Web Content Guidelines for PlayStation®4

Version 11.00

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1 About This Document

This document provides information required in creating web content for the Internet Browser implemented on the PlayStation®4 system software such as client specifications, technical information, and guidelines. It is recommended for licensees to use the information in this document when creating applicable web content for the Internet Browser.

However, it is possible for Internet Browser client specifications to be changed for fixing bugs and improving quality. The content of this document is not guaranteed to be valid for future versions of the system software. In this document, the applicable version number ("X.XX or later") is noted whenever differences exist depending on the version of the system software.

2 Basic Specifications of the Internet Browser

This chapter describes the basic specifications of the Internet Browser.

Standard Web Specifications

The browser engine used by the Internet Browser is WebKit. Refer to the information about Safari 15.4 that can be obtained from the https://caniuse.com/ site regarding the status of each feature in WebKit. (In particular, use the "Can I use __?" search at the top of the homepage or the index of features of https://caniuse.com/ciu/index.) Generally speaking, features labeled as "Supported" or "Supported in Preview" can be used.

(The above reference destinations have been confirmed as of August 7, 2023. Note that pages may have been subsequently moved or the content modified.)

However, some of the features may not be valid for the PlayStation®4 browser engine. Also note that Internet browsers have less available memory than typical desktop browsers.

In particular, the following features cannot currently be used.

- Conic Gradients
- CSS Scroll Snap Points Module Level 1
- Datalist Element
- DeviceOrientation Events
- Download Attribute
- Encrypted Media Extensions
- File and Directory Entries API
- Filter Effects backdrop-filter property
- Force Click Events
- Gamepad
- Geolocation API
- Indexed Database
- Indexed Database 2.0
- MathML
- Media Capture and Streams
- Media Source Extensions
- Payment Request
- Pointer Lock
- Service Workers
- Subresource Integrity
- SVG in OpenType Fonts
- Variation Fonts
- Web Share
- Web Assembly
- Web Audio
- WebGL 1
- WebGL 2
- WebRTC

- WOFF File Format 2.0
- XSLTProcessor API

Security

The Internet Browser complies with the following standard web specifications.

- TLS 1.0, 1.1, 1.2, 1.3

Viewport

Viewport is not supported.

Image Formats

The Internet Browser supports the following image formats.

- BMP
- GIF/Animation GIF
- ICO
- JPEG
- PNG/APNG
- SVG 1.1
- WebP

Vector Graphics

The `canvas` and `svg` elements are used to render vector graphics.

The following is an example.

```
<canvas id="mycanvas" width="600" height="400"></canvas>

<svg>
    <rect x="0" y="0" width="100" height="100" fill="blue">
</svg>
```

The `canvas` element supports only 2D contexts.

Media Playback

To play a video, use the `video` element.

```
<video src="myvideo.mp4"></video>
```

The video formats that can be played back are shown in the following.

Container Format

- MP4 or HLS

Video Format

- Codec: H.264
- Profile: Baseline Profile, Main Profile, or High Profile
- Level: 4.1 or lower
- Size: 1920x1080 or lower
- Framerate: 60 fps or lower

- Bitrate: 20 Mbps or lower (however, if the video size is 1920x1080, 8 to 10 Mbps is recommended in order to prevent buffering)
- Progressive streams are recommended

Audio Format

- Codec: AAC-LC or HE-AAC v1
- Channels: 1 channel, 2 channels, 6 channels (AAC-LC only), or 7.1 channels (AAC-LC only)
- Sampling rate: 8000, 11025, 12000, 16000, 22050, 24000, 32000, 44100, or 48000 Hz
- Bitrate: 48 to 3456 kbps

Note that only M3U8 files (used in HLS) that adhere to the following document are supported.

- https://tools.ietf.org/html/draft-pantos-http-live-streaming-05

For details about HLS, refer to the following document.

- https://developer.apple.com/library/content/documentation/NetworkingInternet/Conceptual/StreamingMediaGuide/UsingHTTPLiveStreaming/UsingHTTPLiveStreaming.html

(The above reference destinations have been confirmed as of August 07, 2023. Note that pages may have been subsequently moved or the contents modified.)

