Using ADOBE® MEDIA SERVER on Amazon Web Services Marketplace

Legal notices

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Contents

Chapter 1: Getting started

Adobe® Media Server (AMS) on Amazon Web Services is a pre-configured instance of Adobe Media Server Extended running on hardware in the Amazon Elastic Compute Cloud (EC2). Use Adobe Media Server on Amazon Web Services to stream live and on-demand media to Adobe® Flash® Player and Adobe® AIR®.

Note: The latest AMS version available on AWS is AMS 5.0.5.

To get started, complete the tasks in "Create an account and connect to the server" on page 1. Then complete the "Tutorials: on-demand and live streaming" on page 7 to start streaming media.

To watch a video of an Amazon Web Services Evangelist explaining how to create an account and connect to the server, see Using the AWS Management Console with Amazon EC2.

Create an account and connect to the server

Create an Amazon Web Services account and order Adobe Media Server

1 Sign up for an Amazon Web Services (AWS) account at https://aws.amazon.com/marketplace/.

2 Search for an Adobe Media Server AMI on marketplace.

Search for AMIs in Marketplace

3 To order Adobe Media Server for Amazon Web Services with your AWS account, go to www.adobe.com/go/learn_fms_aws_order_en.

4 Read the pricing terms and click Place your order.

There is a $5.00 monthly subscription fee. This fee allows you to run an unlimited number of Adobe Media Server instances. In addition to the monthly subscription fee, there is a fee for hourly usage and a fee for data transfer.

Note: Read the product license agreement at adobe.com/products/eulas/.

Launch an instance of Adobe Media Server

Adobe Media Server (AMS) on Amazon Web Services (AWS) versions before 5.0.4 were Instance Store backed. Version 5.0.4 onwards, AMS on AWS is Elastic Block Store (EBS) backed.

You can now launch AMS either through an Amazon EC2 console or through 1-Click Launch.

In addition, root login has been disabled. You can log into an AMS instance as `amsadmin`. If you are logging in for the first time, use Putty to set the password for the `amsadmin` user.

An AMS instance uses two EBS volumes. The first volume is the primary volume that contains the installed operating system, AMS, and storage blocks.

The second volume, which is the secondary volume, is mounted to the /mnt folder that contains applications, logs, and the webroot folder.

For additional information and screenshots, see Launch an Instance in "Amazon Elastic Compute Cloud Getting Started Guide".
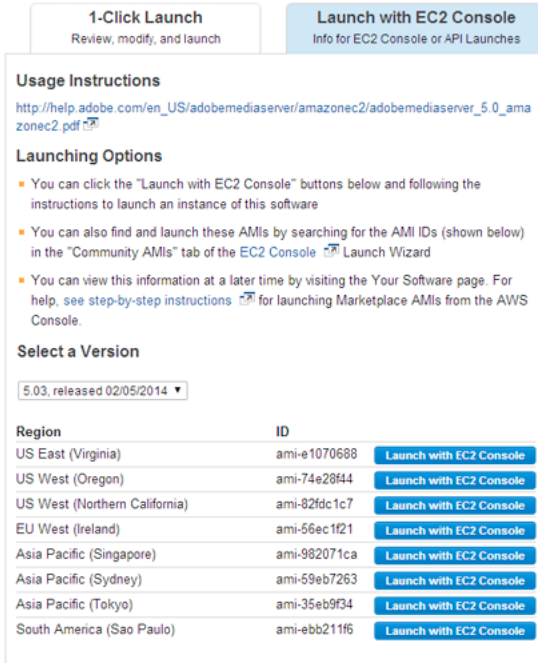
Launch Adobe Media Server with EC2 console

To use Adobe Media Server on Amazon EC2, launch an Amazon EC2 instance first.

1   Sign in to your Amazon Web Services account at https://console.aws.amazon.com/ec2.

   The AWS Management Console launches with the 1-Click Launch tab open.

2   Click the Launch with EC2 Console tab to make it active.

AMS Management Console

3   Select the desired version of Adobe Media Server from the pull-down list.

4   Click Launch with EC2 Console adjacent to the Amazon Machine Image (AMI) in the region of your choice.

Optionally, select AMIs in the left pane of EC2 Console, choose Public images from the filter, and select the AMI you want to launch. You can also search for the desired AMI by typing the ID in the Search box to locate it. To launch the desired AMI in EC2 Console, right-click the AMI and choose Launch from the context menu.

According to Amazon, an AMI contains all the information needed to create a new instance of a server. For example, an AMI might contain all the software to act as a web server (e.g., Linux®, Apache, and your web site), or all the software to act as a Windows® database server (e.g., Windows and SQL Server)."

5 In the Choose an Instance Type page, click All instance types on the left pane and choose an instance type from the list. For example, select m1.large.

The instance type determines the number of RTMFP connections that the server supports. See "Supported Adobe Media Server features" on page 22. The instance type also determines the pricing.

6 Click Next: Configure Instance Details.

7 On the Configure Instance Details page, do the following:

- Enter the number of instances.

- Select the Network.

- Select the Availability Zone of the server hosting the instance.

- Select an IAM role.

- You can optionally enable CloudWatch Monitoring. CloudWatch Monitoring may incur additional charges.

8 On the Advanced Instance Options screen, do the following:

- Select the default Kernel ID.

- Select the default RAM Disk ID.

- You can optionally copy a shell script to the User Data field. The shell script runs when the instance launches.

  See "Using Amazon Simple Storage Solution (S3) to store content" on page 36.

9 Click Add Storage and select the location for the primary storage and the secondary storage. If necessary, increase the size of the the primary and secondary storages.

Note: The secondary storage is mounted at the location /mnt.

10 Adobe Media Server does not require that you add any tags. However, you may click Next: Tag Instance to add tags. Use the value of the Name tag to identify the instance in the AWS Management Console, for example, you could set the Name value to **My First AMS Instance**.

11 Click Next: Configure Security Group and do one of the following to choose a Key Pair:

- A Security Group is a firewall. If you've already created a security group, you can choose Select an existing security group. Select a key pair from the list below. You can use one key pair for an unlimited number of instances.

- Select Create a new security group. Enter a name and description for the security group.

12 Select connection type, for example SSH or HTTP, from the pop-up menu and click Add Rule to define how clients can connect to the instance:

Note: If you've already defined a Security Group for Adobe Media Server instances, you can select it. You can use one Security Group for an unlimited number of instances. When an instance is running, you cannot change the Security Group it belongs to. However, you can modify the rules of a Security Group at any time.

Create a Security Group

Important: *To stream media, you must open port 1935 for the RTMP protocol for TCP and UDP. You cannot add this rule in the Request Instances wizard. You will add it in the AWS Management Console.*

13 Review the information for the instance. When you're satisfied with the settings, click Launch.

Your instances may take a few minutes to launch. Click View your instances on the Instances page to go to the AWS Management Console.

Note: *From the Amazon EC2 FAQ: It typically takes less than 10 minutes from the issue of the RunInstances call to the point where all requested instances begin their boot sequences. This time is dependant on a number of factors including: the size of your AMI, the number of instances you are launching, and how recently you have launched that AMI. Images launched for the first time may take slightly longer to boot.*

Launch Adobe Media Server with 1-Click

You can launch Adobe Media Server with preconfigured settings using 1-Click Lunch. If you use this method, an Amazon EC2 instance is launched in the background to host AMS.

1 Sign in to your Amazon Web Services account at https://console.aws.amazon.com/ec2.

The AWS Management Console launches with the 1-Click Launch tab open.
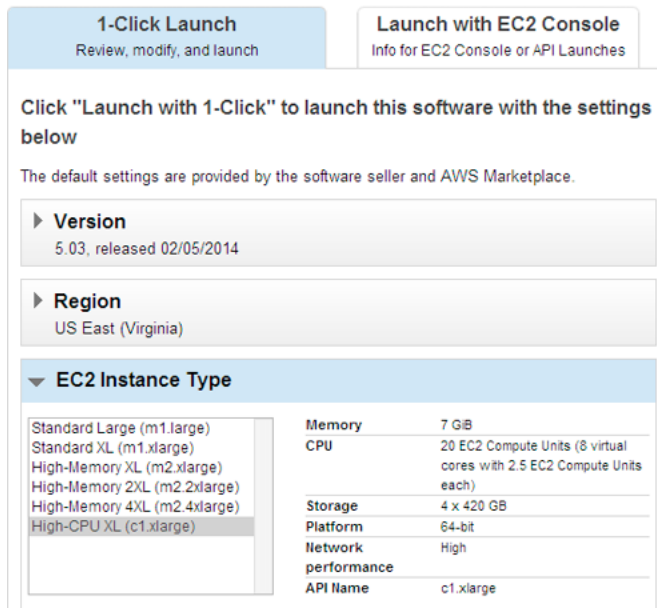
AMS Management Console

2 Choose a region from the the Region drop-down list.

3 Choose an instance type from the EC2 Instance Type list. For example, select m1.large.

The instance type determines the number of RTMFP connections that the server supports. See "Supported Adobe Media Server features" on page 22. The instance type also determines the pricing.

4 Configure the security group. A security group is a firewall. Select a security group from the drop-down list or use the default.

5 Select a key pair from the Key Pair drop-down list. You can use one key pair for an unlimited number of instances.

6 Click Launch with 1-Click, which displays the launch status.

Launch status

7 Click the Manage in AWS Console link to manage your instance in EC2 Console.
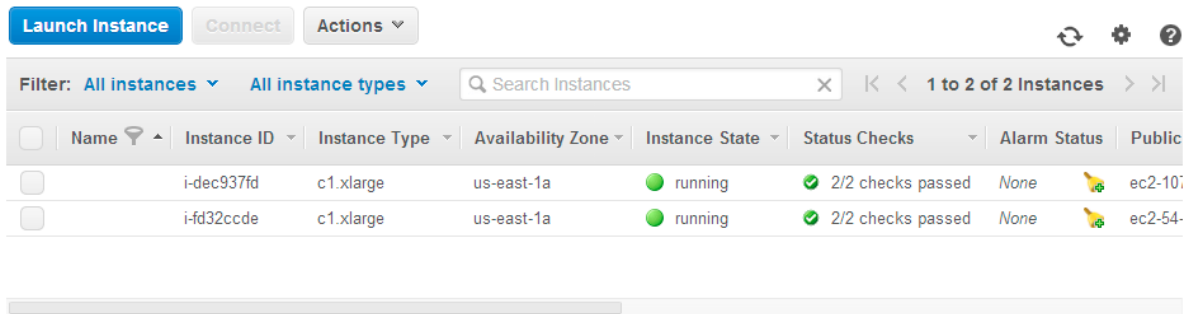
Manage instance in EC2 Console

8 Wait until the Status Checks column displays 2/2 checks passed. Then, select the instance and review its description, status, monitoring, and tags from the tabs below. Note the public DNS of the AMI.

9 Launch Putty to log into the instance.

Note: Because root login is disabled, you must log in to your instance as an `amsadmin` user using Putty for the first time and set your password.

