



HOME

User Manual

DELMIA Process Engineer<sup>®</sup>

## Camera Tools - Application



# Foreword

This manual provides an introduction to the basic camera tool operations and functions.

While developing these functions we have made every effort to create a clearly organized, easy-to-understand program structure.

A user-friendly interface as well as a clear menu guide will enable you to quickly learn how to operate the program and to get familiar with its functions so that you can carry out your planning tasks in a quick and reliable way.

Nevertheless, there will certainly be some things that we could do even better. If you have any suggestions for improving our software, please be sure to let us know.

We look forward to receiving your constructive feedback. It helps us to make it even easier for you to work with the Process Engineer functions.

The same holds true for the manual that you are now reading. If, at any point when using these instructions, you feel you are not being provided with the clear, unambiguous, and proper guidance necessary to work with this application, please be sure to let us know. We look forward to receiving your comments and tips.

Please feel free to call, send us an E-mail, or contact our user hotline.

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# 1. Introduction

This manual explains how to use the Process Engineer Camera Tools for your planning purposes.

## 1.1 How to Use this Manual

This manual enables you to get familiar with the operation and functions of the Process Engineer. This manual briefly describes:

- Menus available for the camera tools
- How to use camera tools for editing graphics



### Note

*When handling the Camera Tools functions, please also refer to the general introduction to Process Engineer in the General Introduction Manual.*



Click [General Introduction](#) to access the manual.

## 1.2 Documentation Conventions and Symbols

The symbols used in this manual are intended to provide you with keys to the contents in an immediately understandable manner.



This symbol is used to introduce key concepts that are covered in the sections immediately following this symbol. As a result, this symbol most frequently appears at the beginning of chapters or sections.



### Note

*This symbol is used to mark notes, which provide you with additional information you need to have for further work. You will either find the Note sign at the beginning of a chapter or in a particular text passage in the chapter. Texts bearing this sign are additionally marked with **Note**. The text is always in italics.*




### Caution

*This symbol indicates that the text that follows describes particular circumstances that you must avoid to avoid potential errors with the operation of the program or harm to data. You will either find the Caution sign at the beginning of a chapter or near a particular text passage in the chapter. Texts that are introduced by this sign are additionally marked with **Caution**. The text is always in italics.*

### Example

This symbol marks examples which serve to illustrate a certain situation.

- 1) This symbol marks the individual operational steps involved in a particular operating instruction. Operating instructions describe operational steps, for example, how to open a menu or execute a function.
- This symbol marks listed subjects. The symbol for listed subjects can be either used to structure a continuous text or to list main subject keywords.
- This symbol marks list inside a bulleted or numbered list.
-  This symbol marks cross reference information that is available in another manual.

## 1.3 New Functions in Camera Tools

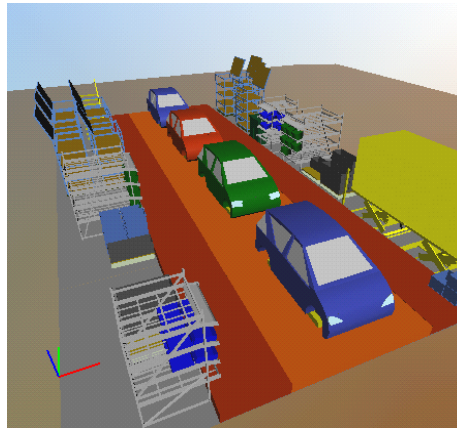
No new functionality has been added for this release.

## 1.4 Before Recording

Imagine that you are a film director who discusses the scene settings for a day of shooting with his cameraman. Both are at the shooting location and are discussing every detail of the scenes to be shot. First of all, you may want to view all the scenes at one shooting location or individual settings **without a camera** to get a general overview. It is possible to make the camera settings in advance. You can also start **recording** every scene. The settings can either be made with or without the camera.

### How you can Define Scenes

There are several possibilities for recording or for camera movement. As a first step the starting point for a recording is determined. In a second step the end point of a scene (camera movement), i.e. the last point of a recording is defined. Between these two points the single frames are recorded. The number of frames to be shot can be determined in the **Properties** dialog. You can only record one scene. You always have to **define a new scene**. To do so use the recording window (views) or insert several scene frames with defined end points. This point can possibly serve as starting point for the next scene. In addition, it is also possible to just shoot single frames. A recorded scene is used to create a video film. The file is compressed and saved as *avi-format* and can generally be started in the Explorer.



**Figure 1: Define New Scene**

Purchase decisions are increasingly based on presentation aspects. Using the camera tools you can use visualised planning sections for presentation.

## 2. Camera Tools

The camera tool icons are arranged in the toolbar. The icons in the toolbar are available if a graphic has been opened.

- 1) The camera tool toolbar is shown when the menu item **QuickCam** is enabled in the **View < Toolbar** menu.



Figure 2: Enabling Toolbar in the View Menu

- 2) Click **Start Camera Session** icon to enable the camera tools.