Note
Audio playback using the `audio` element is not supported.

User Agent

The user agent string provided by the Internet Browser on PlayStation®4 is as follows.

System Software Version	User Agent that Is Applied
Earlier than 8.00	`Mozilla/5.0 (PlayStation 4 x.xx) AppleWebKit/xxx.xx (KHTML, like Gecko)`
8.00 or later	`Mozilla/5.0 (PlayStation; PlayStation 4/x.xx) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/yy.yy Safari/605.1.15`

- `PlayStation 4 x.xx`
  This represents the platform name and the version of the system software.
- `AppleWebKit/xxx.xx`
  This represents the build number of the WebKit engine.
- `Version/yy.yy`
  This represents the version of Safari (macOS) that has roughly equivalent features.

Note
It is not recommended to use the user agent to distinguish the Internet Browser on PlayStation®4 from other web browsers. Websites making such distinctions and providing separate content by browser type have been reported to cause problems when the Internet Browser is updated. Either create the same content for the Internet Browser and other web browsers, or make it possible to directly check whether a required feature can be used.

Root Certificates

PlayStation®4 is embedded with the following root certificates and they are used in SSL connections of the Internet Browser.

Certificate Authority	Root Certificates
AffirmTrust	AffirmTrust Commercial
	AffirmTrust Networking
	AffirmTrust Premium
	AffirmTrust Premium ECC
Buypass	Buypass Class 2 Root CA
	Buypass Class 3 Root CA
Certum	Certum CA
Certplus	Class 2 Primary CA
CyberTrust	Baltimore CyberTrust Root
	Cybertrust Global Root
DigiCert	DigiCert Assured ID Root CA
	DigiCert Assured ID Root G2
	DigiCert Assured ID Root G3
	DigiCert Global Root CA
	DigiCert Global Root G2
	DigiCert Global Root G3
	DigiCert High Assurance EV Root CA
	DigiCert Trusted Root G4
D-Trust	D-TRUST Root Class 3 CA 2 2009
	D-TRUST Root Class 3 CA 2 EV 2009
Entrust	Entrust Root Certification Authority
	Entrust Root Certification Authority - G2
	Entrust.net Certification Authority (2048)
GeoTrust	GeoTrust Global CA
	GeoTrust Global CA GeoTrust Primary Certification Authority - G3
	GeoTrust Primary Certification Authority
GlobalSign	GlobalSign ECC Root CA - R5
	GlobalSign Root CA
	GlobalSign Root CA - R2
	GlobalSign Root CA - R3
	GlobalSign Root CA - R6
GoDaddy	Go Daddy Root Certificate Authority - G2
	Go Daddy Class 2 Certification Authority
	Starfield Class 2 Certification Authority
	Starfield Root Certificate Authority - G2
	Starfield Services Root Certificate Authority
	Starfield Services Root Certificate Authority - G2
IdenTrust	DST Root CA X3
ISRG	ISRG Root X1
RSA Security	RSA Security 2048 V3
	Secure Server Certification Authority
SECOM Trust Systems	Security Communication ECC RootCA1
	Security Communication RootCA1
	Security Communication RootCA2
	Security Communication RootCA3
SECTIGO	AAA Certificate Services
	AddTrust External CA Root
	COMODO Certification Authority
	COMODO ECC Certification Authority
	COMODO RSA Certification Authority
	USERTrust ECC Certification Authority
	USERTrust RSA Certification Authority
	UTN-USERFirst-Hardware

Certificate Authority	Root Certificates
StartCom	StartCom Certification Authority
	StartCom Certification Authority G2
Thawte	thawte Primary Root CA
	thawte Primary Root CA - G3
Trustwave	SecureTrust CA
VERISIGN	Class 1 Public Primary Certification Authority
	Class 2 Public Primary Certification Authority
	Class 2 Public Primary Certification Authority - G2
	Class 3 Public Primary Certification Authority - G2
	Class 4 Public Primary Certification Authority - G2
	VeriSign Class 1 Public Primary Certification Authority - G3
	VeriSign Class 2 Public Primary Certification Authority - G3
	VeriSign Class 3 Public Primary Certification Authority - G3
	VeriSign Class 3 Public Primary Certification Authority - G5
	VeriSign Class 4 Public Primary Certification Authority - G3
	VeriSign Universal Root Certification Authority

Cipher Suites

Cipher suites are used with the following priority in the Internet Browser. (Cipher suites are encrypted communication algorithms used in SSL/TLS communication.)

