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Chapter 1: Planning Your Installation

Introduction

Welcome to Adobe TV Enterprise Solution (ATVES) content management system for enterprise videos. This guide provides information on planning an ATVES installation, performing the installation, and configuring ATVES.

With ATVES you can create, deliver, and play streaming media files for corporate communications and training. ATVES application components include Day CQ5 servers for content management and hosting the application, Linux-based Transcoding servers, and Linux-based Flash Media /HTTP streaming servers with Adobe™ Flash Player™ 11. Together, these components provide an end-to-end solution for streaming multimedia, from content authoring to delivery to playback.

This document will help you build an infrastructure to use ATVES. It is intended for IT professionals who want to implement ATVES as an easy-to-use and powerful streaming media platform.

This document assumes a datacenter deployment with three clusters:

- ATVES application/Day CQ5 cluster (one ATVES application/ Day CQ5 server, plus one for active-active resiliency)
- FMS/HTTP streaming server cluster (one FMS, plus one for active-active resiliency)
- Transcoding server cluster (one Transcoding server, plus one for active-active resiliency)

Requirements

This section describes hardware recommendations, server requirements, and client system and browser requirements.

Hardware requirements

ATVES hardware requirements are described in the following table.

Component	Requirement
Server processor	Dual Xeon 6-core processors
Memory	64 to 96 GB RAM
Network interface cards (NICs)	Four NICs minimum for each ATVES application and Transcoding web server. FMS streaming servers need either eight NICs or one 10 Gbps NIC.
Storage	One terabyte serial attached SCSI (SAS) or fast network attached storage (NAS)
Operating system	Red Hat Enterprise Linux [64-bit - Linux (2.6.18 + kernel) compatible with Java 1.6]
Server plus-one resiliency	<ul style="list-style-type: none"> • ATVES application/Day CQ5 cluster: Two servers with capacity of several thousand concurrent users • FMS / HTTP streaming cluster: Two servers with capacity of more than 8,000 concurrent streams • Transcoding cluster: Two servers with capacity of more than 240 minutes of storage or 100 new videos

Server requirements

- All servers require network file system (NFS) access.
- ATVES application server to Transcoding load balancer – use port 80.
- ATVES application server to Transcoding servers – use port 8080.
- ATVES application Transcoding load balancer to Transcoding server – use port 8080.

Client system and browser requirements

ATVES end user clients run on the following operating systems and browsers:

Operating System	Browser					
	IE7 +	IE8 +	IE9 +	Firefox 3.5 +	Chrome 4 +	Safari 5 +
Desktop						
Mac OS X 10.6 +	No	No	No	Yes	No	Yes
Windows XP + (SP3)	Yes	Yes	No	Yes	Yes	No
Windows 7	N/A	Yes	No	Yes	Yes	No
Mobile and Tablets						
iOS 3 +	No	No	No	No	No	Yes
Android 1.6 +	No	No	No	No	Yes	No

Network considerations

This section describes video on demand (VOD) delivery compared to live deliver, and multicasting installation planning considerations.

Video on demand (VOD) or live webcasts

Video on demand (VOD) requires a video file to be encoded via a Transcoding server. You need storage space for the videos and you need to choose an encoding preset.

Live webcasts do not involve encoding. They are streamed live over the Internet when you press **Start Streaming**. Live webcasts require a multicast configuration.

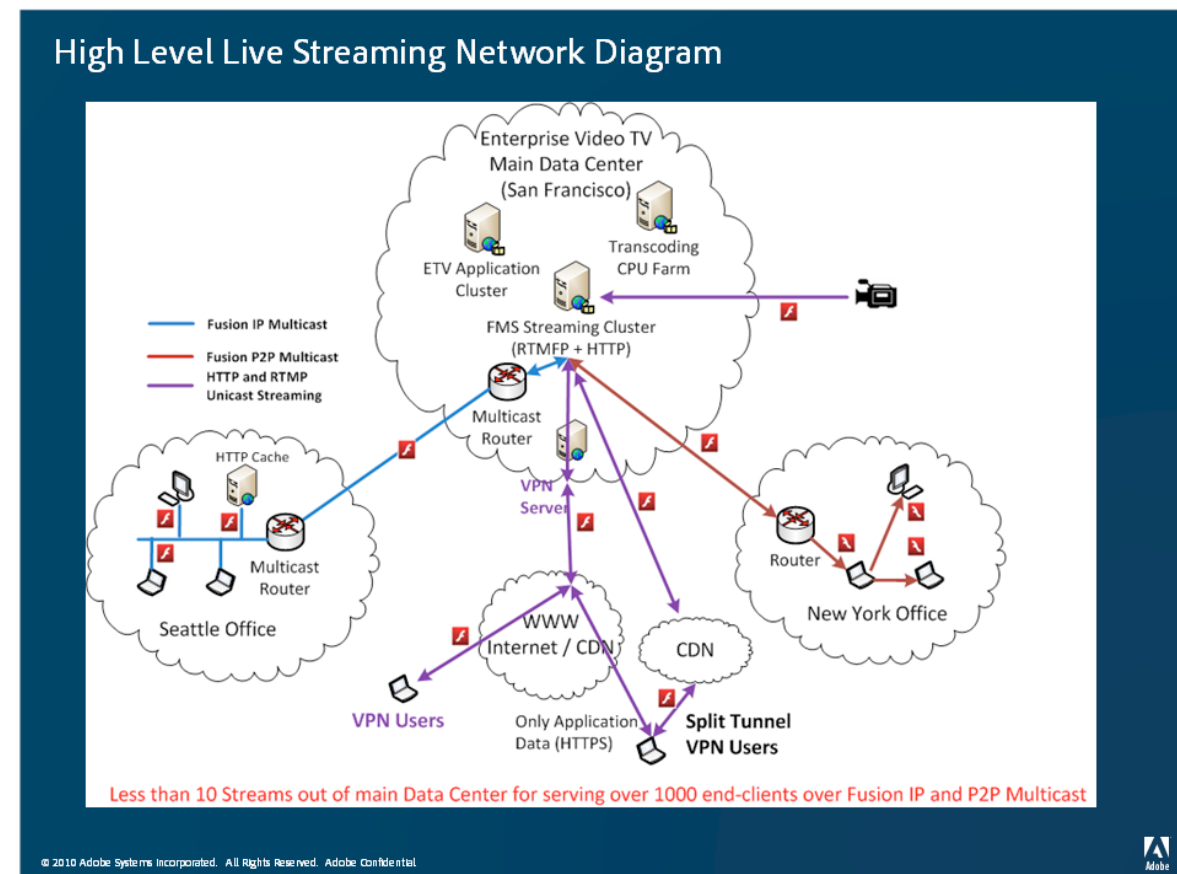
VOD and live webcast configuration elements and data you need

Configuration Element	Data You Need
VOD	Channels to organize the videos Whether to allow webcam recordings to be uploaded Encoding preset; you choose one of the default encoding presets or create your own preset Transcoding server URL

Configuration Element	Data You Need
Live webcasts	<p>Channels to organize the webcasts</p> <p>Whether to allow webcasts to be recorded</p> <p>Multicast configuration XML file including:</p> <ul style="list-style-type: none"> • A range of IP multicast addresses specified by starting and ending addresses, and / or a single address • An IP address for the rendezvous server • An IP address for the FMS publisher server

Multicasting with ATVES

Three types of multicast delivery are available: application-level IP multicast, peer-to-peer (P2P) multicast, and multicast fusion.



ATVES Live Streaming Network

IP multicast

The IP multicast client-server delivery model constructs a delivery tree that includes all users in a LAN or WAN. One media stream is replicated down the tree, delivering to all participating users. This model provides great bandwidth savings when delivering to large numbers of clients.

IP multicast enables businesses to use existing multicast-enabled networks to deliver large internal broadcasts without overwhelming the network. This approach is best for internal, enterprise, VPN, or LAN networks.

Peer-to-peer (P2P) multicast

Application-level multicast, also referred to as P2P multicast, uses a completely different paradigm; it is not client-server.

P2P multicast provides an optimized stream distribution among peers. This approach can be very cost-effective because the stream payload is distributed among the peers rather than taxing your servers and network. The original stream can be distributed either from a client or from Flash Media Server. Application-level multicast can help reduce bandwidth costs for product marketing, user-generated content, or internal broadcasts. It is supported in Flash Media Interactive Server and Flash Media Enterprise Server.

P2P delivery is most useful in the following situations:

- IP multicast is not available
- Unicast-switching bandwidth is abundant and is available at much higher capacity than IP multicast bandwidth

Multicast fusion

Multicast fusion is an innovative combination of native IP multicast and application-level (P2P) multicast. Available in Flash Media Enterprise Server (FMES), multicast fusion allows clients that are connected to a multicast-enabled network to receive live video via IP multicast and use those clients to distribute to clients not connected to the multicast-enabled network. This approach is best for large organizations broadcasting both internally and externally.

Multicast fusion allows the same video and audio streams to be delivered across P2P as well as IP multicast networks seamlessly.

