

System Software Theme Tutorial

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About This Document

This tutorial provides an overview of the features, tools and production cycle for System Software Themes on PlayStation®4 and PlayStation®Vita/PlayStation®TV. It also takes a look at the launch features and comparison chart with Dynamic themes for PlayStation®3.

Conventions

The typographical conventions used in this guide are explained in this section.

Hints

A GUI shortcut or other useful tip for gaining maximum use from the software is presented as a 'hint' surrounded by a box. For example:

Hint: This hint provides a shortcut or tip.

Notes

Additional advice or related information is presented as a 'note' surrounded by a box. For example:

Note: This note provides additional information.

Text

- Names of keyboard functions or keys are formatted in a bold serif font. For example, **Ctrl**, **Delete**, **F9**.
- File names, source code and command-line text are formatted in a fixed-width font. For example:

```
ret = dumpShaderAnalysis(shader, kAnalysisFlags, stdoutWriter);
```

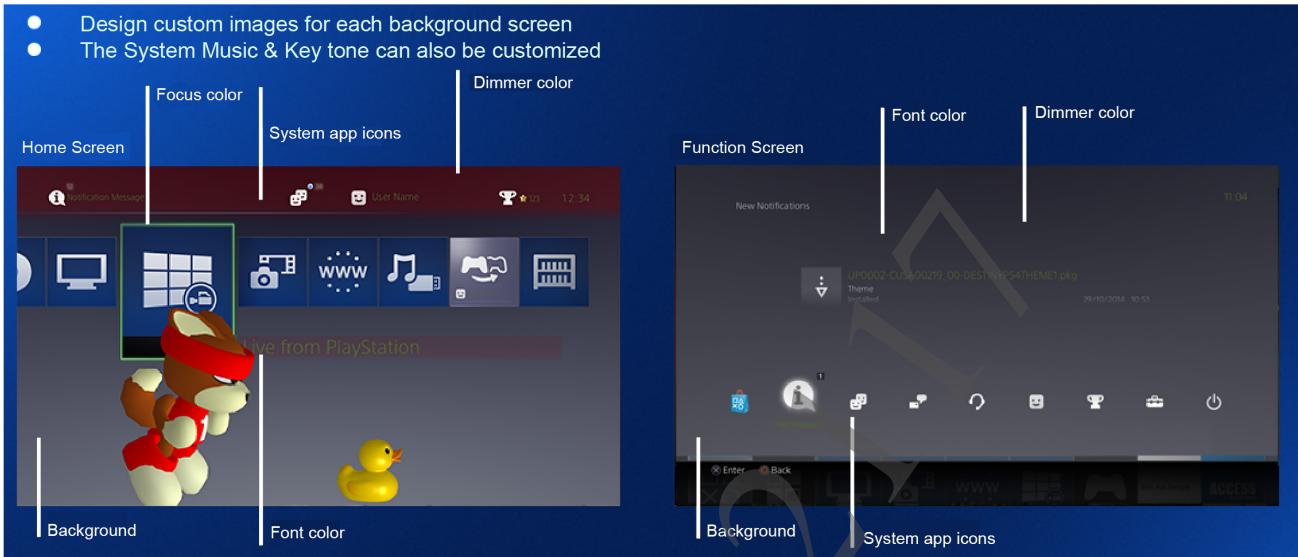
Errata

Any updates or amendments to this guide can be found in the release notes that accompany the release.

1 PlayStation®4 System Software Themes

The firmware for PlayStation®4 SDK 2.50 is shown in Figure 1.

Figure 1 Firmware for PlayStation®4 SDK 2.50



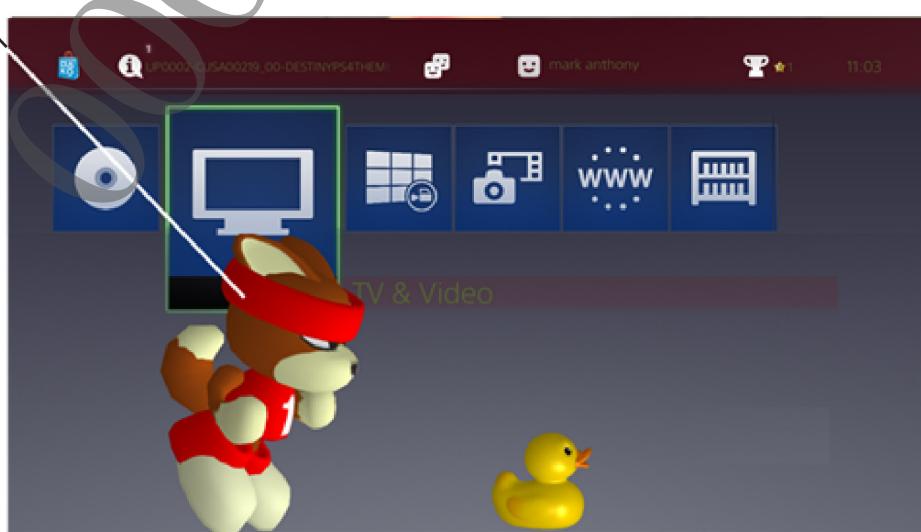
PlayStation®4 System Software Theme Layers

PlayStation®4 System Software Themes introduce the visual element of layers, giving you the option of working with depth. Each element can be placed in a foreground or background group, and is defined by one of two XML files that control the assets for the theme. Each foreground and background group can have a number of elements within it, but must fit within the available memory. This will be familiar to you if you have designed themes for PlayStation®3. You can use NN console output to gauge if you are too close to the memory limit.

