

## REALPIX BANDWIDTH CALCULATOR

The RealPix Bandwidth Calculator (**rpcalc.xls**) is a Microsoft Excel for Windows spreadsheet. Use the calculator to derive a detailed picture of RealPix bandwidth usage. You may want to do this if you experience high preroll when streaming your presentation. You can then determine where the problem occurs, and resolve it by modifying image size or adjusting the RealPix timeline.

**For More Information:** For instructions on writing RealPix markup, see the RealPix chapter of *RealNetworks Production Guide*.

### Entering RealPix Presentation Information

In the calculator, make sure that the RealPix bit rate is set correctly in the **Presentation Information** section. This reflects the RealPix bandwidth target set in the <head/> tag bitrate attribute. The figure below uses 20 Kbps, the bandwidth target for a presentation delivered over a 28.8 Kbps modem. Set the buffer time to your targeted preroll, which is the maximum amount of time that you want RealOne Player to buffer the presentation before beginning to play it.

**Tip:** Preroll generally should be under 15 seconds, unless you plan to play a low-bandwidth clip before the slideshow to mask the RealPix preroll.

**Presentation Information in RealPix Bandwidth Calculator**

Presentation Information	
Current RP File	Output Directory
	graphics
Total Bit Rate	
28.8	
RealPix Bit Rate	RealPix Buffer Time (secs)
20.0	10.0
Remaining Bit Rate	
8.8	

## Entering RealPix Image Data

In the calculator, you can enter RealPix information manually if you have not yet written your RealPix file (.rp). If you have constructed the RealPix file, though, it is easier to load the file. The calculator then automatically populates the spreadsheet with the image names, sizes, and transmission times.

### Loading a RealPix File

Load a RealPix file by clicking the **Open RealPix File** button, and navigating to the .rp file. To be read automatically, a RealPix file must meet these criteria:

- It must follow the RealPix syntax guidelines listed in the RealPix chapter of *RealNetworks Production Guide*. All attribute values must be in double quotation marks, for example.
- Comments must be in this form:

```
<!-- comment -->
```

and NOT this form:

```
<!-- comment --/>
```

### Entering Image Data Manually

If you choose not to load a RealPix file into the calculator, you can set the image values manually. In the lower half of the spreadsheet, enter file names and image sizes in Kilobytes, along with the times in seconds that you want each image to display in the RealPix timeline. These values go in the white

columns. The calculator computes the values in gray, so you should not change any values in a gray column.

## Handling Reused Images

If the slideshow reuses an image, only the first occurrence of the image requires bandwidth. This is because RealPix caches reused images in memory until they are no longer needed. If entering values manually, don't make an entry for a reused image. When you load in a RealPix file, the calculator adds an entry for every effect. If the image is reused, though, it lists the image size as 0 Kilobytes. You can therefore ignore these entries and examine only the first appearance of each image.

## Calculating Image Transmission Times

Based on the image sizes and the selected bandwidth, the calculator computes the transmission time in seconds for each image. This is the time it takes RealSystem Server to stream the image to RealOne Player at the presentation bit rate. The last column shows the earliest point in the RealPix timeline that each file can appear, given the presentation bit rate and the desired preroll. Entries in red indicate possible problems.

## Finding Timeline Problems

The following figure illustrates a RealPix presentation that will not stream with the desired preroll of 10 seconds. It shows, for example, that the first image can display at 2.3 seconds into the timeline at the earliest. The image is slated to appear at 1 second, however. As shown below, only the fifth image can display at its slated time of 84 seconds. Were it to stream this RealPix presentation, RealSystem would compensate with a preroll higher than the desired 10 seconds. Although the presentation would stream smoothly, viewers would have to wait too long for the slideshow to start.

**RealPix Bandwidth Calculator Showing Presentation That Will Not Stream Well**

Image Size (Kb)	Transmission Time (sec)	Display Time (from rp file)	Earliest Display Time
29.0	12.3	1.0	2.3
48.5	20.6	4.0	22.9
50.0	21.3	10.0	44.2
64.0	27.2	70.0	71.4
13.8	5.8	84.0	77.2
89.0	37.8	100.0	115.1

**Tip:** To determine the actual preroll that a presentation requires, increase the preroll value in the calculator until all display time values turn black.

## Improving Slideshow Performance

If your presentation requires too much preroll, you can take several steps. You can crop, resize, or compress the images more to reduce image sizes. You can also lengthen the presentation timeline, adding more time between images. In some cases, you may need simply to rearrange the image order to place larger images later in the timeline. You may also decide to accept the longer preroll, masking it by playing a low-bandwidth clip, such as RealText, before the slideshow.

Once you make your modifications, reload the RealPix file, or manually update the image sizes and display times. The following figure illustrates a revised presentation that makes better use of bandwidth. The preroll is still 10 seconds, but files 1 through 3 are reduced in size. The entire presentation is lengthened, and the images appear at more even intervals within the timeline. All display time values are now in black.

**RealPix Bandwidth Calculator Showing Presentation That Will Stream Well**

Image Size (Kb)	Transmission Time (sec)	Display Time (from rp file)	Earliest Display Time
21.0	8.9	1.0	(1.1)
42.0	17.9	17.0	16.8
45.0	19.1	36.0	35.9
64.0	27.2	80.0	63.1
13.8	5.8	90.0	68.9
89.0	37.8	110.0	106.8

In the preceding figure, the first image shows its earliest display time in green as (1.1). This indicates that the preroll is 1.1 seconds longer than necessary to display this image. If the earliest display times for all images appear in green, the preroll value set in the calculator is unnecessarily high, so the actual streaming preroll will be less.

**For More Information:** See the RealPix chapter in *RealNetworks Production Guide* for more on bandwidth strategies.

## Running JPEGTRAN From the Calculator

You should run **JPEGTRAN** on JPEG images to prepare them for streaming. On Windows, you can run **JPEGTRAN** in a batch conversion mode from the RealPix spreadsheet as described below.

► To run JPEGTRAN from the spreadsheet:

1. Click the **Find JPEGTran** button and navigate to the directory that holds the executable program. Select the program and click **Open**.
2. In the **Output Directory** field, enter the full path to an existing folder that will hold the processed files, as in C:\temp\images.
3. Click **JPEGTran Images** and select the images you want to process. A DOS command window pops-up momentarily for each image. Processed files appear in the specified output directory.