Sony Simple IP Control Protocol for BRAVIA 2015 Android TV models

Version 0.9

1. Overview

BRAVIA 2015 Android TV models provide both high level and low-level IP control functions. The former one is called WebAPI that is designed for web developers, and the latter is designed for those who are familiar with CIS and/or A/V control systems.

- High Level Protocol
  - Layer: HTTP
  - Format: JSON-RPC
- Low Level Protocol
  - Layer: TCP
  - Format: Fixed-sized Byte Stream

Low Level Protocol is designed as a protocol bridge to High Level Protocol. All commands defined in Low Level Protocol are available in High Level Protocol.

In order to enable this protocol, the following settings need to be enabled.

- Settings > Network > Home network setup > Remote device/Renderer > Remote device/Renderer
- Settings > Network > Home network setup > IP control > Simple IP Control

2. Connection

The server running on BRAVIA listens on TCP port 20060. TCP connections are basically kept but they happen to be disconnected by the server due to unavoidable reasons. If a disconnection happens, try connecting to the server again.

3. Data Format

The protocol has 24 bytes fixed-size data format on TCP. Table 1 shows the data format.

Table 1 Data Format

Byte Position	Name	Length	Value
0	Header	2 bytes	0x2A [*]: (fixed value)
1			0x53 [S]: (fixed value)
2	Type	1 byte	0x43 [C]: Control 0x45 [E]: Enquiry 0x41 [A]: Answer 0x4E [N]: Notify
3	Function	4 bytes	0xXX
4			0xXX
5			0xXX
6			0xXX
7	Parameter	16 bytes	0xXX
8			0xXX
9			0xXX
10			0xXX
11			0xXX
12			0xXX
13			0xXX
14			0xXX
15			0xXX
16			0xXX
17			0xXX
18			0xXX

19			0xXX
20			0xXX
21			0xXX
22			0xXX
23	Footer	1 byte	0x0A [LF]: (fixed value)

3.1 Header

Each message always has the fixed header (0x2A 0x53), which identifies the beginning of message.

3.2 Type

There are 4 message types defined as Table 2.

Table 2 Message Types

Type	Value	Direction	Detail
Control	0x43 [C]	Controller to TV	Used to control or change the value on TV Answer message is used for reply
Enquiry	0x45 [E]	Controller to TV	Used to retrieve values or status from TV Answer message is used for reply
Answer	0x41 [A]	TV to Controller	Used to send a reply back to controller
Notify	0x4E [N]	TV to Controller	Used to send an event to controller from TV

3.3 Function

Each function is identified by four ASCII characters represented in Four-CC format.

- http://en.wikipedia.org/wiki/FourCC

The detail command definition is described in section 4.

4. Command Definition

4.1 Common Parameter Definition

Table 3 shows the common parameter definition.

Table 3 Common Parameters

Type	Parameter (0 - 15)	Description
C	# # # # # # # # # # # # # # # #	Used for control with no parameter e.g.) Toggle functions
E	# # # # # # # # # # # # # # # #	Used for inquiry with no parameter
A	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Answer with success e.g.) Control result
A	F F F F F F F F F F F F F F F F	Answer with error e.g.) Invalid parameter

4.2 All Command Definitions

Table 4 Command List

Function Name	Type	FourCC				Parameter (0 - 15)																Description
setIrccCode	C	I	R	C	C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Send IR like code. See Table 5.
	A					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Success
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
setPowerStatus	C	P	O	W	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Standby (Off)
	C					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	Active (On)
	A					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Success
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
getPowerStatus	E	P	O	W	R	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	
	A					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Standby (Off)
	A					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	Active (On)
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
togglePowerStatus	C	T	P	O	W	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	Toggle power status

