

How to: *Make Template-Based Slideshows* using GRiNS/Pro

GRiNS/Pro “How To” Notes

(c) 2002, Oratrix, Amsterdam, The Netherlands
<http://www.oratrix.com/>

Overview

This document will give you all the information you need to create slideshows for the RealOne, IE-6's HTML+TIME and 3GPP/Mobile players using the GRiNS Pro Editor for SMIL 2.0 software (hereafter called simply: GRiNS/Pro). You will learn how to create simple slideshows and how to integrate transitions, animations and links for several SMIL players, as well as creating links to the RealOne *media browser* and *related info* panes. You will also learn how to publish your presentation for use with the RealOne player and a streaming server and various other SMIL 2.0 media players.

This is one in a series of GRiNS/Pro *How To* guides. While it is not intended to be a substitute for reading the GRiNS *Quick Start Guide*, the *Template User's Guide* or the *Reference Manual*, it does provide enough information to get you up and running with GRiNS quickly and easily.

Your comments, suggestions and criticisms of this document and the GRiNS environment are welcome. Please send all comments to:

grins-support@oratrix.com

In the case of error reports, please include a brief description of the process that led to the error, so that we can repeat it.

Table of Contents

The Basics	2
Obtaining the GRiNS/Pro Editor	2
GRiNS/Pro Workflow	2
Creating Basic Slideshows	3
Open GRiNS/Pro and Select a Slideshow Template	3
Working with the Structured Timeline	3
Set a Presentation Bitrate	4
Add Media Assets to the Presentation	4
Tuning and Making Adaptive Presentations	7
Preview the Presentation using the GRiNS Previewer	6
Polishing the Presentation	9
Adjusting Presentation Timing	9
Adding Transitions to Media Objects	11
Adding Animation	11
Selective Object Positioning	13
Synchronizing Content with the RealOne Media Browser Pane	13
Generate/Upload the presentation	14
Check Bandwidth Usage	14
Converting Media Objects to RealMedia Format	14
Creating the SMIL File	14
Upload to a Media Server	15
Advanced Topics	17

The Basics

This section will review how you obtain the GRiNS/Pro editor and introduce the GRiNS/Pro workflow model.

Obtaining the GRiNS/Pro Editor

In order to create streaming presentation for a SMIL media player (such as RealOne, IE-6 or 3GPP/Mobile) player using the GRiNS/Pro editor, you will need the following components:

- The RealNetworks RealOne player or IE-6.0 or later or the GRiNS/Mobile player for PocketPC, version 2.2 or later;
- The OratrixGRiNS/Pro Editor, version 2.2 or later;
- Media objects to insert in a presentation.

If you want to stream your presentation from a RealServer, you also need:

- RealSystem Server 8 Plus (or later).

The Oratrix GRiNS/Pro editor is available for Windows-98SE, Windows 2000 (Professional) and Windows XP.

While GRiNS/Pro does not have any specific hardware requirements beyond those for Windows-based software, the following system configuration is recommended:

- P-III or later CPU, 450mHz or greater
- High-resolution color display (1024x768 minimum, 1280x1024 recommended)
- 256MB RAM
- Enough disk space to store your original assets and converted versions
- Sound card and speakers/headphones (if you include audio)
- Network connection (for uploading your assets).

The GRiNS/Pro Editor will let you convert and publish your assets to either a Web server or a RealSystem 8 (or higher) server. If you are targeting RealOne, you may also wish to purchase content conversion software (such as RealProducer) to give you more fine-grained control over your media content.

GRiNS/Pro Workflow

Creating a RealOne slideshow presentation using a GRiNS/Pro template consists of the following steps:

1. Open the editor and select a Slideshow Template
2. Set a target bitrate for the presentation using the Previewer Control Panel
3. Add media assets to the presentation (start with audio, then add images)
4. Preview the presentation using the GRiNS Previewer
5. Fine-tune the presentation's timing and add transitions/animations
6. Publish to the desired SMIL player, such as RealOne, IE-6 or GRiNS/Mobile
7. Upload to a media server, such as the RealServer

Depending on the template you select, you can create either a simple slideshow, or a slideshow with video and/or text captions. You can also add transitions and animations to your presentation. This will be highlighted briefly here, since it is the subject of another GRiNS/Pro *How To* note. Finally, for presentations using RealOne, you can add links to HTML content in the RealOne *Media Browser* and *Related Info* panes. Since this is also the subject of a separate *How To* note, we only concentrate on the basics here.

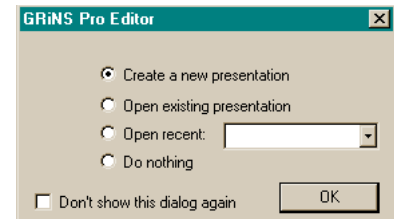
Creating Basic Slideshows

This section outlines the steps you need to create basic slideshows using GRiNS/Pro, and provides introductions to the advanced features available in SMIL, RealOne, InternetExplorer, 3GPP/Mobile and GRiNS/Pro.