SCE recommends that important UI elements or names are not completely obscured for long periods of time.

Figure 2 Objects Placed in the Foreground of the UI

Static or moving objects can be placed in the foreground, in front of the UI.



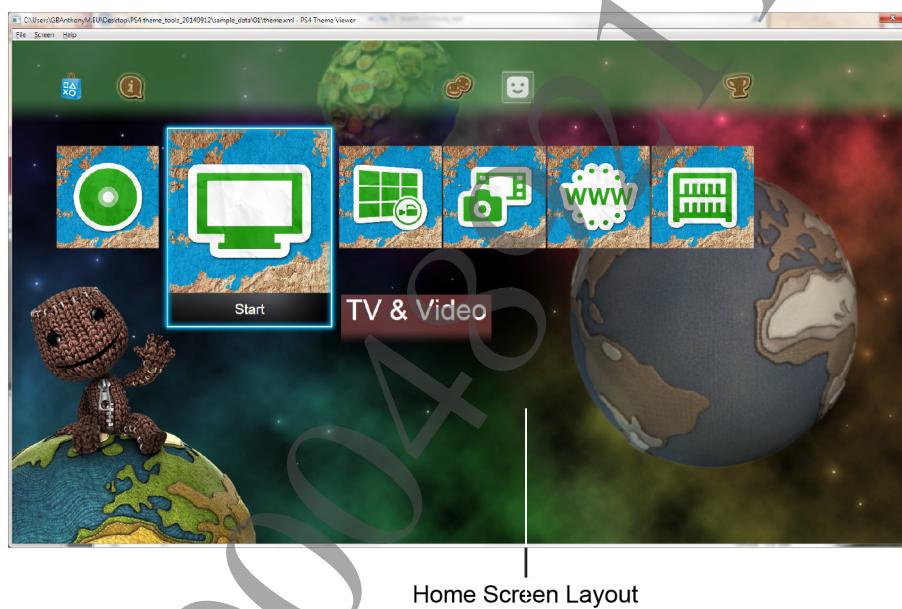
Previewing Tools for a Theme (PlayStation®4)

The Theme Viewer and Theme Model Viewer enable you to create and view up to two screens for a theme (called the **Home** screen and the **Function** screen). Theme Viewer shows the 2D elements (custom icons, any static images and focus/dimmer colors) in a drag and drop window. To view the icons in the **Home** and **Function** screens, drag the main script (`theme.xml`) into the window. Theme Viewer does not show any 3D theme elements. Theme Viewer has a reload option so that rapid prototyping can be done by editing and saving an XML script while the tool is open, and reloading to see the result.

To preview any 3D elements, you must launch the Theme Model Viewer found in the same SDK directory. This editor uses the same drag and drop method to preview the 3D assets. A fake content icon menu can be displayed by pressing **F5**. Unlike the Theme Viewer, instead of the `theme.xml`, a separate `index.xml` must be created to control the 3D (light, cameras and models) elements. Both the **Home** and **Function** screens can be viewed in the Theme Model Viewer, and any camera switches when moving between each screen will be seen if they have been implemented in the XML script.

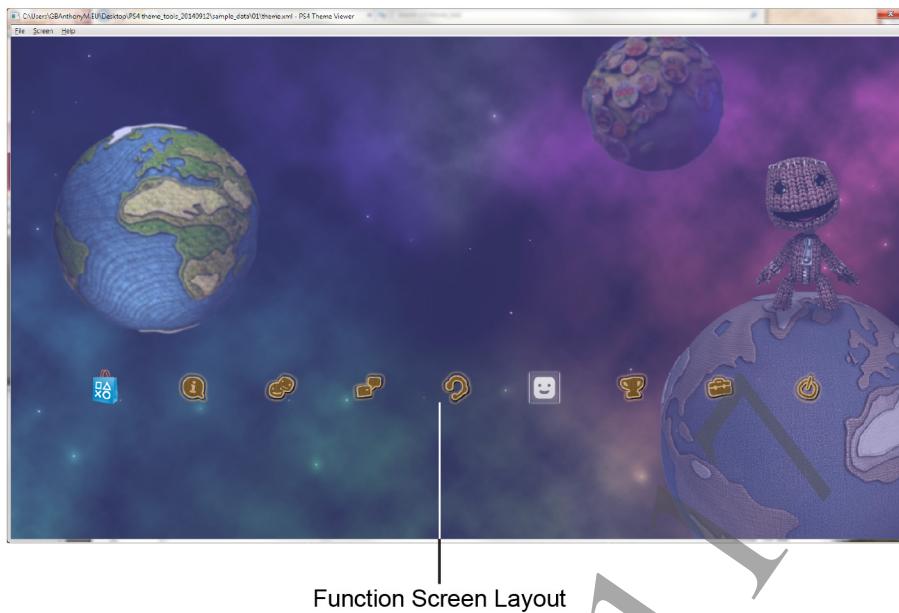
These tools do not support any sounds that may have been used in the theme and so can be reviewed only on a Development Kit (DevKit hereafter) or Testing Kit (TestKit hereafter).

