 UI Configuration Screen

Vision^2 contains a Template Editor application to create custom user interfaces for set-top box and tablet users. Click **Go To Template Editor** to access the editor. FIG. 43 displays the main screen.

FIG. 43 Template Editor - Main screen

The following table lists the Device and Template options available in the Template Editor. These options appear across the top of the screen.

Device and Template Options	
Device	Select a device from the available list to view its template. Any new devices you add appear in this list.
Add New Device	Click to add a new device to the template list. See *Adding a New Device to the Device List* section on page 29 for more information.
Delete Device	Click to delete the currently selected device. You will receive a confirmation warning before deleting the device.
Template	Select a template from the available list. Any new templates you create appear in this list.
Edit Template	Click to edit the template using the settings on the left side of the screen. These settings are not available until you click Edit Template.
Save Changes	Click to save any changes you make to the template. This button is only available after you click Edit Template.
Discard Changes	Click to discard any changes you make to the template and return the template to its original settings. This button is only available after you click Edit Template.
Delete Template	Click to delete the currently selected template. You will receive a confirmation warning before deleting the template.
Download	Click to load an existing template from a local or network drive.
Upload	Click to upload a template to a local or network drive. The Template Editor creates a.zip file with all necessary files included within it.
Create New Template	Click to create a new template. See the *Creating a New Template* section on page 30 for more information.

Adding a New Device to the Device List

Adding new devices to the device list is useful due to individual devices requiring specific settings. By adding a new device, you can create a series of unique templates with settings that work perfectly with that specific device.

Perform these steps to add a new device to the template list:

1. Click **Add New Device**. A series of options appears (FIG. 44).

FIG. 44 Add New Device Options

2. Enter the name of the device in the **Name** field.
3. Select the type of device from the **Type** options menu. Choose from Tablet or Amino.
4. Select the orientation view from the **Orientation** menu. You can choose from Landscape or Portrait.
5. Use the **Width** and **Height** spin boxes to set the size of the screen for the device. You can set each option to any value between 100 and 5000.
6. Click **Create** to add the device to the device list.

Creating a New Template

Perform these steps to create a new template:

1. Click **Create New Template**. A series of options appears (FIG. 45).

FIG. 45 Create a New Template

2. Enter the name of the template in the **Template Name** field.

3. Use the **Create new template as a copy of** options menu to select the model of template you want to use.

4. Click **Create**.

The left side of the Template Editor screen displays a list of options that can be configured for an individual template. These options are only available after clicking **Edit Settings**. Changes do not take effect immediately.

5. After making all necessary changes, click **Test** to view the changes to the template.

6. Click **Save Changes** to save the new template settings or **Discard Changes** to return to the previous settings. FIG. 46 displays the Template Editor Settings.
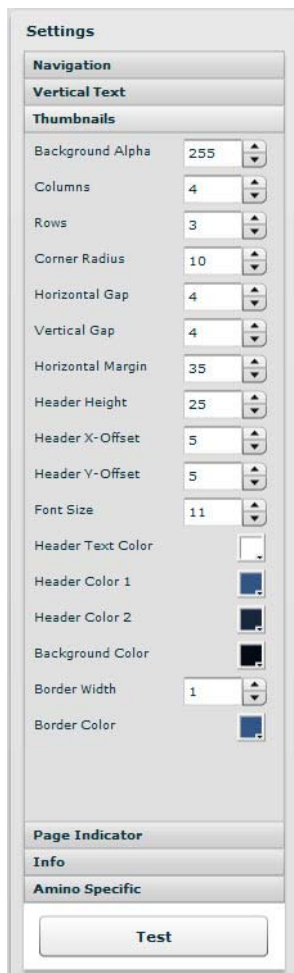
FIG. 46 Template Editor Settings

The following table lists the settings available in the Template Editor.

Template Setting	
Navigation:	
Menu Selector Color	Use the color chart to select a color for the menu selector.
Render top line navigation	Click the check box to render the text on the navigation bar.
Color	Use the color chart to select a color for the text on the navigation bar.
Font Size	Use the spin box to indicate the size of the text on the navigation bar. Set any value between 1 and 255.
Vertical Text:	
Render	Click the check box to render the text on the left side bar.
X-Offset	Use the spin box to indicate the x-offset at which you want to align the text on the left side bar. Set any value between 1 and 255.
Font Size	Use the spin box to indicate the size of the text on the left side bar. Set any value between 1 and 255.
Color	Use the color chart to select a color for the text on the left side bar.
Shadow Top	Use the color chart to select a color for the top shadow of the text on the left side bar.
Shadow Bottom	Use the color chart to select a color for the bottom shadow of the text on the left side bar.
Thumbnails:	
Background Alpha	Use the spin box to indicate the alpha used to create the background gradient. You can set any value between 0 and 255.
Columns	Use the spin box to indicate the number of columns on the navigation pages. You can set any value between 1 and 255.
Rows	Use the spin box to indicate the number of rows on the navigation pages. You can set any value between 1 and 255.
Corner Radius	Use the spin box to indicate the size of the corner radius of each thumbnail. You can set any value between 1 and 255.
Horizontal Gap	Use the spin box to indicate the horizontal spacing between each thumbnail. You can set any value between 0 and 255.
Vertical Gap	Use the spin box to indicate the vertical spacing between each thumbnail. You can set any value between 0 and 255.
Horizontal Margin	Use the spin box to indicate the margin on the left and right sides of each thumbnail. You can set any value between 1 and 255.
Header Height	Use the spin box to indicate the height of the header containing the thumbnail's title. You can set any value between 1 and 255.
Header X-Offset	Use the spin box to indicate the x-offset at which you want to align the header's text. You can set any value between 1 and 255.
Header Y-Offset	Use the spin box to indicate the y-offset at which you want to align the header's text. You can set any value between 1 and 255.
Font Size	Use the spin box to indicate the size of the header text used for each thumbnail. You can set any value between 1 and 255.
Header Text Color	Use the color chart to indicate the color of the header text for each thumbnail.
Header Color 1	Use the color chart to indicate the first header color used to create a gradient fill.
Header Color 2	Use the color chart to indicate the second header color used to create a gradient fill.
Background Color	Use the color chart to indicate the color of the background for each thumbnail.
Border Width	Use the spin box to indicate the width of the border around each thumbnail. You can set any value between 0 and 255.
Border Color	Use the color chart to indicate the color of the border around each thumbnail.
Page Indicator:	
Render	Click the check box to render the page indicator.
Font Size	Use the spin box to indicate the size of the page indicator text. Set any value between 1 and 255.
Height	Use the spin box to indicate the height of the page indicator. Set any value between 1 and 255.

Template Setting	
Y-Offset	Use the spin box to indicate the y-offset at which you want to align the page indicator. Set any value between 1 and 255.
Color	Use the color chart to indicate the color of the page indicator.
Selected Color	Use the color chart to choose the color used to indicate the selected page.
Info:	
Heading Font Size	Use the spin box to indicate the size of the heading text. Set any value between 1 and 255.
Text Font Size	Use the spin box to indicate the size of the information text. Set any value between 1 and 255.
Heading Color	Use the color chart to indicate the color of the heading text.
Heading Background	Use the color chart to indicate the color of the heading background.
Section Text Color	Use the color chart to indicate the color of the section text.
Background Color 1	Use the color chart to indicate the first color used to create the background gradient. **Note:** The gradient values are used to create a gradient 'wash' over the main info image to allow text to be more easily visible.
Background Alpha 1	Use the spin box to indicate the first alpha used to create the background gradient. Set any value between 1 and 255.
Background Color 2	Use the color chart to indicate the second color used to create the background gradient.
Background Alpha 2	Use the spin box to indicate the second alpha used to create the background gradient. Set any value between 1 and 255.
Amino Specific:	
Live Channel Highlight Color	Use the color chart to indicate the color of the selected live channel.
Live Channels caption	Use the color chart to indicate the color of the captions on the live channel.
Live Channel Text	Use the color chart to indicate the color of the text on the live channel.
VOD Progress Color	Use the color chart to indicate the color of the VoD progress bar.

FIG. 47 displays the locations of the vertical text, thumbnails, and page indicator on the user interface.

FIG. 47 User Interface Example 1

FIG. 48 displays the location of the info header on the user interface.

Info Heading

FIG. 48 User Interface Example 2

Set-Top Box Management

Set-Top Boxes support Live Channels or Video on Demand. and supports Stop, Play, Pause, Fast-Forward, and Rewind features. See the *Set-Top Boxes* on page 8 for information on setting up a set-top box. FIG. 49 displays the Set-top Box Management screen.
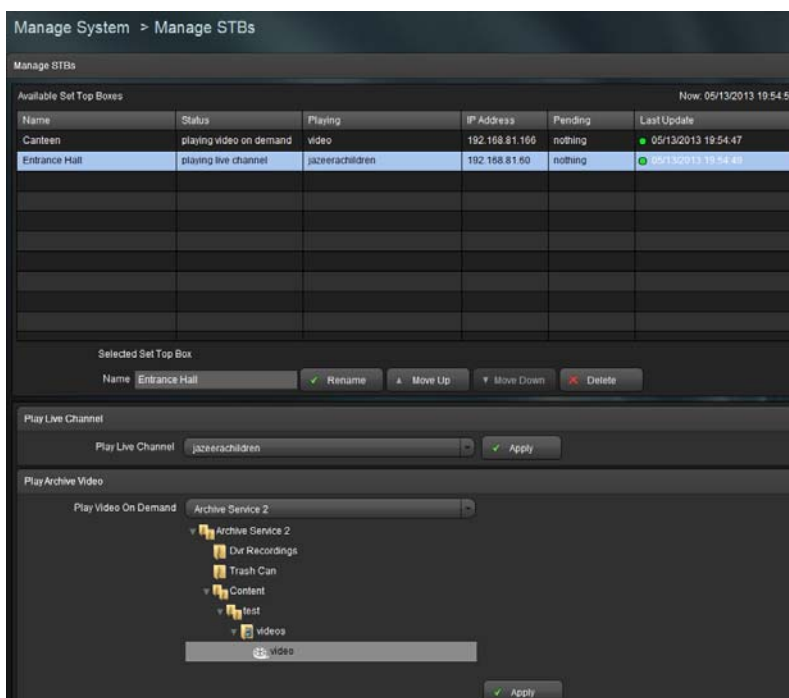

FIG. 49 Set-top Box Management screen

The Available Set-Top Boxes area lists the set-top boxes currently detected. This list includes the name, status, channel type, and IP address of each set-top box. This list is view-only. Select any set-top box from the list and use the options below to change its output. Use Ctrl-Click to select multiple set-top boxes and Shift-Click to select a range of set-top boxes. The set-top box management options are as follows:

Set-Top Box Management Options	
Name	Enter a name for the set-top box.
Rename	Click to apply the edited name to the set-top box.
Move Up/Move Down	Moves the selected set-top box up or down in the list.
Delete	Removes the set-top box from the list.
Play Live Channel	Select a live channel to play through the set-top box. Click Apply when finished and the set-top box begins playing the live channel.
Play Video On Demand	Select a video on demand to play through the set-top box. Click Apply when finished and the selected video on demand becomes available.

Configuring Vision^2 for use with Active Directory

Vision^2 can be configured to use Active Directory to authenticate users when they login to the system and to determine access rights to Vision^2 archives and services. If intending to use Active Directory, the XML file web.config located in the *C:\inetpub\wwwroot\v2* directory on your master server must be edited. The contents of this file are used to impersonate a chosen user when communicating with the Active Directory server. For this reason, the user defined by these settings must have read rights on the Active Directory server. The file contains the following keys:

- LdapUserName - The name of user to impersonate.
- LdapDomain - The domain in which the Active Directory server resides.
- LdapPassword - The password of the user to impersonate.
- LdapServerURL - This is the URL for your Active Directory Server.

There is an additional key in this file called *LdapUserAttributeContainingLoginName*, this key contains the name of the attribute within the user Distinguished Name (DN) which holds the value that the user supplies when they log in. For a normal Active Directory implementation, this value is *sAMAccountName*.

A user group can also be set to act as Administrators. Set the key *AdministratorGroupName* to the DN path for the Active Directory group to give access top. The Administrator Windows NT user account on the master server can still login as well.

An example is as follows:

```
<!--Start Administrator Settings-->

    <add key="AdministratorsGroupName" value="CN=AMX London,OU=Security Groups,
OU=Europe,DC=amx,DC=internal" />

<!--End Administrator Settings-->
```

Next go to the User Access Control screen and change the Access Control type from NT User Groups to LDAP.

NOTE: *IIS must be restarted on the master server / or reboot the master server after changing access permissions from LDAP to NT User Groups or vice versa.*

Once LDAP authentication has been chosen, any user in your organization can login to your Vision^2 system using their standard username and password.

NOTE: *Users can login without entering their domain name, for example user bob who is a member of the domain AMX can login using bob rather than AMX\bob.*

Now that LDAP has been enabled, it is recommended to restrict access to V2 services. Go to **Manage System > V2 services permission** and enable V2 services access control. You will also need to restrict access to your Archives. Go to **Archive > Archive Permissions** and enable Archive User Access control on each of the Archives.

Any user who logs in using LDAP will now only be able to view Live Channels. Refer to the Archive Permissions and V2 Services Permissions sections for more information about allowing access to Archives and Vision2 service configuration pages.

NOTE: *When adding a Vision^2 system to a corporate domain, the Windows 2008 operating system on the Vision^2 servers will block multicasts created on those servers. The windows firewall must be configured on each Vision^2 server to allow multicast listener Query, report and Report v2 through the firewall at the local subnet level on the Domain setting.*

User Access Control

The User Access Control screen determines the type of User Access Control used to log in to Vision^2 and determines the source of the User Groups shown in the V2 Service permissions and Archive Permissions screens (FIG. 50).
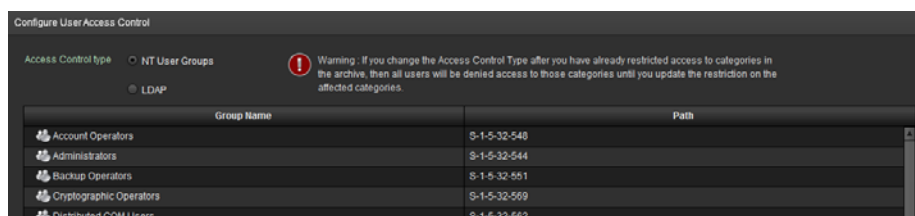

FIG. 50 User Access Control screen

There are two types of user access:

- NT User Groups - NT User Groups on the Vision^2 master server
- LDAP - Active Directory

The user access control options are as follows

User Access Control Options	
Access Control Type	Select the appropriate option to indicate whether user access control is controlled by Windows NT User Groups or LDAP. Note if you change Access Control Type then you must either reboot your V2 Master Server or restart IIS.
LDAP Base DN	This is the path of the currently select Group. Example value: OU=Europe,DC=amx,DC=internal
Validate	Click this button to apply the LDAP settings
Root	Click to go back to the Root of the LDAP tree
Save	Click this button to save the selected LDAP path

- Click on a folder or item in the Group Name column to set the LDAP Base DN to the Path value for the currently selected item. Expand the folders if necessary to view the contents.
- Click **Validate** to check the new Base DN is an OU and to navigate down the LDAP hierarchy until you find a level to view the user groups in your organization to give access to specific archive folders or Vision^2 services. The list of groups shown in the User Access screen will now be available in the **Archives > Permissions** screen and **Manage System > V2 Services Permissions**. Changing the LDAP Base DN will not remove any permissions that have been set already.