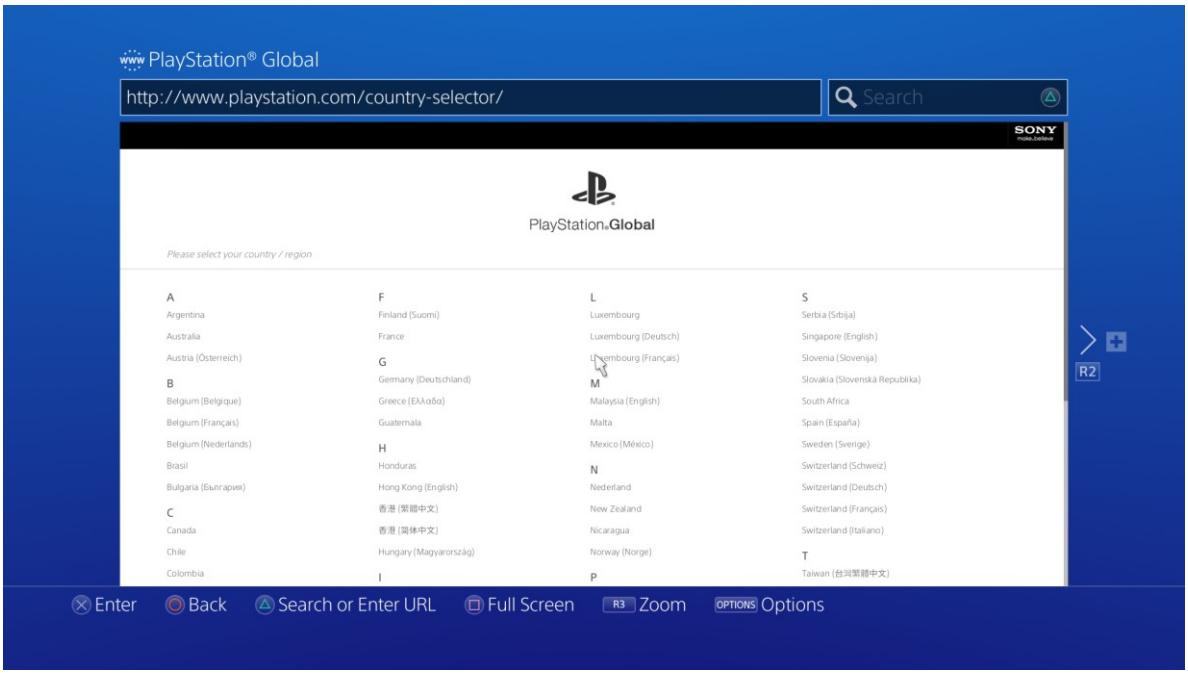
Priority	Cipher Suite
1	TLS_AES_128_GCM_SHA256
2	TLS_CHACHA20_POLY1305_SHA256
3	TLS_AES_256_GCM_SHA384
4	TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256
5	TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
6	TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384
7	TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384
8	TLS_ECDHE_ECDSA_WITH_CHACHA20_POLY1305_SHA256
9	TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256
10	TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA
11	TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA
12	TLS_RSA_WITH_AES_128_GCM_SHA256
13	TLS_RSA_WITH_AES_256_GCM_SHA384
14	TLS_RSA_WITH_AES_128_CBC_SHA
15	TLS_RSA_WITH_AES_256_CBC_SHA
16	TLS_RSA_WITH_3DES_EDE_CBC

Window Size

The size of the window displayed by the Internet Browser for showing web content differs between standard display and full-screen display, as follows.