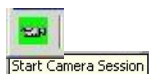
### Note

*These camera tools are used to record a film, a screenplay or single frames.*

### 2.1 Toolbar Icons



Figure 3: Toolbar – Camera Tools Icons



#### Start Camera Session

You can enable the camera tools using the icon **Start Camera Session** in the toolbar or using the **QuickCam** menu. The **Properties** dialog opens where you can specify data for the recording. *Please refer to the [Figure 3](#).*



#### Record

To start recording, enable this icon in the toolbar. After enabling the **Record** icon, you can create films: either as single frames, as several scene frames in series or using the screenplay. *Please refer to the chapters [Creating Single Frames](#) and [Fly to Current Viewpoint](#).*



#### Snapshot

To start a snapshot, enable this icon in the toolbar. This Snapshot icon is only enabled if the **Record** icon has been enabled. *Please refer to the [Creating Single Frames](#).*



#### Fly to Current Viewpoint

To start a camera movement between starting and end point, enable this icon in the toolbar. At the start of a camera movement, it is necessary to define a starting and an end point of the camera movement in the scene (graphic) beforehand.

You have to make a difference between a mere camera movement and a recording: In the case of a mere camera movement the camera moves between the defined starting and end points without shooting frames in order to recheck the scene settings before the recording is made, for example, If the recording is to be started immediately, the **Record icon needs to be enabled**. Once the recording is finished, the Record icon needs to be disabled.



In both cases a defined series of frames is displayed in the scene. The number of frames is specified in the **Properties** dialog. During recording, the frames are saved. *Please refer to the [Fly to Current Viewpoint](#).*



### Update QuickCam

To move the camera to the current scene setting (starting point for the next recording), enable this icon in the toolbar; the setting of the viewpoint (frame scene) is transferred to the camera. Camera position and viewpoint are synchronized. *Please refer to the [Synchronizing Camera and Viewpoint](#).*



### Update Viewpoint

To get to the current camera viewpoint, enable this icon in the toolbar. If you enable this icon, camera position and viewpoint are synchronized. *Please refer to the [Synchronizing Camera and Viewpoint](#).*



### Properties

To determine the camera movement properties, enable this icon in the toolbar. The **Properties** dialog is also used for generating a screenplay. *Please refer to the [Camera Settings Properties Dialog](#).*

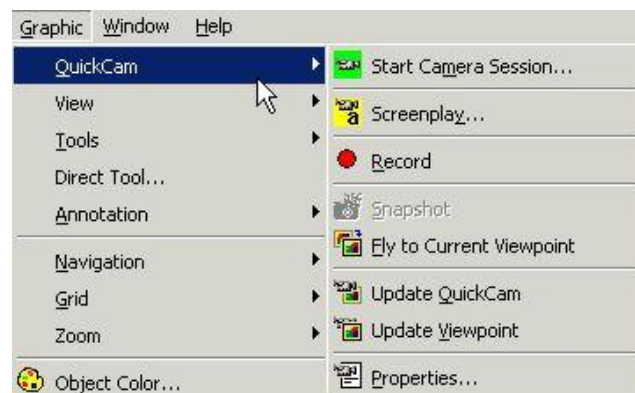


### Screenplay

To generate a screenplay for the recording, enable this icon in the toolbar. *Please refer to the [Screenplay](#).*

## 2.2 QuickCam Menu

All camera tool functions can also be started using the **QuickCam** menu.



**Figure 4: QuickCam Menu with all Camera Tools**

### To Open a QuickCam Menu

- 1) Select **Graphic** in the menu bar.
- 2) Move the cursor to **QuickCam**. All camera tools are displayed.
- 3) To enable a camera tool, click the corresponding menu item. *Please refer to the [Figure 3](#).*

## 2.3 Camera Settings Properties Dialog

A recorded film should always have a fixed structure; in the **QuickCam Properties** dialog the size of a graphic window and the number of frames per cam-

era movement are specified. The properties have to be set at the start of each recording. The settings can be changed at any time and can also be used for generating a screenplay.

- 1) Click this icon to open the **QuickCam Properties** dialog.

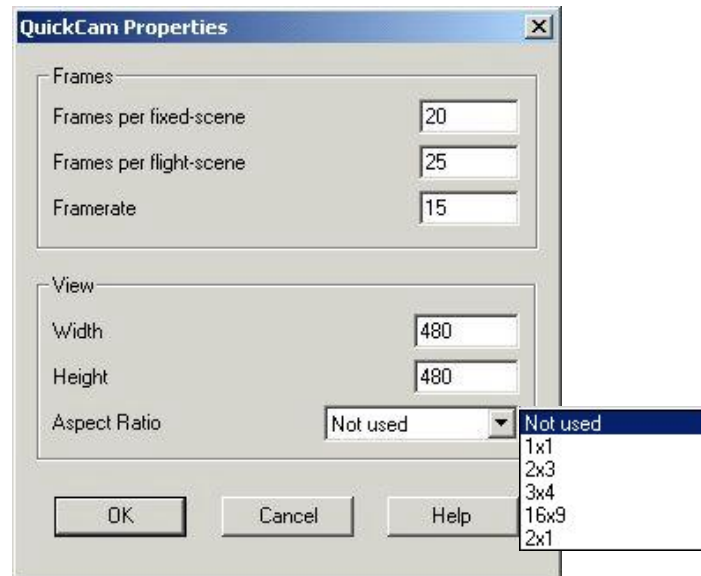


Figure 5: Camera Settings Properties Dialog

### 2.3.1 Specifying QuickCam Properties

After enabling the camera tools, the **QuickCam Properties** dialog opens. The following settings are made in the **QuickCam Properties** dialog.

