

4 Audio

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	Audio Settings	Slider	Notes
1	Audio Out		TV Speakers is default. If a soundbar (or audio device) is discovered then that replaces the TV speakers setting.
2	Surround Sound		
3	ClearDialog		
4	Volume Leveling		
5	Bass	yes	
6	Treble	yes	
7	Lip Sync	yes	Slider limited scale 0 - 8
8	Digital Audio Out		
9	Sound Bar Settings		Control of VIZIO sound bars 2021 going forward

4.0 Audio Settings Saved Globally

	Requirements	Notes
1	Audio settings are saved globally, not by input.	
2	Volume is saved globally, not by input.	

4.1 Audio Out

Setting	Definition	Audio Device Behavior Including CEC
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1	AudioDeviceName if discovered - replaces TV speakers setting	<p>When a CEC sound bar or audio receiver is discovered then</p> <ul style="list-style-type: none"> Audio out setting switched to the name of the audio device Replaces the TV Speakers setting automatically with the AudioDeviceName TV speakers are automatically turned Off Audio is heard from the sound bar. While discovered CEC audio device is selected, automatic power on and off of the CEC audio device applies when TV powered on and off. For a VIZIO Sound Bar, the audio menu updates to the sound bar settings included for control by the TV. All TV Audio settings are removed except Audio Out remains at the top and Digital Audio Out following the sound bar settings. 	<ol style="list-style-type: none"> When CEC audio device is turned off or disconnected <ol style="list-style-type: none"> TV speakers are automatically powered on (unmuted) The AudioDeviceName setting is replaced by the TV Speakers setting If the TV speakers are on (discovered CEC device not connected) and the CEC audio device is reconnected <ol style="list-style-type: none"> TV speakers automatically turned off Audio Out setting switches to AudioDeviceName, TV speakers setting is removed. If CEC is disabled from the TV or ARC audio device <ol style="list-style-type: none"> Remove the AudioDeviceName setting from Audio Out Audio Out setting is changed to TV speakers Audio is heard from TV Speakers. If CEC is disabled from the TV or eARC audio device <ol style="list-style-type: none"> Audio is heard from the eARC audio device Automatic turn on and off is not supported with TV power cycle. No volume control as no support of CEC commands. Notification displays first time at power on, then no action if volume/mute is pressed. TV speakers setting not included in Audio out.
2	TV Speakers (default but if ARC/ eARC audio device discovered then TV Speakers settings is removed and replaced by the AudioDeviceName)	<p>If the TV Speakers are no longer displayed, unplug or disconnect the soundbar then the TV Speakers are automatically displayed.</p>	<p>Audio only from TV speakers.</p> <p>Audio is no longer heard from optical when TV speakers are selected.</p>
3	Optical	<p>If the Optical setting is selected, the TV speakers are turned off and a CEC power off command is sent to ARC/eARC sound bar or audio receiver.</p> <p>The Audio menu is reduced to:</p> <ul style="list-style-type: none"> Audio Out Digital Audio Out <p>All other settings apply only to TV speakers.</p>	<p>When TV speakers or sound bar is off, audio is heard from optical.</p> <p>For Optical (digital audio out), DD+ content is pass through as DD and DTS is pass through as DTS digital surround. Other content pass through PCM.</p> <p>NOTE: audio always is sent out to optical audio out even if not selected.</p>

4.1.1 Audio Out with CEC Audio Device

	Audio Out Setting	TV Speakers	ARC or eARC Audio Device power on
1	TV Speakers	On	Off
2	Optical	Off	Off
3	ARC/eARC sound bar detected with CEC enabled	Off	On
4	ARC audio device without CEC disabled	On	N/A (CEC required to hear audio)
5	eARC audio device without CEC disabled	Off	On

4.1.2 Volume Control

	Requirements	Notes
1	<p>Volume can be changed from a variety of sources:</p> <ul style="list-style-type: none"> Volume IR codes from a VIZIO or other IR remote SmartCast mobile CEC command to change volume for sound bar <p>Limited to volume up/down and mute CEC command</p> <ul style="list-style-type: none"> Voice Command from BT remote or Alexa/GVA. 	<p>If volume is changed from SmartCast mobile, the adjustment is displayed on the TV with the volume control at top right so eyes are on screen.</p>
2	Volume has a range from 0 – 100.	The Volume default setting value is 20 or 30.
3	The volume setting is global.	When an input is changed the volume setting is unchanged.

