



TECHNICAL BULLETIN

CODEX DIGITAL LAB & TRANSFER STATION FOR MAC OS X
BURNINS GUIDE

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Codex Burn-Ins Guide

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Codex Burn-Ins Guide

Introduction

This document provides details of the options for setting up custom burn-ins on Codex systems.

Codex Digital Lab and Transfer Station for Mac OS X systems can apply burn-ins to deliverable files when material is processed through the Virtual File System (VFS).

Several different burn-in templates can be stored on a system and applied to different file types in the VFS as required.

Each burn-in template is defined by an XML file that is stored on the system. These XML files can be edited in an XML editing program – the advantage being that these programs indicate any syntax errors – or also in basic text editors such as Text Edit or Notepad.

The burn-in XML templates are stored in the following locations:

Digital Lab – in the /etc/codex/burnins directory, accessible via the /codexsettings samba share (user=codex, password=codex)

Transfer Station for Mac OS X – on the system drive of the Mac in the /Library/Application Support/Codex/burnins directory.

To begin understanding how burn-in templates are constructed, as an example we will look at the codex235.xml burn-in template that is included with the software. Some minor edits have been made to the contents of this file for the purposes of demonstration.

1.1 Default codex235.xml

The burn-in created by this file is made up of several elements, which are as follows:

- A mask at the top of the frame with 50% transparency
- A mask at the bottom of the frame with 50% transparency
- Details of the Roll and Shot at the top of the frame in white text
- A logo over the image
- Running timecode at the bottom right of the frame
- A frame sequence number at the bottom right of the frame

We will discuss each element in turn, and then look at them as a whole and how they appear in the XML burn-in template file.

1.2 Top Mask and Bottom Mask

```
<!-- Top Mask -->
<BurnInTemplateltem>
  <type>Text</type>
  <backCol>
    <!-- 50% black -->
    <ARGB>7f000000</ARGB>
  </backCol>
  <bounds>
    <|>0</|>
    <t>0</t>
    <w>100</w>
    <!-- 131/1080 -->
    <h>12.13</h>
  </bounds>
</BurnInTemplateltem>

<!-- Bottom Mask -->
<BurnInTemplateltem>
  <type>Text</type>
  <backCol>
    <!-- 50% black -->
    <ARGB>7f000000</ARGB>
  </backCol>
  <bounds>
    <|>0</|>
    <!-- 100-12.22 -->
    <t>87.78</t>
    <w>100</w>
    <!-- 132/1080 -->
    <h>12.22</h>
  </bounds>
</BurnInTemplateltem>
```

These elements define the dimensions and position of fields that could contain text, but in this case do not – the fields therefore are simply being used to mask areas of the image. Also defined is the colour and transparency of the fields.

As per xml conventions, any part of the xml file that is between these sets of characters is ignored and is therefore a comment:

```
<!-- This will be ignored -->
```

The <backCol> tag section defines the colour and transparency as 8 characters in hex format. The characters are in pairs and describe values in the following order: Alpha Channel (for transparency), Red Channel, Green Channel, Blue Channel. In this case the '7f' gives us 50% transparency and remaining '000000' value gives us the colour black.

Within the <bounds> properties for this field, we can see values that determine the following:

l – where the field is positioned from the left border of the image, expressed as a percentage of the total image width
t – where the field is positioned from the top border of the image, expressed as a percentage of the total image height
w – the width of the field, expressed as a percentage of the total image width
h – the height of the field, expressed as a percentage of the total image height

Note: burn-ins are applied by the VFS after image scaling. Therefore when calculating mask sizes as a percentage of the image this should be based on the size of the final deliverable image.

1.3 Specifying values as 'number of lines' rather than percentages

In the given examples the values specified for position and dimensions of each element are as a percentage of the image. Alternatively you may prefer to specify values as a distinct number of lines within the image. This is done by adding the following xml tags to the burnin element:

```
<hScale>Horizontal resolution</hScale>  
<vScale>Vertical resolution</vScale>  
<minHeight>1</minHeight>
```

So, for an image with 1920 x 1080 resolution, the Top and Bottom mask detailed above would instead be created like this:

```
<!-- Top Mask -->  
<BurnInTemplateltem>  
  <type>Text</type>  
  <backCol>  
    <!-- 50% black -->  
    <ARGB>7f000000</ARGB>  
  </backCol>  
  <bounds>  
    <l>0</l>  
    <t>0</t>  
    <w>1920</w>  
    <!-- 131/1080 -->  
    <h>131</h>  
  </bounds>  
  <hScale>1920</hScale>  
  <vScale>1080</vScale>  
  <minHeight>1</minHeight>  
</BurnInTemplateltem>
```

```
<!-- Bottom Mask -->  
<BurnInTemplateltem>  
  <type>Text</type>  
  <backCol>  
    <!-- 50% black -->  
    <ARGB>7f000000</ARGB>  
  </backCol>  
  <bounds>  
    <l>0</l>  
    <!-- 1080-132 -->  
    <t>948</t>  
    <w>1920</w>  
    <!-- 132/1080 -->  
    <h>132</h>  
  </bounds>  
  <hScale>1920</hScale>  
  <vScale>1080</vScale>  
  <minHeight>1</minHeight>
```

```
</BurnInTemplateltem>
```

We will revert to defining the rest of the elements in percentage terms, but either way of defining a burn-in element can be used within the same burn-in file depending on what is preferred.