#### Recording Frames

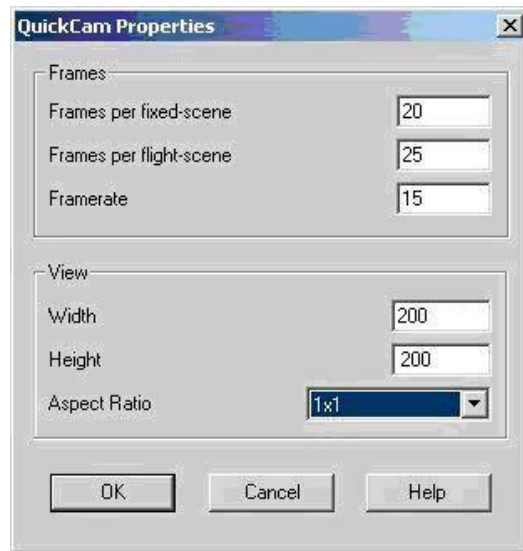
- **Frames per Fixed-Scene:** Number of snapshots for a fixed scene. If **20** is set in the dialog, there are **20 frames** for a fixed scene.
- **Frames per Flight Scene:** Number of frames taken during the camera movement. If **25** is set in the dialog, there are **25 frames** for a flight scene.
- **Frame Rate:** Number of frames per second. The frame rate applies to fixed scenes as well as to flight scenes. *Please refer to the [Figure 5](#).*

#### Setting View for Scene Editor

- **Width:** Setting the width of a scene editor in pixels.
- **Height:** Setting the height of a scene editor in pixels.
- **Aspect Ratio:** Aspect ratio determines values for size and width of a graphic window. The values in both fields are entered in pixels. The set aspect ratio is used for film production.
- **Aspect ratio:** If **Not used** is set in the aspect ratio, the set values for width and height are transferred to the scene editor. If the ratio is 1:1, both values are equal. The lowest settings for the width and height are always set. *Please refer to the [Figure 5](#).*

**Example****Selecting Another Aspect Ratio**

In this setting, the **height** value is set to 200 pixels. After selecting the 1x1 aspect ratio, the **width** is also set to 200 pixels. Please refer to the [Figure 6](#).



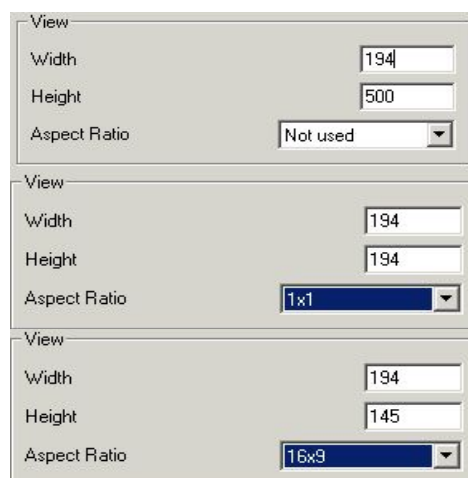
**Figure 6: Selecting Aspect Ration 1x1**

**Different Aspect Ratios**

The ratio between height and width is made clear by specifying different aspect ratios. The chosen aspect ratio determines the ratio between height and width.

**Example****Examples**

- If the height value is set to **500** and the width value to **194**, those values are transferred if **Not used** is chosen as aspect ratio.
- If the aspect ratio is set to **1x1** and the values are still the same, then both height and width values are set to **194**.
- If the aspect ratio is set to **16x9** and the values are still the same, then the height value and the width value are set to **145** and **194** respectively. Please refer to the [Figure 7](#).



**Figure 7: Examples for the Ratio between Height and Width**

- 1) Click **OK** in the **Properties** dialog to transfer the settings. *Please refer to the [Figure 5](#).*

## 2.4 Creating Single Frames

In many cases single frames show more details than an entire film. Use this camera function if you only want to show a specific series of graded single frames. It is also possible to create single frames of some views of your product prototype, which you can then use for a presentation.

### 2.4.1 Recording Film for Single Frames

The single scenes for single frames can be set in the graphic window. A scene can only be set in the graphic window that has been enabled.



Recordings can only be made if the **Record** icon has been enabled using the menu or the toolbar. *Please refer to the [Figure 4](#).*

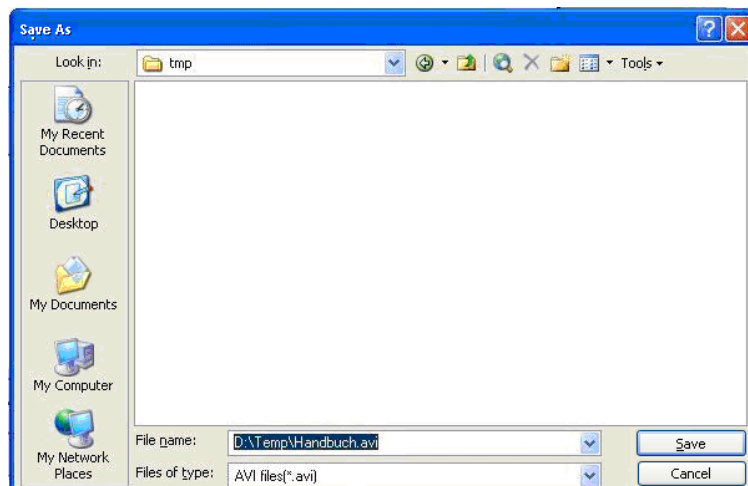
- 1) Recordings must be saved to be available again for replaying. After enabling **Record** icon, enter the path and name of the film in the **Save** dialog.