10 In the Host Name (or IP address) box, enter the Public DNS of the instance you launched.

11 In the Category pane on the left, choose Connection>SSH>Auth.

12 Browse to locate the private key for authentication and click Open. See "Using key pairs to connect to an instance securely" on page 32 to understand how to use PuTTYgen application to convert the .pem file to a .ppk file.
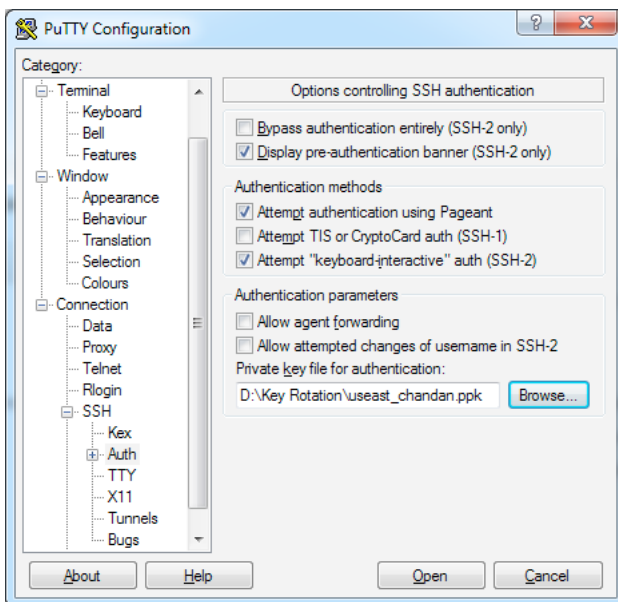
Putty login

13 Log in as `amsadmin` user.

14 Enter a valid password and confirm the new password.

Note: For subsequent logins, you can either use Putty or WinSCP.

Verify that Adobe Media Server is running

1   In the AWS Management Console, select the instance to verify.

2   In the bottom pane, select the Description tab and scroll down to the Public DNS (domain name system). Copy the Public DNS.

The public DNS is the address the public uses to connect to the instance. For example, the public DNS of the Adobe website is www.adobe.com. For more information, see Domain Name System at Wikipedia.
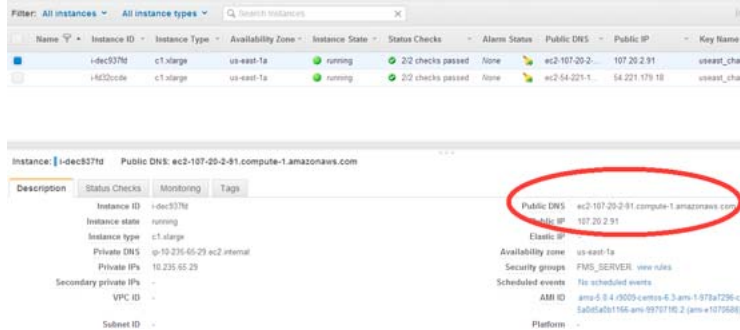
Public DNS entry in the AWS Management Console.

3   Open a web browser and paste the public DNS into the address field:

http://*public-dns*

For example, the address will look something like this:

http://ec2-184-72-81-199.compute-1.amazonaws.com

The Adobe Media Server Start Screen loads and begins streaming content.

4   If the Start Screen doesn't load or stream content, do the following:

   •   Verify that the instance is running in the AWS Management Console. In the My Instances panel of the console, the Status column should have a green light and say "running".

   •   Verify that the correct Allowed Connections are set. For information about which connections to allow, see "Modifying a Security Group" on page 23.

   •   Verify that TCP ports 1935 and 80 are open in the firewall of the computer running the web browser. Use the port test hosted by flashcomguru.com. If you see the line "RMTP Port 1935 Success", you know that port 1935 is open.

After you've verified that the server is running, complete the "Tutorials: on-demand and live streaming" on page 7.

You can manage administrators and reset passwords by using the Administration Console. For more information, see "Adobe Media Server Administration Console" on page 26

Tutorials: on-demand and live streaming

Important: By default, the EBS volumes attached with the AMS instance are not marked for deletion. However, the data on the primary drive where the operating system and AMS are installed is not accessible. This is because the data cannot be mounted to a different instance. Adobe recommends that you copy the required content from the primary drive to a different EBS volume. You can mount this volume to a different AMS instance. In contrast, the data on the secondary drive can be mounted to any other instance.

On-demand streaming

Flash Player 10.1, AIR 2

Adobe Media Server on Amazon Web Services has a built-in vod application that streams video on demand content to video players running in Flash Player and AIR. These tutorials use video players built with the Open Source Media Framework (OSMF). OSMF simplifies the development of video players for the Flash Platform.

The first tutorial uses a video player called Flash Media Playback. Flash Media Playback is hosted by Adobe and you can embed it into any web page.

The second tutorial uses a video player called Strobe Media Playback. Host Strobe Media Playback on your own web server.

On-demand streaming with Flash Media Playback

1   Log in to AWS Management Console and do one of the following:

• If you already have an instance running, in the Navigation pane, click Instances.

• If you don't have an instance running, follow the steps to "Launch an instance of Adobe Media Server" on page 2.

2   In the AWS Management Console, select the running instance and copy the Public DNS from the details pane.

3   Do one of the following to copy an FLV or F4V/MPEG-4 file to the instance:

• (Windows) See "Connect to an instance and copy files from a Windows computer" on page 33 to use WinSCP to connect to the instance.

In the left pane of WinSCP, browse to a video file on your local computer. In the right pane, browse to the **/mnt/applications/vod/media** directory on the remote instance. Drag the file from the left pane to the right pane.
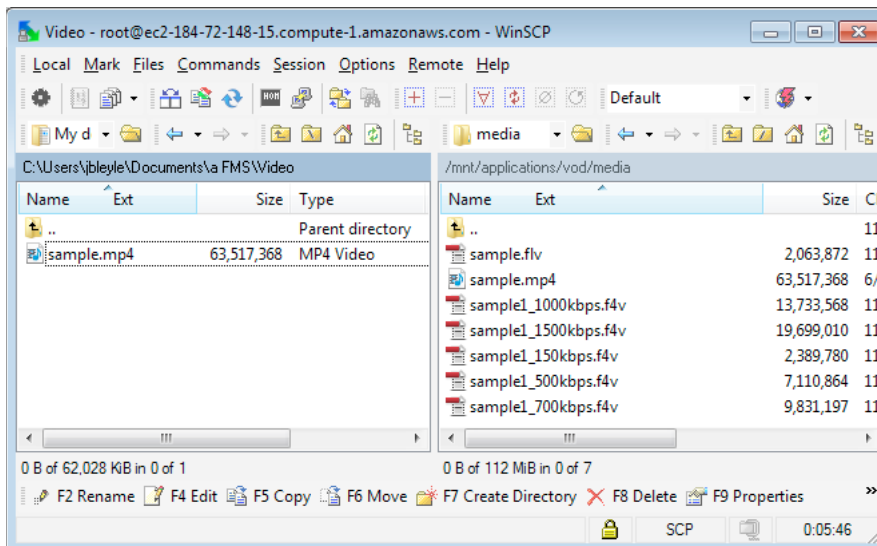
WinSCP graphical user interface. Local files are in the left pane. Files on the Adobe Media Server instance are in the right pane.

• (Linux) Open an SSH client installed on your computer and use the `scp` command to copy a file to the instance:

scp -i *keypair***.pem** *sample.mp4* **root@***public-dns***:/mnt/applications/vod/media**

For example, if the filename of the video is sample.mp4, the command is:

scp -i amsdocs.pem sample.mp4 root@ec2-184-72-148-15.compute-1.amazonaws.com:/mnt/applications/vod/media

Note: *Use the Key Pair file you downloaded when you created the instance.*
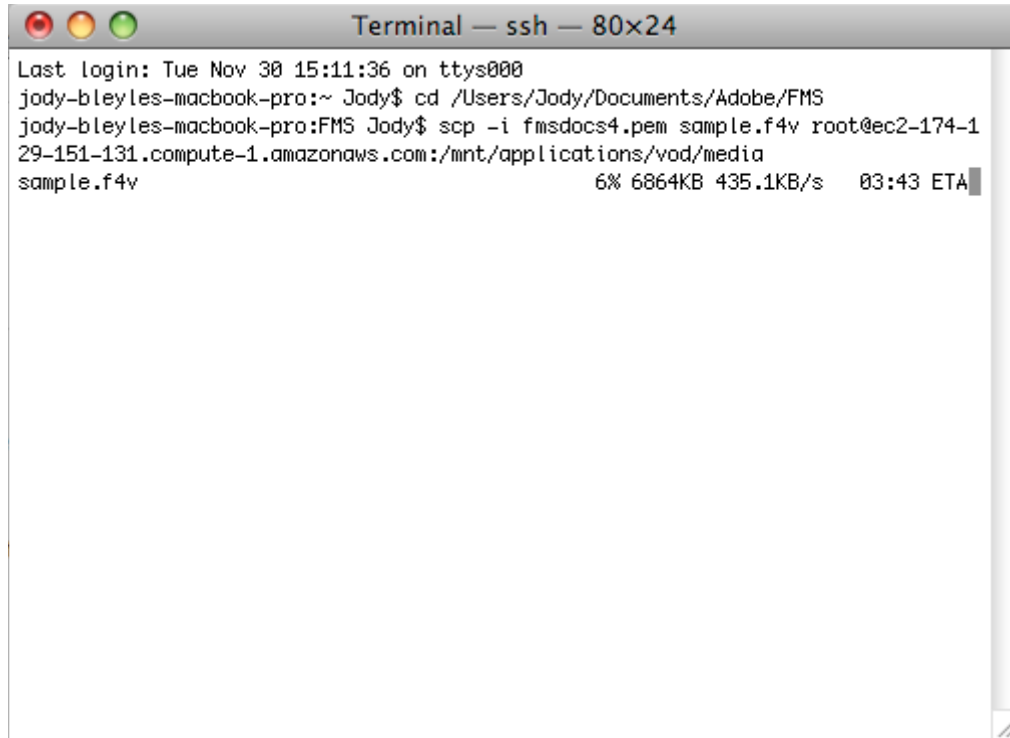
Copying a file from a local computer to an instance

Note: *Adobe Media Server and Apache HTTP Server run as amsuser:amsgroup. You may need to modify the uploaded content to allow access to it.*

4   Go to the Flash Media Playback Setup page at http://www.osmf.org/configurator/fmp/ and do the following:

a   For Video Source, enter:

rtmp://*public-dns*/vod/*filename*

For example, if the filename of the video is sample.mp4, and the Public DNS of the instance is ec2-184-72-148-15.compute-1.amazonaws.com, the Video Source is:

rtmp://ec2-184-72-148-15.compute-1.amazonaws.com/vod/mp4:sample.mp4

The following table shows how to create a URL based on the file format of the media.

File format	URL
FLV	rtmp://*public-dns*/vod/*filename*
F4V	rtmp://*public-dns*/vod/mp4:*filename*.f4v
	rtmp://*public-dns*/vod/mp4:*subdirectory/filename*.f4v
MP4	rtmp://*public-dns*/vod/mp4:*filename*.mp4
	rtmp://*public-dns*/vod/mp4:*subdirectory/filename*.mp4

Note: For F4V/MPEG-4 files, always use the prefix `mp4 :`*, but use the file extension of the file (.f4v, .mp4, and so on).*

b Click Preview to update the Embed Code.

c Click the Play button to play the video from your Adobe Media Server on Amazon Web Services instance.
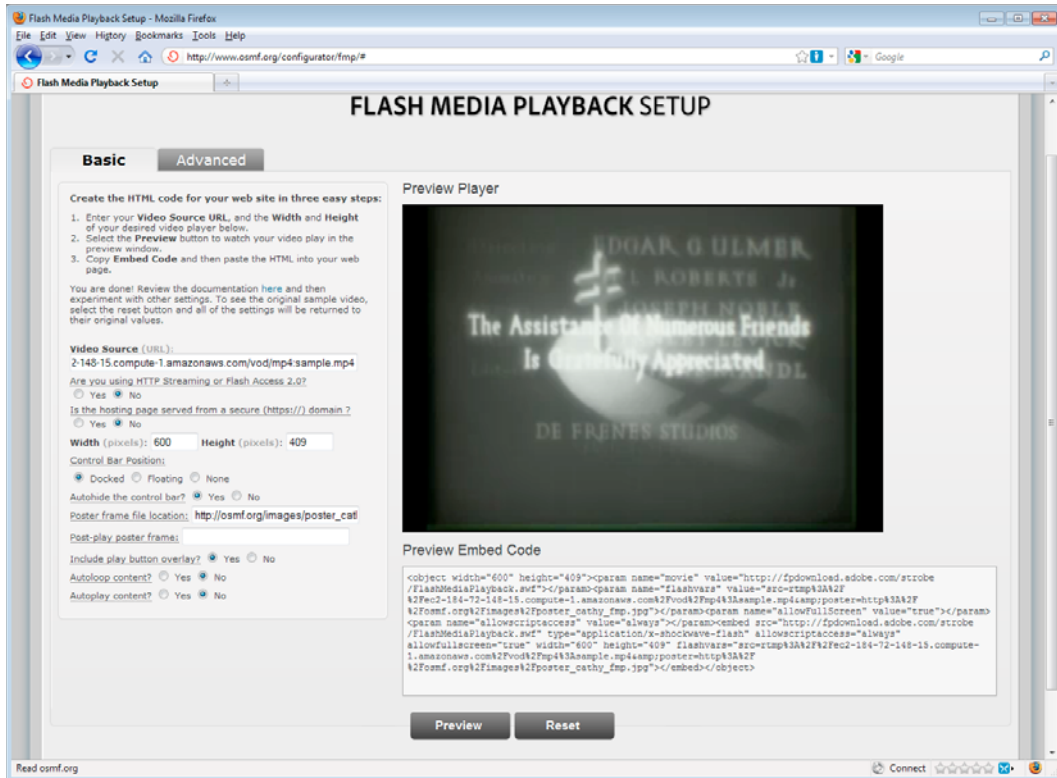
Flash Media Playback Setup page. Copy and paste the Preview Embed Code into an HTML page to use the video player. The video player is hosted by Adobe.