Figure 3 Home Screen Layout (PlayStation®4)



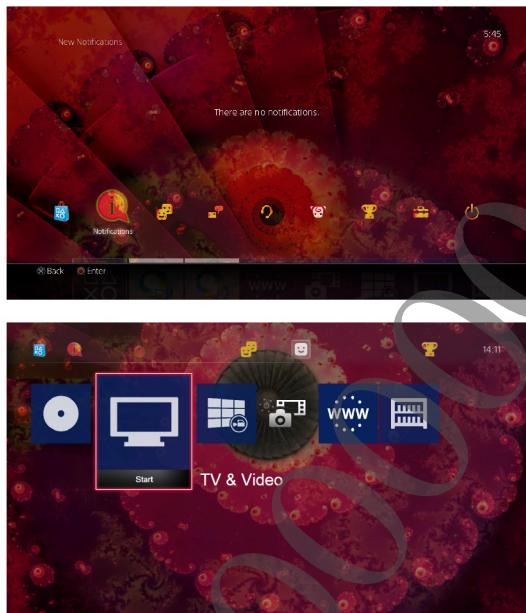
Home Screen Layout

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Figure 4 Function Screen Layout (PlayStation®4)

Function Screen Layout

SCE strongly advises that you theme and customize both screens, and all icon sets, to add value to the theme and give a premium quality to your releases.

Figure 5 Screen and Icon Set Themes (PlayStation®4)

System Software Themes

System software themes also provide colored backgrounds for other system screens. Unlike PlayStation®3, the colors do not cycle based on the month.

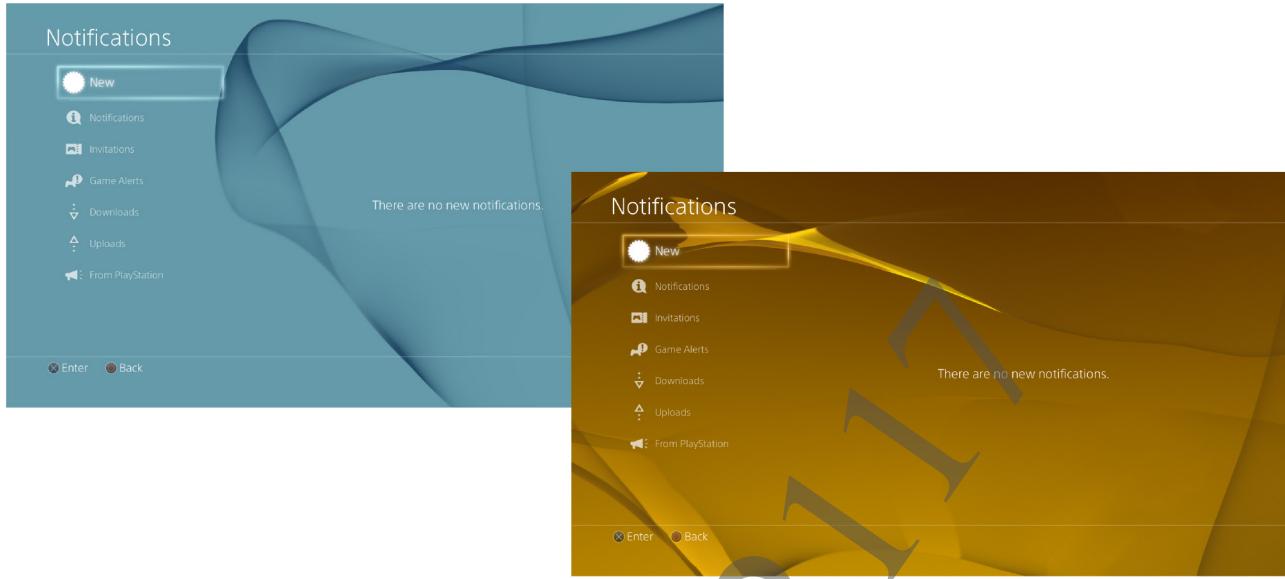
Use Simple Background Color Changes

The background color is shown on system pages, regardless of whether an image or 3D content is used on the function and content screens. Therefore, you may want to select a default color that is complementary to the overall design (Figure 6). This same color fades in and replaces any theme background content

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when the PlayStation®4 enters screensaver mode (if the controller is not touched for a set number of minutes), so you may want to choose a color that works with your theme elements.

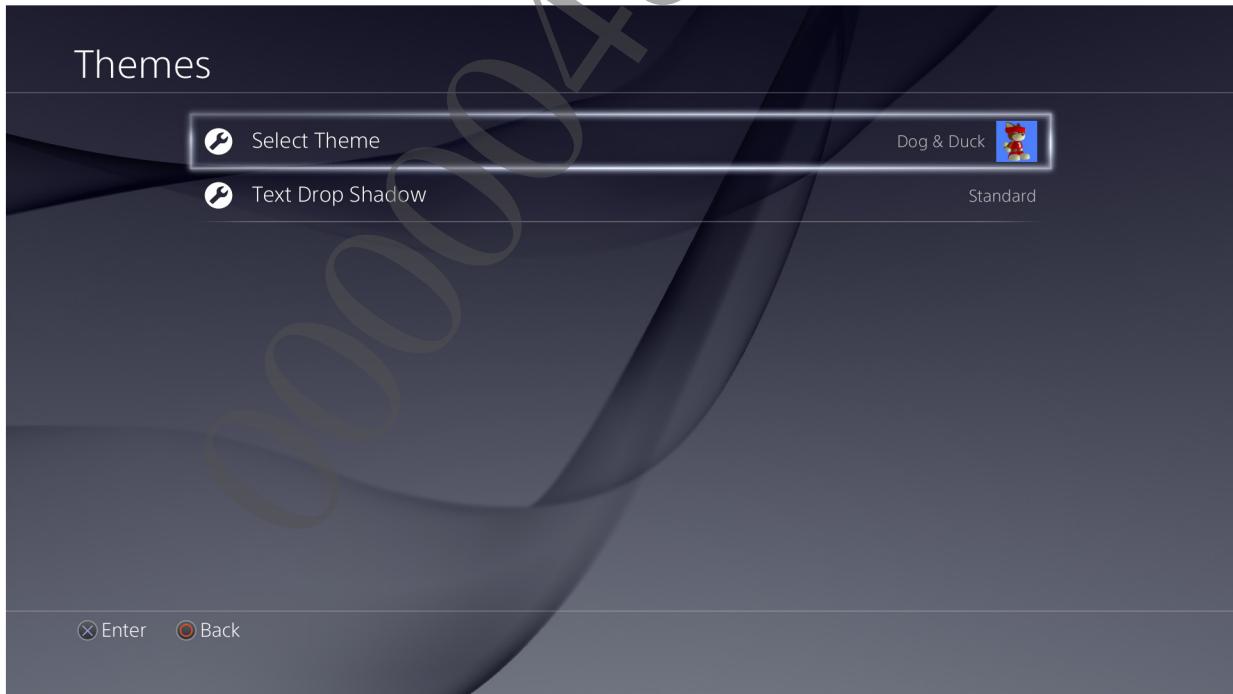
Figure 6 Complementary Default Colors (PlayStation®4)



