

ADOBE® FLASH® MEDIA ENCODER 2.5

USER GUIDE



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Adobe® Flash® Media Encoder 2.5 User Guide for Windows®

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Chapter 1: Before you begin

Before you begin working with Adobe® Flash® Media Encoder, take a few moments to read the following overview of the Help and of the many resources that are available to users.

About the Help

Help The documentation is available in Help. To access it, select Help > Flash Media Encoder Help.

PDF version of Help To view all the Help topics in a single document, download the PDF from the Adobe Help Resource Center at www.adobe.com/go/learn_fme_doc_en.

Command-line Help To show a list of all the command-line parameters and their usages, open a command prompt in the Flash Media Encoder installation directory, and enter the following:

```
FMEcmd /h
```

Using Help

The following topics describe how to use Help for Flash Media Encoder.

Browse Help topics

In the Navigation pane, do one of the following:

- To browse by topic, click the Contents tab.
- To browse alphabetically, click the Index tab.

Search Help topics

1 In the navigation pane, click the Search tab.

2 Type one or more words in the text box, and click the Search button.

Topics that match the search terms appear in the navigation pane, listed in order of relevance.

These tips can help you improve your search results in Help:

- If you search using a phrase, such as “output video,” put quotation marks around the phrase. The search returns only those topics that contain all words in the phrase.
- Make sure that search terms are spelled correctly.
- If a search term doesn’t yield results, try using a synonym, such as “web” instead of “Internet.”

Navigate Help

Navigate Help by doing any of the following:

- Expand items in the Contents tab until you reach the desired topic. To view a topic, click its title in the Contents page.
- Click the Left or Right arrow keys in the Reading pane to go to the previous or next topic.
- Click Back on the toolbar to go to the last page you viewed.
- Click Forward to go to the page you viewed before clicking the Back button.

Resources

Flash Media Encoder product site This site, at www.adobe.com/go/learn_fme_main_en, provides information about system requirements, contains links to release notes, and lets you download Flash Media Encoder.

Flash Media Encoder Forums This site, at www.adobe.com/go/fme_forum, provides forums for Flash Media Encoder users to share information and ideas.

Flash Media Server Support Center This site, at www.adobe.com/go/flashmediaserver_support_en, provides Tech Notes and the latest information about Adobe® Flash® Media Server.

Flash Media Server Developer Center This site, at www.adobe.com/go/flashmediaserver_desdev_en, provides articles, tips, and samples for creating Flash Media Server applications.

Flash Developer Center This site, at www.adobe.com/go/learn_flv_devnet_en, provides articles, tips, and samples for working with video in Flash.

Feature Request/Bug Report Form This site, at www.adobe.com/go/wish, provides a form to request new features or suggest modifications to existing features, including reports of bugs.

Adobe.com

The following general resources are available on the [Adobe website](http://www.adobe.com):

Adobe Design Center Offers articles, tips, and tutorials in various formats, including video, Adobe PDF, and HTML. The content is authored by industry experts, designers, and Adobe publishing partners, and new content is added monthly. You'll also find Adobe Studio Exchange, where users download and share thousands of free actions, plug-ins, and other content. Adobe Design Center is available in English, French, German, and Japanese. Visit Adobe Design Center at www.adobe.com/designcenter.

Adobe Developer Center Provides samples, tutorials, articles, and community resources for developers who build rich Internet applications, websites, mobile content, and other projects using Adobe products. The Developer Center also contains resources for developers who develop plug-ins for Adobe products. Visit Adobe Developer Center at www.adobe.com/go/developer.

Adobe Help Resource Center Includes complete in-product Help and PDF documentation, with updates and additions as they become available. For some developer products, Help on the web is provided in LiveDocs format, which enables users to add comments to topics. Visit the Adobe Help Resource Center at www.adobe.com/go/documentation.

Communities Features forums, blogs, and other avenues for users to share technologies, tools, and information. Users can ask questions and find out how others are getting the most out of their software. User-to-user forums are available in English, French, German, and Japanese; blogs are posted in a wide range of languages. To participate in forums or blogs, visit www.adobe.com/communities.

What's new?

Flash Media Encoder 2.5 includes new features for optimal media quality and encoding and streaming operations.

Support for H.264 Encode live media using the H.264 video codec, and stream it using Flash Media Server 3. Media is saved as F4V files. F4V files can be viewed in Adobe® Media Player, Adobe® AIR™ applications, and Adobe® Flash® Player 9.0 Update 3 or later.

Automatic frame dropping To ensure optimal performance even under suboptimal network conditions, Flash Media Encoder 2.5 automatically drops frames from the RTMP buffer while streaming to Flash Media Server, as needed.

Chapter 2: Getting started

Adobe Flash Media Encoder is a software program for capturing, encoding, and streaming audio and video to Flash Media Server or the Adobe Flash Video Streaming Service.

Flash Media Encoder is designed for technical audio/video producers who seek a convenient and simplified workflow. It provides a unified interface to audio and video capture devices, basic editing tools, fine control over encoding parameters, and live broadcast using Flash Media Server or Flash Video Streaming Service providers. Flash Media Encoder can also be run from a command-line interface, making it possible to set up continuously running encoding sessions and integrate them with existing automated systems.

For more information about Flash Media Encoder and related products and services, see the following sites:

Flash Media Encoder www.adobe.com/go/learn_fme_main_en

Flash Media Server www.adobe.com/go/fms

Flash Media Solution Provider Program www.adobe.com/go/fmsp

Flash Video Streaming Service www.adobe.com/go/fvss

Flash Media Encoder basics

The following sections describe the basic operations to get you started with Flash Media Encoder.

About GUI and command-line modes

You can run Flash Media Encoder from the graphical user interface (GUI) or from the command line. Some operations are available in only one of the two modes, and some are available in both modes.

