

**NLiVE**

**NLiVE  
Requirement Specification  
v. 1.0**

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# History

## Document History

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nlive_preview_clip_command	preview the selected clip	27
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# **1.Introduction**

## **1.1. Purpose of the Document**

This document identifies technical requirements related to an open source non-linear video editor application (NLiVE).

## **1.2. Intended Audience**

The intended audience of this document is primarily software developers. The use cases have been designed to explain the purpose of each requirement outlined. As this document is read and used during the development process the requirements may be referred to by the corresponding requirement keys.

Testers will also utilize this document when creating test case plan.

## **2. General description**

### **2.1. Product Goal**

The Goal of the NLiVE application is to provide a non-linear video editor containing many of the features and functionality of other high-end commercially available video editors without the high costs involved.

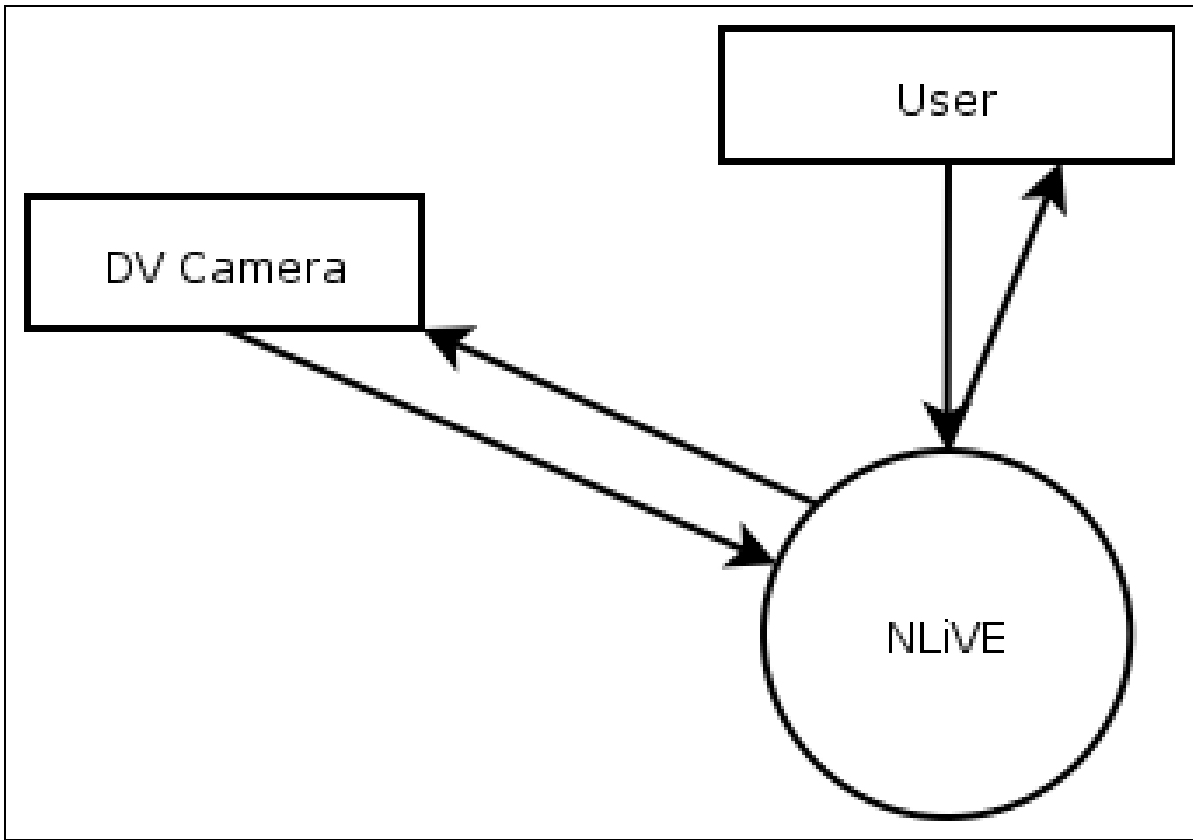
The NLiVE application shares many common features with commercially available video editors such as Adobe Premier. Some of these features include: manipulating video files, adding transitions and effects to the video, manipulating the audio track of videos being editing, and generating output video files in various formats. While NLiVE shares many features with other high-end video editors, it is not NLiVE's goal to provide a one to one functionality mapping. As such the scope of our feature set is reduced in comparison.

### **2.2. Product Profile**

The NLiVE application executes under Windows 2000 Professional and all versions of Windows XP operating systems with DirectX 9.0c. NLiVE utilizes a graphical user interface. The user manipulates one or more video files for which a video codec is installed for input. The user may cut and splice together parts of these input files as well as to add transitions and other effects to the video. The user is able to add "title cards" and other still images to the video file, and to remove or replace the audio track of the videos being edited. Once video editing is complete, the user may generate a new video file using one of several possible compression routines and file formats.