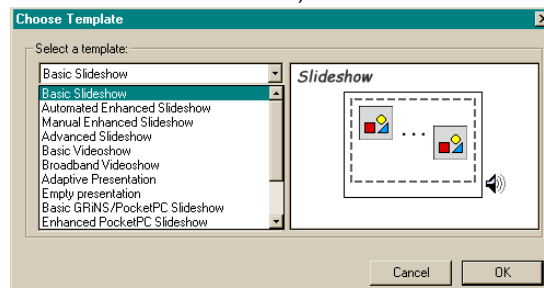
Open GRiNS/Pro and Select a Slideshow Template

To create a slideshow presentation, you need to open the editor, create a new presentation and give it a name. To do these things:

1. Open the GRiNS/Pro Editor. When you do this, you get the selection box at right; choose *Create a New Presentation*. (If you want to re-open your presentation, use *Open existing presentation* or *Open recent*.) If you have old Real Slideshow presentations lying around, you can also open these and convert them to RealOne native SMIL 2.0.

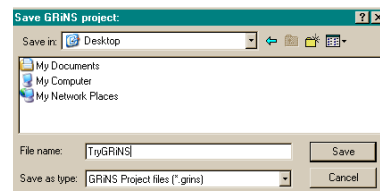


2. Select the *Basic Slideshow*, as shown below.



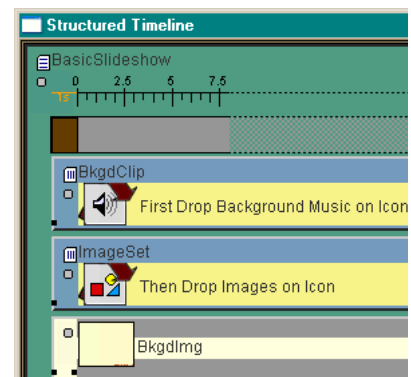
If you want to try one of the other templates, consult the *GRiNS Templates Guide*. (Note: you may not see the same list of templates as shown.)

3. You will be prompted for a location/name to save the file. (We'll use *TryGRiNS*.) GRiNS will remember the last folder you used for saving presentations; if there is no last folder, GRiNS uses the Desktop.



Working with the Structured Timeline

Whenever GRiNS is running, you have a choice of several document views. The default view is the Structured Timeline. The Structured Timeline shows the SMIL 2.0 hierarchy of the presentation, mapped to a timeline. This timeline shows a green PAR (parallel) group and two blue SEQ (sequential) groups. Media objects are placed into these containers. The timescale in the Structured Timeline is not fixed: it changes to highlight both the timing of the presentation and to identify possible performance problems. Yellow or red gaps in the timeline indicate performance related issues that affect timing. A dashed timeline indicates that GRiNS needs extra space to draw structure.



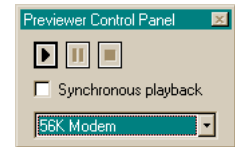
Set a Presentation Bitrate

Before we populate the template, we need to define the target bitrate for the presentation. This bitrate is used by the GRiNS performance modelling system to help you build a compelling presentation that ‘fits thru the pipe’. GRiNS give you unprecedented control over performance-related aspects of the presentation (such as allowing them to adapt to the available client bandwidth), but everything starts with selection the baseline presentation bitrate.

To set the presentation bitrate:

1. Find the *Previewer Control Panel*, shown at right, and:
2. Select the desired bitrate from the pull-down list.

GRiNS uses this in setting values in the Bandwidth Usage strip and in selecting which objects get previewed in an adaptive presentation.



Note: In the examples below, we'll initially assume a 56K Modem bitrate.

Add Media Assets to the Presentation

The *Slideshow* template contains all of the information required to create a presentation *except* the actual images used and the background audio. To add these, do the following:

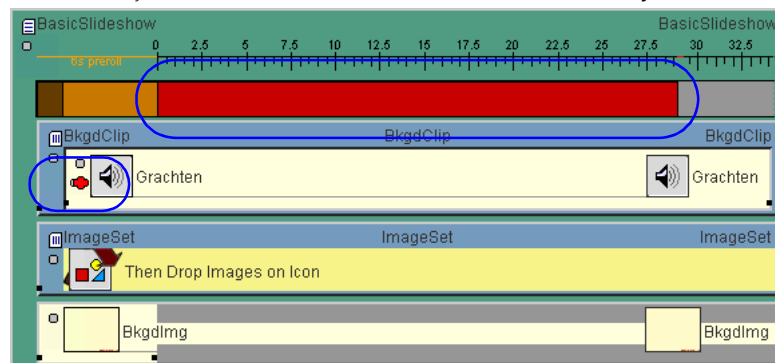
1. Using the Windows file navigation, find each of the media objects you want in the presentation.
2. Select and drag the objects to the appropriate template container: *Place Background Audio Here* for audio and *Place Images here* for the pictures.

You can also replace media objects by dropping new object on the old ones.

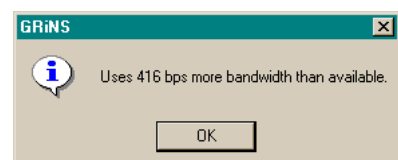
Note: When adding media assets, you should always add timed elements first (such as audio or video). Since these objects have the most critical streaming requirements, adding them first sets a baseline for performance evaluation of your presentation.

Adding Audio Objects

1. Drag an audio object onto the *BkgdClip* container. This adds an icon representing the media in the Structured Timeline. Note that the Bandwidth Usage strip is red (not a good sign), and that the new audio node (*Grachten*) has a red blocked-pipe icon. This is the GRiNS indicator that an object needs more bandwidth than is currently available.