V2 Services Permission

The V2 Services Permissions screen (**Manage System > V2 Services Permissions**) is used to configure what operations different users can carry out on the different services in the Vision^2 system. By default all users are allowed to do any operation on any service. If User Access Control is enabled, then access to Vision^2 Services will be restricted based on the group that the user belongs to. This is either NT User Groups on the Vision^2 master server, or LDAP groups depending on what option was selected in the User Access screen, The administrator user account still has full access to all Vision^2 services. When user access is enabled then a user with no permissions configured can only browse archives and play live channels. Access to archives is controlled by a separate screen **Archives > Archive Permissions**.

The V2 Services Permissions contains two columns:

- The left hand column contains a list of User Groups. If you have selected LDAP this is a list of user groups under the LDAP Base DN path selected in the **Manage System > User Access** screen.
- The right hand column contains a list of servers in your Vision^2 system, expand a server to see the services allocated to that server. Expand a service to see the operations available for that service.

Carry out the following actions to allow members of a user group to access a service:

1. Select the server to allow access to using the Select V2 Server drop down. There are two columns\:
   - The left hand column shows the available User Groups
   - The right hand column shows the services on this server.
2. Expand the server and service to give access to in the right hand columns. This shows the different permissions available on this service.
3. Drag the user group to give access to from the left hand column and drop it under the correct permissions.
4. Repeat steps 2 and 3 for all permissions, services, and user groups.
5. Click **Apply**.

NOTE: *The new permissions will take effect as soon as you click Apply. However the menus shown to the affected users will not change until they login again.*

FIG. 51 shows a typical scenario. Members of Users have permission to change the Service Name and Enable/Disable MPEG Recorder 1 on Server AMXUKDISID. FIG. 52 shows the effect of these permissions.
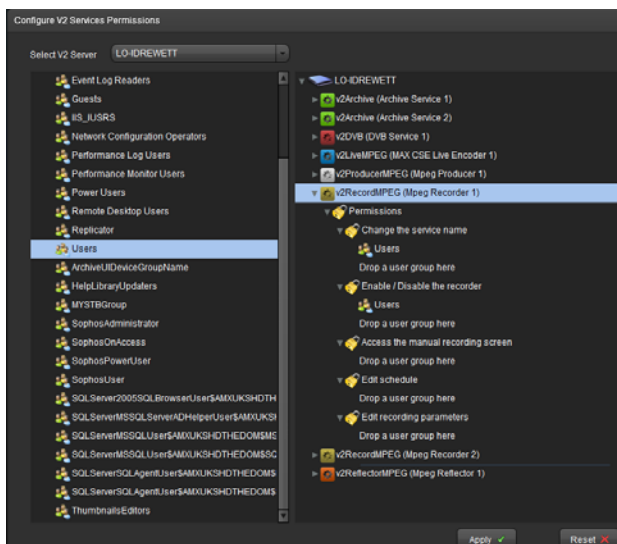
FIG. 51 User group Users have permissions to Enable/Disable MPEG Recorder1 and change service name
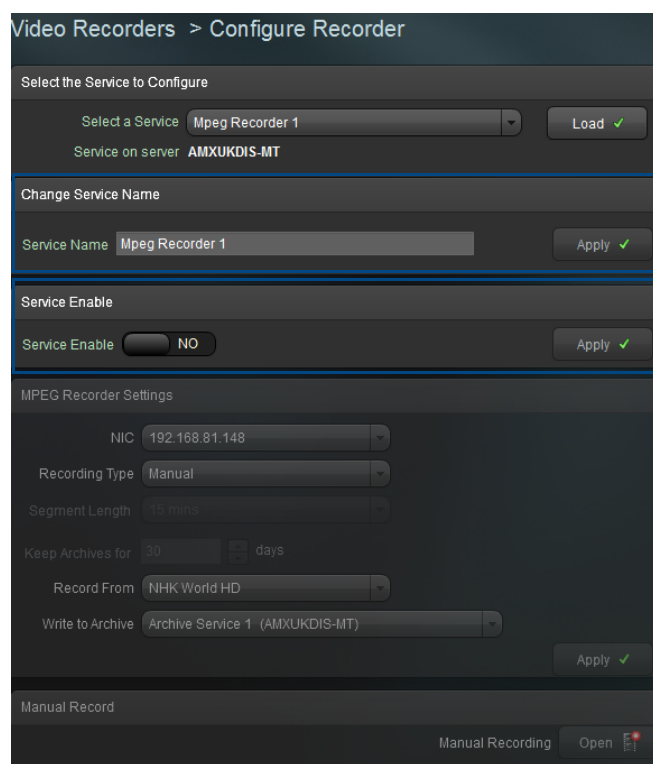
The user only has access to these sections of the Recorder Configuration page all other configuration sections are greyed out

FIG. 52 Example to show the effect of Vision^2 service permissions set in FIG. 51

Click **Reset** to undo any changes made to the permissions since entering this screen.

VOD Bandwidth

The VOD bandwidth page, **Manage System > VOD Bandwidth** is used to view bandwidth usage and see whether it is exceeding the limits set by your license. There are three tabs at the top of the page:

- System Report - shows the vod bandwidth and multicast bitrate usage for your whole system.
- Server Report - shows the vod bandwidth and multicast bitrate usage for a selected server.
- Configuration - used to select which network interface card to monitor on each server.

Vod bandwidth limit for this server

FIG. 53 VOD Bandwidth Page

Server and System Report Tab

The system report and server report tabs work in a similar way. In the server report tab you must select the server to monitor using the Select Server drop down menu and click **Load** before continuing. This step is not required in the system report tab.

The top section of the page contains three dials which show from left to right:

- Combined bitrate - the total bandwidth on the selected network interface card.
- Multicast bitrate - the current Multicast bandwidth on the selected network interface card.
- VOD bitrate - the current video on demand bandwidth on the selected network interface card.

The two historical bandwidth graphs at the bottom of the page shows the VOD bandwidth used within the chosen date range. By default all data is shown since the system was commissioned.

- The upper graph is used to view the data.
- The lower graph is used to pan over the selected date range and zoom in on an area to examine it in more detail.

Use the two calendar icons to change the date range to view. The data is averaged over a 1 hour time period. Use the Graph Scale drop down to change this setting. The graph form drop down is used to select the way the graph is presented.

Click **Refresh** to update the graph to see the latest readings. Use the white bar at the bottom of the page under the graph to pan over and zoom into the selected data range as follows:

- Click and drag the bar left or right to pan
- Click and drag the edges of the bar left or right to zoom in or out as required.
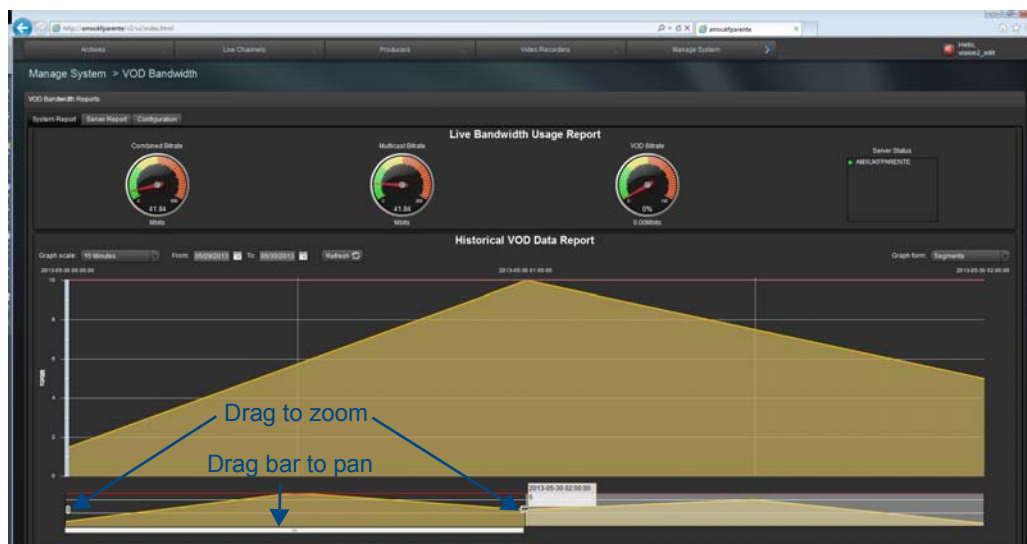
FIG. 54 Zooming in on a region of the VOD bandwidth graph

A red line appears on the upper server report graph which indicates the VOD bandwidth limit set by the VOD bandwidth license configured on that server. This allows you to see if you are exceeding that limit.

Configuration

The configuration tab is used to select which network interface card to monitor on each server. The table contains a list of the servers in your Vision2 system and a selected NIC column. Use the drop down icon in the selected NIC column to choose the IP address of the network interface card to monitor on that server.

FIG. 55 Configuring the Network Interface Card to monitor on each server

Changing the Channel Order

The Channel Order screen (**Live Channels > Channel Order)** is not accessible from the Manage System menu but is only available to administrators. This screen is used to change the order in which live channels are listed to PC and Set-top box users. This screen is also used to add unmanaged channels to the system. Unmanaged channels are video streams that users can view that are not managed by the Vision[2] system.
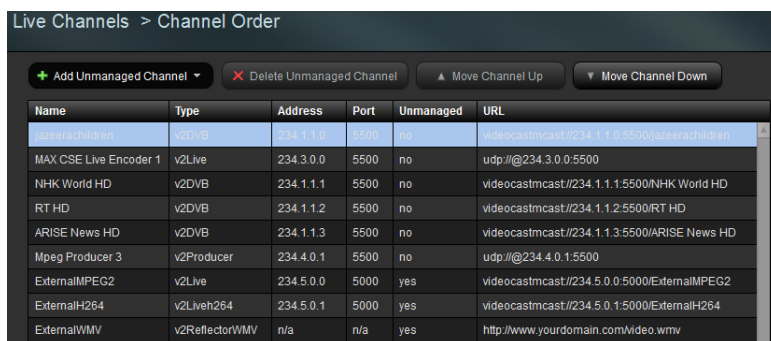
FIG. 56 Manage Channel Order

The following options are available on the Manage Channel Order page.

Manage Channel Order Options	
Add Unmanaged Channel	Adds an unmanaged channel to the Channel Order list.
Channel Name	The name of the channel as it will appear in the Channel Order list.
Type	The type of stream for the channel.
Channel URL	The URL of the video source.
Delete Unmanaged Channel	Removes an unmanaged channel from the Channel Order list.
Move Channel Up	Moves the selected channel one position up in the list
Move Channel Down	Moves the selected channel position down in the list
Save Changes	Saves the changes to the channel order list

Perform these steps to change the channel order:

1. Select a channel in the list.
2. Click **Move Channel Up** or **Move Channel Down** until the channel is in its appropriate location.
3. Click **Save Changes**.

Adding an Unmanaged Channel

If you have a non-Vision[2] video source, you can create an unmanaged channel for it. Perform these steps to add an unmanaged channel:

1. Click **Add Unmanaged Channel**. A dialog box appears (FIG. 57).
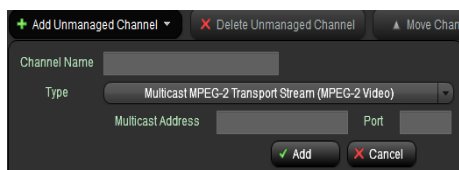
FIG. 57 Add Unmanaged Channel

2. Enter the name of the channel in the Channel Name text box.
3. Select the type of channel from the Type options menu. Vision 2 supports three types of unmanaged channels:
    - Multicast Windows Media Stream
    - Multicast MPEG-2 Transport Stream (MPEG-2 Video) SD and HD
    - Multicast MPEG-2 Transport Stream (H264 Video) SD and HD

NOTE: *H264 video streams in FLV and other formats are not supported.*

4. Enter the Channel Name.
5. Enter the channel URL for the Windows Media Stream or the multicast address and port for MPEG 2 or MPEG h264 channels.
6. Click **Add**. The channel will now appear in the list.
7. Click **Save Changes** to confirm the changes.

Live MPEG MAX CSE Encoder Service

The Vision[2] Live MPEG Max CSE Encoder Service is used to control a MAX CSE encoder and view its output as one of your Vision[2] Live Channels. This allows users to add a analogue video source such as a camera to a Vision2 system. Once the Encoder is configured, the Live channel it creates can be used as a source for a Record Service or for display as part of a Producer channel. PC and set-top box users can also view this Live channel as part of the Live Channels list. The Live MPEG service uses an AMX MAX-CSE encoder (**FG2178-70**) to provide the hardware encoding of video and audio signals into an MPEG-2 multicast stream.

Select **Live Channels > Manage MAX CSE Encoders** to open the MAX-CSE Encoder configuration page. (FIG. 58):

FIG. 58 MAX-CSE Encoder Configuration

The top section of the page deals with the settings for the service itself and consists of the following options:

Encoder Access Settings	
IP Address	The network IP Address of the encoder. The IP address of the MAX-CSE encoder can be found on the LED display on the front of the unit.
Username	The user name required to manage the device. The default user name is *Admin*.
Password	The password required to manage the device. The default password is *1988*.

Perform these steps to connect to a MAX-CSE Encoder:

1. In the **Service Name** text box, enter the name of the Live channel that you want to appear to PC and set-top box users in the Live Channels list.

2. Enter the network IP Address of the encoder in the Encoder IP Address text box. You can find the IP address of the MAX-CSE encoder on the LED on the front of the unit.

3. In the **Username** text box enter the username used to gain access to the encoder. The default username is **Admin**.

4. In the **Password** text box, enter the password used to gain access to the encoder. The default password is **1988**.

5. Click **Apply**. If the correct details have been entered, the Encoder Settings section will update to the values configured on your encoder.

If an incorrect IP address is entered, the system will attempt the connection for 10 seconds and then, if unsuccessful, the following message will appear at the bottom of the page: "The encoder is not responding, the IP address is incorrect or the encoder is offline."

If the encoder has different multicast settings to the values in Vision2 then you will be prompted to click **Apply** and update the multicast settings. If the encoder is enabled, disable it before updating the settings.