#### Note

*It is recommendable to create a new path to save the films.*

- 2) Click **Save** to confirm your entry.



**Figure 8: Saving File for Single Frames in the Directory**

- 3) Set the frame compression in **Video compression** dialog.



#### Note

*We recommend to use the **Microsoft Video 1** format.*

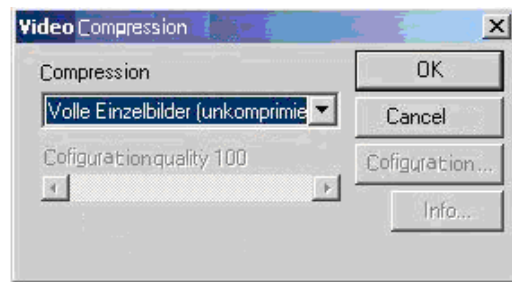


Figure 9: Set Compression Dialog

- 4) Click **OK** button. You can now record single frames

### Recording Scenes

Set the first scene for the single frame in the active graphic window. *Please refer to the Figure 10*

### Example

#### Scene 1:

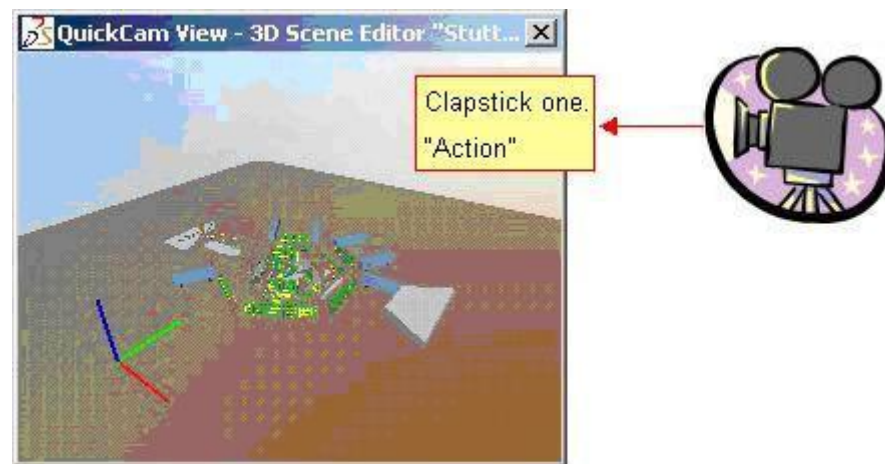


Figure 10: First Scene for Snapshot

- 1) After the scene is set start recording. Click **Snapshot** icon. The frame is saved.



### Recording the Second Frame

- 2) After recording the first frame, the second scene has to be set in the graphic window.



### Caution

*After the last recording, the recording mode must be disabled. After the last recording, always click **Record** icon.*

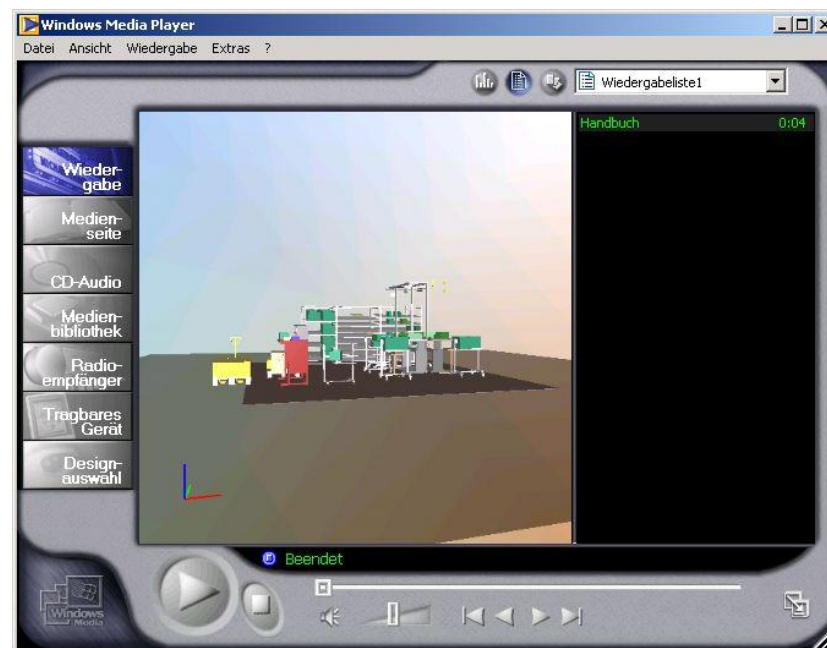


After the second scene is set, click the **Snapshot** icon again. The second frame is saved. Thus, you can record as many single frames as you want.

