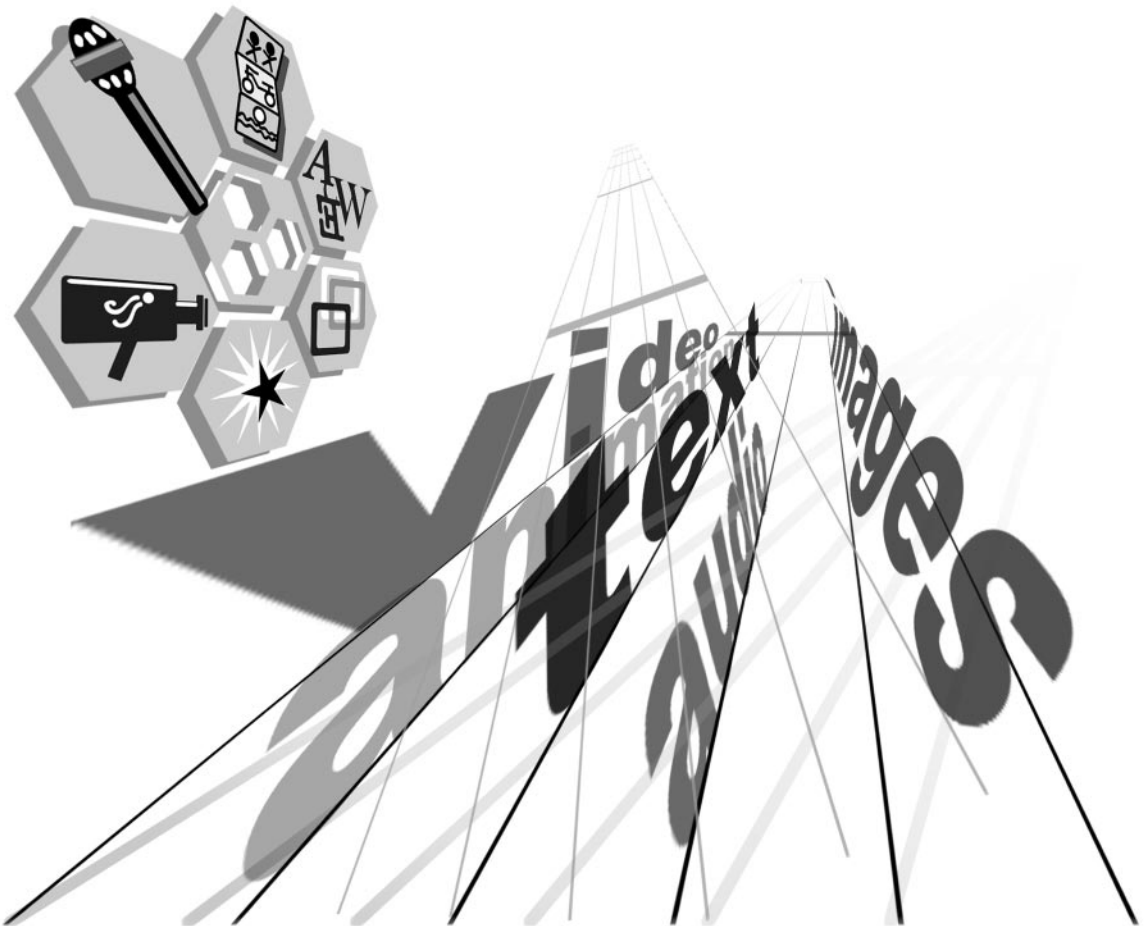




**REALSYSTEM™ G2 SYNTAX STYLE GUIDE**  
RealNetworks Technical Blueprint Series



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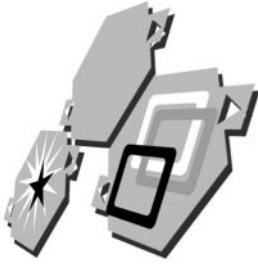
RealNetworks, Inc.  
2601 Elliott Avenue  
Seattle, WA 98121 USA

**<http://www.realnworks.com>**



## CONTENTS

REALSYSTEM G2 SYNTAX STYLE.....	1
SYNTAX RULES.....	1
Three Basic Elements for Mark-up Tags.....	2
Some Tags have End Tags.....	2
All Other Tags Close with a Forward Slash.....	3
Lowercase Text Used for Tags and Attributes.....	3
Attribute Values Enclosed in Double Quotation Marks.....	4
SMIL Body Section Required.....	4
HTML-Style Comments Allowed.....	4
INDENTATION.....	5
WEB PAGE EMBEDDING MARK-UP.....	5
REALSYSTEM MANUALS.....	6
Manual Conventions.....	7



## REALSYSTEM G2 SYNTAX STYLE

This technical blueprint describes syntax rules for writing RealSystem G2 mark-up. Following the rules described below will help you avoid errors when producing content with the RealSystem G2 mark-up languages:

1. SMIL

SMIL (Synchronized Multimedia Integration Language) assembles a presentation by creating a layout in RealPlayer and timing clips. A SMIL file uses the extension `.smil` (recommended) or `.smi`. For complete information on SMIL, see *RealSystem G2 Production Guide*.