Multicast Settings

The multicast settings section of the page shows the multicast settings used for the output video stream from the encoder. When enabling the stream, the MAX encoder starts the encoding process and multicasts video on the specified IP address and port. Modify these values if you want to use different settings.
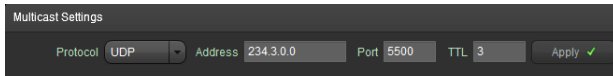
FIG. 59 MAX Encoder Multicast Settings

The following options are available in the multicast section:

Multicast Settings Options	
Protocol	Vision2 only supports the UDP multicast protocol. If the encoder is set to the RTP protocol, change this setting and apply the changes.
Address	This is the multicast address of the Encoder output stream.
Port	This is the port number used by the Encoder output stream.
TTL	This is the multicast TTL setting for the Encoder output stream.

Encoding Settings

FIG. 60 Encoding Settings

The following options are available in the encoding section:

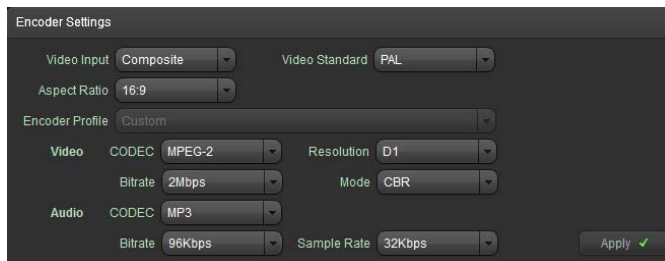| Encoding Settings Options	
Video Input	The MAX encoder supports either S-Video or Composite video inputs.
Video Standard	The MAX encoder supports the NTSC (USA and Japan) and PAL (rest of the world, excluding France) video standards.
Aspect Ratio	The MAX encoder supports a 4:3 and 16:9 aspect ratio.
Encoder Profile	Vision2 only supports the MAX Custom encoder profile.
Video CODEC	Vision2 only supports MPEG-2 video compression on the MAX encoder.
Video Resolution	The MAX encoder supports D1 (720 x 576 PAL / 640 x 480 NTSC) and SIF (360 x 288 PAL / 320 x 240 NTSC) resolutions.
Video Bitrate	The MAX encoder supports a range of selected video bitrates from 2 Mbits to 6 Mbits. Bitrates under 2 Mbits are not supported. The recommended encoding bitrate is 6 Mbits.
Video Mode	The mode to use for encoding video. The MAX encoder supports constant Bit Rate (CBR) and variable Bit Rate (VBR) modes. For multicasting, CBR is recommended as it produces a constant rate over the network.
Audio CODEC	The codec to use for encoding audio. Vision2 supports MP3 and MP2 audio
Audio Bitrate	The MAX encoder supports audio bitrates of 96K and 192K.
Audio Sample Rate	The MAX encoder supports audio sample rates of 32, 44.1, and 48K.

Once you have entered encoder access details and setup your multicast settings you need to perform the following steps to configure the encoder:

1. Use the **Video Input** options menu to indicate whether you are connecting to the S-video or composite port on the MAX encoder.
2. Use the **Video Standard** options menu to set which video standard the MAX encoder is using.
3. Use the **Aspect Ratio** options menu to set the aspect ratio you want to use for the multicast stream.
4. Use the **Video Resolution** options menu to indicate the video resolution of the multicast stream.
5. Use the **Video Bitrate** options menu to set the video bitrate of the multicast stream.

6. Use the **Video Mode** options menu to set the video mode of the multicast stream. It is recommended that you select CBR.

7. Use the **Audio Bitrate** options menu to set the audio bitrate of the multicast stream.

8. Use the **Audio Sample Rate** options menu to indicate the audio sample rate of the multicast stream.

9. Click **Apply** to save the configuration changes.

10. Change the Service Enable from No to Yes and click **Apply** to begin the multicast stream. This will also add a new live channel to the list of Live Channels available to PC and set-top box users which takes its name from the Encoder's Service Name.

NOTE: *With the stream enabled, you cannot change any of the multicast or encoding parameters.*

Viewing the Stream

Click the **Watch** button, which appears after enabling the stream, to view the encoder output. The Encoder Live Channel takes its name from the Service Name text box in the Max Encoder configuration page. Change the Service Name to change the channel name.

NOTE: *If you configure a firewall on Vision2 servers, then incoming multicasts must be permitted.*

Reflector Service

The Vision^2 Reflector Service is used for the following tasks:

- To unicast a local MPEG 2/ MPEG 4 h264 Vision^2 channel over the internet (multicast streams cannot travel over the internet) so that remote users can view this channel. This could be to a remote Vision2 installation.
- To receive a unicast MPEG 2/ MPEG 4 h264 Vision^2 stream from a remote Vision2 installation and broadcast this as a local live channel.
- To add an external source e.g. unicast MPEG 2/ MPEG 4 h264 stream from the internet/local network as a local live channel. Like unmanaged channel but for unicast rather than multicast
- To make a copy of a local MPEG 2/ MPEG 4 h264 Vision^2 channel and broadcast it from a second network interface card. This is less common but is useful if your network can't do multicast routing between different network subnets.

NOTE: *The Reflector Service cannot use HD h.264 Live Channels as a source.*

An MPEG Reflector can receive both unicast or multicast input streams and output either unicast or multicast streams. Access the Reflector management screen by going to **Live Channels > Manage MPEG Reflectors**.

FIG. 61 Reflector Configuration Page

The following options appear on the Reflector service configuration page:

MPEG Reflector Service Options	
Service Enable	This enables the service and will begin multicasting or unicasting as appropriate. *Note:* Settings cannot be edited while the service is enabled.
Service Name	The name of the channel to display in the Live Channel list for PC or Set-top box users. *Note:* this only applies to multicast streams. Unicast streams cannot be viewed in the Live Channels list
Source	
Type	Click the appropriate option button to indicate the source type. Choose from either a Local Vision2 Channel or an External Source.
V2 Channels	The options menu provides a list of all the live channels in the system. This option is only available if selecting Local Vision2 Channel as the source type.
URL	Use this text box to enter the URL containing an MPEG-2 or H.264 video stream. This option is only available if selecting External Source as the source type.
Destination	
Stream type	Click the appropriate option button to indicate the stream type. Select Multicast if streaming over an Intranet. Select Unicast for an Internet stream.
Multicast options	These options are only available if selecting Multicast as the Stream type.

MPEG Reflector Service Options	
Address	The multicast address for this channel.
Port	The multicast port for this channel.
TTL	The multicast TTL (Time to live) for this channel.
NIC	The IP address of the Network Interface Card to use for multicasting.
Unicast options	The following options are only available if selecting Unicast as the Stream type.
NIC	The IP address of the Network Interface Card to use for unicasting
Port	The unicast port for this channel.
URL (cannot modify)	This text area shows the URL for the unicast stream.

Activating a Unicast Stream

Perform these steps to activate a unicast stream:

1. Select and load the Reflector service to configure.
2. Choose whether the source is a Live Channel or an external source by clicking the **Local V2 Channel** or **External Source** option button.
   - If selecting Local V2 Channel, select the source Live Channel from the **V2 Channels** drop down menu.
   - If selecting External Source, enter the URL of an address containing an MPEG-2 or H.264 video stream in the **URL** text box.
3. Click the **Unicast** option button to select a unicast stream.
4. Select the IP address of the network card to use to output the unicast stream by using the **NIC** drop down menu.
5. Enter the port number in the **Port** text box.
6. Click **Apply** in each section if any changes were made to the Reflector configuration.
7. Change the **Service Enable** setting from No to Yes and click **Apply**. The Reflector will now begin unicasting the video stream as configured. No Live Channel is created for this stream as Live Channels are only used for multicast streams.

Activating a Multicast Stream

Perform these steps to activate a multicast stream:

1. Select and load the Reflector service to configure.
2. In the **Service Name** box, enter the channel name as you want it to appear in the Live Channels list for PC or set-top box users.
3. Choose whether the source is a Live Channel or an external source by clicking the **Local V2 Channel** or **External Source** option button.
   - If selecting Local V2 Channel, select the source Live Channel from the **V2 Channels** drop down menu.
   - If selecting External Source, enter the URL of an address containing an MPEG-2 or H.264 video stream in the **URL** text box.
4. Click the **Multicast** option button to select a multicast stream.
5. Select the IP address of the network card you want to use to output the multicast stream by using the **NIC** drop down menu.
6. Click **Apply** in each section if you made any changes to the Reflector configuration.
7. Change the **Service Enable** setting from No to Yes and click **Apply**. The Reflector will now begin multicasting the video stream as configured. A new Live Channel will appear in the Live Channels list with the name specified as the Service Name in step 2 above.

Viewing the Reflector Output Stream

If the Reflector destination stream type is set to multicast then you can click the **Watch** button which appears after enabling the stream to view the reflector output in the *Live Channels > View screen*. If the Reflector destination stream type is set to unicast, check that the stream is being output correctly by opening the VLC player application on a remote machine. Choose Media > Open Network Stream and enter the URL in the destination section of the Reflector page into the Please enter a network URL text box e.g.:"

```
http://192.168.81.56:8000/MpegReflector1
```

and click Play to view the stream. If you have a DNS server, use

```
http://<servername>:<port>/<MPEG reflector service name>
```

DVB Service

The Vision[2] DVB Service provides and manages a single Digital Video Broadcast (DVB) multiplex of live TV channels to the system. Terrestrial, satellite, and cable TV providers now use a digital rather than analog transmission systems to deliver their content. Where previously a single frequency was required for each TV channel, by using digital compression, multiple channels can be provided on a single frequency (known as a multiplex or bouquet). The DVB service de-multiplexes the individual TV channels on a selected frequency and makes each individual channel available for multicasting to PC and set-top box users.

DVB Tuners must be connected to a network accessible by the 2nd Network Interface Card (2nd NIC). Go to **Live Channels > Manage Digital Tuners** to access this screen. Vision[2] supports the following Tuners types:

Supported DVB Tuners		
Tuner type	**FG**	**Description**
AMX DTV-TX01 DVB-T	FG1410-01	Terrestrial SD Digital TV Tuner (use outside North America)
AMX DTV-TX02 DVB-S	FG1410-02	Satellite SD Digital TV Tuner. (use outside North America)
AMX DTV-TX03 ATSC	FG1410-03	ATSC HD Terrestrial Digital TV Tuner. (use within North America)
AMX DTV-TX03 QAM	FG1410-03	QAM HD Digital Cable TV Tuner. (use within North America)

Configuring a DVB Tuner Service

Steps to setup a DVB tuner:

1.   Configure Tuner Hardware.
2.   Configure Tuner Multicast Settings.
3.   Scan Tuner for Available Channels.
4.   Multicast Selected Channels.

These steps are described in detail below.

Configure Tuner Hardware Settings

Select the appropriate tuner type using the drop down menu and click **Apply.**
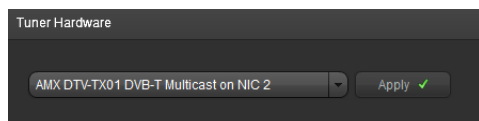
FIG. 62 Tuner Hardware Settings

Configure Tuner Multicast Settings

Vision2 can output multicast streams for selected tuner channels.
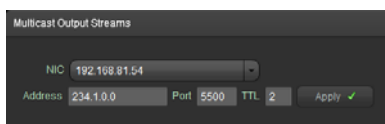
FIG. 63 Multicast Settings

 Configure the settings to use for these streams as follows:

1.   Use the **NIC** drop down in the Multicast Output Streams section to select which network interface to use for multicasting. Typically this is the first network interface card connected to your LAN.
2.   Enter the base multicast address in the Base Multicast Address text box. All channels chosen to transmit are multicast using IP addresses which are offset from this address. For example, if the Address is set to 234.0.0.0, the first channel in the select to transmit table is multicast on 234.0.0.0, and the second 234.0.0.1, etc.
3.   Enter the port to multicast the output streams on in the Port text box.
4.   Enter a value for the TTL setting for the output multicast streams in the TTL text box.
5.   Click **Apply** to save the changes to the settings.

NOTE: *Once some channels are enabled in the Select to Transmit table, you will be unable to change the settings in the Multicast Output Streams section.*

Scan Tuner for Available Channels

FIG. 64 Scan for Channels Settings

The Scan Tuner section is used to scan all of the frequencies used by the broadcaster and detect all of the available TV (and optionally Radio) channels.

Scan for Channels Options	
Multicast Address	The multicast address of the output of the tuner you want to scan.
Port	The port of the output of the tuner you want to scan.
Start	Start the process of scanning for the available TV or Radio channels.
Stop	Stop the scanning process. Only use this if you wish to return later and run the scan process again, as not all of the channels may have been detected.
Include Radio Stations	Enable this option to scan for Radio as well as TV channels

NOTE: *The DVB system does not support the decoding of encrypted channels, therefore encrypted channels are not added to the channel list when they are detected.*

Perform these steps to scan for available channels on all frequencies:

1. Enter the multicast address of the tuner to scan.

2. Enter the port used by the tuner multicast in the Port text box.

3. Choose whether to scan for Radio Channels as well as TV channels. Select Yes for the setting Include Radio Channels to include radio channels.

4. Click **Start**. Vision^2 begins to scan for available channels. Any channels it finds appear in the Select Channels to Transmit table.

Transmit Selected Channels

This section describes how to transmit DVB Tuner channels on your network. Users can view these channels in the Live Channels menu, or from set-top boxes attached to your system. The process is as follows:

1. In the Select Channels to Transmit Table, click the check box in the Multicast column for the channels to transmit. This channel will now be added to the list of Live Channels that can be viewed by PC or Set-top box users. Repeat this step for each channel to multicast. To stop transmitting a channel, just click again to deselect the check box. The channel will be removed from the list of Live Channels.

NOTE: *If using one of AMXs DTV-TX transmitters, all programs in the stream may appear in the TVCT table for your transmitter device even when the transmitter is configured to only stream certain channels.*

Channel To Transmit Table

On the right of the page is a table containing a list of TV (and optionally Radio) channels available from the selected Tuner. This table contains the following information:

Channel List Options	
Watch	Click a Play button in the watch column to view/listen to a particular Channel. **Note:** This option is only available if the Multicast column is enabled for this Channel.
Name	The channel name as provided by the broadcaster.
Type	The type of channel, either Digital TV or Digital Radio.
Multicast	Checking the box multicasts the channel. **Note:** If using one of AMX's DTV-TX transmitters, all programs in the stream may appear in the TVCT table for your transmitter device even when the transmitter is configured to only stream certain channels. To avoid displaying channels that are not available in the stream, do not choose individual channels to stream, and instead stream the full transport stream.
SID	This is the DVB Service ID, provided for technical users.
PMID	This is the DVB Program Map ID, provided for technical users.

