JavaScript APIs

JavaScript APIs for WebExtensions can be used inside the extension's background scripts and in any other documents bundled with the extension, including browser action or page action popups, sidebars, options pages, or new tab pages. A few of these APIs can also be accessed by an extension's content scripts. (See the list in the content script guide.)

To use the more powerful APIs, you need to request permission in your extension's `manifest.json` .

You can access the APIs using the `browser` namespace:

JS

```js
function logTabs(tabs) {
  console.log(tabs);
}

browser.tabs.query({ currentWindow: true }, logTabs);
```

Many of the APIs are asynchronous, returning a `Promise` :

JS

```js
function logCookie(c) {
  console.log(c);
}

function logError(e) {
  console.error(e);
}

let setCookie = browser.cookies.set({ url: "https://developer.mozilla.org/" });
setCookie.then(logCookie, logError);
```

Browser API differences

Note that this is different from Google Chrome's extension system, which uses the `chrome` namespace instead of `browser` , and which uses callbacks instead of promises for asynchronous functions. As a porting aid, the Firefox implementation of WebExtensions APIs supports `chrome` and callbacks as well as `browser` and promises. Mozilla has also written a polyfill which enables code that uses `browser` and promises to work unchanged in Chrome: https://github.com/mozilla/webextension-polyfill .

Firefox also implements these APIs under the `chrome` namespace using callbacks. This allows code written for Chrome to run largely unchanged in Firefox for the APIs documented here.

Microsoft Edge uses the `browser` namespace, but doesn't yet support promise-based asynchronous APIs. In Edge, for the time being, asynchronous APIs must use callbacks.

Not all browsers support all the APIs: for the details, see Browser support for JavaScript APIs and Chrome incompatibilities.

Examples

Throughout the JavaScript API listings, short code examples illustrate how the API is used. You can experiment with most of these examples using the console in the Toolbox . However, you need Toolbox running in the context of a web extension. To do this, open `about:debugging` then **This Firefox**, click **Inspect** against any installed or temporary extension, and open **Console**. You can then paste and run the example code in the console.

Filter

For example, here is the first code example on this page running in the Toolbox console in Firefox Developer Edition:

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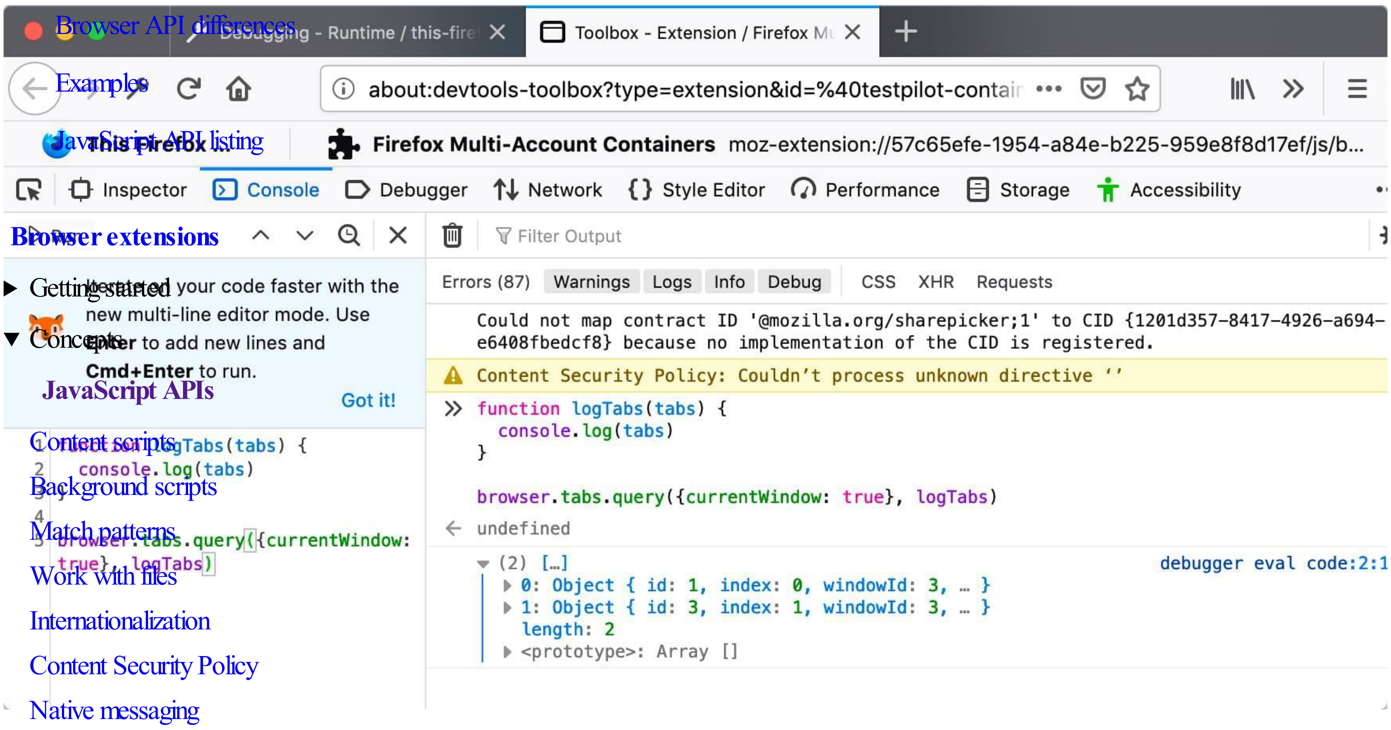
Browser API differences

