


RDKV Hybrid

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Overview

RDK-V Hybrid devices provide a common method to manage complex video functions such as tuning, conditional access, DRM, and stream management. RDK accelerates the deployment of next-gen video products and services and simplifies the customization of the application and user experience.

Features

RDK is a community-based project that allows developers, vendors and cable operators to use a defined stack of software on one layer in order to provision set-top boxes and gateways. Unique features of RDK such as **commitment to open source**, **speed** and **flexibility** of RDK-based devices makes it stand out from the conventional settop software stacks.

The RDKV standardized stack provides a common method to manage complex video and management functions such as rendering, content, content security, device management, networking, & peripherals.

The RDKV Feature List is categorized by the below functions, Enhancements and new features are developed and contributed asynchronously by members of the RDK Community.

Category	Feature	Description	Supported by IP STB /Hybrid STB/TV	Dependency (If any)
Conditional Access	Conditional Access	CommScope CableCard Decrypt, PPV Ready	Hybrid STB	Device Dependency
		Technicolor CableCard Decrypt, PPV Ready	Hybrid STB	Device Dependency
		CI++	Hybrid STB	Device Dependency /Region dependency
	DRM	PlayReady 2.5 integration	IP STB, Hybrid STB, and TV	
		CDMi with PlayReady 2.5 integration EME v1	IP STB, Hybrid STB, and TV	
		CDMi with Widevine v14 integration	IP STB, Hybrid STB, and TV	
		Support HTML5 encrypted video via EME v3 for Widevine		
	DTCP	DTCP integration	Hybrid STB-media client	
	Device Security	Input sanitization	IP STB, Hybrid STB, and TV	

Content Related		Upgrade to OpenSSL 1.1.1l	IP STB, Hybrid STB, and TV	
		Upgrade to NTP 4.2.8.p11	IP STB, Hybrid STB, and TV	
		Disable USB Input HID Device	IP STB, Hybrid STB, and TV	Device Dependency
		Run applications in a secure container	IP STB, Hybrid STB, and TV	
		Secure bootloader	IP STB, Hybrid STB, and TV	Device Dependency
	Adaptive Bit Rate	HLS (HLS v3 and HLS v4)	IP STB, Hybrid STB, and TV	
		MPEG-DASH	IP STB, Hybrid STB, and TV	
		HTML-5 Video (MSE/ESE)	IP STB, Hybrid STB, and TV	
		MPEG-DASH (Native)	IP STB, Hybrid STB, and TV	
	Audio Output Formats	Stereo	IP STB, Hybrid STB, and TV	
		Dolby Digital	IP STB, Hybrid STB, and TV	
		Dolby ATMOS	IP STB, Hybrid STB, and TV	
		Dolby Digital Plus (7.1 Channels)	IP STB, Hybrid STB, and TV	
		Split HDMI and SPDIF audio outputs	IP STB/Hybrid STB /TV- CHECK	
		Bit stream Pass-through	IP STB, Hybrid STB, and TV	
		Dolby MS12	IP STB, Hybrid STB, and TV	Device Dependency
	Audio Tracks	SAP, DVS	IP STB, Hybrid STB, and TV	
	Codecs	MPEG2, H.264, VP8	IP STB, Hybrid STB, and TV	
		High Efficiency Video Coding (HEVC) (H.265/MPEG-H Part 10)	IP STB, Hybrid STB, and TV	
		HDR 10 Bit (HEVC HLS) for IP settop	IP STB, Hybrid STB, and TV	Device Dependency
	Captions	608, 708		
	Delivery	Broadcast, Video on Demand	IP STB, Hybrid STB, and TV	
		Switched Digital Video	IP STB, Hybrid STB, and TV	
		Video over Wi-Fi Ready	IP STB, Hybrid STB, and TV	Device Dependency
		Secondary Audio Output to Bluetooth devices		
		IP Multiroom Music Playback (STB to Speakers)	IP STB, Hybrid STB, and TV- CHECK	
	DVB	Broadcast DVB support	IP STB, Hybrid STB, and TV	
		Teletext, Subtitles	IP STB, Hybrid STB, and TV	
		In-Band System Information	Hybrid	
	EAS	QAM EAS	Hybrid	
	UHD/4K	RDKServices for 4K and HDR capability information across devices	IP STB, Hybrid STB, and TV	Device Dependency
		Supports IP Time Shift Buffer for DASH Linear content		