**Example** Scene 2:**Figure 11: Single Frame and Second Scene****Replaying Frames**

A media player must be installed on your PC, i.e Windows Media Player in order to replay frames.

- 3) Open the directory where you have saved the file.
- 4) Open the media player by double-clicking. The frames are displayed.  
*Please refer to the [Figure 12](#)*

**Example** Replaying Frame in the Media Player**Figure 12: Replaying Frame in the Media Player**

## 2.5 Fly to Current Viewpoint

A camera movement is started to check scene settings or to immediately make recordings. During a camera movement, a series of frames is created. Then number of frames taken during the camera movement is determined in the **Properties** dialog. For a camera movement a starting and end point in the graphic window needs to be determined beforehand; the camera movement will take place between these two points. *Please refer to the [Figure 5](#).*

## 2.5.1 Determining Camera Movement for Frame Series



To determine a mere camera movement, no recording needs to be enabled; the approach is the same for both applications.

- 1) First of all, determine the starting and end point between which the scenes are to be recorded. The first set scene corresponds to the starting point; the last set scene corresponds to the end point of the camera movement.
- 2) Click **Fly to Current Viewpoint** icon. The scene sequence is played back only once in the graphic window. *Please refer to the [Screenplay](#).*

The scene sequences can be saved permanently by enabling the Record button before playing back the single scenes. For more information on saving, replaying, and compression *Please refer to the [Creating Single Frames](#).*



### Caution

*After the last recording, the recording mode needs to be disabled. After the last recording always click **Record** icon.*



- 3) Click **Record** icon.
- 4) Determine again the starting and end point for the camera movement.



- 5) Click **Fly to Current Viewpoint** icon. The set scenes of the camera movement are played back in the graphic window.
- 6) Always click the **Fly to Current Viewpoint** icon again after recording to disable the recording mode.



### Note

*Use the same approach as for the screenplay when setting the scenes. Please refer to the [Screenplay](#).*



## Example

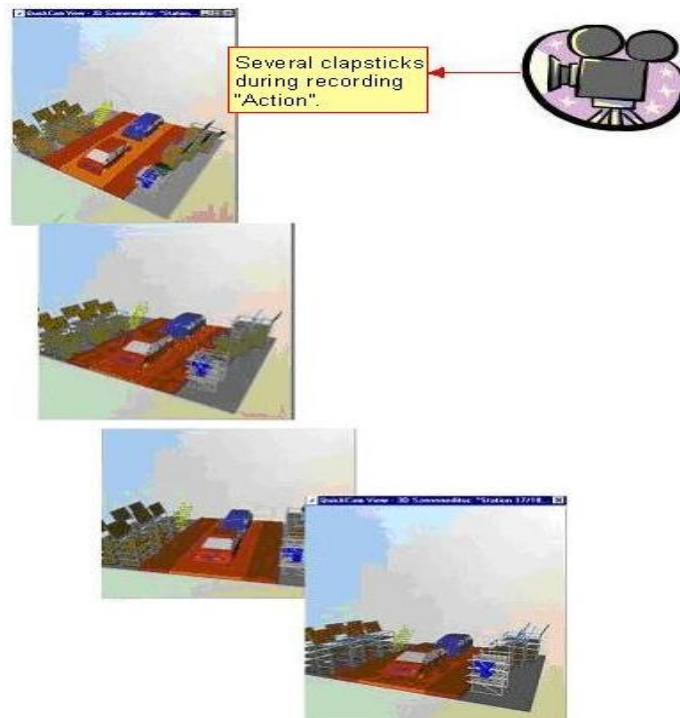


Figure 13: Frame Sequences during Camera Movement

## 2.5.2 Synchronizing Camera and Viewpoint



Camera and viewpoint often change position. To synchronise viewpoint and camera position you can use two camera tools.



Using the camera tools functions **Update QuickCam** and **Update Viewpoint** the positions of the scene settings in the graphic window and of the camera can be synchronized easily and quickly.

- Use these two camera tools to either synchronize the viewpoint with the camera position or the camera with the current viewpoint. *Please refer to the [Toolbar Icons](#).*

### Update QuickCam Function

Imagine that you have already made a camera movement and you would like to set a new viewpoint.

- There is a section between the camera position and the new scene (viewpoint) that you do not want to record.
- The camera has to be adjusted directly to the new scene setting (viewpoint). Use the camera tool **Update QuickCam** to change to the new viewpoint.



### To Set a New Viewpoint

- 1) The starting frame for the new recording is set in **scene one**. The camera has been set to this viewpoint by using the **Update QuickCam** function. Camera and viewpoint are at the same position again and are therefore synchronized.
- 2) Set a new scene (viewpoint).



- 3) Click once again on the icon **Update QuickCam**.
- 4) Camera and viewpoint are at the same position again. *Please refer to the Figure 14.*

### Example

#### Update QuickCam Camera Tool

Two scene settings should make the approach clearer.