2. RealPix mark-up language

RealPix creates a streaming slide show with JPEG or GIF images, adding special effects such as fades and zooms. A RealPix file uses the extension `.rp`. For complete information on RealPix, see *RealPix Authoring Guide*.

3. RealText mark-up language

RealText creates a streaming text presentation, specifying font attributes such as size and color, as well as timing elements that determine when text elements appear. A RealText file uses the extension `.rt`. For complete information on RealText, see *RealText Authoring Guide*.

### **Additional Information**

See “RealSystem Manuals” on page 6 for more on these production and authoring guides.

## Syntax Rules

RealSystem G2 mark-up languages are based on Extensible Mark-up Language (XML), which is similar to Hypertext Mark-up Language (HTML), but is more structured. As a result, many practices acceptable when writing HTML, such as using any case for tags (`<B>` or `<b>`, for example), are not acceptable when writing RealSystem mark-up. The following sections describes these differences in detail.

## Three Basic Elements for Mark-up Tags

There are three basic elements to RealSystem G2 mark-up tags:

1. tag names
2. attributes
3. attribute values

For example, here's a RealText tag with one attribute and value:

```
<font color="blue">
```

Every tag starts with a left angle bracket and ends with a right angle bracket. The tag name, font in the example above, immediately follows the left angle bracket. This tag has one attribute, color. Each attribute takes one value, which is "blue" here. Some tags do not have any attributes, such as the RealText <b> tag, which turns on bolding. But many tags accept multiple attributes, as demonstrated here:

```
<font color="blue" size="+2" face="Arial" charset="us-ascii">
```

## Some Tags have End Tags

There are two classes of tags: those that use a corresponding end tag and those that do not. For example, the tag that indicates the start of SMIL mark-up, <smil>, has a corresponding end tag, </smil>, that indicates the close of SMIL mark-up. These are similar to the <HTML> and </HTML> tags that enclose HTML mark-up.

When a tag includes attributes, such as the following:

```
<font color="blue" size="+2" face="Arial" charset="us-ascii">
```

its end tag uses just the tag name and never includes attributes:

```
</font>
```

Note that how you nest tags, which attributes you include, and where you place end tags affects the outcome. Compare the following RealText samples (**bolding** used for emphasis only):

Start with normal text.

```
<font color="red">Make text red.
```

```
<font size="+1">Make red text one size larger.
```

```
</font>Turn off larger size for red text.
```

```
</font>Turn off color.
```

Start with normal text.

**<font color="red">**Make text red.

**</font>**Turn off color.

**<font size="+1">**Make text one size larger.

**</font>**Turn off larger size.

Start with normal text.

**<font color="red" size="+2">**Make text red and two sizes larger.

**<font color="blue" size="+1">**Make text blue and one size smaller.

**</font></font><font size="+1">**Turn off color but keep text the same size.

**</font>**Reduce text to normal.

## All Other Tags Close with a Forward Slash

If a tag does not use a corresponding end tag, it must close with a forward slash (“/”). The closing forward slash is an crucial departure from HTML.

Here’s a sample SMIL tag:

```
<audio src="first.rm"/>
```

### Warning

RealPlayer will not play the presentation if you omit a closing forward slash from a tag that requires it.

## Lowercase Text Used for Tags and Attributes

Tags and attributes must be lowercase, as illustrated in this RealPix example:

```
<fadein start="4" duration="3" target="2"/>
```

You cannot use uppercase or mixed case for tags and attributes. The following example, which mixes cases, will not play in RealPlayer:

```
<FADEIN Start="4" duration="3" TARGET="2"/>
```

Attribute values are typically lowercase, but can be uppercase or mixed case as well. Uppercase or mixed case attribute values may be required with file names:

```
<audio src="FIRST.RM"/>
```

In RealSystem G2 mark-up, the file specified in the attribute value must match the file’s name exactly. The tag above would not work if the file on the operating system is actually First.rm. Also note that file names cannot contain spaces.

**Tip**

It's good practice always to use lowercase file names, such as first.rm. This makes it easier to write RealSystem mark-up and to host files on servers.