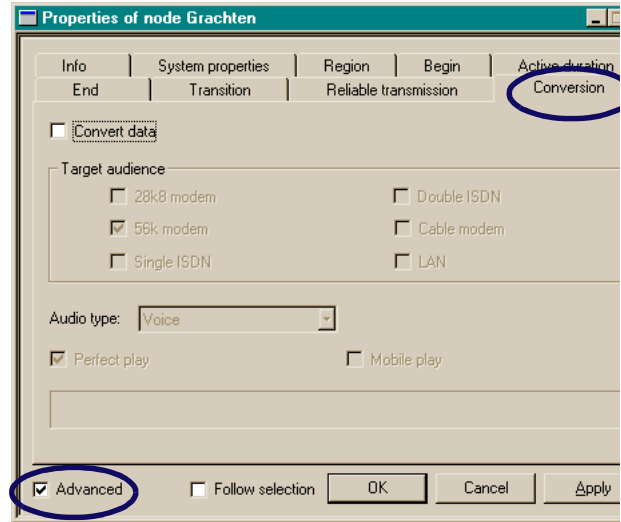


2. To get an idea of how much bandwidth we need, click on the blocked pipe. This gives a conservative indication of the bitrate (for continuous media) or time (for static media) deficiency of each item. While a defi-



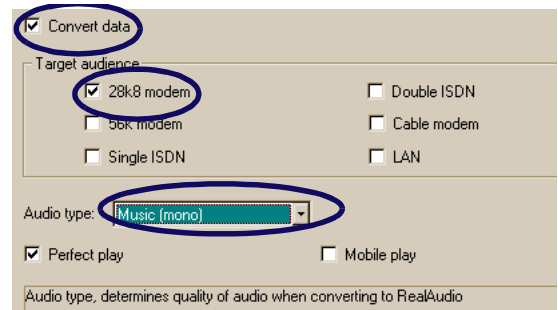
ciency of 400 bps is not extreme, it does mean that all of the network's resources will be used to deliver the audio, meaning no time for images! Unless you are running a radio station, this is probably not what you want.

3. Part of the problem in this example is that the music node we are playing is a stereo, high fidelity audio clip. GRiNS has a built-in media converter that creates RealMedia files on export to RealOne. To have the Bandwidth Strip use the post-conversion bitrate, first open the properties box for the media

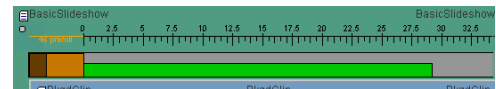


object, make sure the *Advanced* checkbox is active, and go to the *Conversion* tab. (If you publish to a SMIL player other than RealOne, the assets will not be converted.)

4. To specify a more efficient use of resources, turn on the *Convert Data* checkbox, select 28.8K (and un-check the 56K box), and set the audio type to *Music (Mono)*.



Setting the audio conversion parameters results in a major reduction in bandwidth use, as shown in the Bandwidth Usage strip. Note that the pre-roll time is now 4s.



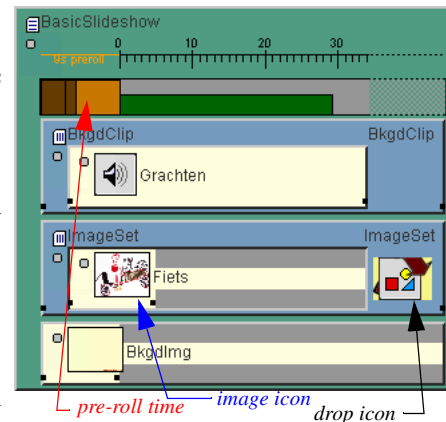
After specifying the audio parameters, the images can be added to the presentation.

Note: When you add images, you should keep in mind that the GRiNS Basic Slideshow template will scale your images to fit the viewing region, but this can waste lots of bandwidth — you send over more bits than you'll need. You will get better streaming performance if you pre-process your media to match the size in your final presentation.

Adding Images to the Presentation

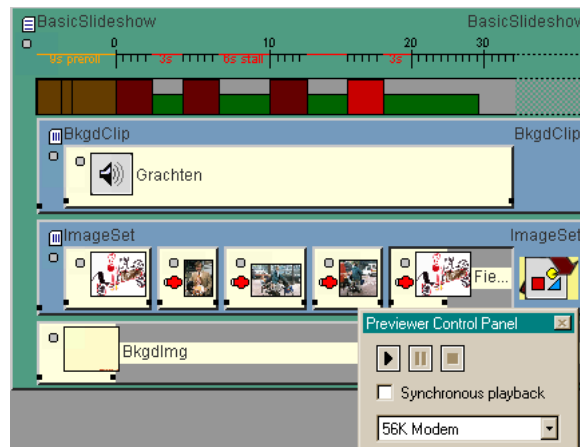
1. Drag an image from your media objects folder in Windows to the container with the *Then drop images on icon* text. You will see the illustration at right.

This image contains very useful new information. First, the pre-roll time has increased to 9 seconds (since we have asked the image to appear at the start of the presentation). Second, the text has been replaced with an image icon. Third, a Drop Icon has been added to the end of the container. (The drop icon was put there by the template to say: add new images here.) Note that we've also zoomed out the timeline to compress the view.