Examples

JavaScript API listing



Debugging - Runtime / this-fire
Toolbox - Extension / Firefox M
about:devtools-toolbox?type=extension&id=%40testpilot-contai
This Firefox
Firefox Multi-Account Containers moz-extension://57c65efe-1954-a84e-b225-959e8f8d17ef/js/b...
Inspector
Console
Debugger
Network
Style Editor
Performance
Storage
Accessibility
Filter Output
Errors (87)
Warnings
Logs
Info
Debug
CSS
XHR
Requests
Iterate on your code faster with the new multi-line editor mode. Use Enter to add new lines and Cmd+Enter to run.
Got it!

```
function logTabs(tabs) {
  console.log(tabs)
}

browser.tabs.query({currentWindow: true}, logTabs)
```

```
Could not map contract ID '@mozilla.org/sharepicker;1' to CID {1201d357-8417-4926-a694-
e6408fbedcf8} because no implementation of the CID is registered.
⚠ Content Security Policy: Couldn’t process unknown directive ‘’
» function logTabs(tabs) {
    console.log(tabs)
  }

  browser.tabs.query({currentWindow: true}, logTabs)
← undefined
  ▼ (2) […]                                                  debugger eval code:2:1
    ▶ 0: Object { id: 1, index: 0, windowId: 3, … }
    ▶ 1: Object { id: 3, index: 1, windowId: 3, … }
      length: 2
    ▶ <prototype>: Array []
```

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JavaScript API listing

See below for a complete list of JavaScript APIs:

action

Adds a button to the browser's toolbar.

alarms

Schedules code to run at a specific time in the future. This is like `setTimeout()` and `setInterval()` , except that those functions don't work with background pages that are loaded on demand.

bookmarks

The WebExtensions `bookmarks` API lets an extension interact with and manipulate the browser's bookmarking system. You can use it to bookmark pages, retrieve existing bookmarks, and edit, remove, and organize bookmarks.

browserAction

Adds a button to the browser's toolbar.

browserSettings

Enables an extension to modify certain global browser settings. Each property of this API is a `types.BrowserSetting` object, providing the ability to modify a particular setting.

browsingData

Enables extensions to clear the data that is accumulated while the user is browsing.

captivePortal

Determine the captive portal state of the user's connection. A captive portal is a web page displayed when a user first connects to a Wi-Fi network. The user provides information or acts on the captive portal web page to gain broader access to network resources, such as accepting terms and conditions or making a payment.

