
SDK Update Release Notes: version v4.1

12/21/11

With v4.1, Roku is now supporting the “Roku 2” generation of boxes. We’ve tried to keep the Roku SDK compatible across all the different models and have highlighted hardware and SDK differences in a new Section 1.4 of the Developer Guide. Our firmware version numbering requires a little explanation as major version 3 is currently released to all “Classic” models and major version 4 is release to all “Currently Selling” models. We continue to have minor releases planned on both of these major release branches. All features from the v3.0 beta have made it into the final v3.0 and 4.1.

We understand that we haven’t exposed all the functionality the Roku 2 platform has to offer to the entire Roku Developer Community. Roku has a good track record of taking security issues seriously. There are many such issues to work through before we can expose low level OpenGL interfaces in a secure manner that the content owners in our community are also comfortable with. We are working diligently toward that end.

We appreciate all the hard work the Roku Developer Community has put into developing some great applications on the Roku platform. We are happy that the Roku 2 has been well received by the market and are looking forward to continued shared success with the Roku Developer Community and all the great new channels you can create.

The Roku Team

New in this release

- Roku 2 platform support.
- Brightscript Plugin for Eclipse
- Updated videoPlayer sample application
- All v3.0 beta features are now fully supported on classic models running v3.0 and Roku 2 models running v4.1:
 - BrightScript v3.0 that includes:
 - performance improvements
 - typed values in function parameters and returns
 - improved auto-boxing and type promotion
 - explicit programmer controlled garbage collection
 - better statement stepping in source level debugger
 - collections can include intrinsic values rather than only objects
 - 2D Graphics APIs:
 - roScreen
 - roBitmap
 - roRegion
 - roCompositor
 - roSprite
 - roAudioResource
 - roFont
 - roFontRegistry
 - roFontMetrics
 - New Platform Components
 - roSocketAddress
 - roStreamSocket
 - roDataGramSocket
 - New ECP “input” command to pass user defined input parameters to your channel.

Compatibility Issues

Please note that we have deprecated support for Macrovision and WMV video. We still have support for CGMS (Copy Guard Management System) protection for analog outputs and HDCP protection for digital output. There has been very little use of WMV video, and if anyone has content out there it can be converted to MP4 with several transcoding applications, including ffmpeg (please see our encoding guide for example usage).

SDK Update Release Notes: version 3.0 Beta 4/18/11

We're making the 3.0 Beta firmware available to all developers who request it. If your box isn't already part of the developer beta group, send a private developer forum message to RokuKevin. Include the serial number of the Roku units you would like to run the 3.0 beta on.

It is very important that all developers regression test their applications on version 3.0 and note any incompatibilities. You may need to publish an update to your application to make it compatible with v3.0.

There are some exciting new features in the v3.0 SDK that will support developers building 2D games for the Roku box. We encourage all game developers to support both HD and SD modes. About half of the Roku's out there still run in SD mode. We've added screen level scaling to support developers using one set of graphics assets and a single game engine running in both HD and SD modes.

Although v3.0 has not been released to end users yet, we are now encouraging discussion about v3.0 features on the developer forum.

The Roku Team

New in this release

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 - performance improvements
 - typed values in function parameters and returns
 - improved auto-boxing and type promotion
 - explicit programmer controlled garbage collection
 - better statement stepping in source level debugger
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 - 2D Graphics APIs:
 - roScreen
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 - roFontMetrics
- New Platform Components
 - roSocketAddress
 - roStreamSocket
 - roDataGramSocket

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- New ECP “input” command to pass user defined input parameters to your channel.

The new 2D Graphics components are considered part of the core BrightScript language and are documented in the BrightScript Reference. The new platform components are documented in the Component Reference. New v3.0 components have their own sections and new methods on previously existing components are called out with their own “Since v3.0” sections.

Compatibility Issues

BrightScript v3.0 is stricter in some ways than BrightScript v2.0. Areas in your app with variables that are used before initialized, or return statements that return a different type than specified in the function declaration may cause runtime errors in v.30 that may have run successfully in v2.0.

It is very important that all developers regression test their applications on version 3.0 and note any incompatibilities. You may need to publish an update to your application to make it compatible with v3.0.

SDK Update Release Notes: version 2.9 3/31/11

With the release of firmware v2.9 build 1553, we are excited to share our latest SDK documentation. We have added several new features that developers can take advantage of. Many of you have already seen the new Premium Developer Program. With a premium developer account you can charge for applications in the Roku channel store and Roku will handle the billing for you. To sign up for a premium developer account you simply need to provide your tax id and agree to the new terms and conditions. Our new v2.9 SDK helps support paid applications with the ability to launch the channel store to purchase your application. You can create a free “Lite” app that includes a banner ad that up-sells to a premium app. When the user clicks on the ad, the “Buy” page is launched in the channel store. There is an example of this in the roPosterScreen section of the component reference.