Start the Flash Media Encoder GUI

❖ Do any one of the following:

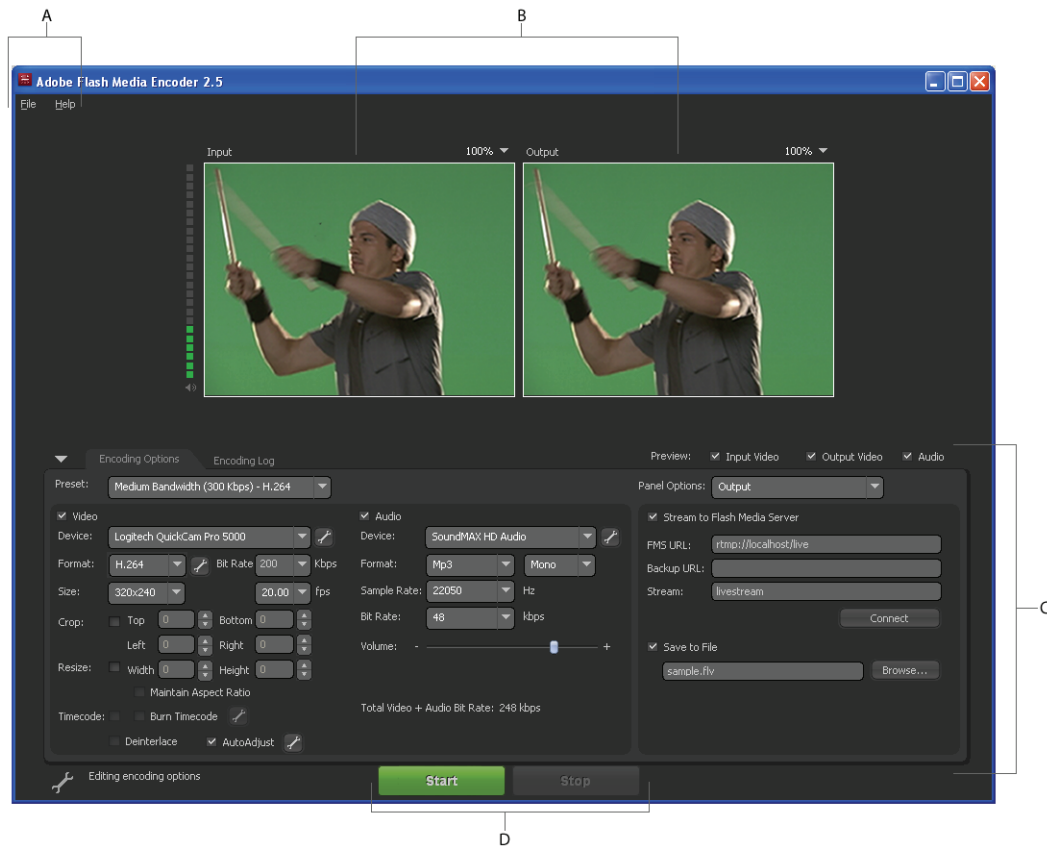
- Select Start > All Programs > Adobe > Flash Media Encoder 2.5
- From a command prompt in your Flash Media Encoder installation directory (typically C:\Program Files\Adobe\Flash Media Encoder 2.5), enter the following:

```
FMEcmd /g [/p [path\]profile.xml] [/ap userID:password] [/ab userID:password]
```

The `/g` parameter starts Flash Media Encoder in GUI mode. For information on the optional `/p`, `/ap`, and `/ab` parameters, see “Start Flash Media Encoder in command-line mode” on page 6.

About the Flash Media Encoder GUI

The Flash Media Encoder GUI includes a menu, a preview of input and output video, and a control panel where you can configure encoding options, view and configure encoding logs, and start and stop encoding sessions.



A. Menus B. Previews C. Control panel D. Control buttons

Previewing video and audio

The Preview panel in the Flash Media Encoder GUI includes the following:

- An audio level meter, indicating input audio volume, and a mute button
- An Input display of the video currently being captured
- An Output display, which reflects current video encoding settings

Note: Before encoding starts, the Output display reflects only crop and resize settings.

By default, the Preview panel is active and appears at actual output size.

Show or hide input video, output video, and audio

❖ Select or deselect the following Preview options:

- Input Video
- Output Video
- Audio

Mute or unmute the audio

- ❖ Click the speaker icon  below the audio level meter.

Adjust the zoom level

- ❖ Select a percentage from the pop-up menu on the upper right of either the Input or Output preview.

Note: Zoom level does not affect encoding or the stream that viewers see.

Show or hide the control panel

- ❖ Click the triangle next to the Encoding Options tab.

Start Flash Media Encoder in command-line mode

- ❖ From a command prompt in your Flash Media Encoder installation directory, enter the following:

```
FMEcmd [/p [path\]profile.xml] [/l [path\]log_file] [/ap userID:password]
      [/ab userID:password] [/t dd:hh:mm] [/r]
```

Parameter	Description
/p	(Optional) Specifies the path and filename of an XML profile to use. If you do not use this parameter, Flash Media Encoder uses the default profile, startup.xml. For more information, see “Saving encoding profiles” on page 17.
/l	(Optional) Specifies the path and filename of an encoding log file. The settings in the log file override the settings specified in the currently loaded profile. For more information, see “Using the Encoding Log” on page 7.
/ap	(Required if the primary server requires authentication) Specifies an authenticating user ID and password for the primary server. Because the password is shown in plain text, take care when entering your password.
/ab	(Required if the backup server requires authentication) Specifies an authenticating user ID and password for the backup server. Because the password is shown in plain text, take care when entering your password.
/t	(Optional) Instructs Flash Media Encoder to restart after the specified time interval. For more information, see “Scheduling automated maintenance restarts” on page 19.
/r	(Optional) Registers the encoding session to restart at an operating system relaunch after a system closure or crash. For more information, see “Configuring Flash Media Encoder to launch at system startup” on page 20.

