



iOSPlayer

Operations Guide

Introduction

RayV iOS Player is built with the same core components as other RayV players but has special behavior related to mobile devices and more specifically to Apple iOS platform. This document assumes prior knowledge of the RayV system and RayV desktop players.

RayV iOS Player itself is built on top of the RayV Player SDK for iOS. This means that this document applies to RayV iOS Player or any other player that is using RayV Player SDK for iOS.

Local Http Live Streaming

Apple iOS devices use [Http Live Streaming](#) (HLS) for streaming live amount of audio and video. RayV iOS Player translates RayV P2P protocol to HLS in order to be compatible with iOS devices. The translation is done locally on the device so RayV iOS Player can play standard RayV P2P channels without the need for any gateway or other type of special server. The advantages of such approach include:

- Standard HLS protocol allows using standard iOS media player with all the standard user interface and features.
- Efficient hardware accelerated media decoding and rendering allowing live channels with high quality on relatively on devices that are not as strong as modern desktop computers.

There are also some limitations enforced by using HLS:

- There is a slight increase in buffering time, compared to desktop players, since iOS has its own jitter buffers when it receives the translated HLS stream.
- HLS is using MPEG-TS files carried over HTTP and sometimes does not respond well to files with missing video samples. Therefore the iOS Player ignores all video samples that arrive after a missing video sample, until the next key frame. This means that in the event of packet loss, the user will see the video freezing and then skipping and continuing.

Supported iOS Devices

RayV iOS Player supports all iOS devices and is built as a universal binary for both ARM6 and ARM7 instructions set. However some of the devices have more limited CPU power and H.264 decoding abilities. Look at the Distributor Configuration

As any other RayV Player the RayV iOS Player works with a preconfigured distributor. Based on the preconfigured distributor the player retrieves the channel list from two related distributors:

- iPhone/iPod: distributor_smartphone (for example rayv_smartphone)
- iPad: distributor_tablet (for example rayv_tablet)

Channel Media Configuration section for more details on what type of channels each device can support.

Supported iOS Versions

The RayV Player SDK for iOS support iOS 3.0 (the version that introduced HLS) or higher. However iOS 3.X has some issues with HLS support:

- iOS 3.X have around 10 seconds buffering time, on top of RayV buffering time. This was reduced in iOS 4.X to 3 seconds.
- iOS 3.0 and 3.1 have a very limited video playback API that can hurt the user experience, for example video can only be displayed in full screen.
- iOS 3.2 on iPad has a bug that causes it to reboot when receiving certain, but perfectly standard, H.264 streams.

Therefore the RayV iOS Player runs only on iOS 3.2 or higher and it is highly recommended to use it with iOS 4.0 or higher.

GridService Considerations

RayV iOS Player connects to the Grid Service with the product name 'viosiphone' for iPhone/iPod Touch and 'viosipad' for iPad. It will download from amplifiers and viewers but will never upload for the following reasons:

- Preserve battery life.
- Limited CPU power on low end devices.
- Cost of cellular bandwidth.

Future versions of RayV iOS Player might change this and will do upload but currently upload is hardcoded to be off, even when viewing a channel. In addition the Grid Service has rules configured for not returning iOS players as amplifiers.

Distributor Configuration

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Channel Media Configuration

iOS devices are more limited in their bandwidth and media support than desktop computer so channels that are to be used on such devices need to be configured carefully.

Apple published [Recommended Encoding Settings for HTTP Live Streaming Media](#).

The most important settings are:

- H.264 Baseline Profile Level 3.0 (no b-frames) for iPhone and iPod Touch. Although newer devices supports more efficient profiles this is required to support the older devices.
- Maximum bitrate of 300kbps (audio and video) for iPhone and iPod Touch. This is a bitrate which has good enough quality for iPhone/iPod small screen and still is low enough for older devices slower CPU.
- H.264 Main Profile Level 3.1 for iPad.
- 700kbps bitrate (audio and video) provide good enough results for iPad screen size.
- Key frame every 3 seconds for all iOS devices for faster recovery from video packet loss.

Channel Security

RayV iOS Player does not yet support the subscription proxy. It can play channels that are configured to work in standalone mode even if they have container security enabled.

Cellular Data Support

RayV iOS Player can work with both WiFi and cellular data. While RayV iOS Player is running it keeps the connection to the Grid Service even when not playing a channel.

In order to prevent a situation in which the player uses cellular data and then keeps working with cellular data even when WiFi is available, the player will always try to switch to using WiFi if its available. When the player is idle (not playing a channel) and connected to the Grid Service via cellular data, the player will check if WiFi is available, and if so it will then will disconnect from the Grid Service and reconnect using WiFi.

Support Information

The iOS Player is designed with an easy to use interface but if something goes wrong there are many ways to get some useful information:

- When the loading a channel, or buffering, a double tap on the progress indicator will display a more technical player status display.
- Tapping 5 times on the progress indicator will display a small information button on the player. Tapping this button will display peer-to-peer information on the player. Double tapping an item in the peer-to-peer list will remove this display.
- Detailed support information can be viewed in the Support Information option within the settings menu. This information is similar to the support information found in the desktop players and includes version, connection, bandwidth and other information.