You can select other options in the Flash Media Playback Setup page. After you change an option, click Preview to update the embed code.

To embed Flash Media Playback in your own web page, copy the Preview Embed Code, and paste it into your HTML page.

5 When you terminate the instance, the data is deleted. To keep the recorded stream, copy it to a storage volume (S3 or EBS). For information about transferring files, see "Managing content" on page 31.

On-demand streaming with Strobe Media Playback

1 Follow steps 1-3 of the "On-demand streaming with Flash Media Playback" tutorial.

2 Download Strobe Media Playback.

3 Open the file *strobe_root_folder*/10.1/StrobeMediaPlayback.html in a text or HTML editor.

4 Locate the following URL:

`"http://mediapm.edgesuite.net/strobe/content/test/AFaerysTale_sylviaApostol_640_500_short.flv"`

Replace the URL with the URL of the file you copied to the instance and save the file. Use the following syntax:

`"rtmp://public-dns/vod/mp4:filename.mp4"`

File format	URL
FLV	rtmp://*public-dns*/vod/*filename*
F4V	rtmp://*public-dns*/vod/mp4:*filename*.f4v
	rtmp://*public-dns*/vod/mp4:*subdirectory*/*filename*.f4v
MP4	rtmp://*public-dns*/vod/mp4:*filename*.mp4
	rtmp://*public-dns*/vod/mp4:*subdirectory*/*filename*.mp4

5 Open the StrobeMediaPlayback.html file in a browser and click Play.

The file streams from Adobe Media Server on Amazon Web Services to the local version of Strobe Media Playback.

6 You can also serve Strobe Media Playback and its supporting files from the Apache web server installed with Adobe Media Server on Amazon Web Services. Copy the Strobe Media Playback files to the following directory:

/mnt/webroot

For example, create a folder /mnt/webroot/strobe. Copy the following files from the *strobe_root_folder*/10.1 folder to the /mnt/webroot/strobe folder:

StrobeMediaPlayback.html, SampleMediaPlayback.swf, the images folder, the scripts folder, and the playlists folder.

Load the following URL into a browser and click play:

http://*public-dns*/strobe/StrobeMediaPlayback.html

7 When you terminate the instance, the data is deleted. To keep the recorded stream, copy it to a storage volume (S3 or EBS). For information about transferring files, see "Managing content" on page 31.

Live streaming

Flash Player 10.1, AIR 2

Adobe Media Server on Amazon Web Services has a built-in live application that streams live content to video players running in Flash Player and AIR. These tutorials use video players built with the Open Source Media Framework (OSMF). OSMF simplifies the development of video players for the Flash Platform.

The first tutorial uses a video player called Flash Media Playback. Flash Media Playback is hosted by Adobe and you can embed it into any web page.

The second tutorial uses a video player called Strobe Media Playback. Host Strobe Media Playback on your own web server.

Live streaming with Flash Media Playback

1 Log in to AWS Management Console and do one of the following:

- If you already have an instance running, click Instances in the Navigation pane.

- If you don't have an instance running, follow the steps to "Launch an instance of Adobe Media Server" on page 2.

2 In the AWS Management Console, select the running instance and copy the Public DNS from the details pane.

3 Open Flash Media Live Encoder and enter the following:

- For AMS URL, enter:

 rtmp://*public-dns*/live

 Substitute the Public DNS value you copied from the AWS Management Console.

- For Stream, enter:

 livestream

- Click Start to publish a stream to the live application on the instance.
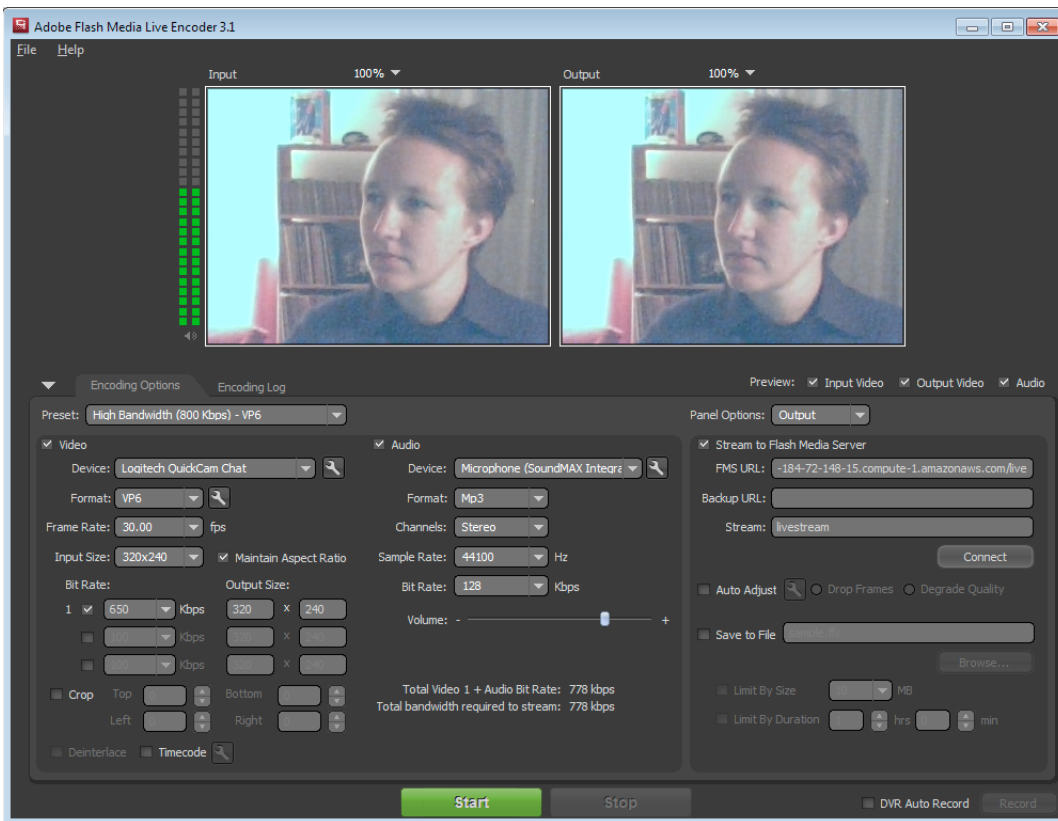
Flash Media Live Encoder.

4 Go to the Flash Media Playback Setup page at and do the following:

    a For Video Source, enter:

 rtmp://*public-dns*/live/livestream

 For example, if the Public DNS of the instance is ec2-184-72-148-15.compute-1.amazonaws.com, the Video Source is:

 rtmp://ec2-184-72-148-15.compute-1.amazonaws.com/live/livestream

    b Click Preview to update the Embed Code.

    c Click the Play button to play the video from your Adobe Media Server on Amazon Web Services instance.

You can select other options in the Flash Media Playback Setup page. After you change an option, click Preview to update the embed code.

To embed Flash Media Playback in your own web page, copy the Preview Embed Code, and paste it into your HTML page.

Live streaming with Strobe Media Playback

1   Complete the steps 1-3 in the Live streaming with Flash Media Playback tutorial.

2   Download Strobe Media Playback from osmf.org and unzip it.

3   Open the file *strobe_root_folder*/10.1/StrobeMediaPlayback.html in a text or HTML editor.

4   Locate the following URL:

    "http://mediapm.edgesuite.net/strobe/content/test/AFaerysTale_sylviaApostol_640_500_short.flv"

    Replace the URL with the URL of the file you copied to the instance and save the file. Use the following syntax:

    "rtmp://*public-dns*/live/*streamname*"

5   Open the StrobeMediaPlayback.html file in a browser and click Play.

    The file streams from the Adobe Media Server on Amazon Web Services to the local version of Strobe Media Playback.

6   You can also serve Strobe Media Playback and its supporting files from the Apache web server installed with Adobe Media Server on Amazon Web Services. Copy the Strobe Media Playback files to the following directory:

    /mnt/webroot

    For example, create a folder /mnt/webroot/strobe. Copy the following files from the *strobe_root_folder*/10.1 folder to the /mnt/webroot/strobe folder:

    StrobeMediaPlayback.html, SampleMediaPlayback.swf, the images folder, the scripts folder, and the playlists folder.

    Load the following URL into a browser and click play:

    http://*public-dns*/strobe/StrobeMediaPlayback.html

Live streaming with DVR

Flash Player 10.1, AIR 2

To add DVR functionality to a live stream, do the following:

1   Download the DVRCast application from www.adobe.com/go/ams_toolsand unzip it.

    Note: The DVRCast application was developed for Adobe Media Server 5, but it supports Adobe Media Server on Amazon Web Services as well.

2   Copy the DVRCast application to the following location on the instance:

    /mnt/applications/dvrcast_origin

    Use the instructions at "Connect to an instance and copy files from a Windows computer" on page 33 or "Connect to an instance and copy files from a Linux/UNIX computer" on page 35.

3   Open Flash Media Live Encoder and enter the following:

    •   For AMS URL, enter:

        rtmp://*public-dns*/dvrcast_origin

        Use the Public DNS value of the instance from the AWS Management Console.

- For Stream, enter:

  livestream

- Click Start to publish a stream to the dvrcast_origin application on the instance.

4 Go to the Flash Media Playback Setup page at http://www.osmf.org/configurator/fmp/ and do the following:

  a For Video Source, enter:

  rtmp://*public-dns*/dvrcast_origin/livestream

  For example, if the Public DNS of the instance is ec2-184-72-148-15.compute-1.amazonaws.com, the Video Source is:

  rtmp://ec2-184-72-148-15.compute-1.amazonaws.com/dvrcast_origin/livestream

  b Click the Advanced tab and select Stream Type: DVR.

  c Click Preview to update the Embed Code.

  d Click the Play button to play the video from your Adobe Media Server on Amazon Web Services instance.

  You can select other options in the Flash Media Playback Setup page. After you change an option, click Preview to update the embed code.

  To embed Flash Media Playback in your own web page, copy the Preview Embed Code, and paste it into your HTML page.

5 When you terminate the instance, the data is deleted. To keep the recorded stream, copy it to a storage volume (EBS or S3). The stream is recorded to /mnt/applications/dvrcast_origin/streams/_definst_/. For information about transferring files, see "Managing content" on page 31.

