

## Video Filter: XML Titler

The XML Titler video filter uses data from an XML file to add titles and images to a video stream.

The XML files to use with the titler look like this:

```
<?xml version="1.0"?>

<TitlerData>

  <Data StartTime='0.5' EndTime='4.0' Title='First title'
    CharSize='0.45' PosX='0.5' PosY='0.75'
    ColorR='220' ColorG='220' ColorB='220' Transparency='0.0'
    ShadowSize='0.5' />

  <Data StartTime='4.5' EndTime='13.5' Title='This is the second
    title' CharSize='0.25' />

  <Data StartTime='16.0' EndTime='21.0' Title='A third title' />

</TitlerData>
```

### New features in version 3.0 of the XML titler:

- Text and images can now be faded in and out (see 3e and 3f).
- Additional options have been added to the Shadow Ability (see 3n).
- Titles can now be aligned with the video (see 3t and 3u).
- Images can be offset from the top left position of the video (see 3d and 3e).
- Images are now scalable (see 3f and 3g).
- Transparency now applies to images and titles.

## XML Elements and Attributes for Text Titles

1. `<?xml version="1.0"?>`

This is the XML file header and must be present.

2. `<TitlerData>`

This tag indicates the start of the titler data block. The block must be closed with the `</TitlerData>` entry. XML titler files must contain exactly one titler data block, in which there will be one data entry for each title to display.

3. Data entries: Each data entry starts with the tag `Data` and describes one title to be displayed. It may contain several parameters:

- a. **Font:** specify the name of the font, for instance "Arial". Only one font may be selected per titler project. If more than one font is present in the titler's XML data, only the first one will be used. If the specified font is not installed or cannot be loaded, the XML titler will fail (i.e. a different font will not be used as a fallback).
- b. **FontCharSet:** specify the character set to use for the font. Allowed values are:

- 0: ANSI
- 1: BALTIC
- 2: CHINESEBIG5
- 3: DEFAULT
- 4: EASTEUROPE
- 5: GB2312
- 6: GREEK
- 7: HANGUL
- 8: MAC
- 9: OEM
- 10: RUSSIAN
- 11: SHIFTJIS
- 12: SYMBOL
- 13: TURKISH
- 14: VIETNAMESE
- 15: JOHAB
- 16: ARABIC
- 17: HEBREW
- 18: THAI

- c. **StartTime:** the time, in seconds, at which the display of this data entry's title will start.

**StartTimecode:** an alternative to `StartTime`. Instead of using a floating-point value like '5.5' for 5.5 seconds, you can use a time code value ('00:00:05:15').

- d. **EndTime:** the time, in seconds, at which the display of this data entry's title will end.

**EndTimecode:** an alternative to EndTime. Instead of using a floating-point value like '5.5' for 5.5 seconds, you can use a time code value ('00:00:05:15').

- e. **FadeInTime:** duration, in seconds, for which the title or image will fade in.
- f. **FadeOutTime:** duration, in seconds, for which the title or image will fade out.
- g. **Title:** the title text to display.
  - i. **Italics:** The italic function is used much like `<i>` and `</i>` in HTML. Within the Title string value, use `"ital;"` to begin the italics section and `"/ital;"` to end the italics.

Sample

```
<?xml version="1.0">
<TitlerData>
  <Data Title='ital;This text will be italic
/ital;' />
</TitlerData>
```

- ii. **Line Breaks:** To insert a line break, within the Title string use the two bytes "0D 0A" to mark the end of line, or if editing XML data with Notepad, simply press the Enter key at the desired location of the line break.
- h. **CharSize:** Value between 0.0 and 1.0, which controls the size of the characters.
- i. **PosX:** Value between 0.0 (left of the screen) and 1.0 (right of the screen) used to position the title horizontally.
- j. **PosY:** Value between 0.0 (top of the screen) and 1.0 (bottom of the screen) used to position the title vertically.
- k. **ColorR, ColorG, ColorB:** Values between 0.0 and 255.0, which respectively describe the amount of Red, Green and Blue to use for the title's color.
- l. **Transparency:** Value between 0.0 (fully opaque) and 1.0 (fully transparent), which determines the title's transparency.
- m. **ShadowSize:** value between 0.0 (no glow) and 1.0 (strongest glow), which determines the glow, or shadow, around the title used to enhance its readability.