Flash Media Encoder launches without displaying the GUI and immediately starts an encoding session.

Encoding and streaming

The following sections describe how to start and stop encoding video, and how to configure an encoding session log.

Start and stop encoding from the GUI

- 1 Click the Start button in the Flash Media Encoder window.

Note: If both the Stream To Flash Media Server and Save To File options in the Encoding Options tabbed panel are deselected, the Start button is unavailable.

- 2 If an authentication dialog box appears, enter your user ID and password.
- 3 To stop encoding, click Stop.

Note: Although the encoding stops, the server connection persists until you click Disconnect. For information on connecting to and disconnecting from the server, see “Connect and disconnect” on page 15.

Starting and stopping encoding sessions from the command line

When you start Flash Media Encoder from the command line, it automatically starts encoding at the same time. For encoding sessions that were started from the command line, you can show a list of any running sessions and stop an encoding session.

Show a list of encoding sessions that were started from the command line

❖ From a command prompt in your Flash Media Encoder installation directory, enter the following:

```
FMEcmd /s
```

Stop an encoding session that was started from the command line

❖ From a command prompt in your Flash Media Encoder installation directory, enter the following:

```
FMEcmd /s fme_UID
```

When the session is streaming to a server, use the format *fms_URL+stream_name* for *fme_UID*. For example, to stop an encoding session that is running on the server *fms.myserver.com* with the Flash application live, and the stream *livestream*, you would enter the following:

```
FMEcmd /s rtmp://fms.myserver.com/live+livestream
```

Note: When using the */s* parameter, the *stream_name* portion of *fme_UID* cannot contain a plus sign (+), because + is used as a delimiter in *fme_UID*.

When the session is being saved to file but is not streaming to a server, use the filepath and filename for *fme_UID*. For example:

```
FMEcmd /s "C:\Documents and Settings\abc\My Documents\My Videos\sample.flv"
```

Using the Encoding Log

The Encoding Log provides detailed information on encoding sessions and is an essential tool for troubleshooting. If you are trying to resolve an issue with Flash Media Encoder, support personnel may request that you examine the screen log or submit a log file. With the Encoding Log, you can view and save logs of encoding sessions and view status information about sessions.

In the GUI, the Encoding Log tab appears automatically when encoding starts. During encoding, logged events and encoding status messages appear in real time.

The log section on the left side of the panel lists important encoding events, file system events, and error messages as they occur. Each event and message includes a timestamp.

The Statistics section on the right side of the panel shows information on what the video and audio encoders are actually achieving, given the current settings and encoding environment. On the Encoding tab, you can see the current (for the last 1 second) encoding time, actual bit rates and frame rates, and whether any video frames are being dropped. You can also view the averages achieved for the current encoding session. This information can help you refine your encoding settings for best results. The Server tab shows information about the bandwidth at which Flash Media Encoder is publishing to the server, the RTMP buffer length, and the number of frames dropped by automatic adjustment (if the AutoAdjust option is enabled).

Note: To set the RTMP buffer size, see the AutoAdjust option under “Configure video encoding options” on page 11.

Enable logging from the GUI

- 1 Click the Encoding Log tab.
- 2 Select Log To File.
- 3 By default, logs are saved in your My Documents\My Videos folder. To save the log in a different folder, click Log Directory and select a folder or create a new one.

When logging is enabled, Flash Media Encoder creates a new log file each time you start encoding. The log filename has the following format:

```
fme_session_yyyymmdd_hhmmss.log
```

The date and time are the local system date and time. For example, the name of a log file for a Flash Media Encoder session that began at 10:30 on 5 November 2009 would be as follows:

```
fme_session_20091105_103000.log
```

Enable logging from the command line

- ❖ From a command prompt in your Flash Media Encoder installation directory, start Flash Media Encoder using the /l parameter in the following format:

```
FMEcmd /l [path\]log_file
```

Here *path* (optional) and *log_file* are the path and filename of the log file you want to create. If *path* is not specified, the log file is saved in your My Documents\My Videos folder.

For example:

```
FMEcmd /p c:\Profiles\my_profile.xml /l c:\Logs\my_log.txt
```

Note: If you include the /l parameter, the log you specify overrides the log preference specified in the XML profile. For more information on XML profiles, see “Saving encoding profiles” on page 17.

Chapter 3: Configuration and automation

This chapter describes the many ways that you can optimize video, audio, and output settings in Adobe Flash Media Encoder. It also describes how to automate startup tasks so that you can stream media continuously, 24 hours a day, 7 days a week.

Configuring encoding options

You access most options and controls in Flash Media Encoder on the Encoding Options tabbed panel, which appears by default when you start Flash Media Encoder. This panel includes options for adjusting video, audio, and output settings.

Select a preset bandwidth option

Flash Media Encoder includes the following encoding preset options. The preset options specify video and audio settings that are appropriate for your bandwidth. Low, medium, and high bandwidth settings are available for VP6 video. Medium and high bandwidth settings are available for H.264 video.