Command	T	C1	C2	C3	C4	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	Description
	A					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Success
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
setAudioVolume	C	V	O	L	U	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Set volume value in decimal digit pad on the left with "0" e.g.) 0000000000000029
	A					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Success
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
getAudioVolume	E	V	O	L	U	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	Get audio volume value
	A					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Success with volume value
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
setAudioMute	C	A	M	U	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unmute
	C					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	Mute
	A					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Success
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
getAudioMute	E	A	M	U	T	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	Get audio mute status
	A					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Not Muted
	A					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	Muted
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
setChannel	C	C	H	N	N	X	X	X	X	X	X	X	X	.	X	X	X	X	X	X	X	Change channel with preset number - 00000050.1000000 means channel 50.1 - 00000006.0000000 means channel 6
	A					N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	No such channel
	A					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Success
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
getChannel	E	C	H	N	N	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	Get current preset channel number
	A					X	X	X	X	X	X	X	X	.	X	X	X	X	X	X	X	Preset channel number
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
setTripletChannel	C	T	C	H	N	X	X	X	X	X	X	X	X	X	X	X	X	#	#	#	#	Change channel with triplet in hexadecimal e.g.) 7FE07FE00400 means 32736.32736.1024
	A					N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	No such channel
	A					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Success
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
getTripletChannel	E	T	C	H	N	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	Get current triplet channel number
	A					X	X	X	X	X	X	X	X	X	X	X	X	#	#	#	#	Triplet channel number
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
setInputSource	C	I	S	R	C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Change TV input source pad on the right with "#" e.g.) dvbt############ - dvbt - dvbc - dvbs - isdbt - isdbbs - isdbcs - antenna - cable - isdbgt
	A					N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	No such source e.g.) not tuned / no signal
	A					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Success

Command																							Description
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
getInputSource	E	I	S	R	C	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	Get current TV input source
	A					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Success with input source value
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
setInput	C	I	N	P	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Change input to TV
	C					0	0	0	0	0	0	0	1	0	0	0	0	X	X	X	X	Change input to HDMI (1-9999)
	C					0	0	0	0	0	0	0	2	0	0	0	0	X	X	X	X	Change input to SCART (1-9999)
	C					0	0	0	0	0	0	0	3	0	0	0	0	X	X	X	X	Change input to Composite (1-9999)
	C					0	0	0	0	0	0	0	4	0	0	0	0	X	X	X	X	Change input to Component (1-9999)
	C					0	0	0	0	0	0	0	5	0	0	0	0	X	X	X	X	Change input to Screen Mirroring (1-9999)
	C					0	0	0	0	0	0	0	6	0	0	0	0	X	X	X	X	Change input to PC RGB Input (1-9999)
	A					N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Not Found
	A					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Success
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
getInput	E	I	N	P	T	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	Get current input
	A					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TV
	A					0	0	0	0	0	0	0	1	0	0	0	0	X	X	X	X	HDMI (1-9999)
	A					0	0	0	0	0	0	0	2	0	0	0	0	X	X	X	X	SCART (1-9999)
	A					0	0	0	0	0	0	0	3	0	0	0	0	X	X	X	X	Composite (1-9999)
	A					0	0	0	0	0	0	0	4	0	0	0	0	X	X	X	X	Component (1-9999)
	A					0	0	0	0	0	0	0	5	0	0	0	0	X	X	X	X	Screen Mirroring (1-9999)
	A					0	0	0	0	0	0	0	6	0	0	0	0	X	X	X	X	PC RGB Input (1-9999)
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
setPictureMute	C	P	M	U	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Disable picture mute state
	C					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	Make the screen black (picture mute)
	A					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Success
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
getPictureMute	E	P	M	U	T	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	Check if picture mute is enabled
	A					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Disabled (Picture mute off)
	A					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	Enabled (Picture mute on)
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
togglePictureMute	C	T	P	M	U	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	Toggle picture mode
	A					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Success
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
setPip	C	P	I	P	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Disable PIP (Picture in Picture)
	C					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	Enable PIP
	A					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Success
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
getPip	E	P	I	P	I	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	Get PIP status
	A					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Disabled
	A					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	Enabled
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
togglePip	C	T	P	I	P	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	Toggle PIP status
	A					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Success
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
																							Change PIP position in