The following context diagram provides a general overview of the NLiVE application:





**Figure 1 - NLive Context Diagram**

### **2.3. Assumptions and Dependencies**

It is assumed that NLive will be run in a supported operating system with hardware that is capable of adequately running the supported operating system. This includes enough memory and processing power to run medium to large sized applications on the supported operating system.

# 3. Functional Requirements

This use case diagram summarizes all of the use case tables:

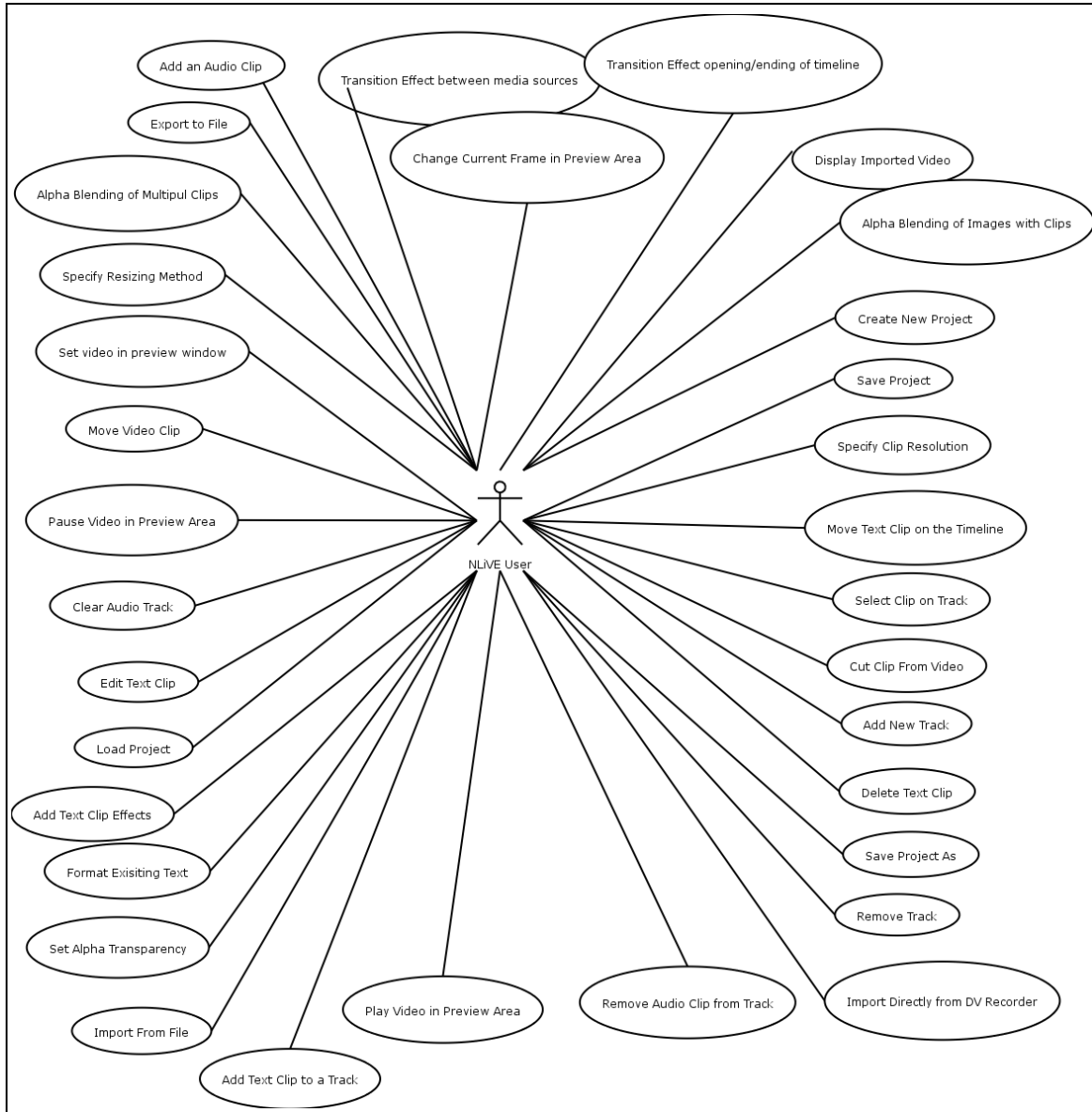


Figure 2 - NLiVE Use Case Diagram

## 3.1. Loading /Outputting Video

### 3.1.1. Import directly from DV Recorder

nlive\_capture ability to capture video  
 The NLiVE application has the ability to capture video from a digital video camera and save it to a file.

nlive\_capture\_command nlive contains a capture command  
 The NLiVE application has a capture command.

nlive\_capture\_command\_dialog nlive displays a capture modal dialog  
 The NLiVE application displays a modal dialog box containing options for capturing the video in response to the capture command. The capture modal dialog asks for the name of the file to be captured and provide a browse option for file location.