clipboard

The WebExtension `clipboard` API (which is different from the standard Clipboard API) enables an extension to copy items to the system clipboard. Currently the WebExtension `clipboard` API only supports copying images, but it's intended to support copying text and HTML in the future.

commands

Listen for the user executing commands that you have registered using the `commands` manifest.json key.

contentScripts

Use this API to register content scripts. Registering a content script instructs the browser to insert the given content scripts into pages that match the given URL patterns.

contextualIdentities

Work with contextual identities: list, create, remove, and update contextual identities.

cookies

Enables extensions to get and set cookies, and be notified when they change.

declarativeNetRequest

This API enables extensions to specify conditions and actions that describe how network requests should be handled. These declarative rules enable the browser to evaluate and modify network requests without notifying extensions about individual network requests.

devtools

Enables extensions to interact with the browser's Developer Tools. You use this API to create Developer Tools pages, interact with the window that is being inspected, inspect the page network usage.

dns

Enables an extension to resolve domain names.

dom

Access special extension only DOM features.

downloads

Enables extensions to interact with the browser's download manager. You can use this API module to download files, cancel, pause, resume downloads, and show downloaded files in the file manager.

events

Common types used by APIs that dispatch events.

extension

Utilities related to your extension. Get URLs to resources packages with your extension. Get the `Window` object for your extension's pages. Get the values for various settings.

extensionTypes

Some common types used in other WebExtension APIs.

find

Finds text in a web page, and highlights matches.

history

Use the `history` API to interact with the browser history.

i18n

Functions to internationalize your extension. You can use these APIs to get localized strings from locale files packaged with your extension, find out the browser's current language, and find out the value of its Accept-Language header.

identity

Use the identity API to get an OAuth2 authorization code or access token, which an extension can then use to access user data from a service that supports OAuth2 access (such as Google or Facebook).

idle

Find out when the user's system is idle, locked, or active.

management

Get information about installed add-ons.

menus

Add items to the browser's menu system.

notifications

Display notifications to the user, using the underlying operating system's notification mechanism. Because this API uses the operating system's notification mechanism, the details of how notifications appear and behave may differ according to the operating system and the user's settings.

omnibox

Enables extensions to implement customized behavior when the user types into the browser's address bar.

pageAction

The API to control address bar button.

permissions

Enables extensions to request extra permissions at runtime, after they have been installed.

pkcs11

The `pkcs11` API enables an extension to enumerate PKCS #11 security modules and to make them accessible to the browser as sources of keys and certificates.

privacy

Access and modify various privacy-related browser settings.

proxy

Use the proxy API to proxy web requests. You can use the `proxy.onRequest` event listener to intercept web requests, and return an object that describes whether and how to proxy them.

runtime

This module provides information about your extension and the environment it's running in.

scripting

Inserts JavaScript and CSS into websites. This API offers two approaches to inserting content:

search

Use the search API to retrieve the installed search engines and execute searches.

sessions

Use the sessions API to list, and restore, tabs and windows that have been closed while the browser has been running.

sidebarAction

Gets and sets properties of an extension's sidebar.

storage

Enables extensions to store and retrieve data, and listen for changes to stored items.

tabs

Interact with the browser's tab system.

theme

Enables browser extensions to get details of the browser's theme and update the theme.

topSites

Use the topSites API to get an array containing pages that the user has visited frequently.

types

Defines the `BrowserSetting` type, which is used to represent a browser setting.

userScripts

Use this API to register user scripts, third-party scripts designed to manipulate webpages or provide new features. Registering a user script instructs the browser to attach the script to pages that match the URL patterns specified during registration.

webNavigation

Add event listeners for the various stages of a navigation. A navigation consists of a frame in the browser transitioning from one URL to another, usually (but not always) in response to a user action like clicking a link or entering a URL in the location bar.

webRequest

Add event listeners for the various stages of making an HTTP request, which includes websocket requests on `ws://` and `wss://`. The event listener receives detailed information about the request and can modify or cancel the request.

windows

Interact with browser windows. You can use this API to get information about open windows and to open, modify, and close windows. You can also listen for window open, close, and activate events.

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