2. Add the additional images by dropping them on the *drop icons*.

The illustration shows the effect of dropping five images into the presentation. There are still some performance issues to be addressed, but before we fine-tune the presentation, we should probably preview it first to make sure the message is "right." Once the content is good, we can tune, tune, tune.



Preview the Presentation using the GRiNS Previewer

GRiNS gives you two choices when it comes to previewing: you can preview the entire presentation or you can selectively preview just a small part.

Previewing the Entire Presentation

To preview the entire presentation, hit the Play icon in the Preview Control Panel. (In the case of the example, you'll see a background image, hear a piece of music, and see five images, each lasting 5 seconds. Actually, you will see four images lasting 5 seconds and one image lasting as long as the rest of the music. More on this below.)

Previewing Part of a Presentation

GRiNS allows you to selectively play parts of a presentation. You may, for example, select the container labelled *ImageSet* (it contains the five main images) and, using the Editor's Preview -> Preview Single Object command, play only the contents of this



container. This plays all five images, but not the audio and not the background image. If you were to select the first image in the sequence (*Fiets.gif*), and again select Preview Single Object, you would have seen only that one image. You can preview any object at any level (at any time!) using this very handy — and uniquely GRiNS — feature.

You can also select Preview From Object in the Preview menu. For example, if you select the second image in *ImageSet* and then select Preview From Object, the presentation begins previewing from the point you selected. You get not only the remaining images, but the audio is also fast-forwarded to start at the appropriate point.

Tuning and Making Adaptive Presentations

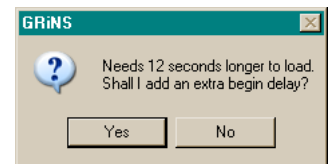
Now, let's get rid of the remain problems in the presentation. The red pipes on media objects and the red fields in the bandwidth strip above identify potential performance problems. To remove the red pipes (and thus get better performance), we can take one of two approaches:

1. design for the low-end: take the minimum acceptable bitrate and design the presentation based on this constraint; or
2. design an adaptive presentation: make a version that does something sane on a low speed connection, but also has some added features for users at the higher end.

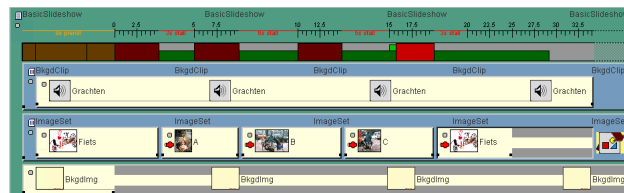
Designing for the Low-End

To make a minimalist presentation:

1. Set the minimum bitrate you expect your user to have in the Preview Control Panel.
2. Click once on the red pipe icons (if any) on media object in the Structured Timeline. This will bring up the pop-up box showing how many seconds you need to delay the start.
3. Select OK to automatically adjust the start time of the object on the timeline, or use the drag handles to manually adjust the begin/duration values.
4. If the element is placed too far to the right (that is, if the delay is too great) consider removing the item from the presentation.

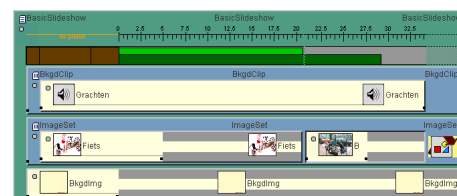


The illustration shows the result of applying automatic timing corrections. Note that since the audio of is fixed length, we've had to remove most images from the presentation to have the images match the music.



The basic presentation.

Note the red pipes, indicating that the images won't play without stalls at the selected bitrate.

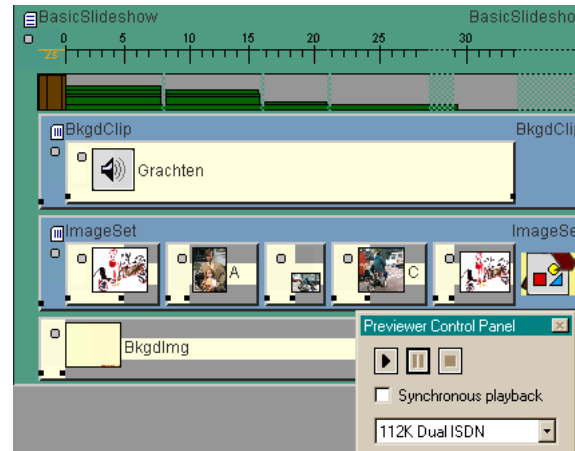


The adjusted presentation.

The red pipes are gone, but most images have been removed - otherwise the duration of the set of images wouldn't match the duration of the music.

Designing an Adaptive Presentation

So far, we've shown how the presentation would perform on a 56K connection. If the bitrate in the Preview Control is set to 112K, we see the picture at right, which shows that the original presentation had plenty of headroom for the audio and the images at the higher bitrate.