User has a Digital Video Recorder and wishes to transfer recorded video directly from Recorder to the NLiVE application.

User Action	NLiVE Responsibility
User starts the NLiVE application and opens or creates a project as defined in <a href="#">3.5.1</a> . User connects the Digital Video Recorder to the computer using an IEEE1394 connection.	
	NLiVE automatically detects a connection has been made via IEEE1394 and prompt the user with options for importing the video.
User selects yes to importing the video.	
	NLiVE initiates transfer and the file is transferred in the standard DV format and stored in a supported format chosen by the user. NLiVE automatically imports the created file and displays it in the video source browser.

### 3.1.2. Import from file

nlive\_import ability to import a media file  
 The NLiVE application has the ability to import a media file into the source browser.

nlive\_import\_command nlive contains an import command  
 The NLiVE application has an import command.

nlive\_import\_command\_dialog nlive displays an import modal dialog  
 The NLiVE application displays a modal dialog box containing a file browser window in response to the import command.

nlive\_name\_media\_source nlive allows the user to name a media source  
 The NLiVE application allows the user to name a media source and displays this for the user and save it with the project.

nlive\_still\_image\_as\_video nlive allows the user to treat a still image as a video source  
 The NLiVE application allows the user to operate on a still image as if it were a video and use all features pertaining to video on it.

User has a video/audio file in supported format and wishes to load/import it into NLiVE.

User Action	NLiVE Responsibility
User starts the NLiVE application and opens or creates a project as defined in <a href="#">3.5.1</a> . User selects the Import command.	
	NLiVE displays a modal dialog box with a browse option allowing the user to browse to the supported file.
User selects the video/audio file in the browser and selects open.	
	NLiVE automatically places the file in the source browser.

### 3.1.3. Display imported video

nlive\_source\_browser nlive contains a source browser  
 The NLiVE application contains a source browser.

User wishes to open imported file and display it on the screen.

User Action	NLiVE Responsibility
User has imported a video as defined in <a href="#">3.1.1</a> or <a href="#">3.1.2</a> . User selects imported file from source browser and double clicks or right clicks on the file and selects open.	
	NLiVE loads the file to the screen to be modified.

### 3.1.4. Export to file

nlive\_compose nlive can compose an output video file  
 The NLiVE application has the ability to compose an output video in the format specified from the timeline project.

nlive\_compose\_command

nlive contains a compose command

The NLiVE application has a compose command.

nlive\_compose\_dialog

nlive has a compose options modal dialog

The NLiVE application asks the user what location, format, and file name they wish to use for the output video, after the compose command has been selected.

nlive\_compose\_progress

nlive contains a modal dialog box showing compose progress

The NLiVE application has a modal dialog box that shows the progress of a compose command being executed.

User is done editing the video and wishes to output it to a file.

User Action	NLiVE Responsibility
User select the compose command.	
	NLiVE solicits a file name, location, and type from the user.
User enters file name, location, and type then confirms.	
	NLiVE opens a modal dialog box showing the video composing progress and converts the timeline into an output video in the format specified by the user.

## 3.2. Video Manipulation

### 3.2.1. Cut Clip from Video

nlive\_clip\_start

nlive allows a clip starting position

The NLiVE application allows the user to select a starting position to clip a video source.

nlive\_clip\_end

nlive allows a clip ending position

The NLiVE application allows the user to select an ending position to clip a video source.

nlive\_cut

nlive can cut video based on start/end points

The NLiVE application has the ability to cut video clips from a video source based on a start and end point specified by the user in the video source.

nlive\_cut\_command

nlive has a cut command

The NLiVE application has a cut command.

**nlive\_clip\_timeline\_placement** nlive allows user to position clip on timeline  
 The NLiVE application allows the user to choose the location to put a clip on the timeline.

**nlive\_clip\_timeline\_view** nlive shows clip on timeline  
 The NLiVE application graphically represents the position and length of the clip on the timeline as well as allow the user to see what video source it came from.

**nlive\_auto\_audio\_clip** nlive places audio clip on timeline synchronized with video  
 The NLiVE application places an audio clip on the timeline whenever a clip from a video source that has audio is added to a video track. This clip is placed on that video track's default audio track.

**nlive\_default\_audio** nlive has a default audio track for each video track  
 The NLiVE application has one audio track assigned as the default audio track for each video track at all times.

**nlive\_name\_media\_clip** nlive allows the user to name a media source  
 The NLiVE application allows the user to name a media source and displays this for the user and saves that name source with the project.

User has a media source from which they wish to cut some segment no larger than the whole video source and no smaller than no part of the video source and place it on to the timeline in a given position.