Please refer to the Component Reference Section 7 for an introduction to the two new components in v2.9. The roAudioMetadata component gives you access to metadata included in many audio files. It recognizes ID3 tags and supports cover art. The roImageMetadata component gives you access to metadata in image files.

Version 2.9 updates the grid component by letting the developer control the “Up” button behavior and giving developers the ability to stack grid screens without a lot of extraneous code.

Thanks for all the channels you’ve developed so far. We’re looking forward to all the new ones you’re busy working on.

The Roku Team

New in this release

- MKV playback on local USB devices.
- Developer control of the Up button behavior on the top row of the Grid Screen.
- Stackable Grid Screens.
- Channel Store can be launched to purchase “Premium” channel from within “Lite” channel
- Get ID3 tags and other metadata from your audio files
- Get EXIF and other metadata from your image files

New v2.9 components have their own section in the reference and new methods on previously existing components are called out with their own “Since v2.9” sections.

SDK Update Release Notes: version 2.8 11/18/10

It's been a short time since we last updated you, but we still have a few things worth sharing in this release of the SDK. We've added developer specified HLS stream switching strategies, new commands in the External Control API, and customizable GridScreen layouts. We appreciate your support of the Roku platform and always welcome your feedback.

The Roku Team

New in this release

- Developer controlled HLS stream switching strategies for improved playback ability.
- Multiple Grid layouts: flat-movie, flat-portrait, flat-landscape, flat-square, and flat-16x9
- Developer customized Grid Focused Border image, and Grid Description callout box image.
- Use .png and .gif images as Grid posters.
- Ability to get the Roku's IPAddress within your channel. This will enable the External Control API to be utilized directly within your channel.

New v2.8 components have their own section in the reference and new methods on previously existing components are called out with their own “Since v2.8” sections.

Compatibility Issues

We have maintained backward compatibility with the v2.7 SDK. Some have experienced video playback issues with their HLS streams. The number one issue was incorrect aspect ratios and resolutions. We've addressed most of these issues with a new v2.8 build (1158), but we have requested that any other HLS playback regression issues from v2.7 be posted to a sticky thread on our forum. We will attempt to address them all in a timely manner.

SDK Update Release Notes: version 2.7 10/7/10

This release brings several new features to the Roku SDK, as well as support for the additional hardware capabilities of the new Roku models. The new models add 1080p playback capability and a new 12 button remote control. The new remote control will come with the Roku XD and Roku XDS. The Roku HD will continue to ship a 9 button remote. However, the 12 button remote will be available for purchase separately. The 12 button remote will also work on the older Roku models, providing the installed base access to the new button capabilities with only a remote control purchase. While not all users will have the 12 button remote, we are strongly encouraging developers to add support for the three new remote control buttons.

The “Instant Replay”, is implemented entirely in the firmware and will work on all channels during video playback without any changes to developer channels. You can read more about the new remotes in the Design Guidelines document and review implementation details in the Component Reference. The “Back” button works by default on most screens, but needs to be enabled on dialogs if the screen close behavior is desired. The “Info” button is intended to provide additional

contextual information at various points within channels. It is up to developers to use the new features in the `roMessageDialog` and support the “Info” button usage pattern of launching context menus and dialogs. We have included a `simpleinfo` sample app in this release that illustrates the info button usage.

We are also introducing 1080p video playback support on the Roku XD and XDS models. Updated Information on supported encoding resolutions is included in the new *Encoding Guide*. We encourage developers to add 1080p streaming content at bitrates below 4.0Mbps.

A much anticipated addition to the SDK is the new `roGridScreen` component which presents the user with a scrolling grid as an alternative to the poster screen interface. The `simplegrid` sample app demonstrates how to use this new feature.

Below is the complete list of new features in this release. We appreciate your support of the Roku platform and welcome your feedback.

The Roku Team

New in this release

- Support for new Remote Buttons - “Back”, “Instant Replay”, and “Info” buttons support ease of use, better trick play, and contextual menus.
- 1080p playback support – When the user sets his display to 1080p, any content with meta data parameters for FullHD and a FrameRate of 24 or 30 will playback at 1080p 24 fps or 1080p 30 fps.
- Grid Component – The grid screen enables users to easily navigate large collections of content.
- External Control Protocol – The ability to control the Roku over the network. It’s now possible to create sophisticated iPhone, Android, and Blackberry apps.
- Paragraph Screen Default Menu Item – You can now control the button that is highlighted on the paragraph screen so that selection dialogs work as expected.
- Message Dialog Overlay Support – Expected to be popular when used in conjunction with the “Info” button to display contextual information.
- Content Meta-Data parameters – New parameters provide more control over video playback: min/max bandwidth, and audio stream selection.
- New Documentation Guides – The External Control Guide illustrates how to create remote control apps that work over the network. The Encoding Guide gives useful guidelines for encoding video content that is compatible with the Roku Streaming Player.
- Simpleinfo sample application - shows how to use the `roMessageDialog` with overlay on top of a `roPosterScreen` when the “Info” button is pressed.
- SimpleGrid sample application – shows how to use the `roGridScreen` component to display many rows of items.
- AudioApp sample application – adds an application screensaver.