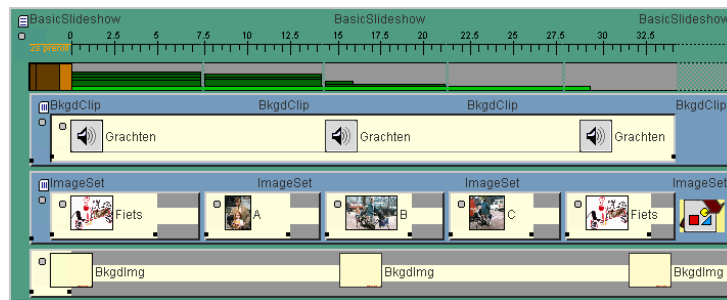


Since we have some extra resources available at the high end, let's make an *adaptive* presentation. The strategy we will use is:

- the high-end gets the full presentation, and
- the low-end gets the same slides, but with no audio.

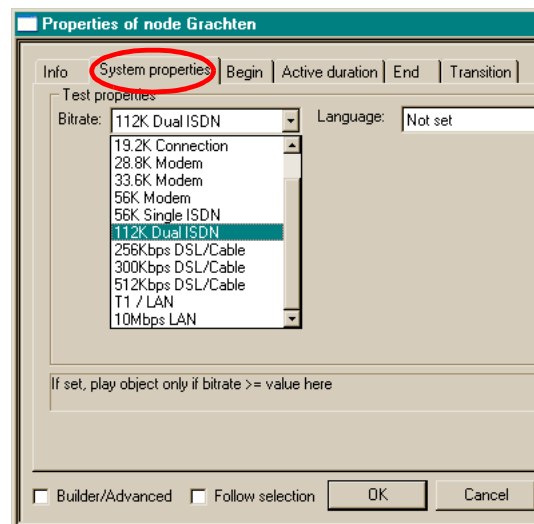
This is easily done in GRiNS as follows:

1. Set the previewer bitrate to the value for the high-end (in this case, 112K)
2. Adjust the begin times of each of the objects to start at every seven seconds or so. (The audio lasts 34 seconds and we have five images, so a seven second pacing is about right.) The resulting StructuredTimeline is:

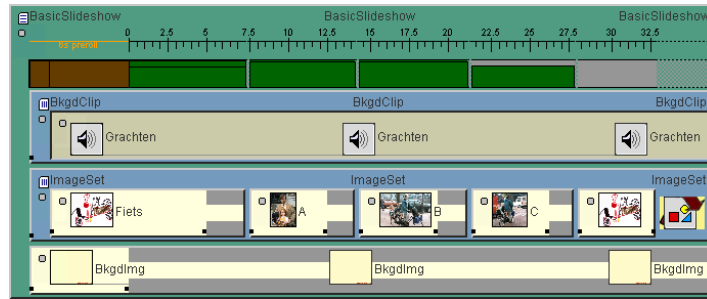


3. Go to the audio object and bring up its property sheet by clicking it twice;
4. Go to the *System properties* tab and set the Bitrate value to 112K Dual ISDN. This says: only play this object if the player has determined the bitrate to be 112K or above. (The 112K applies to the entire presentation, *not* the converted bitrate used by this single object.)

Note: GRiNS/RealOne allows you to set the Bitrate and Language test variables; GRiNS/Pro gives you control over all of SMIL 2.0's test variables.



If you were to preview the presentation with the previewer set to 112K or above, you would see the slides and hear the audio. Now, set the previewer bitrate back to 56K modem. You will see the following StructuredTimeline:



The audio object is drawn with a dark background (indicating that it is inactive for this bitrate). If you preview the presentation with the previewer, you will see all the images — which consume all of the bandwidth — and not hear the audio. (The nice thing about this approach is that your low-end users don't know they are low-end: they simply don't hear the audio.)

There are many ways to manage complexity in a presentation. You could have also made separate slide sets (one with two images for low-bandwidth sites and one with five for high-bandwidth sites), or you could substitute video for images.

The ability to build adaptive presentations within GRiNS gives you a powerful tool to address a broad audience without having to make several independent presentations. Making extensive use of the adaptive capabilities of RealOne and other SMIL players is the subject of another GRiNS *How To* note.)

Polishing the Presentation

GRiNS provides you several tools for making your presentation more attractive:

- a set of timing controls that let you adjust the start time and duration of individual objects;
- a performance modelling system that lets you find and correct bandwidth problems;
- a transition effects system that lets you add fades, wipes, etc. to your presentation;
- an animation editor that lets you provide scaling and motion animation in the presentation; and
- a RealOne HTML synchronizing system that lets you coordinate the presentation of Web page content in the RealOne player's *browser* and *context* windows.

Adjusting Presentation Timing

In order to fine-tune your presentation, you need to become familiar with three important SMIL concepts: an object's *begin* time, its *duration* and its *fill* behavior.

Begin Times

Every object in a presentation — even PAR and SEQ structure containers — can have implicit or explicit begin times. For PAR containers, the implicit begin time for all objects in that container is the scheduled start of the PAR. For SEQs, the implicit begin time is the end of the object preceding it.

To change the begin time of an object:

1. Select the *begin time handle*, which is the left-most handle on the object box, and
2. Drag it to the right to delay the start of the object or drag it to the left to make the object start sooner.



GRiNS provides two modes for changing begin times: *constrained dragging*, in which the an object is constrained to start after the end of its predecessor and before the beginning of its successor, and *unconstrained dragging* (enabled by pressing the Ctrl key during dragging), in which all successor objects are also moved if you drag past their begin times.