Preset option	Video format	Video bit rate (Kbps)	Size (pixels)	Frame rate (fps)	Audio format	Audio channel	Sample rate (Hz)	Audio bit rate (Kbps)
Low bandwidth (150 Kbps)	VP6	100	176 x 144	15	Nellymoser	Mono	11025	22
Medium bandwidth (300 Kbps)	VP6	200	320 x 240	15	MP3	Mono	22050	48
High bandwidth (800 Kbps)	VP6	650	320 x 240	30	MP3	Stereo	44100	128
Medium bandwidth (300 Kbps)	H.264 Main profile, level 2.1	200	320 x 240	20	MP3	Mono	22050	48
High bandwidth (800 Kbps)	H.264 Main profile, level 3.1	650	320 x 240	30	MP3	Stereo	44100	128

❖ Choose an option from the Preset menu. Make your selection based on the bandwidth that will be available at broadcast time.

Note: If your capture device does not produce video or audio in the preset values, Flash Media Encoder selects the closest available value.


About custom bandwidth options

An additional option in the Preset menu, Custom, is selected when you manually adjust any settings. If you are using custom settings when you quit Flash Media Encoder, the next time you start the program, it applies your custom settings. If you choose a preset option and exit the program, however, any custom settings are lost. For information on saving encoding settings for easy retrieval, see “Saving encoding profiles” on page 17.

Configure video encoding options

❖ On the Video side of the Encoding Options tabbed panel, configure any of the following encoding settings:

Video When deselected, the encoding session does not include video.

Device Specifies the video capture device to use. The menu lists any video devices that are attached to the system and that are compatible with Microsoft® DirectShow®. Click the tool icon  next to a selected device to configure its settings.

Format Specifies the video codec to use: On2 VP6 or H.264.

The following video/audio combinations are supported:

	Nellymoser	MP3
H.264		✓
VP6	✓	✓

See also “Configure advanced video encoding options for VP6 video” on page 13 and “Configure advanced video encoding options for H.264 video” on page 13.

Bit rate Specifies the video bit rate in Kbps. Select a bit rate or enter a value from 0 to 20000.


Size Specifies the video dimensions in pixels.

fps Specifies the target frame rate.

Crop When selected, activates controls for cropping input video, to create focus or draw attention to a section of the image. See “Crop video output” on page 12.

Resize When selected, activates controls for resizing video dimensions for final output. This is useful if your video capture device doesn’t provide the output dimensions you require, or if you crop the input video and want to restore specific output dimensions. See “Resize video output” on page 12.

Timecode When selected, embeds an SMPTE timecode in the video stream.


To configure advanced timecode settings, click the tool icon  next to the Burn Timecode box. For information, see “Configure advanced timecode options” on page 12. For more information, see also “Working with timecode” on page 24.

Note: *If the selected video device is not capable of generating a timecode, this option is unavailable. If the selected video device is not a FireWire device, you may need to provide a DLL file in the appropriate format for that device in order to embed a timecode. Install the DLL in the FMEInstallDir\Timecode folder (typically C:\Program Files\Adobe\Flash Media Encoder 2.5\TimeCode).*

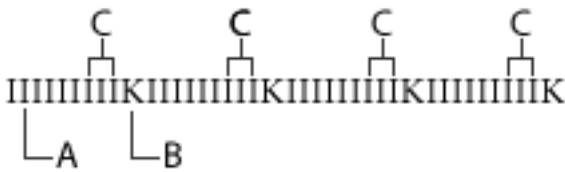
Burn Timecode When selected, the external video device burns a timecode on the video image, and the timecode is visible on the Input and Output preview.

Note: *If the selected video device can generate a timecode but cannot burn timecodes on the video, the Burn Timecode option is unavailable.*

Deinterlace When selected, activates the video deinterlacing filter, which may improve video quality by applying a simple vertical blur. This option is available only when the input video height is greater than 480 pixels and the input video width is greater than 576 pixels. The deinterlacing filter is applied when encoding starts.

AutoAdjust When selected, activates frame dropping. Flash Media Encoder drops frames when the amount of data in the RTMP buffer exceeds the maximum buffer size. This situation can occur when network bandwidth is low or network latency is high. Flash Media Encoder drops video frames from the RTMP buffer to maintain the buffer size. To set the maximum buffer size, click the tool icon  next to the AutoAdjust box.

To provide a better user experience, Flash Media Encoder drops frames at intervals, rather than all at once. It drops backward-facing video frames between keyframes, as shown in the following illustration. The illustration shows I-frames; for H.264 video, I-frames, B-frames, and P-frames can be dropped. If necessary, keyframes (VP6) or IDR frames (H.264) can also be dropped.



A. Inter-frame B. Keyframe C. Dropped frames

When the RTMP buffer size returns to a normal value, Flash Media Encoder stops dropping video frames.

Crop video output

- 1 In the Encoding Options tabbed panel, select the Crop option.
- 2 To specify the crop area, do any of the following:
 - Drag any of the square handles that appear at the edges and corners of the Input video preview.
 - Enter a pixel value in any of the Top, Bottom, Left, and Right boxes.
 - Click the Up or Down arrow next to a pixel value box.
- 3 To move the crop selection box to another position, place the pointer inside the bounding box and drag.


Note: If overlay is disabled on your graphics card, the square handles and bounding box are unavailable.

Resize video output

- 1 In the Encoding Options tabbed panel, select the Resize option.
- 2 To maintain the width and height ratio when adjusting the value of one dimension, select Maintain Aspect Ratio.
- 3 Enter a pixel value in the Width or Height box, or click the Up or Down arrow next to the box.

Note: Although PC-based players may accommodate unexpected video sizes and dimensions, specialty players (such as cell phone players) have stricter requirements.

Configure advanced timecode options

- 1 In the Encoding Options tabbed panel, select the Timecode option.
- 2 Click the tool icon  next to the Burn Timecode box.
- 3 In the Advanced Timecode Settings dialog box, configure any of the following settings:

Vertical Line Number Specifies the vertical line from where the timecode is extracted.


Frame Interval Specifies the number of video frames after which the timecode is embedded into the video stream.

