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How to prepare presentation videos using taraVRbuilder

1. Settings in taraVRbuilder for optimum video quality

One general remark: For the video, all features (which otherwise affect performance) should be activated in order to ensure that the video, after rendering, will run smoothly, i.e.:

- Activate: show shadows, evaluate animations, evaluate transparencies.
- Furthermore, DirectX 9 should be set as renderer in taraVRbuilder (right mouse key menu in the 3D window, then settings, then renderer, then DirectX9 (re-start taraVRbuilder, if necessary!!!))
- In the case of DirectX 9 (and only in conjunction with graphics cards which support DirectX 9 on the hardware level too), AntiAliasing can be activated. This mitigates the edge effect which causes strong crizzle (refer to Bspbilder) of overview images, especially if 2D layouts are integrated. In order to set this feature, proceed as follows: right mouse key menu in the 3D window, then settings, then defaults, then tab "Direct3D 9 Device Settings" then switch "Multisample Type" combobox from None to NoneMaskable, and additionally set "Multisample Quality" combobox at 3.

2. About the target system

The first question you should ask yourself when creating video streamings is: "What do I need my video streaming for, what is my target medium / target system?"

2.1 VIDEO DVD: This medium can be used for very large video files which are then converted by an external tool to a video DVD. We hence recommend non-compressed AVI with a resolution of 720 x 576 pixels (PAL). The resultant AVI file becomes very large (several GBs!!! IMPORTANT: Make sure that there is enough hard disk capacity!!!), but this system also avoids quality losses due to compression. The non-compressed AVI file can then be used to produce a video DVD using a DVD burner and suitable DVD burning software (which is usually included). This DVD can then also be played on external DVD players.

2.2 Video sequence for use on a PC/notebook (for example, in PowerPoint presentations): A compromise must be developed here between the file size of the video clip and the presentation quality. Various compression techniques are available which reduce the file size, but also affect the rendering quality. We suggest selecting the compression method also as a function of the video contents: In the case of significant changes from each individual video frame to the next (for example, in the case of a round flight through a plant), too high a compression factor (for example, DivX) is not recommended because the rendering quality is adversely affected by serious interference. If the essential video contents remain unchanged (for example, stationary camera position, with moving goods only moving through the picture), AVI in DivX or MS MPEG 4 V2 compression are recommended. This then results in very small files (for example).



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3. Video size and AVI compression (from non-compressed to DivX)

1 The video resolution should always be selected in such a manner that the video is presented in 100% (no size scaling) of its size. High video resolution (for example, 800x600) is recommended for beamer presentations.

2 The higher the resolution the larger the data volume which the hard disk must read during playback. In the case of non-compressed AVI, the hard disk is sometimes unable (especially via the network drives) to read the data at a sufficiently high speed and the playback becomes unsteady (even though a rate of 25 frames per second was chosen).

3 The frame rate should always be set at 25 frames per second (at a rate of 15 and above, the eye sees a smooth movement).

4 High-resolution video streamings should be compressed because the data volume would otherwise become enormous and point 2 become a problem.

5. With regard to video compression (in taraVRbuilder, the compression method is selected after the individual frames have been generated), a compromise must once again be found between rendering quality and file size, depending on the particular application.

- If, for instance, a "real" video DVD is the target medium, the video should be generated without compression because compression will take place anyway during conversion to the video DVD format.

- If the video size is to be kept as small as possible, we recommend DivX (www.divx.com).

- If the video is to be streaming-enabled (i.e. for presentation on the Internet, for example), we recommend converting AVIs to WMV.

(<http://www.microsoft.com/windows/windowsmedia/de/9series/encoder/default.aspx>)

- I always use the "Microsoft MPEG-4 Video Codec V2" compression method for compressing AVIs. This provides good quality and a small file size.

- Video Codecs for AVI are provided when the latest version of Windows Media Player is installed.

4. General statements

- The loss of quality due to compression is particularly striking in the case of round flights. Videos with a stationary view of the scene show much fewer annoying artifacts due to compression in which case DivX is a good choice in the case of a stationary view.

- Round flights should not be set at too high a speed.

- If possible, non-compressed single frames (BMP) can be generated from within taraVRbuilder which can then be compiled by an external tool (such as Adobe Premiere or, as a simpler method, VideoMach) to AVI. It is, for example, then also possible to resample single frames with a higher resolution (1024x768) into a video with the result of eliminating crizzle (<http://www.gromada.com/videomach.html>).

- The screen saver must be deactivated when the single frames are rendered for the video!