NOTE: *If configuring a firewall on Vision2 servers, incoming multicasts must be permitted.*

Archive Service

The Vision^2 Archive service provides a multi-format, multi-bitrate storage system for video or audio files. Video in the archive can be accessed on demand by PC users, from tablets, or set-top boxes. Users can attach metadata to each video containing information about the video contents. This metadata can be customized by the system administrator. Vision^2 provides some built in metadata sections such as synopsis to provide an overview of the video and credits to detail the authors of the video. The Vision^2 search feature can be used to search videos by the contents of the metadata. One or more archive licenses can be added to a server to provide more than one storage area on that server. Vision^2 also allows an archive to point to a NAS/SAN to add extra storage to a Vision^2 system. Archive video/music files can be used as the source for a Producer service, which provides a scheduled multicast TV channel. The Archive service supports MP3 audio and four types of video file: WMV, MPEG2, MPEG4, and Flash Video (FLV). A Live Channel can also be recorded and the resulting video saved into an Archive.

Setting Up an Archive

In order to setup an Archive, first decide whether to store the videos on a Vision^2 server, a SAN, or a NAS. The latter option is called a NAS archive.

- If the former, look at the amount of free space on each available server. Once the appropriate server is found, use the Manage Licensing screen to add an Archive license to the server. See Configuring a Standard (non-NAS) archive below for more details.
- If the latter see *Setting Up a NAS Archive* on page 48 for more details.
- If needing to store videos on a SAN the process is similar to configuring a NAS archive. See *Configuring a SAN Archive* on page 52 for more details.

Configuring a Standard Vision^2 Server (non NAS) Archive

Configure a Standard Vision^2 Server (non NAS) Archive on one of your Vision^2 servers as follows:

1. Go to **Manage System > Manage Licensing**.
2. Drag an Archive license on to the server to host that Archive.

NOTE: *Record and Producer services can only use archives which are located on the same server. This restriction does not apply to NAS archives, so a NAS archive license can be added to any server.*

3. Double-click an Archive license to configure that Archive. If not using a NAS archive, you will not need to change Archive configuration settings other than the Service Name (this is the name used for this Archive in the User Interface). The Configure Archive screen contains the following options (FIG. 65):
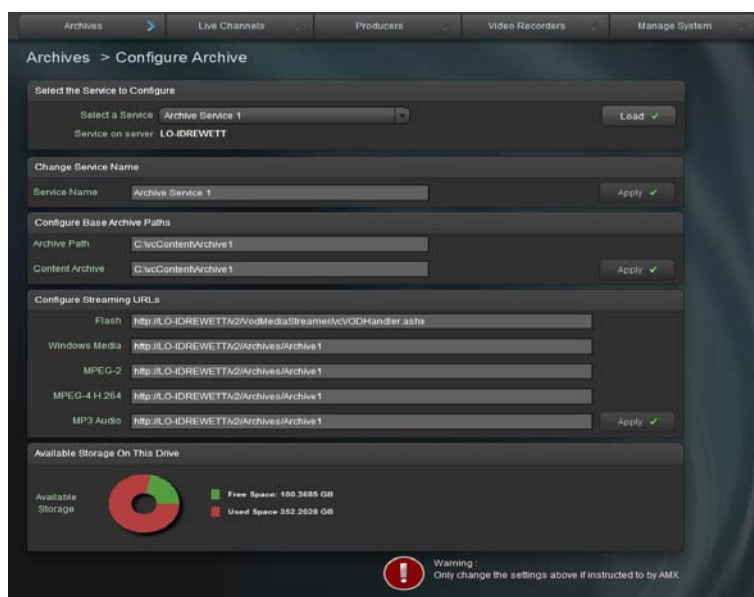
FIG. 65 Archive Configuration Screen

Configure Archive Options	
Service Name	The name of the archives as it appears to PC, tablet, and set-top box users
Archive Path	The locations of the thumbnail images and info.xml (metadata) files, this should always point to the local server. You should not need to change the default value. Note this setting must be unique for this Archive, no other archive should use the same path. This folder must be indexed via Windows Search Service otherwise Archive Search will not function correctly. Note this setting must be unique for this Archive, no other archive should use the same path.

Configure Archive Options	
Content Archive	This is the path to the media (video/audio) stored in the Archive. This can be on the local server or on a NAS drive. You only need to modify this setting for NAS archives. Note this setting must be unique for this Archive, no other archive should use the same path.
Base Video URLs	These settings define the protocols and paths used to access the content in the archive. You only need to modify these settings for NAS archives

NOTE: *Once an Archive is configured, the settings should not be changed (except the service name) as access to the data will be lost.*

Setting Up a NAS Archive

A NAS archive requires a Vision^2 server running release 8.2.4327 or greater.

To configure the NAS server:

1. Create a folder on the NAS that you want to use to store your archives contents, for example: ArchiveNAS, so that the UNC path to this folder is \\NASservername\ArchiveNAS.
2. Create the user "v2system" with password "Vision2" and give read and write permissions for the ArchiveNAS folder.

To configure the Vision^2 server:

1. In Windows, select **Start > Control Panel > Administrative Tools > Computer Management > Local Users and Groups**.
2. In the Computer Management dialog, select Users, and right-click and select New User to open the New User dialog (FIG. 66). Create a new user named "v2system" with the password "Vision2".
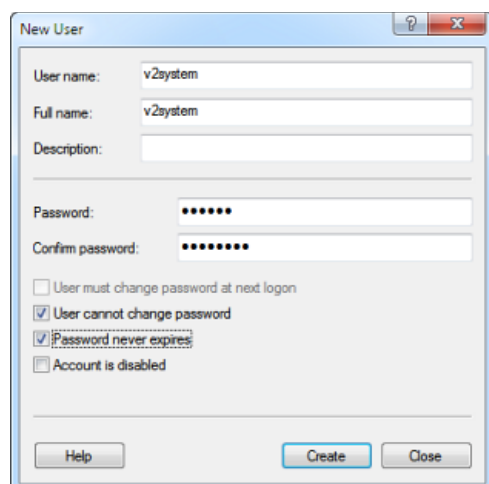
FIG. 66 New User Dialog

3. Check the User cannot change password and Password never expires check boxes. Click Create and then click Close.
4. In the Computer Management dialog, right-click the "v2system" user and select **Properties**.
5. In the Properties dialog, select the **Member of** tab, and click **Add**.
6. In the Select Groups dialog, click **Advanced**.
7. In the next dialog, click **Find Now**, and select **Administrators** from the list that appears. Click **OK** to close this dialog, and click **OK** again to close the Select Groups dialog.

8. In the v2system Properties dialog (FIG. 67), remove **Users** from the list and click **Apply**. Close the Computer Management dialog.
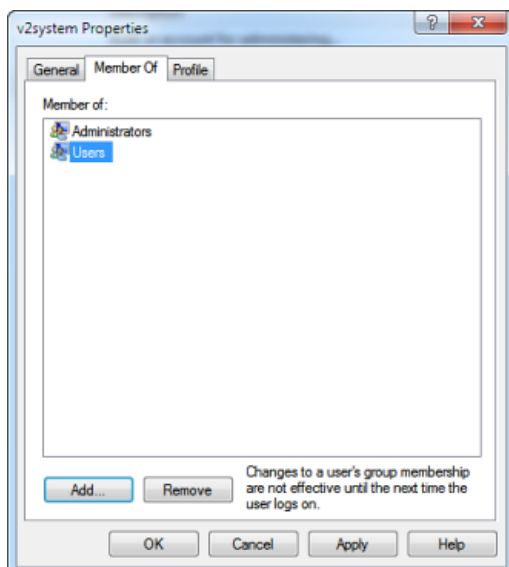
FIG. 67 Remove Users from the Member of list

9. In Windows, select **Start > Control Panel > Administrative Tools > Services**.
10. Stop the **AMX V2RTSP** and **AMX Vision2** services.
11. Right-click **AMX V2RTSP** and select **Properties** from the context menu that opens.
12. In the Properties dialog that appears, select the **Log On** tab.
13. Click the **This Account** option button, and click **Browse**.
14. In the Select User dialog, click **Advanced**.
15. In the next dialog, click **Find Now**, and select **v2system** from the list that appears. Click **OK** to close this dialog, and click **OK** again to close the Select User dialog.
16. In the AMX V2RTSP Properties dialog (FIG. 68), enter and confirm the password as "Vision2", and click **Apply**. Click **OK** on the alert Log on pop-up.

FIG. 68 Enter and Confirm the Password

17. Repeat steps 11-16 for **AMX Vision2**. When finished, close the Services dialog.

**NOTE:** *Do not restart these services at this time.*

18. In Windows, select **Start > Control Panel > Administrative Tools > IIS Manager**.
19. Select **Connections > Sites > Default Web Site > v2**. You will see a folder titled **Archives**.
20. Right-click the Archives folder, and select **Add Virtual Directory** to open the Add Virtual Directory dialog (FIG. 69).

21. In the Alias text box, enter "ArchiveNAS".

22. Set the PhysicalPath text box to the UNC Path of the folder on the NAS, for example: \\NASservername\ArchiveNAS.

FIG. 69 Add Virtual Directory Dialog

23. Click **Connect as**, and check the **Specific User** check box.

24. Select **Set** and enter "v2system" for the user name and "Vision2" for the password for the NAS share (see FIG. 70). Click **OK**.
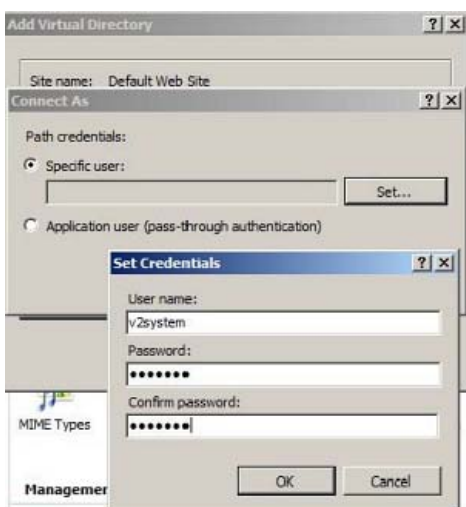
FIG. 70 Set Credentials Dialog

25. Click **Test Settings** and confirm the user is valid and the path is accessible. Click **Close**.
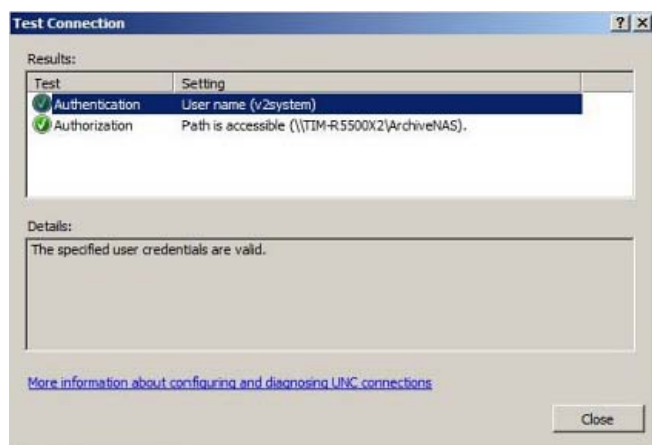
FIG. 71 Test Connection dialog

26. In the IIS Manager, select **Connections > Application Pools**.

27. Right-click **V2AppPool** and select **Advanced Settings**.

28. Under Process Model, select **Identity** and click the **Browse** (...) button.

29. Select **Custom Account**.

30. Click **Set**, and enter "v2system" for the user name and "Vision2" as the password for the NAS User account.

31. Click **OK** on each of the three open dialogs to close them.
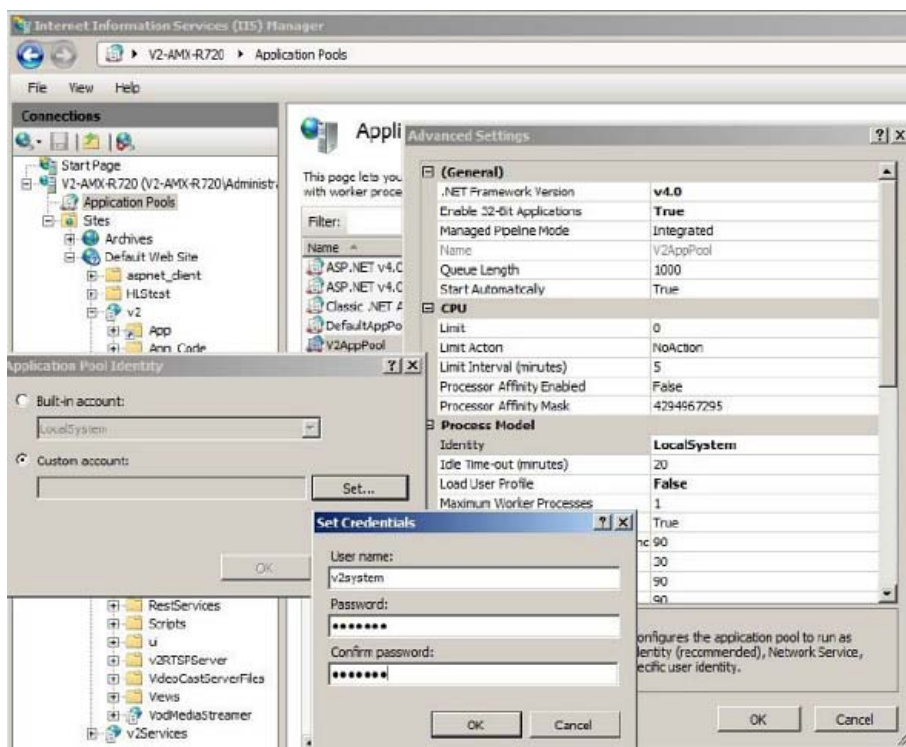
FIG. 72 Application Pools

32. Restart IIS.
33. Restart the AMX V2RTSP and AMX Vision2 services.
34. Open the **V2 Manager UI** and login as *administrator*.
35. Select **Manage System > Manage Licensing**. If configuring a NAS archive perform the following steps:
36. Drag an Archive license onto the server you want to host the NAS Archive. This must be on the same server on which you have performed the above configuration.