Multicast configuration elements and data you need

Configuration Element	Data You Need
IP multicast	Multicast IP addresses for webcasts The client IP address ranges allowed to access the IP multicast stream The rendezvous server IP address The publisher server IP address
P2P multicast	The client IP address ranges allowed to use P2P streaming
Multicast fusion	Both IP multicast and P2P multicast must be configured for multicast fusion

Media considerations

This section describes requirements for protocols and ports, and considerations for device and encoding presets.

Protocols and port requirements

The following table describes the protocols and ports for ATVES.

Type	Source	Destination	Protocol/Port	Notes
End user	LAN, WLAN, VPN	ATVES application	HTTPS / 443	
		Streaming servers	RTMFP / 1935	
			RTMPE / 1935	
IP Multicast/ P2P	Clients	RTMFP / 1935 over UDP	HTTP / 80	Clients would communicate internally on HI_END ports
Management ports (could be separate VLAN)	LAN	ATVES application	HTTP / 4502	
		Transcoding cluster	HTTP / 80	Use port 9998 for single-box setup
Console access	LAN	All servers	SSH over TCP / 22	Mostly for hardware maintenance

Note: Network administrators should provision ports 80, 8080, and 1935 for access to the ATVES servers.

Protocols and port configuration elements and data you need

Configuration Element	Data You Need
Video upload path	URL, if you don't want to use the default /opt/adobe/etv/transcoder/vod
Transcoding server	DNS address and port number
ATVES Day CQ5 server	Delivery protocol, DNS address, and port number
Adobe Premier Express	URL including port number

Device preset settings

Device presets control the encoding settings of webcasts. The settings defined in the presets are used while streaming webcasts.

Adobe provides five tested and optimized default device preset configurations that apply in most cases. New presets can be created, but only an administrator with thorough knowledge of device presets should do so.

Encoding preset settings

Encoding presets control the encoding settings of webcast and webcam-recorded events. The default preset configurations range from low bandwidth to high bandwidth to support increasing levels of bandwidth.

Adobe provides four tested and optimized default encoding preset configurations that apply in most cases. New presets can be created, but only an administrator with thorough knowledge of encoding presets should do so.

Permissions considerations

ATVES provides several ways to control who can do or view what. This section describes how you can control ATVES permissions with user roles, with viewers and moderators, and with channels and categories.

Authentication and authorization: User roles

Authentication is the means by which you validate a user. *Authorization* is the means by which you configure user privileges.

ATVES uses your LDAP database for authentication. Synchronization automatically happens on an individual basis. You can manually synchronize using Adobe's open, standards-based Enterprise Content Management (ECM) platform, CRX. How to do this is described in ["Installing ATVES and components"](#) on page 10. You can also create users and groups (you add existing users to groups) using the ATVES web interface.

ATVES provides several user roles for authorization as shown in the following table.

Role	Description
Restricted	Has read-only access to the system. Can view episodes and webcast, but cannot create them. Cannot approve episodes even if added to a moderator group.
Standard	Can do everything that a restricted user can do, plus publish episodes, moderate channels, and add comments and ratings. Can create channels if a global setting does not prohibit it. Cannot add channels to the Home or Channels pages, or access administrative pages except Channels (if allowed).
Application Admin	Can do everything that a Standard user can do, plus access administrative options, create channels and categories, assign channels to categories, assign and manage channel moderators, and add channels to the Featured Episodes, Featured Channels, and Highlights areas on the Home page.
System Admin	Can do everything that an Application Admin can do, plus create or delete users and groups, assign users to groups, view reports, and set system configuration settings such as multicast IP addresses, transcoding settings, device presets, and others.

User configuration elements and data you need

Configuration Element	Data You Need
Users and user permissions	How many users of each role (System Admin, Application Admin, Standard, and Restricted) you want to create
	Whether to allow Standard users to create channels
	A label for the user Personal ATVES page; the default is My ETV
	Whether to allow users to download episodes from ATVES
	Whether to allow webcam recordings to be uploaded, encoded, and published to ATVES
	Whether to allow users to embed code from other websites into ATVES
	An email address to receive user feedback
	Text for the email body when users share an episode via email
	A token duration limiting how long a user's login is valid when they are viewing content embedded to ATVES
	To synchronize your LDAP database and ATVES, you need a comma-separated value (CSV) file with LDAP information on the users

Groups: Publishers, viewers and moderators

ATVES allows you to configure groups of users, and give those groups permissions or restrictions to a particular channel during channel creation.

You can synchronize your existing LDAP users and groups with ATVES, or create users and groups (you add existing users to groups) using ATVES.

The channel creation options allow you to set group permissions as shown in the following table.

Channel creation option	Creates group type	Description
Allow group publishing	Publisher	Allows only the selected groups to publish to the channel
Make private	Viewer	Allows only the selected groups to view episodes in the channel
Require approval	Moderator	Allows only the selected groups to approve episodes published to the channel

Besides configuring groups as publishers, viewers, and moderators for channels, you can also configure a group to moderate a viewer group. When you do this, all episodes in channels that the viewer group is permitted to view, are subject to approval by its moderator group and, by default, a moderator must approve each episode. So, groups can be configured to moderate channels and viewer groups.

Group configuration elements and data you need

Configuration Element	Data You Need
Publisher group for a channel	A group of users allowed to publish episodes to a specified channel or channels
Viewer group for a channel	A group of users allowed to view episodes published to a specified channel or channels
Moderator group for a channel	A group of users required to approve episodes for publishing to a specified channel or channels
Moderator group for a viewer group	A group of users required to approve episodes for publishing to a specified viewer group's permitted channel(s)
Group filter	A regular expression to filter which groups display in the ATVES configuration menus

Organizations: Channels and categories

ATVES provides two organizational levels, channels and categories, for controlling who can view and manage episodes. Channels organize episodes and categories organize channels.

About channels

Channels are what you use to organize your episodes and set access permissions. The channel settings determine whether an episode is immediately available for public viewing or whether a moderator must first approve it. Channels also determine who can view or listen to (in the case of audio-only) an episode.

When you create a channel, you control that channel and by default are the only one who can publish to it. You can allow group publishing to your channel and you can assign moderators who can approve episodes to be published to your channel.

In group publishing, only the creator of the channel (and any moderators of the channel) can edit or delete the channel. Members of permitted publishing groups can publish episodes to the channel, but cannot delete the channel. Additionally, only the publisher of an episode (and any moderators of the channel to which that episode is published) can edit or delete that episode.

You can also require approval of episodes published to the channel, and choose at least one group as moderator. Moderators use the Pending tab on their Personal ETV page to approve an episode. When specifying moderator groups, you can select the **Auto-Approve Episodes** option so the moderators do not need to explicitly approve episodes; they can still edit and delete episodes in the channel. Moderator groups have permissions to delete any channel, and all episodes in it, which they moderate.

Who can create and manage channels?

The following table describes channel permissions per user type.

User type	Channel permissions
Restricted	Cannot create or delete channels.
Standard	Can create channels, unless the System Admin has set a global option prohibiting Standard users from creating channels. Can be added to moderator groups for channels or viewer groups. Can delete channels they create or moderate as part of a moderator group.
Application Admin	Can create channels. Can delete channels to which they have viewing rights. Can delete channels they create or moderate as part of a moderator group. Can be added to moderator groups for channels or viewer groups. Can assign moderator groups to channels and viewer groups.
System Admin	Can create channels. Can delete channels. Can be added to moderator groups for channels or viewer groups. Can moderate channels as part of a moderator group. Can assign moderator groups to channels and viewer groups. Can set a global option prohibiting Standard users from creating channels.

About smart channels

Smart channels are channels that automatically add episodes that are tagged with specific keywords, even if the episodes are also explicitly added to a different channel. When you create a smart channel, you specify a list of keywords. Any episodes published to ATVES that are tagged with any of the smart channel keywords, are automatically added to that smart channel.

About categories

You organize channels by adding them to categories. You also have the option of creating a stand-alone channel not assigned to any category. Categories determine where an episode appears in ATVES. Only System Admins and Application Admins can create new categories. All new categories are created as a child of one of the default categories.

A category can have multiple channels, and one channel can be part of multiple categories. An example of a category is **HR Communications** with channels such as **Employee training**, **HR initiatives**, **All hands meetings**, and so forth.

