LG – HbbTV Symposium 2021

Conformance Regimes and Interoperability (pt2)

Meeting the challenge of Interoperability in the horizontal market

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HbbTV has achieved great things

Interoperability = ‘twas ever thus

HTML5 support [edit]

See also: Comparison of layout engines (HTML5)

The specifications for HTML5 are still under development, but many current browsers already support many of th features in the draft specifications. An HTML5 test suite is also under development that, while it does not test all new features nor the functionality of those it does detect, rates browsers' support. New tests are expected to be a to the suite as time goes by.[105]

Browser	HTML5test score[106]	HTML5 accessibility score[107]
Apple Safari 11	452/555	97%
Google Chrome 62	528/555	98%
Avast Secure Browser 61	525/555	97%
Internet Explorer 11	312/555	56%
Microsoft Edge 88	548/555	100%
Mozilla Firefox 68	513/555	94%

As new tests are added, bogus ones removed, etc., new versions of html5test.com become available as prelim beta or even alpha versions. These are great to test development versions (e.g. nightly builds) of web brows but their results should be taken with a grain of salt. Especially when considering that some browsers have experimental features built in which may be switched off by default.

Web technology support [edit]

Information about what web standards, and technologies the browsers support, except for JavaScript. External links lead to information about support in future versions of the browsers or extensions that provide such functionality.

Browser	CSS2.1 [note 1]	Frames [note 2]	Nav LINKs [note 3]	XSLT	XHTML 1.0 [note 4]	XHTML 1.1 [note 4]	MathML	XForms	Web Forms 2.0	VoiceXML / X+V	SMIL	VML
Amaya	Yes	No	?	No	Yes	Yes	Yes	No	No	No	?	No
AOL Explorer	Partial	Yes	No	Yes	No	No	No [note 5]	No	No	No	Yes[108]	Yes
Avant	Partial	Yes	?	Yes	No	No	No	No	No	No	Yes[108]	Yes
Arora	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No	?	No
Basilisk	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Camino	Yes	Yes	No	Yes	Yes	Yes	Yes	No	No	No	No	No
Chrome	Yes	Yes	No	Yes	Yes	Yes	No[109]	No	No	No	No	No
Avast Secure Browser	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No
Dillo	Partial	Partial [note 6]	No	No	No	No	No	No	No	No	?	No
Dooble	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No	?	No
ELinks	Partial	Yes	?	No	No	No	No	No	No	No	?	No
Falkon	Yes	Yes	?	Yes	Yes	Yes	No	No	No	No	No	No
Flock	Yes	Yes	?	Yes	Yes	Yes	Yes	Yes	No	No	No	No
Galeon	Yes	Yes	?	Yes	Yes	Yes	Yes	No	No	No	?	No
iCab	Yes	Yes	Yes	No	No	No	No	No	No	No	?	No
Internet Explorer	Yes [note 7]	Yes	No [note 8]	Yes	Yes	Yes	No [note 5]	No [note 9]	No [note 10]	No	Yes[108]	Yes
Internet Explorer for Mac	Partial	Yes	?	Partial	No	Yes	No	No	No	No	?	?
K-Meleon	Yes	Yes	?	Yes	Yes	Yes	Yes	No	No	No	No	No
Konqueror	Yes	Yes	Yes	No	Yes	Yes	No	No	No	No	?	No
Links	No	Yes	Yes	No	No	No	No	No	No	No	?	No
Lunascape	Yes [112]	Yes	Depends [note 8]	Yes	Yes [112]	Yes [112]	Yes [112]	Yes [112]	No	No	Yes [112][108]	Yes [112]
Lynx	No	Partial	Yes	No	No	No	No	No	No	No	No	No
Maxthon	Partial	Yes	?	Yes	No	No	No	No	No	No	Yes[108]	Yes
Microsoft Edge	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	No	No	No
Midori	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No	?	No
Mosaic	No	No	?	No	No	No	No	No	No	No	No	No
Mozilla	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
Mozilla Firefox	Yes	Yes	No [note 8]	Yes	Yes	Yes	Yes	Yes [note 11]	Yes	No	Yes	No
Netscape	Yes	Yes	?	Yes	Yes	Yes	Yes	No	No	No	No	No
Netscape Browser	Depends [113]	Yes	?	Yes	Depends [113]	Depends [113]	Depends [113]	No	No	No	No	No
Netscape Navigator	No	Yes	No	No	No	No	No	No	No	No	No	No
Netscape Navigator 9	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No	No	No
NetSurf	Yes	Yes	No	No	No	No	No	No	No	No	?	No
OmniWeb	Yes	Yes	?	No	Yes	Yes	No	No	No	No	?	No
Opera	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Pale Moon	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Polarity	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No
Safari	Yes	Yes	Partial	Yes	Yes	Yes	Yes	No	No	No	No	No
SeaMonkey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Shiira	Yes	Yes	?	Yes	Yes	Yes	No	No	No	No	?	No
Sleipnir	Partial	Yes	No [note 8]	Yes	No	No	No [note 5]	No	No [note 10]	No	Yes[108]	Yes
surf	Yes	Yes	No	No	Yes	Yes	No	No	No	No	?	No
Torch Browser	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No
Web	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No	?	No
WorldWideWeb	No	No	?	No	No	No	No	No	No	No	No	No
w3m	?	Yes	?	No	Yes	?	No	?	No	No	?	No