User Action	NLiVE Responsibility
User selects a start point in the video source.	
	NLiVE marks the point the user has selected on the 'progress bar' for the video source.
User selects an end point in the video source.	
	NLiVE marks the end point in the same manner as the start point and then highlights the interim part of the 'progress bar'.
User invokes the 'cut' command.	
	NLiVE changes the color of the highlight on the 'progress bar'.
User selects a location on the timeline for the start of the video.	
	NLiVE adds a marker to the timeline indicating the user has placed the clip there and how long the clip is.

### 3.2.2. Move Video Clip

nlive\_clip\_movement nlive allows the user to move a clip on a timeline  
 The NLiVE application allows the user to move a clip on the timeline to a different location on the timeline.

nlive\_clip\_preview nlive allows the user to preview a clip  
 The NLiVE application allows the user to select a clip on the timeline and view it.

User wants to move a clip already on the timeline to another spot on the timeline.

User Action	NLiVE Responsibility
User clicks on a portion of the timeline that has something assigned to it already.	
	NLiVE opens a window with the video source from which that clip was taken with the position of the video that represents the cut highlighted in the 'progress bar' for that window.
User clicks and drags the portion of the timeline to a new spot on the timeline.	
	NLiVE moves the clip on the timeline.

### 3.2.3. Transition effect between media sources

nlive\_transition nlive has an add transition command  
 The NLiVE application has the ability of adding transition create a transition and set properties for the transition.

nlive\_transition\_command nlive has an add transition command  
 The NLiVE application has an add transition command.

nlive\_transition\_dialog nlive has an add transition modal dialog  
 The NLiVE application opens a modal dialog box allowing the user to select the transition and set properties for the transition in response to the transition command.

nlive\_transition\_preview nlive shows a preview of a transition  
 The NLiVE application allows the user to view an example or preview of each transition listed in the transition selection modal dialog box opened by the add transition command.

nlive\_transition\_postion

nlive allows the user to place the transition

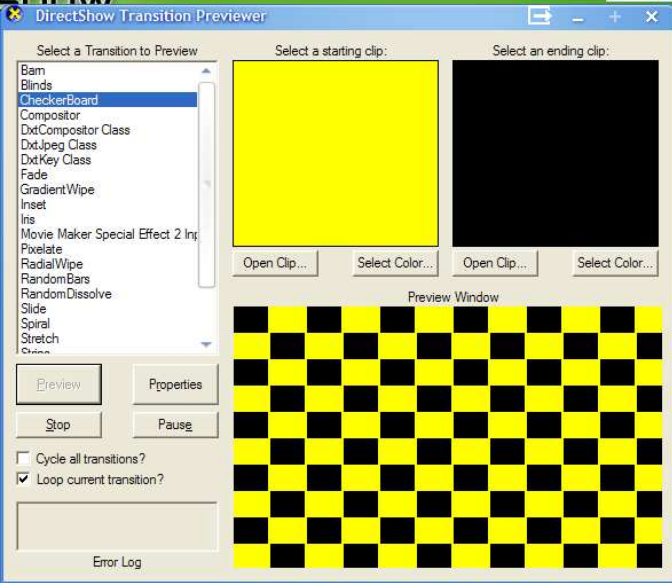
The NLiVE application allows the user to place the transition into a particular time period on the timeline.

nlive\_transition\_view

nlive graphically represents the transition on the timeline

The NLiVE application represents the presence of a transition effect on the timeline graphically.

User has two (or more) media sources on the timeline and wishes to specify a transition effect from one to another.

User Action	NLiVE Responsibility
<p>User has followed <a href="#">3.1.1</a> and/or <a href="#">3.1.2</a> at least twice and now has two clips on the timeline.</p> <p>User selects two adjacent clips on the same track in the timeline.</p> <p>User selects the transition command.</p>	
	<p>NLiVE presents a transition properties modal dialog box, similar to the one given by this DirectShow sample.</p>  <p>In this sample, the user is able to preview the transition before applying it to the timeline.</p>
<p>User chooses the type of transition desired and clicks “apply”.</p>	
	<p>NLiVE adds the transition to the timeline. NLiVE will mark the transition on the timeline using a special symbol.</p>



### 3.2.4. Transition effect opening/ending of timeline

**nlive\_transition\_timeline\_beginning** nlive allows a transition at the beginning of timeline  
The NLiVE application allows the user to select the very beginning of the timeline and place a transition there.

**nlive\_transition\_timeline\_ending** nlive allows a transition at the ending of timeline  
The NLiVE application allows the user to place a transition at the end of the timeline.

User wishes to place a transition at the opening or ending of the timeline.

User Action	NLiVE Responsibility
User has at least one clip as per Use Case <a href="#">3.2.1</a> . User selects the beginning or end of the timeline and selects the transition command.	
	NLiVE will respond as in Use Case <a href="#">3.2.3</a> .

## 3.3. Audio Manipulation

### 3.3.1. Remove Audio Clip from Track

User wishes to completely remove audio from the movie.