Live HTTP Dynamic Streaming

Flash Player 10.1, AIR 2

Note: This tutorial assumes that you've completed the on-demand streaming tutorial and know how to launch an instance and connect to an instance.

Adobe Media Server on Amazon Web Services includes an application called livepkgr that packages published streams for delivery using HTTP Dynamic Streaming.

1 Open Flash Media Live Encoder and enter the following:

- In the Encoding Options panel, from the Preset pop-up menu, choose Multi Bitrate - 3 Streams (1500 Kbps) - H.264.

- Click the wrench next to Format to open Advanced Encoder Settings. For Keyframe frequency, select 4 seconds.

  Note: The Preset changes to Custom when you select this setting.

- For Bit Rate, choose 100, 200, and 350.

- For AMS URL, enter:

  rtmp://*public-dns*/livepkgr

  Use the Public DNS value of the instance from the AWS Management Console.

- For Stream, enter:

  livestream%i?adbe-live-event=liveevent

- Deselect Save to File.
- Click Start to publish a stream to the livepkgr application on the instance.

2 Go to the Flash Media Playback Setup page at http://www.osmf.org/configurator/fmp/ and do the following:

a For Video Source, enter:

http://*public-dns*/live/events/livepkgr/events/_definst_/liveevent.f4m

For example, if the Public DNS of the instance is ec2-184-72-148-15.compute-1.amazonaws.com, the Video Source is:

http://ec2-184-72-148-15.compute-1.amazonaws.com/live/events/livepkgr/events/_definst_/liveevent.f4m

b Are you using HTTP Streaming or Flash Access 2.0? Select Yes.

c Click Preview to update the Embed Code.

d Click the Play button to play the video from your Adobe Media Server on Amazon Web Services instance.

You can select other options in the Flash Media Playback Setup page. After you change an option, click Preview to update the embed code.

To embed Flash Media Playback in your own web page, copy the Preview Embed Code, and paste it into your HTML page.

On-demand HTTP Dynamic Streaming

Flash Player 10.1, AIR 2

Note: This tutorial assumes that you've completed the on-demand streaming tutorial and know how to launch an instance and connect to an instance.

To package an on-demand file for HTTP Dynamic Streaming, use the File Packager tool.

1 Do the following to copy an FLV or F4V/MPEG-4 file from your local computer to the /webroot/vod directory on the Adobe Media Server instance:

- Open an SSH client and issue the following command to copy a file to the instance:

  scp -i *keypair*.pem *filename.xxx* root@*public-dns*:/mnt/webroot/vod

  For example, the following command copies the file sample.f4v to an instance:

  scp -i amsdocs.pem sample.f4v root@ec2-184-72-148-15.compute-1.amazonaws.com:/mnt/webroot/vod

  Note: Use the Key Pair file you downloaded when you created the instance.

2 Connect to the instance:

ssh -i *keypair*.pem root@*public-dns*

3 Change directories to the File Packager directory:

cd /opt/adobe/ams/tools/f4fpackager

4 Run the following command:

export LD_LIBRARY_PATH=.

Note: If you aren't in the f4fpackager directory, specify the full path to the f4fpackager.

5 Run the following command to package the sample.f4v file and copy the output files to the vod application's media directory:

./f4fpackager --input-file=/mnt/webroot/vod/sample.f4v --output-path=/mnt/webroot/vod

For more information, see Package content on Linux.

6   Go to the Flash Media Playback Setup page at http://www.osmf.org/configurator/fmp/ and do the following:

   a   For Video Source, enter:

   http://*public-dns*/vod/*filename*.f4m

   For example, if the video you packaged was sample.f4v, the Video Source is:

   http://ec2-184-72-148-15.compute-1.amazonaws.com/vod/sample.f4m

   b   Are you using HTTP Streaming or Flash Access 2.0? Select Yes.

   c   Click Preview to update the Embed Code.

   d   Click the Play button to play the video from your Adobe Media Server on Amazon Web Services instance.

   Note: See the On-demand streaming tutorial for more information about Flash Media Playback and Strobe Media Playback.

7   When you terminate the instance, the data is deleted. To keep the recorded stream, copy it to a storage volume (S3 or EBS). For information about transferring files, see "Managing content" on page 31.

Multicast streaming

Flash Player 10.1, AIR 2

Important: Adobe Media Server on Amazon Web Services supports peer-assisted multicast streaming. It does not support IP multicast or fusion multicast.

Copy the multicast tools to the webroot folder
Adobe Media Server includes a Multicast Configurator tool and a Multicast Player. To access these tools from a web browser, move them to the webroot directory on the instance.

1   Connect to the instance. Follow the steps in "Connect to an instance and copy files from a Windows computer" on page 33 or "Connect to an instance and copy files from a Linux/UNIX computer" on page 35.

2   The following directory contains the multicast tools:

   /opt/adobe/ams/tools/multicast/

   Move the multicast directory to the following location:
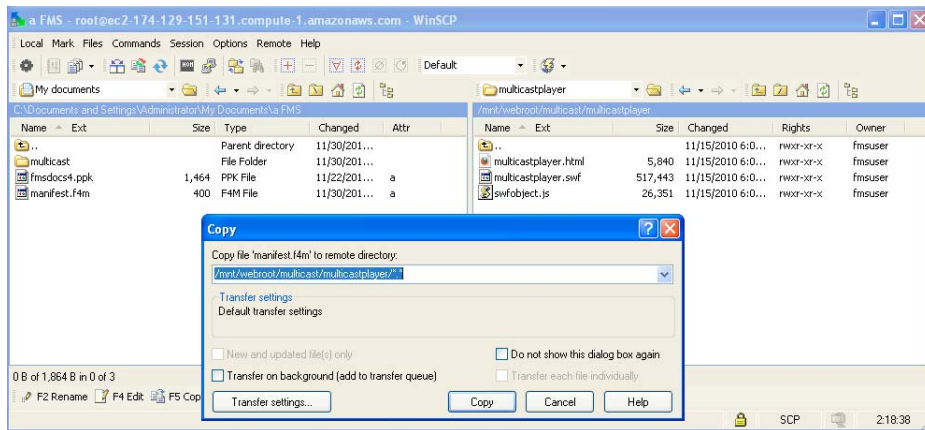
   /mnt/webroot/

Using WinSCP to move the /multicast directory to the /mnt/webroot directory

Configure a multicast event

To multicast a live stream, use the Multicast Configurator to configure the streaming event. The Multicast Configurator generates a Publisher Stream Name that you'll use to publish a stream from Flash Media Live Encoder. The Multicast Configurator also generates an F4M (Flash Manifest) file that you'll use to play the stream in the Multicast Player.

to generate a stream name and a manifest file for the Multicast Player

1 Open the following URL in a web browser:

   http://*public-dns*/multicast/configurator/configurator.html

   For example:

   http://ec2-174-129-151-131.compute-1.amazonaws.com/multicast/configurator/configurator.html

2 Select Peer to Peer multicast.

   Adobe Media Server on Amazon Web Services does not support Fusion or IP Multicast.

3 Enter the server name (or IP address) and the full path to the multicast application:

   rtmfp://*public-dns*/multicast

4 Enter the name of the live stream. This tutorial uses **livestream**.

5 Enter a publish password.

   The password ensures that only the multicast server can publish a multicast stream into the group. Other peers do not have the publish password and can only play the stream, not publish a stream.

6 Enter a name for the group. This tutorial uses the default name, **ams.multicast.example**.

   You can leave Make Unique unchecked.

7 Click Generate. The Multicast Configurator generates the following:

   • A name for the live stream. To publish a stream, you'll click Copy and paste this value into the Flash Media Live Encoder Stream field.

   • An F4M file to use with the client multicast player. To view the F4M file, click View Manifest File.

8 Click Save Manifest File and do the following:

   a Save the manifest.f4m file to your local computer.

b Connect to the instance. Follow the steps in "Connect to an instance and copy files from a Windows computer" on page 33 or "Connect to an instance and copy files from a Linux/UNIX computer" on page 35.

c Copy the manifest.f4m file from your local computer to the following location:

/mnt/webroot/multicast/multicastplayer/
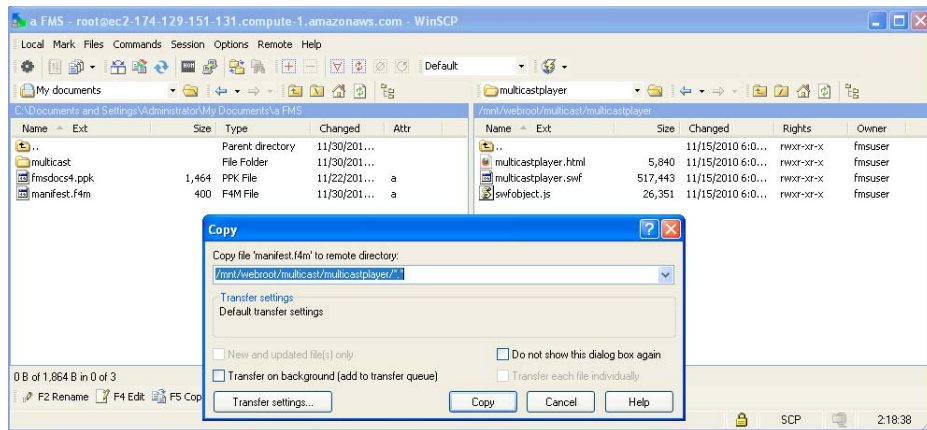
Using WinSCP to copy the manifest.f4m file to the instance

Publish a stream from Flash Media Live Encoder

1 Launch Flash Media Live Encoder 3.1 or later and do the following:

2 From the Preset menu, select a single stream preset. The multicast solution does not support multi-bitrate (also called "adaptive" and "dynamic") streaming.

3 For AMS URL, enter the URL of the multicast service:

rtmp://*public-dns***/multicast**

Note: Flash Media Live Encoder connects to Adobe Media Server over the RTMP protocol, not over the RTMFP protocol.

4 Return to the Multicast Configurator and click Copy next to the Publisher Stream Name.

5 In Flash Media Live Encoder, paste the Publisher Stream Name into the Stream text box.

6 Click Start to connect to the multicast service and start streaming.
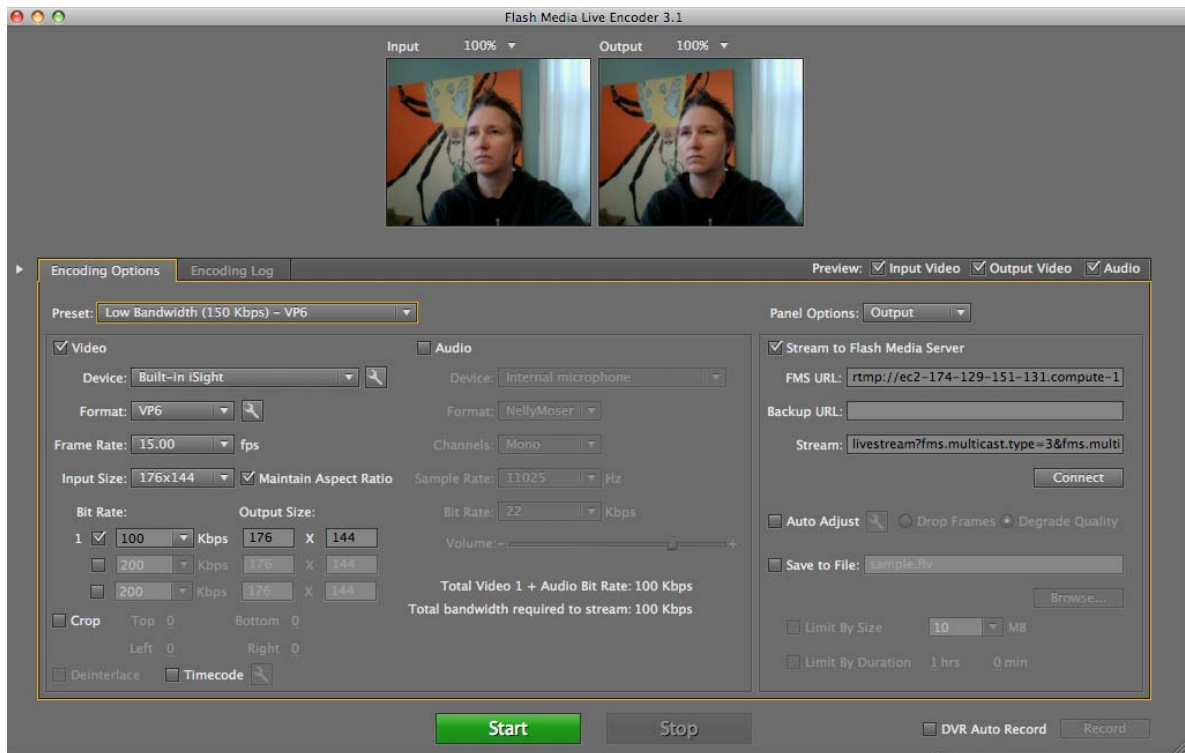
Use Flash Media Live Encoder to capture and encode a live stream