- Standard: width 1540 pixels, height 754 pixels
- Full screen: width 1920 pixels, height 1080 pixels

Figure 1 Example of Standard Display of Web Content



On full-screen display, display of web content is spread over the entire screen and content at the edges may be hidden by the screen peripherals on some displays. When creating web content, consider a full-screen display and avoid displaying important information near the peripherals. This extra space is called the "safety zone".

Control of the Mouse Cursor

The position of the mouse cursor cannot be set from the web page. The moving position cannot arbitrarily be changed for mouse cursor operation using the directional keys as well.

Downloads and Uploads

The downloading and uploading of files are not supported.

3 Events

Input Operation Events

Input Devices

The Internet Browser supports the following devices.

- DUALSHOCK®4 wireless controller
- USB/Bluetooth® keyboard

Use the DUALSHOCK®4 wireless controller to operate the onscreen mouse cursor. The cursor can be moved with the left stick. Clicks can be made with the Enter button (either the circle button or cross button depending on the region). It is also possible to jump to elements that can be clicked using the directional keys. Other buttons will be assigned to features unique to the Internet Browser.

For details, refer to the PlayStation®4 User's Guide.

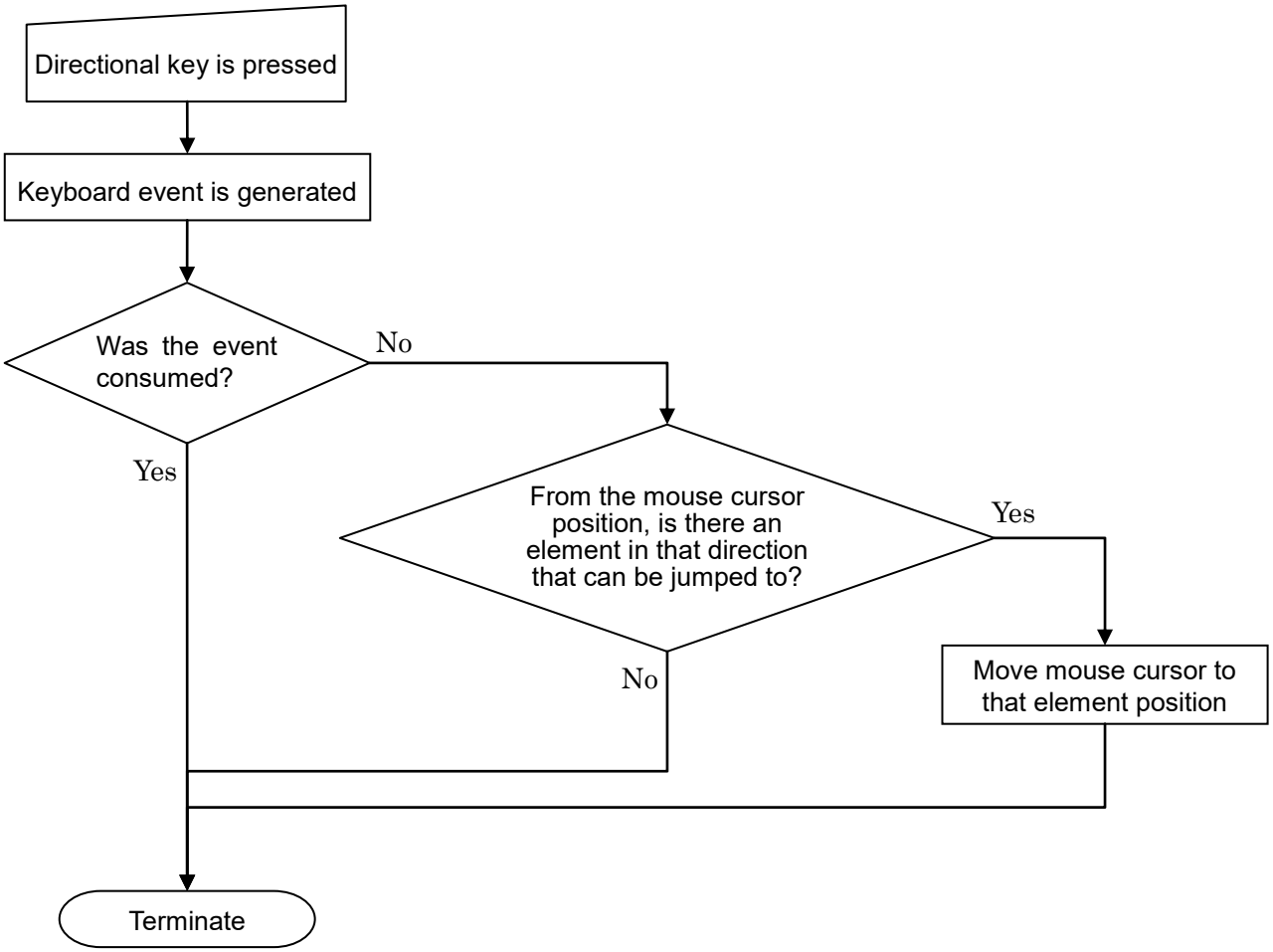
Input Operation Obtainment

Given the above-described input device operations, general mouse events and keyboard events will be generated. Web content cannot individually obtain information of various buttons and the touchpad of the DUALSHOCK®4 wireless controller.

Directional Key Behavior

The directional keys of the DUALSHOCK®4 wireless controller are usually used to jump the mouse cursor to a nearby element that can be clicked. When a directional key is used for this purpose, a keyboard event is generated, and the processing shown in Figure 2 is carried out. Wherever this jump of the mouse cursor to a nearby element that can be clicked is not desired in your web content, the `preventDefault` method must be explicitly called when a keyboard event is generated to prevent the jump.

Figure 2 Directional Key Behavior



Window Focus Events

Multiple windows can be opened at the same time on the Internet Browser. When switching between these windows, the `onfocus/onblur` event is generated for the `window` object. The same `onblur` event is generated when the PS button is pressed to return to the home screen.

