

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

GRiNS/Mobile “How To” Notes

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Overview

This document will give you all the information you need to create slideshows for a GRiNS iPAQ player using the GRiNS Editor for Mobile SMIL software (hereafter called simply: GRiNS/Mobile). You will learn how to create simple slideshows and how to integrate transitions, animations and links to the GRiNS iPAQ *media browser* and *related info* panes. You will also learn how to publish your presentation for use with the GRiNS iPAQ player.

This is one in a series of GRiNS *How To* guides. While it is not intended to be a substitute for reading the GRiNS *Quick Start Guide*, the *Templates 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.

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The Basics

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

Obtaining the GRiNS/Mobile Editor

In order to create streaming presentation for a GRiNS iPAQ player using the GRiNS/Mobile editor, you will need the following components:

- The GRiNS iPAQ player;
- The Oratrix GRiNS/Mobile Editor, version 2.2 or later;
- Media objects to insert in a presentation.

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

While GRiNS/Mobile 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)
- 128MB 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/Mobile Editor will let you publish your presentation to any SMIL compatible player. You may also set a particular device configuration and prune your presentation to that device. We will give examples of both publishing modes below.

GRiNS/Mobile Workflow

Creating a GRiNS iPAQ slideshow presentation using a GRiNS/Mobile template consists of the following steps:

1. Open the editor and select a Slideshow Template
2. Select a device model via the File->Preferences command
3. Set a target bitrate for the presentation using the Previewer Control Panel
4. Add media assets to the presentation (start with audio, then add images)
5. Preview the presentation using the GRiNS Previewer
6. Fine-tune the presentation's timing
7. Publish to GRiNS iPAQ for a generic presentation, or Prune and Publish for a particular device model

Depending on the template you select, you can create either a simple slideshow that works with a variety of profiles, or a constrained MMS presentation.

Creating Basic Slideshows

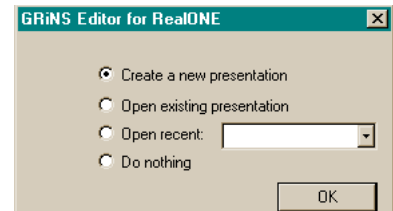
This section outlines the steps you need to create basic slideshows using GRiNS/Mobile, and provides introductions to the advanced features available in SMIL and GRiNS/Mobile.

Open GRiNS/Mobile and Select a Slideshow Template

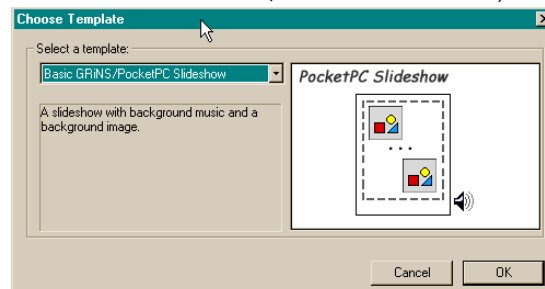
To create a slideshow presentation, you need to open the editor, create a new presentation and give it a name. To do these things:

1. Open the GRiNS/Mobile 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 existing SMIL presentations, you may also open these and convert them to GRiNS iPAQ SMIL 2.0.

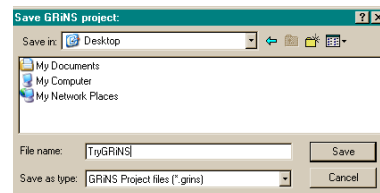


2. Select the *Basic GRiNS/PocketPC Slideshow*, as shown below.



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.)

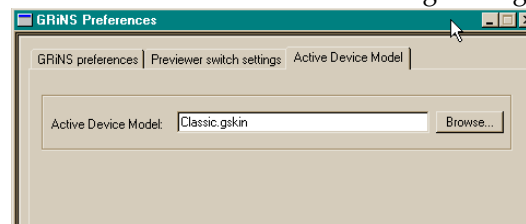
3. You will be prompted for a location/name to save the file. (We'll use *TryGRiNS*.) GRiNS will remember the last folder you used for saving presentations; if there is no last folder, GRiNS uses the Desktop.



