chrome.webRequest

Description:	Use the `chrome.webRequest` API to observe and analyze traffic and to intercept, block, or modify requests in-flight.
Availability:	Since Chrome 26.
Permissions:	`"webRequest"` **host permissions**

Manifest

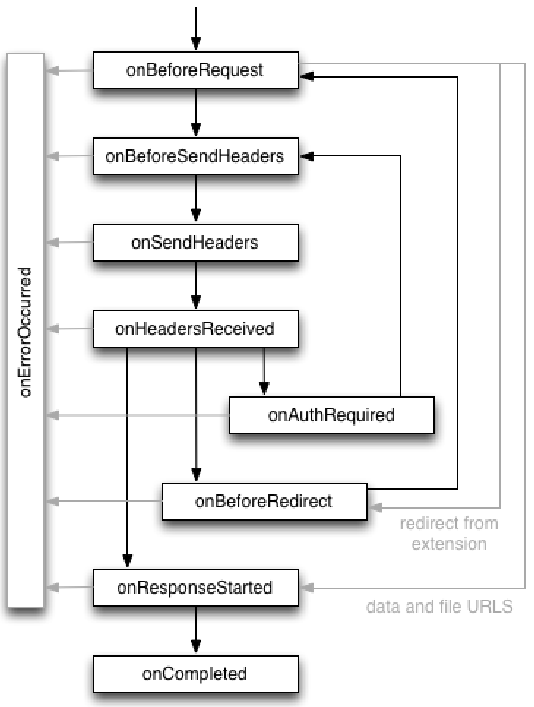
You must declare the "webRequest" permission in the **extension manifest** to use the web request API, along with the necessary **host permissions**. To intercept a request, the extension needs to have access to both the requested URL and its initiator. If you want to use the web request API in a blocking fashion, you need to request the "webRequestBlocking" permission in addition. For example:

```
{
  "name": "My extension",
  ...
  "permissions": [
    "webRequest",
    "*://*.google.com/"
  ],
  ...
}
```

Life cycle of requests

The web request API defines a set of events that follow the life cycle of a web request. You can use these events to observe and analyze traffic. Certain synchronous events will allow you to intercept, block, or modify a request.

The event life cycle for successful requests is illustrated here, followed by event definitions:



`onBeforeRequest` (optionally synchronous)
: Fires when a request is about to occur. This event is sent before any TCP connection is made and can be used to cancel or redirect requests.

`onBeforeSendHeaders` (optionally synchronous)
: Fires when a request is about to occur and the initial headers have been prepared. The event is intended to allow extensions to add, modify, and delete request headers **(*)**. The `onBeforeSendHeaders` event is passed to all subscribers, so different subscribers may attempt to modify the request; see the **Implementation details** section for how this is handled. This event can be used to cancel the request.

`onSendHeaders`
: Fires after all extensions have had a chance to modify the request headers, and presents the final **(*)** version. The event is triggered before the headers are sent to the network. This event is informational and handled asynchronously. It does not allow modifying or cancelling the request.

`onHeadersReceived` (optionally synchronous)
: Fires each time that an HTTP(S) response header is received. Due to redirects and authentication requests this can happen multiple times per request. This event is intended to allow extensions to add, modify, and delete response headers, such as incoming Content-Type headers. The caching directives are processed before this event is triggered, so modifying headers such as Cache-Control has no influence on the browser's cache. It also allows you to cancel or redirect the request.

`onAuthRequired` (optionally synchronous)
: Fires when a request requires authentication of the user. This event can be handled synchronously to provide authentication credentials. Note that extensions may provide invalid credentials. Take care not to enter an infinite loop by repeatedly providing invalid credentials. This can also be used to cancel the request.

`onBeforeRedirect`
: Fires when a redirect is about to be executed. A redirection can be triggered by an HTTP response code or by an extension. This event is informational and handled asynchronously. It does not allow you to modify or cancel the request.

`onResponseStarted`
: Fires when the first byte of the response body is received. For HTTP requests, this means that the status line and response headers are available. This event is informational and handled asynchronously. It does not allow modifying or cancelling the request.

`onCompleted`
: Fires when a request has been processed successfully.