Focus Events of the Character Input Field

The software keyboard or the USB/Bluetooth® keyboard is used to input characters to the Internet Browser; however, in either case, character input cannot be started just by setting the focus on the `input` element or `textarea` element (and generating the `onfocus` event). To start character input, one of the following operations is required from the user.

- Click the mouse on the character input field
- Press the Enter key while the focus is on the character input field

The focus will be kept on the character input field when the software keyboard is closed. To release this focused state, the user must click the mouse on another element or explicitly remove the focus with a script. Note the `onchange` event for an element of the character input field will be generated only when the focus is removed from that element - and not just when the software keyboard is closed.

Event When a Window Is Unloaded

The Internet Browser does not support the `window.onbeforeunload` event. Required processing for when a window is unloaded (when leaving a displayed page) must be carried out in advance each time a window is unloaded.

4 Software Keyboard

This chapter describes the behavior of the software keyboard upon entering characters to the Internet Browser.

Role of the Done Key

The Done key on the software keyboard serves the role of the Enter key (key code 13). Because of this, the Enter key event is generated when the Done key is pressed for the character input field of the `input` element placed on the form and the form is submitted. When the Done key is pressed for the character input field of the `textarea` element, the software keyboard just closes and the Enter key event is not issued. The Enter key event is also not issued when the user presses the return button (cross button or circle button depending on the region) to close the software keyboard.

Language Specification with the lang Attribute

The software keyboard supports multiple languages, but the Internet Browser displays the software keyboard in the language specified with the `lang` attribute of the `input` element. When there is no language specification or when the specified language is not supported, the display language setting of the PlayStation®4 system will be used.

The languages supported by the Internet Browser are as follows.