**Attribute Values Enclosed in Double Quotation Marks**

Attribute values must be enclosed in double quotation marks, as illustrated in this RealText example:

```
<time begin="23" end="55.5"/>
```

Again, this is an important difference from HTML, in which quotation marks for attribute values are often optional. If you leave quotation marks out, as in this next example, the presentation will not play in RealPlayer:

```
<time begin=23 end=55.5/>
```

**SMIL Body Section Required**

A SMIL file can include an optional header section defined by <head> and </head> tags. It requires a body section defined by <body> and </body> tags:

```
<smil>
  <head>
    ...optional section with all header mark-up...
  </head>
  <body>
    ...required section with all body mark-up...
  </body>
</smil>
```

The optional header section is used to specify presentation information and to define clip layout.

**HTML-Style Comments Allowed**

As in HTML, RealSystem G2 mark-up can include comment tags that start with <!-- and end with -->. Unlike all other RealSystem G2 mark-up tags, the comment tag does not close with a forward slash:

```
<!-- This is a comment -->
```

## Indentation

As shown here, it is good practice to use line breaks, tab indentation, and comments to indicate a file's structure and purpose:

```
<smil>
  <head>
    <layout>
      <!-- Create root-layout and two regions for video and text -->
      <root-layout background-color="maroon" width="250" height="230"/>
      <region id="videoregion" top="5" left="5" width="240" height="180"/>
      <region id="textregion" top="200" left="5" width="240" height="20"/>
    </layout>
  </head>
  <body>
    <!-- Play video, text, and audio in parallel -->
    <par>
      <video src="video.rm" region="videoregion"/>
      <audio src="audio.rm"/>
      <textstream src="text.rt" region="textregion"/>
    </par>
  </body>
</smil>
```

The following example is the same file without line breaks, indentation, or comments. Persons reading this file will find it difficult to understand the presentation's structure, modify the file, or locate errors:

```
<smil> <head> <layout> <root-layout background-color="maroon" width="250"
height="230"/> <region id="videoregion" top="5" left="5" width="240"
height="180"/> <region id="textregion" top="200" left="5" width="240"
height="20"/> </layout> </head> <body> <par> <video src="video.rm"
region="videoregion"/> <audio src="audio.rm"/> <textstream src="text.rt"
region="textregion"/> </par> </body> </smil>
```

## Web Page Embedding Mark-Up

Not every type of mark-up you can use when creating a RealSystem G2 presentation follows the conventions noted above. As described in *RealSystem G2 Production Guide*, you can use mark-up similar to the following to embed a RealSystem G2 clip or presentation in a Web page:

```
<EMBED SRC="http://realserver.company.com:8080/ramgen/sample1.rm?embed"
WIDTH=176 HEIGHT=132 NOJAVA=true CONTROLS=ImageWindow CONSOLE=video1>
```

The <EMBED> tag mark-up is similar to HTML and follows conventions developed by Netscape Communications Corporation.

Likewise, the <OBJECT> tag used to embed a clip or presentation in a Web page with the RealPlayer ActiveX control looks like this:

```
<OBJECT ID=RVOCX CLASSID="clsid:CFCDA03-8BE4-11cf-B84B-0020AFBCCFA"
  WIDTH=176 HEIGHT=132>
<PARAM NAME="SRC"
  VALUE="http://realserver.company.com:8080/ramgen/sample1.rm">
<PARAM NAME="CONTROLS" VALUE="ImageWindow">
<PARAM NAME="CONSOLE" VALUE="video1">
</OBJECT>
```

The ActiveX control syntax follows conventions developed by Microsoft Corporation. With the <EMBED> or <OBJECT> tag, for example, attributes can be any case. Additionally, tags do not close with forward slashes because these mark-up languages are not based on XML.

## RealSystem Manuals

RealSystem G2 mark-up is described in the following manuals. You can download HTML and PDF versions of these manuals from **<http://service.real.com/help/library/encoders.html>**.

- *RealSystem G2 Production Guide*

This guide explains the basics of creating content for RealSystem G2, covering RealAudio, RealVideo, Flash, SMIL, bandwidth, presentation URLs, and more.

- *RealPix Authoring Guide*

This guide explains how to create a RealPix presentation to stream still images in JPEG or GIF format.

- *RealText Authoring Guide*

This guide tells how to create and stream RealText.

## Manual Conventions

When you use the RealSystem G2 production and authoring guides, keep in mind that the guides use several conventions when representing syntax.

### Syntax Notational Conventions

Convention	Meaning
<i>variables</i>	Italicized text represents variables. Substitute values appropriate for your situation.
<b>emphasis</b>	Bolded text is used for emphasis.
[options]	Square brackets indicate optional values you may or may not need to use.
choice 1 choice 2	Vertical lines separate values you can choose between.
...	Ellipses indicate nonessential information omitted from the example. Do not include ellipses in your syntax.