Interoperability for Device Manufacturer

ONE to MANY

Interoperability for HbbTV Application Developer

MANY to ONE

Interoperability for All

MANY to MANY

Interoperability for All

One Test Environment to Unite All

HbbTV Core Specification Test Suite 2021-2

HbbTV Op Apps and Targeted Advertising Test Suite 2021-2

Test Suite Trends

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The dictionary identifies how to spell words correctly, but not how they all combine to make sense

Alice met le sel dans le bol du Michel

Alice met le bol dans le sel du Michel

Alice le sel met dans le bol du Michel

Alice met Michel dans le bol du le sel

Michel met le sel dans le bol du Alice

Le sel dans le bol du Michel met Alice

HbbTV Test Suite "analogous" to the dictionary

Test Suite Unit Tests

World Cloud from front page of Sports Page

United
League
Tottenham
Man
Manchester
Liverpool
Chelsea
Jurgen
Anthony
Joshua
Solskjaer
fans
Roger
Willy
World
London
Cup
Hunt
England
Cristiano
football
Arsenal
Ronaldo
Ronaldo's
European
Arsenal's
Messi
back
club
players
Everton
City
win
says
season
Mbappe
Joshua's
Raducanu
Oleksandr
Guardiola
Palace
Brighton
Gunnar
Champions
Juventus
Pep
Premier
Tuesday
take
despite
move
squad
time
set
defeat
Neymar
PSG
Emma
injury
Nike
Tennis
Ham
Usyk
West
Madrid
results
face
three
winner
manager
Nuno
last
striker
fight
knee
claims
clash
first
Open
USOpen
following
legend
Spurs
former
Heung-min
victory
reveals
admits
video
now
boss
games
team
pressure
Espirito
four
side
Villarreal
Klopp
Mail
Lionel
Carragher
Leeds
Saturday
match
Xhaka
Ryder
Eddie
Super
Fury
Brentford
Burnley
Southampton
Watford
Postecoglou
Celtic
Paris
Jordan
Ferdinand
British
Aston
Villa
Conte
Mourinho
Celebration
Barcelona
Whyte
campaign
game
defeats
Wednesday
future
named
Rangers
Hatspur
Hurricane
Wolves
Maldini
Jack
Norwich
Ukraine
Qualifiers
Lineup
Ibrahimovic
Dortmund
Thomas
Trafford
Nicholas
Amirkhani
Europe
media
DailyMail
BBC
Santo
since
Anfield
home
debut
world
NEW
week
Haaland
Mbappe
Carragher
Lionel
Argentina
Tyson
Emirates
United's
Madrid's
Sunday's
Declan
Rice
Arsenal
Pep
Ryder
Eddie
Young
Newcastle
Copa
Fabio
Arthur
Liverpool's
Sneijder
Henry
Soks
Best
Pochettino
Hearn
Daniel
Sir
Real
Summer
Harry
Milan
Gunners
Murphy
Gary
Boxing
Sunday
Jamie
Michael
Italy
Charlie
Thierry
Klopp
Villarreal
Espirito
Mail
Ham
Tennis
Raducanu
Nike
injury
Messi
Follow
loss
international
Neymar
PSG
Emma
Crystal
England's
Oleksandr
Gunnar
Brighton
Champions
Juventus

Regulatory or legal mandation isn't helpful / isn't a solution to interoperability

- A symptom of a failure to communicate
- What do you mandate?
- How do you prove it?
    - Test Suite has never fully covered a version of spec
- Dangers of mandating IPR
- Testing (test suite) is important and very helpful, but not a silver bullet.
    - HbbTV is complex, and very hard to achieve 100% pass
- Alone isn't sufficient to guarantee in-market and future market apps will work.
    - Reference App, DASH Validator, Zoo Testing…….
    - Something additional is needed...?

What Is Really Important

- In-market apps to work
    - Rather than passing all the tests of a local conformance regime.
    - App faults lead to customer calls, complaints etc. on our side,
    - Bad customer experience is what we ALL want to avoid in reality.

Interoperability for All

Interoperability for All

HbbTV Browser
Device 1

HbbTV Browser
Device 2

HbbTV Browser
Device 3

HbbTV Browser
Device 4

HbbTV Application
Alpha

HbbTV Application
Beta

HbbTV Application
Gamma

HbbTV Application
Zeta

Thank You

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