Selecting a Theme

Themes can be installed using Network Neighborhood, or a USB storage device. A created and packaged theme cannot be viewed on a retail unit, as was possible with PlayStation®3 Dynamic themes, so you will need a PlayStation®4 DevKit or TestKit to view your theme.

Figure 7 Themes



Suggested Tools, Skills and Development Pipeline

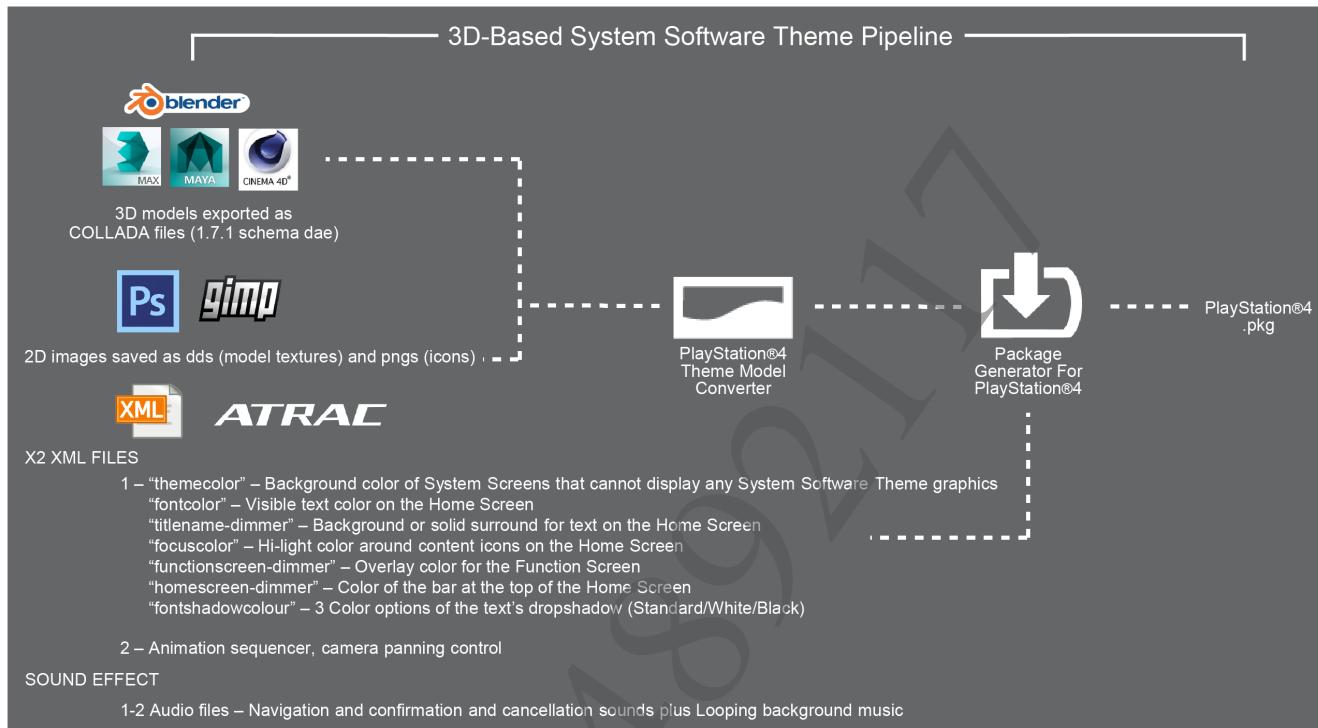
When testing a System Software Theme, it can only be reliably installed on a DevKit or TestKit in the following ways:

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- (1) Install the package via Network Neighborhood for PlayStation®4.
- (2) Install using a USB storage device. The file must be in the root directory and will not work if you place it in a PlayStation®4-themed directory structure.

Note: System software themes cannot be installed on retail PlayStation®4 systems via the Network Neighborhood or a USB storage device. You will require access to a DevKit or TestKit for testing.

Figure 8 3D-Based System Software Theme Pipeline



Themes do not need to contain 3D elements. A theme could consist of just custom icons, two background images and a looping soundtrack.