4	Volume change for TV or connected VIZIO sound bar using Alexa/GVA/Vizio Voice command (BT remote).	For ARC/eARC, use CEC Volume Up/Down repeatedly to achieve specified volume level requested via Alexa/GVA/Vizio Voice
5	Direct value volume change for VIZIO sound bar connected to TV using Voice command (BT remote)	Set volume to requested value <ul style="list-style-type: none"> • Display value for 2021 VIZIO SB and later • No display of value for old VIZIO SB
6	Direct value volume change for non-VIZIO sound bar connected to TV using Voice command (BT remote)	Set volume to requested value <ul style="list-style-type: none"> • No display of value for non-VIZIO SB
7	No volume control display: <ul style="list-style-type: none"> • TV power on • Connect sound bar during TV boot up • Switch ARC/eARC setting • Switch TV speaker setting auto/on/off • Plug or unplug of sound bar 	This is true for both no sound bar and sound bar use cases.

4.1.2.1 TV Speakers Off, Devices with Volume Control

	Audio Out setting	Audio device connected	Volume Control	Device name	Notes
1	ARC/eARC sound bar	CEC audio system connected via: <ul style="list-style-type: none"> • ARC • eARC 	Audio system volume level (digits) Ring depicts scale	Volume control with device name left of control as follows: <ul style="list-style-type: none"> • VIZIO Elevate • VIZIO AIO • VIZIO MicMe SB • VIZIO Soundbar • non-VIZIO: Audio system 	TV issues CEC commands to the audio system to change the volume Per audio team suppress the CEC name for all VIZIO sound bars except Elevate and AIO: model number no longer displayed.
2	Any	Bluetooth headphones paired and connected	Slider displays BT headphones volume value on round control without digits.	headphones icon (no text)	BT headphones are not included in Audio Out setting.

4.1.2.2 ARC/eARC Sound Bar Volume Control (VIZIO and non-VIZIO)

	Volume Control Used	Behavior	Notes
1	Volume Up/Down from IR or BT remote	Increment/decrement volume on sound bar by two	
2	Alexa/GVA/VIZIO Voice specifies new volume value for connected VIZIO sound bar.	<ol style="list-style-type: none"> 1. Use CEC to find current sound bar volume value. 2. Find difference between current sound bar volume and new volume value. 3. Use CEC volume up/down to change volume with number of commands required to achieve requested change. 	CEC volume changes by two steps.

4.1.2.3 Volume Control with VIZIO Sound Bar

	Volume Control with VIZIO Sound Bar Requirements	Details
1	Volume Up/Down on TV remote issues volume CEC command to sound bar.	Vendor specific commands created to reduce CEC traffic, specifically to disable sound bar audio status (confirmation) back to TV after volume IR code received and volume changed.
2	For a faster response to the volume control between a VIZIO TV and VIZIO sound bar.	<ul style="list-style-type: none"> • TV does not wait for CEC feedback command from the sound bar to confirm received (this caused a delay) • The volume OSD for sound bar, and the volume OSD for the TV reacts more quickly and more in sync.
3	CEC mapping of TV volume to VIZIO sound bars are 2:1.	<ul style="list-style-type: none"> • A volume step of 2 is 1 sound bar step • Odd TV volume is rounded up (e.g. TV volume 89 is interpreted as 45 on sound bar) • TV volume 96 - 100 is converted to 49 (maximum volume) on the sound bar

4	BT Voice control change volume via CEC mapping to sound bars including: <ul style="list-style-type: none"> • Volume up/down • increase/decrease volume • increase/decrease audio • make it louder • turn it up/down • set volume to XX or % (VIZIO sound bars only) 	Volume up/down then starting at level 10 increase or decrease SB volume by 4 steps <ul style="list-style-type: none"> • VIZIO sound bars: show volume slider with value • non-VIZIO sound bars: show up or down, no slider, no value. • If requested volume value is odd then round up to next even volume value (e.g. 11 spoken would change volume to 12).
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4.1.2.4 Bluetooth headphones Volume Control

	Audio device connected	Volume keys pressed	Notes
1	Bluetooth Headphones	Press Volume Up or Down key.	Volume control displays BT headphones volume value on round control without digits. Each key press advances or decrements 6 steps. Audio for Sound Bar, TV speakers and/or Optical is muted and not heard.