**nlive\_audio\_clip\_removal** nlive allows the user to remove an audio clip  
The NLiVE application allows the user to select an audio clip and remove it from the timeline.

User Action	NLiVE Responsibility
User selects an audio clip from the source browser and selects the remove audio command.	
	NLiVE omits the audio track from the selected clip.

### 3.3.2. Add an audio clip

**nlive\_audio\_clip** nlive allows the user to create a clip of part of an audio source  
NLiVE allows the user to make a clip out of part of an audio source and place it on the timeline in an audio track.

User wishes to replace audio track of a movie with a custom audio track.

<b>User Action</b>	<b>NLiVE Responsibility</b>
User chooses import audio clip command.	
	NLiVE displays a file browser.
User selects the new audio file.	
	NLiVE allows the user to select a start point on the timeline.
User selects a start point in the audio source.	
	NLiVE marks the point the user has chosen on the 'progress bar' for the audio source.
User chooses an end point in the audio source.	
	NLiVE marks the end point in the same manner as the start point and then highlights the interim part of the 'progress bar'.
User hits the 'cut' command.	
	NLiVE changes the color of the highlight on the 'progress bar'.
User selects a location on the timeline for the start of the audio.	
	NLiVE adds a marker to the timeline indicating the user has placed the clip there and how long the clip is.

### 3.3.3. Clear Audio Track

nlive\_audio\_clear\_track

user can completely remove an audio track

The NLiVE application clears an audio track from the project.

User wishes to replace audio track of multiple movies which are being combined in editing, with one audio track.

<b>User Action</b>	<b>NLiVE Responsibility</b>
User selects the audio track they don't want from the timeline and selects clear.	
	NLiVE will clear the selected audio track. The contents of the audio track will then be cleared.

## 3.4. Text Clip Operations

### 3.4.1. Add Text Clip to a Track

nlive\_option\_pane nlive has an option pane  
 The NLiVE application contains an option pane that shows the user which options are available and allows the user to specify an option they wish to apply.

nlive\_texttrack\_add add text to a track  
 The NLiVE application has the ability to add a static piece of text to clip according to user specified duration.

nlive\_texttrack\_add\_command nlive has an add text track command  
 The NLiVE application has an add text to track command that forces the user to specify which track they wish to add the text to and change the cursor while over the editing pane to give feedback on the user's desire to add text. To return to previous state the user may click on the add text command a second time.

nlive\_option\_pane\_texttrack option pane supports text track  
 The NLiVE application's option pane supports the text track command by providing options that support text formatting and allowing the user to enter the text in response to the text track state.

User wishes to add a static piece of text to the movie.

User Action	NLiVE Responsibility
User clicks on the text button.	
	While cursor is over the cutting/editing pane, the cursor changes to signify user intention to add/edit/remove text. The option pane changes to support text options.
The user selects the location on the screen to display the text as well as other text options such as font, font size, color etc.	
	On the editing pane appears a text input box that signifies that text may be entered.
User enters text and clicks out of the text input box.	

	The text input box now contains the string the user entered and the box border is set to invisible leaving only the text displayed. Text object is displayed in timeline.
User sets text duration by clicking, holding and dragging on text object edge in the time line.	
	Program sets duration.

### 3.4.2. Format Existing Text

nlive\_texttrack\_respond

text track

The NLiVE application has a method of response when a user clicks on an existing piece of text by entering into the edit text state.

User wishes to format an existing piece of static text in the movie.

User Action	NLiVE Responsibility
User double clicks on the text in the editing pane or on the timeline. Or user clicks on the text button and single clicks on the existing text.	
	The option pane changes to support text options. The text input box is set to visible. The box contains the un-highlighted previously inputted string.
The user highlights the text he wishes to format.	
	The text inside the text box is highlighted, gives visual cue that it is selected.
The user then interacts with the option pane to choose the text effects that are desired.	
	The program redisplay the text after every format change.
After all format changes the user clicks out side of the text box, and the formatting is changed.	

	Program stores the formatting information and sets text box to invisible while formatted text remains on screen in its preset time duration.
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### 3.4.3. Add Text Clip Effects

nlive\_option\_pane\_texttrack\_effects

option pane supports text effects

The NLive application's option pane supports text clip effects by displaying all available effects and providing the means to initiate or enable effects.

User wishes to add a text clip effects to text already in the movie.

User Action	NLive Responsibility
Assuming that the text has already been placed inside the movie. User single clicks on the text in the editing pane or on the timeline.	
	The text object is selected
The user the clicks on the text effect button which is just under the buttons for text formatting.	
	The option pane changes to support text clip effect options.
User selects the effects that are desired.	
	The effects are added to the text

### 3.4.4. Delete Text Clip

nlive\_texttrack\_delete

text track delete

The NLive application has the ability of deleting text within a clip.

User wishes to add a text clip effects to text already in the movie.