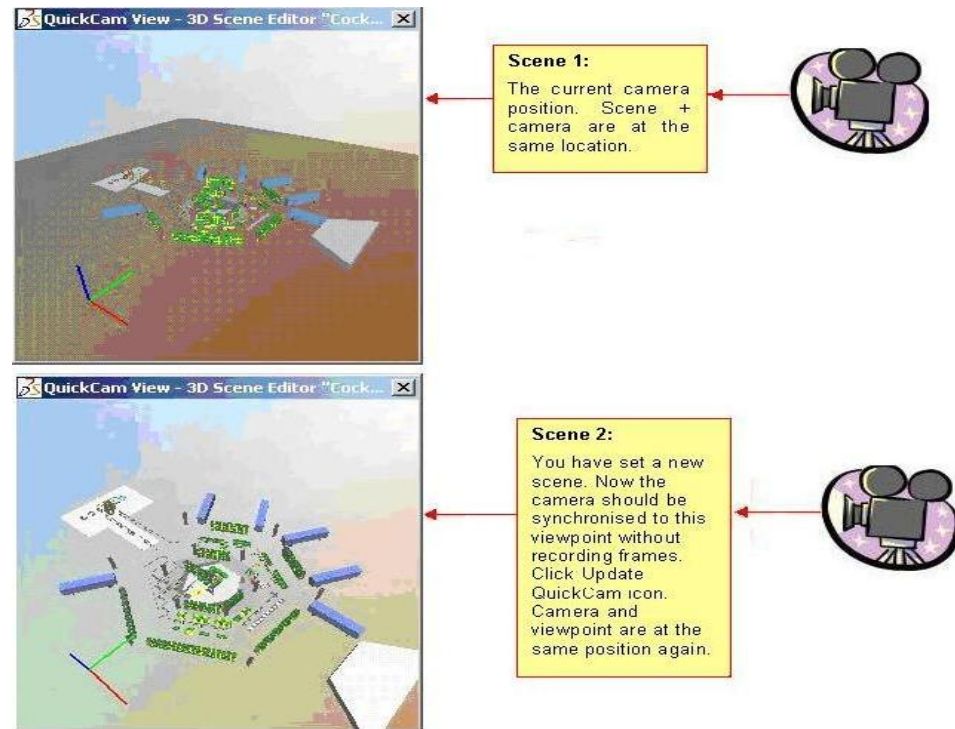


Figure 14: Synchronize Camera with New Viewpoint

#### Update Viewpoint Function

If you want to leave the camera at the same position (see scene one, *Please refer to the Figure 14*) the position of the viewpoint needs to be changed, i.e. the **viewpoint** must be synchronized with the **camera**.

- Use the **Update Viewpoint** camera tool to do this.

#### To Update Viewpoint

- 1) Click **Update Viewpoint** icon in the set viewpoint (second scene). The viewpoint changes to the first viewpoint.
- 2) Camera and viewpoint are at the same position again. See also **scene one**. *Please refer to the Figure 14.*

### Example



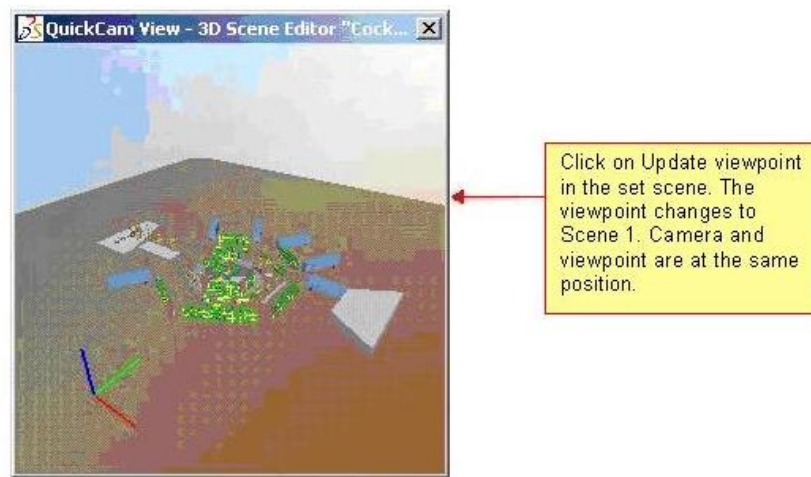


Figure 15: Synchronize Viewpoint with Camera

## 2.6 Screenplay



Using the **Screenplay** function, you can create film scenes for fixed images (snapshots in scenes with the same setting) as well as for flight scenes (the camera moves around the object taking pictures and creates a sequence of pictures). The **Properties** dialog is first used to create frame sequences beforehand (*Please refer to the [Camera Settings Properties Dialog](#)*). The camera settings included in the screenplay can be saved and used for new film scenes. The file format for saving the screenplay files ends with **\*.scp** (screenplay).

### 2.6.1 Creating Screenplay

After specifying the settings in the **Properties** dialog, you can create a screenplay. In the screenplay dialog you can correct the properties of snapshots.

Only the screenplay contains the camera settings. These settings can be used for recording other frames; if an object is placed at another position within the graphic (presentation of a system or a station) or different colors are selected for objects.