Content Delivery	Video Output Resolutions	480i, 480p, 720p, 1080i, 1080p, 4k	IP STB, Hybrid STB, and TV	
		Ultra HD/4K, Advanced High Dynamic Range (HDR)	IP STB, Hybrid STB, and TV	Device Dependency
		Dolby Vision Advanced HDR for VOD	IP STB, Hybrid STB, and TV	Device Dependency
		HDR 10	IP STB, Hybrid STB, and TV	Device Dependency
	Video Over WiFi	UPnP	IP STB, Hybrid STB, and TV	
	VOD	QAM VOD, IP VOD	IP STB, Hybrid STB, and TV	
Ad Insertion	Ad Insertion	Client Side Ad Insertion (Linear Segmented Advertisement)	IP STB, Hybrid STB, and TV	
		Server side Ad Insertion	IP STB, Hybrid STB, and TV	Cloud Dependency
	Ad Insertion – Linear Segmented Advertising	LSA support for ad content read failure	IP STB, Hybrid STB, and TV	Cloud Dependency
		LSA support for back-to-back ads	IP STB, Hybrid STB, and TV	Cloud Dependency
	IP DAI	Handle DASH IP VOD Dynamic Ad Insertion (DAI) Transitions	IP STB, Hybrid STB, and TV	Cloud Dependency
Rendering	Advertising Impressions/ Ad Watermarking	Monitor primary tuner for ETV Ad Data, report upstream	IP STB/Hybrid STB /TV- CHECK	Cloud Dependency
	APIs	RDKServices	IP STB, Hybrid STB, and TV	
	App Framework	AAMP / RDK MediaPlayer integration	IP STB, Hybrid STB, and TV	
		AAMP Buffer health monitoring	IP STB, Hybrid STB, and TV	
		AAMP support for VTT caption tracks		
		Lightning	IP STB, Hybrid STB, and TV	
		Firebolt ® SDK download from USB	IP STB, Hybrid STB, and TV	
		Application manager	IP STB, Hybrid STB, and TV	
		Firebolt ®	IP STB, Hybrid STB, and TV	
		Use westerossink by default to improve video quality		
	Browser Engine	QT WebKit	IP STB, Hybrid STB, and TV	
		WebKit Pure Embedded integration	IP STB, Hybrid STB, and TV	
	Connection Security	SSL/TLS	IP STB, Hybrid STB, and TV	
	Graphics	OpenGL ES	IP STB, Hybrid STB, and TV	
	Plugins	WebRTC	IP STB, Hybrid STB, and TV	
	Rendering	Westeros Wayland Based Compositor	IP STB, Hybrid STB, and TV	
	WPE WebKit	WPE	IP STB, Hybrid STB, and TV	
Device Management	Bluetooth Audio	Optimize Bluetooth Discovery & Pairing	IP STB, Hybrid STB, and TV	
	Build	Yocto 3.1 Dunfell	IP STB, Hybrid STB, and TV	
	Download	TFTP (CDL), HTTP	IP STB/Hybrid STB /TV	

		Download Enhancements (% download, Log timestamps)	IP STB/Hybrid STB /TV	
	Feature Control	Securing RFC parameters via encryption	IP STB/Hybrid STB /TV	
	Firmware Download Enhancements	Omit IP Address From Xconf Firmware Download Request	IP STB/Hybrid STB /TV	
	Image Compression	Brotli Firmware Image Compression	IP STB/Hybrid STB /TV- CHECK	
	Initialization & Resets	Remote Reboot, Warehouse Reset, Factory Reset	IP STB/Hybrid STB /TV	Cloud Dependency
		Detect & log absence of RF signal within 30s of boot (Thermo)	Hybrid STB	
		Boot Time Optimization (Phase 1) –Approx 5% reduction in Boot Time	IP STB/Hybrid STB /TV	
		Boot Time Optimization (Phase 2) – 20% reduction in Boot Time	IP STB/Hybrid STB /TV	
	Local Diagnostics	HTML Diagnostics	IP STB/Hybrid STB /TV	
		Tuner Reservation Diagnostics	Hybrid STB	
		Front Panel LED	IP STB/Hybrid STB /TV	
	Logging	TFTP Log Upload, HTTP Log Upload	IP STB/Hybrid STB /TV	Cloud Dependency
		Distribute (smear) logging uploads (dependent on XCONF Server)	IP STB/Hybrid STB /TV	Cloud Dependency
	Memory Optimization	Use Flash/SD Card for Firmware Download Temporary Storage (CDL scratchpad)	IP STB/Hybrid STB /TV	Device Dependency
	MoCa 2.0	Supports MoCa 2.0 diagnostics	Hybrid STB	Device Dependency
	Platform Enhancements	Common WiFi HAL for RDK Video	IP STB/Hybrid STB /TV	Device Dependency
		Converge to GCC V6.4 for all Yocto versions	IP STB/Hybrid STB /TV- CHECK version	Device Dependency
		Suspends time shift buffer on transitions to new content	CHECK	
		Uniform flash mounting services for Video devices	CHECK	
		Dynamic DNS : Standardization based on broadband-forum	IP STB/Hybrid STB /TV	
	Power	Standby, Light Sleep	IP STB/Hybrid STB /TV	
		Deep Sleep on IP Clients	CHECK	Device Dependency
	Power Save	Supports ability to enable HDMI port while in standby mode	IP STB/Hybrid STB /TV	
	Remote Management	TR-069, TR-135	IP STB/Hybrid STB /TV	Cloud Dependency
		SNMP v3	Hybrid STB	
		SNMP Security Hardening	Hybrid STB	
		WebPA (QAM Clients)	Hybrid STB	
		ssh (secure shell into the device)/ reverse ssh (send trigger to have device initiate ssh)	IP STB/Hybrid STB /TV	Cloud Dependency
		Feature Control (Remotely enable/ disable individual features on devices without new code deployment)	IP STB/Hybrid STB /TV	Cloud Dependency
	Resource Optimization	Improved handling of app termination/suspension conditions (based on available memory rather than concurrency)	IP STB/Hybrid STB /TV	
	Revenant	Persistent WiFi Enable/Disable	IP STB/Hybrid STB /TV	
	Security	Intrusion Detection	IP STB/Hybrid STB /TV	
	Self Healing	Supports hardware self test	IP STB/Hybrid STB /TV	Device Dependency
		Thermal Monitoring and Shutdown	IP STB/Hybrid STB /TV	