1.4 Roll and Shotname

```
<!-- Roll / Shotname -->
<BurnInTemplateItem>
  <type>Text</type>
  <bounds>
    <l>1</l>
    <t>4</t>
    <!--<h>12.22</h>-->
    <h>4</h>
    <w>75</w>
  </bounds>
  <textCol>
    <ARGB>ffffff</ARGB>
  </textCol>
  <backCol>
    <ARGB>0</ARGB>
  </backCol>
  <text>Roll: {r} Shot: {ShotName}</text>
  <justification>65</justification>
  <!--<fontSize>40</fontSize>-->
  <fontName>Luxi Sans</fontName>
</BurnInTemplateItem>
```

Once again this element defines a text field. The <textCol> tag section defines the colour and transparency of the text as 'ffffff' which means no transparency (opaque) and white.

The <backCol> tag section defines the background colour behind the text as totally transparent.

Next is a <text> section defining the text in the field. This section contains both plain text and also tokens that refer to shot metadata. Anyone who has used the Codex VFS should be familiar with the tokens and their use in defining the VFS Filepath.

The {r} token in the text string is replaced by the Roll value and the {ShotName} token is replaced by the shot name for whichever shot the burn-in is being applied to.

The <justification> tag defines where in the field the text is justified. The given value of 65 results in the text being left justified and vertically centred in the field. This value is reached by adding together any of the following compatible justification values and entering the total to achieve the desired result:

```
Left justified = 1
Right justified = 2
Horizontally centred = 4
Top justified = 16
Bottom justified = 32
Vertically centred = 64
```

The <fontSize> tag is actually commented out in this case, but can be used to determine the size of the text.

The <fontName> tag specifies which of the following fonts will be used:

```
Courier
Luxi Sans
Luxi Mono
```

1.5 Logo

```
<!-- Logo -->
<BurnInTemplateItem>
  <type>Image</type>
  <imageFileName>logo.png</imageFileName>
  <opacity>10</opacity>
  <bounds>
    <l>25</l>
    <t>25</t>
    <w>50</w>
    <h>50</h>
  </bounds>
</BurnInTemplateItem>
```

This element has a <type> value of Image, rather than the Text type we have dealt with previously.

The <imageFileName> tag contains the name of the logo file, which must be a PNG file and be located in the same directory as the burn-in file for whichever Codex system is being used.

The <opacity> tag determines how opaque the logo is, expressed as a percentage. In this case it is 10% opaque (90% transparent).

Logo files are scaled dependent on the settings within <bounds>. The <w> and <h> values mean the logo will be scaled to 50% of the width and height of the image, and the <l> and <t> values of 25 mean it will effectively be centred by being 25% spaced from both the left and top borders of the image.

1.6 Timecode and Frame Number

```
<!-- Timecode -->
<BurnInTemplateltem>
  <type>Text</type>
  <bounds>
    <l>74</l>
    <t>90</t>
    <h>3</h>
    <w>25</w>
  </bounds>
  <textCol>
    <ARGB>ffffff</ARGB>
  </textCol>
  <backCol>
    <ARGB>0</ARGB>
  </backCol>
  <text>{t}</text>
  <justification>66</justification>
</BurnInTemplateltem>
```

```
<!-- Frame number -->
<BurnInTemplateltem>
  <type>Text</type>
  <bounds>
    <l>74</l>
    <t>95</t>
    <h>3</h>
    <w>25</w>
  </bounds>
  <textCol>
    <ARGB>ffffff</ARGB>
  </textCol>
  <backCol>
    <ARGB>0</ARGB>
  </backCol>
  <text>{f%5}</text>
  <justification>66</justification>
</BurnInTemplateltem>
```

These elements are very similar to the Roll and Shotname but positioned differently in the image, and calling upon different tokens. Of course, these values are dynamic and change automatically for each frame of a shot.

1.7 Additional tags and tokens

Here are some additional tags that can be used and a full list of tokens.

```
<bold></bold>
<italic></italic>
<text></text>
  Tokens:
  frame number           = {f}
  number of frames       = {n}
  start timecode         = {T}
  timecode               = {t}
  start aux timecode     = {A}
  aux timecode           = {a}
  start userbits         = {B}
  userbits               = {b}
  start timecode as frame = {G}
  timecode as frame     = {g}
  shotname               = {s}
  shot uuid              = {u}
  roll                   = {r}
  date                   = {d}
  date & time            = {D}
  *                      = {anyShotMetaDataString}
```

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