



How to Video Record Snooker & Billiards for YouTube

Streaming recorded video has never been easier. Gone are the days where we had to pay for viewer data and then still limited by video file size. Streaming *live video* is more complex and not needed for recorded video that will be online and archived forever. So this article is specifically about publishing a recorded video in the hope that we can all get to see competition matches from around the globe.

The guide below will provide simple instructions on how to quickly record, edit without fuss and upload to YouTube while avoiding common pitfalls.

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Required Equipment

A video recorder is essential and before going overboard and buying something expensive with a built-in hard drive and lots of accessories, let's consider the basic requirements. First thing to note is that "streaming" requires a different camera to what we are recommending for recording video. Here we are discussing recording QUALITY footage for HD video archives, whereas streaming is limited to low quality due to the limitations of upload speed to the media server.

First thing to note is that size is not important. A few years ago I turned up to video record a national final and a lot of people commented about the size of the camera, expecting to see a commercial studio recorder. But with today's technology that is not needed. In fact my video recorder only measures 60 x 60 x 110 mm and records HD video that looks fantastic on a large flatscreen TV.

The camera that I use today is a Sony Handycam HDR-PJ230 (8.9 Mega Pixel) purchased from Dick Smith Electronics for about Aud\$400. This one has a built-in projector which is not needed for recording. The model below the HDR-PJ230 does the same job and only costs about Aud\$200. If you have a power point handy you won't need a larger battery pack. In fact you are better off recording without battery and then you don't have to worry about lasting the till end of the match. The HDR-PJ230 has 8 GB of hard drive but you will need more data storage. The camera takes a 32 GB SIM card which can give you about 6 hours of recording time.

Cameras with built-in hard drives may seem attractive but they cannot store as much data as a SIM card, which of course is replaceable and there is no limit to how many SIM cards that you take to the event. But I have found that 32 GB has always been more than what I have ever needed.



So you can be in business for as little as \$250 for a HD camera and 6 hours of recording time. But then you will need either a tripod or a wall mount. Tripods can get in the way and they often get bumped, so the ideal is a wall mount. For finals in our club I use a wall mount made from a cut down tripod. First I made a small shelf about 150 x 150 mm and added 2 angle brackets to screw it to the wall. Then the head of the tripod was attached to the shelf creating a fully adjustable mount for the camera. Total cost including camera, extra memory and wall mount was about \$300.

Mobile Phones and YouTube

Since the first release of this user-guide mobile phones and YouTube streaming services have changed. Now anyone can stream a live event from their mobile phone for everyone to watch and they can do it for free!

However there are some limitations, with the main one being that a scoreboard cannot be overlaid on the video stream sent to YouTube. So the scoreboard needs to be in the picture and that is where problems can arise depending on the position of the scoreboard and the recording position.

The next limitation is not so much of a limitation but a wrong assumption. When recording from a mobile phone. Most operators will assume that what they are looking at is ideal, and while it may look ok on their mobile phone, it will look terrible on a PC. Take for example, the image below:



Here you can see the scoreboard in the top left corner, but the scores cannot be read. Also, because the overhead light is in view, it is affecting the brightness control of the whole picture.

But this is what the operator can see on his phone, and to him it looks good.



But by turning the phone to view a horizontal view, it can be zoomed in to make the scoreboard larger and thus more legible, and also, by not including the table light, the image is not washed out with brightness.

Also to note is, that while more mobile phone users may watch the live event, this video will be archived for everyone to see at a later date, possibly for years later, and those viewers will be PC users.

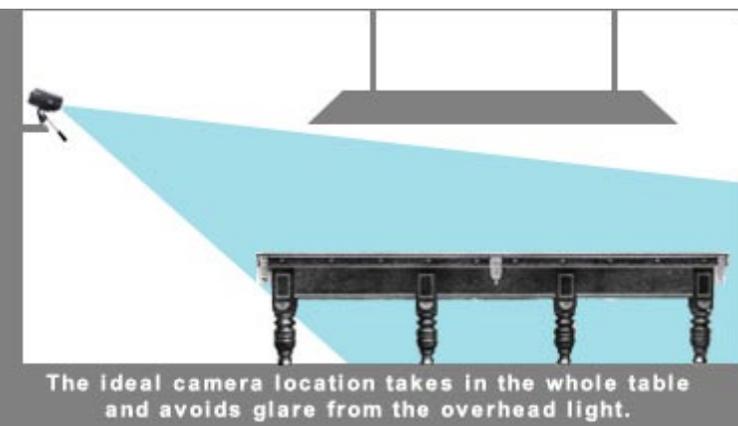
Recording Position (focal point)

When the world championships are screened on TV they use many cameras that require many operators. Some amateurs recording cuesports try to imitate that presentation by using several cameras in fixed positions and switching between them. Personally I find this most annoying. Switching viewpoint is totally unnecessary as is added commentary. Most cuesport enthusiasts, the ones that will be your main audience, will prefer to make their own assumptions and listen to the click of the balls and the calls from the referee.