	Self Test	Self Test App	IP STB/Hybrid STB /TV-C	Device Dependency
		Hardware Self Test via WebPA	IP STB/Hybrid STB /TV	Device Dependency
	Telemetry	TR-181 Object Telemetry	IP STB/Hybrid STB /TV	Cloud Dependency
		IP Video Telemetry	IP STB/Hybrid STB /TV	
	Tools	DOCSIS Spectrum Analyzer	Hybrid STB- CHECK	
	WiFi Band & AP Steering	Configurable WiFi Roaming Settings	CHECK	
		Dual Band WiFi	CHECK	
Networking	DLNA	VidiPath (DNLA CVP-2)	Hybrid STB-media client	
	DSG	DOCSIS ready	Hybrid STB	
	LAN IP	Auto IP, DHCP, Dual Virtual	IP STB/Hybrid STB /TV	
	MOCA	MOCA 2.0 support on the home network	Hybrid STB-media client	Device Dependency
	WAN IP	eCM IPv4/IPv6,	Hybrid STB	
		eSTB IPv4	IP STB/Hybrid STB /TV	
		IPv6 for IP clients	IP STB/Hybrid STB /TV	
	Wi-Fi	Onboard/Recovery SSID (Lost+Found) Ready	IP STB/Hybrid STB /TV- CHECK	Device Dependency
		WPA Enterprise (IP setup to use Wi-Fi 802.1x authentication) Ready	CHECK	Device Dependency
Ports /Peripherals	Audio Output Ports	HDMI, SPDIF, Composite Ready	IP STB/Hybrid STB /TV	Device Dependency
		Bluetooth Audio Output Ready	IP STB/Hybrid STB /TV	Device Dependency
	HDMI	HDMI Out, HDCP Enforcement,	IP STB/Hybrid STB /TV	
		HDMI Consumer Electronics Control (HDMI-CEC) Power Sync	IP STB/Hybrid STB /TV	
		HDMI Switching (Combine CEC and HDMI Input features to enable advanced switching)	IP STB/Hybrid STB /TV	
	USB	WebRTC Camera Ready	IP STB/Hybrid STB /TV	Device Dependency
		USB Port Detection and Control Ready	IP STB/Hybrid STB /TV	Device Dependency
		USB Camera Support Ready	IP STB/Hybrid STB /TV	Device Dependency
		WebRTC HW acceleration for encode/decode to enhance performance	IP STB/Hybrid STB /TV	
		USB Filesystem Support	IP STB/Hybrid STB /TV: CHECK	
		USB Hot-plug	IP STB/Hybrid STB /TV: CHECK	
	User Input	IR Remote	IP STB/Hybrid STB /TV	
		BLE Remote	IP STB/Hybrid STB /TV	
		RF Remote	IP STB/Hybrid STB /TV	Device Dependency
		Voice Remote (RF4CE based) Ready	IP STB/Hybrid STB /TV	Device and Cloud Dependency
	Video Output Ports	HDMI, Component, Composite	IP STB/Hybrid STB /TV	

Apps	Premium Apps	Netflix, Youtube, Amazon Prime	IP STB/Hybrid STB /TV	Device Dependency
	Lightning/HTML Apps		IP STB/Hybrid STB /TV	
	Appstore		IP STB/Hybrid STB /TV	
Voice support	Voice enabled Bluetooth remote		IP STB/Hybrid STB /TV	
	Voice Assistant		IP STB/Hybrid STB /TV	



Hardware Porting Guide

If you are a SoC or OEM trying to get RDK-V IP running on your device/platform, please refer the following hardware Porting guide

[Porting Guide](#)



Hardware Deployment Guide

If you are an Operator/CE manufacture trying to make an RDK-V IP deployment-ready, please refer the following deployment guide

[Deployment Guide](#)



Available Devices

For details of available SoC reference platforms, White labeled boards and Accelerator devices with RDK-V IP ported on them, please follow the below link

[Available Devices](#)



User Interface

To know about the details of RDK-V IP User Interface(UI) and how to integrate UI on your device/platform, please follow the below RDK-V IP UI link

[User Interface](#)