Note that in a SEQ an object can't start before the end of its predecessor.

Duration

Every object has a duration in the presentation. The implicit duration of an object depends on the object type:

- the duration of a piece of continuous media (such as an audio or video clip) is the length of that clip;
- the duration of a discrete media item (such as an image or non-timed text) is 0 seconds. (Be careful: the RealPlayer used to assign 5 seconds as the default, but the default for SMIL-2 is zero seconds!);
- the duration of a PAR or SEQ is the result of computing a timeline for the contents of the container.

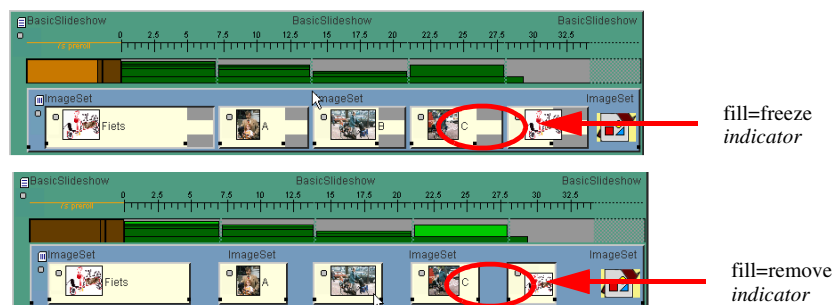
(There are many complexities of computing durations, especially when interaction is involved, but these are the basics.)

Every object can also have an explicit duration set that over-rides the implicit duration. To do this, take the duration (right) drag handle on an object and move it to the right or left to increase/decrease the duration.



The Fill Behavior

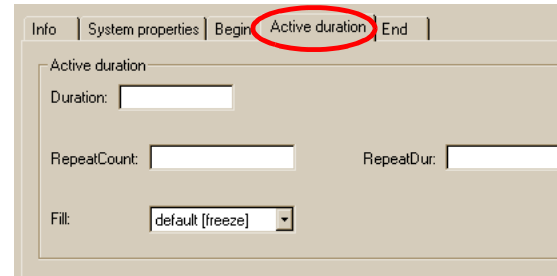
An object's fill behavior determines what happens to the object when its duration ends. Does it disappear or do the bits stay on the screen until they get covered by something else? In the Slideshow template, all objects have a fill behavior of freeze. This means that if no new object is scheduled after the end of a current object, its rendered duration (but not scheduled duration!) is extended to the end of its time container.



The visual representation of fill="freeze" in GRiNS is given by the colored bar that extends to the beginning of the next object or, if there is no successor

object, to end of the time container. The illustration above shows two sequences, each with identical objects — that is, they have the same begin times and durations — but with different fill behaviors.

You can control the begin time and duration via direct manipulation. You may also set the values (and the fill behavior) by opening the object's property box and going to the *Active Duration* tab, as shown.



The distinction between an object's duration and its visual rendering time is very important in SMIL. You should consult the GRiNS, W3C, Microsoft and RealNetworks documentation for a more complete explanation.

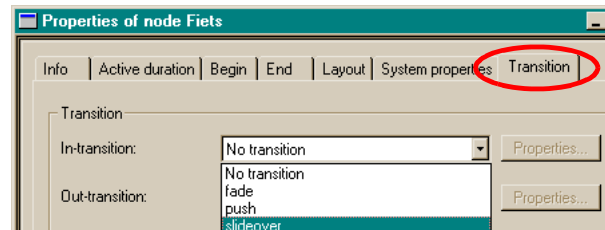
Adding Transitions to Media Objects

A streaming player works hard to deliver your streaming media on schedule. Once that media has arrived, however, the Player can also help you make things look more exciting. Three classes of media handling can be used: transitions, animations and layout positioning. The interesting thing about all of these features is that they consume zero bandwidth. They do, of course, make some additional demands on the client's platform, so don't overdo the use!

To add transitions to a media object:

1. Open the property sheet for the object by double-clicking it in the StructuredTimeline view, and go to the *Transitions* tab; and
2. Select either an input or output transition (or both).

You can preview this node by selecting **Preview->Preview Single Object** (also available under the right mouse key).



The Slideshow template defines four standard transitions. You can also define new transitions via the Transitions view. You may apply transitions to any media object, including video.

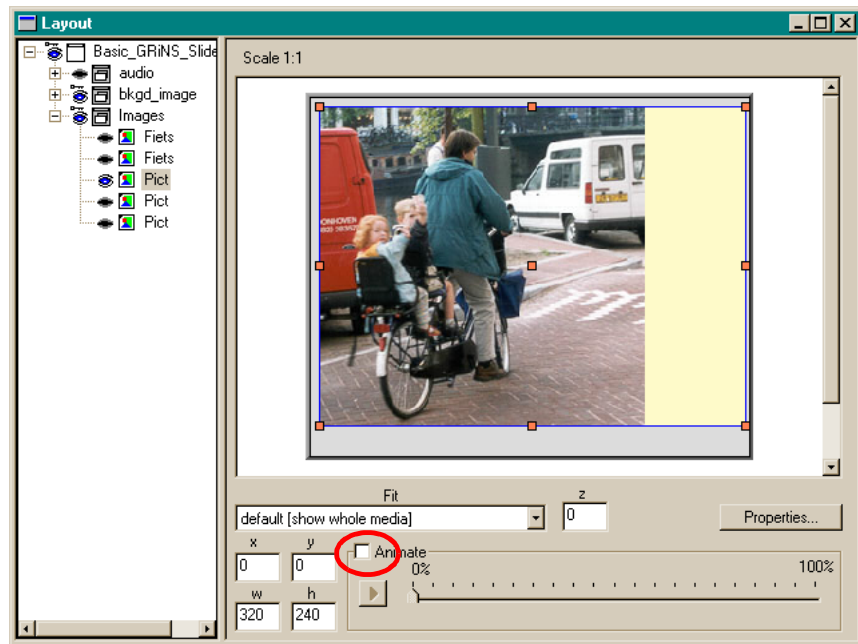
Note: Adding cross-fade transitions in sequences often requires that you change the value of the fill attribute from freeze to transition in predecessor images; this ensures that the bits of the previous image remain on the screen long enough to complete the transition.