Most of the action happens at top of the table and almost every other shot is played in relation to the top of the table and to leave the opponent in baulk. So the ideal viewpoint will always be from the top of the table and looking straight down the centre of table (though the spots). The camera needs to be at least high enough to avoid the glare of the overhead lights but still taking in the baulk cushion.



Room to see the players and scoreboard in the background.
Also leaves room for title and scoreboard overlays.



The ideal position for the camera using either wall mount or tripod but still away from players stepping backwards.

Scoreboards

Without a scoreboard the viewer can be at a loss as to what is really happening in a match. So when recording video, unless the referee is audibly calling the scores of both players, a view of the scoreboard is required. On TV the scoreboard is "overlaid" on the video either live or in post-editing. But *overlaying video* can be complex and a tedious task. An easier solution is to include a view of the scoreboard in the background. The digital scoreboards commonly used in clubs today, if they can be seen on a wall in the background, may suffice, but it will depend on the room lighting and the quality of the video. Otherwise a computer screen can be used to display a larger scoreboard, like the ones provided by [BallStream Scoreboards](#).



Digital scoreboard in the background.

Computer scoreboard on large screen.

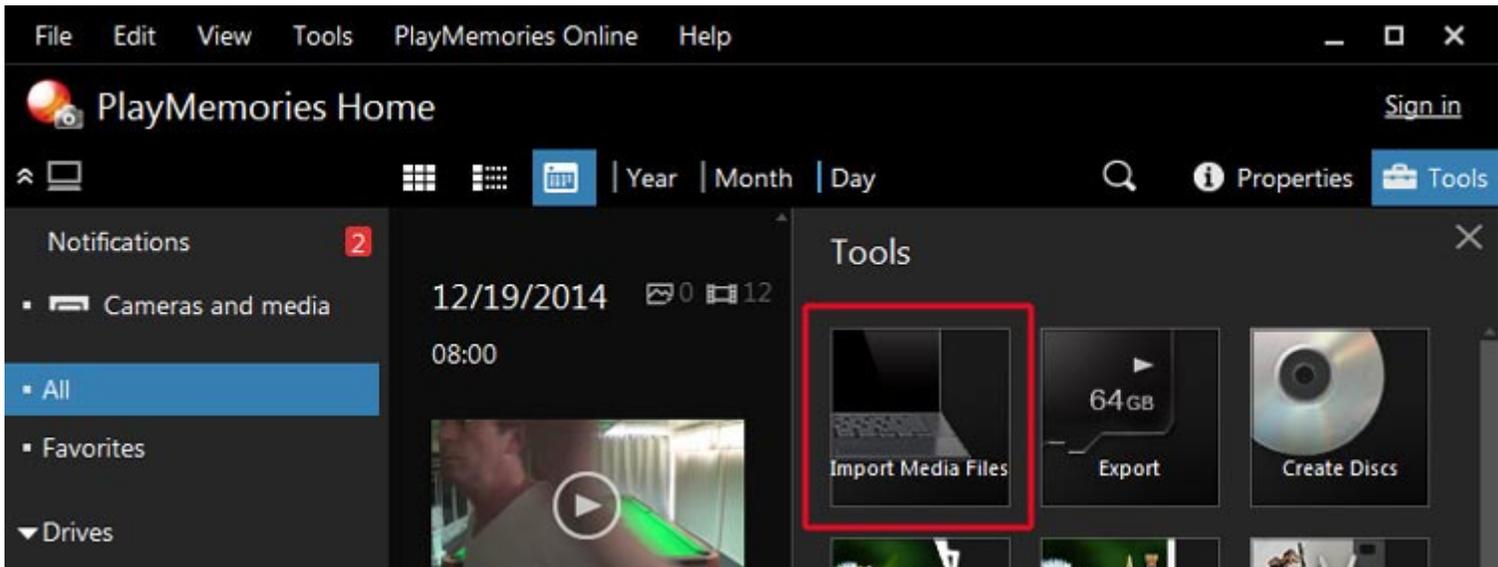
Frame Management & File Size