User Action	NLive Responsibility
Assuming that the text has already been placed inside the movie. User single clicks on the text in the editing pane or on the timeline.	
	The text object is selected
The user hits the delete key.	
	The text is removed from the movie across its entire duration. The text is no longer

	displayed
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### 3.4.5. Edit Text Clip

`nlive_edit_text_for_clip` `nlive` allows the user to edit text in a clip  
 The NLiVE application's option pane contains a text field for editing the text of a text clip when one is selected.

User wishes to edit a text clip already in the movie.

User Action	NLiVE Responsibility
User double clicks on the text in the editing pane or on the timeline. Or user clicks on the text button and single clicks on the existing text.	
	The option pane changes to support text options. The text input box is set to visible. The box contains the un-highlighted previously inputted string.
The user then edits the text string.	
	The program redisplayes the text.
The user clicks out side of the text input box to un-highlight the text.	
	Text is un-highlighted.

### 3.4.6. Move Text Clip on the Timeline

`nlive_text_clip_select` `nlive` allows user to select text clip  
 The NLiVE application allows the user to select a Text Clip on the timeline. NLiVE allows the user to unselect a text clip.

`nlive_selected_text_clip_move` `nlive` allows the user to move a selected text clip  
 The NLiVE application allows the user to move a selected text clip on the timeline.

`nlive_selected_text_clip_change_track` `nlive` allows the user to change the track of a text clip  
 The NLiVE application allows the user to move a selected track from one text track to another.

User wishes to move a text clip in the timeline already in the movie.

User Action	NLiVE Responsibility
User clicks and holds in the center of the text object in the timeline.	

	The text object in the timeline is highlighted.
While still holding down the click the user then drags the text object either vertically to change tracks or horizontally to change the time when the text appears in the movie.	
	The program moves the text object accordingly.
The user un-clicks from the text object.	
	Text object is un-highlighted.

### 3.5. Project Operations

#### 3.5.1. Create New Project

nlive\_newproject ability to create a new project  
 The NLiVE application has the ability of creating a new project.

nlive\_newproject\_command nlive contains a new project command  
 The NLiVE application has a new project command.

nlive\_newproject\_command\_dialog nlive displays a new project modal dialog  
 The NLiVE application displays a modal dialog box containing project settings in response to the new project command. The settings include the resolution of the output video.

User wishes to create a new project.

User Action	NLiVE Responsibility
User selects the new project command.	
	NLiVE displays a modal dialog box containing project settings including the resolution of the output video.
User selects yes to create the new project.	
	NLiVE creates a new empty project.

#### 3.5.2. Load Project

nlive\_loadproject ability to load a project  
 The NLiVE application has the ability to load a project.

nlive\_loadproject\_command

nlive contains a load project command

The NLiVE application has a load project command.

nlive\_loadproject\_command\_dialog

nlive displays a load project modal dialog

The NLiVE application displays a modal dialog box containing a file browser window in response to the load project command.

User wishes to load a project.

User Action	NLiVE Responsibility
User selects the load project command.	
	NLiVE displays a modal dialog box with a browse option allowing the user to browse to a saved NLiVE project to load.
User selects the project file in the browser and selects open.	
	NLiVE loads the NLiVE project .

### 3.5.3. Save Project

nlive\_saveproject

ability to save a project

The NLiVE application has the ability to save a project.

nlive\_saveproject\_command

nlive contains a save project command

The NLiVE application has a save project command.

nlive\_saveproject\_command\_dialog

nlive displays a save project modal dialog

The NLiVE application displays a modal dialog box confirming the project was saved.

User wishes to save a currently opened project.

User Action	NLiVE Responsibility
User selects the save project command.	
	NLiVE displays a confirmation modal dialog box after saving the project. If file already exists prompts to overwrite.

### 3.5.4. Save Project As

nlive\_saveprojectas

ability to save a project as

The NLiVE application has the ability to save a project with a defined name.

nlive\_saveprojectas\_command

nlive contains a save project as command

The NLiVE application has a save project as command.



nlive\_saveprojectas\_command\_dialog                      nlive displays a save project as modal dialog  
 The NLiVE application displays a modal dialog box containing a file browser window in response to the save project as command.

User wishes to save a currently opened project with a defined name.

User Action	NLiVE Responsibility
User selects the save project as command.	
	NLiVE solicits a file name and location in a modal dialog box.
User Clicks OK.	
	NLiVE displays a confirmation modal dialog box after saving the project. If file already exists prompts to overwrite.

## 3.6. Track Manipulation

### 3.6.1. Add New Track

nlive\_track\_add\_track                                      user can add an audio, video or text track to the project  
 The NLiVE application has the ability to add a track to the project.

User wishes to create a new track

User Action	NLiVE Responsibility
User invokes the “add track” command.	
	NLiVE solicits whether the track is a video, audio or text track. Then, NLiVE creates the track and provides a properties window (or panel) in which the user can set up the track.