Editable Features for PlayStation®4

System Software Icons

The core editable system software icons from the **Home** screen are:

- Disc prompt icons
- Live from PlayStation®
- TV Video channel
- Browser
- Gallery
- Library
- Share Play
- USB Music Player

Note: All these icons will have a square focus surround when on the **Home** screen. You may want to factor that into your designs.

The core editable function icons are:

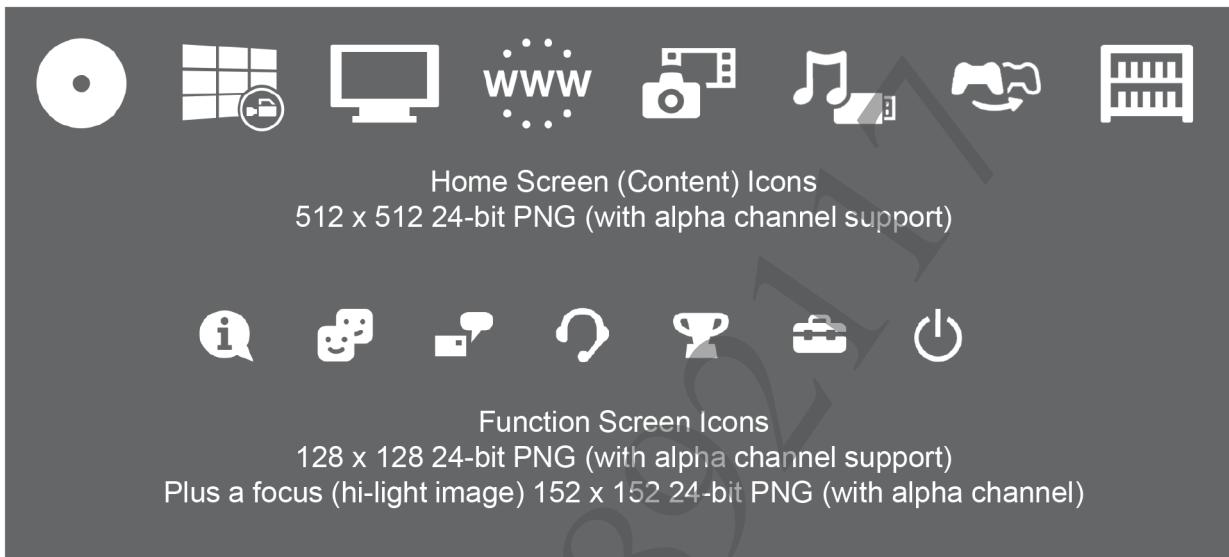
- Notification
- Friends

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- Message
- Party
- Trophy
- Settings
- Power

You have control over and can create custom highlight images to use as the focus graphic for these icons. These use images of 512 x 512 pixels (24-bit PNG with alpha).

Figure 9 13/50 System Software Icons are Editable



Embedded Background Music Supported

- BGM format: ATRAC9™ (basic tools and a plugin are provided in the SDK).
- Two choices for channel support (5.1 channel at 300 kbps, or stereo at 144 kbps).
- A single looped audio track of a maximum of four minutes in length.
The maximum file size is 10MB.

Sound Effects for Cursor Movement

- Cancel, Scroll/Move, and OK/Confirm.
- Short Clips: Scroll/Move=300ms, OK/Confirm=600ms and Cancel=600ms.
SCE recommends a volume of -18dB to avoid distortion. The latest versions of the audio tools enable you to monitor the loudness levels, for example Sound Forge 11's loudness meter plugin.

Format : HE-VAG

- Sampling Rate : 48kHz
- Channels : 2
- Loop Point : prohibition
- File Size Limit : 35KB (20KB for scroll movement sounds and 35KB for OK/Confirm and Cancel)

Note: The volume of sound effects data to be included in a theme file must be set to -18dB. When the sound effect data is too long, audio may be interrupted. To avoid this problem, keep the data as close as possible to the following lengths: Cursor, 300ms; Decide, 600ms; Cancel, 600ms.

Summary of Production and Submission Material

Production

- 13 editable icons (seven at 128 x 128 pixels, and six at 512 x 512 pixels).

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- One or two background pages (3D or 2D built to display at 1080p with support for animated textures).
- One theme thumbnail (512 x 512 pixels).
- One Home preview image (740 x 416 pixels, 24-bit PNG)
- One looped stereo / 5.1 ATRAC9™ track for background music.

Team Size

Theme creation requires a team of one to two people with the following skillset range:

- BASIC: Audio cropping.
- PROFICIENT: Use of image manipulation programs, and DCC tools.
- INTERMEDIATE/PROFICIENT: Knowledge of XML.

Production Length

Theme creation should take from one to three weeks, dependent on the skill level of the XML scripter and whether you are using optimized 3D game assets, debugging the theme, or making a 2D-based theme.

Deliverable

- A PlayStation®4 .pkg file, using an official Sony-generated Content ID number.
- Submission materials (XML file and .zip file).
- Optional:
 - Images for PlayStation®Store: two 1920 x 1080 pixel images (**Home** screen and **System** screen) and one 1080 x 1080 pixel image (Theme Thumbnail) in .png or .jpg format.
 - Optional: a 1920 x 1080 pixel video in .mp4 format.

Note: QA of themes can take up to three days to process. This should be factored into the release plan.