Gone are the days when we had to swap tapes and hope that each frame would fit on one tape. Today we have built-in hard drives and memory cards that can store up to 6 hours of HD quality video. But recording a 5-11 frame match can pose problems if the whole match is recorded on one single file. Sure, the video recorder might be able to cope, but when you start editing and publishing that video is when you can get into trouble. For example a 7 frame match can produce a 5-6 GB file or more. Windows 7+ can handle that file size but Vista and XP will not work with files larger than 2 GB. Also, when it comes time to edit/convert your video you could end up running out of available memory resources.

So to reduce files into manageable sizes and at the same time pre-edit your videos by eliminating the footage wasted while the referee sets up the table or the players take a break, get into the habit of switching off the video recorder and the restarting when the players are ready to break. This way each frame will only be about 1GB/15 minutes.

Editing and Converting Raw Video

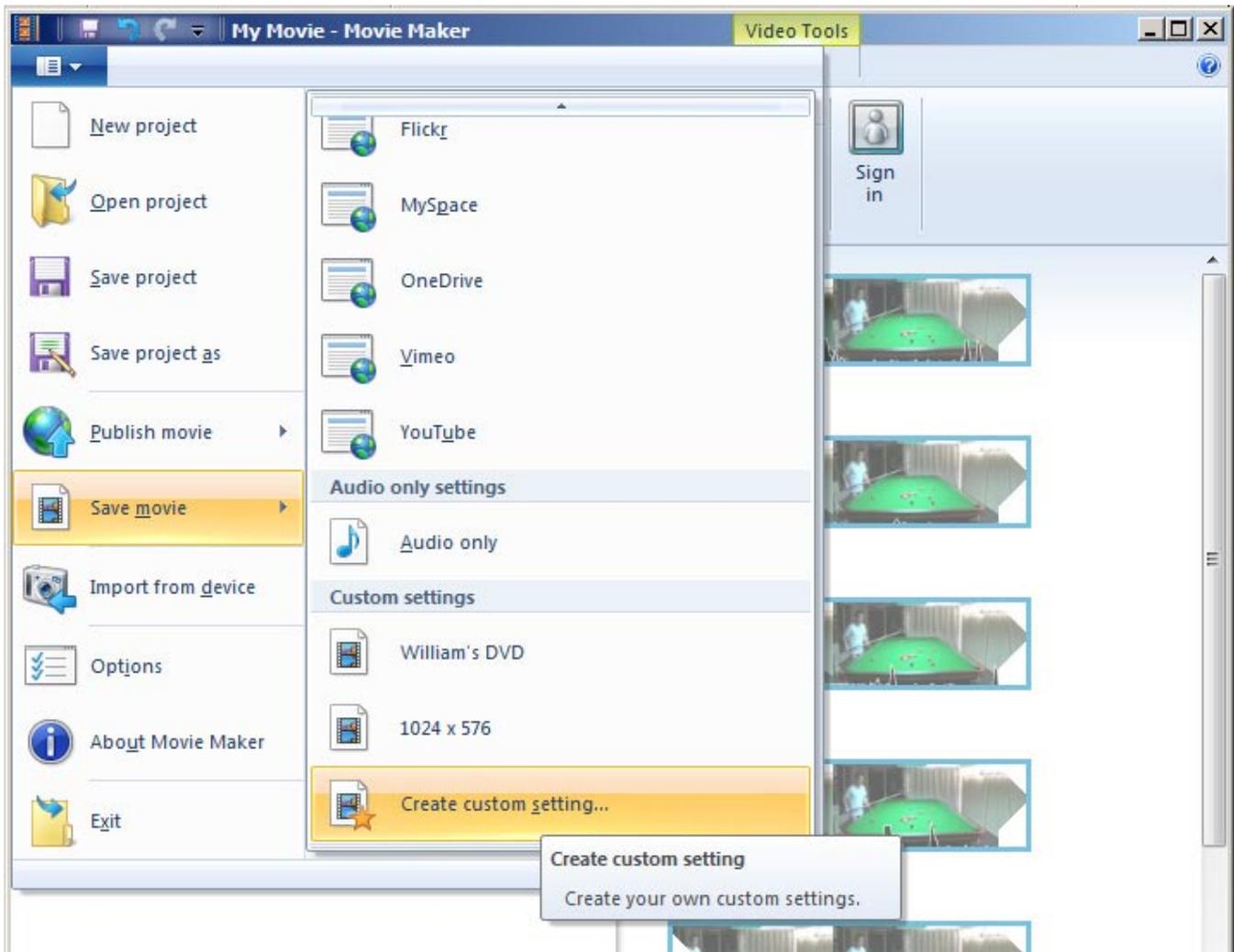
Downloading your video recordings from the camera to your computer usually requires proprietary software provided with the camera. In the case of Sony Handycam the *PlayMemories Home* software works with all models. To download using *PlayMemories Home* simply plug the camera into a USB port, run the software and under *Tools* select *Import Media Files*. The next screen will provide options for selecting which files to download and the location on your computer to save them to. When the download is complete you will have a collection of either .MTS or .M2TS files. Any other files are not needed. For example some files may appear with the .m2ts.modd extension which are merely auxiliary files and useless for what we are doing.