There are four default categories; episodes published or uploaded display as shown in the following table:

Category	Displays episodes where
Channels	Channels page
Featured Episodes	Home page under the Featured Episodes area
Highlights	Top of the Home page
Featured Channels	Home page under the Featured Channels area

Channels and categories configuration elements and data you need

Configuration Element	Data You Need
Channels	<p>How many channels for each category (Channels, Featured Episodes, Highlights, and Featured Channels) you want to create</p> <p>For each channel you need to decide:</p> <ul style="list-style-type: none">• Whether viewing episodes in it are restricted to certain groups• Whether publishing episodes to it is restricted to certain groups• Whether episodes in it require approval from certain groups before being published• Whether embedding video code into ATVES is allowed (may be unavailable or subject to a white or black list depending on global settings)• Whether downloading episodes from ATVES is allowed (may be unavailable depending on global settings)• Whether webcast recording is allowed (may be unavailable depending on global settings)• A thumbnail image (displays on the Channels page), if you don't want to use the default channel image
Smart channels	<p>For each smart channel, you need a list of keywords to trigger the automatic adding of episodes also tagged with those keywords</p>
Categories	<p>How many categories you want in addition to the four default categories (Channels, Featured Episodes, Highlights, and Featured Channels) and a parent category for each</p>

Chapter 2: Installing ATVES and components

Prepare your system for installation

The installation of Adobe™ TV Enterprise Solution (ATVES) includes installing and configuring a Transcoding server, Adobe's CRX content management platform, and Flash Media Server™. To prepare, you must ensure that your system is ready for these components to be installed.

If your system has had an ATVES installation, you need to remove the ATVES components. For details on doing this, see [“Removing a previous ATVES installation”](#) on page 14.

Note: Perform the procedures in this chapter at the command line using your target machine's console.

Basic preparations

Before installing ATVES:

- Ensure network connectivity and available storage capacity.
- Verify system requirements; for details, see [“Requirements”](#) on page 1 in Chapter 1.
- To synchronize your LDAP database with ATVES, prepare a comma-separated values (CSV) file of LDAP information for users. An example is given in [“Synchronize LDAP users with CRX”](#) on page 12.
- Provision an IP multicast address.

Note: If you are installing ATVES on a system that had a previous version of ATVES installed, you must clean that system before installing the new version. For details, see [“Removing a previous ATVES installation”](#) on page 14.

Install ATVES

To install ATVES, obtain the tar file and run the installer.

Obtain the tar file

Contact Adobe Support to obtain the tar file:

800-833-6687

You can download the tar file to any directory; unpacking the tar file creates the necessary directories (/opt/adobe/etv) for the product.

Run the installer

After you have downloaded the tar file to the target machine, connect to the machine's console, unpack the tar file and run the installer:

- 1 Expand the tar file:

```
tar xvf etv.<build>.tar.gz
```

- 2 Navigate to the folder created:

```
cd /opt/adobe/etv
```

- 3 Run the installer:

```
./installETV
```

- 4 After some messages, you are prompted:

To install Adobe Enterprise TV now at Path /opt/adobe/etv , press ENTER.

Press **Enter** to continue with the installation.

- 5 You are prompted to enter the hostname (FQDN) or IP address of the server hosting the installation, the prompt presents the current IP address as the default. Press **Enter** to accept the default, or enter a different IP address and press **Enter**.

A message confirms your entry.

The installation script takes a few minutes to run; typically no more than five. Many system messages scroll by during the installation.

Example:

```
[root@etv102 etv.1.1.0.72]# ls
deploy FMS_4_5_1_r466 installETV jre packages startETV stopETV tools
[root@etv102 etv.1.1.0.72]# ./installETV
Copyright (C) 1993-2011 Adobe Systems Incorporated. All rights reserved.
Adobe Enterprise TV 1.1.0.r72 for RHEL 5.5 / CentOS 5.5
Adobe Enterprise TV 1.1.0.r72 will be installed on this machine.
To install Adobe Enterprise TV now at Path /opt/adobe/etv , press ENTER.
To cancel the installation at any time, press Control-C.

Please Enter Hostname (FQDN) or IP_Address of the server hosting the installation
Default [current_IP_address]
<leave_empty_or_type_IP_address>.Press Enter.
...
...
...
A /etc/tags/etv/categorytags
A /etc/tags/etv/categorytags/home
A /etc/tags/etv/categorytags/channels
A /etc/tags/etv/categorytags/featured
A /etc/tags/etv/categorytags/highlight
A /etc/tags/etv/categorytags/spotlight
saving approx 80 nodes...
Package imported.
Package installed in 49745ms.
</log> </data>
<status code="200">ok</status>
</response> </crx> [INFO]
Portal Packages deployed successfully [INFO]
[root@etv102 etv.1.1.0.1537]#
```

Configure connectivity settings

Most system configurations can be done through the ATVES web interface. These must be done at the command line interface (CLI), and the CRX web interface, at the time of installation. Additionally, before you begin making other system configurations, there are a few that should be done at the time of installation, which are covered in this section.

Modify the CRX feature packs

Ensure that the CRX content application platform is up-to-date:

- 1 In a console window, go to `<your_ATVES_install_dir>`; for example, `/opt/adobe/etv`
- 2 Stop the ATVES process:

```
./stopETV
```

- 3 Open the CRX Package Manager in your browser at `http://<your_ATVES_server>/crx/packmgr/index.jsp`
- 4 Log in as user `admin` with password `admin`. You must be logged in as this user to make the configurations.
- 5 Select the latest CRX hotfixpack (HFP) UI package and click **Install**.

An Install Package dialog box appears.

- 6 Click **Advanced Settings** in the dialog box and do the following:
 - Set the **Save Threshold** option to **1024**.
 - Select the **Extract Sub-packages** option.
 - Set **Access Control Handling** to **Overwrite**.

- 7 Click **Install**.

Installation progress displays, ending with a message similar to this:

```
Package imported.
```

```
Package installed in 6457ms.
```

- 8 In the console window for your ATVES machine, in the installation directory, restart the ATVES process:

```
./startETV
```

Synchronize LDAP users with CRX

When a user who is not yet registered in CRX attempts to log in, CRX authenticates them against LDAP and, if authentication is successful, that user is synchronized with CRX.

Full synchronization is possible, but can cause performance issues, even leading to the unavailability of the systems. Therefore, CRX provides a manually-activated method to synchronize accounts on the directory server. This allows you to force synchronization of LDAP users so that rights can be assigned within CRX before the user first tries to log in.

***Note:** User passwords are never stored in the ATVES repository. Authentication is delegated to LDAP. The LDAP login module maintains a cache of successfully authenticated credentials. Cache expiration can be configured. The `rep:ntlmhash` property is required only for supporting the CIFS protocol. Clients send the NTLM-hashed credentials to the server, so they must be in the repository.*

To use this procedure, you must have either information on a single user, or a comma-separated values (CSV) file of user information. An example of the contents of such a file is:

```
uid=alonknio,ou=People,0=adobe.com  
uid=aremicg,ou=People,0=adobe.com  
uid=asgilgen,ou=People,0=adobe.com
```

To manually synchronize users:

- 1 Open the CRX Main Console in a browser by going to `http://<your_ATVES_server>/crx/index.jsp`
The CRX main console page opens with several application links.
- 2 Log in as **admin**. If you are already logged in as a System Admin user, log out and log back in as **admin**.
- 3 Click the **Repository Configuration** link.
The Repository Configuration page opens.
- 4 Click the **LDAP User Synchronization** link.
The LDAP User Synchronization page opens.
- 5 Specify either:
 - The LDAP distinguished name attribute (DN) of one user to be synchronized
 - A CSV text file (example given above) listing the LDAP users to be synchronized
- 6 Click **Synchronize!**
A page displays the synchronization as it happens.

Create a superadmin account

The default ATVES user, **admin**, is not a full-privilege user.

To create a superadmin account:

- 1 Open ATVES in a browser by going to `http://<your_ATVES_server>`
- 2 Log in as user **admin** with password **admin**.
The ATVES Home page opens.
- 3 Click the Open arrow next to the Welcome admin message in the top right and select **Admin panel**.
A panel of administrative tabs appears.
- 4 Click **Users and Groups**.
The Users and Groups page opens.
- 5 Create a user with the **System Admin** role.
The user you create has full system privileges.

Configure Transcoding and VOD settings

While logged in to ATVES as a System Admin user, ensure that the Transcoding and VOD server settings are correct:

- 1 Go to Admin panel > System Configurations.
The System Configurations page opens.

- 2 Under Set VOD Configuration, configure the following:
 - **Transcoding server**: Set to your ATVES server IP address.
 - **Vod server path**: Set to your ATVES server IP address, port 8080.
 - **External URL**: Set to your ATVES server IP address. Playback will work for users accessing through this URL only.Click **Set Vod Configurations**.
- 3 Under Webcast Configuration, set **Express Application Url** to your ATVES server IP address, port 1935.
Click **Set Webcast Configurations**.

Configure multicast settings

Multicast settings allow ATVES to reach your users.

While logged in as a System Admin user, upload multicast settings:

- 1 Copy the example multicast settings file given below and change the items in **bold** to your settings. Save the file with the **xml** extension.
- 2 Go to Admin panel > System Configurations.
The System Configurations page opens.
- 3 Under Set Multicast Configuration, click **Browse**, locate the multicast settings file you created, and click **Upload**.
A confirmation message appears.

