

## Encoding Video using Microsoft® Windows Media® Encoder V.9

Microsoft® Windows Media® Encoder V.9 (henceforth referred to as 'Encoder') is freely downloadable from the Microsoft® Windows Media® website at:

<http://www.microsoft.com/windows/windowsmedia/download/default.asp>

Although Encoder can be used for a variety of tasks including converting AVI files, streaming a live broadcast or screen capture, this guide is written for converting video currently stored on a VHS video tape into a Windows Media® video file. Encoder provides all the necessary functions to enable quick production of audio and video file formats (.wma and .wmv respectively) suitable for viewing over the Internet using Microsoft Windows Media®. These files can either be served from a standard web server or a server with Windows Media® Services installed.

Version 9 of Encoder is only available for the Windows® XP and 2000 platforms. The previous version, 7.1, is available for all other Windows® platforms. If possible, try to use the newest version of the software as it produces the best quality results.

### CREATING A VIDEO FILE FROM A LIVE VIDEO SOURCE

Any type of video source can be used as material for the encoded file, either live or pre-recorded. Ensure that any playback devices which are to be used are correctly attached to the computer. This may be as simple as connecting a webcam to a USB port on the computer or as complex as connecting a VCR to a breakout box attached to a dedicated encoding card using an S-VHS cable.

Once the device is connected, run the program.

1. The Encoder program starts with a wizard asking what type of session is to be used.
2. For the purposes of this tutorial choose the **Capture audio or video** option and click **OK**.
3. Ensure that the capture devices are listed and selected on the following screen, and click **next**.
4. Choose where the output file is to be saved and click **next**.
5. Select a distribution model for the encoded file. See the table below for guidance:

Intended Use	Recommended Encoder Option
Internet Playback	<i>Web Server (Progressive download) or Windows Media® Server - if using streaming server</i>
Local Network Playback	<i>Web Server (Progressive download) or Windows Streaming - if using streaming server</i>
Local Computer Playback/CD-ROM	<i>File Archive</i>

**N.B. This guide assumes video is being encoded to be streamed from a Windows Media® Services streaming server to the Internet.**

### A Note On Bit Rates

Bit rates equate to the quality of the video. The higher the bit rate, the better the quality. Unfortunately, it also works out that the higher the bit rate, the more bandwidth is required to view the movie. In practice, when encoding video for Internet streaming, video quality will

always be balanced against bandwidth required to enable as many people as possible to view the video.

If the video is being encoded for one person who is known to be on a high speed Internet link then a high bit rate can be chosen for encoding the video. Unfortunately this scenario is rare. It is more likely the video will need to be encoded for a variety of connection speeds, and Windows Media® supports this by incorporating **multiple bit rate encoding**. This means that when attempting to play an encoded file from the Internet, the Windows Media® Player will report the connection speed to the Windows® streaming server. Where possible the server will then attempt to serve the version of the encoded video that best matches the connection speed. This means that both high and low speed connected users can watch video, although the low speed connected users will not enjoy such good quality playback due to their bandwidth restrictions.

Be aware that multiple bit rate playback works **most** of the time. Sometimes it does not and there is not much that can be done about it. So, where it is really important that someone be able to view the video no matter what connection speed they have, it may be best to offer two **single bit rate** versions of the same video – one high quality, one low quality – without using multiple bit rate encoding. The low quality version will use a lower bit rate, suitable for viewing over a dial-up modem connection. The high quality version will conversely use a high bit rate suitable for viewing over a broadband connection. **This is the route we will take in this guide instead of using multiple bit rate encoding.** Bear in mind that if multiple bit rate encoding is not selected then the video files will need to be encoded twice, once at the high bit rate and again at the low bit rate.

### **Continue Encoding**

The next screen requires a choice of bit rate at which to encode the video.

- To continue with the encoding, choose VHS quality video (CBR) for video and CD quality audio for the audio. Leave the other settings as we are going to create the high quality version first. Click **next**.
- Enter title and copyright information and click **next**.
- The last screen provides a summary of all of the settings. Review them and if all is well click **finish**.

### **ENCODING ENVIRONMENT**

We suggest that the encoding environment is set up as below. To do this click on the **View** menu and ensure that there are ticks against the following items: 'Video Panel', 'Audio Panel', and 'Monitor Panel'. Also, click on the 'Display' dropdown menu and select **Both**.