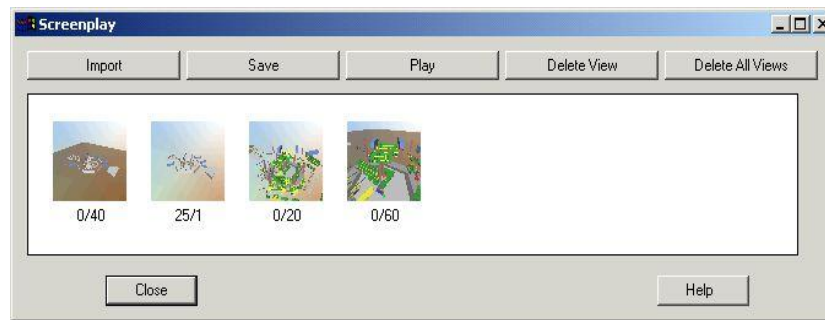


- 1) Click Screenplay icon to call up the Screenplay dialog.
- 2) You can record a film scene either as a fixed scene or as a flight scene. After creating a scene, this scene is transferred to the screenplay.



#### Recording Frames

*Please refer to the [Creating Single Frames](#) and [Fly to Current Viewpoint](#).*



**Figure 16: Screenplay Dialog with Transferred Scene Frames**

- 3) Double-click the number below a scene in the screenplay to edit the numbers.



## Note

Each scene is displayed in a small picture and an edit field. In the edit field, there are two numbers separated by commas. These two numbers can be edited directly in the edit field. The number of fixed scenes can be increased for the last screenplay setting: this applies to flight scenes as well as to fixed scenes. You can either edit the value directly in the edit field or with an additional frame of the same setting.

## Fixed Scene

- The number following the comma (**20** frames per fixed scene) is specified in the **Properties** dialog. The zero in front of the comma means that the next scene is played automatically when playing back the screenplay. This transition can be changed by any number of frames.
- If, with fixed scenes, you enter 10 in front of a comma, the camera does not immediately change to the next scene, but record 10 frames during the change of the camera position to the next scene. Depending on the number entered, the number of frames during the transition gets increased or reduced.

## Flight Scenes

- The number in front of the comma indicates the number of frames per flight scene specified in the **Properties** dialog.
- The second number corresponds to the number of frames for the fixed scene after the flight scene is complete. If this number is 1, the next flight scene get immediately recorded.

## Example

- This information plays a crucial role when playing back a film repeatedly in a presentation. The display time of the last frame is increased according to the setting.
- It is also important for scenes that are between the first and last scene in order to increase the display time of the last frame.

## Playing Back

To play back the scenes transferred to the screenplay, click **Play**. Please refer to the [Figure 16](#). The number below a scene currently being played back is marked blue.

You can change the order of the single scenes within a screenplay. To do this, you have to select a scene and move it to the new position.

### Delete Views

Use the **Delete View** and **Delete All Views** functions to remove the scenes from the screenplay.

- With the **Delete Views** function, you can delete a single scene that has been selected.
- With the **Delete All Views** function, you can remove all scenes from the screenplay. With this function, you do not have to select a scene. *Please refer to the [Figure 16](#).*

### Saving Screenplay

If you close a screenplay without saving, a message appears on the screen.

- 1) Confirm the message with **Yes**. The dialog for saving the screenplay opens. If you close a screenplay without saving, this screenplay is no longer available for further usage.

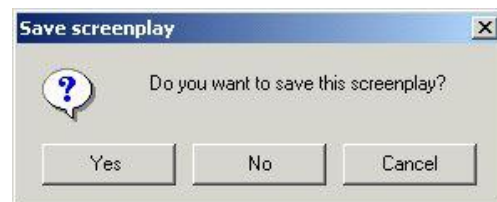


Figure 17: Save Screenplay Message

- 2) Use the **Save** function to save the screenplay and to make it thus available for further usage.

