Audio Output Matrix

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Release Note: This document can be shared with customers.

Android Audio Output Matrix

The audio output format on Broadcom's Android STB dynamically changes based on several factors:

- Capability of A/V receiver or TV reported over HDMI EDID
- Surround sound setting in Android TV Settings
- Encoding of audio content
- Dolby features included in Broadcom STB
- The following tables summarize the output formats for Exoplayer based playback and Netflix playback.

Android P with ExoPlayer - No Dolby Support

Surround				Audio Content			
sound setting	EDID	Output	Others	Dolby Digital	Dolby Digital Plus		
	Dolby Digital Dive	HDMI	PCM	DD passthrough	DD+ passthrough		
	Dolby Digital Plus	SPDIF	PCM	DD passthrough	no output		
	Dalby Digital	HDMI	PCM	DD passthrough	no output		
At-o	Dolby Digital	SPDIF	PCM	DD passthrough	no output		
Auto	No Dolby	HDMI	PCM	no output	no output		
	ForceAC3 set (default)	SPDIF	PCM	DD passthrough	no output		
	No Dolby	HDMI	PCM	no output	no output		
	ForceAC3 cleared	SPDIF	PCM	no output	no output		
	Dolby Digital Dive	HDMI	PCM	DD passthrough	DD+ passthrough		
	Dolby Digital Plus	SPDIF	PCM	DD passthrough	no output		
Alwaya	Dolby Digital	HDMI	PCM	DD passthrough	no output		
Always	Dolby Digital	SPDIF	PCM	DD passthrough	no output		
	No Dollay	HDMI	PCM	no output	no output		
	No Dolby	SPDIF	PCM	DD passthrough	no output		
	Dolby Digital Dive	HDMI	PCM	no output	no output		
Never	Dolby Digital Plus	SPDIF	PCM	no output	no output		
	Dollar Digital	HDMI	PCM	no output	no output		
	Dolby Digital	SPDIF	PCM	no output	no output		
	No Dollar	HDMI	PCM	no output	no output		
	No Dolby	SPDIF	PCM	no output	no output		

Android P with ExoPlayer - Dolby MS10/MS11 Support

				Audio Cont				
Surround sound setting	EDID	Output	Others Dolby Digital ro.nx.media.disable_ac3_passthru Digital				Comments	
Secting				0 (default)	1	Plus		
	Dolby Digital	HDMI	PCM	DD passthrough	DD	DD+		
	Plus	SPDIF	PCM	DD passthrough	DD	DD	DD+ converted to DD in HAL	
	Dolby	HDMI	PCM	DD passthrough	DD	DD	DD+ converted to DD in HAL	
	Digital	SPDIF	PCM	DD passthrough	DD	DD	DD+ converted to DD in HAL	
Auto	No Dolby ForceAC3	HDMI	PCM	no output	PCM	PCM	DD+ decoded by OMX Codec, DD decoded to PCM in HAL	
	set (default)	SPDIF	PCM	DD passthrough	DD	PCM	DD+ decoded by OMX Codec	
	No Dolby	HDMI	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
	ForceAC3 cleared	SPDIF	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
	Dolby Digital Plus	HDMI	PCM	DD passthrough	DD	DD+		
		SPDIF	PCM	DD passthrough	DD	DD	DD+ converted to DD in HAL	
Always	Dolby Digital	HDMI	PCM	DD passthrough	DD	DD	DD+ converted to DD in HAL	
Always		SPDIF	PCM	DD passthrough	DD	DD	DD+ converted to DD in HAL	
		HDMI	PCM	no output	PCM	PCM	decoded to PCM in HAL	
	No Dolby	SPDIF	PCM	DD passthrough	DD	DD	DD+ converted to DD in HAL	
	Dolby Digital	HDMI	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
	Plus	SPDIF	PCM	РСМ	PCM	PCM	DD+/DD decoded by OMX Codec	
Never	Dolby Digital	HDMI	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
		SPDIF	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
	No Dolby	HDMI	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
	אטוטט טווטץ	SPDIF	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	