Example multicast settings file using IP multicast addresses from 224.0.0.252 to 224.0.0.254 and local LAN IP addresses 192.0.0.1 to 192.0.0.255:

```
<?xml version='1.0' encoding='UTF-8'?>
<multicast-configuration>
  <multicast-address-list>
    <address start="224.0.0.252" end="224.0.0.254"/>
  </multicast-address-list>
<net-group-configuration-list allowOutOfRangeAccess="true">
  <net-group-configuration>
    <ip-range-list>
      <address start="192.0.0.1" end="192.0.0.255" note="SF LAN Users"/>
    </ip-range-list>
  </net-group-configuration>
</net-group-configuration-list>
<rendezvous-server-list>
  <server address="rtmfp://Server-IP/multicast" note="Server Description" primary="true"/>
</rendezvous-server-list>
<publisher-server-list>
  <server address="rtmp://Server-IP/multicast" note="Server Description" primary="true"/>
</publisher-server-list>
</multicast-configuration>
```

Removing a previous ATVES installation

To re-install ATVES, you must first clear your system of any ATVES java processes, uninstall FMS, remove existing ATVES directories, and free-up ATVES TCP ports.

Note: You perform the procedures in this section at the command line via your target machine's console.

Purge existing Transcoding server/CQ java processes

Stop existing Transcoding server/CQ java instances:

- 1 Check for all running instances of Java with this command:

```
java -eaf | grep java
```

- 2 For all running instances of Java PIDs (process IDs), except for the grep PID, run this command:

```
kill -9 <instance>
```

Uninstall any existing Flash Media server

Uninstall any existing Flash Media Server (FMS) installation:

- 1 Go to the ATVES fms directory:

```
cd /opt/adobe/etv/fms
```

- 2 If FMS is installed, uninstall it:

```
./uninstallFMS
```

Several uninstalling Adobe Flash Media Server messages display.

- 3 You are prompted to verify the uninstallation:

```
All files, including config files, will be deleted!
```

```
Proceed with the uninstallation? (y/n):
```

Enter **y**(for yes).

- 4 FMS is successfully uninstalled when you see this message:

```
The Adobe Flash Media Server uninstallation is complete.
```

Example:

```
[root@etv102 etv.1.1.0.72]# cd /opt/adobe/etv/fms
[root@etv102 fms]# ls
adminserver  fmsadmin      fmsmgr          libfmsccme.so  logs          samples  tmpApache2.2
fmscore     libadbe_dme.so  libssl.so.1.0.0  modules        scriptlib     tools    applications  fmsedge
libadbe_flv.so  License.htm    phds            server         uninstallFMS  conf     fmsmaster
libasneu.so.1  licenses      phls            shmr           webroot      documentation  fmsmaster.pid
libcrypto.so.1.0.0  License.txt  readme.htm     tcSrvMsg

[root@sj2slu102 fms]# ./uninstallFMS
Uninstalling Adobe Flash Media Server...
Installation directory to remove: /opt/adobe/etv/fms
Server-side source files to remove: /opt/adobe/etv/fms
All files, including config files, will be deleted!
Proceed with the uninstallation? (y/n): y
Server:fms command:stopNPTL 2.5
Stopping Adobe Flash Media Server (please check /var/log/messages)
Server has shutdown...
Admin server:fmsadmin command:stop Stopping
Adobe Flash Media Admin Server (please check /var/log/messages)
fmsadmin:
no process killed Admin Server has shutdown...Removing "fms" service.
The Adobe Flash Media Server uninstallation is complete.
[root@etv102 fms]#
```


Remove ATVES directories

Remove any existing ATVES directories.

To remove existing ATVES directories and create a new **etv** directory, enter these commands individually or create a script like the example below and run it.

Example script to remove ATVES directories:

```
sudo su
rm -rf etv
cd /opt/adobe
mkdir etv
rm /usr/local/lib/liba52*
rm /usr/local/lib/liba52*
rm /usr/local/lib/libavcodec*
rm /usr/local/lib/libavdevice*
rm /usr/local/lib/libavfilter*
rm /usr/local/lib/libavformat*
rm /usr/local/lib/libavutil*
rm /usr/local/lib/libfaac*
rm /usr/local/lib/libfaad*
rm /usr/local/lib/libmp3lame*
rm /usr/local/lib/libpostproc.a
rm /usr/local/lib/libswscale.a
rm /usr/local/lib/libxvidcore*
rm /usr/local/lib/libyasm.a
rm /usr/local/lib/libyasm.a
rm /usr/local/bin/a52dec
rm /usr/local/bin/extract_a52
rm /usr/local/bin/f4vpp
rm /usr/local/bin/faac
rm /usr/local/bin/faad
rm /usr/local/bin/ffmpeg
rm /usr/local/bin/ffprobe
rm /usr/local/bin/lame
rm /usr/local/bin/uninstall
rm /usr/local/bin/yasm
rm -rf /usr/local/share/ffmpeg
```

Check TCP ports for ATVES

Check that ports 80, 8080, 1935, and 9998 are free and not bound.

1 Run this command to see whether any of the ports are bound:

```
fuser -n tcp <port>
```

2 Note where a process identifier (PID) is bound to a port and stop that process with this command:

```
kill -9 <PID>
```

3 Repeat the previous two steps until ports 80, 8080, 1935, and 9998 are free and not bound

Example where port 8080 is bound to PID 16378:

```
fuser -n tcp 8080
```

```
8080/tcp: 16378
```

```
kill -9 16378
```

Chapter 3: Configuring the system

Before you begin

When configuring Adobe™ TV Enterprise Solution (ATVES), you must first make decisions on, and gather data on, the following:

Configuration Element	Data You Need
Channels	<p>How many channels for each category (Channels, Featured Episodes, Highlights, and Featured Channels) do you want to create?</p> <p>For each channel you need to decide:</p> <ul style="list-style-type: none"> • Whether viewing episodes in it are restricted to certain groups • Whether publishing episodes to it is restricted to certain groups • Whether episodes in it require approval from certain groups before being published • Whether embedding video code into ATVES is allowed (may be unavailable or subject to a white or black list depending on global settings) • Whether downloading episodes from ATVES is allowed (may be unavailable depending on global settings) • Whether webcast recording is allowed (may be unavailable depending on global settings) • A thumbnail image (displays on the Channels page), if you don't want to use the default channel image
Smart channels	For each smart channel, you need a list of keywords to trigger an automatic adding of episodes also tagged with those keywords
Categories	How many categories do you want in addition to the four default categories (Channels, Featured Episodes, Highlights, and Featured Channels) and a parent category for each
Users	<p>How many users of each role (System Admin, Application Admin, Standard, and Restricted) you want to create</p> <p>Whether Standard users are allowed to create channels?</p> <p>To synchronize your LDAP database and ATVES, you need a comma-separated value (CSV) file with LDAP information on the users. An example file is provided.</p>
Groups	<p>Groups of users allowed to view only specified channels (viewer groups)</p> <p>Groups of users allowed to publish to only specified channels (publisher groups)</p> <p>Groups of users to approve episodes for specified channels or for specified viewer groups (moderator groups)</p>
System (global):	
Video upload path	URL, if you don't want to use the default /opt/adobe/etv/transcoder/vod
Transcoding server	DNS address and port number
ATVES CQ server	Delivery protocol, DNS address, and port number
Adobe Premier Express	URL including port number
Episode downloading	Whether to allow system-wide or per-channel

Configuration Element	Data You Need
Webcam recording	Whether to allow webcam recordings to be uploaded
User feedback	Email address
LDAP group filter	REGEX of the groups you want in the ATVES menus
Sharing videos via email	Text for the message body; for example "I want to share this video with you"
Embedded players	Token duration value; how long a user's login lasts for embedded content
Multicast settings	An XML file; you can download the default file on the System Configuration page
Webcast creation	Whether to give users with the Standard role permission to create webcasts
Webcast recording	Whether to allow system-wide or per-channel
Embedding code	Whether to allow system-wide or per-channel
Embedding code white or black lists	A white list of sites from which embedding code is permitted or prohibited, respectively
ATVES Personal page	A label; the default is My ETV

Channel configurations

Channels are what you use to organize your episodes and set access permissions. The channel settings determine whether an episode is immediately available for public viewing or whether a moderator must first approve it. Channels also determine who can view or listen to (in the case of audio-only) an episode.

Configure channels on the Admin panel > Channels page.

Creating a channel

To create a channel:

- 1 Go to Admin panel > Channels.

The Channels page opens.

- 2 Under Create Channel, enter a **Channel Name** and select a category from the **Add to Category** menu to create a channel with minimum options. For information on optional channel configurations, see "[Optional configurations when creating a channel](#)" on page 18. Standard users are restricted to the **None** category.

There are four default categories, see "[About categories](#)" on page 8 for details.

- 3 Click **Create Channel**.

If successful, a *Channel Created (Click Here to View)* message appears at the top of the page.

Optional configurations when creating a channel

A name and category are required for new channel creation. The following configurations are optional:

- **Channel Description:** This description appears on the Channels page for this channel.
- **Channel Thumbnail:** This image appears on the Channels page for this channel.