Selecting a Device Model Profile

Since the characteristics of mobile device can vary widely, GRiNS/Mobile provide a mechanism to associate device parameters with the presentation under construction. To set a device model:

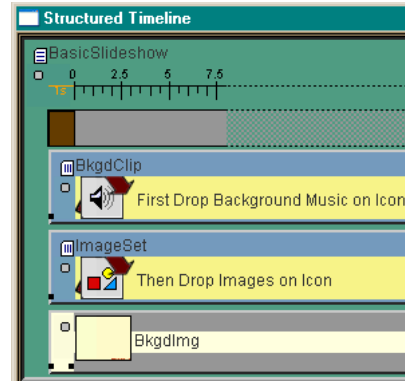
1. Open the *Active Device Model* tab under *File->Preferences*.
2. Select a device model for use during editing, as shown below:



All GRiNS device models have the type *.gskin*. The Classic device model provides a display area of 240 x 270 pixels and allows full SMIL 2.0 Language presentations to be played.

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.

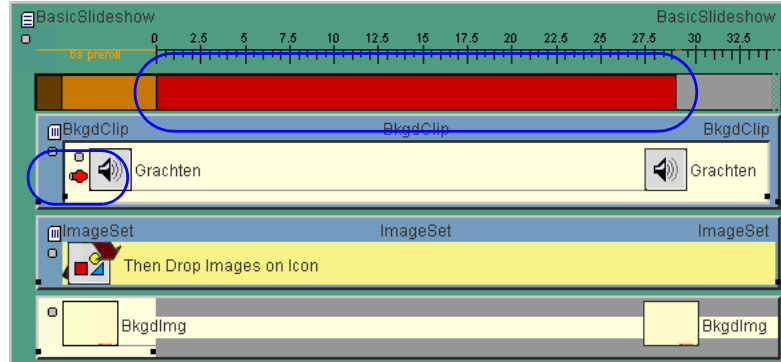
You can also replace media objects by dropping new object on the old ones.

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.

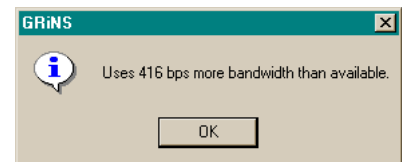
Adding Audio Objects

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

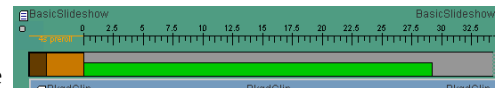
node (*Grachten*) has a red blocked-pipe icon. This is the GRiNS indicator that an object needs more bandwidth than is currently available.



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 deficiency 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. The evaluation release of GRiNS/Mobile does not include conversion technology that is geared to specific mobile devices, so you must pre-process your assets to achieve an acceptable bitrate. (Note that a *Conversion* tab may exist; this tab converts objects to RealMedia codecs, and is not recommended for use with non-RealMedia players.)



Selecting an appropriate media object results in a major reduction in bandwidth use, as shown in the Bandwidth Usage strip. Note that the pre-roll time is now 4s.



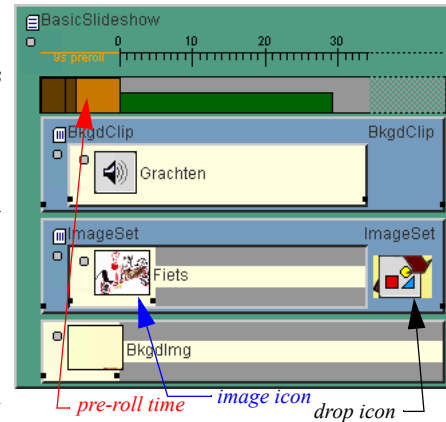
After specifying the audio parameters, the images can be added to the presentation.

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 also pre-process your media to match the size in your final presentation.

Adding Images to the Presentation

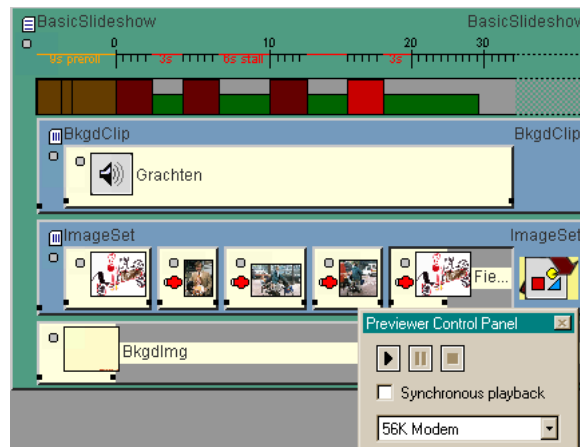
1. Drag an image from your media objects folder in Windows to the container with the *Then drop images on icon* text. You will see the illustration at right.