Play a multicast stream

❖ Open the following URL in a web browser:

http://*public-dns*/multicast/multicastplayer/multicastplayer.html

The Adobe Flash Player Settings manager displays a Peer Assisted Networking dialog. Click Allow to allow the peer-to-peer connection.
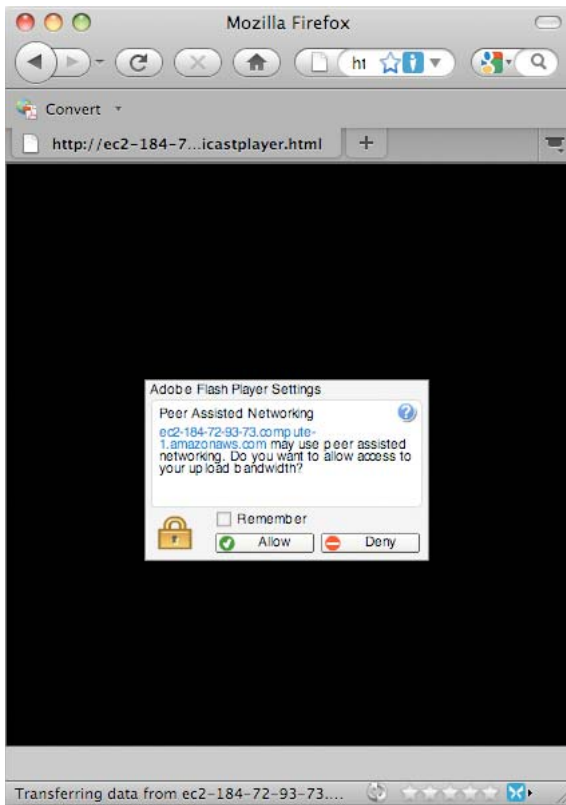
Flash Player opens a Peer Assisted Networking dialog before the Multicast Player starts streaming

The Multicast Player plays the stream that Flash Media Live Encoder is publishing.
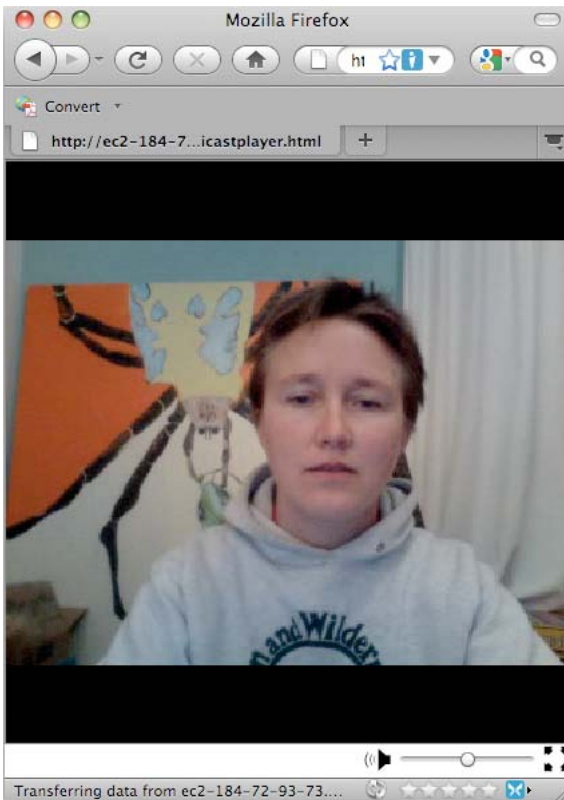
Multicast Player

> **Note:** *Multicast streaming requires Flash Player 10.1 and AIR 2.*

For more information about the multicast service, see Using the multicast service in *Adobe Media Server Developer's Guide*. In the examples, remember that on Adobe Media Server on Amazon Web Services, the installation directories are different than on other editions of the server. For information about installation directories, see "Managing the server" on page 25. Also, substitute the Public DNS of the Adobe Media Server instance for *localhost* in the examples.

Chapter 2: Using Adobe Media Server on Amazon Web Services

Supported features

Supported Adobe Media Server features

Adobe Media Server on Amazon Web Services is identical to Adobe Media Server Extended except that Adobe Media Server on Amazon Web Services limits the number of RTMFP introductions.

For a list of Adobe Media Server Amazon Machine Images (AMIs) and a list of which version of Adobe Media Server Extended each AMI uses, see www.adobe.com/go/learn_fms_aws_en.

RTMFP connection limits

Adobe Media Server on Amazon Web Services limits the number of simultaneous RTMFP connections based on the size of the AMI instance. The following table lists the number of simultaneous RTMFP connections allowed for each AMI instance type:

Instance type	RTMFP connections
Large	100
High-Memory Extra Large	100
Extra Large	1000
High-CPU Extra Large	1000
High-Memory Double Extra Large	10,000
High-Memory Quad Extra Large	10,000

Important: Adobe Media Server on Amazon Web Services supports peer-assisted, application-level multicast. It does not support IP multicast or multicast fusion. In peer-assisted multicast, Flash Player and AIR clients send data to each other in a mesh. In IP multicast, the server sends data to a router at a specified IP address. The router sends the data to Flash Player and AIR clients. Multicast fusion uses both technologies together.

Supported server-side features

Adobe Media Server on Amazon Web Services is Adobe Media Server Extended. It supports all the features that Adobe Media Server Extended supports, including Server-Side ActionScript, server-side recording, custom C++ plug-ins, and customized configuration files.

You can use HTTP Live Streaming (HLS) to serve live streams to clients over HTTP.

Supported file formats

Adobe Media Server on Amazon Web Services supports the same file formats that Adobe Media Server supports.

For a complete list, see the *Adobe Media Server Technical Overview Guide*.

Amazon Web Services features

Adobe Media Server on Amazon Web Services supports all HTTP streaming features supported on Adobe Media Server including HLS and HDS.

Adobe Media Server on Amazon Web Services does not support the following Amazon Web Services features:

- Reserve instances
- Spot instances
- Amazon VPC
- Booting from Elastic Block Store (EBS) volumes
- Rebundling instances

Securing the server

Modifying a Security Group

When you create an instance, you must create a *Security Group* or select an existing Security Group. A Security Group is the Amazon Web Services term for a firewall. Configure the Security Group to allow and deny access to the instance.

When an instance is running, you cannot change the Security Group it belongs to. You can modify the rules of that Security Group, however.

💡 *Amazon says, "A security group defines firewall rules for your instances. These rules specify which incoming network traffic should be delivered to your instance (e.g., accept web traffic on port 80). All other traffic is ignored. You can modify rules for a group at any time. The new rules are automatically enforced for all running instances."*

1 In the AWS Management Console, in the Navigation pane, click Security Groups.

2 Select the Security Group to modify. The rules for the Security Group are displayed in the lower pane.

3 To add a rule, provide the following information and click Save:

- Protocol

  This menu contains a list of protocols and the ports they most commonly use. For example, HTTP uses port 80. The RTMP protocol is not included in this list. To add it, select Custom and enter 1935 for the From Port and To Port.

- From Port

  This is the low number in a range. To open a single port, use the same value for the From Port and To Port.

- To Port

  This is the high number in a range. To open a single port, use the same value for the From Port and To Port.

- Source (IP or Group).

  💡 *From the Amazon documentation: To allow access from other instances in a security group, enter the security group name in the Connection Source field.To configure this rule to apply to an IP address range, enter the CIDR range. For example, enter 0.0.0.0/0 to allow all IP addresses to access the specified port range. Enter an IP address or subnet to limit access to that one computer or network, for example 92.23.32.51/32.*
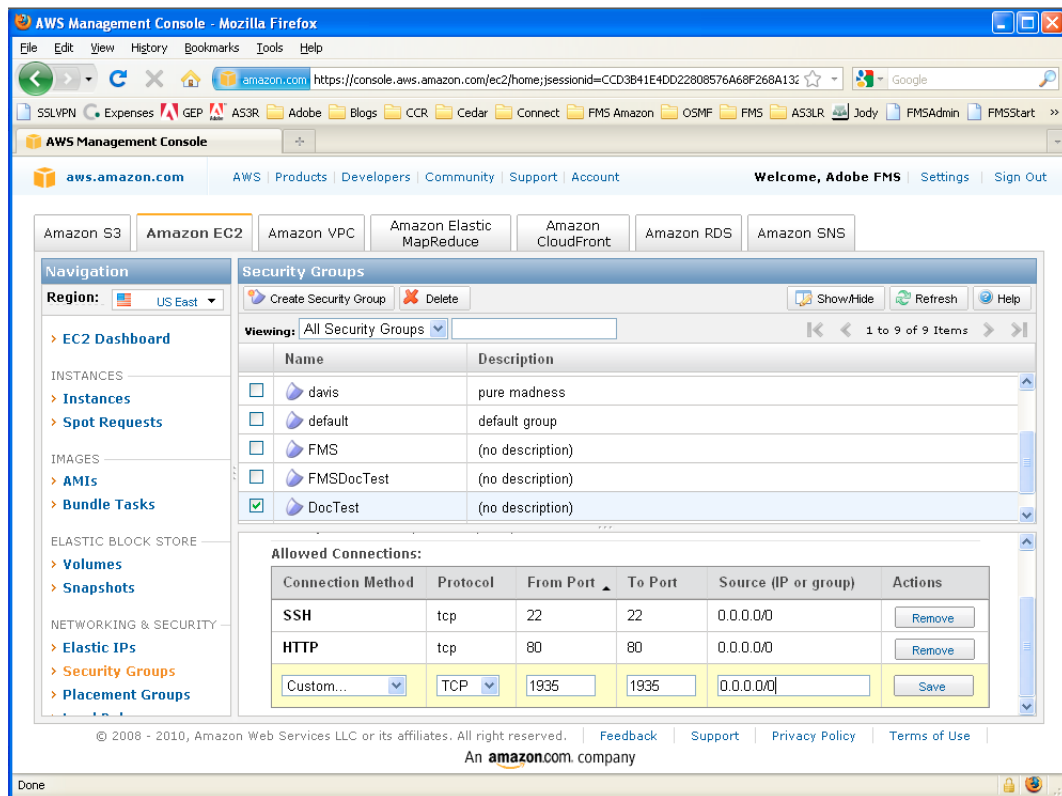
Add rules to the Security Group

By default, Adobe Media Server is configured to use the following ports and protocols to stream media. Define the following ports in a Security Group:

Connection method	Protocol	Port	Description
HTTP	TCP	80	By default, Flash Player and AIR clients that cannot connect to Adobe Media Server over port 1935 attempt to tunnel over port 80 (RTMPT). If Apache is installed and enabled, HTTP requests made over port 80 are proxied to Apache over port 8134.
All	TCP	1935	By default, Flash Player and AIR clients make RTMP connections to Adobe Media Server over port 1935/TCP. To communicate with Adobe Media Server over the RTMP protocol, clients attempt to connect to ports in the following order: 1935, 80 (RTMP), 80 (RTMPT).
All	UDP	1935	The RTMFP protocol communicates over UDP. Clients connect to the server over 1935 and the server redirects the client to a port between 19350 and 19360. To change the default RTMFP port range, edit the `Adaptor/RTMFP/Core/HostPortList/HostPort` element in the Adaptor.xml "Configuration files" on page 30.