- **Allow Embedded Content:** Activates this channel's **Embed Code** option, which allows users to upload embedding code from another website.
- **Make Private:** Restricts viewing access to the channel. When selected, a menu of **Permitted Viewers** appears. Select the groups who can view videos in the channel.
- **Allow Group Publishing:** Restricts the groups allowed to publish to the channel. When selected, a menu of **Permitted Publishers** appears. Select the groups who can publish to the channel.
- **Require Approval:** Specifies that a moderator must approve episodes added to the channel before they are publicly available. When selected, a menu of **Permitted Approvers**, and an **Auto-Approve Episodes** option, appear. Select groups to serve as moderators for the channel. Select **Auto-Approve Episodes** if you want moderators to not have to explicitly approve new episodes, but still be able to flag, unpublish, delete or edit them.
- **Allow Download:** Activates downloading options. When selected, a **Download Option** menu appears with two options; choose either:
 - **All episodes are allowed to be downloaded:** Activates the **Download** option on the Episode page, when this channel is selected. Episodes published to this channel can always be downloaded.
 - **Allow the users to choose:** Activates the **Enable Download** option on the Upload and Webcast pages, when this channel is selected. If a user wants the episode to be downloadable, they must explicitly select **Enable Download**.
- **Allow Webcast Recording:** Activates recording options. This option is inactive if webcast recording is enabled for all at the system level. When selected, three options appear; choose either:
 - **All Webcast to be Recorded:** Deactivates the **Record Event** option on the Schedule Webcast page, when this channel is selected. Webcasts scheduled on this channel are always recordable.
 - **No Webcast to be Recorded:** Deactivates the **Record Event** option on the Schedule Webcast page, when this channel is selected. Webcasts scheduled on this channel cannot be recorded.
 - **Allow the users to choose:** Activates the **Record Event** option on the Schedule Webcast page, when this channel is selected. If a user wants the webcast to be recorded, they must explicitly select **Record Event**.

Creating a smart channel

Smart channels are channels that automatically add episodes that are tagged with specific keywords, even if the episodes are also explicitly added to a different channel. When you create a smart channel, you specify a list of keywords. Any episodes published to ATVES that are tagged with any of the smart channel keywords, are automatically added to that smart channel.

To create a smart channel:

- 1 Go to Admin panel > Channels.
The Channels page opens.
- 2 Under Create Smart Channel, enter a **Channel Name**.
- 3 Optionally, enter a **Channel Description**.
- 4 Specify a **Channel Thumbnail**. This image appears on the Channels page for this channel.
- 5 Enter one or more **Tags**, separated by spaces. Episodes with matching tags added to any channel are automatically added to the new smart channel.
- 6 Select a category from the **Add to Category** menu. The category you select determines where the smart channel episodes appear, see "[About categories](#)" on page 8 for details.
- 7 Click **Create Smart Channel**.

If successful, a *Smart Channel Created (Click Here to View)* message appears at the top of the page. Episodes published to ATVES that are tagged with any of the keywords you specified, are automatically added to this smart channel.

Getting information about a channel

You can find out who created a channel; its viewers, publishers, moderators, and URL; and the status of other options.

To get information about a channel:

- 1 Go to Admin panel > Channels.
The Channels page opens.
- 2 Under Get Channel Info, select a **Channel** in the menu.
- 3 Click **Get Channel Info**.
The channel settings display.

Updating a channel

You can change the configurations for a channel.

To update a channel's configuration:

- 1 Go to Admin panel > Channels.
The Channels page opens.
- 2 Under Update Channel, select a **Channel** in the menu and click **Update Channel**.
Channel creation options appear.
- 3 Make modifications. See "[Optional configurations when creating a channel](#)" on page 18, above, for details on channel options. When you are done, click **Update Channel** again.
A confirmation message appears at the top of the Update Channel area.

Deleting a channel

When you delete a channel, you also delete all episodes in that channel.

To delete a channel:

- 1 Go to Admin panel > Channels.
The Channels page opens.
- 2 Under Delete Channel, select a **Channel** in the menu.
- 3 Click **Delete Channel**.
A confirmation message appears and the channel, and all episodes associated with it, are deleted.

Category configurations

Categories are the top-level organizational structure and determine where episodes uploaded, or webcasts recorded, appear.

Configure categories on the Admin panel > Categories page.

Creating a category

There are four default categories. If you create a category, you must choose one of these defaults as a parent category. See “[About categories](#)” on page 8 for details.

To create a category:

- 1 Go to Admin panel > Categories.
The Categories page opens.
- 2 Under Create Category, enter a **Category Name** and select a **Parent Category** in the menu.
The parent category determines where episodes in the channel appear.
- 3 Click **Create Category**.
A confirmation message appears at the top of the page.

Deleting a category

Deleting a category removes all channels and episodes in it. You cannot delete the four default categories. If you have only the four default categories, this area does not appear.

To delete a category:

- 1 Go to Admin panel > Categories.
The Categories page opens.
- 2 Under Delete Category, select a **Category** in the menu and click **Delete Category**.
A confirmation dialog box appears.
- 3 Click **Delete Category** again.
A confirmation message appears at the top of the page.

Getting category channels

To get a list of all channels associated with a category:

- 1 Go to Admin panel > Categories.
The Categories page opens.
- 2 Under Get Category Channels, select a **Category** in the menu.
- 3 Click **Get Category Channels**.
A message appears listing all of the channels in that category.

Adding a channel to a category

To add a channel to an existing category:

- 1 Go to Admin panel > Categories.
The Categories page opens.
- 2 Under Add Channel to Category, select a **Channel** and a **Category** in the menus.

3 Click Add Channel to Category.

A confirmation message appears at the top of the page.

Removing a channel from a category

Removing a channel from a category places deletes the channel and all its episodes.

To remove a channel from a category:

1 Go to Admin panel > Categories.

The Categories page opens.

2 Under Remove Channel From Category, select a Channel and a Category in the menus.

3 Click Remove Channel from Category.

A verify deletion message appears. You must click **Remove Channel** to finish.

User and group configurations

You can restrict what users can do, create groups, and give or restrict permissions by group.

Configure users and groups on the Admin panel > Users and Groups page.

Creating a user

When you create a user, you define their initial password and set their role, which determines what actions they can do. A user can have a role of Restricted, Standard, Application Admin, or System Admin. See “[Authentication and authorization: User roles](#)” on page 6 for details.

To create a user:

1 Go to Admin panel > Users and Groups.

The Users and Groups page opens.

2 Under Create User, enter a Username.

3 Enter a Password. Enter it again in the Verify Password textbox.

4 Choose a Role for the user.

5 Click Create User.

A confirmation message appears.

Getting information about a user

To get information about a user:

1 Go to Admin panel > Users and Groups.

The Users and Groups page opens.

2 Under Get User Info, enter a name in the User textbox.

3 Click Get User Info.

Information appears for the selected user.

Updating a user role

User roles determine what actions a user can do. This option is used for changing the privilege level for a user.

To change the role for a user:

- 1 Go to Admin panel > Users and Groups.
The Users and Groups page opens.
- 2 Under Update User Role, enter a **User** name in the textbox, and select a different user role in the **Role** menu.
- 3 Click **Update User Role**.
A confirmation message appears.

Adding a user to a group

To add a user to a group:

- 1 Go to Admin panel > Users and Groups.
The Users and Groups page opens.
- 2 Under Add User To Group, enter a **User** name in the textbox, and enter a **Group** name in the textbox.
- 3 Click **Add User to Group**.
A confirmation message appears. If adding a Restricted user to a Moderator group, that user still cannot approve episodes.

Removing a user from a group

To remove a user from a group:

- 1 Go to Admin panel > Users and Groups.
The Users and Groups page opens.
- 2 Under Remove User From Group, enter a **User** name in the textbox, and enter a **Group** name in the textbox.
- 3 Click **Remove User from Group**.
A confirmation message appears.

Deleting a user

Deleting a user does not delete episodes or channels created by that user.

To delete a user:

- 1 Go to Admin panel > Users and Groups.
The Users and Groups page opens.
- 2 Under Delete User, enter a **User** name in the textbox.
- 3 Click **Delete User**.
A confirmation message appears. The episodes and channels created by that user, if any, remain in the system.

Creating a group

Groups are used to organize users and moderate channels. After you create a group, you can make it a viewer group or moderator group for a channel and all episodes uploaded to that channel may be viewed or moderated, respectively, by that group. For details, see “[Optional configurations when creating a channel](#)” on page 18. You can also assign a group as a moderator for a viewer group; for details, see “[Setting a moderator for a viewer group](#)” on page 24.

To create a group:

- 1 Go to Admin panel > Users and Groups.
The Users and Groups page opens.
- 2 Under Create Group, enter a **Group** name in the textbox, and enter an **Email address** for the group. The email address is where comments are sent if the group is assigned as a moderator of a channel.
- 3 Click **Create Group**.
A confirmation message appears.

Finding groups

To find the system LDAP groups, or those to which an individual user belongs:

- 1 Go to Admin panel > Users and Groups.
The Users and Groups page opens.
- 2 Under Get Groups, do either:
 - Leave the **For User** textbox empty.
 - Enter a user name in the **For User** textbox.
- 3 Click **Get Groups**.
If you omitted a user name, all the LDAP groups that the system group filter allows to display appear. If you entered a user name, the LDAP groups to which the specified user belongs appear.