4.1.2.5 TV Speakers Off, Notification of No Volume Control

	Audio out	Audio device connected	Volume control	Volume keys pressed	Notes
1	Optical	Audio device connected via optical	No display of volume control	First volume key press or IP command displays "TV Speakers are Off".	TV cannot detect if optical is connected or not to AV Receiver or sound bar

4.2 Surround Sound

	Settings	Description	Notes
1	Virtual:X (default)	If Surround Sound is set to Virtual:X, DTS audio processing provides surround sound and virtual height.	SmartCast app must include the same help text as sidebar referring to partner: "When set to On, enables Surround Sound suitable for sports and TV shows. Virtual:X™ adds virtualized height best for movies."
2	On	If Surround Sound is set to On, DTS audio proceeding provides Surround Sound.	
3	Off		Dialog Clarity is part of Virtual:X so is disabled when Surround Sound is off

4.3 ClearDialog

	Requirements	Notes
1	Off (default)	The help text is "If enabled, then clarity of dialogue is enhanced when Surround Sound is enabled."
2	Low	If Low, Medium or High is selected and then the audio is enhanced.
3	Medium	Same as above
4	High	Same as above

4.3.1 ClearDialog Requirements

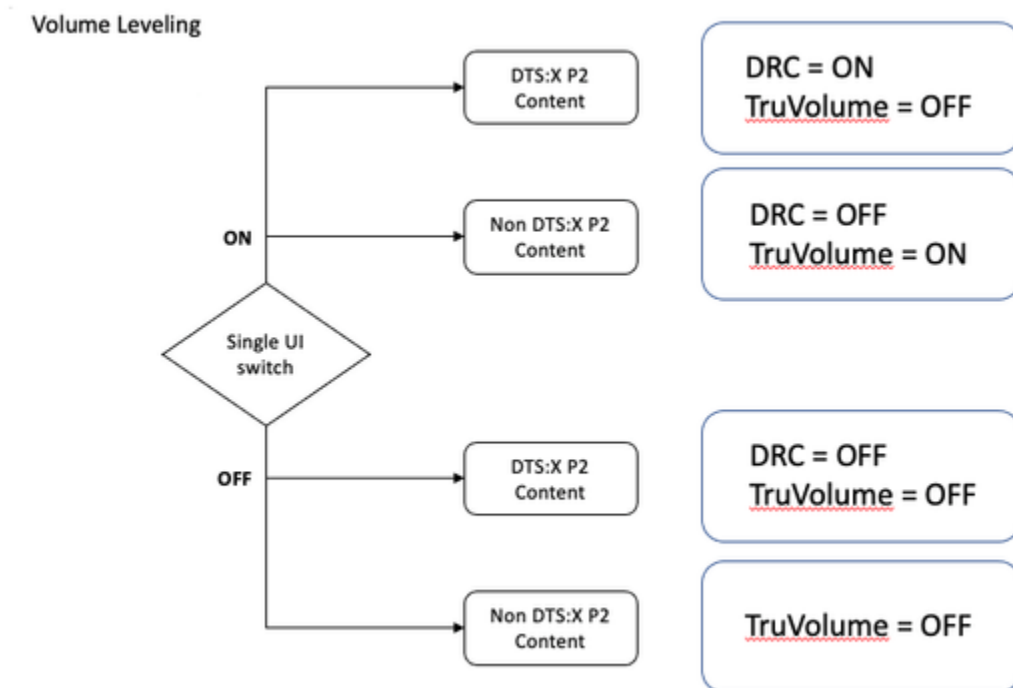
	Requirements	Notes
1	ClearDialog is always available but depending on the content the solution changes as per below.	This is a set and forget setting so even if the setting does not apply to the content it can still be set for future content.
2	Dolby MS12 Config Y includes a function known as "Dialog Enhancer" for AC-4 content only.	

3	If audio content is Dolby AC-4:	
	<ul style="list-style-type: none"> Only the Dolby function “Dialog Enhancer” adjusts the setting value heard by the user. DTS dialog clarity is disabled. 	
4	If audio content is not Dolby AC-4:	
	<ul style="list-style-type: none"> Only the DTS Dialog Clarity function adjusts the setting value heard by the user. Dolby function “Dialog Enhancer” is disabled. 	
5	If Surround Sound is set to Off then even though the Dialog Enhancer setting is available (not grayed out) the setting has no effect.	Dialog Clarity is part of Virtual:X so is disabled when Surround Sound is off

4.4 Volume Leveling

	Settings	Description	Notes
1	Off (default)	TruVolume does not apply DRC for DTS:X content does not apply.	SmartCast app must include the same help text as sidebar referring to partner: “DTS TruVolume™ levels the sound heard if Volume Leveling is set to On.”
2	On	Content is not DTS:X then TruVolume levels the sound when commercials are detected. If source is DTS:X then TruVolume does not apply, Dynamic Range Compression (DRC) is used.	DRC and TruVolume have different algorithms but the apparent effect from customer perception is basically the same.