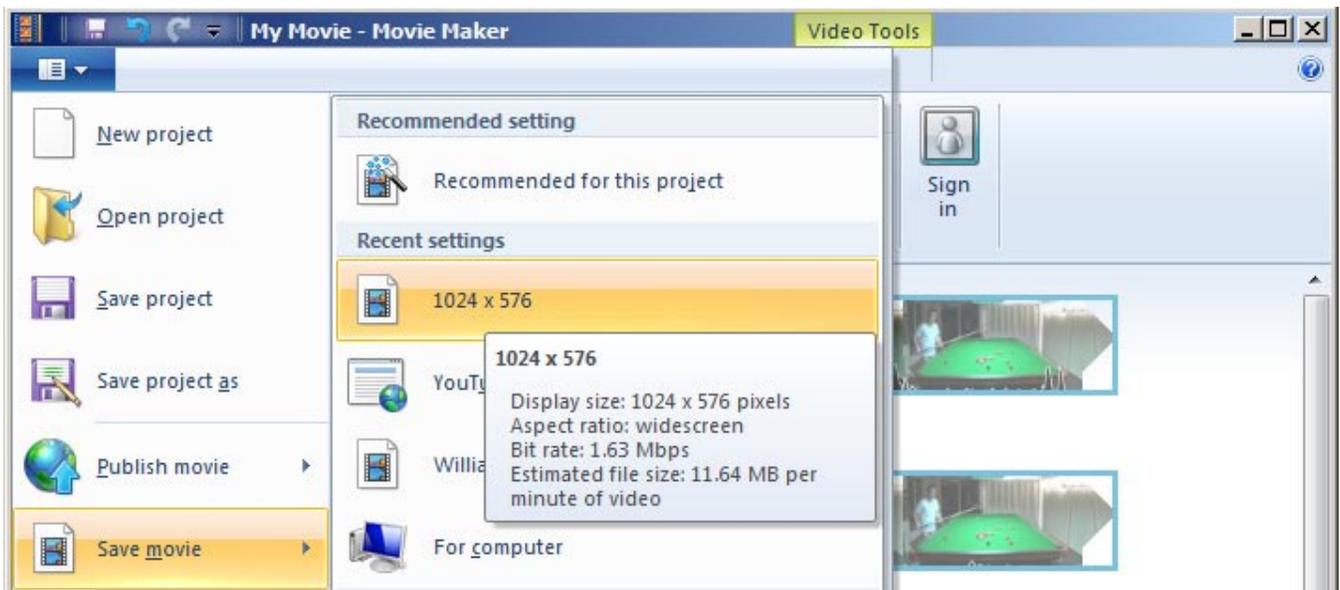
The next step is converting your raw video file to a format that you use on YouTube or distribute for others to play. You also need to convert that raw video to a compressed format and hopefully reduce the file size to make uploading and viewing more comfortable. For that task you can use a free video editor known as [Windows Movie Maker](#) which has all the tools that you need, including overlays for logos and titles.

