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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.

```html
<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.

```html
<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, 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.

For details about HLS, refer to the following document.

(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.

<table>
<thead>
<tr>
<th>System Software Version</th>
<th>User Agent that Is Applied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earlier than 8.00</td>
<td>Mozilla/5.0 (PlayStation 4 x.xx)</td>
</tr>
<tr>
<td></td>
<td>AppleWebKit/xxx.xx (KHTML, like Gecko)</td>
</tr>
<tr>
<td>8.00 or later</td>
<td>Mozilla/5.0 (PlayStation; PlayStation 4/x.xx)</td>
</tr>
<tr>
<td></td>
<td>AppleWebKit/605.1.15 (KHTML, like Gecko)</td>
</tr>
<tr>
<td></td>
<td>Version/yy.yy Safari/605.1.15</td>
</tr>
</tbody>
</table>

• 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.
<table>
<thead>
<tr>
<th>Certificate Authority</th>
<th>Root Certificates</th>
</tr>
</thead>
</table>
| 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 2009  
|                      | D-TRUST Root Class 3 CA 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  

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Web Content Guidelines for PlayStation®4  
- 8 -
<table>
<thead>
<tr>
<th>Certificate Authority</th>
<th>Root Certificates</th>
</tr>
</thead>
<tbody>
<tr>
<td>StartCom</td>
<td>StartCom Certification Authority</td>
</tr>
<tr>
<td></td>
<td>StartCom Certification Authority G2</td>
</tr>
<tr>
<td>Thawte</td>
<td>thawte Primary Root CA</td>
</tr>
<tr>
<td></td>
<td>thawte Primary Root CA - G3</td>
</tr>
<tr>
<td>Trustwave</td>
<td>SecureTrust CA</td>
</tr>
<tr>
<td>VERISIGN</td>
<td>Class 1 Public Primary Certification Authority</td>
</tr>
<tr>
<td></td>
<td>Class 2 Public Primary Certification Authority</td>
</tr>
<tr>
<td></td>
<td>Class 2 Public Primary Certification Authority - G2</td>
</tr>
<tr>
<td></td>
<td>Class 3 Public Primary Certification Authority - G2</td>
</tr>
<tr>
<td></td>
<td>Class 4 Public Primary Certification Authority - G2</td>
</tr>
<tr>
<td></td>
<td>VeriSign Class 1 Public Primary Certification Authority - G3</td>
</tr>
<tr>
<td></td>
<td>VeriSign Class 2 Public Primary Certification Authority - G3</td>
</tr>
<tr>
<td></td>
<td>VeriSign Class 3 Public Primary Certification Authority - G3</td>
</tr>
<tr>
<td></td>
<td>VeriSign Class 4 Public Primary Certification Authority - G3</td>
</tr>
<tr>
<td></td>
<td>VeriSign Universal Root Certification Authority</td>
</tr>
</tbody>
</table>

**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.)

<table>
<thead>
<tr>
<th>Priority</th>
<th>Cipher Suite</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TLS_AES_128_GCM_SHA256</td>
</tr>
<tr>
<td>2</td>
<td>TLS_CHACHA20_POLY1305_SHA256</td>
</tr>
<tr>
<td>3</td>
<td>TLS_AES_256_GCM_SHA384</td>
</tr>
<tr>
<td>4</td>
<td>TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256</td>
</tr>
<tr>
<td>5</td>
<td>TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256</td>
</tr>
<tr>
<td>6</td>
<td>TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384</td>
</tr>
<tr>
<td>7</td>
<td>TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384</td>
</tr>
<tr>
<td>8</td>
<td>TLS_ECDHE_ECDSA_WITH_CHACHA20_POLY1305_SHA256</td>
</tr>
<tr>
<td>9</td>
<td>TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256</td>
</tr>
<tr>
<td>10</td>
<td>TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA</td>
</tr>
<tr>
<td>11</td>
<td>TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA</td>
</tr>
<tr>
<td>12</td>
<td>TLS_RSA_WITH_AES_128_GCM_SHA256</td>
</tr>
<tr>
<td>13</td>
<td>TLS_RSA_WITH_AES_256_GCM_SHA384</td>
</tr>
<tr>
<td>14</td>
<td>TLS_RSA_WITH_AES_128_CBC_SHA</td>
</tr>
<tr>
<td>15</td>
<td>TLS_RSA_WITH_AES_256_CBC_SHA</td>
</tr>
<tr>
<td>16</td>
<td>TLS_RSA_WITH_3DES_EDE_CBC</td>
</tr>
</tbody>
</table>

**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
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.
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.

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

<table>
<thead>
<tr>
<th>Lang attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>zh, zh-Hans</td>
<td>Chinese (simplified)</td>
</tr>
<tr>
<td>zh-Hant</td>
<td>Chinese (traditional)</td>
</tr>
</tbody>
</table>

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

type="tel"

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

type="url"
Basic panel  
Symbol panel

* Only the basic panel