Adding Animation

You can easily add object-based animations to your presentation. What you animate is the *rendering position and size*, not the content itself. (If you want animated content, you should add Flash or SVG objects to your presentation.) Since position and size are specified via the Layout window in GRiNS/Pro, this is also where the animation control is found.

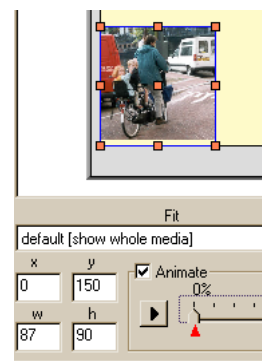
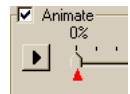
To add animations to a media object, follow the five steps below.

1. Select a media node that you would like to animate. For example, we select the fourth image in *ImageSet*.
2. Next, open the Layout window (via Windows->Layout). The view you get is:



On the left side of the Layout window is the region/media selection tab. At top right is the placement window, and at bottom right is the Animate control.

3. Enable animation by enabling the Animate check box. The scale on the Animate bar defines the duration of the animation in terms of the active duration of the media object. (That is, excluding freeze time.) If you make the duration longer in the Structured Timeline, the animation will occur more slowly.
4. Set the pointer on the Animate Timeline to 0%, and using the drag handles on the image, make the image small, and place it in the lower left hand corner. It should look something like the image at right. (Make sure you turn on Animate before you resize the image.) Note the value of the Fit attribute — this will determine how an image behaves during resizing. **Show whole image** usually gives a desired result, but you can try others.
5. Now, hit the Play icon next to the Animate timeline. You'll see a preview of the animation. The preview repeats continuously; you can stop it using the same button (which now is a Stop icon.)



SMIL and GRiNS/Pro use a 'return to rest' animation model. That is, you define a non-standard position, and the animation will return the object to its original position and size. You can define intermediate points by positioning

the slider. If you select an arrow under the Animate timeline and then shift-drag the value, you can copy existing size and position parameters.

You can delete any animation point by double-clicking its timeline triangle.

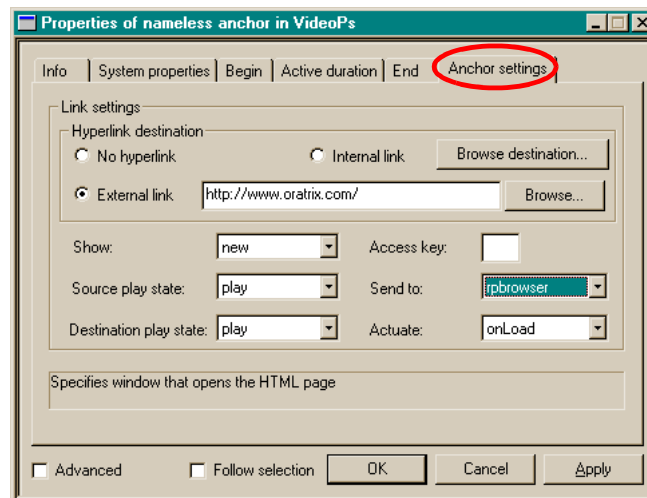
Selective Object Positioning

When you created the animation, you did two things: defining a position/size pair on the region holding a media object, and associating a time on the Animate timeline. You can also change the places where objects get rendered by simply defining a size/place pair. You can also define relative positioning of objects by selecting them in 'eyes' mode in the left pane, and then choosing one to reposition and scale. Not having every image appear at top left makes your presentation much more interesting to watch.

Synchronizing Content with the RealOne Media Browser Pane

To create a self-firing link to the RealOne *Media Browser* pane, do the following:

1. Select the node in the presentation that will serve as the source node for the link. (This is the node that, when played, causes the page to appear.)
2. See if the linking toolbar in the GRiNS/Pro Editor has been activated. If not, turn it on via the View->Toolbars->Timing and Linking menu entry. The toolbar is shown above.
3. Click on the icon with an arrow pointing to the *browser* pane, as shown at right. (A link to the *related info* pane is also available.)
4. Enter the URL (either as a full Web path or as a local name) into the property dialog box for the newly created anchor. The property box and an example URL are shown below:



That's it. Now, when you play the presentation, the Web page appears in the RealOne *media browser* pane. You can add timing offsets and other special attributes via other GRiNS views. See the *How to Target the Related Info and Browser Panes from Content in the Media Player* note for more details.