Command																						Description
togglePipPosition	C	T	P	P	P	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	turn
	A					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Success
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
getBroadcastAddress	E	B	A	D	R	e	t	h	0	#	#	#	#	#	#	#	#	#	#	#	#	Get broadcast IPv4 address of the specified interface
	A					1	9	2	.	1	6	8	.	0	.	1	4	#	#	#	#	Broadcast address pad on the right with "#"
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
getMacAddress	E	M	A	D	R	e	t	h	0	#	#	#	#	#	#	#	#	#	#	#	#	Get mac address of the specified interface
	A					X	X	X	X	X	X	X	X	X	X	X	X	#	#	#	#	MAC address pad on the right with "#"
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
setSceneSetting	C	S	C	E	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Change Scene Setting pad on the right with "#". The parameter strings are case-sensitive. e.g.) auto24pSync##### - auto - auto24pSync - general
	A					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Success
	A					N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Not Available for Current Input
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
getSceneSetting	E	S	C	E	N	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	Get current Scene Setting
	A					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Success with Scene Setting value
	A					N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Not Available for Current Input
	A					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Error
firePowerChange	N	P	O	W	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Sent when powering off
	N					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	Sent when powering on
fireChannelChange	N	C	H	N	N	X	X	X	X	X	X	X	X	.	X	X	X	X	X	X	X	Sent when channel change happens
fireInputChange	N	I	N	P	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Sent when input change to TV happens
	N					0	0	0	0	0	0	0	1	0	0	0	0	X	X	X	X	HDMI (1-9999)
	N					0	0	0	0	0	0	0	2	0	0	0	0	X	X	X	X	SCART (1-9999)
	N					0	0	0	0	0	0	0	3	0	0	0	0	X	X	X	X	Composite (1-9999)
	N					0	0	0	0	0	0	0	4	0	0	0	0	X	X	X	X	Component (1-9999)
	N					0	0	0	0	0	0	0	5	0	0	0	0	X	X	X	X	Screen Mirroring (1-9999)
	N					0	0	0	0	0	0	0	6	0	0	0	0	X	X	X	X	PC RGB Input (1-9999)
fireVolumeChange	N	V	O	L	U	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Sent when volume change
fireMuteChange	N	A	M	U	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Sent when unmuting
	N					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	Sent when muting
firePipChange	N	P	I	P	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Sent when PIP is disabled
	N					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	Sent when PIP is enabled
firePictureMuteChange	N	P	M	U	T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Sent when picture mute is disabled
	N					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	Sent when picture mute is enabled

4.3 IR Commands

IR like control commands are supported on `setIrccCode` defined in Table 4. The supported codes and their parameters are defined in Table 5.

Table 5 IR Command Parameters

IR Function	Parameter (0-15)															
GGuide	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
EPG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Display	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Home	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Options	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Return	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Up	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
Down	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Confirm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
Red	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4
Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5
Yellow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6
Blue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7
Num1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8
Num2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	9
Num3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Num4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1
Num5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Num6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3
Num7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4
Num8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5
Num9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	6
Num0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	7
Num11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	8
Num12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	9
Volume Up	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
Volume Down	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1
Mute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2
Channel Up	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
Channel Down	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	4
Subtitle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	5
Closed Caption	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	6
DOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	8
Analog	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	9
Teletext	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
Exit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1
*AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	3
Digital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
BS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	6
CS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	7
BS/CS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	8
Ddata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	9
Picture Off	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
Tv_Radio	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1
Netflix	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	6
Mode3D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	8
iManual	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	9
Wide	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1
Jump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	2
PAP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	3
Ten Key	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	8
Media	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	5

Sync Menu	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	6
Forward	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7
Play	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	8
Rewind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	9
Prev	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0
Stop	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	1
Next	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	2
Rec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	3
Pause	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	4
Flash Plus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	6
Flash Minus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	7
Top Menu	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8
Popup Menu	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	9
One Touch Time Rec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	1
One Touch View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	2
DUX	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	5
Football Mode	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	6
TV Power	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	8
Media Audio Track	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9
TV	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
TV Input	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
TV Antenna Cable	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
Wake Up	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3
Sleep	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4
Sleep Timer	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	5
TV Analog	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6
Video 1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	7
Video 2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	8
Analog RGB 1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	9
Picture Mode	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Component 1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Component 2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
DPAD Center	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3
Cursor Up	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	4
Cursor Down	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	5
Cursor Left	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	6
Cursor Right	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	7
Shop Remote Control Forced Dynamic	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	8
Demo Mode	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	9
Digital Toggle	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Demo Surround	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1
Audio Mix Up	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2
Audio Mix Down	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3
HDMI 1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	4
HDMI 2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	5
HDMI 3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	6
HDMI 4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	7
Assists	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	8
Action Menu	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	9
Help	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0
TV Satellite	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	1
Wireless Subwoofer	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	2