2 PlayStation®Vita / PlayStation®TV System Software Themes

You can build System Software Themes once for both platforms (PlayStation®Vita and PlayStation®TV)

- PlayStation®Vita themes are based on static images (up to 10 vertical pages).
- Users can individually change **Start** screen and **Home** screen.
- Users manage themes in **Settings > Themes**.

Figure 10 PlayStation®Vita / PlayStation®TV Screens



System Software Themes for PlayStation®Vita support 8-bit PNGs with transparency for the background to the **Home** screen pages, so a selected color on the background wave will show behind (or in) an image for interesting screen effects.

Figure 11 Backgrounds in 8-Bit PNG / Full Alpha Format



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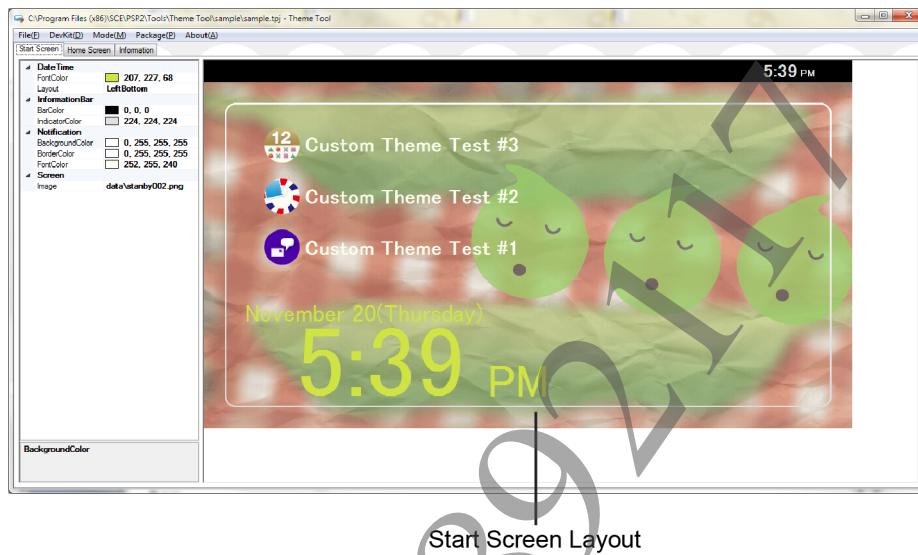
Tools for Creating PlayStation®Vita and PlayStation®TV Themes

The Theme Tool enables you to customize notification bar colors, set up to ten static backgrounds, and set a separate wave color that is displayed when moving from page to page. You can also import a looping ATRAC9™ track for inclusion as background music for the theme.

Note: Only index color PNGs can support alpha channels within an image.

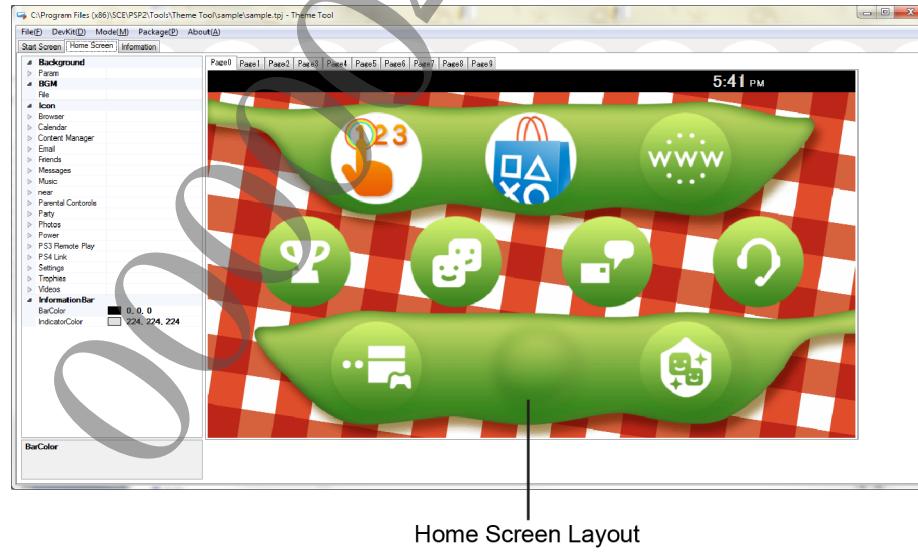
To preview your theme on a DevKit, connect the DevKit via USB and stream the theme (using Network Neighborhood for PlayStation®Vita) for inspection.

Figure 12 PlayStation®Vita Theme Tool



You can select “DevKit” in the tool UI to preview your theme on a connected PlayStation®Vita DevKit.