Windows Movie Maker can add a lot of special effects to your video but most effects will increase file size and unless you know what you are doing your video might end up being more annoying than entertaining. So all we should concentrate on is converting raw footage to make it ready for upload to YouTube. Even here mistakes can be made because a common misconception is that maintaining the recorded settings will maintain the highest quality and definition. Not only is the extra definition wasted but the difference between 1.5 GB and 300 Mb is critical for your audience. For example when complimenting my video work a friend also mentioned that he didn't get to see the whole match because his download allowance was used up on the first frame. So ever since then I publish all YouTube videos by using a custom setting (explained below). Not only is the smaller file size better for the audience but uploading 2 GB can take all day. Sure you may have a 1500k ADSL connection but that rating is for download. When uploading you will be lucky to get 256k.

To import your video file into Windows Movie Maker select the option from Home > Add Videos and Photos. Give it some time to load and display all segments. Then to convert it, simply click the main tab > Save Movie > Create a Custom Setting. Sure, there is a setting for YouTube but that will produce the huge file size that we need to avoid.



Once you save the custom setting you can simply select that setting each time you convert for YouTube.



Note: the custom setting that I recommend is shown above and saved as "1024 x 576". When prompted for the save location and file name to use, choose the MP4 format because it includes the latest H24 lossless compression (file size reduction without loss of quality).

Uploading Video to YouTube

First you need a YouTube account and these days they are free and quick to register. Once you have validated your account, simply login and select the option for "Upload Video". Your YouTube account settings can be modified at any time to include a logo and create a *channel*. Creating a "Channel" is most recommended, especially if uploading many videos on behalf of a club or videos related to the same topic. Publishing a Channel gives viewers a better chance to find related videos.

Options set for each video are up to you. For videos that I publish, I always remove the option to accept comments. They are not necessary and it only takes one cretin to ruin everyone's day. Other info can help search engines find your video so don't be shy.

To publish your video on web site you can either simply link to the YouTube video page or you can use HTML on your web page to display an embedded video player. From the YouTube page that is presented to the public are options for "Sharing" the video on various social sites such as Facebook.

File Comparison

You can see the difference for yourself. The test files below represent the same 16 minute recording:

1. video_raw.mts (raw video straight from the camera)
2. video_youtube.mpg (using standard YouTube setting)
3. video_custom.mp4 (using my custom setting)
4. video_custom.wmv (same as 3 but saved as WMV)

 video_raw.MTS	1,067,808 KB
 video_youtube.mpg	586,948 KB
 video_custom.mp4	181,809 KB
 video_custom.wmv	188,032 KB

The file size difference is obvious and will make a huge difference to both your audience when they view/download online and also to you when you upload to YouTube. WMV used be the optimum file type, but the latest MP4 uses the latest lossless compression for even smaller file size and better quality. The test files above represent only 16 minutes of viewing. See below for a better idea of the savings when using my custom setting:

Content	Duration	Raw	YouTube	Upload time	Custom	Upload time
1 snooker frame	20 minutes	1,333 Mb (1.3 GB)	733 Mb	236 minutes	226 Mb	74 minutes
Best of 3 frames	60 minutes	4,000 Mb (4 GB)	2.2 GB	710 minutes	678 Mb	222 minutes
Best of 5 frames	100 minutes	6,666 Mb (6.6 GB)	3.7 GB	1,184 minutes	1.2 GB	370 minutes
Best of 7 frames	140 minutes	8,330 Mb (8.3 GB)	5.1 GB	1,657 minutes	1.58 GB	518 minutes
Best of 9 frames	180 minutes	12,000 Mb (12 GB)	6.6 GB	2,131 minutes	2 GB	666 minutes

For these tests "Duration" was based on a 20 minute frame which we all know can often take up to 1 hour. Even when using my custom setting you can see that a 9 frame match, if uploaded in one single file, will take more than 11 hours to upload. So publishing high quality snooker one frame at a time will make your match much easier to manage. Nothing could be more annoying than getting to 90% of an upload and having your internet connection drop out!

To compare the quality you can view these sample segments on YouTube:

- [Test movie using standard YouTube settings from Windows Move Maker](#)
- [Test movie using optimised custom settings created in Windows Movie Maker](#)

See if you can tell the difference. If not, you now know which one to use for user-friendly uploads and viewing.

Final Rule

Above all, remember the KISS principle... Keep It Simple. Follow the guideline above and we all should see many more videos online for our favourite sport. After you upload, use the Share feature to let your Facebook friends know.

Click for a list of [videos recorded and published on YouTube](#).