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 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

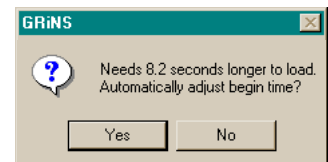
Now, let's get rid of the remain problems in the presentation. The red pipes on media objects and the red fields in the bandwidth strip above identify potential performance problems. To remove the red pipes (and thus get better performance), we can take one of two approaches:

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

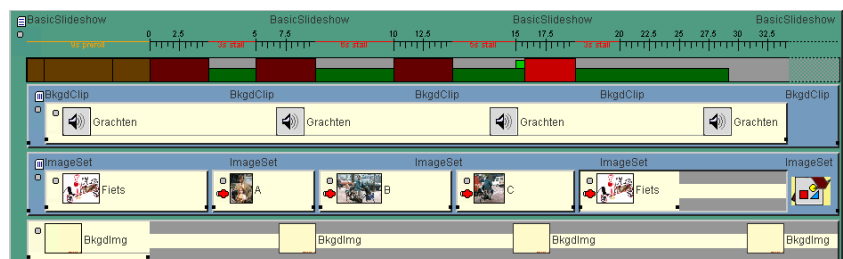
To make a minimalist presentation:

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.



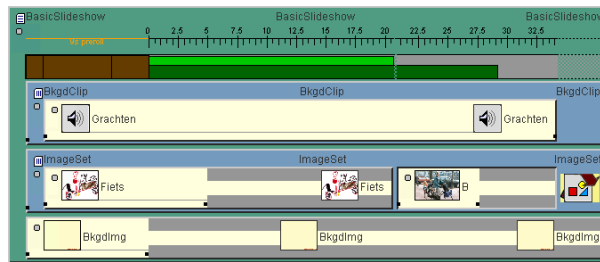
The illustration shows the result of applying automatic timing corrections. Note that since the audio of is fixed length, we've had to remove most images from the presentation to have the images match the music.

The basic presentation, before adjusting start times:



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

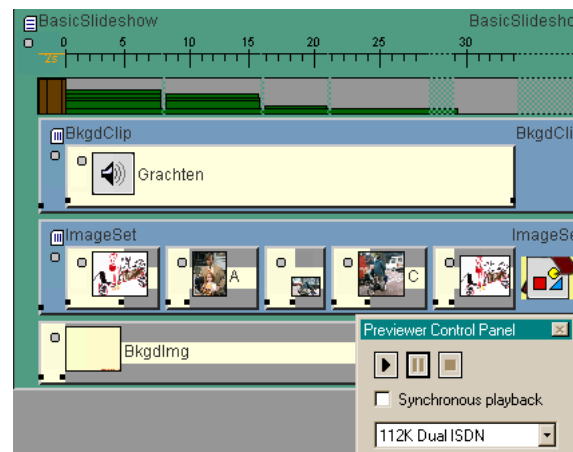
The adjusted presentation.



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 Modem 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.

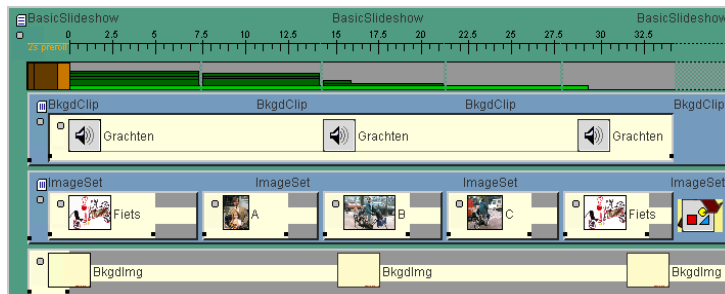


Since we have some extra resources available at the high end, let's make an *adaptive* presentation. The strategy we will use is:

- 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:

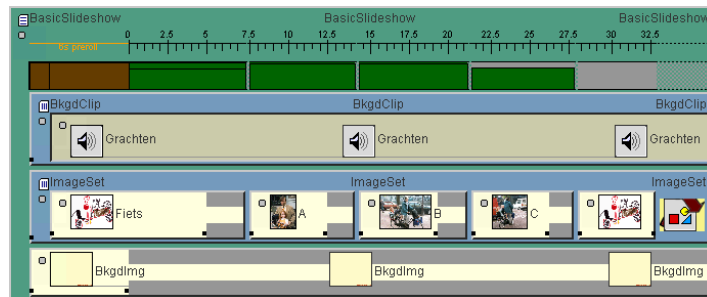
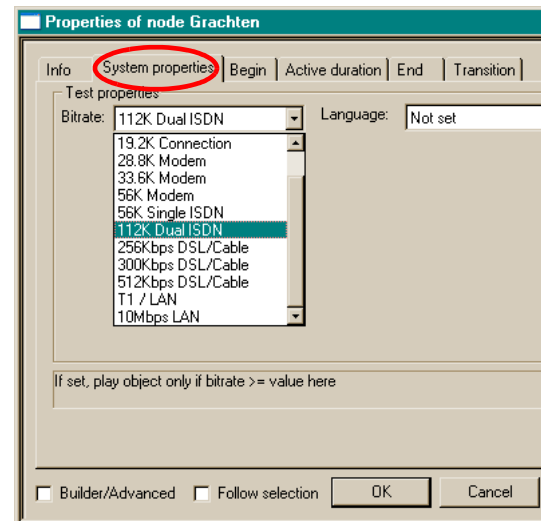
1. Set the previewer bitrate to the value for the high-end (in this case, 112K)
2. Adjust the begin times of each of the objects to start at every seven seconds or so. (The audio lasts 34 seconds and we have five images, so a seven second pacing is about right.) The resulting StructuredTimeline is:



3. Go to the audio object and bring up its property sheet by clicking it twice;

- 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.)

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.)

Adapting the Presentation to the Device's Characteristics

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.

You can use the same mechanism (the SMIL *switch*) to determine if any single object in the presentation gets played based on the characteristics of your target device. (You may set this at any level in the presentation, on media objects or SMIL structure nodes.)

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.

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; and
- a transition effects system that lets you add fades, wipes, etc. to your presentation.

Adjusting Presentation Timing

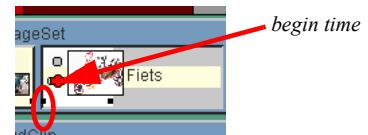
In order to fine-tune your presentation, you need to become familiar with three important SMIL concepts: an object's *begin* time, its *duration* and its *fill* behavior.

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.

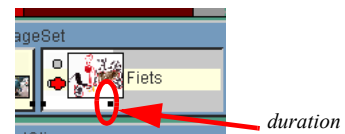
Duration

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 set to the default in its template (in this case, 5 seconds) or it assumes the system-wide default of 0 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.)

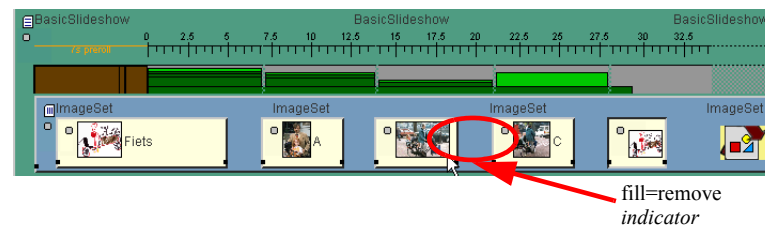
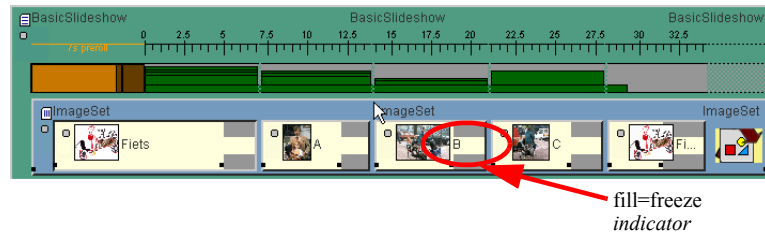
Every object can also have an explicit duration set that over-rides the implicit duration. To do this, take the duration (right) drag handle on an object and move it to the right or left to increase/decrease the duration.