Position Specifies where the timecode is burned, by row and column. If the encoding device does not support burning of timecodes, this option is disabled.

Timecode settings are stored in the XML profile. For information on XML profiles, see “Saving encoding profiles” on page 17. For more information on using timecodes, see “Working with timecode” on page 24.

Configure advanced video encoding options for VP6 video

Important: These options pertain only to video encoded with the VP6 codec. Use these options carefully. The settings affect the way that Flash Media Encoder uses your computer’s processor and memory. These settings persist until the next time you readjust them.

1 With VP6 selected, click the Advanced icon  next to the Video Format box.

2 In the Advanced Encoder Settings dialog box, configure any of the following settings:

Keyframe Frequency Specifies the minimum frequency for inserting keyframes in the output video stream. Keyframes are encoded without reference to any other frames in the stream, and they provide a recovery point if the viewer’s connection is dropped or rebuffered.

Quality Specifies image quality. Depending on the nature of the content (such as static or dynamic) and processor capability, this setting can affect the output, as noted in each setting. The Best Quality setting attempts to retain image sharpness but is processor-intensive; if CPU resources become exhausted while encoding, Flash Media Encoder compensates by dropping frames. In general, the first setting in this list that your system can support without dropping frames is best. To confirm that frames aren’t being dropped, monitor the Status display while encoding. For more information on the Status display, see “Using the Encoding Log” on page 7.

Note: This setting may depend on the CPU Usage setting. For example, if you choose Best Quality but set CPU Usage to Very Low, Flash Media Encoder drops frames.

Noise Reduction The encoder attempts to blur what it perceives as unwanted artifacts in the video stream. This setting specifies how aggressively to apply the technique.

Note: Noise reduction is a matter of personal preference; do not adjust this setting unless you determine that there is a quality advantage.

Datarate Window Specifies how much datarate fluctuation to allow while encoding.


Flash Media Encoder can recognize similarities between adjacent frames. It allocates fewer bandwidth resources to encoding sequences that have fewer changes in the frames (such as a sitting interview using a fixed camera), reserving the resources for sequences with more motion (such as a sports event). With a larger Datarate Window value, Flash Media Encoder holds more data in its buffer—it can process more video frames, resulting in better compression. If you believe that the viewers may have suboptimal network connections, you may want to reduce this value. Conversely, for encoding streams that are saved to file for local playback only (that is, streams that are never transmitted over a network), use the Huge setting.

The best way to determine the practical effects of this setting is through real-world testing of the viewer experience.

CPU Usage Specifies the CPU resources to allocate to the video encoder. You achieve best encoding results from a dedicated machine. Special circumstances may require that you reserve some processing power for a second task.

Configure advanced video encoding options for H.264 video

Important: These options pertain only to video encoded with the H.264 codec. Use these options carefully. The settings affect the way that Flash Media Encoder uses the CPU and memory. These settings persist until the next time you readjust them.

1 With H.264 selected, click the Advanced icon  next to the Video Format box.

2 In the Advanced Encoder Settings dialog box, configure any of the following settings:

Profile Select either the Baseline or Main profile.

The Baseline profile is commonly used in videoconferencing, mobile applications, or other applications which operate with limited processing power, storage capacity, and bandwidth. The Main profile is appropriate for applications that broadcast media, such as network broadcasting, and requires 1.5% more processing power than the Baseline profile.

Level Flash Media Encoder supports all available levels. Here are some examples of the resolution and frame rate achieved with different levels:

Type	Level	Maximum resolution (width x height)	Frame rate (frames per second)
Standard definition	1.3	352 x 288	30 fps
Standard definition	3	720 x 576	25 fps
High definition	3.1	1280 x 720	30 fps
High definition	5.1	1920 x 1088	120.5 fps


Encoding with the H.264 codec is CPU-intensive. Adobe recommends that you select a level and video size that enables CPU usage to remain below 75% during encoding.

For more information on H.264 profiles and levels, see commonly available resources about the H.264 video codec, such as the ISO/IEC 14496-10 standard on the [ISO website](#) and [Wikipedia](#).

Configure audio encoding options

❖ On the Audio side of the Encoding Options tabbed panel, configure any of the following encoding settings:

Audio When deselected, the encoding session does not include audio.

Device Lists any audio devices that are attached to the system and are DirectShow-compatible. Click the tool icon  next to the device to configure the device's settings.

Format Specifies the audio format (Nellymoser or MP3) and the channel option (Mono or Stereo). The following video/audio combinations are supported:

	Nellymoser	MP3
H.264		✓
VP6	✓	✓

Sample Rate Specifies the audio sample rate, as determined by the audio format and sample rate that you select.

Bit rate Specifies the audio bit rate in Kbps, as determined by the audio format and sample rate that you select.

Volume Specifies the input audio volume level.

Configure output options

You can use the output options to stream live video to a server, save your broadcast to file, or both.

1 From the Panel Options menu on the right side of the Encoding Options tabbed panel, select Output.

2 Configure any of the following options:

Stream To Flash Media Server When selected, enables streaming to the specified servers when encoding starts.

FMS URL Specifies the fully qualified URL, or *RTMP string*, of the primary server. The URL must begin with `rtmp://` or `rtmpt://` and include your server's domain name and the Flash application to use. You may optionally include a specific application instance and port number. For example:

```
rtmp://fms.myserver.com:80/live/livestream
```

Here, `fms.myserver.com` is the Flash Media Server computer host name, `80` is the port number to connect to (optional), `live` is the name of a Flash application on the host (required), and `livestream` is the instance of the application to connect to (optional).

For more information on RTMP strings, see the Flash Media Server documentation.

Backup URL Specifies the fully qualified URL of a backup server and application (optional). If you specify a backup server, Flash Media Encoder streams to both servers.