Connection method	Protocol	Port	Description
SSH	TCP	22	Allows you to connect to an instance over SSH to copy files, manage logs and configuration files, and so on.

To configure additional ports for streaming, add the ports to the Security Group and add the ports to the Adobe Media Server configuration files. See Configure IP addresses and ports in *Adobe Adobe Media Server 5.0.1 Configuration and Administration Guide*.

Additional security resources

For detailed information about securing your instance, see the Adobe Media Server Hardening Guide.

For more information about securing the server, see Configuring security features in the *Adobe Media Server Configuration and Administration Guide*.

Learn more about Amazon Web Services Network Security Concepts and Using Security Groups.

For information about Amazon EC2 security, see Amazon Web Services: Overview of Security Processes and Tips for Securing your EC2 Instance.

Managing the server

Remote management tools

To manage your Amazon Web Services account, use any of the following:

- AWS Management Console

    When you sign in to the console, select Amazon EC2 from the drop-down list. Or, after you sign in to the console, select the Amazon EC2 tab. After you sign in, you can launch an instance of Adobe Media Server.

- Elasticfox, a Firefox browser extension that works much like the AWS Management Console.

- Amazon Web Services API

    Amazon has several developer tools that let you call the Web Services API to manage your instances and applications. See Amazon Developer Tools.

- Amazon EC2 API Tools

    Amazon describes these tools as, "The client interface to the Amazon EC2 web service. Use these tools to register and launch instances, manipulate security groups, and more."

To connect to the Adobe Media Server instance from a remote computer, use any of the following:

- SSH clients (for example, PuTTY, Terminal, and WinSCP). These SSH clients can also use SCP (Secure Copy Protocol) and SFTP (Secure File Transfer Protocol). See "Managing content" on page 31.

- Adobe Media Server Administration Console

    You can use the Administration Console to manage multiple Adobe Media Server instances. Adobe Media Server Administration Console is not configured to run by default.

Adobe Media Server Administration Console

Adobe Media Server Administration Console is not configured to run by default. To use it, you must enable it in the ams.ini configuration file and start it.

For general information about the Administration Console, see Using the Administration Console.

Configure the Administration Server

Note: Before running any command in Adobe Media Server Administration Console, add a sudo command before it to assume super user or root user privileges. This is necessary because root user is disabled in AMS version 5.0.4 and higher and amsadmin is the new user. amsadmin user has permission to browse the contents of the AMS installation directory.

1   In /opt/adobe/ams/conf/ams.ini, set values for the following parameters:

   • `SERVER.ADMIN_USERNAME = someusername`

   • `SERVER.ADMINSERVER_HOSTPORT = :1111`

   The first two parameters add one user for the Administration Console. To add additional users, see the next section, "Add administrators".

   To set the administrator password, perform the following steps:

   1   Ensure that `AMSAdmin` is not running.

   2   Execute the following command from the shell:

   `opt/adobe/ams/amsadmin –console –user someusername`

   You will be prompted to enter a password. Ensure that the password is atleast 8 characters long.

   3   Go to Users.xml and check for the salted hash of your password under the password tag.

4   Restart the server:

   ./amsmgr server ams restart

5   Open port 1111 in the Security Group of the instances you want to administer. Open the port only to the IP addresses that are allowed to access the Administration Server. See "Modifying a Security Group" on page 23.

Start, stop, or restart the Administration Server

1   Do one of the following to connect to the instance over SSH:

   • "Connect to an instance and copy files from a Windows computer" on page 33 (To start or stop the Administration Server connect with PuTTY, not WinSCP. WinSCP is for copying files.)

   • "Connect to an instance and copy files from a Linux/UNIX computer" on page 35

2   Enter the following to change to the Adobe Media Server root installation directory:

   cd /opt/adobe/ams

3   To start, stop, or restart the server:

   ./amsmgr adminserver start | stop | restart

Add administrators

1   To add administrators for a particular application, copy a Users.xml configuration file from opt/adobe/ams/conf to /mnt/applications/*myapplication*. Add a `<User></User>` section to the Users.xml file with the username and password of the administrator.

   See "Configure an application" on page 39.

2 You can optionally specify which IP addresses and domains each administrator is allowed to connect from <Allow></Allow>, and which IP addresses and domains each administrator is not allowed to connect from <Deny></Deny>.

3 Restart the server and the Administration Server:

./amsmgr adminserver restart

./amsmgr server ams restart

Note: When you edit a configuration file, restart Adobe Media Server. When you edit the Users.xml configuration file, restart Adobe Media Server and Adobe Media Administration Server.

Secure the Administration Console

❖ To limit access to the Administration Server at a global level, edit the Server.xml configuration file. For information, see Limit access to Adobe Media Administration Server.

Connect to the Administration Console

1 Open a web browser and enter the following into the address bar:

http://*public-dns*/ams_adminConsole.htm

For example:

http://ec2-184-72-164-117.compute-1.amazonaws.com/ams_adminConsole.htm

The Administration Console is located on the instance in the following directory:

/mnt/webroot/ams_adminConsole.htm

2 In the Server Address box, enter the Public DNS of the instance.

3 Enter the administrator username and password.

The username and password are stored in the /opt/adobe/ams/conf/ams.ini file.

For security reasons, the administration console does not save your password between sessions.

4 (Optional) Select the Automatically Connect Me option.

5 (Optional) Click Revert to return the Administration Console to its default settings.

Reverting deletes all saved servers, user names, and passwords from the Administration Console. All custom resizing within the Administration Console is restored to the original state. (The Revert button, however, does not affect the server.)

6 Click Login.

You can disconnect at any time by clicking Logoff.

Run the Administration Console from another computer

To run the Administration Console from a computer other than the one hosting the instance, copy ams_adminConsole.htm, ams_adminConsole.swf, and AC_RunActiveContent.js from /opt/adobe/ams/tools to the other computer.

Verify that the Allow and Deny tags in the Users.xml file allow the connection from the other computer's IP address.

Using the Administration API

The Adobe Media Administration Server has an API that you can use to monitor and administer the server. You can call Administration APIs over RTMP and HTTP.

Adobe Media Server 5.0.1 Administration API Reference

To call Administration APIs, configure and start the Administration Server. See the tasks in the section "Adobe Media Server Administration Console" on page 26. After you've completed those tasks, you can call Administration APIs over RTMP.

Call Administration APIs over HTTP:

1 Edit the /opt/adobe/ams/conf/ams.ini file as follows:

```
USERS.HTTPCOMMAND_ALLOW = TRUE
```

2 Edit the file opt/adobe/ams/conf/Users.xml to list the Administration APIs that can be called over HTTP (only `ping` is allowed, by default):

```
<AdminServer>
        <HTTPCommands>
<!-- The <Enable> value is set in the ams.ini file. -->
        <Enable>${USERS.HTTPCOMMAND_ALLOW}</Enable>
<!-- List of Admin APIs that can be accessed over HTTP.-->
<!-- Add multiple commands separated by commas.  "All" indicates -->
<!-- every command (it's not recommended to allow all commands). -->
        <Allow>ping</Allow>
<!-- List of server admin commands denied access via HTTP. -->
<!-- Add multiple commands seperated by commas.  "All" indicates -->
<!-- every command. -->
        <Deny>All</Deny>
        <Order>Deny,Allow</Order>
    </HTTPCommands>
  </AdminServer>
```

3 Restart the server and the Administration Server:

./amsmgr adminserver restart

./amsmgr server ams restart

Note: When you edit a configuration file, restart Adobe Media Server. When you edit the Users.xml configuration file, restart Adobe Media Server and Adobe Media Administration Server.

For more information, see Working with the Administration API.

Starting and stopping an instance

When you launch an instance, the instance is backed by Amazon Secure Simple Storage (S3). After you launch the instance, you can create an Elastic Block Storage (EBS) volume and attach it to the instance. The major difference between S3-backed and EBS-backed instances is that EBS-backed instances can be stopped and restarted. Instances that are S3-backed can be launched and terminated, they cannot be stopped and restarted.

Important: When you terminate an instance, any changes made to that instance (media copied to the instance and changes to configuration files) are lost. To save media and configuration files, copy them off the instance before you terminate.

Terminate an instance

You cannot stop an instance backed by S3, you must terminate it. To start it, you have to launch a new instance (choose an AMI, define a security group, and so on).

1 In the AWS Management Console, select the instance.

2 Select the Instance Actions drop-down list and choose Terminate.

Stop an instance

You can stop an instance backed by EBS. You cannot stop an instance backed by S3.

1 In the AWS Management Console, select the instance.

2 Select the Instance Actions drop-down list and choose Stop.

Start an instance

You can start an instance backed by EBS. You cannot start an instance backed by S3.

1 In the AWS Management Console, select the instance.

2 Select the Instance Actions drop-down list and choose Start.

For more information, see "Launch an instance of Adobe Media Server" on page 2 and "Using Amazon Simple Storage Solution (S3) to store content" on page 36.

Start and stop the server on Linux

On Linux, Adobe Media Server is installed as a service. Start and stop the Adobe Media Server service using the amsmgr utility. Use the amsmgr utility to perform other tasks as well, such as configuring the service to start automatically when the system is started.

Start, stop, or restart Adobe Media Server

1 Log in as an `amsadmin` user.

2 Change directories to /opt/adobe/ams: **cd /opt/adobe/ams**.

3 Open a shell and type one of the following: **sudo ./amsmgr server ams start|stop|restart**.

Start, stop, or restart the Administration Server

1 Log in as an `amsadmin` user.

2 Change directories to /opt/adobe/ams: **cd /opt/adobe/ams**.

3 Open a shell and type one of the following: **sudo ./amsmgr adminserver start|stop|restart**.

For more information, see Managing the server on Linux.

Installation directories

Adobe Media Server is installed to the following directory:

/opt/adobe/ams

The configuration files are installed to the following directory:

/opt/adobe/ams/conf

Adobe Media Server on Amazon Web Services has a few differences from a standard Adobe Media Server installation. The following directories are located in the /mnt directory:

/mnt/applications

/mnt/logs

/mnt/webroot

The applications, logs, and webroot directory are in the /mnt directory, because on Adobe Media Server on Amazon Web Services, the /mnt directory contains more storage space than the / <root> directory.

Logging

The Adobe Media Server log files are written to the following directory:

 /mnt/logs

For more information about logging, see Monitoring and Managing Log Files in the *Adobe Media Server Configuration and Administration Guide.*

Configuration files

The server configuration files are located in the following directory:

/opt/adobe/ams/conf

You can edit configuration files just as you would on any edition of Adobe Media Server. See Working with configuration files.

Important: When you terminate an instance, all content on the instance is permanently deleted. Before you terminate an instance, copy any content you've added or modified, including configuration files, off the instance.