37. Double-click the New Archive license to configure the Archive (FIG. 73).
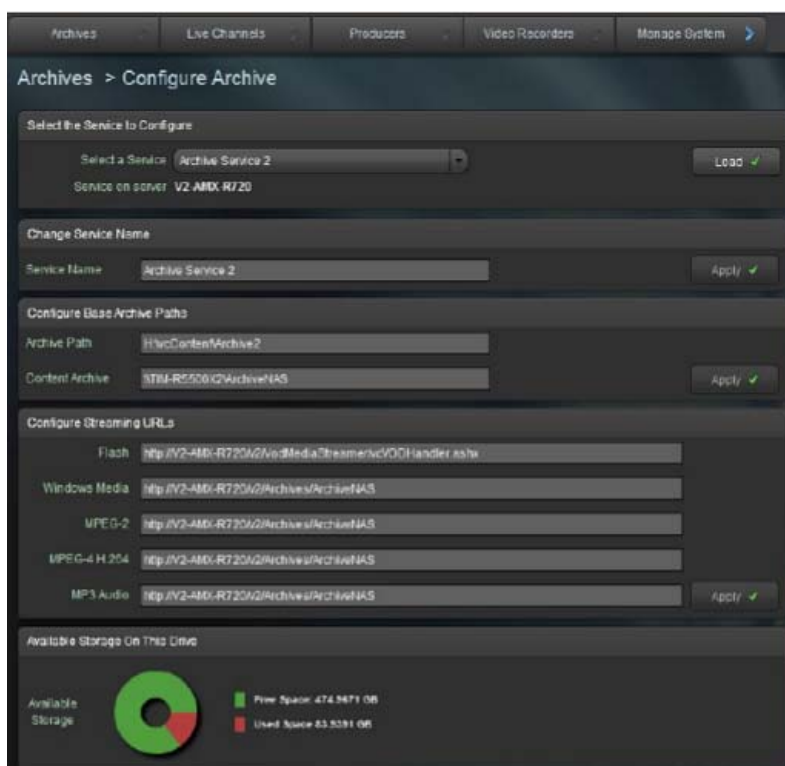
FIG. 73 Configure Archive

38. Do not change the **Archive Path** but set the **Content Archive** text box to the UNC Path of the NAS Archive, for example:

`\\NASservername\ArchiveNAS`

The Available Storage on this Drive graphic will change and display the New Storage space on the NAS.

39. Change the following Streaming URLs to point to the NAS drive Virtual Directory. Edit existing URLs excluding the Flash URL. For example, from:

`MPEG-2 = http://<servername>/v2/Archives/ArchiveX`

to

`MPEG-2 = http://<servername>/v2/Archives/ArchiveNAS`

40. Click **Apply** to save the changes.

41. The server is now configured to use the NAS share for the Archive service.

42. Restart the server.

NOTE: *Once an Archive is configured and media is started to upload to the archive, do not change the settings (except the service name) as access to the data will be lost.*

Configuring a SAN Archive

San Archives are configured in a similar way to NAS Archives. Before starting, check that theVision2 server used to host the SAN archive has permission to read/write from the SAN. Next map the SAN as a network drive on this server using the I drive (note windows search is set on the I drive so do not use another drive letter). Follow the instructions for configuring a NAS Archive. Use ArchiveService2SAN in all cases instead of ArchiveService2NAS and replace \\NAS\NASArchiveService with the name of the folder to use on your SAN e.g. I:\vcContent\Archive1. Use an account that has read/write permissions on the SAN.

Configuring IIS for NAS/SAN Archives

Configure IIS for NAS Archive as follows:

1. Using IIS Manager select **Connections > Sites > Default Web Site > v2**, find a folder called Archives.

2. Right click the Archives Folder and select **Add Virtual Directory**.

3. In the Alias text box enter *ArchiveService2NAS*

4. Set the PhysicalPath text box to the UNC Path to the folder on the NAS e.g \\NAS\NasArchiveService.

5. Click **Connect as**..

6. Select a Specific User and enter the domain\username of the NAS user account e.g. AMX\username

7. Click **Set**.. and enter the username and password for the NAS user twice.

8. Click **OK**.

9. Now configure the V2AppPool to use the identity of the NAS user, Select **Connections > Application Pools**

10. Right click the **V2AppPool** and select **Advanced Settings**

11. In Process Model | Identity, select **ApplicationPoolIdentity** and click the **[...]** button

12. Select a Custom Account and enter the domain\username of the NAS user account e.g. AMX\username and password for the NAS User account.

13. Restart IIS.

Supported Video on Demand Media Formats

Archives can provide a Video on Demand service for five types of media files (WMV, MPEG-2, MPEG-4, Flash Video (FLV), and MP3). When uploading a file into the archive, a bitrate setting (high, medium, or low) must be chosen. The following tables indicate what setting users should choose for different file types.

Flash Video (FLV)

Flash video on the Vision[2] server uses only standard definition and below video sizes. Flash videos must be encoded using the On2 VP6 video codec. The following table lists the recommended bitrates for flash video:

Flash Video Recommended Bitrates		
High	Full D1	1.5 Mbits
Medium	Full D1	800 Kbits
Low	SIF	400 Kbits

Windows Media Video (WMV)

Windows Media video can be encoded using WM9 and VC1. The following table lists the recommended bitrates for Windows Media video:

Windows Media Video Recommended Bitrates		
High	Full D1	1.5 Mbits
Medium	Full D1	800 Kbits
Low	SIF	400 Kbits

The recommended bitrate for high-definition VC1 is 8-12 Mbits.

MPEG-2

MPEG-2 must be encapsulated in an MPEG-2 transport stream. The supported audio formats are:

- MPEG Layer I
- MPEG Layer II
- MPEG Layer 3 (MP3)
- AC3

The following table lists the recommended bitrates for MPEG-2 video:

MPEG-2 Video Recommended		
High	Full D1	8 Mbits
Medium	Full D1	6 Mbits
Low	Full D1	4 Mbits

High-definition is supported for playback to a set-top box. The recommended bitrate is 8-12 Mbits.

MPEG-4 AVC (H.264)

MPEG-4 files must be encapsulated in an MPEG-4 stream (.mp4). Files must have the MOOV Atom at the start of the file for fast start. The audio must be in AAC format. The following table lists the recommended bitrates for MPEG-4 video.

MPEG-4 Video Recommended Bitrates		
High	Full D1	1.5 Mbits
Medium	Full D1	800 Kbits
Low	SIF	400 Kbits

NOTE: *The bitrates specified above are for playback on a PC unless otherwise stated.*

MP3

A bitrate setting is not required when uploading MP3 files as the bandwidth requirements are modest compared to video. All MP3 files are uploaded using high bitrate.

NOTE: *Tablet users can only view and play MPEG 4 and MP3 files.*
Set-top box users can only view and play MPEG 2 and MP3 files.

Video on Demand and Managing Content

All content is stored in the archive in a hierarchical structure, much like folders on a PC, and is displayed in a similar manner in the archive service menu. The terms folder and category are interchangeable, similarly video refers to either video or audio files.

The **Archive > Recent Updates** page shows the 100 most recent updates in the selected archive. This page only shows published videos. If the user is a non administrator and access control is enabled on this archive then they user will only see updates in folders that they have been given view permission to by the system administrator. Select a video and click **Open Containing Category** to show the category containing the selected video.

Choose **Archives > Browse** to view the list of archives configured in your system (FIG. 74).
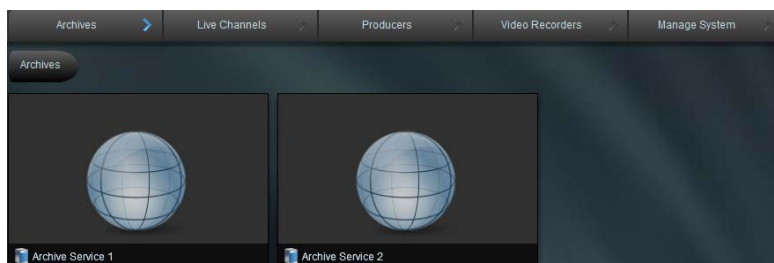
**FIG. 74** List of Archives in a Vision2 System

Double click an archive to view its contents. Each archive has the following special folders which cannot be deleted:

- DVR Recordings which contains videos recorded by continuous or scheduled record services.
- A trashcan - This is a special folder which contains media deleted from the rest of the archive. Deleted videos are placed here. To remove a video completely and free up hard drive space, users with appropriate permissions can delete the video from the trashcan.
- The content folder contains all the rest of the media in this archive. This is the most commonly used area of the archive.
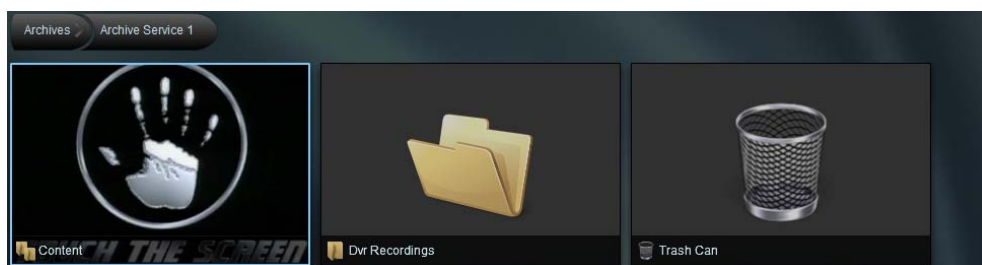
**FIG. 75** Special Folders (Content, DVR Recordings, Trashcan)

Click once on a folder to see its description. See FIG. 76 for an example.
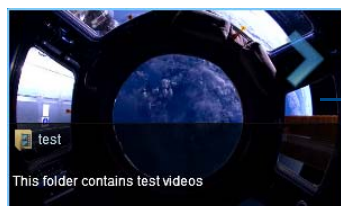
Thumbnail taken from last video uploaded in this folder or any sub-folders of this folder

FIG. 76 Folder with Description

Folders images (thumbnails) are taken from the thumbnail of the most recent media uploaded in that folder or its subfolders. If there is no media in the folder or its subfolders, a standard folder icon is used instead. Double click a folder to look inside. The Archive path (FIG. 77) shown just beneath the menu bar updates. The archive path contains a number of segments, click a segment to jump to that level in the archive. Click the segment that is the furthest to the right to refresh the display and show any updates to the folder. This is useful if another user has added a new media file to the folder.
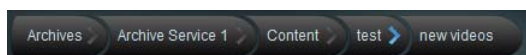
FIG. 77 Archive Path

Folders can contain media files (audio/video) or folders but unlike windows you cannot combine folders and files. Videos are shown with thumbnail (a screenshot) taken from the video and a small filmstrip icon in the bottom left corner. You can alter this thumbnail image if required using the Edit Poster Frame feature, see *Edit Poster Frame* on page 56 for more details.

The options drop down menu (FIG. 78) shows what tasks are available, these options change depending on where you are in the archive and what you are doing. The following options are available when you enter a folder:

- **Search Archive** - search the whole archive for media files whose name or metadata match text entered by the user. Note you do not have to enter the full text, you can use wildcards. The * and ? wildcards are supported. For example searching

for film* will find film1 and flim2 and flims. Searching for flim? will find film1 and film2. Search Archive is case insensitive so FILM* will return the same result as film. Select one of the matching videos and click **Open Containing Category** to jump to the category containing the video.

- **Create New Category** - create folder. Files and folders cannot be mixed in a folder. Trying to create a folder in a category which already contains files, Vision2 will prompt you to move the files that are currently in the folder to a new folder.
- **Edit Category** - change folder name and description of the selected folder.
- **Delete** - Note you can only delete a folder if it does not contain any files. You cannot delete multiple folders.
- **Cut** - Cut and paste a folder. Folders can only be pasted into a folder which does not contain any files.
- **Upload New Media** - Upload a new video/audio file to the folder, see the *Upload Video* on page 56 for more details.
- **Sort Media by Name** - Sort videos alphabetically by name.
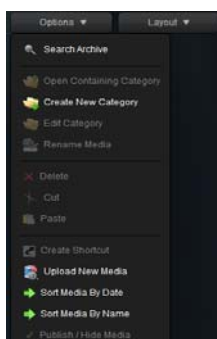- **Sort Media by Date** - Sort videos by date and time uploaded.

FIG. 78 Options Menu

Now that you are in a folder, click on a video/audio file to select it. The selected media is shown with a light blue border. If the media has metadata, then the information in the first metadata section is shown. Typically this is the video synopsis (FIG. 79). To select multiple media files, use CTRL-click. To select a range of media, use the SHIFT key. The only option available on multiple media files is delete.
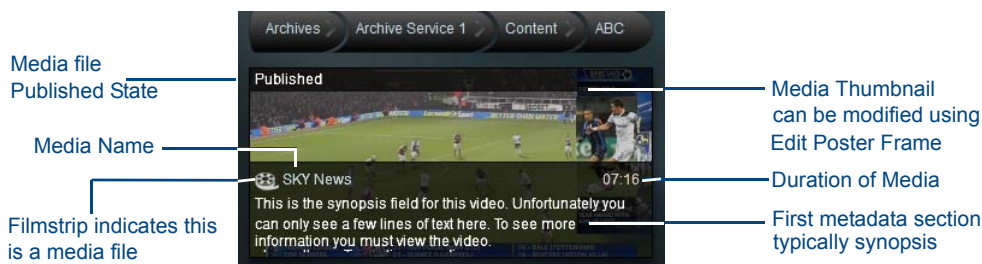

Media file Published State

Media Name

Filmstrip indicates this is a media file

Media Thumbnail can be modified using Edit Poster Frame

Duration of Media

First metadata section typically synopsis

FIG. 79 Video with Thumbnail + First Metadata Section (Typically Synopsis)

The following operations are available in the options drop down menu when you select a video:

- **Rename Media** - Rename media.
- **Create Shortcut** - Create shortcut to media file, this acts like a copy of the media. Then cut and paste a shortcut to another location.
- **Publish/Hide** - change whether media is published/hidden. Published media is viewable by Tablet and set-top box users. If user access control is enabled for this archive then Published media is viewable by Set-top box, tablet, or PC users with view permission to this folder.

NOTE: *If access control is enabled for a particular archive, then PC Users without Publish permission cannot see Hidden media. See Archive Permissions on page 23 for more details.*

- **Cut/Paste** - Cut a video and then paste it to another location. Only one video at a time can be cut/pasted.
- **Delete** - Delete selected media files to the trashcan. If in the trashcan, there is a delete option which deletes the media permanently and frees up space on the drive.
- **Sort Media by Dat**e - Sort media by the date/time they were uploaded to the system.
- **Sort Media by Name** - Sort media by name.

Playing Video

Double click on a video to play it. Vision^2 automatically selects the best format and bitrate if there multiple formats and bitrate versions of this file. The following operations are available in the options drop down menu while playing a video:

- **Edit Information** - Edit Video Metadata.
- **Upload Additional Media** - Upload an additional version of the video in a different bitrate or format. This process is similar to uploading a new video, see the section on Uploading a Video below.
- **Edit Poster Frame** - Edit video thumbnail.

Upload Video

To upload a video, select **Upload New Media** from the options menu to display the upload screen. Vision^2 does not support transcoding files. Versions of the same file must be uploaded with different formats and bitrates using the Upload Additional Media option.
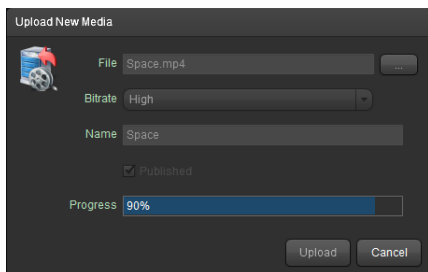
FIG. 80 Upload Media

Perform these steps to upload a video:

1. Click the **Browse (...)** button to select a file to upload.

2. Select a Bitrate for the video from the drop down. The available options are high, medium, and low. This option is not available for MP3 files as bitrate is irrelevant in this case the bandwidth demands of MP3 files are relatively low.