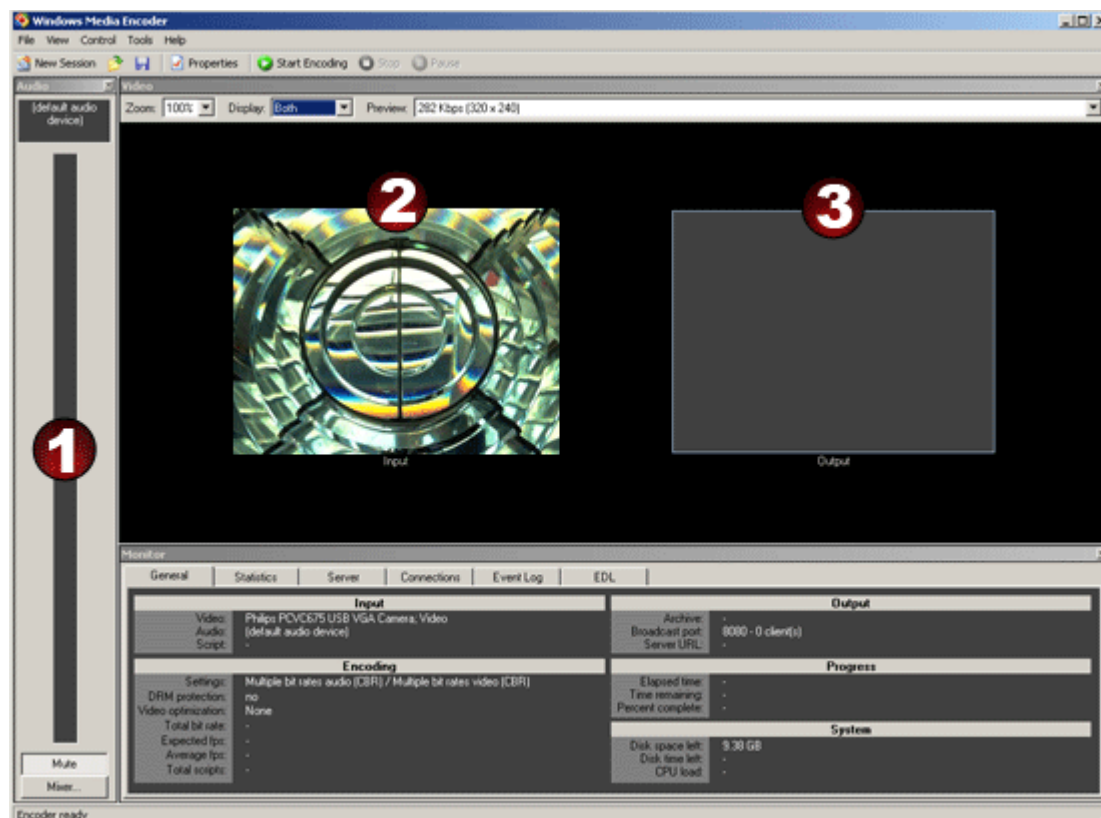


Figure 1. Windows Media® Encoder interface.

The interface (Figure 1) consists of a sound meter, screens showing input and output, and a series of property tabs. The sound meter on the left (1) represents the volume of the audio source. This audio source could be a microphone or the audio out signal from a VCR. Upon starting the program, make sure that the video input source (2) can be seen before proceeding further.

If the video source is not shown in the input window (2), or there is no activity in the Audio panel (1), then refer to the following sections. Otherwise skip to the section '**Starting to Encode**', below.

### Configuring video source

Click on the **Properties** toolbar button. Click the **Sources** tab, ensure that the checkboxes next to 'audio' and 'video' are ticked, and click on the video dropdown list to select video source. Click the **Apply** button. The video source should now appear in the input window (2). If nothing appears then it may be necessary to press the **Play** button on the video source. Also, ensure that all leads are correctly connected to the computer or capture card.

### Configuring audio source

Whilst viewing the source, click on the **Mixer** button below the audio meter (1). On the window that appears next, move the audio slider so that the level is mostly yellow and never enters the top red area of the meter. It may be necessary to experiment with a few test encodings to get the audio just right. See '**Completing the Encoding**' below.

## **STARTING TO ENCODE**

To begin encoding, click on the green **Start Encoding** button. We recommend playing the video source for around 5 seconds before encoding begins as it can sometimes take a little time for the encoder to start working, depending on the computer hardware.

## **COMPLETING THE ENCODING**

Click **Stop** to end the encoding. A window will appear giving a summary of the encoding session and the option to view the encoded file. Click on the **Play Output File** option to view the encoding.

It normally takes a few trial runs to get the encoded video looking and sounding good. Once users are comfortable with the steps above, they can try experimenting with using different quality settings for audio and video. For example they could specify 'Low Bandwidth Video' and 'Voice Quality Audio' instead of those settings suggested above. It is important also to try playing back the encoded video on as many different computer platforms as possible. Encoded video uses a lot of system resources and can be problematic on some older computer hardware, so it is best to try the video out before making it widely available, to avoid as many playback problems as possible.

## **Trademarks**

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