New v2.7 components have their own section in the reference and new methods on v2.4 components are called out with their own “Since v2.7” sections.

Compatibility Issues

We have maintained backward compatibility with the v2.7 SDK. However, developers need to be aware of the new hardware models and update their channels to take advantage of the new features. If your back end services do any type of authentication based on model numbers, or you have any code that is based on model numbers you will need to update your code.

If any of your BrightScript code is enabling certain features based on model number, we have a new `roDeviceInfo.HasFeature()` method that will enable you to code this logic in a more forward-looking manner.

If you don't account for the new "Back" and "Info" buttons in your code, users may think your channel does not behave correctly.

On most screens, the back button will automatically send an event that matches the `isScreenClosed()` predicate. However, this behavior would break many modal dialogs that do not expect to receive an `isScreenClosed()` event because they are waiting for a state change or reacting to user input that must be answered. We chose not to break these channels and instead did not enable the back button by default on the `roMessageDialog` component. We did provide a method to enable the back button on `roMessageDialogs` that can successfully handle an `isScreenClosed()` event. You should survey your channel for any `roMessageDialog` components that should enable the back button with `EnableBackButton(true)`. The "Info" button will enable you to pop-up any screen of your choosing. There are two new events added to support this new button. Events matching `isButtonInfo()` return the button focus of any on screen buttons in when the Info remote key is pressed. Events matching `isListItemInfo()` return the index of the focused poster when the Info remote key is pressed. The simpleinfo sample application shows basic support for the "Info" button that also demonstrates an overlay dialog on a poster screen. When `isRemoteKey()` events are propagated to your script, the event `.GetIndex()` for the Info key is 10.

SDK Update Release Notes: version 2.6

6/28/10

The 2.6 SDK release adds a number of new components to the Roku Platform SDK and introduces a new user interface for developers on the Channel Store for managing your channels.

The Channel Store Developer Site now provides support for managing application dependencies based on minimum required firmware version or hardware capabilities. For example, if your application requires the features of a specific firmware release or a hardware feature, you can specify this dependency and ensure your application is only published to the correct systems. We recommend studying the Channel Packaging and Publishing Guide for more information about the Channel Store versioning support.

We have added a number of new components to the SDK and expanded the API's for some of our existing components. Be sure to check out the new `rolmageCanvas` component, which allows much greater freedom for laying out custom types of screens. We've also added API's to open up the USB port on the Roku XR for developers, support for HTTP Live Streaming, plus many other new features.

We hope you enjoy these new features and we're anxious to see the new types of applications that you develop with these capabilities. Thanks again for your support.

The Roku Team

Compatibility Issues

The 2.6 SDK release adds additional events. Please be sure your event loops ignore unknown events. If your code is exiting event loops rather than just ignoring unknown events your application may have undefined behavior.

Important Notes

- Please review the Channel Packaging and Publishing guide for more information about the new versioning support and how it impacts your application deployments in the Channel Store.
- We have changed the behavior of the Home remote control key. In v2.6, it now immediately kills your application and returns to the home screen. If your app was previously relying on a graceful application exit to do cleanup and bookkeeping, you will need to modify your application. You will want to modify your app to periodically update playback positions, positions in poster screens, search results, etc. This should not wait until application exit, as that could happen to you at any time.

New in this release

- HTTP Live Streaming (HLS) – This is Roku's implementation of Apple's adaptive bitrate streaming solution. This feature provides support for both windowed, "live" and adaptive bit-rate VOD streaming capabilities.
- Image Canvas Screen – A clean slate for creating custom screens. This object will allow you to place text and graphics wherever on the screen you desire. You can see an example in the SDK clock sample app.
- Custom Font Support – Include your own TrueType (TTF) or Open Type (OTF) fonts in your application for use on the Image Canvas.
- CA-Cert Bundle – For applications that refer to many different feeds, we've included a collection of CA-Certs that is the trusted set from the FireFox browser in a common filesystem. Any application can now easily trust this same set without increasing the size of its package.
- Customizable Video Player – A video player that allows you play a video in a region on the screen and/or programmatically control playback. When used in conjunction with Image Canvas, you can combine video, images and text on a single screen.
- USB support – For those of you that have Roku XR boxes or want to develop applications that make use of USB storage. Basic support for USB hotplug events and automounting of USB volumes is included in v2.6. Support for a variety of USB devices and the VFAT, NTFS, HFS and HFS Plus file systems.
- File System access – You will be able to enumerate available file systems and access the content stored on them.
- SRT subtitle support – If the content you are playing has an available SRT file for subtitles, enabling subtitle display will be as simple as specifying a path to the SRT file.
- ScreenSavers – Create standalone screen saver applications that can run whenever the Roku Streaming Player is idle or create a custom screen saver for your Channel.
- Perl-Compatible Regular Expressions – String manipulation just got a whole lot easier!
- Application Logging Support – It's now easier to gather statistics in your application and send them back to your own logging server.