`lang` attribute	Description
`ar`	Arabic
`da`	Danish
`de`	German
`cs-CZ`	Czech
`el-GR`	Greek
`en`, `en-US`	English (United States)
`en-GB`	English (United Kingdom)
`es`	Spanish (Spain)
`es-419`	Spanish (Latin America)
`fi`	Finnish
`fr`	French (France)
`fr-CA`	French (Canada)
`hu-HU`	Hungarian
`id-ID`	Indonesian
`it`	Italian
`ja`	Japanese
`ko`	Korean
`nl`	Dutch
`no`	Norwegian
`pl`	Polish
`pt`, `pt-BR`	Portuguese (Brazil)
`pt-PT`	Portuguese (Portugal)
`ro-RO`	Romanian
`ru`	Russian
`sv`	Swedish
`th-TH`	Thai
`tr`	Turkish
`uk-UA`	Ukrainian
`vi-VN`	Vietnamese

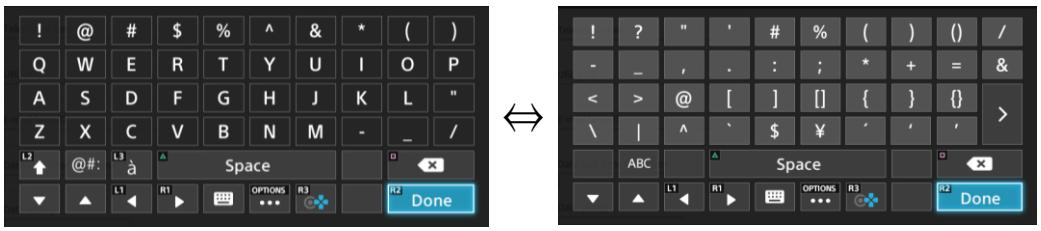
`lang` attribute	Description
`zh`, `zh-Hans`	Chinese (simplified)
`zh-Hant`	Chinese (traditional)

Panel Specification with the type Attribute

The software keyboard has panels supporting various input modes. The Internet Browser selects the appropriate browser according to the value specified to the `type` attribute of the `input` element. Examples of when the language is English are given below.

type="text", "search", "datetime", "date", "month", "week", "time", "datetime-local", "color"

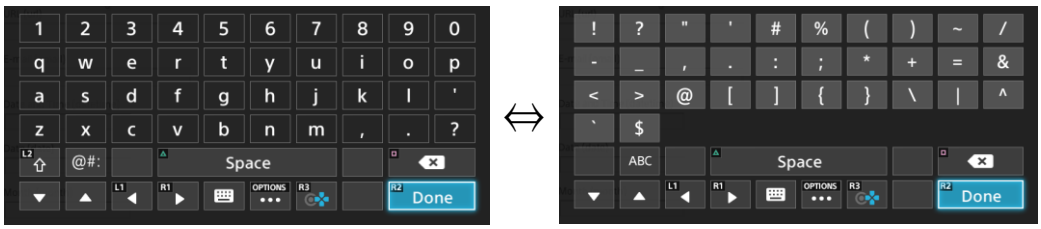
Basic panel ⇔ Symbol panel



* Example when the automatic capitalization on the keyboard is enabled and when the first character is input

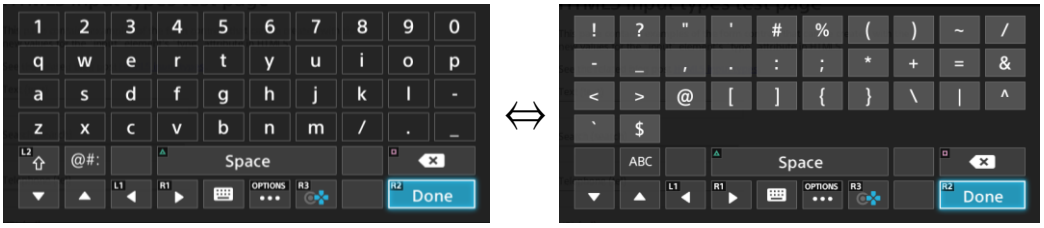
type="tel"

Basic panel ⇔ Symbol panel



type="url"

Basic panel ⇔ Symbol panel



type="email"

Basic panel

⇔

Symbol panel

type="number"

Basic panel

* Only the basic panel