The Fill Behavior

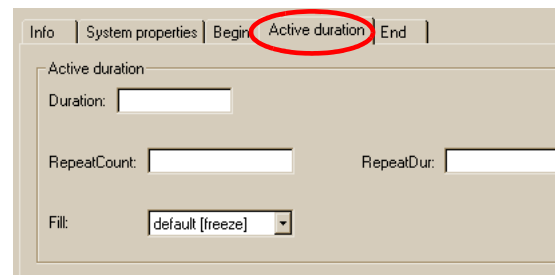
An object's fill behavior determines what happens to the object when its duration ends. Does it disappear or do the bits stay on the screen until they

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 and RealNetworks documentation for a more complete explanation.

Adding Transitions to Media Objects

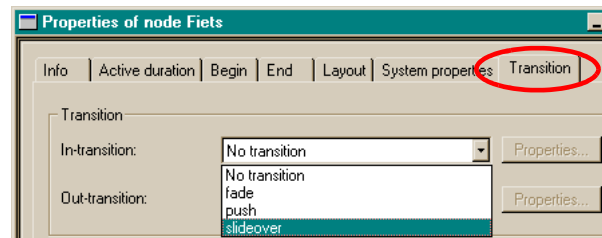
The GRiNS iPAQ player works hard to deliver your media on schedule. Once that media has arrived, however, the Player can also help you make things look more exciting. For 3GPP/PSS5 and later mobile devices, one potential option is the addition of transitions to the presentation. The interesting thing about transitions 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.

Generate/Upload the presentation

Publishing your presentation for GRiNS iPAQ consists of several steps, some of which are optional. The process starts by selecting

File->Publish->Publish for GRiNS iPAQ,

and consists of the following actions:

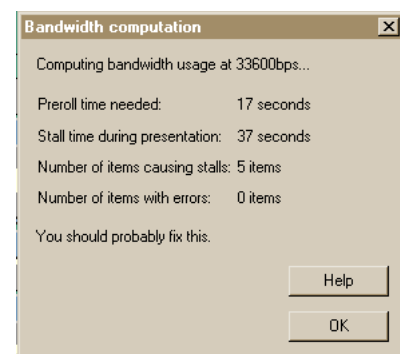
- a bandwidth check is performed prior to publishing, and a performance report card is generated;
- the media assets are all copied to a distribution directory and the .smil and .ram files are (as appropriate) created for you; and
- (if pruning is requested) only those assets that are active for the current device model and the previewer configuration are included in the presentation. The remainder are discarded from the publish version.

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.



Creating the SMIL File

GRiNS offers two options when creating the SMIL file for your presentation:

1. Publish to a generic SMIL format that can be played by most fully compliant SMIL Players, and
2. Prune and Publish, where the characteristics and the current previewer settings are used to select which objects get presented on the device.

Publish Only

In this mode, the syntax of the presentation is checked to see if it is correct, and then all of the SMIL objects and media items are transferred to a .smil file and a data directory, respectively.

You should copy the .smil file and the associated data directory to your mobile device and then open the SMIL file using the GRiNS iPAQ player.

Upon opening the player, you may select a player profile: this profile determines how your presentation is parsed: if you select the 3GPP/PSS4 profile but include animations and other operations not supported on that device, the presentation will be adjusted accordingly. (If you are careless in creating your presentation, you may get unpredictable results!)

If items are removed from the presentation, GRiNS iPAQ will generate a warnings/errors log that will help you determine where the inconsistencies in your presentation are located.

Prune and Publish

Instead of publishing the entire presentation to a single file, you may also prune the presentation to meet the specifications of a particular device. For example, if your device model had the component setting 3GPP on a *switch* statement but your device model did not support this component (because it was an MMS device), the switch element and its content would not be published to the final file.

When opening the published file using GRiNS iPAQ, only the pruned parts of the presentation are used in building the actual show.

Closing Comments

This HowTo guide is intended to get you started using GRiNS iPAQ and the GRiNS Mobile editor. Updated documentation will be available with annotated demonstrators.