4.4.1 Volume Leveling Flow Chart



4.5 Bass

	Requirements	Slider range	Default	Notes
1	Configures bass.	-12 to 12	0	As the setting is changed in the SmartCast app, a slider displays on the TV with the adjustment.

4.6 Treble

	Requirements	Slider range	Default	Notes
1	Configures treble.	-12 to 12	0	As the setting is changed in the SmartCast app, a slider displays on the TV with the adjustment.

4.7 Lip Sync

	Requirements	Slider range	Default	Notes
1	Configures the synchronization of the audio with the video.	0 - 20 The audio delay is 10 ms for each step	0	Delay Adjustment range: 0 to 200 msec

4.8 Digital Audio Out

	Settings	Description	Notes
1	Auto (default)	Auto automatically provides the best audio format supported by the EDID as follows: <ul style="list-style-type: none">• Dolby Digital, Dolby Digital+ and Dolby TrueHD• DTS-HD or DTS-X• For optical, if support is detected by EDID, then Dolby Digital is sent• For optical If end user's device does not support Dolby Digital as detected by EDID, then PCM is sent.	
2	PCM		
3	Digital (all Dolby and DTS)	Digital included to provide DTS support to optical via pass through instead of using TV EDID.	

4.8.1 Digital Audio Out Requirements

	Requirements	Notes
1	Digital audio output is always available except if TV speakers is set to On then setting changed to PCM and Digital Audio out is grayed out and not available.	Change to PCM because different audio type to TV speakers and digital audio out (non-ARC sound bar) can require different audio processing and may result in abnormal audio to TV speakers. ARC not an issue as automatically turned off via CEC when TV speakers set to ON.
2	This is a set and forget setting.	Setting does not gray out if not digital content.
3	If source is AAC audio for both optical out and HDMI ARC /eRC the output is PCM Stereo for Auto, PCM and digital settings.	Multi channel AAC must output 2 channel PCM through S/PDIF and HDMI ARC/eARC.

4.9 Sound Bar Settings Requirements V3

	Requirements	Menu Items	Notes
1	A VIZIO sound bar connected via CEC (limited to ARC/eARC) can be controlled from the TV using vendor specific commands.	Press of volume displays the Volume Slider with device name above slider as follows: <ul style="list-style-type: none">• VIZIO Elevate• VIZIO AIO• VIZIO Soundbar	Sound bars supported: <ul style="list-style-type: none">• 2020 M51• 2021 V21 and M51• all 2022 going forward

2	Sound Bar settings do not display in the menu until supported sound bar is discovered.	<ul style="list-style-type: none"> • Audio Out SoundbarName • Bass • Treble • Subwoofer • ClearDialog • Height Level • Virtual:X • Night Mode • Info <ul style="list-style-type: none"> • Digital Audio Out 	<ol style="list-style-type: none"> 1. The first setting is the TV Audio Out setting with the VIZIO sound bar name. 2. The VIZIO sound bar settings controlled via CEC display indented. 3. The last setting is the TV Digital Audio Out setting (not indented) 4. SOUNDBAR NAME = <ol style="list-style-type: none"> a. VIZIO Elevate b. VIZIO AIO c. VIZIO Soundbar
3	TV audio settings that don't apply and do not display while the sound bar is connected, and TV Speakers are set to Auto or Off	<ul style="list-style-type: none"> • Surround Sound • ClearDialog • Volume Leveling • Bass • Treble • Lip Sync 	If Audio Out is changed to TV speakers then the Sound bar settings are replaced by these TV audio settings.
4	If SmartCast mobile used to control the TV with connected sound bars, the Audio submenu replaces the sound bar settings with a link to Audio SmartCast mobile.		

4.9.1 Sound Bar Settings Supported by TV

	Bar Setting	Options for app	New CEC	2.0	2.1	5.1	Atmos	Notes
1	Volume <ul style="list-style-type: none"> • Up • Down 		NO	X	X	X	X	Slider - supported from key press, no submenu
2	Mute <ul style="list-style-type: none"> • On • Off 		NO	X	X	X	X	Radial - supported from key press, no submenu
3	Bass <ul style="list-style-type: none"> • Low • Med. • High 		yes	X	X	X	X	Radial Sound bar has 21 point slider
4	Treble <ul style="list-style-type: none"> • Low • Med. • High 		yes	X	X	X	X	radial Sound bar has 21 point slider
5	Subwoofer <ul style="list-style-type: none"> • Low • Med. • High 		yes		X	X	X	radial Sound bar has 21 point slider
6	ClearDialog <ul style="list-style-type: none"> • Low • Med. • High 		yes	X	X	X	X	Radial Sound bar has 10 point slider Grayed out if EQ = Direct
7	Height Level <ul style="list-style-type: none"> • Low • Med. • High 		yes	X - limited to 2022 skus and beyond with Atmos support	X - limited to 2022 skus and beyond with Atmos support	X	X	Applies to sound bars with Atmos support. If bar does not includes height speakers then Height level adjustment is virtual (M215aw-K6, M213ad-K8)
8	Virtual:X <ul style="list-style-type: none"> • On • Off 		yes	X	X	X	O	Radial Not for 2020 Atmos bars
9	Night Mode <ul style="list-style-type: none"> • On • Off 		yes	X	X	X	X	Radial; Not persistent for a power cycle
10	Info	Launch new menu	yes	X	X	X	X	Displays for 2024 sound bars going forward. No display for 2020 - 2023 bars