3. Enter a name for the video in the name text box, by default the name is taken from the filename. Note this text box is not available if you are uploading an additional video. Punctuation is not accepted, only numbers or letters are allowed.

4. Set the publish check box to change whether the uploaded video is published/hidden. This check box is not available if uploading an additional video. Published videos are viewable by Tablet and Set-top box users. If user access control is enabled for this archive, then Published videos are viewable by Set-top box users if their user group has view permissions on this folder. Published videos are viewable by PC and tablet users if the user group they belong to has view permission to this folder.

NOTE: *If access control is enabled, then PC or Tablet users without Publish permission cannot see Hidden videos. Set-top box users can never see Hidden videos. See Archive Permissions on page 23 for more details. .*

5. Click **Upload** to begin uploading the video. This process can take some time, especially with large video files.

NOTE: *This upload tool has a limit of 2GB. If needing to upload larger files, use the AMX Vision2 FTP client.*

Edit Poster Frame

Use this option to edit the thumbnail image for the video in the Archive. Click **Update Poster Frame** to take a snapshot of the playing video and use this as the video thumbnail to identify the video in the archive.

Select **Options > Cancel/Done editing** to finish.

NOTE: *The snapshot captured by update poster frame is taken from the nearest previous I frame to the point at which Update Poster Frame was clicked. This may be slightly out of sync with the video playback*


Layout Menu

The layout menu allows you to select the layout used for browsing the Archive. There are three options:

- Tiles - default layout
- Tiles + Navigation Tree - default layout + windows explorer style tree navigation pane on the left of the screen
- List + Navigation Tree - list view + windows explorer style tree navigation pane on the left of the screen

View Menu

The view menu allows playback of different bitrate versions of the selected video. The best available video format is selected automatically. If logged in as an administrator or user with upload permission in the current folder, use the details drop down to select any of the available file formats and bitrates to check all versions of the video play correctly.
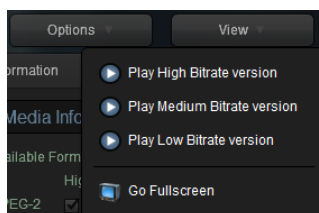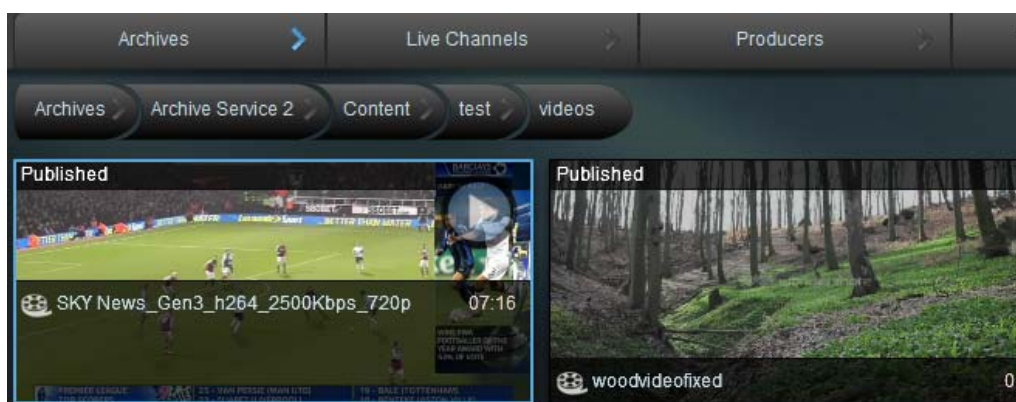

FIG. 81 View Menu

The format is chosen automatically. If wanting to play a particular format and bitrate, use the details menu (this option is only available to administrators or those with upload permission).

Playing a Video within the Archive

To play a video within the archive double click the Video thumbnail. The highest bitrate and best available format begins to play.

FIG. 82 Select Video to Playback (Selected Video is Shown with a Light Blue Border

The column on the right of video playback area shows video codec information and metadata such as synopsis, credits, etc. By default videos do not have any metadata. Codec and bitrate information is only shown to administrators or users with upload permission to the folder containing the selected video. To play a different version of the video, use the Details drop down to select the format and bitrate to play. Again this is only available to administrators or those with upload permission. Normal users can use the View menu to select a different bitrate version of the video. The format is chosen automatically. Click **Go Fullscreen** in the View menu to view the video fullscreen.
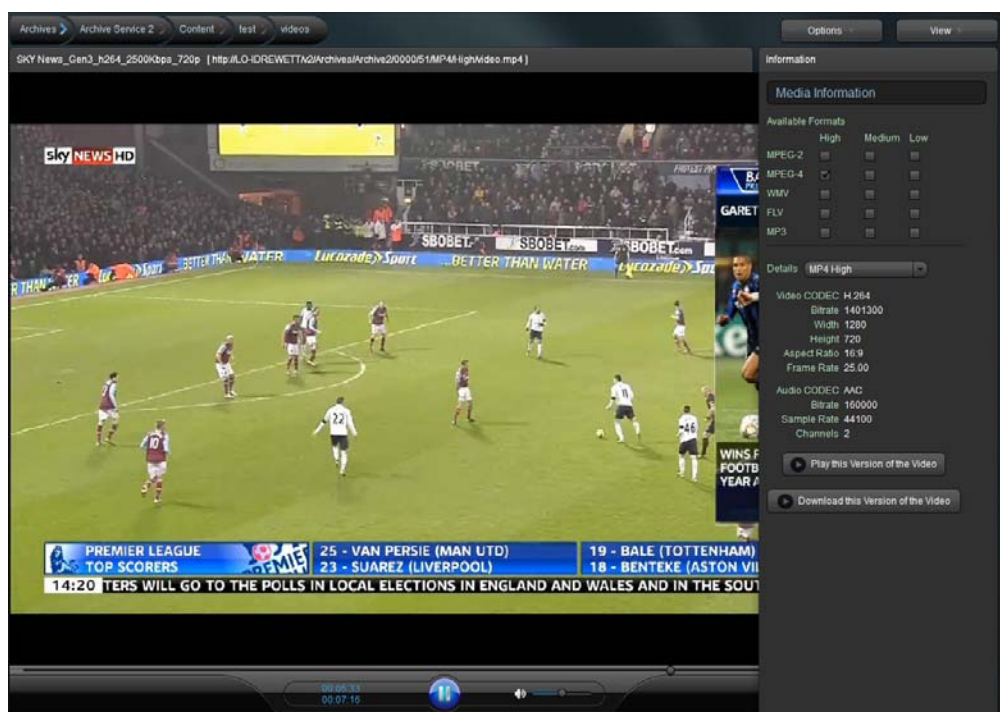
FIG. 83 Video Playback with Codec Information (Only Shown to Administrators or Users with Upload Permission)

NOTE: *Audio content cannot be played from the Archive service on the server itself since the server has no audio capability. Audio files must be played from a remote browser with audio capabilities.*

Editing Metadata

To edit metadata for your media, start playing a video and select **Edit Information** from the options drop down menu.

Metadata Options	
Add New Section	Add new metadata section to video.
Delete New Section	Delete selected metadata section (only available when selecting a metadata section heading).
Save Information	Save changes to metadata.
Move Section Up	Move selected metadata section up one in the list (only available when you select a metadata section heading).
Move Section Down	Move selected metadata section down one in the list (only available when you select a metadata section heading).
Cancel/Done Editing	Exit metadata editing.

To edit metadata, carry out the following:

1. Add a metadata section or select an existing metadata section.
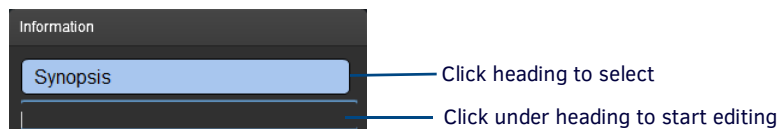2. Edit the metadata section contents.

To add a metadata section, select **Add New Section** and choose an appropriate section from the drop down menu. Click **Apply**. If there is no suitable metadata section, create a new one by following the instructions in the *Video on Demand and Managing Content* on page 54.
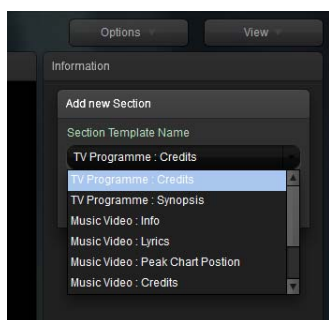
FIG. 84 Select New Section to Add to Metadata

The new metadata section will now appear in the metadata column.

To edit the contents of a metadata section click underneath the relevant section heading, a blue border appears. Edit or enter text in the space provided.

FIG. 85 Editing Metadata Section Contents

Archive Permissions

The Archive Permissions Screen **Archives > Archive Permissions** is used to control user and set-top box access to Archives and the folders contained within Archives. By default User Access is disabled for an Archive. This means that any user can carry out any operation on the archive and its contents. To control access to an Archive proceed as follows:

1. Choose the Archive to restrict from the Select a Service drop down and click **Load**.
2. Change the Archive User Access Control setting from No to Yes and click **Apply**. Now Access Control has been enabled for an Archive. No users can access content in that Archive.
3. To give users access to a folder, expand the User Groups heading in the User Groups column and choose a User Group.
4. Expand the Archive and folder to give access to in the Archive Contents column such as the Content folder.

5. Drag the chosen user group and drop it under the folder where you see the text **Drop a user group here**. The Permission column is now enabled. This column shows all permissions available to this user group on this folder. The available permissions are show in the Archive Permissions table.

Archive Permissions	
Permission	**Description**
Manage Category	This permission allows the following tasks: • Create a category inside this category. • Edit category description and name. • Delete media files in this category. • Cut/paste files/folders to/from this category. • Create shortcut to video in this category.
Delete Category	Delete category (if empty).
View Media	View and play Media files in this category. Without this permission you cannot view the category at all.
Upload Media	Upload Media to this category.
Edit Media	• Rename Media. • Edit media metadata.
Edit Poster Frame	Update video thumbnail (note the thumbnail that is captured may be out of sync with the video due to technical limitations).
Download Media	Download media to user's machine. IE smart screen filter will need to be disabled.
Publish Media	View unpublished Media and change the publish state of Media from Publish to Hidden and vice versa. Published media can be viewed and played by Set-Top Box users who have view permissions on an folder and any other users with View permission. Hidden media can only be viewed by administrators or users with Publish Permission for the category containing the media.

Enable the permissions required and click **Apply.** To remove this user group and revoke all its permissions click **Remove**.

There is a special user group called AMX-STB-VIRTUAL-USERGROUP which controls access for set-top box users, this is shown in blue. This group only has one permission, the View permission, as set-top boxes are unable to carry out any other actions on Archive contents. To allow set-top box users to view published MPEG2 or MP3 media in a particular folder, give the AMX-STB-VIRTUAL-USERGROUP view permission on that folder.

NOTE: *To update set-top-box permissions, navigate away from the main menu on the set-top box using the set-top box controller. Press and hold the menu button to update Archive Permission changes.*

NOTE: *Updates to Archive Permissions/changes to Archive will not appear until tablet users re-login. PC users need only re-enter an archive folder to refresh Permissions.*

Permissions set on a category do not automatically apply to sub-categories of that folder. The permissions must be set individually on each sub category. The only exception to this rule is the DVR Recordings category. Permissions set on the DVR Recordings category apply to all categories created in this folder by Record services.

Configuring Metadata

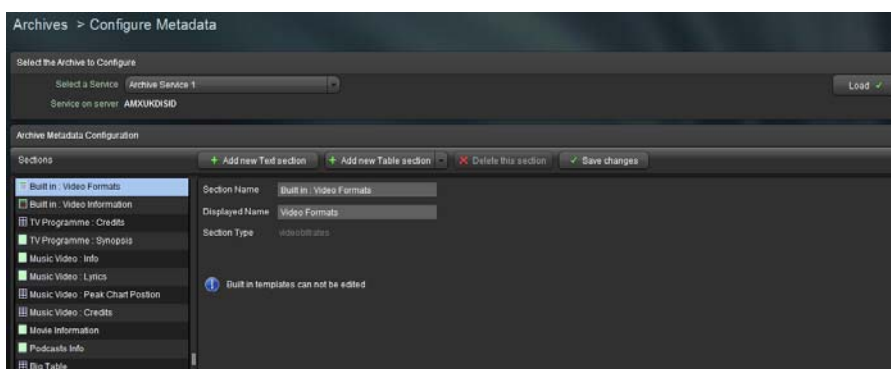When selecting **Archives > Configure Metadata,** the following page appears (FIG. 86).

FIG. 86 Metadata Configuration

The Archive supports two styles of metadata:

- Built-in: This type of metadata cannot be modified.
- Normal: This information is available in both management and user interfaces.

The built-in metadata is used to display the available formats of specific videos and technical information about the videos. Metadata is stored in different sections which appear in the information bar when playing a video in the archive. User-created metadata sections can be of one of two types:

- Text Section: Sequential text.
- Table Section: A table with a user defined number of columns.

Creating a New Metadata Section

To create a new text section, click **Add new Text section**. The following options appear:

Add New Text Section Options	
Section Name	This is the name of the section as it appears on the left side of the page. It can be different to the Displayed Name so that related sections appear together in the lists. For example: • Music Video: Info • Music Video: Credits • Music Video: Lyrics • TV Program: Credits • TV Program: Synopsis
Displayed Name	This is the name of the section as it will be displayed to users.

To create a new table section, click **Add new Table** section. Select the number of rows and columns, and click **Add Table**.

Add New Table Section Options	
Section Name	This is the name of the section as it appears on the left side of the page and also when editing metadata in the archive. It can be different to the Displayed Name so that related sections appear together in the lists. For example: • Music Video: Info • Music Video: Credits • Music Video: Lyrics • TV Program: Credits • TV Program: Synopsis
Displayed Name	This is the name of the section as it will be displayed to a user.
Edit Table	
Insert Column	Allows you to insert an extra column.
Delete Column	Allows you to delete the selected column.
Insert Row	Allows you to insert a new row.
Delete Row	Allows you to delete the selected row.
Width	Allows you to define the width of the selected column.