The following are the differences between the standard Adobe Media Server Extended configuration files and the Adobe Media Server on Amazon Web Services configuration files:

- Adaptor.xml

  `Adaptor/RTMFP/Core/HostPortList/HostPort` has a `public` attribute to allow UDP traffic through Amazon's firewall:

  ```
  <HostPort public="184.72.197.33:19350-19360">:19350-19360</HostPort>
  ```

- ams.ini

  The Administration Server is not configured or started by default. (See "Adobe Media Server Administration Console" on page 26.) To connect to the Administration Server, configure a port:

  ```
  SERVER.ADMINSERVER_HOSTPORT = :1111
  ```

  On an instance, the /mnt directory is much larger than the /opt directory. Therefore, content is configured to live in subdirectories of /mnt:

  ```
  LIVE_DIR = /mnt/applications/live
  VOD_COMMON_DIR = /mnt/webroot/vod
  VOD_DIR = /mnt/applications/vod/media
  VHOST.APPSDIR = /mnt/applications
  LOGGER.LOGDIR = /mnt/logs
  ```

For information about configuring the server for optimum performance for your streaming use case, see Configuring performance features in the *Adobe Media Server Configuration and Administration Guide.*

Apache HTTP Server configuration

The Apache HTTP Server configuration on Adobe Media Server on Amazon Web Services is the same as it is on other editions of Adobe Media Server. Adobe Media Server listens on port 80 and proxies unknown HTTP requests to port 8134. Apache listens on port 8134.

The Apache root directory is:

/opt/adobe/ams/Apache2.2/

The Apache webroot directory is:

/mnt/webroot/

For more information, see Configuring Apache HTTP Server.

Managing content

About managing content on an instance

When you launch an instance, the instance contains a new installation of Adobe Media Server for Amazon Web Services. To stream media, use an SSH client to connect to an instance and move the media and any supporting content (application folders and configuration files) to the instance. Before you terminate an instance, copy all the media and any supporting content, including modified configuration files, to an Amazon Simple Storage Service (S3) block or to an Amazon Elastic Block Storage (EBS) volume. Any files left on the instance are deleted when the instance is terminated.

"Using Amazon Simple Storage Solution (S3) to store content" on page 36

"Using Amazon Elastic Block Store (EBS) to store and stream content" on page 37

Important: When you terminate an instance, all content on the instance is permanently deleted. Before you terminate an instance, copy any content you've added or modified, including configuration files, off the instance.

Where to store content on an instance

The Adobe Media Server vod (video on demand) application has a default directory in which it looks for content (media files) to stream. However, you can configure the server to use any directory. On Adobe Media Server on Amazon Web Services, store content in any subdirectory of the following directory:

/mnt

On Amazon EC2 instances, the /mnt directory is much larger than the / directory. Therefore, on Adobe Media Server instances, the /applications, /logs, and /webroot directories are all subdirectories of /mnt.

The following table lists the default content directory and configuration location:

Application	Default content directory	Configuration location

vod	This application plays on-demand streams from the following directory:
	
	/mnt/applications/vod/media
	
	Flash Player and AIR clients can stream FLV files in that directory from the following URL:
	
	rtmp://*public-dns*/vod/*filename*
	
	Flash Player and AIR clients can stream F4V/MPEG-4 files in that directory from the following URL:
	
	rtmp://*public-dns*/vod/mp4:*filename*.xxx
	
	See "On-demand streaming" on page 8.
		/opt/adobe/ams/conf/ams.ini file
		
		`VOD_DIR =`
		`/mnt/applications/vod/media`

For more information about configuring the location of content on an instance, see Configuring content storage in *Adobe Media Server Configuration and Administration Guide*.

Set content permissions

Adobe Media Server on Amazon Web Services instances run CentOS, which is a Linux distribution. On Linux, all files and directories belong to an owner and a group. All Adobe Media Server files and directories belong to amsuser:amsgroup.

When you upload content to an instance, change the content's owner and group to amsuser:amsgroup. Changing the owner and group to amsuser:amsgroup ensures that the server can access and manipulate the content. To change the owner of all content in a directory to amsuser:amsgroup, use the following command:

chown amsuser:amsgroup *

For more information, see Understanding Linux file permissions.

Using key pairs to connect to an instance securely

To connect to a instance, use an SSH client such as WinSCP, OpenSSH, PuTTY, or Terminal. SSH is a network protocol that allows you to connect two devices securely.

For a list of SSH clients and which platforms and protocols they support, see Comparison of SSH clients on Wikipedia.

Instead of using a password, SSH clients use a *key pair* to verify their identity with the server. When you launch a Adobe Media Server on Amazon Web Services instance, you generate and download a key pair. A key pair consists of a public key and a private key. The instance has a copy of the public key and you download the private key as a .pem file. When you connect to the instance, pass the .pem file to the server so it can verify that the private key matches the public key.

Some SSH clients, such as WinSCP, cannot read .pem files. To use these clients, use the PuTTYgen application to convert the .pem file to a .ppk file that the client can read. The following sections explain how to convert a file.

Adobe Media Server on Amazon Web Services instances run on CentOS which is a Linux distribution. You can connect to instances from Linux operating systems, Mac OS®, Windows, and from any other operating systems that support SSH.

For more information about key pairs, see Using Public Keys for Authentication.

Connect to an instance and copy files from a Windows computer

Important: Some companies block SSH access. If you can't connect to an instance, contact your server administrator for SSH access.

On a Windows computer, you can use either of the following:

* WinSCP

    WinSCP is a free SSH, SCP, and SFTP client. It has a graphical interface that you can use to copy files from a local computer to a remote computer.

* PuTTY

    PuTTY is a free SSH client. From the PuTTY FAQ, "In really simple terms: you run PuTTY on a Windows machine, and tell it to connect to (for example) a Unix machine. PuTTY opens a window. Then, anything you type into that window is sent straight to the Unix machine, and everything the Unix machine sends back is displayed in the window. So you can work on the Unix machine as if you were sitting at its console, while actually sitting somewhere else."

Note: You can use other SSH clients as well. This document provides instructions for WinSCP and PuTTY, but other clients work similarly.

Use WinSCP to connect to an instance and copy files
The following example uses the WinSCP SCP client for Windows.

1 Download and install WinSCP and PuTTYgen.

2 Open PuTTYgen and do the following:

   a Choose Conversions > Import Key.

   b Browse to the .pem file and click Open.

   c Choose File > Save Private Key.

      A dialog asks whether it's OK to save this file without a passphrase to protect it. Click Yes.

   d Give the file the same filename as the .pem file and click Save. PuTTYgen adds the .ppk file extension.

   e Close PuTTYgen.

3 Login to the AWS Management Console, and select the instance to which you want to connect. In the details pane, copy the Public DNS entry.

4 Open WinSCP and do the following:

   a With Session selected in the tree, paste the public DNS of your instance to the Host name field.

   b Verify that the Port number is **22**.

   c For User name, enter **root**.

   d Click ... to browse to a private key file. Select the .ppk file you created in PuTTYgen and click Open.

   e For File protocol, select **SCP**.

   f To save the settings, click Save, give the profile a name, and click OK.
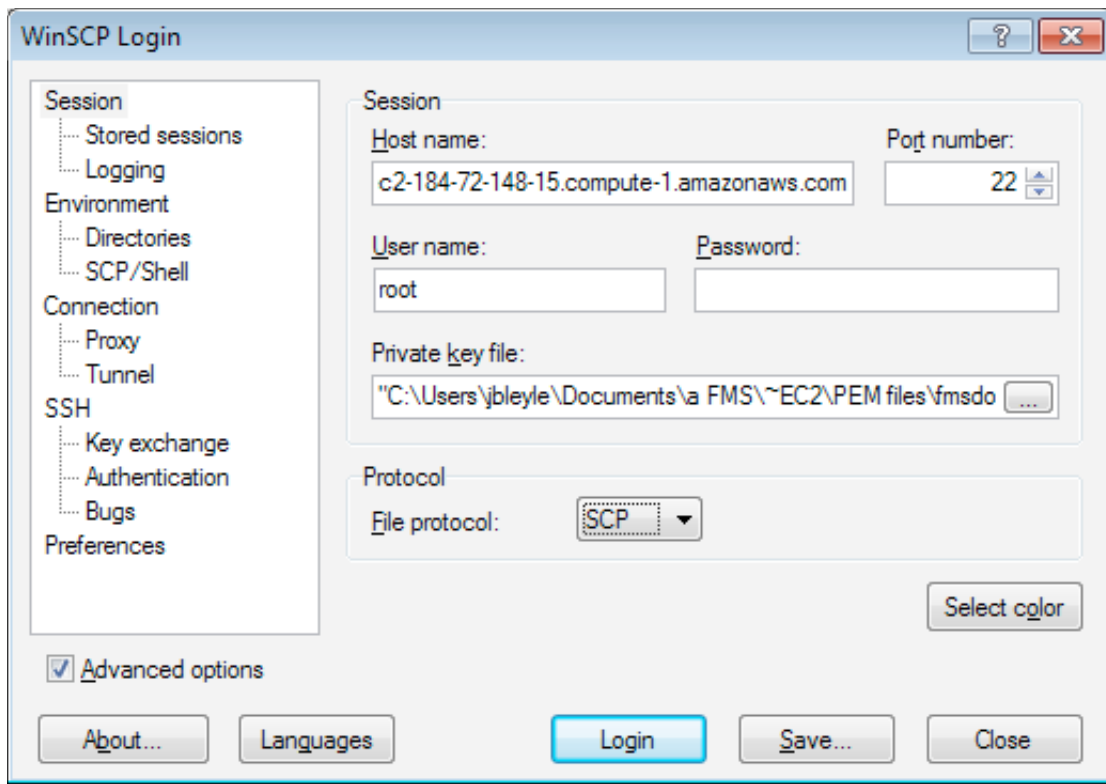
WinSCP Login screen

Note: *This task uses WinSCP version 4.2.9. The steps may be different on other versions of WinSCP.*

5 Click Login to connect to your Adobe Media Server for Amazon EC2 instance.

WinSCP may display a Security Alert. Read the alert and click Yes or No.

6 To manage files, use the graphical user interface.
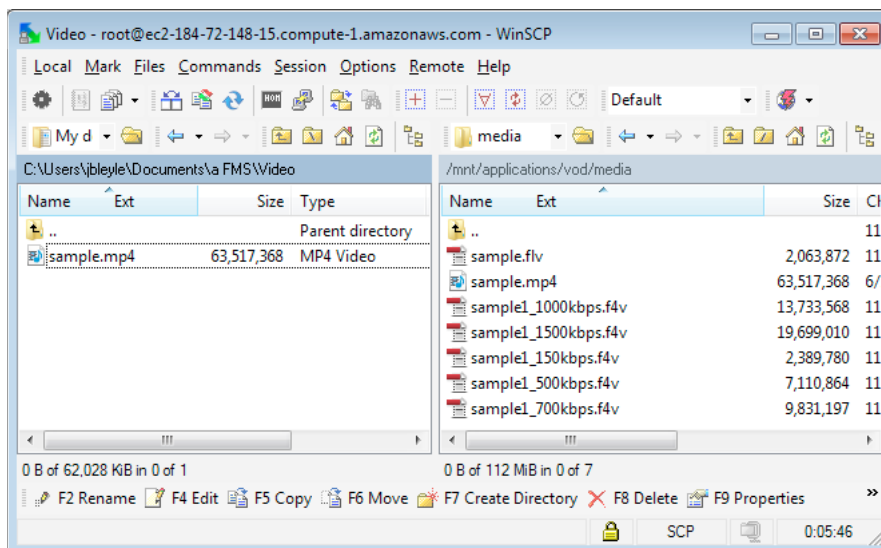
WinSCP graphical user interface. Local files are on the left. Remote files (on the Adobe Media Server instance) are on the right.

For information about where to put files to stream, see "Where to store content on an instance" on page 31.

Use PuTTY to connect to an instance and copy files
The following example uses the PuTTY SSH client for Windows. The PuTTY SSH client is available on other operating systems, as well.

For a video walkthrough of these steps, see Using AWS Management Console with Amazon EC2. The instructions for connecting to an EC2 Linux instance with PuTTY and generating a .ppk file start at the 3 minute 45 second mark.

1   Download and install PuTTy and PuTTYgen.

2   Open PuTTYgen and do the following:

   a   Choose Conversions > Import Key.

   b   Browse to the .pem file and click Open.

   c   Choose File > Save Private Key.

