



Technical Specification

Version 3.0 errata 2
(including errata 1)

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1. Change history

Version	Date	Changes
3.0 errata 1	2014-08-04	Final version for release
3.0 errata 2	2016-03-17	Final version for release

2. Introduction

2.1. Overview

This document specifies errata to the Smart TV Alliance version 3.0 specification. It is intended to be read in conjunction with that document.

2.2. References

[36] CSS3 2D Transforms – September 2012
<http://www.w3.org/TR/2012/WD-css3-transforms-20120911/>

[A] RFC4346 The Transport Layer Security (TLS) Protocol Version 1.1
<https://tools.ietf.org/html/rfc4346>

2.3. Trademarks and copyrights

All trademarks and copyrights are the property of their respective owners.

3. Errata

3.1. Status Definition

This document specifies technical features of the platform, using the terms defined in the table below. Items not listed are not supported by this version of the specification. Individual products may support extra features, but applications shall not use such features when targeting the Alliance platform.

Status	Definition	Remarks
M	Mandatory, Fully Supported. All devices SHALL support this feature in order to comply with this specification.	Such explicitly defined feature overrides any such feature included from older included specifications.
C-M	Conditionally Mandatory. Implementation of this feature is optional, but devices that do implement this feature SHALL comply with this specification.	
P	Partially Supported.	
O	Optional. Details are defined and devices MAY support this feature.	
Removed	Removed from specification. Included in v3.0 specification but removed by this errata.	Items are shown with strikethrough .

3.2. Changes to v3.0 specification

The following text and tables replace the corresponding parts of the version 3.0 specification. All other features are unchanged.

Section 2.3 References

[45] CSSOM View Module
<http://dvcs.w3.org/hg/csswg/raw-file/tip/cssom-view/Overview.html>

Section 3.3.1 HTML5 profile

Standard	Reference	Status	Remark
SSL / TLS		Removed	HbbTV server certificates shall be supported.
TLS	[A]	M	HbbTV server certificates shall be supported. Replaces the requirement above.
CSS3 Flexbox	[63]	P*	

P*: Partially supported via browser extension, details to be included in developer guidelines.

The remainder of the section is unchanged.

Section 3.3.1.1 XMLHttpRequest

Section	Reference	Description	Support
Request	[22] section 4.6	open(), setRequestHeader(), withCredentials, send(), abort()	M

The remainder of the section is unchanged.

Section 3.3.1.5 CSS3 Transforms

Section	Reference	Description	Support
2D Transform Functions			
	[36] section 13.1	skew()	M

The remainder of the section is unchanged.

Section 3.3.1.3 CSS3 BG

Section	Reference	Description	Support
miscellaneous effects			
	[24] section 7.1	box-decoration-break	M*
	[24] section 7.2	box-shadow	M*

M*: Mandatory via browser extension, details to be included in developer guidelines.

The remainder of the section is unchanged.

Section 3.3.1.6 CSS3 Animations

This section is replaced by the text below.

Section	Reference	Description	Support
Keyframes			
	[37] section 3.1	@keyframes	M*
	[37] section 3.2	animation-name	M*
	[37] section 3.3	animation-duration	M*
	[37] section 3.4	animation-timing-function	M*
	[37] section 3.5	animation-iteration-count	M*
	[37] section 3.6	animation-direction	M*
	[37] section 3.7	animation-play-state	M*
	[37] section 3.8	animation-delay	M*
	[37] section 3.9	animation-fill-mode	M*
	[37] section 3.10	animation	M*

M*: Mandatory via browser extension, details to be included in developer guidelines.

Section 3.3.1.10 CSS3 Multi-column Layout

This section is replaced by the text below.

Section	Reference	Description	Support
The number and width of columns			
	[41] section 3.1	column-width	M*
	[41] section 3.2	column-count	M*
	[41] section 3.3	columns	M*
Column gaps and rules			
	[41] section 4.1	column-gap	M*
	[41] section 4.2	column-rule-color	M*
	[41] section 4.3	column-rule-style	M*
	[41] section 4.4	column-rule-width	M*

	[41] section 4.5	column-rule	M*
Column breaks			
	[41] section 5.1	break-before	M*
	[41] section 5.1	break-after	M*
	[41] section 5.1	break-inside	M*
Spanning columns			
	[41] section 6.1	column-span	M*
Filling columns			
	[41] section 7.1	column-fill	Removed

M*: Mandatory via browser extension, details to be included in developer guidelines.

Section 3.3.1.21 HTML5 Media elements

Section	Reference	Description	Support
	[16] section 4.8.10.6	startDate	Removed

The remainder of the section is unchanged.

Section 3.4.2 Streaming Protocols

The following text is added.

For audio only content, receivers are only required to support progressive download.

The remainder of the section is unchanged.

Section 3.4.4.1 Video Codecs

Support for Baseline Profile is **removed**.

Support for Constrained Baseline Profile at Level 3 is added as **mandatory**.

The remainder of the section is unchanged.

Section 3.4.8 Ultra High Definition Services

This section is replaced by the text below.

This section specifies features that are mandatory for TV Devices which are capable of decoding and rendering Smart TV Alliance Ultra High Definition video services. Video shall be presented in Ultra High Definition resolution only when the video is shown in full screen. When the video is not in full screen, the application resolution remains as specified in section 3.3.3.

Feature	Support
Ultra High Definition	O

Note: If UHD is supported, C-M functions are mandatory.

Function	Details	Support
Video format	Resolution: 3840 × 2160p	C-M
	Frame rate: 24, 25/30 fps	C-M (3)
	Frame rate: 48, 50, 60 fps (in conjunction with Main Tier 5.1)	O
Video codecs	HEVC [57] Profile: Main 10	C-M

	Support for Tiles and WPP (wavefront parallel processing) are optional. (1)	
	Level: Main Tier 5.0 (24, 25, 30 fps)	C-M
	Level: Main Tier 5.1 (48, 50, 60 fps)	O
Color space (2)	BT709	C-M
	BT2020	O
Audio codecs	As in section 3.4.4.2	C-M
Systems layer	[58] specifies the carriage of HEVC in MP4 file format Used in combination with HTTP, MPEG-DASH	C-M
	[59] specifies the carriage of HEVC in MPEG2 Transport Stream Used in combination with HLS	O
Content Protection	Combination of PlayReady + MPEG-DASH	C-M
Progressive and Adaptive Streaming	MPEG-DASH	C-M
	HLS	O

Notes:

- 1) The TV Device does not need to support streams where either `tiles_enable_flag` or `entropy_coding_sync_enabled_flag` (both in `picture_parameter_set`) is set to 1.
- 2) Indicates decoder and display capability of the TV Device.
- 3) It is conditionally mandatory for receivers to support at least one of 25 and 30 fps.