Getting information about a group

To get information about a group:

- 1 Go to Admin panel > Users and Groups.
The Users and Groups page opens.
- 2 Under Get Group Info, enter a name in the **Group** textbox.
- 3 Click **Get Group Info**.
The information about the members of the group, their permissions, and the email address for the group, appears.

Setting a moderator for a viewer group

A viewer group is a group of users allowed to view a channel; this is set on the Admin > Channels page with the **Make Private** option. A moderator group is a group of one or more users who are allowed to moderate channels; this is set on the Admin > Channels page with the **Require Approval** option.

For example, an organization could appoint a moderator for videos that are available to everyone. Additionally, a business unit-level moderator could be set such that any video allowed for that business unit is moderated by that person.

To assign a moderator group to a viewer group:

- 1 Go to Admin panel > Users and Groups.
The Users and Groups page opens.
- 2 Under Set Moderator For Viewer Group, enter the name of the **Viewer Group** and enter the name of the **Moderator Group**.
- 3 Click **Set Moderator For Viewer Group**. A confirmation message appears.

Clearing a moderator from a viewer group

To remove the moderator group from a viewer group:

- 1 Go to Admin panel > Users and Groups.
The Users and Groups page opens.
- 2 Under Clear Moderator For Viewer Group, enter the name of the **Viewer Group**.
- 3 Click **Clear Moderator For Viewer Group**.
A confirmation message appears.

Deleting a group

To delete a group:

- 1 Go to Admin panel > Users and Groups.
The Users and Groups page opens.
- 2 Under Delete Group, enter a **Group** name in the textbox.
- 3 Click **Delete Group**. A confirmation message appears.

System configurations

Configure video on demand (VOD), webcast, and multicast settings, global user permissions, ATVES look and feel, the Personal tab label, group filters, the token duration for embedded players, and text for episodes shared via email.

System configurations are made on the Admin panel > System Configurations page.

Video On Demand (VOD) configurations

The configurations for VOD include setting an Upload Path for video uploads, plus specifying the addresses for the VOD/FMS server, the transcoding server, and the CQ5 server for ATVES. You are also asked to decide how ATVES should handle downloads: either deny or allow for all channels, or let the user decide at the time of channel creation.

To set Video On Demand (VOD) configurations, including the DNS address of the servers:

- 1 Go to Admin panel > System Configuration.
The System Configuration page opens.

- 2 Under Set VOD Configuration, configure the following options:
 - **Upload Path:** Enter the path for uploads. The default settings are recommended. You should not have to change this setting.
 - **Transcoding Server:** Enter the DNS address and port number for the transcoding server.
 - **Vod Server Path:** Enter the DNS address and port number for the VOD/FMS server.
 - **External URL:** Choose a delivery protocol, either HTTP or HTTPS, and enter the DNS address and port number for the CQ server.
 - **Download Episode Settings:** Choose one option:
 - **Allow All:** Enables the episode Download option for all channels.
 - **Deny All:** Disables the episode Download option for all channels.
 - **Channel Specific:** Allows episode downloading to be set per-channel.
- 3 Click **Set VOD Configurations**.

A confirmation message appears.

Webcast configurations

The configurations for webcasts include setting the URL of the Adobe Premiere Express editor, deciding whether to allow webcam recording, and deciding whether to allow webcasts to be recorded.

To configure Adobe Premier Express (the ATVES video editor) and set recording options for webcasts:

- 1 Go to Admin panel > System Configuration.

The System Configuration page opens.
- 2 Under Set Webcast Configuration, configure the following options:
 - **Express Application Url:** The URL, including port number, of the Adobe Premier Express™ application. ATVES uses the Adobe Premier Express application for episode editing.
 - **Allow WebCam Recording:** Select to activate the **Record From Webcam** option on the Upload page.
 - **Max Recording Time:** Limit the length of any webcam recording. Webcam recordings are limited to the specified time.
 - **Allow Webcast Recording:** Choose one option:
 - **Enable all webcast recording:** All webcasts are automatically recorded.
 - **Allow the users to choose:** The **Record Event** option must be selected at the time of channel configuration for events to be recordable.
- 3 Click **Set Webcast Configurations**.

A confirmation message appears.

User management configurations

The configurations for user management include deciding whether to allow users with the Standard role to create channels, and whether to allow the use of embedding code to upload videos. If you decide to allow embedding code, you can also specify a white or black list or sites permitted or prohibited, respectively.

To configure user management settings:

- 1 Go to Admin panel > System Configuration.

The System Configuration page opens.

- 2 Under Set User Management Configuration, configure the following options:

- **Standard Users Can Create Channels:** Leave value at **true**, the default, to enable standard users to create channels.
- **Users Can Create Episodes From Embed Code:** Leave value at **true**, the default, to enable the Embed Code option. This allows users to use embedding code from other websites to upload a video.
- **Embedded Episodes Restricted Mode:** Set embedding code options; only applies if **Users Can Create Episodes From Embed Code** is set to **True**. Choose one:
 - **Off:** Allow episode embedding without restriction of a white or black list.
 - **White List:** Opens a textbox where you can specify a comma-separated list of acceptable sites from which content can be embedded.
 - **Black List:** Opens a textbox where you can specify a comma-separated list of prohibited sites from which content cannot be embedded.

- 3 Click **Set User Management Settings**.

A confirmation message appears.

Portal configurations

The configurations for the ATVES portal include choosing a theme (look and feel) for ATVES, a label for the Personal ATVES tab (default is My ETV), a user feedback email address, and how many thumbnails should ATVES generate for a video upload.

To set the portal configurations for your installation:

- 1 Go to Admin panel > System Configuration.

The System Configuration page opens.

- 2 Under Set Portal Configuration, configure the following options:

- **Theme:** Select a theme in the menu. The default is Adobe TV Look and Feel. This defines the background color and graphics for ATVES.
- **ETV Label:** Enter text for the Personal ETV tab; the default is **My ETV**. This defines the tab label on the ATVES page for a user's personal page.
- **Feedback Email ID:** Enter an email address in the textbox. This defines where user comments are sent.
- **Thumbnails to generate:** Specify how many thumbnails ATVES should generate for uploaded videos; the range allowed is from 5 to 20.

- 3 Click **Apply Theme**.

A confirmation message appears.

Group filter configurations

When you import groups from an LDAP server, use the group filter to filter the available groups. For example, if you have LDAP group names starting with CN= and those groups should be excluded from viewing or moderating channels, you could add a regular expression (regex) filter like this: ^CN=.* and those groups would not show in the menu for channel approvers or moderators.

To set or clear the group filter:

- 1 Go to Admin panel > System Configuration.
The System Configuration page opens.
- 2 Under Set Group Filter, enter a regular expression in the **New Group Filter** textbox. Click **Update Group Filter**.
A confirmation message appears.
- 3 To clear the filter, delete the text in the **New Group Filter** textbox. Click **Update Group Filter**.
A confirmation message appears.

Sharing episode email template configuration

Users can share episodes with the **Share via Email** option on the episode page, when they are viewing an episode. That option opens their default mail client with Subject text, and message Body text including a link to the video. You can modify the text that appears on the Subject line and within the message Body.

- 1 Go to Admin panel > System Configuration.
The System Configuration page opens.
- 2 Under Set Template For Sharing Episode Emails, enter the text you want to appear in the email when a user shares an episode in the **New Email Template** textbox. Use the URL variable, **##URL##**, to place a link to the video in the text you enter. For example, you could enter this text: "Please watch this video: ##URL##." When used, ATVES replaces the variable with the correct URL to the video.
- 3 Click **Update Email Template**.
The new email template text appears in the **Current Email Template** text area and in the body of an email used to share an episode.

Embedded player configurations

When a user uploads a video with embedding code, a player is also embedded. Sometimes the player requires authentication (a login). These settings determine how long a user's login is valid for viewing content embedded in ATVES.

- 1 Go to Admin panel > System Configuration.
The System Configuration page opens.
- 2 Under Set Embedded Player Configuration, enter an integer in the **Token Duration** textbox and pick either **Day(s)** or **Hour(s)** for the time value.
- 3 Click **Update Embedded Player Configuration**.
A confirmation message appears. When a user is required to log in to view embedded content, their login credentials expire after the specified time.

Multicast configurations

Multicast configuration is where live event delivery settings are stored. The main purpose of the multicast settings is to define which IP addresses receive what type of live video stream. This includes server settings and two live delivery configuration options.

Live Delivery Configurations

Groups are defined based on IP address ranges and each IP address should be part of only one group. Please refer to the sample file (click Download Multicast Configurations) to see the XML schema for configuring the groups.