There are lots of other changes in this release and these are just some highlights that we wanted to specifically mention. Please check the Component Reference for additional details. New v2.6 components have their own section in the reference and new methods on v2.4 components are called out with their own "Since v2.6" sections.

SDK Update Release Notes: version 2.4

12/17/09

This release unites our Channel Store development activities with the SDK. There are a few implications for developers during the transition that we'd like to highlight.

Our legacy applications will not appear on the player until it syncs to our Channel Store. The Channel Store is not yet deployed in Production, so Netflix and Amazon will not appear on your player after the upgrade. These apps will eventually reappear on your players as the backend services are upgraded.

We've provided this firmware update early so that you have an opportunity to develop with this release before the Channel Store beta is available. After you update your software build, the only features that will be visible on the home screen will be Settings and any developer application that you've installed manually.

We plan to distribute at least one more SDK release before we get to feature complete for the launch, so we're still adding more features and fixes on your behalf. We think that most of these enhancements are things that will be useful to a wide variety of developers.

Thanks again for your support!

The Roku Team

Compatibility Issues

There have been significant changes to our file system API's. We've implemented these changes so that they are backward compatible for a limited time. Any deprecated API calls will be displayed in the debugger with a warning message. The samples applications were updated to use the new file specification format. Please refer to the BrightScript and Component Reference manuals for more information. Backward compatibility will be removed in the next release, so please update as soon as possible.

Update Instructions

The Roku player will automatically update to the new version within the next 1-2 days.

We hope you force your player to download the new version immediately by following these steps

- 1) Press the HOME button on the remote control.
- 2) Use the arrow keys to highlight the **"settings"** icon and press the SELECT button.
- 3) Press the right arrow several times until you see **"player info"** and press SELECT.
- 4) Highlight **"check for update"** and press SELECT.
- 5) SELECT **"yes"**.
- 5) Wait for the software to download, and then SELECT **"ok"** to restart.

Note: If you already have the new version, a message will appear letting you know your version is current.

Important Notes

- This release includes new tools for packaging your application for deployment. Included in the SDK is the ChannelPackagingAndPublishing document. This document provides a step-by-step guide to the packaging process. Please be sure to review this document, since it will answer many questions about how applications will be deployed onto the Channel Store.

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- The Channel Store linking screen is included in this release and there are a few situations you could encounter it and get stuck. If you reset your box to factory defaults or change your network settings, this could occur. We don't want you to link your box at this time, so we've provided the following instructions to help you bypass this screen if necessary.

Display the secret screen using the following key sequence:

Home 5x
FastForward 3x
Rewind 2x

After pressing this key sequence, the "secret screen" will appear. Select the "cycle channel store server" option until the text "<bypass account linking>" is displayed and then press the "back" button to exit the screen.

The software update options on this screen are controlled via the server and are not functional for developers. Just ignore these options, since they won't work anyway.

New in this release

- **Documentation:** There continue to be lots of changes to the documentation set, mostly to the Component Reference manual. The documentation has been reformatted with section numbers to make cross-referencing easier. New features have been added and additional details were provided on some video playback topics. The new file system changes are included as well as lots of API updates. There are several new docs in the set, such as the Channel Packaging and Publishing document mentioned above.
- **More Theme Attributes** – We added quite a few more attributes changing colors within the UI. The paragraph and registration screens now support color attributes, as well as font color changes to the buttons and filter banners. These still work the same way as they have in the past and allow you to set an HTML Hex color value to override the default color scheme.
- **Flexible Image Scaling** – We've added new scaling options for artwork that's used in the Poster Screen, Slide Show or Banner Ads. The new options allow you to specify how you'd like odd-sized artwork scaled to fill the destination area.
- **Image Styles** – We've added additional styles to several screens for 16x9 and square aspect ratio artwork. There are more changes in the works in this area, which will be coming soon. Many of you have different size and aspect ratio artwork and providing more types of frames, plus better scaling capabilities will help to take advantage of all the existing artwork out there.
- **Display Mode API** – Many developers have asked how they can find out the current display mode for the device. Check out the roDeviceInfo component for new API's to access info about the users display settings.

There are lots of other changes in this release and these are just some highlights that we wanted to specifically mention. Please check the documentation for additional details.