(Creating a self-firing link to the *Related Info* pane uses the same process as for the browser pane, except that the Related Info icon is used.)

Generate/Upload the presentation

Publishing your presentation for a SMIL player consists of several steps, some of which are optional. The process starts by selecting

File->Publish->Publish for ... (the player name is selected), and consists of the following actions:

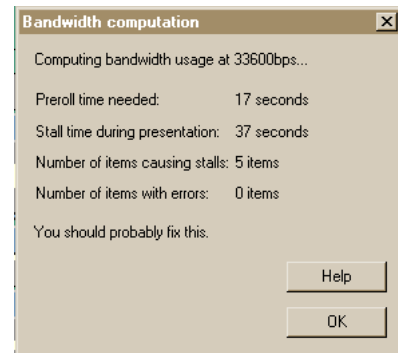
- a bandwidth check is performed prior to publishing, and a performance report card is generated;
- for Publish->RealOne, any media items that were selected for conversion to RealMedia formats are converted;
- the media assets are all copied to a distribution directory and the .smil and .ram files are (as appropriate) created for you; and
- (if uploading) assets are copied to a RealServer and the presentation is published to a Web page.

Each of these steps is discussed in the sections below.

Check Bandwidth Usage

When you select Publish, you first get a bandwidth report card. You'll see how much preroll time is required and what the stall time is (if any). You'll also get some advice on the severity of the problem.

If there are errors, GRiNS does not correct them for you (since such corrections often involve artistic design issues), but it does indicate where you should look for the problem spots in your presentation. These are indicated by red blocked pipes on data items.



Converting Media Objects to RealMedia Format

The next step in publishing is the conversion of RealMedia items. Not all file types are automatically converted — the Conversion tab in a media object's property box will determine which objects get converted and how the conversion will take place. If you are not publishing to RealOne, this step is skipped.

You see a conversion completion bar for each object being converted.

Creating the SMIL File

Once local publishing is complete, you can now preview the presentation in the target SMIL player to see if fine-tuning is required. For our presentation, you'll see the following if you publish to RealOne:



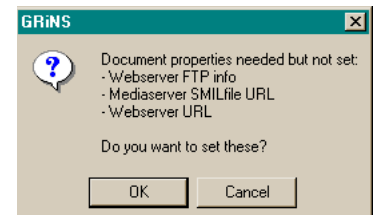
If you had published the same presentation to IE-6 (HTML+TIME), you would see the following image:



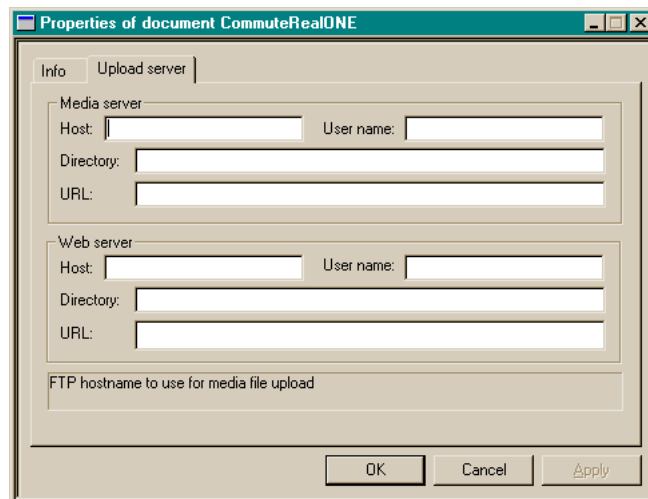
Look at the View->Source option in IE6: this will show that the presentation is not a plug-in, but has been trans-coded to native HTML+TIME.

Upload to a Media Server Once the presentation has been created, you can upload it to a Web server or a streaming media server.

For automated uploading to a RealMedia server, select File->Publish->Publish for RealOne and Upload. The first time you do this, you may see the box at right; this means that you need to set various upload parameters.



You can also pre-set these via File->Document properties.



The upload entries are shown above. The information you'll need is:

- *Media Server information:* this is the location of your RealServer. (This is where your .smil and media assets get stored.) You'll need to supply the host name and your user name (for accessing the host — we'll prompt you for a password, but GRiNS won't save it, so you'll need it each time you upload.)
- *Web Server:* this is where your .ram and any local .html files gets placed — these are the files for the context and browser windows. (Note: since the

RealOne player needs to access these pages at presentation time, you also need to supply a URL that resolves to the place where the named directory can be accessed.)

If you published to HTML+TIME, you will probably want to integrate your HTML code into a larger HTML presentation using a text editor or some other means.

You may also upload all of these files by manual ftp transfer to a web server. GRiNS puts the .smil (or .html for HTML+TIME) files and a single media directory containing copies of all your media in the destination folder. You can copy these to a server of your choice. (Note: some control files may need to be modified to point to the correct servers. GRiNS does this on automated upload, but you will have to do it manually if you hand-upload.)

You can now view the presentation from anywhere on the Web.

Advanced Topics

This note provides the basis for working with GRiNS to create SMIL presentations. You should also consult the GRiNS (and media player) documentation to get more information on the wide range of facilities available with the GRiNS editor and the various SMIL players.