Stream Specifies a name for the video stream.

Save To File When selected, saves the output to file. Click Browse to specify a different filename and folder.

The following table shows to which file format media is saved, depending on the codecs that are used:

	Nellymoser	MP3	Video only
H.264	N/A	F4V	F4V
VP6	FLV	FLV	FLV
Audio only	FLV	FLV	N/A

Note: If you use a filename that already exists in the selected folder, Flash Media Encoder renames the existing file so that the newly saved file does not overwrite it. For example, if `sample.flv` already exists, Flash Media Encoder renames it `sample.0.flv` and saves your new file as `sample.flv`. If both `sample.flv` and `sample.0.flv` exist, `sample.flv` is renamed `sample.1.flv`, and so on. If the wrong file extension is used, Flash Media Encoder changes it to the correct file extension.

Connect and disconnect

1 To connect to the URLs specified in FMS URL and Backup URL (if used), click the Connect button in the Encoding Options tabbed panel.

Note: If the Stream To Flash Media Server option is deselected, the Connect button is unavailable.

2 If the server requires authentication, enter your user ID and password in the dialog box that appears.

Clicking the Connect button establishes a connection to the URLs specified in FMS URL and Backup URL (if used) and changes the button label to Disconnect.

3 To disconnect, click Disconnect.

For information on how to start and stop encoding, see “Encoding and streaming” on page 6.

About metadata

In a media player application, metadata can be used to show information about the stream, provide searchable keywords, and inject useful, human-readable identifiers into the binary stream. Flash Media Encoder automatically embeds metadata elements in the streams and media files that it creates. The metadata that is embedded differs slightly for FLV and F4V, and for whether the media is a file or a live stream; see “FLV metadata” on page 16 and “F4V metadata” on page 17.

Note: Metadata is not available in FLV or F4V files if Flash Media Encoder terminates abnormally during an encoding session.

In addition to the embedded FLV metadata and F4V metadata, Flash Media Encoder also embeds the following default metadata fields, which you can populate with information for your media stream:

- author
- copyright
- description
- keywords
- rating
- title

You can create your own metadata fields and delete any existing fields.

FLV metadata

- audiochannels
- audiocodecid
- audiodatarate
- audiodevice
- audioinputvolume
- audiosamplerate
- creationdate
- duration (media files only)
- fmeversion (Flash Media Encoder version) (media files only)
- framerate
- height
- lastkeyframetimestamp (media files only)
- lasttimestamp (media files only)
- presetname
- videocodecid
- videodatarate
- videodevice
- videokeyframe_frequency
- width



F4V metadata

- audiochannels
- audiocodecid
- audiodatarate (live streams only)
- audiodevice (live streams only)
- audioinputvolume (live streams only)
- audiosamplerate
- avcprofile
- avclevel
- creationdate
- duration (media files only)
- fmeversion (Flash Media Encoder version) (media files only)
- framerate
- height
- moovposition (media files only)
- presetname (live streams only)
- trackinfo (media files only)
- videocodecid
- videoframerate (media files only)
- videodatarate (live streams only)
- videodevice (live streams only)
- width

Add metadata values

- 1 From the Panel Options menu on the right side of the Encoding Options tabbed panel, select Metadata.
- 2 Add values to any of the metadata fields. For example, to record a copyright date of 2010, enter 2010 in the Copyright metadata field.

Create and delete metadata fields

- 1 From the Panel Options menu on the right side of the Encoding Options tabbed panel, select Metadata.
- 2 To add a new metadata field to the list, click the + icon  and enter a field name. Do not add field names that are already included in the standard metadata set.
- 3 To delete an existing field from the list, select the field and click the - icon .

Saving encoding profiles

When you close Flash Media Encoder after running it from the GUI, all of the settings from that session are saved in the default encoding profile, startup.xml. The next time you start Flash Media Encoder—either from the GUI or from the command line without the `/p` parameter—the settings in startup.xml apply.

The startup.xml file is stored in *Drive:\Documents and Settings\username\Application Data\Adobe\Flash Media Encoder 2.5*. For example, if your default Microsoft® Windows® drive is C:\ and your username is abc, your startup.xml file is stored in C:\Documents and Settings\abc\Application Data\Adobe\Flash Media Encoder 2.5.


Once you determine encoding and streaming settings that work well in your environment, it's a good idea to save them in a custom profile for easy retrieval. This is especially important if you will be running encoding sessions from both the GUI and the command line. You can configure encoding and streaming settings using the GUI, and then save your settings as a custom profile to use from the command line.

For example, imagine that you're running one encoding session in GUI mode and another in command-line mode. You make some changes in the Encoding Options and close the GUI instance. Flash Media Encoder updates the startup.xml profile to reflect the changed settings. If you stop the command-line encoding session and then restart it without specifying a custom profile, the new session uses the updated startup.xml profile from the GUI session. Thus, to avoid unexpected changes to your encoding profile, you may want to first configure settings in the GUI, save them as a custom profile, and then use the custom profile whenever you run Flash Media Encoder from the command line.

Flash Media Encoder saves the following settings in an XML profile:

- Video and audio encoding settings, except for hardware device properties controlled by Windows or another application
- Flash Media Server connection settings, such as server URLs, stream name, and automatic startup and reconnection
- File archiving settings, including filename and path
- Metadata elements and values
- Preview and zoom settings
- Logging settings

Flash Media Encoder does *not* save the following settings in a profile:

- Hardware device properties. Flash Media Encoder provides access to the properties dialog boxes of your video and audio devices, but it cannot prevent or reverse changes made by other applications. To verify that your preferred device settings are in place, click the device's tool icon .
- Deselected settings. For example, if you resize the video output but deselect the Resize option before saving a profile, the resized dimensions are not saved.