### 3.6.2. Remove Track

nlive\_track\_remove\_track                                  user can remove an audio, video or text track from the project  
 The NLiVE application has the ability to remove a track from the project.

User wishes to remove a track

User Action	NLiVE Responsibility
User highlights the track and invokes the “remove track” command.	
	NLiVE confirms removal of the track, and then

	removes the track.
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### 3.6.3. Select a Clip on a Track

nlive\_track\_select\_clip user can highlight a clip on a track for manipulation  
 The NLiVE application has the ability to select clips on a track.

User wishes to select a clip on a track

User Action	NLiVE Responsibility
User highlights the clip on the track.	
	NLiVE opens the properties for that clip in the properties pane for manipulation.

## 3.7. Clip Manipulation

### 3.7.1. Specify Clip Resolution

nlive\_clip\_resolution ability to set clip resolution  
 The NLiVE application has the ability to set the resolution of a clip.

nlive\_clip\_properties\_resolution nlive contains resolution clip properties  
 The NLiVE application has resolution clip properties.

User wishes to set clip resolution.

User Action	NLiVE Responsibility
User selects a clip as per use case <a href="#">3.6.3</a> the user selects a clip.	
	As per use case <a href="#">3.6.3</a> user sees properties.
User sets clip resolution in properties.	
	NLiVE updates the setting.

### 3.7.2. Specify Resizing Method

nlive\_resize ability to resize clips  
 The NLiVE application has the ability of selecting the way in which a clip can be resized on output.

nlive\_resize\_display display resized preview  
 The NLiVE application has the ability of displaying a frame of the resized clip as a preview

User wishes to set the clip resize method.

User Action	NLiVE Responsibility
User selects a clip as per use case <a href="#">3.6.3</a> the user selects a clip.	
	As per use case <a href="#">3.6.3</a> user sees properties.
User sets clip resizing method.	
	NLiVE updates the setting and shows a quick preview of a single frame from the clip to show the user how it looks.

### 3.7.3. Set video in preview window

nlive\_preview\_output\_command preview the output video as edited  
 The NLiVE application has a command to start a preview of video as it is currently edited

nlive\_preview\_output\_display nlive displays preview video  
 The NLiVE application has the ability of displaying the video compilation in its edited state

User wishes to preview output video.

User Action	NLiVE Responsibility
User clicks preview button.	
	Output video preview is set to play in the video preview area.

### 3.7.4. Play Video in Preview Area

nlive\_preview\_clip\_command preview the selected clip  
 The NLiVE application has the ability of selecting a clip and using the clip preview command.

nlive\_preview\_clip\_display nlive displays preview clip  
 The NLiVE application plays the selected clip selected.

User wishes to play the video in the preview area.

User Action	NLiVE Responsibility
Having set selected video to play in the	

preview area the user hits the play button.	
	NLiVE plays the video from the currently displayed frame until it ends and which point it stops and returns to the first frame of the video.

### 3.7.5. Stop Playing Video in Preview Area

nlive\_preview\_stop output preview stops playing  
 The NLiVE application has a stop command to end the playing of the clip or video being previewed.

User wishes to stop the video in the preview area.

User Action	NLiVE Responsibility
User clicks stop button.	
	If no video is playing currently nothing happens. Else, the video stops playing and the position returns to the first frame.

### 3.7.6. Pause Video in Preview Area

nlive\_preview\_pause pause the video or clip being previewed  
 The NLiVE application has the ability to pause a preview at any point during its run.

User wishes to pause the video in the preview area.

User Action	NLiVE Responsibility
User clicks pause button.	
	If no video is playing currently nothing happens. Else, the video stops playing and the position remains on the current frame at the time the button was clicked.

### 3.7.7. Change Current Frame in Preview Area

nlive\_change\_frame move to specific frame of preview video  
 The NLiVE application has the ability of moving a specific frame in video and having it displayed in preview area.

User wishes to change the current frame/position of the video in the preview area.

User Action	NLiVE Responsibility
Having completed use case <a href="#">3.7.4</a> , user	

clicks on progress bar for the video and uses it to specify the position they desire.	
	NLiVE updates the display and moves the current position to the one specified.

### 3.8. Alpha Blending Operations

#### 3.8.1. Set Alpha Transparency

nlive\_clip\_alpha ability to set alpha of clip  
 The NLiVE application has the ability of setting the alpha property of a clip.

nlive\_clip\_properties\_alpha nlive contains alpha clip properties  
 The NLiVE application has alpha clip properties. These alpha properties contain color channel and transparency settings.

User wishes to set alpha transparency level.

User Action	NLiVE Responsibility
User selects a clip as per use case <a href="#">3.6.3</a> .	
	As per use case <a href="#">3.6.3</a> user sees properties.
User manually enters both color channel and transparency settings of clip.	
	NLiVE sets the alpha of the clip to the user defined values.