4.9.2 Information screen

	Information	Audio Format	Notes
1	Model Name: XXXXX-XX		
2	Serial Number: XXXXXXXXXXXXXXX		
3	Firmware: x.x.x.x		

4	Audio out	<ul style="list-style-type: none"> • Dolby Audio - Dolby Digital • Dolby Audio - Dolby Digital Plus • Dolby Digital - Dolby True HD • Dolby Atmos - Dolby Digital Plus • Dolby Atmos - Dolby True HD • Dolby Atmos - Dolby MAT • DTS Digital Surround • DTS-HD Master Audio • DTS:X • LPCM • PCM • Stereo • WAV • MP3 	Current audio format played from the Soundbar
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4.9.3 Sound Bar Slider Setting Defaults

	Sound Bar Setting	Low	Medium	High
1	Bass <ul style="list-style-type: none"> • -10 • -9 Treble <ul style="list-style-type: none"> • -8 Subwoofer <ul style="list-style-type: none"> • -7 (default for TV) • -6 • -5 • -4 	<ul style="list-style-type: none"> • -3 • -2 • -1 • 1 • 2 • 3 	<ul style="list-style-type: none"> • 4 • 5 • 6 • 8 • 9 • 10 	(default for TV) <ul style="list-style-type: none"> • 10 (default for TV)
2	ClearDialog <ul style="list-style-type: none"> • 0 (default) • 1 • 2 • 3 	<ul style="list-style-type: none"> • 4 • 5 (default) • 6 • 7 	<ul style="list-style-type: none"> • 8 • 9 • 10 (default) 	
3	Height Level <ul style="list-style-type: none"> • -5 (default) • -4 • -3 • -2 	<ul style="list-style-type: none"> • -1 • 0 (default) • 1 	<ul style="list-style-type: none"> • 2 • 3 (default) • 4 • 5 	

4.9.4 AIO Slider Setting Defaults

	AIO Setting	Low	Medium	High
1	Bass <ul style="list-style-type: none"> • -14 • -13 Treble <ul style="list-style-type: none"> • -12 • -11 Subwoofer <ul style="list-style-type: none"> • -10 (default for TV) • -9 • -8 • -7 • -6 	<ul style="list-style-type: none"> • -5 • -4 • -3 • -2 • 0 (default for TV) • 1 • 2 • 3 • 4 • 5 	<ul style="list-style-type: none"> • 6 • 7 • 8 • 9 • 10 (default for TV) • 11 • 12 • 13 • 14 	
2	Height Level <ul style="list-style-type: none"> • -5 (default) • -4 • -3 • -2 	<ul style="list-style-type: none"> • -1 • 0 (default) • 1 	<ul style="list-style-type: none"> • 2 • 3 (default) • 4 • 5 	

4.9.5 Supported Sound Bars for Sound Bar Settings displayed by TV

	SOC	Model	Year
1	Zylux	M51a-H6	2020 (not included at launch)
2	Zylux	M512a-H6	2020 (not included at launch)
3	Zylux	P514a-H6	2020 (not included at launch)
4	Zylux	V51-H6	2020 (not included at launch)
5	Zylux	M51ax-J6	2021 (not included at launch)
6	Zylux	V51x-J6	2021 (not included at launch)

7	Zylux	M512a-J6	2021 (not included at launch)
8	Tonly	V21x-J8	2021 (not included at launch)
9	Tonly	V21d-J8	2021 (not included at launch)
10	Tonly	V20-J8	2021 (not included at launch)
11	Tonly	V20x-J8	2021 (not included at launch)
12	Tonly	V21t-J8	2021 (not included at launch)
13	Zylux	M512E-K6 (M-elevate)	2022
14	Zylux & Tonly	All skus	2022 and going forward