Save a profile

- 1 Select File > Save Profile.
- 2 In the Save As dialog box, enter a descriptive name for the file. Do not name the file startup.xml, because this name is reserved for storing settings from the last session.
- 3 Click Save.



If you use multiple Flash applications, servers, or content distribution network providers, it's a good idea to save a separate profile for each environment.

Open a profile from the GUI

- 1 Disconnect from Flash Media Server, if applicable.
- 2 Select File > Open Profile.
- 3 Select a profile from the Open dialog box.

Open a profile from the command line

❖ From a command prompt in your Flash Media Encoder installation directory, start Flash Media Encoder using `/p` in the following format:

```
FMEcmd /p [path\]profilename.xml
```

Here *path* (optional) and *profilename* are the path and filename of the XML profile that you want to open.

For example:

```
FMEcmd /p c:\Profiles\my_profile.xml /ap myid:mypassword
```

If you do not specify a profile in the command line, Flash Media Encoder loads the default profile, `startup.xml`.

Automating startup tasks

Flash Media Encoder includes several settings and strategies that you can use to make sure that your session streams continuously, 24 hours a day, 7 days a week.

Specify reconnection settings

If the network connection is lost during an encoding session, by default Flash Media Encoder attempts to reconnect to the server every 5 seconds until the connection is restored. When the network connection is restored, Flash Media Encoder resumes encoding. You can adjust the number of reconnection attempts and the interval between attempts in an XML profile.

❖ Open the XML profile that you want to change in an XML or text editor, and add the following lines:

```
<reconnectinterval>  
<attempts>num_attempts</attempts>  
<interval>interval</interval>  
</reconnectinterval>
```

Here *num_attempts* is the number of times that Flash Media Encoder should attempt to reconnect and *interval* is the number of seconds that Flash Media Encoder should wait between reconnection attempts. You can use integers or decimal values in either parameter, but in *num_attempts*, decimal values are truncated. For both parameters, zero and negative values mean that Flash Media Encoder will not attempt to reconnect. In this case, the log file includes a message indicating that Flash Media Encoder did not attempt reconnection.

Scheduling automated maintenance restarts

Flash Media Encoder is certified to run continuously for 7 days. If you plan to run it for longer than 7 days, it's a good idea to schedule an automated maintenance restart at regular intervals. Once Flash Media Encoder has run continuously for the amount of time you specify, it automatically stops, restarts, and continues encoding to the same session.

Schedule an automated maintenance restart from the XML profile

❖ Open the XML profile in an XML or text editor, and add the following lines:

```
<restartinterval>  
<days>dd</days>
```

```
<hours>hh</hours>  
<minutes>mm</minutes>  
</restartinterval>
```

Schedule an automated maintenance restart from the command line

❖ From a command prompt in your Flash Media Encoder installation directory, start Flash Media Encoder using the `/t` option in the following format:

```
FMEcmd /t dd:hh:mm
```

For example, with the following command, Flash Media Encoder restarts after 4 days, 10 hours, and 30 minutes:

```
FMEcmd /p c:\Profiles\my_profile.xml /ap myid:mypassword /t 04:10:30
```

If the restart interval is specified in the XML profile as well as on the command line, the command-line setting overrides the XML profile setting.

Configuring Flash Media Encoder to launch at system startup

Imagine that you intend to run an encoding session continuously, but during the session the computer on which Flash Media Encoder is running crashes. As soon as that computer restarts, you'll want Flash Media Encoder to restart and continue encoding in the same session. You can configure Flash Media Encoder to restart automatically at system startup by registering the encoding session. Any crash-related errors are noted in the log file when the encoding session restarts. For more information on log files, see "Using the Encoding Log" on page 7.

***Note:** The registration of encoding sessions with the operating system are stored in a file called `OsLaunch.dat`. Restricted users cannot edit this file if it was created by another user. For example, when a user registers an encoding session, that user creates the `OsLaunch.dat` file. A restricted user cannot then register or unregister an encoding session on the same computer because they do not have permissions to edit `OsLaunch.dat`.*

Register an encoding session

- 1 If the Flash Media Encoder Launcher is not already included in your Windows Scheduled Tasks, add it:
 - a In Windows, select Start > All Programs > Accessories > System Tools > Scheduled Tasks.
 - b In the Scheduled Tasks window, double-click Add Scheduled Task.
 - c In the Scheduled Task Wizard, click Next, and then browse to your Flash Media Encoder installation directory and open `FMELauncher.exe`.
 - d Select When My Computer Starts and click Next.
 - e Enter your user credentials, click Next, and then click Finish.

2 From a command prompt in your Flash Media Encoder installation directory, start Flash Media Encoder using `/r` as the last option in the command. For example:

```
FMEcmd /p c:\Profiles\my_profile.xml /l c:\my_log.txt /r
```

If authentication is required, use the `/ap` and `/ab` parameters and specify your user credentials.

Any encoding sessions that are registered for relaunch are noted in the `OsLaunch.dat` file in `Drive:\Documents and Settings\All Users\Application Data\Adobe\Flash Media Encoder 2.5`. The Flash Media Encoder Launcher checks this file at system startup and launches the session that has a registered entry.

Show a list of all registered encoding sessions

❖ From a command prompt in your Flash Media Encoder installation directory, enter the following:

```
FMEcmd /u
```

Unregister an encoding session

❖ From a command prompt in your Flash Media Encoder installation directory, enter the following:

```
FMEcmd /u fme_UID
```

If the session is streaming to a server, use the format *fms_URL+stream_name* for *fme_UID*. For example, to unregister an encoding session that is running on the server *fms.myserver.com* with a Flash application named *live*, and the stream *livestream*, you would enter the following:

```
FMEcmd /u rtmp://fms.myserver.com/live+livestream
```

Note: When using the */u* option, the *stream_name* portion of *fme_UID* cannot contain a plus sign (+), because + is used as a delimiter in *fme_UID*.

