



## Learn More: Optimizing your video uploads

### Summary

Here's a summary of the audio and video specifications you need for the best results on YouTube. For further details, please read the information listed directly below this summary.

Video	Use Quicktime wrapper	Use 7,000 kbs
Resolution	<b>Recommended: 1280 x 720 (16x9 HD) and 640 x 480 (4:3 SD)</b> There is no required minimum resolution - in general the higher resolution the better and HD resolution is preferred. For older content, lower resolution is unavoidable.	
Bit rate	Because bit-rate is highly dependent on codec there is no recommended or minimum value. Videos should be optimized for resolution, aspect ratio and frame rate rather than bit rate.	
Frame rate	The frame rate of the original video should be maintained without re-sampling. In particular pulldown and other frame rate re-sampling techniques are strongly discouraged.	
Codec	H.264, MPEG-2 or MPEG-4 preferred.	
<b>Audio</b>		
Codec	MP3 or AAC preferred	
Sampling rate	44.1kHz	
Channels	2 (stereo)	

YouTube recently began offering users an option to view content in high definition- 720p resolution (when the source upload supports it). **Please note**, we are currently experimenting with this feature and optimizing it accordingly, so we can't guarantee that your videos will always be transcoded into this format with this user option present.

For an example of a video being streamed in 720p resolution, please click [this link](#) and then click on the text toggle "watch in HD" located beneath the right hand corner of the player.

### How to best upload widescreen videos

- **Originals Please!**

The less a video is re-encoded prior to uploading, the better the resulting YouTube video quality. We encourage you to upload your videos as close to the original source format as possible, with a minimum of intermediate re-encoding steps. Each re-encoding can generally degrade the quality of your video and create some specific problems too, which we'll address below.

- **Aspect Ratio**

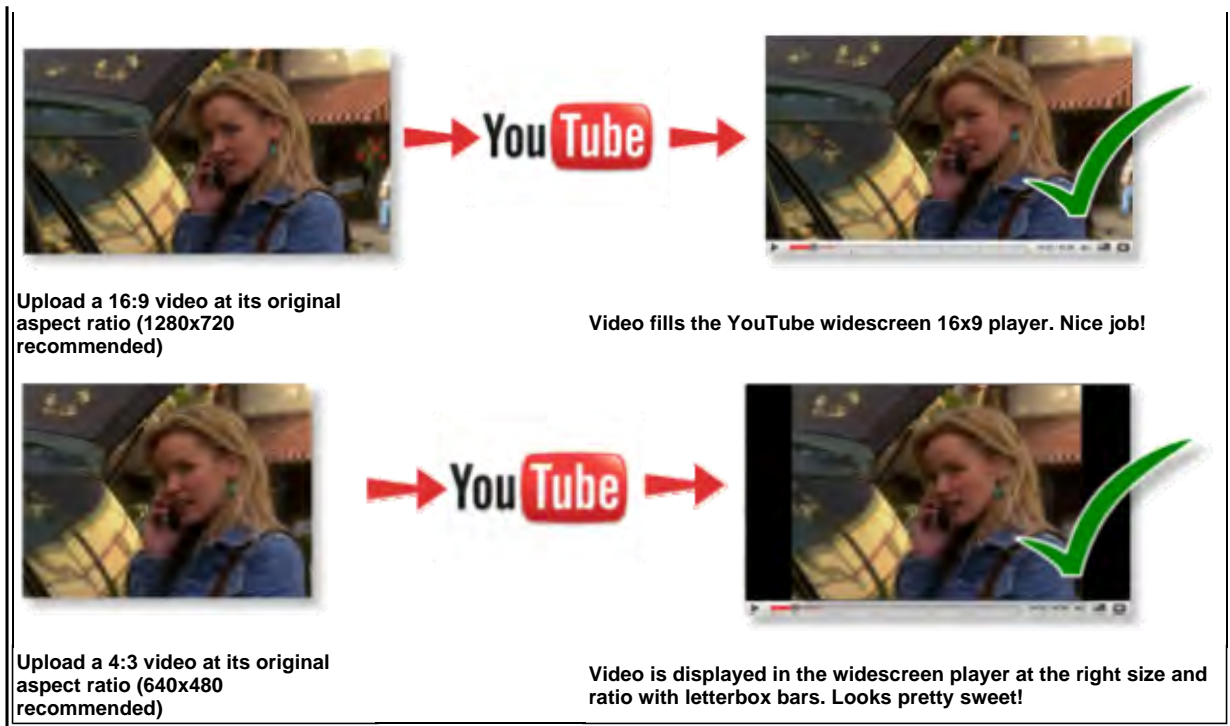
The aspect ratio of the original source video should always be maintained when it's uploaded: Uploaded videos should never include letterboxing or pillarboxing bars.

The YouTube player automatically adds black bars so that videos are displayed correctly without cropping or stretching, whatever the size of the video or the player. For example, the player will automatically add vertical bars (pillarboxing) to 4:3 videos in the new 16:9 widescreen player size. If the player is re-sized (when embedded on another website for example) the same process takes place, so that 16:9 videos are letterboxed (black bars top and bottom) when the player is sized to 4:3, for example. Similarly, anamorphic videos will be automatically letterboxed when shown in either 16:9 or 4:3 sized players. The player can only do this if the native aspect ratio of the video is maintained.

If letterboxing is added to a video before it is uploaded (to create a 4:3 video from a 16:9 master for example), the widescreen player will add pillarbox bars too, resulting in black bars all around the video (windowboxing) and a bad viewing experience (see the diagram below).

#### How to do it





**Upload a 16:9 video at its original aspect ratio (1280x720 recommended)**

Video fills the YouTube widescreen 16x9 player. Nice job!

**Upload a 4:3 video at its original aspect ratio (640x480 recommended)**

Video is displayed in the widescreen player at the right size and ratio with letterbox bars. Looks pretty sweet!

#### How not to do it



**Add letterbox bars to the top and bottom before uploading so that the video fits a 4:3 player**

The YouTube player adds pillarbox bars left and right to the 4:3 video fit widescreen. Bars surround the video. Boo!

- **Frame Rate**

The video frame-rate should be the same as the original where possible - up-sampling from a 24fps original can cause judder artifacts for example. For film sources a 24 fps or 25 fps progressive master yields the best results while videos that have had a re-sampling transfer process applied - such as Telecine pull-down - often result in a lower quality video.

- **Resolution**

High-definition videos are the preferred format for ingestion which result YouTube videos of the highest quality currently available. It also means your video can be upgraded as new formats are developed on the site.

- **Testing**

Since there is no facility to re-upload videos, it's important to test your audio and video quality are satisfactory before you release your video publicly onto YouTube. Once a video becomes popular, the number of views, user ratings, user comments and other community data, cannot be transferred if another, higher quality version of the same video is uploaded. Make sure you get it right!

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