- n. **HardShadow:** binary value of 0 or 1. 0: normal shadow 1: shadow with a hard border
- o. **BkgEnable:** set value to 1 to enable use of black background behind text area, otherwise set to 0.
- p. **BkgSemiTransparent:** set value to 1 to make text background semi-transparent, otherwise set to 0. Only takes effect to BkgEnable to set to 1.
- q. **BkgExtraWidth:** specifies how much wider than the text the background should be. This value is relative to the width of the image; so setting it to 0.05 would extend the background by 5% of the image's width.
- r. **BkgExtraHeight:** specifies how much taller than the text the background should be. This value is relative to the height of the image; so setting it to 0.05 would extend the background by 5% of the image's height.
- s. **RightToLeft:** set value to 1 for the text to be displayed in right-to-left order, otherwise set to 0.
- t. **HAlign:** horizontal alignment of the title
  - i. **0:** Center
  - ii. **1:** Left
  - iii. **2:** Right
- u. **VAlign:** vertical alignment of the title
  - i. **0:** centered around the first line
  - ii. **1:** centered
  - iii. **2:** top
  - iv. **3:** bottom

## XML Elements and Attributes for Image Titles

When using image scripting, most of the XML tags previously defined for text (such as background, color, and position) don't apply to images. Supported image formats are tif, png, tga, and psd.

1. `<?xml version="1.0"?>`

This is the XML file header and must be present.

2. `<TitlerData>`

This tag indicates the start of the titler data block. The block must be closed with the `</TitlerData>` entry. XML titler files must contain exactly one titler data block, in which there will be one data entry for each title to display.

3. Data Entries

- a. **StartTime**: the time, in seconds, at which the display of this data entry's title will start.

**StartTimecode**: an alternative to StartTime. Instead of using a floating-point value like '5.5' for 5.5 seconds, you can use a time code value ('00:00:05:15').

- b. **EndTime**: the time, in seconds, at which the display of this data entry's title will end.

**EndTimecode**: an alternative to EndTime. Instead of using a floating-point value like '5.5' for 5.5 seconds, you can use a time code value ('00:00:05:15').

- c. **Image**: the local path and filename for the image file to be used in the title.

Sample:

```
<?xml version="1.0">
<TitlerData>
  <Data StartTime='0' EndTime='6.1'
Image='E:\alphatest.tif' />
  <Data StartTime='7' EndTime='26.1'
Image='E:\betatest.png' />
</TitlerData>
```

- d. **ImageOffsetX**: image horizontal offset, in pixels. Please note that "0" denotes the far left and increasing values will offset the image to the right.

- e. **ImageOffsetY**: image vertical offset, in pixels. Please note that "0" denotes the top of the image and increasing values will offset the

image towards the bottom.

- f. **ImageScaleX**: image horizontal scale factor. Eg. 1.0 is actual size, 0.5 is half size, and 2.0 is double original size.
- g. **ImageScaleY**: image vertical scale factor. Eg. 1.0 is actual size, 0.5 is half size, and 2.0 is double original size.
- h. **Transparency**: Value between 0.0 (fully opaque) and 1.0 (fully transparent), which determines the title's transparency.

## Additional notes

- The first data entry should define all the different parameters.
- If a data entry does not set a parameter, the last value set for this parameter will be used for that data entry. For instance, if you want a transparency value of 0.2, you may put Transparency='0.2' only in the first data entry and that value will be used for all other data entries.
- The title's first line is always centered on the position described by PosX and PosY.
- The data entries must be sorted according to start time in the XML file.
- Unless specified, titles are displayed on a single line. The XML titler will not add a line break if a line is too long. It will be clipped from the left and right. Line break characters must be inserted in the Title in order for a line break to occur.
- Only one font may be used per XML titler filter instance.
- When using StartTime/EndTime for NTSC, in order to identify the start and end time of the titles, make sure to use drop-frame time code. Non-drop-frame time code approximates the real frame rate and will drift away from the actual time by a few frames every minute.
- When using StartTimecode/EndTimecode, both drop-frame and non-drop-frame time codes are supported. Drop-frame is in the format 'hh:mm:ss;ff', while non-drop-frame time code's format is 'hh:mm:ss:ff'. Notice that seconds and frames are separated by a semi-colon in drop-frame time code.
- When using StartTimecode/EndTimecode, the title display timing will not be accurate in the video filter's preview (Video Filter tab of Advanced - Filter).
- You can use Internet Explorer, or a number of other tools, to verify if your XML file has correct XML syntax. Simply open your file in Internet Explorer - if any errors related to the XML syntax exist, Internet explorer will display them.
- You can mix image data with regular data, but if a Data entry has an image, then its title will be ignored.
- The images should be the same size as the video you are rendering onto, otherwise they will be copied starting at the top-left corner of the image, with 1:1 pixel mapping