If the session is being saved to a file but is not streaming to a server, use the FLV or F4V path and filename for *fme_UID*. For example:

```
FMEcmd /u "C:\Documents and Settings\abc\My Documents\My Videos\sample.flv"
```

The entry for the encoding session that you specify is removed from the *OsLaunch.dat* file in *Drive:\Documents and Settings\All Users\Application Data\Adobe\Flash Media Encoder 2.5*. At the next system startup, the encoding session does not restart.

Configuring Flash Media Server authentication

If you administer a Flash Media Server computer, you may want to require publishers who connect to your server with Flash Media Encoder to authenticate with approved credentials. To do this, you can either install and configure the Adobe Flash Media Encoder 2.5 Authentication Add-In, or create and configure your own authentication module. Using either of these options, you create accounts for users who connect to a server from Flash Media Encoder.

Configure the Adobe Flash Media Encoder 2.5 Authentication Add-in

1 Download the add-in from www.adobe.com/go/learn_fms_authaddin_en.

2 Install the add-in on your Flash Media Server computer.

The add-in installs the Server Access Adapter and the Flash Media Encoder User Management utility, which you can use to add, update, remove, and check user passwords.

3 From a command prompt, change to the following directory:

```
FlashMediaServerInstallDir\conf
```

4 To show a list of commands for the user management utility, enter the following:

```
users
```


Configure a custom authentication module

- 1 Write a custom authentication module that includes a client-side adaptor DLL and a server-side adaptor DLL. Write the adaptors according to the behaviors and guidelines discussed in the following sections.
- 2 On the computer running Flash Media Encoder, copy your client-side DLL to the *FMEInstallDir*\AccessModule folder (typically, C:\Program Files\Adobe\Flash Media Encoder 2.5\AccessModule).
- 3 Install the server-side DLL on the computer that is running Flash Media Server.

Client and server adaptor interaction

In every transaction, the server verifies the parameters appended in the query string that the client sends. The server-side adaptor identifies itself by prefixing the following signature substring in each rejection reason string:

```
' [ authmod=authmod_name ] : '
```

Initially, Flash Media Encoder identifies the server by its `authmod` signature and loads the corresponding client DLL from the *FMEInstallDir*\AccessModule folder. For example, if the value of `authmod_name` is `myauth`, then Flash Media Encoder loads the `myauth.dll` file. Subsequent interactions between client and server rely on the `authmod` signature. The server's response determines whether to abort or continue the authentication process. Flash Media Encoder verifies the `authmod` signature and acts as a medium for client-server interaction. If there is any discrepancy in the signature, Flash Media Encoder takes the appropriate action.

Authentication requirements

When authenticating, users must provide a username, password, and RTMP string.

Flash Media Encoder can publish to multiple servers. If the servers have different authentication credentials, Flash Media Encoder may need to prompt for passwords more than once. To ensure that users enter the correct user ID and password, make sure that the password prompt indicates which server is being connected to.

Chapter 4: Working with timecode

When you work with a compatible capture device, you can easily configure Adobe Flash Media Encoder to embed timecode into video streams. Client-side applications can get the timecode information by using ActionScript™.

About timecode

The Society of Motion Picture and Television Engineers (SMPTE) establishes a set of cooperating standards that are used to label individual frames of video and film with pertinent information. These standards are referred to as *SMPTE timecode*. SMPTE timecode consists of binary-coded strings of 80 bits that contain information about the hour, minute, second, and frame (expressed as *HH:MM:SS:FF*), the type of timecode (non-drop or drop-frame), and 32 user-definable bits.

Flash Media Encoder can extract SMPTE timecode that is generated by compatible devices, embed it into the encoded video stream, and pass it to Flash Media Server. You can save that stream locally as an FLV file or F4V file. Subscribing clients that connect to the published stream can get the embedded timecode information.

Supported timecode devices

Flash Media Encoder does not generate SMPTE timecode. Use a compatible capture device and timecode DLL to generate timecode information. Flash Media Encoder can extract timecode from devices that use an MSDV driver. Your Flash Media Encoder installation includes a timecode DLL for MSDV devices.

Supported timecode formats

Flash Media Encoder can extract timecode in the following formats:

Vertical Interval Timecode (VITC) is recorded into the vertical blanking interval (VBI) of the video signal.

Burnt-in Timecode (BITC) burns numbers into the video image, making the timecode human-readable.

Configuring Flash Media Encoder for timecode

Enable the timecode feature by selecting the Timecode and Burn Timecode options in the Encoding Options tabbed panel. See [“Configure video encoding options” on page 11](#). To configure the way Flash Media Encoder embeds timecodes, see [“Configure advanced timecode options” on page 12](#).

The timecode options are enabled if 1) the capture device can generate timecode and can burn timecode values in video frames, and 2) the correct DLL is present in the `[RootInstall]/Flash Media Encoder 2.5/TimeCode` directory.

Using ActionScript to get timecode information

Flash Media Encoder contains a special built-in handler, `onFI`, that subscribing clients can use in their ActionScript code to access timecode information. The following client-side ActionScript code shows how to get timecode information using the `onFI` handler. The object `ns` is the NetStream object. You can get timecode information by accessing the `tc` member of the info object that is passed as an argument to `onFI()`:

```
ns.onFI = function(infoObj) {  
    var timecode:String;  
    for( i in infoObj)  
    {  
        if(i == "tc")  
            timecode = infoObj.tc; //string formatted HH:MM:SS:FF  
    }  
}
```

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