   A dialog asks whether it's OK to save this file without a passphrase to protect it. Click Yes.

   d   Give the file the same filename as the .pem file and click Save. PuTTYgen adds the .ppk file extension.

   e   Close PuTTYgen.

3   Login to the AWS Management Console, and select the instance to which you want to connect. In the details pane, copy the Public DNS entry.

4   Open PuTTY.

5   With Session selected in the tree, paste the public DNS of your instance to the Host Name (or IP address) field.

6   In PuTTY, in the left-hand tree, expand Connection > SSH > Auth.

7   Click Browse to locate the .ppk file you just generated, and click Open.

8   Click Open at the bottom of the window to connect to your Adobe Media Server on Amazon Web Services instance.

   PuTTY may display a Security Alert. Read the alert and click Yes or No.

9   At the login prompt, enter **root** and press Enter.

   You don't need to enter a password, the .ppk file handles authentication. You should see an AMS banner and a prompt.

10   To manage content, use Bash commands. For information about where to put files to stream, see "Where to store content on an instance" on page 31.

Connect to an instance and copy files from a Linux/UNIX computer

Important: *Some companies block SSH access. If you can't connect to an instance, contact your server administrator for SSH access.*

Most Linux/UNIX machines have an SSH client, called a *shell*. On Mac OS, the shell application is called Terminal. In the shell, use the `scp` command to securely copy files to a Adobe Media Server on Amazon Web Services instance.

If your machine doesn't have an SSH client, you can download one at http://www.openssh.org.

Connect to an instance
1   Open a shell.

2   Use the `ssh` command to connect to an instance. Use the following syntax:

ssh -i *keypair***.pem root@***public-dns*

For example, the following command connects to an instance:

ssh -i /Users/AMS/Documents/amsdocs4.pem root@ec2-50-16-19-38.compute-1.amazonaws.com

Note: Log in to the Adobe Media Server instance as root.

Copy content to an instance

1   Open a shell.

2   To copy files to a directory on the instance, use the scp command. following command:

scp -i *keypair***.pem** *fileToUpload.xxx* **root@***public-dns***:/remote/dir/toUpload**

For example, the following command copies the file sample.f4v to the vod application on the instance:

scp -i /Users/AMS/Documents/amsdocs4.pem /Users/AMS/Documents/sample.f4v root@ec2-50-16-19-38.compute-1.amazonaws.com:/mnt/applications/vod/media

For information about where to put files to stream, see "Where to store content on an instance" on page 31 and "Tutorials: on-demand and live streaming" on page 7.

Using Amazon Simple Storage Solution (S3) to store content

According to the Amazon web site: Amazon S3 provides a simple web services interface that can be used to store and retrieve any amount of data, at any time, from anywhere on the web. It gives any developer access to the same highly scalable, reliable, secure, fast, inexpensive infrastructure that Amazon uses to run its own global network of web sites.

Create an Amazon S3 account to store content. Adobe Media Server on Amazon Web Services installs with FuseOverAmazon (s3fs) which allows you to mount an S3 bucket as a local file system on the Adobe Media Server instance. Copy files from the S3 bucket to the /mnt/applications/vod/media directory to stream them from the vod application. Copy the files back to the S3 bucket before you terminate the instance.

Important: Technically, it is possible to stream files from an S3 bucket. However, Adobe does not recommend it because performance may suffer. It is not technically possible to record files to the S3 bucket.

Mount an S3 bucket as a local file system

1   Create an Amazon S3 account at aws.amazon.com/s3.

2   Create an S3 bucket and upload media to it.

    See Amazon Simple Storage Service Getting Started Guide.

3   FuseOverAmazon (s3fs) is installed on the Adobe Media Server on Amazon Web Services instance. FuseOverAmazon mounts the S3 bucket as a local file system on the instance.

    For information about the FuseOverAmazon command line options, see FuseOverAmazon.

4   Locate your Access Key ID and your Secret Access Key.

    See Using Credentials > How to Get Your Access Key ID and Secret Access Key in the Amazon Web Services User Guide.

5   Create a directory on the instance to mount the S3 bucket, for example, /mnt/s3fs.

    Create the directory as a subdirectory of the /mnt directory because it contains the most storage space.

6   Open a shell and issue the following command:

```
echo "accessKeyId:secretAccessKey" >> /etc/passwd-s3fs
chmod 640 /etc/passwd-s3fs
/usr/local/bin/s3fs ams-test-s3fs -o use_cache=/tmp -o allow_other,uid=500,gid=500
/mnt/s3fs
```

The amsuser:amsgroup can now read and write content to the S3 bucket "ams-test-s3fs".

Important: The "allow_other" option allows Adobe Media Server to read directly from the s3fs mounted device. If you don't specify "allow_other", Adobe Media Server cannot access files from the s3fs mount. Also, you must specify the full path to s3fs.

Use a shell script to manage content when you launch an instance

Note: Using a shell script is optional. You can copy and manage content manually if you choose.

When you launch an instance, there is a User Data text box on the Advanced Instance Options screen. Scripts in the User Data text box that start with `#!` are run at runlevel 5 when an instance launches. The User Data text must be less than 16KB. To run a longer script, write it in an external file and trigger it from the User Data script. The last line of the User Data script in this example triggers an additional script.

1 Complete steps 1-4 in the previous task.

2 Enter the following script into the "User Data" text box when you launch an instance from the AWS Management Console. When the instance loads, it mounts the S3 bucket "ams_scripts" and executes the script "setup.sh".

```
#! /bin/sh
echo "accessKeyId:secretAccessKey" >> /etc/passwd-s3fs
chmod 640 /etc/passwd-s3fs
mkdir /mnt/bucket
/usr/local/bin/s3fs ams_scripts -o use_cache=/tmp -o allow_other,uid=500,gid=500
/mnt/bucket
/mnt/bucket/setup.sh
```

Use the full path to s3fs.

The option `-o use_cache=/tmp` is an s3fs feature that caches S3 content on the instance. When you specify this option, s3fs can use local content instead of pulling it from S3 each time the content is requested.

The /mnt/bucket/setup.sh script is a file on S3 that runs additional configuration steps. For example, the script could modify Adobe Media Server to look for streams in the /mnt/bucket directory. The script is not provided; you must write it.

For additional information about User Data scripts, see Eric Hammond's article Automate EC2 Instance Setup with user-data Scripts.

Using Amazon Elastic Block Store (EBS) to store and stream content

According to the Amazon web site: Amazon Elastic Block Store (EBS) provides block level storage volumes for use with Amazon EC2 instances. Amazon EBS volumes are off-instance storage that persists independently from the life of an instance. Amazon Elastic Block Store provides highly available, highly reliable storage volumes that can be attached to a running Amazon EC2 instance and exposed as a device within the instance. Amazon EBS is particularly suited for applications that require a database, file system, or access to raw block level storage.

Amazon EBS works exactly like a local file system. You can stream from an EBS volume and write to an EBS volume. The main benefit of using an EBS volume is persistent storage; when you terminate an instance, the data on the EBS volume is saved.

Important: To prevent data loss, unmount the EBS volume before you terminate the instance.

The drawback of a local disk is that you can attach it only to a volume in the same zone. Also, you can attach only one instance to an EBS volume. You cannot boot Adobe Media Server from an EBS volume.

To create an EBS volume and attach it to a Adobe Media Server instance, do the following:

1   Sign in to your Amazon Web Services account at https://console.aws.amazon.com/ec2.

   The AWS Management Console launches with the EC2 tab open.

2   In the AWS Management Console, in the Navigation pane, locate Elastic Block Store and click Volumes.

3   In the upper right corner of the EBS Volumes pane, click Help.

   A Help panel opens with complete instructions for creating, attaching, formatting, and mounting a volume.

Working with applications

Working with pre-built applications

Adobe Media Server installs with four pre-built applications (also called *streaming services*). The tutorials in the section "Tutorials: on-demand and live streaming" on page 7 use these applications. The following table describes each application:

Application name	Description
vod	This application plays on-demand media files. To configure the storage location for the media files, see "Where to store content on an instance" on page 31. See "On-demand streaming" on page 8.
live	This application broadcasts a live stream and doesn't record it. See "Live streaming" on page 11.
multicast	This application multicasts a live stream and doesn't record it. See "Multicast streaming" on page 16.
livepkgr	This application broadcasts a live stream over HTTP and doesn't record it. See "Live HTTP Dynamic Streaming" on page 14. To record a stream, see Example: Live HTTP Dynamic Streaming with DVR in *Adobe Media Server Developer's Guide*.

For more information about the pre-built applications, see Streaming services in the *Adobe Media Server Developer's Guide*.

Create an application

To create an new application, create a directory in the /mnt/applications directory. For example, to create an application called myapplication, create the following directory:

/mnt/applications/myapplication

Working with applications on Adobe Media Server on Amazon Web Services is no different than with other editions of Adobe Media Server. For complete documentation, see Adobe Media Server Developer's Guide.

Configure an application

All applications use the default configuration files located in the following directory:

/opt/adobe/ams/conf

To configure a single application, copy an Application.xml file to the applications's directory. For example, to configure myapplication, copy the Application.xml file to the following location:

/mnt/applications/myapplication/Application.xml

You can place an Application.xml file in an application's folder. Values set in the application-level Application.xml file override the values in the vhost-level Application.xml file. The vhost-level Application.xml file configures all applications in a vhost (virtual host). By default, an instance has one virtual host. The vhost-level file is located here:

/opt/adobe/ams/conf/_defaultRoot_/_defaultVHost_/Application.xml

To see an example of configuring a single application, look at the vod and live applications included with Adobe Media Server. Navigate to /mnt/applications/vod and /mnt/applications/live. Each folder contains an Application.xml file. The values in these files override the values in the vhost-level file.To prevent settings in the vhost-level Application.xml settings from being overridden by the application-level Application.xml file, add an override attribute to a tag and set it to `"no"`, as in the following:

```
<LoadOnStartup override="no">false</LoadOnStartup>
```

When `override="no"` for an element in a vhost-level Applcation.xml file, you cannot override that element, or any elements contained within that element, in an application-level Application.xml file.

Connect to an application

To connect to the application, use the ActionScript 3.0 NetConnection class:

```
netconnection.connect(protocol://public-dns/myapplication)
```

The value of `protocol` can be any protocol supported by Adobe Media Server. For a complete list, see the *Adobe Media Server Technical Overview*.

The value of `public-dns` is the public DNS entry of the instance. To find this value, select the instance in the AWS Management Console and look in the details pane.

The value of `myapplication` is the name of the folder you created in the /mnt/applications directory.

For more information about connecting to an application and streaming media, see Developing streaming media applications in *Adobe Media Server Developer's Guide*.

For a complete ActionScript reference, see ActionScript 3.0 Reference for Flash Platform.

Check out Graeme Bull's Adobe Media Server video tutorials at fmsguru.com.

Record a live event

You can record archives of live events just as you would with any edition of Adobe Media Server that supports recording. To store the archives, copy them from the instance to a storage volume (either EBS or S3) before you stop or terminate the instance.

To record a live stream, use the DVRCast application. For more information, see "Live streaming with DVR" on page 13.

Chapter 3: Getting Help and Support

Adobe Help and Support resources

Documentation

Adobe Media Server Technical Overview

Adobe Media Server Developer's Guide

Adobe Media Server Configuration and Administration Guide

Support

Adobe Media Server forum

To contact Adobe Support, go to www.adobe.com/support/contact/.

Amazon Help and Support resources

Documentation

Amazon Elastic Compute Cloud Getting Started Guide

Amazon Elastic Compute Cloud User Guide

Amazon Elastic Compute Cloud Developer Guide

For complete Amazon Web Services documentation, see aws.amazon.com/documentation.

Support

Amazon Web Services forums

Amazon Web Services Support Center