Figure 13 PlayStation®Vita Theme Preview

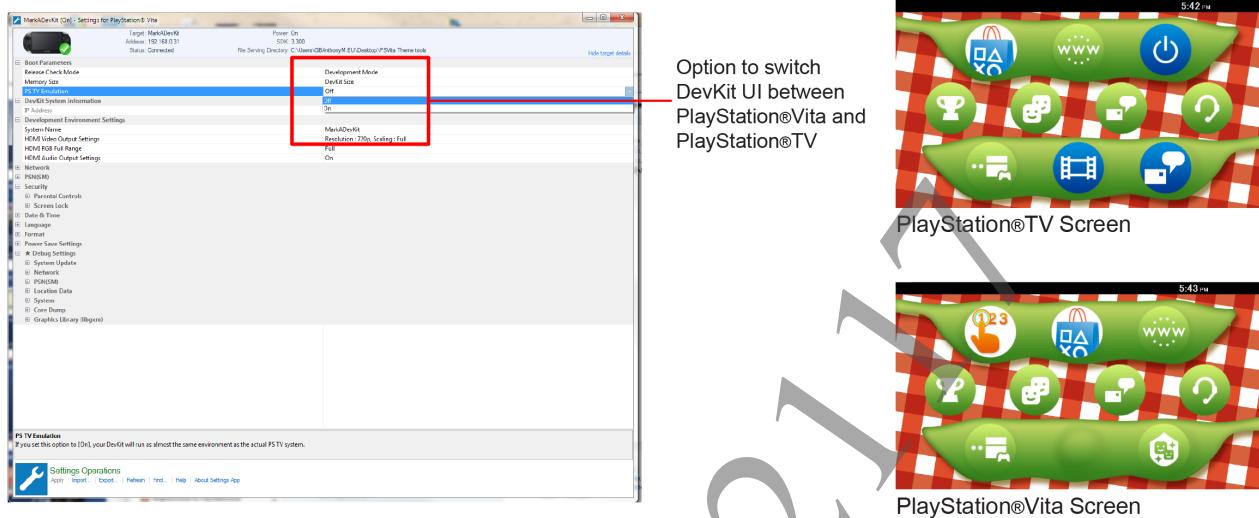


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Editable Theme Features for PlayStation®Vita and PlayStation®TV

You can change the output setting for PlayStation®Vita DevKit (within the SDK tool Network Neighborhood) as shown in Figure 14.

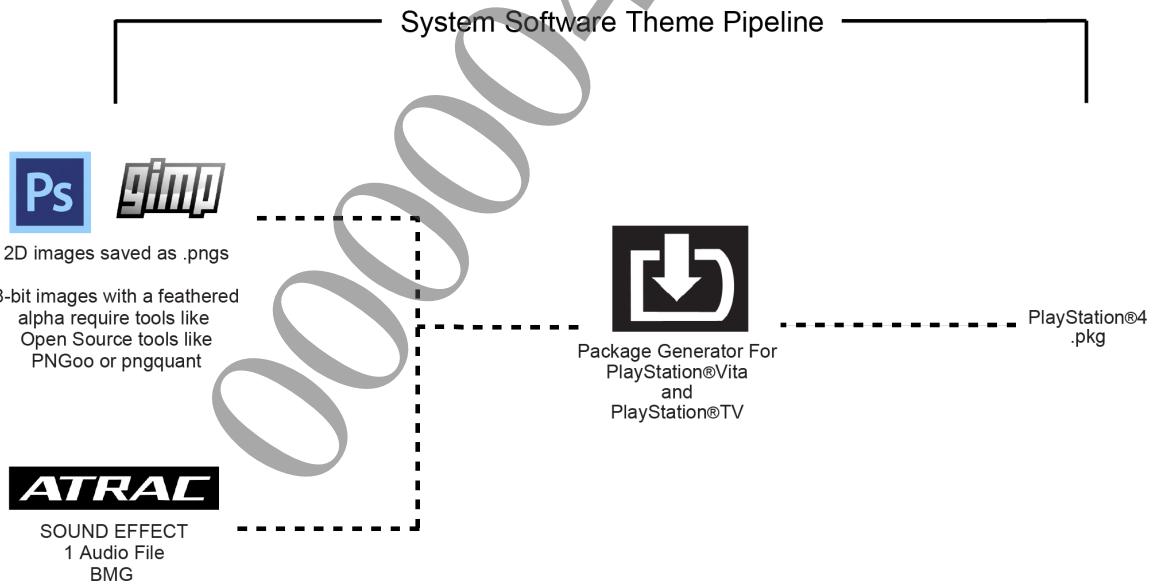
**Figure 14 Setting for the PlayStation®Vita DevKit
(within the SDK Tool Network Neighborhood)**



System Software Theme Pipeline

Adobe Fireworks supports 8-bit PNGs with full transparency. Most other image editors, including Adobe Photoshop and GIMP do not. If you are not using Fireworks and your design requires this type of PNG, there are several free tools available for OS X and Windows from <http://pngquant.org>.

Figure 15



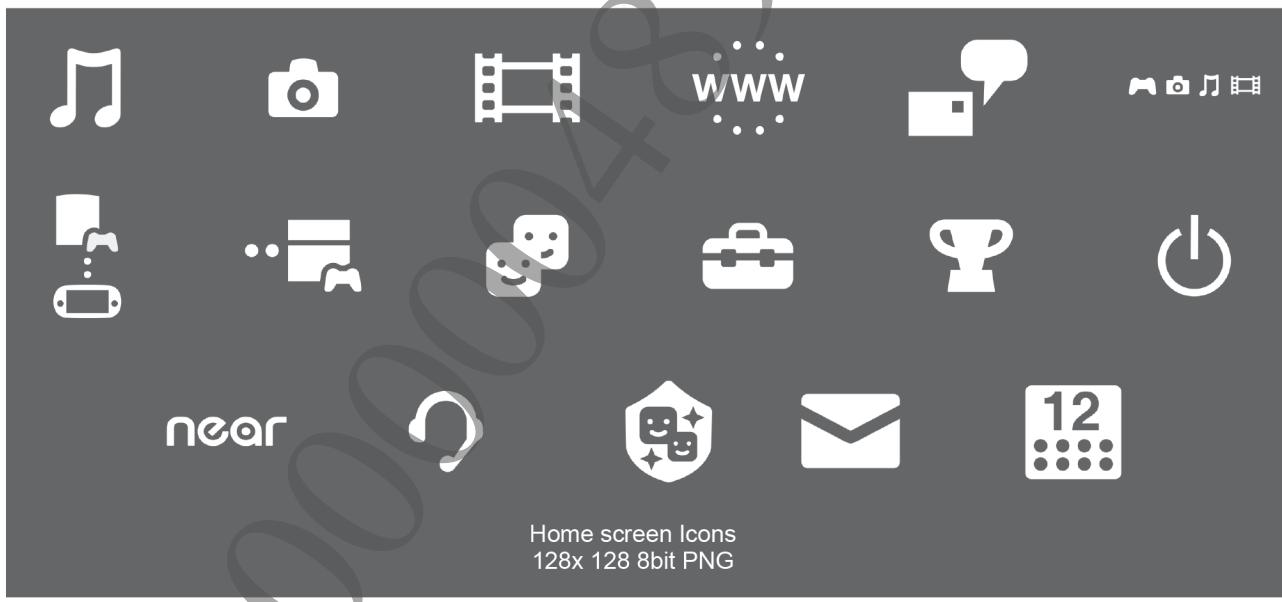
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Editable PlayStation®Vita and PlayStation®TV Icons