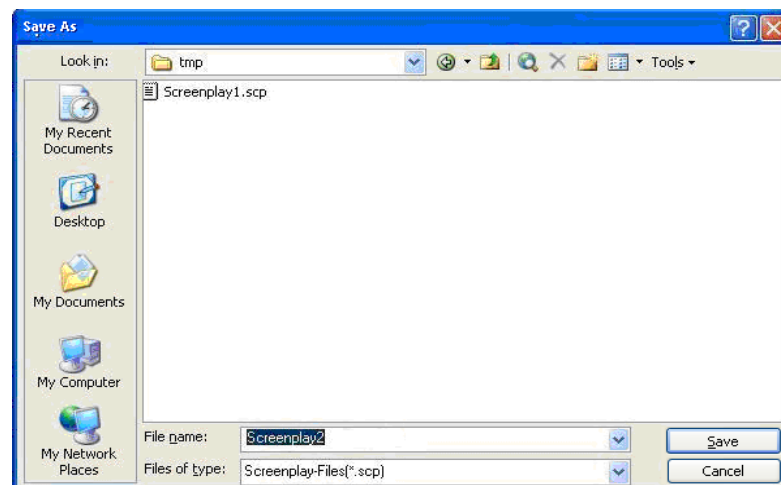


Figure 18: Save Screenplay Dialog

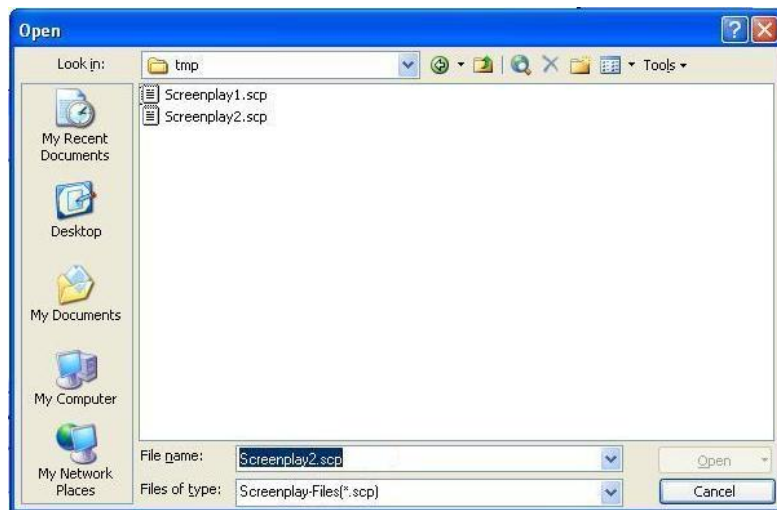
## 2.7 Producing a Film from a Screenplay

You can record and save single scenes in a screenplay in the form of a film

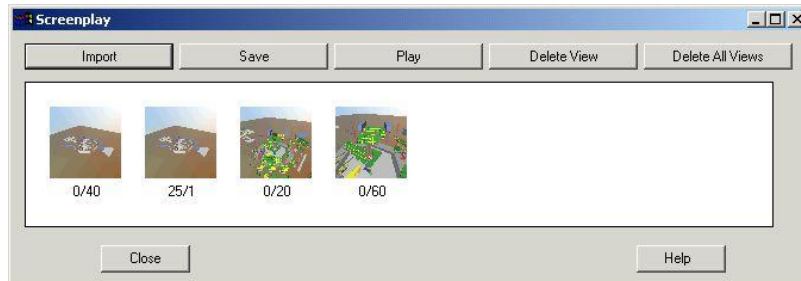
### To Produce a Film

- You can use an existing screenplay.

- You can create a new screenplay.
  - You can use fixed scenes or flight scenes.
- 1) To use an existing screenplay for a film, open the screenplay with the **Import** function . Please refer to the [Figure 20](#).
  - 2) Import the screenplay using **Open**. The screenplay dialog opens and the scene frames is created anew.



**Figure 19: Dialog for the Screenplay Import**



**Figure 20: Imported Screenplay**



Use this icon to start and end the recording of a film

- 3) Using the **Record** icon, you start and end the recording of a film.
- 4) Once you have started recording, the **Save** film dialog opens. The film gets saved in the \*.avi format.
- 5) Type the file name and click **Save**.
- 6) Before saving the film, you have to set the video compression. Otherwise, you cannot produce a film. Please refer to the [Figure 21](#)

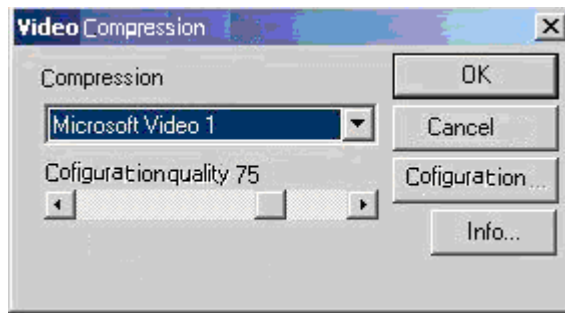


Figure 21: Specify Video Compression – Save File



### Note

Do not forget to click **Record** icon when you have finished recording. Recording gets completed if you click this icon.



- 7) After saving the film, click **Play** in the screenplay. (Please refer to the [Figure 20](#)) The scenes gets recorded and saved.
- 8) When the last scene has been recorded in the screenplay (a currently recorded scene is marked blue with the numbers), click **Record** icon again to finish recording.
- 9) Open the directory in which the film is saved to play back a film.
- 10) Double-click the file. The film can only be played back if an appropriate Media Player is installed.

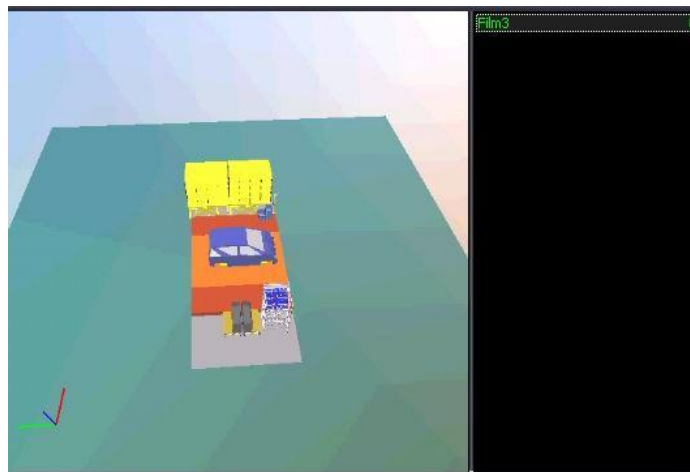


Figure 22: Playing Back a Film with Media Playe

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