There are two configuration options for live delivery:

- **IP multicast groups:** A set of addresses within the legal IP multicast address range to use as the corporate IP multicast address range. These addresses will be dynamically assigned to each net group created for a live event by ATVES. Enclose all multicast addresses within the multicast-address-list element address entity. The address element can have two forms:
 - A range of IP multicast addresses specified by starting and ending addresses.
 - A single IP multicast address. For example, if the IT organization determines that the multicast address range value should be between 230.0.0.0 and 235.255.255.255, and have an additional single address of 239.10.10.255, the addresses can be expressed as:

```
<multicast-address-list
  <address start="230.0.0.0" end="235.255.255.255"/>
  <address value="239.10.10.255"/>
</multicast-address-list>
```

- **Peer-assisted delivery groups:** For peer-to-peer multicasting or confusion multicasting, it is important to consume the network bandwidth economically such that a live event does not significantly affect the whole network. This can be done by grouping subscribers within a vicinity in the same net group. The actual definition of "within vicinity" is organization-dependent. One example is the buildings on a campus. If a company has 4 buildings, subscribers from the same building can be grouped into the same net group, thereby limiting peer-to-peer communication to the network within the same building.

Companies often have satellite offices or individuals working from home. Those scattered subscribers can be grouped into a separate net group by setting the attribute of allowOutOfRangeAccess in the net-group-configuration-list to be true. The note attribute of the address element is used to give a meaningful description of an IP multicast address range. ATVES uses the net-group-configuration-list to create net groups for each ip-range-list, and/or a net group for those out of the range subscribers.

Example (variables are **bolded**):

```
<multicast-configuration>
  <multicast-address-list>
    <address start="230.0.0.0" end="235.255.255.255"/>
    <address value="239.10.10.255"/>
  </multicast-address-list>
  <net-group-configuration-list allowOutOfRangeAccess="true">
    <net-group-configuration>
      <ip-range-list>
        <address start="10.58.0.0" end="10.58.255.255" note="building D"/>
      </ip-range-list>
    </net-group-configuration>
    <net-group-configuration>
      <ip-range-list>
        <address start="153.32.28.0" end="153.32.31.255" note="building A floor 1"/>
      </ip-range-list>
    </net-group-configuration>
  </net-group-configuration-list>
</multicast-configuration>
```

```
<address start="153.32.32.0" end="153.32.35.255" note="building A floor 2"/>
</ip-range-list>
</net-group-configuration>
<rendezvous-server-list>
  <server-address="rtmfp://Server_IP/multicast" note="Server Description" primary="true">
</rendezvous-server-list>
<publisher-server-list>
  <server-address="rtmp://Server_IP/multicast" note="Server Description" primary="true">
</publisher-server-list>
<multicast-address-list>
</multicast-configuration>
```

Server Settings

The server settings define the server addresses to be used for live delivery. There are two server settings; a primary and backup server can be configured for each:

- **Rendezvous server:** A connection string, the rendezvous server URL, to create a valid NetConnection object before joining a NetGroup; used by the video player. Although the multicast configuration file and the ATVES system allows backup multicast rendezvous servers to be listed, initially ATVES uses only the first server on the list and ignores the rest.
- **Publisher server:** The FMS server to which an encoder can publish a live stream; used by webcast publishers. Its structure is exactly the same as that of the rendezvous-server-list. Also, similar to rendezvous-server-list, ATVES uses only the first server URL listed.

Note: All multicast options should be set at the time of system configuration and should be revisited on an annual basis to ensure compliance with network topology.

Multicast Configuration Options

You can take the following actions:

- Upload a multicast configuration file: Browse to the file containing the multicast configuration. Click **Upload**.
- Clear a multicast configuration file: Click **Clear Configuration**. A confirmation dialog box appears; you must click **Clear Configuration** again to finish.
- View the current multicast configuration file: Click **View Current Configuration**. A pop-up textbox appears with the current multicast configuration.
- Download multicast configurations: Click **Download multicast configurations**. A File Download dialog box appears with the default Adobe TV multicast configuration XML file selected; you can download and modify this file for your needs.

Device presets

Device presets control the encoding settings of webcasts. The settings defined in these presets are used while streaming webcast.

ATVES provides five default device preset configurations that apply in most use cases. The default presets have been tested and optimized. New presets can be created, but only an administrator with thorough knowledge of device presets should do so.

ATVES automatically detects the player version and picks the codec that provides the best quality based on your selected default preset profile.

Configure device preset settings on the Admin panel > Device Presets page.

Default device presets

There are five default device presets:

Preset	Description	Resolution in Pixels	Bit rate
HD (High Definition Quality Preset) (default)	A high-definition preset for 1080p (True HD).	1920 width x 1080 height	5000 kbps
Web HD (High Definition Quality Preset for web cast) (default)	A high-definition preset for web streaming.	1280 width x 720 height	1500 kbps
Web HQ (High Quality Preset for web cast)	A high-quality preset for web streaming, suitable for viewing on desktops and laptops.	640 width x 360 height	1000 kbps
Web MQ (Medium Quality Preset for web casting)	A medium-quality preset for web streaming, suitable for viewing on desktops, laptops, and mobile devices.	640 width x 360 height	300 kbps
Web LQ (Low Quality Preset for web casting)	A low-quality preset for web streaming, suitable for most low-bandwidth video delivery in an enterprise. For example, to host videos in a DMZ zone, or video delivery to offices connected with thin MPLS line in an enterprise.	384 width x 216 height	100 kbps

Setting a default device preset

To set a default device preset:

- 1 Go to Admin panel > Device Presets.
The Device Presets page opens.
- 2 Under Device Preset Settings, choose a defined default preset in the Device Presets list. The selected preset's values appear in the preset options.
- 3 Click **Set as Default** to make the selected preset the new default. A green checkmark appears next to the preset and a confirmation message appears.

Creating a device preset

To create a device preset:

- 1 Go to Admin panel > Device Presets.
The Device Presets page opens.
- 2 Under Device Preset Settings, click **New** or **Copy**. The Device Presets box is highlighted and the **Edit** button in the Preset Info area is replaced with a **Save** button and a **Cancel** button. Click **Cancel** at any time to discard your configurations and return to the default settings. If you click **Copy**, the settings of the preset you are copying populate the preset option boxes. Use the options to configure the preset.
- 3 Under Preset Info, enter a name and description for the preset.
- 4 Under Video Settings, configure these options:
 - **Video Bitrate:** The amount of data to decode per second.

- **Video Width:** The width of the video player in pixels.
- **Video Height:** The height of the video player in pixels.

- 5 Under Generic Settings, enter **Flags** separated by spaces. See “Using flags” on page 32, for a description of each flag you can set.
- 6 When you are finished, click **Save**.

The new preset appears in the preset list at the top and may be set as the default. Also, the **Save** and **Cancel** buttons in the Preset Info area are replaced with a single **Edit** button that allows you to modify a preset.

Using flags

The default flag setting looks like this:

```
-flags=+loop+mv4 -cmp=rd -deblockalpha=0 -deblockbeta=0 -bt=500k -bufsize=2000k -refs=2 -coder=0 -me_method=umh -
me_range=64 -subq=9 -partitions=+parti8x8+parti4x4+partp8x8+partp4x4+partb8x8 -level=32 -qmin=16 -qmax=51 -qcomp=0.6 -
trellis=2 -i_qfactor=0.71 -qdiff=4 -directpred=1 -sws_flags=lanczos -v=3 -threads=0
```

These are the flags you can set:

Flag	Description
bt	Sets video bit rate tolerance.
bufsize	Sets the video buffer verifier buffer size (in bits).
threads	Sets how many threads are spawned for each process. The default is 0, which means that the system decides how many threads to spawn based on availability of threads in the thread pool of the operating system.
sws_flags	Sets SwScaler flags.
qmin	Sets minimum video quantizer scale.
qmax	Sets maximum video quantizer scale.
qcomp	Sets allowed maximum difference between the quantizer scales.
i_qfactor	Sets allowed Qscale difference between I-frames and P-frames.
v	Sets verbose logging to the specified level.
me_method	<p>Sets search parameters.</p> <ul style="list-style-type: none"> • dia (x264) / epzs (FFmpeg) is the simplest search, consisting of starting at the best predictor, checking the motion vectors at one pixel upwards, left, down, and to the right, picking the best, and repeating the process until it no longer finds any better motion vector. • hex (x264) / hex (FFmpeg) consists of a similar strategy, except it uses a range-2 search of 6 surrounding points, thus the name. It is considerably more efficient than DIA and only slightly slower, so is a good choice for general-use encoding. • umh (x264) / umh (FFmpeg) is considerably slower than HEX, but searches a complex multihexagon pattern to avoid missing harder-to-find motion vectors. Unlike HEX and DIA, the me_range parameter directly controls UMH's search radius, allowing you to increase or decrease the size of the wide search. • esa (x264) / full (FFmpeg) is a highly optimized intelligent search of the entire motion search space within me_range of the best predictor. It is mathematically equivalent to the brute force method of searching every single motion vector in that area, though faster. However, it is still considerably slower than UMH, with not too much benefit, so is not particularly useful for everyday encoding.