#### 3.8.2. Alpha Blending of Images with Clips

nlive\_blendimage ability to blend image with clip  
 The NLiVE application has the ability of blending an image with a clip.

nlive\_blendimage\_command nlive contains a blend image command  
 The NLiVE application has a blend image command.

nlive\_blendimage\_command\_dialog nlive displays a blend image modal dialog  
 The NLiVE application displays a modal dialog box containing a file browser window in response to the blend image command. The modal dialog box contains an alpha level setting for selected image and video clip.

User wishes to blend image with clips

User Action	NLiVE Responsibility
User selects range on timeline where image will be blended with clip(s), and then executes the blend image command.	

	NLiVE opens file modal dialog for user to select still image.
User selects image for blending.	
	NLiVE prompts user to set alpha level of image and video clip.
User enters alpha level.	
	NLiVE blends still image with output clip.

### 3.8.3. Alpha Blending of Multiple Clips

**nlive\_blendclip** ability to blend clips  
 The NLiVE application has the ability of blending multiple clips together.

**nlive\_blendclip\_command** nlive contains a blend clip command  
 The NLiVE application has a blend clip command.

**nlive\_blendclip\_command\_dialog** nlive displays a blend clip modal dialog  
 The NLiVE application displays a modal dialog box containing an alpha level setting for selected clips in response to the blend clip command.

User wants to blend multiple clips together

User Action	NLiVE Responsibility
User selects clips to blend together, and executes blend command.	
	NLiVE opens a modal dialog for user to enter alpha level of each selected clip.
User enters alpha level.	
	NLiVE blends the clips together.

## 4. Non-Functional Requirements

### 4.1. Requirements on environment

**nlive\_requirements\_os** nlive requires windows 2000 and above  
 The NLiVE application runs on Windows 2000 and Windows XP Home and Professional.

**nlive\_requirements\_software\_directx** nlive requires directx  
 The NLiVE application requires DirectX 9.0c.

**nlive\_requirements\_hardware** nlive minimum hardware configuration  
 The NLiVE application requires a functional computer including a monitor, mouse, keyboard and audio output device.

nlive\_requirements\_hardware\_harddrive nlive minimum harddrive space  
The NLive application requires a hard-drive with a minimum of 200 MB free space for the application and any additional space for media files.

nlive\_requirements\_hardware\_camera\_support nlive requires support if camera is used  
The NLive application requires interface hardware that connects the camera with the computer if a camera is desired. This hardware may be either USB or IEEE-1394.

nlive\_requirements\_hardware\_memory nlive minimum memory required  
The NLive application requires a minimum of 256 MB of RAM.

nlive\_requirements\_hardware\_processor nlive minimum processor  
The NLive application requires a minimum of 1.5 GHz Pentium 4 or equivalent.

nlive\_requirements\_hardware\_video nlive minimum video card  
The NLive application requires a DirectX 7 compatible video card.

## 4.2. Requirements on the data

nlive\_file\_avi support nlive supports avi video files  
The NLive application has the ability to read and write to AVI (types 1 and 2) format as long as the user has the relevant compression codec installed on the user's system.

nlive\_file\_mpeg1 nlive supports mpeg1 video files  
The NLive application has the ability to read and write to mpeg 1 format.

nlive\_file\_dv nlive supports dv video files  
The NLive application has the ability to read and write to DV format as long as the user has the relevant compression codec installed on the user's system.

nlive\_file\_mp3 nlive supports mp3 audio files  
The NLive application has the ability to read from mp3 format.

nlive\_file\_wav nlive supports wav audio files  
The NLive application has the ability to read from wav format.

## 4.3. Requirements on error conditions

nlive\_system\_stability nlive will not directly cause operating system crashes  
The NLive application is not directly responsible for an operating system crash with regards to all system operations that do not involve the DV camera.

## **5. Feature Evolution**

It is understood that all of the functionality outlined by the requirements of this document will continue to exist in future versions of this application. New functional requirements may be introduced as determined by the need of users and developers who may be continuing the development of this application.

Some of this functionality may be an innovation to Non-Linear Video Editing applications while others may be functionally similar to other high-end video editors available on the market today.



# Appendix A - Definitions

**Media Source:** A video, image, or audio file that has been imported into the project.

**Source Browser:** A viewing and organizational area of the application containing project specific, user imported media source.

**Clip:** A segment of a media source specified by the user.

**NLiVE:** Non-Linear Video Editor – name of this application and project

**Track:** A chronological container of clips that allows per specification of duration.

**Timeline:** This is the overview representation of the project. The timeline shows the media project as a combination of video, audio and text tracks as defined above.

# Appendix B - Abbreviations

GUI – Graphical User Interface

# Appendix C – References

1. Tom Pender: *UML Bible*. John Wiley & Sons, 2003.
2. Karl E. Wiegers: *Software Requirements*, Second Edition. Microsoft Press, 2003.