If desired, insert text into the table as a hint for when someone is adding metadata to a video. FIG. 87 displays a new table based section and the hints.
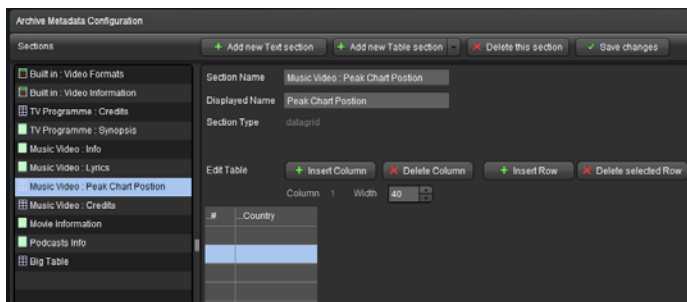

FIG. 87 Metadata Table

> **IMPORTANT:** *Click the Save Changes button to save any changes that need to be kept.*

FTP Client

Vision2 includes an FTP Upload tool to allow users to upload files that are bigger than 2GB. The standard Archive upload option does not work with files of this size. Download the FTP Client as follows:

1. Go to **Archives > Download FTP client.**
2. Click the link to download ADOBE AIR.
3. Click **Download now** and then run to install AIR.
4. Click the download link above the Vision[2] logo to download the Vision2 FTP client.
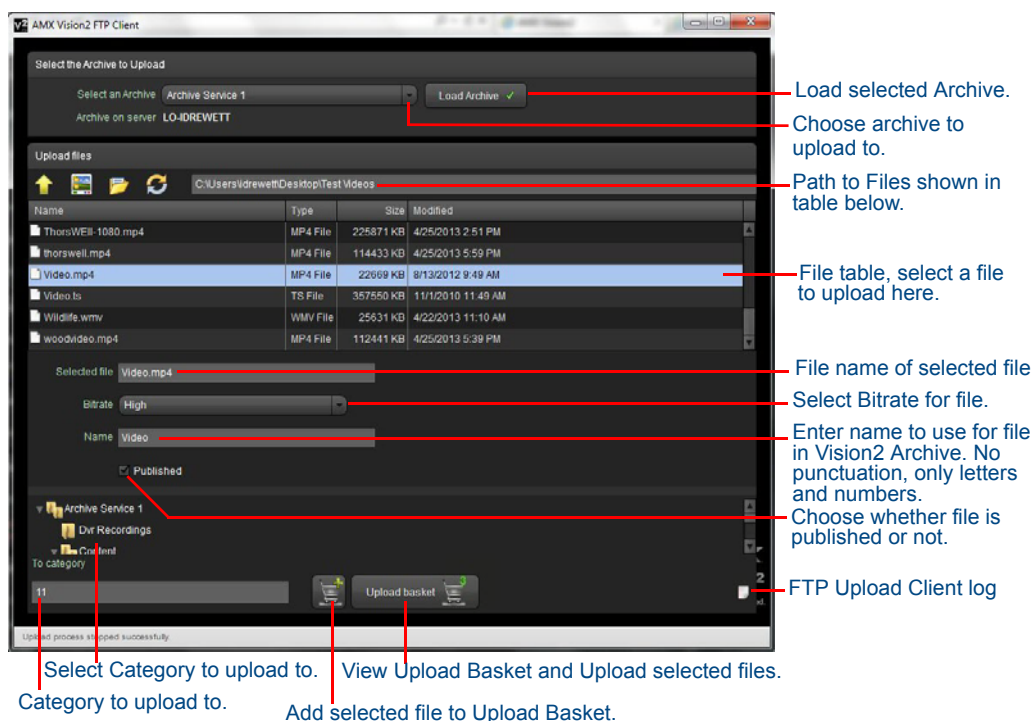
Use the FTP client to upload files as follows:

1. Click Open in the Internet explorer download window to run the application.

FIG. 88 Login Screen for FTP Client

2. Enter your Vision[2] user name and password and the name of your Vision[2] master server.
3. Click **Login.**

FIG. 89 FTP Upload Client Main Window

4. Select the archive you want to upload to from the Select an Archive drop down menu.
5. Click **load now**.
6. Use the upload files section to select a file to upload, the file path to the right of the icons shows the current location.
7. Click the up arrow to navigate up the folder hierarchy, click refresh to see any changes to the folder. Click the folder icon to jump to the my documents folder. Click the screen icon to jump to the desktop.
8. Double click on a filename in the file table to select that file.
9. Choose a bitrate for the file.
10. Chose a name for the file. The name is taken from the filename by default. Punctuation is not allowed, only letters or numbers.
11. Set or clear published check box as required.

12. Click the basket with the plus icon to add this file to the upload basket.

13. Repeat steps 6-12 for each file to upload.

14. Using the bottom section of the window, expand the archive tree and select a category in the archive into which to upload the files in the basket.

15. Click **upload basket** to see a list of the files to upload (FIG. 90).

FIG. 90 Upload Files Basket showing List of Files to Upload

16. Click **Upload** to upload the files in the basket to the archive.

Producer Service

Overview

The Vision^2 Producer Services enables users to create a scheduled TV channel. Users can schedule the Producer to display either MPEG 2 Live Channels or MPEG-2 or MP4 H.264 files from a Vision^2 archive. Schedules run on a four week loop, then begin again after the four weeks have expired. In the event there is no content scheduled for a certain period of time, Producer enables setting an intermission source which automatically plays either a MPEG-2, MP4 H.264 file from a Vision^2 archive or an MPEG-2 Live Channel.

NOTE: *A Producer service can only use Archives on the same server as the Producer service or on a NAS.*

NOTE: *Some MP4 files may not be compatible with the Vision^2 Producer Service. They may play when accessed via Video on Demand but when used by the Producer and accessed as a live channel on the client they will not play, or will only play audio. If you see these symptoms then the file must be re-encoded and uploaded to the Vision^2 archive again replacing the defective file.*

NOTE: *The Producer service cannot display HD h.264 Live Channels.*

Configuration

Access the Producer page using **Producers > Manage Producers**.

FIG. 91 Producer Configuration Page

You can configure the following options for the Vision^2 Producer Service:

Configure Options	
Video Format	Select the Video format from MPEG or MP4 h264. Only files of this format are shown when you select a file for intermission or to add to the Producer schedule.
Intermission Bitrate	Select the Bitrate from High, Medium, or Low. Only files with matching Bitrate and Format are shown when selecting a file for intermission or adding to the Producer schedule.
Destination	
Address	The multicast address for the Producer channel.
Port	The multicast port for the channel.
TTL	The multicast TTL for this channel. Enter a value in the space provided.
NIC	The IP address of the network to use for multicasting.
Intermission	
This section defines what to do if there are no videos scheduled to broadcast. Users can schedule a specific MPEG-2 file from a Vision^2 archive or a multicast MPEG-2 source such as a DVB or Live MPEG channel.	

Configure Options	
Intermission Enable	Use this setting to enable/disable the Intermission. If the Intermission is not enabled and nothing is scheduled, the user sees a blank screen.
Source	Defines whether to use a file playing in a loop or a live feed during Intermissions between scheduled content.
Live (Live Feed only)	Select the live channel from the available list. This option only appears if you select Live Feed for your source.
Content (File only)	The Archive which is to be used as the source of the videos to be scheduled.
Name (File only)	Select the file matching the format and bitrate selected to use as the intermission source.
URL	This value is read only and shows the path to the file or Live Channel as appropriate.

NOTE: *If configuring a firewall on a Vision2 server, incoming multicasts must be permitted.*

Setting Up an Intermission

If there is no content scheduled for a certain period of time, Producer enables setting an intermission source which automatically plays:

- MPEG-2 or MPEG 4 h264 file from a Vision^2 archive
- Multicast MPEG-2 source such as a DVB or Live MPEG channel
- Unmanaged Live channels are also available for Intermission as well.

Perform these steps to set up an intermission:

1. Set the **File** or **Live Feed** options to indicate whether the intermission source is from a file or live feed. After making your selection, do one of the following:
   - **File**: Select an Archive using the Content drop down menu. Select a file using the Name drop down.
   - **Live Feed**: Select a live channel from the Live drop down menu.
2. Click **Apply**.
3. Set the **Enable Intermission** setting to **ON** in the Intermission section and click **Apply**.
4. Set the **Stream Enable** setting to **ON** to activate the Producer.

The Name and URL text boxes populate with the name and path of the intermission source. This source will play if there is no scheduled content.

Viewing the Stream

Enable the Stream and click the **Watch** icon. Some content must be scheduled or an intermission source enabled, otherwise nothing will be seen.

Schedule Editing

Producer runs a four week schedule which loops every four weeks (Week A, Week B, Week C, Week D, and back to Week A again). To edit the schedule, click the **Edit** button next to **Service Schedule** in the Producer screen. Alternatively go to **Producer > Edit Schedule**, select the Producer to edit, and click **Load** (FIG. 92).
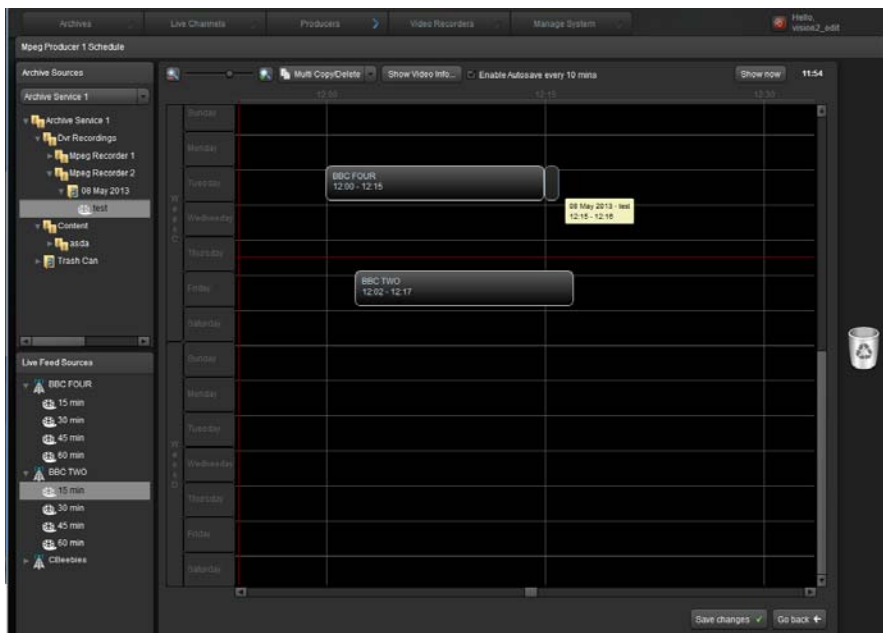

FIG. 92 Edit Schedule Screen

Edit Schedule Options	
Zoom setting, represented by a magnifying glass	Click the + symbol to zoom in. Click the - symbol to zoom out. Drag the slider left/right to zoom out/in.
Copy	Click Multi Copy/Delete to access this option. The copy option enables copying individual programs, days, or entire weeks from one part of the schedule to another.
Delete	Click Multi Copy/Delete to access this option.The delete option enables deleting individual programs, days, or entire weeks from the schedule.
Save changes	To update the schedule on the server, click **Save changes**. Any changes will immediately take effect.
Show Video Info	Show video thumbnail and information about video.

The main scheduling options are as follows:

- To schedule a new program – Select an Archive from the Archive Sources drop down. Expand the archive to locate the file to add. Only published files of the chosen format and bitrate are displayed. If access control is enabled for this Archive then non administrator users will only see published files of the correct format and bitrate in folders that they have view permission access rights to. Drag the file onto the schedule.
- To move a program within the schedule – Click on the program and drag-and-drop it into the new location. If attempting to drop it to a location where it will not fit (due to other programs) then it will return to its original location.
- To schedule a Live channel – Choose the Live channel to display from the Live Feed Sources drop down. Expand the chosen Live channel and select the length of time for this channel to display, The following durations are available: 15, 30, 45, and 60 minutes. Drag the chosen live channel onto the schedule.
- To remove something from the schedule, drag and drop it onto the trashcan.

Click **Save Changes** once the correct schedule has been set. Click **Go Back** to return to the previous screen.

NOTE: *When a Producer service is enabled, if it has missed the start time for a scheduled item (live channel or archive file), this item will be ignored and the next item in the schedule which has a start later than the current time will be played.*

Record Service

The Vision[2] Record Service provides the ability to record an MPEG-2 Live Channel into an Archive either continuously creating files of a fixed duration, or manually recording a specific event. Alternatively, recordings can be scheduled to happen at particular times and dates.

NOTE: *If recording to an archive on a drive with less than 40GB space, Vision[2] will refuse to enable the record service until this issue is resolved. If drive space falls below this limit while recording is taking place, the service will continue to write to the disk until all disk space is consumed. A warning will be received when a record service is enabled if the drive space is less than 150GB. The amount of space remaining can be viewed on the drive in the Archive > Configure Archive screen.*

The record service has the following limitations:
- Continuous and manual records under 1 minute in duration are not saved.
- The Record service can only use Archives on the same server as the Record service or on a NAS.
- The Record service needs an audio track to function correctly. If recording a CCTV camera, audio on the camera will need to be enabled to create an audio track even if there is no microphone on the camera.
- Producer channels can not be recorded.

Configuration

The following page appears (FIG. 93)when **Video Recorders > Configure Recorder** is selected:

FIG. 93 Configure Record Service

NOTE: *Once recording is enabled, recording parameters cannot be changed.*

The following settings are available in the Recording section:

Recording Settings Options	
NIC	The IP address of the Network interface card from which to record. If the Live Channel you wish record is multicast on a different NIC, this setting will need to change.
Recording type	This can be either Continuous, Manual, or Scheduled. Continuous recordings create a new recording in the Archive at specific intervals according to the value defined in the Segment length option. Manual recordings require the user to actually start and stop the recording process themselves.
Segment length	This value defines the length of each continuous recording. Available options are 15, 30, and 60 minutes.

Recording Settings Options	
Keep Archives for	To prevent the continuous recording mode from filling up the hard disk used by the archive, the system will automatically delete generated recordings after the number of days specified here. To prevent specific recordings from being deleted, cut the video from the relevant sub-folder within the DVR Recordings folder and paste into the main archive.
Write to Archive	This defines the archive in which you want the recordings to save. Note that you can only record to Archives on the same server as the Record service or to NAS archives. All automatic recordings are placed in a special area of the archive called DVR Recordings.
Record From	This enables you to select which Live Channel to record.

Recording a Video Stream

Perform these steps to record a video stream:

1. Select the IP address from the **NIC** drop down menu of the network the Live Channel is multicast on.
2. Select **Continuous** from the **Recording type** drop down.
3. Select the length of each individual recording from the **Segment length** options menu.
4. Use the **Keep Archives for** spin box to indicate how long for the recordings to remain in the archive.
5. Click **Apply** to save the new settings.
6. Change the **Service Enable** setting to Yes and click **Apply** to start recording the video stream. Recordings are placed in a folder with the same name as the Record Service inside the DVR Recordings folder.
7. Change the Service Enable setting to No and click **Apply** to stop recording.