Android P with ExoPlayer - Dolby MS12 Support

				Audio Con				
Surround sound setting	EDID	Output	Others	Dolby Digi t ro.nx.media.disable_a		Dolby Digital	Comments	
setting			Others	0 (default)	1	Plus		
	Dolby Digital	HDMI 5.1 DD+		DD passthrough	5.1 DD+	5.1 DD+	re-encoded to DD+ in HAL	
	Plus	SPDIF	5.1 DD	DD passthrough	5.1 DD	5.1 DD	re-encoded to DD in HAL	
	Dolby	HDMI	5.1 DD	DD passthrough	5.1 DD	5.1 DD	re-encoded to DD in HAL	
	Digital	SPDIF	5.1 DD	DD passthrough	5.1 DD	5.1 DD	re-encoded to DD in HAL	
Auto	No Dolby ForceAC3	HDMI	PCM	no output	PCM	PCM	DD+ decoded by OMX Codec, DD decoded to PCM in HAL	
	set (default)	SPDIF	5.1 DD	DD passthrough	5.1 DD	5.1 DD	DD+ decoded by OMX Codec, re-encoded to DD in HAL	
	No Dolby ForceAC3 cleared	HDMI	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
		SPDIF	5.1 DD	5.1 DD	5.1 DD	5.1 DD	DD+/DD decoded by OMX Codec, re-encoded to DD in HAL	
	Dolby Digital Plus	HDMI	5.1 DD+	DD passthrough	5.1 DD+	5.1 DD+	re-encoded to DD+ in HAL	
		SPDIF	5.1 DD	DD passthrough	5.1 DD	5.1 DD	re-encoded to DD in HAL	
Always	Dolby Digital	HDMI	5.1 DD	DD passthrough	5.1 DD	5.1 DD	re-encoded to DD in HAL	
,		SPDIF	5.1 DD	DD passthrough	5.1 DD	5.1 DD	re-encoded to DD in HAL	
		HDMI	PCM	no output	PCM	PCM	decoded to PCM in HAL	
	NO DOIDY	SPDIF	5.1 DD	DD passthrough	5.1 DD	5.1 DD	re-encoded to DD in HAL	
	Dolby Digital	HDMI	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
	Plus	SPDIF	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
Never	Dolby	HDMI	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
	Digital	SPDIF	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
	No Dalber	HDMI	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	
	No Dolby	SPDIF	PCM	PCM	PCM	PCM	DD+/DD decoded by OMX Codec	

Android P with Netflix - No Dolby Support

Surround	EDID	0	Netflix available audio source				
sound setting		Output	2.0 HE-AAC	2.0 DD+	5.1 DD+	Atmos	
	Dolby Digital Plus	HDMI	LPCM	-	DD+ 5.1 passthrough	-	
		SPDIF	LPCM	-	no output	-	
Auto	Dolby Digital	HDMI	LPCM	-	-	-	
Auto	Doiby Digital	SPDIF	LPCM	-		-	
	No Dolby	HDMI	LPCM	-	-	-	
	No Dolby	SPDIF	LPCM	ı		-	
	Dolby Digital Plus	HDMI	LPCM	-	DD+ 5.1 passthrough	-	
		SPDIF	LPCM	ı	no output	-	
Always	Dolby Digital	HDMI	LPCM	-	no output	-	
Always		SPDIF	LPCM	-	no output	-	
	No Dolby	HDMI	LPCM	-	no output	-	
		SPDIF	LPCM	-	no output	-	
	Dolby Digital Plus	HDMI	LPCM	-	-	-	
		SPDIF	LPCM	-	-	-	
Never	Dolby Digital	HDMI	LPCM	-	-	-	
		SPDIF	LPCM	-	-	-	
	No Dolby	HDMI	LPCM	-	-	-	
		SPDIF	LPCM	-	-	-	