The core editable systems icons from the content area are:

- Music
- Photos
- Videos
- Internet Browser
- Messages
- Content Manager
- PlayStation®3 Remote Play
- PlayStation®4 Link
- Friends
- Settings
- Trophy
- Power
- Near
- Party
- Parental Controls
- Email
- Calendar

Figure 16 Editable System Icons (17 of 31)



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Important Design Considerations

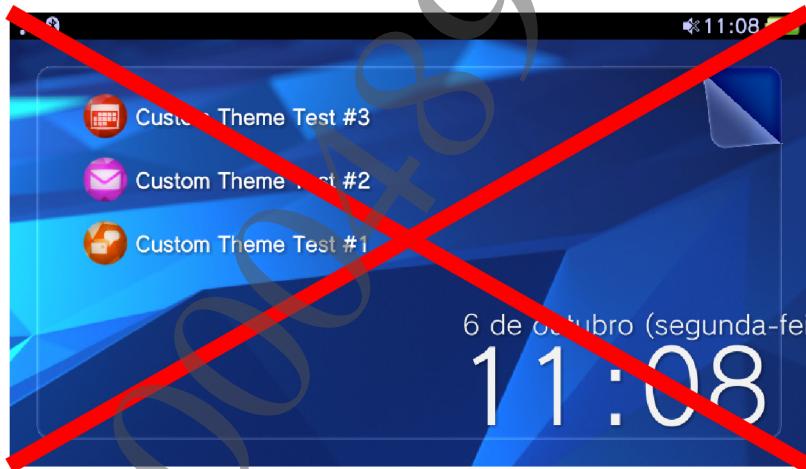
As a pack-in feature, some limited edition PlayStation®Vita systems come with preinstalled themes. There is an option in the theme editor to control where the system icons are placed by default. SCE strongly recommends that this option be used only with preinstalled theme promotions.

Figure 17 Preinstalled Theme



The Time, Day and Date can be positioned in three of the four corners on the **Start** screen (top left, bottom left, and bottom right). However, SCE advises designers to avoid placing the Day, Date, and Time in the bottom right location until a fix is made available with Firmware 3.35 (see Figure 18).

Figure 18 Display Problem with Time Placed in Bottom Right



Summary of Production and Submission Material

Production

- 17 editable icons (128 x 128 pixel indexed 8-bit .png).
- From one to 10 background pages (960 x 512 pixel indexed 8-bit .png).
- A standby screen (960 x 512 pixel index 8-bit .png).
- Two preview screens; these are preview images for a Home page and the standby screen (480 x 272 pixel indexed 8-bit .png).
- A theme thumbnail (226 x 128 pixel indexed 8-bit .png)
- A looped stereo ATRAC9™ track for background music.

Team Size of One Person

A single person requires the following skills for theme creation:

- Basic audio cropping.
- Proficient in the use of image manipulation programs (Adobe Photoshop, GIMP and so on).

The expected production length is three days:

- One to two days assets creation.
- One day for submission to Sony Computer Entertainment.

Deliverables

- A PlayStation®Vita package file, using an official system Content ID number.
- Images for PlayStation®Store: two 960 x 512 (**Home** screen and **Start** screen) and one PlayStation®Store Thumbnail (PNGs or JPGs).

Note: Quality assurance of themes can take up to three days. This should be factored into your release plan.

Current System Software Theme Features

Most of the features of dynamic themes on PlayStation®3 are already possible on PlayStation®4, with the exception of three features:

- Timed events dependent on the platform's system clock.
- Games that install or update a theme.
- Localized theme displayed according to the language setting of the platform.

Timed events are possible using the system clock and the dynamic themes JavaScript, so date or time driven effects, such as day and night cycles are not currently possible with PlayStation®4 System Software Themes.

Table 1 Current System Software Theme Features

Theme Features	PlayStation®3	PlayStation®Vita	PlayStation®4
Static Backgrounds	✓	✓	✓
Custom Icons	✓	✓	✓
Real-time 3D Backgrounds	✓	✓*	X
Custom Background Music	X	✓	✓
Animated Textures	✓	✓	X
System Clock Timed Events	✓		
Game Triggered Theme Installation	✓		
Dynamic Localized Themes	✓		

Note: PlayStation®4 custom themes can have graphics layered over and under the **Home** and **System** screen icons.