Flag	Description
partitions	Sets partition parameters. One of H.264's most useful features is the ability to choose among many combinations of inter and intra partitions. P-macroblocks can be divided into 16x8, 8x16, 8x8, 4x8, 8x4, and 4x4 partitions. B-macroblocks can be divided into 16x8, 8x16, and 8x8 partitions. I-macroblocks can be divided into 4x4 or 8x8 partitions. Analyzing more partition options improves quality at the cost of speed. The default is to analyze all partitions except p4x4 (p8x8, i8x8, i4x4, b8x8), because p4x4 is not particularly useful except at higher bit rates and lower resolutions. Note that i8x8 requires 8x8dct, and is therefore a High Profile-only partition. The p8x8 partition is the most costly, speed-wise, but also gives the most benefit. Whenever possible, all partition types, except p4x4, should be used.
level	Sets the level flag in the output bitstream (as defined by Annex A of the H.264 standard). Permissible levels are: 1, 1b, 1.1, 1.2, 1.3, 2, 2.1, 2.2, 3, 3.1, 3.2, 4, 4.1, 4.2, 5, and 5.1. If you do not specify a --level flag, x264 attempts to autodetect the level. This detection is not perfect and may underestimate the level if you are not using VBV. x264 also automatically limits the DPB size (see refs flag description) to remain in compliance with the level you select (unless you also manually specify the ref flag). Note that specifying the level does not automatically set the --vbv-maxrate or --vbv-bufsize; however, it does warn if the level-specific properties are exceeded.
flags	Disables loop filter. Recommended default is -flags +loop (Enabled)
me_range	Sets maximum range for motion searches. For HEX and DIA, this is limited to between 4 and 16, with a default of 16. For UMH and ESA, it can be increased beyond the default 16 to allow a wider-range motion search, which is useful on HD footage and for high-motion footage. Note that for UMH and ESA, increasing the me_range significantly slows down encoding.
subq	Sets subpixel estimation complexity; choose one: <ul style="list-style-type: none"> • 1: Fastest, but extremely low quality. Should be avoided except on first-pass encoding. • 2-5: Progressively better and slower; 5 serves as a good medium for higher-speed encoding. • 6-7: Is the default. Activates rate-distortion optimization for partition decisions. This can considerably improve efficiency, though it has a notable speed cost. 6 activates it in I/P frames, and 7 activates it in B frames. • 8-9: Activates rate-distortion refinement, which uses RDO to refine both motion vectors and intra prediction modes. Slower than subq 6, but again, more efficient.
trellis	Sets trellis options. <ul style="list-style-type: none"> • 0: Disabled • 1: Enabled only on the final encode of a macroblock (MB) • 2: Enabled on all mode decisions <p>The main decision made in quantization is which coefficients to round up and which to round down. Trellis chooses the optimal rounding choices for the maximum rate-distortion score, to maximize PSNR relative to bit rate. This generally increases quality relative to bit rate by about 5% for a somewhat small speed cost. It should generally be enabled. Note that trellis requires CABAC.</p>
directpred	Sets prediction mode. You can set B-frames in H.264 to use either spatial or temporal prediction mode. Auto allows x264 to pick the best of these; the heuristic used is whichever mode allows more skip macroblocks. Auto should generally be used.
refs	Sets how many references can be used, up to a maximum of 16. One of H.264's most useful features is the ability to reference frames other than the one immediately prior to the current frame. Increasing the number of refs increases the Decoded Picture Buffer (DPB) requirement. In live-action sources, using more than 4-8 reference frames has limited use; but in cartoon sources, setting refs up to the maximum value of 16 is often useful. More reference frames require more processing power because every frame is searched by the motion search (except when an early skip decision is made). The slowdown is especially apparent with slower motion estimation methods. Recommended default: -refs 6
coder	Sets entropy encoder. CABAC is the default entropy encoder used by x264. Though somewhat slower on both the decoding and encoding end, it offers 10-15% improved compression on live-action sources and considerably higher improvements on animated sources, especially at low bit rates. It is also required for the use of trellis quantization. Disabling CABAC may somewhat improve decoding performance, especially at high bit rates. CABAC is not allowed in the Baseline Profile. Recommended default: -coder 1 (CABAC enabled)
cmp	Sets the fullpel compare function.

Encoding presets

Encoding presets control the encoding settings of webcast and webcam-recorded events. The default preset configurations range from low bandwidth to high bandwidth to support increasing levels of bandwidth.

Adobe provides four default encoding preset configurations that apply in most cases. The default presets have been tested and optimized.

Currently, only the **NellyMoser** audio codec is supported.

You set encoding presets on the Admin panel > Encoding Presets page.

Default encoding presets

There are four default encoding presets:

Preset	Description	Audio Sampling Rate	Video Codec	Framerate	Resolution in Pixels	bit rate
Low BW (publishing preset for low bandwidth)	The lowest-bandwidth option. Suitable for the most bandwidth-constrained IT environments.	11025	H264 (Baseline profile, 2.1 level)	30	256 width x 144 height	230 kbps
Medium BW (publishing preset for medium bandwidth) (default)	The second-lowest bandwidth option. Suitable for a mixed IT environment (for example, mobile and desktop users)	22050	H264 (Baseline profile, 3.1 level)	30	480 width x 272 height	470 kbps
High BW (publishing preset for high bandwidth)	A high-bandwidth option. Suitable for an environment that consists mostly of desktop computers (for live webcasts).	44100	H264 (Main profile, 3.1 level)	30	640 width x 360 height	710 kbps
High BW (Sorenson) (publishing preset for high bandwidth (Sorenson)) (default)	A high-bandwidth option.	44100	Sorenson	30	640 width x 360 height	1050 kbps

Setting a default encoding preset

To set a default encoding preset:

- 1 Go to Admin panel > Encoding Presets.
 The Encoding Presets page opens.
- 2 Under Encoding Presets Settings, choose a defined default preset in the Encoding Presets list. The selected preset's values appear in the options below.
- 3 Click **Set as Default** to make the selected preset the default. A green checkmark appears next to the preset and a confirmation message appears.

Creating an encoding preset

Currently, only **NellyMoser** audio codec is supported. This means iOS users cannot listen to the audio in live webcasts (audio works for recorded videos) without a native application because iOS lacks support for these codecs. Adobe is working to create a solution whereby iOS users can also listen to audio in live webcasts.

To create an encoding preset:

- 1 Go to Admin panel > Encoding Presets.

The Encoding Presets page opens.

- 2 Under Encoding Presets Settings, click **New** or **Copy**. The Encoding Presets box is highlighted and the **Edit** button in the Preset Info area is replaced with a **Save** button and a **Cancel** button. Click **Cancel** at any time to discard your configurations and return to the default settings. If you clicked **Copy**, the settings of the preset you are copying populate the preset option boxes. Use the options to configure the preset.

- 3 Under Preset Info, enter a name and description for the preset.

- 4 Under Audio Settings, for **Audio Codec**, only **NellyMoser** is supported. It is a single-channel (mono) format optimized for low-bit rate transmission of audio.

- 5 Under Video Settings, choose one **Video Codec**:

- **H264** (default): Allows you to stream high-quality video at low bit rates. The minimum Flash Player version required is 11.
- **Sorenson**: Requires a higher bit rate value than H.264 to produce a similar quality video. For example, a 640 x 360, 710 kbps H.264 stream gives similar or better video quality as produced by a 640 x 360, 1050 kbps Sorenson stream. If you choose **Sorenson**, the **Profile** and **Level** options go away.

- 6 Configure the video codec:

- **Profile** (H264 codec only): Choose either **Baseline** or **Main**. The **Main** profile produces a better picture quality than the **Baseline** for the same value of bit rate, but utilizes more CPU. The decoder at the client side also requires more CPU to view a **Main** profile-encoded video
- **Level** (H264 codec only): Choose a level value for the selected **Profile**. Both profiles support various level values, ranging from 1 to 5.1. These levels work as constraints and determine the upper limit of bit rate values, which in turn govern a combination of size (width x height) and fps that can be encoded for a particular level.
- **Video bit rate (kbps)**: The number of bits that the encoder allocates per sec to encode the video. A higher bit rate means better quality.
- **Video Framerate**: Number of frames per second (fps).
- **Video Width**: The width of the video player in pixels.
- **Video Height**: The height of the video player in pixels.

- 7 When you are finished, click **Save**.

The new preset appears in the preset list at the top and may be set as the default. Also, the **Save** and **Cancel** buttons in the Preset Info area are replaced with a single **Edit** button that allows you to modify a preset.

Editing an encoding preset

To edit an existing encoding preset:

- 1 Go to Admin panel > Encoding Presets.

The Encoding Presets page opens.

- 2 Under Encoding Presets Settings, choose a defined default preset in the Encoding Presets list. The selected preset's values appear in the options below.
- 3 Under Preset Info, click **Edit**. The **Edit** button is replaced with a **Save** button and a **Cancel** button and all of the selected preset's options become editable.
- 4 Make changes. See “[Creating an encoding preset](#)” on page 35, above, for details. When you are done, click **Save**. The new values for the edited preset appear in the preset options. The **Save** and **Cancel** buttons in the Preset Info area are replaced with a single **Edit** button