Android P with Netflix - Dolby MS10/MS11 Support

Surround	EDID	Outunt	Netflix available audio source				
sound setting		Output	2.0 HE-AAC	2.0 DD+	5.1 DD+	Atmos	
	Dallar Divital Divi	HDMI	LPCM	LPCM	DD+ 5.1 passthrough	-	
	Dolby Digital Plus	SPDIF	LPCM	LPCM	DD5.1 MS10/11	-	
Auto	Dolby Digital	HDMI	LPCM	LPCM	DD5.1 MS10/11	-	
Auto	Doiby Digital	SPDIF	LPCM	LPCM	DD5.1 MS10/11	-	
	No Dolby	HDMI	LPCM	LPCM	-	-	
	No Dolby	SPDIF	LPCM	LPCM	-	-	
	Dolby Digital Plus	HDMI	LPCM	LPCM	DD+ 5.1 passthrough	-	
		SPDIF	LPCM	LPCM	DD5.1 MS10/11	-	
Always	Dolby Digital	HDMI	LPCM	LPCM	DD5.1 MS10/11	-	
Aiways		SPDIF	LPCM	LPCM	DD5.1 MS10/11	-	
	No Dolby	HDMI	LPCM	LPCM	LPCM	-	
		SPDIF	LPCM	LPCM	DD5.1 MS10/11	-	
	Dolby Digital Plus	HDMI	LPCM	LPCM	LPCM	-	
Never		SPDIF	LPCM	LPCM	LPCM	-	
	Dolby Digital	HDMI	LPCM	LPCM	LPCM	-	
		SPDIF	LPCM	LPCM	LPCM	-	
	No Dolby	HDMI	LPCM	LPCM	LPCM	-	
		SPDIF	LPCM	LPCM	LPCM	•	

Android P with Netflix - Dolby MS12 Support

Surround	EDID	Output	Netflix available audio source				
sound setting		Output	2.0 HE-AAC	2.0 DD+	5.1 DD+	Atmos	
	Atmos	HDMI	5.1 DD+	5.1 DD+	5.1 DD+	Atmos	
		SPDIF	5.1 DD	5.1 DD	5.1 DD	5.1 DD	
	Dolby Digital Plus	HDMI	5.1 DD+	5.1 DD+	5.1 DD+	-	
Auto	Boilby Bigital 1 lus	SPDIF	5.1 DD	5.1 DD	5.1 DD	-	
Auto	Dolby Digital	HDMI	5.1 DD	5.1 DD	5.1 DD	-	
	Boilby Bigital	SPDIF	5.1 DD	5.1 DD	5.1 DD	-	
	No Dolby	HDMI	2.0 PCM	2.0 PCM	-	-	
	140 Bolby	SPDIF	5.1 DD	5.1 DD	-	-	
	Atmos	HDMI	5.1 DD+	5.1 DD+	5.1 DD+	Atmos	
		SPDIF	5.1 DD	5.1 DD	5.1 DD	5.1 DD	
	Dolby Digital Plus	HDMI	5.1 DD+	5.1 DD+	5.1 DD+	-	
Always		SPDIF	5.1 DD	5.1 DD	5.1 DD	-	
Aiways	Dolby Digital	HDMI	5.1 DD	5.1 DD	5.1 DD	-	
		SPDIF	5.1 DD	5.1 DD	5.1 DD	-	
	No Dolby	HDMI	2.0 PCM	2.0 PCM	2.0 PCM	-	
		SPDIF	5.1 DD	5.1 DD	5.1 DD	-	
	Atmos	HDMI	2.0 PCM	2.0 PCM	-	-	
		SPDIF	2.0 PCM	2.0 PCM	-	-	
	Dolby Digital Plus	HDMI	2.0 PCM	2.0 PCM	-	-	
Never		SPDIF	2.0 PCM	2.0 PCM	-	-	
	Dolby Digital	HDMI	2.0 PCM	2.0 PCM	-	-	
		SPDIF	2.0 PCM	2.0 PCM	-	-	
	No Dolby	HDMI	2.0 PCM	2.0 PCM	-	-	
	No Dolby	SPDIF	2.0 PCM	2.0 PCM	-	-	