NOTE: *If a firewall on a Vision2 servers is configured, incoming multicasts must be permitted.*

NOTE: *If the hard disk hosting an archive becomes full while recording, any record service which is configured to write to that archive will stop recording, however, they will still show as enabled in the Vision2 user interface. The relevant record services will need to disabled and re-enabled to continue recording once space is cleared on the disk. This applies to Manual, Continuous, and Scheduled Record services.*

Manual Recording

Configure the Record Service in the same way as for a Continuous Record, except choose Manual Record from the Recording Type drop down. After the Record service has been configured for manual recording and the service enabled, a Manual Record section appears. Click **open** to enter the Manual Record Screen. Alternatively, go to **Video Recorders > Manual Recording** and select and load the Manual Record Service to use.

NOTE: *The file name is not the name of the file that will be recorded, but it is the name of the recording as displayed in the archive.*
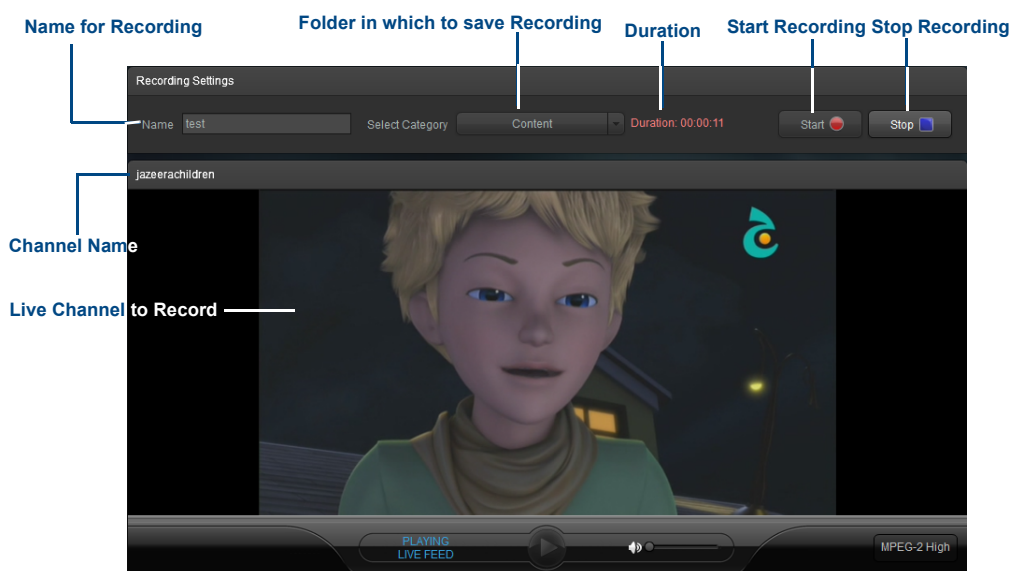

FIG. 94 Manual Record Screen

Manual Record Options	
Name	Name for the video to record in the archive.
Select Category	Select category to record to. Vision^2 will prevent selecting a category which contains other categories. An empty category or one which contains media files must be selected.
Start	Start Recording.
Stop	Stop Recording. **Note:** Recordings which are shorter than 1 minute are discarded.

Record a video as follows:

1. Enter a name for the recording in the Name text box.

2. Select a category (folder) to record to.

3. Click **Start**. Once a Manual Record is started, you cannot leave this screen until stopping the Record. If performing more than one Manual Record at a time, login with a separate Browser tab.

NOTE: *You cannot record longer than 180 minutes.*

4. Click **Stop** to end the recording and save a copy of the recording to the archive.

Scheduled Recording

The Scheduled Record feature enables scheduling when to record a MPEG 2 Live Channel. Configure the Record Service in the same way as for a Continuous Record, except choose Scheduled Record from the Recording Type drop down. After configuring the Record service for scheduled recording and enabling the service, a Schedule section appears at the bottom of the screen. Click **Edit** to enter the Schedule Screen. Alternatively, go to **Video Recorders > Scheduled Recording** and select and load the Scheduled Record Service to use.

Edit the Record Schedule as follows:

1. In the Schedule editor click the calendar icon and select the date when the recording should occur. (FIG. 95).
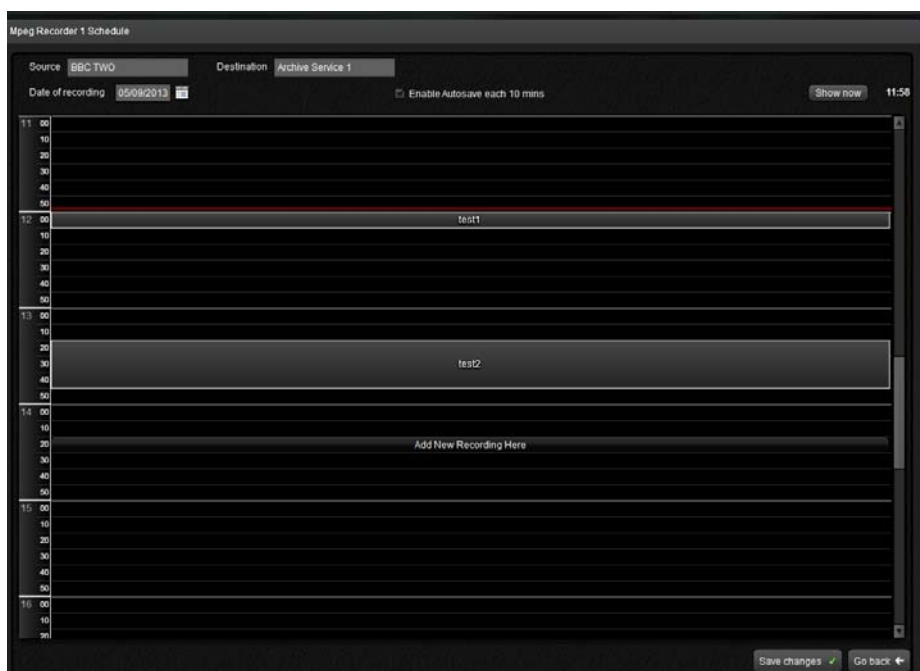

FIG. 95 Schedule Editor for Record Service

NOTE: *A red horizontal line shows the current time. Click Show Now to jump to the current time.*

2. Move the cursor over the schedule to select the time (24 hour clock) where the recording should occur and click at this selection. Up/down cursor keys may be used. A pop-up dialog box appears (FIG. 96).
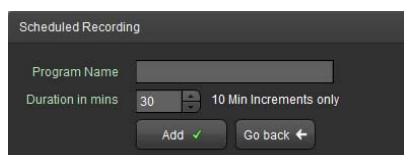

FIG. 96 Scheduled Recording Dialog Box

3. Enter the name for the recording in the Program Name text box.

4. Use the up-and-down arrows to change the duration of the recording in 10 minute increments up to a maximum of 180 minutes.

NOTE: *A value in the Duration text box can be entered, however, Vision2 only supports scheduled recordings in 10 minute increments. If a value in the Duration text box is entered that isn't a 10 minute increment, Vision2 automatically rounds up to the next 10 minute increment without alerting you.*

5. Click **Add**. A new recording is then displayed in the schedule.

6. Click **Save Changes** to save the updated schedule. Any recordings created are placed in a folder with the same name as the Record service inside the DVR Recordings folder.

NOTE: *If a Record Service is disabled and re-enabled while a scheduled record is in progress for that service, that scheduled record will not resume*

Appendix A: Graceful Startup/Shutdown Procedure

Overview

In the event of a planned or unplanned network or electrical outage, the following steps should be taken to ensure a controlled shutdown and restart of the IPTV system. The order of restart is critical to provide data to the control components as to last operating configuration. If the system is brought back into service randomly or in improper order, it may perform with unexpected behaviors.

Shutdown

The order of shutdown is not as critical as the restarting, but the recommended order and tasks are:

1. **Client servers** - gracefully shutdown using keyboard and mouse attached to server (FIG. 97).

FIG. 97 Attach a Keyboard and Mouse to the Server

- To login, enter the username *Administrator*, and the default password *Vision2*.
- From the Windows desktop, navigate to **Start** and select **Shut Down**.

2. **DTV-MA01 TDS Management Appliance**- gracefully shutdown using keyboard and mouse attached to unit.
   - To login, enter the username *amxdtv*, and the password *admin*.
   - From Windows desktop, navigate to **Start** and select **Shut Down**.

As an alternative, press and hold the power button on the front face of the unit until activity and power indicator lights turn off (FIG. 98).

FIG. 98 DTV-MA01 - Front Panel Power Button

3. **DTV-TX03 Transmitter** - power off unit by disconnecting power cable from rear of unit (FIG. 99).

FIG. 99 TDS-TX03 - Rear Panel Power Connector

4. **STB-04 Vision^2 Set-Top Box** - power off unit by disconnecting power cable from rear of unit (FIG. 100).

FIG. 100 STB-04 - Rear Panel Power Connector

NOTE: *In the event of a planned network or power outage it may not be necessary to power down every Amino throughout the facility, but it is a recommended practice. When network and power are restored, it may be necessary to select a program to be played on each Amino. This can be accomplished by using the hand-held Amino remote, or through the Vision2 UI in the Manage System > Manage STB screen.s*

When all systems are down, you can safely proceed without negatively impacting the operation of the IPTV system. Once complete, the information which follows will provide the recommended startup procedure to return the system to operation.

Startup/Restart

The order of startup is critical to the proper operation of the IPTV system following a network or power outage. Several of the system components provide configuration or status details to each other, and the absence of that information can cause components to malfunction.

A short wait period between powering up each device is recommended to ensure that each has a chance to initialize before the next to provide any needed configuration or status data in the proper sequence.

In addition, if the network has been offline during an outage, the first requirement before bringing the IPTV system back into service is *to ensure the network switches are in operation*.

If the servers or management appliances come online without network present, they may default to local loop-back addressing which would impair or stop necessary services within those devices.

The recommended order for restoration of the system components, and their tasks is:

1. Switch on network switches, routers and any other network infrastructure (e.g. DNS servers).

2. Switch on **TV Headend RF/Cable/Satellite**.

3. **DTV-TX03 Transmitters -** connect the power cord to the transmitters. Verify power and network connectivity by looking at the lights on the network interface at the rear of the unit.

4. **DTV-MA01 TDS Management Appliance** - press the power button on the front face until the power and activity lights illuminate and flash. Verify network connectivity by looking at the indicator lights on network interface at the rear of the unit. **IMPORTANT:***IMPORTANT! - Restarting the DTV-MA01 causes it to beacon out to all attached Transmitters. These units will then respond back to the DTV-MA01 and will re-create the list of units found, refreshing the list of channels and re-sending requests to transmitters to stream the requested channels.*

5. **V2 Master Server** - The master server must be fully started and online. Check that the Vision^2 Server and VLC Server applications are up and running.

6. Check that all client servers are up and running. Check that the Vision^2 Server and VLC Server application are up and running.

7. **STB-04 Vision^2 Set-Top Box** - Connect the power cord to the Set-top box. Verify power and network connectivity by looking at the lights on network interface at the rear of the unit.

   If the "unable to load web page" message appears on screen, place the unit into standby using the amino remote control. Press STB then the power button, wait a few seconds then press the power button again and ensure that the correct web page is loaded.

Troubleshooting

In the case that this procedure is followed, but does not return the system to functionality, there are several steps which may be performed to verify which portion(s) of the system is not operating properly. For purposes of this document, these steps are bulleted, with more detailed information referenced.

No TV signal on screen

- Verify that the display is connected to power and to the STB-04.
- Verify that the display is powered on.
- Verify that the STB-04 is connected to power, network, and to the video display.
- Verify that the STB-04 is powered on by checking the red LED on the front of the STB-04
- Verify that the STB-04 has network connectivity by checking connectivity and activity lights on the rear of the unit.
- Verify that the correct video display input is selected (check video connection from STB-04).
- Verify that the STB-04 has a proper IP address and that the default browser page is configured.

No TV signal from Transmitter

- Verify that network switch is operational, and that connectivity/activity lights are illuminated and flashing.
- Verify that CATV connection/service is functioning, and that transmitters have power, coaxial (RF), and network connections.
- Verify that transmitters are powered on, or that power source (strip/UPS, etc) is working.
- Verify that transmitters have active network connections with network activity lights on the NIC illuminated and flashing.
- Verify that the transmitter is configured and has a saved channel list (refer to the *AMX TDS Television Distribution System Operation/Reference Guide* for details on transmitter configuration).

Beyond these simple checks, the configuration of the V2 TDS gateway and the DTV-MA01 may need to be verified. For additional details, consult the Operation Reference guides for these products, available at www.amx.com, or contact AMX Technical Support.

Appendix B - Backup and Upgrade process

Upgrading the Vision^2 Software

Periodic upgrades will occasionally be available for the Vision^2 interface. Upgrades are available by contacting AMX Tech Support at 800-932-6993.

NOTE: *Before upgrading, it is recommended that you make a copy of the server for backup purposes.*

Backup Procedure

1. Backup all NAS folders containing Archive content.
2. Carry out the following on **each** Vision2 server:
   a. Backup folders H:\vcContent, C:\inetpub\wwwroot, C:\ProgramData\AMX\Licensing.
   b. Backup the three Vision2 databases:
   - BandwidthDatabase
   - EventStore-V2
   - ReadModel-V2

Database Backup Procedure

The database backup procedure is as follows:

1. Launch pgAdmin III. The username is postgres and the default password is Vision2.
2. In Object browser expand the Server Groups tree to find Databases.
3. Expand Databases and select each of three databases listed above in turn.
4. Right click and select backup.
5. Click the**...** button on the same line as filename to select a folder for backups. Name the backup files with the name of the database and date of backup.
6. Select Format Tar.
7. Set Encoding to UTF-8.
8. Set Rolename to postgres.
9. Click **Backup.**
10. Repeat steps 3-9 for each of the three databases.

Restore Procedure

Restore backed up NAS folders.

Restore the backed-up folders H:\vcContent, C:\inetpub\wwwroot and C:\ProgramData\AMX\LicensingOn each Vision2 server, then restore the three databases as follows:

1. Launch pgAdmin III, the username is postgres and the default password is Vision2.
2. In Object browser expand the Server Groups tree to find Databases.
3. Expand Databases and select each of three databases listed above in turn.
4. Right click and select restore.
5. Click the**...** button on the same line as filename to select the folder containing backups. Select Format Tar.
6. Set Rolename to postgres.
7. Click **Restore.**
8. Repeat steps 3-7 for each of the three databases.

Appendix C- Troubleshooting

Time Zone Issue

Postgres datestyle MUST be configured to the same datetime zone on all Vision2 servers.

1. Open C:\Program Files (x86)\PostgreSQL\9.2\data\postgresql.conf file on each server and look for "datestyle" attribute.

2. Set it as datestyle = 'iso, mdy' for US date format, or datestyle = 'iso, dmy' for European date format.

3000 RESEARCH DRIVE, RICHARDSON, TX 75082
AMX.com | 800.222.0193 | 469.624.8000 | +1.469.624.7400 | fax 469.624.7153

Last Revised:
7/23/2015