`onErrorOccurred`
: Fires when a request could not be processed successfully.

The web request API guarantees that for each request either `onCompleted` or `onErrorOccurred` is fired as the final event with one exception: If a request is redirected to a `data://` URL, `onBeforeRedirect` is the last reported event.

(*) Note that the web request API presents an abstraction of the network stack to the extension. Internally, one URL request can be split into several HTTP requests (for example to fetch individual byte ranges from a large file) or can be handled by the network stack without communicating with the network. For this reason, the API does not provide the final HTTP headers that are sent to the network. For example, all headers that are related to caching are invisible to the extension.

The following headers are currently **not provided** to the `onBeforeSendHeaders` event. This list is not guaranteed to be complete nor stable.

- Authorization
- Cache-Control
- Connection
- Content-Length
- Host
- If-Modified-Since
- If-None-Match
- If-Range
- Partial-Data
- Pragma
- Proxy-Authorization
- Proxy-Connection
- Transfer-Encoding

Starting from Chrome 72, the following request headers are **not provided** and cannot be modified or removed without specifying `'extraHeaders'` in `opt_extraInfoSpec`:

- Accept-Language
- Accept-Encoding
- Referer
- Cookie

Starting from Chrome 72, the Set-Cookie response header is **not provided** and cannot be modified or removed without specifying `'extraHeaders'` in `opt_extraInfoSpec`.

Note: Specifying `'extraHeaders'` in `opt_extraInfoSpec` may have a negative impact on performance, hence it should only be used when really necessary.

The webRequest API only exposes requests that the extension has permission to see, given its **host permissions**. Moreover, only the following schemes are accessible: `http://`, `https://`, `ftp://`, `file://`, `ws://` (since Chrome 58), `wss://` (since Chrome 58), or `chrome-extension://`. In addition, even certain requests with URLs using one of the above schemes are hidden. These include `chrome-extension://other_extension_id` where `other_extension_id` is not the ID of the extension to handle the request, `https://www.google.com/chrome`, and other sensitive requests core to browser functionality. Also synchronous XMLHttpRequests from your extension are hidden from blocking event handlers in order to prevent deadlocks. Note that for some of the supported schemes the set of available events might be limited due to the nature of the corresponding protocol. For example, for the “file:” scheme, only `onBeforeRequest`, `onResponseStarted`, `onCompleted`, and `onErrorOccurred` may be dispatched.

Starting from Chrome 58, the webRequest API supports intercepting the WebSocket handshake request. Since the handshake is done by means of an HTTP upgrade request, its flow fits into HTTP-oriented webRequest model. Note that the API does **not intercept**:

- Individual messages sent over an established WebSocket connection.
- WebSocket closing connection.

Redirects are **not supported** for WebSocket requests.

Starting from Chrome 72, an extension will be able to intercept a request only if it has host permissions to both the requested URL and the request initiator.

Concepts

As the following sections explain, events in the web request API use request IDs, and you can optionally specify filters and extra information when you register event listeners.

Request IDs

Each request is identified by a request ID. This ID is unique within a browser session and the context of an extension. It remains constant during the the life cycle of a request and can be used to match events for the same request. Note that several HTTP requests are mapped to one web request in case of HTTP redirection or HTTP authentication.

Registering event listeners

To register an event listener for a web request, you use a variation on the **usual `addListener()` function**. In addition to specifying a callback function, you have to specify a filter argument and you may specify an optional extra info argument.

The three arguments to the web request API's `addListener()` have the following definitions:

```
var callback = function(details) {...};
var filter = {...};
var opt_extraInfoSpec = [...];
```

Here's an example of listening for the `onBeforeRequest` event:

```
chrome.webRequest.onBeforeRequest.addListener(
  callback, filter, opt_extraInfoSpec);
```

Each `addListener()` call takes a mandatory callback function as the first parameter. This callback function is passed a dictionary containing information about the current URL request. The information in this dictionary depends on the specific event type as well as the content of `opt_extraInfoSpec`.

If the optional `opt_extraInfoSpec` array contains the string `'blocking'` (only allowed for specific events), the callback function is handled synchronously. That means that the request is blocked until the callback function returns. In this case, the callback can return a **webRequest.BlockingResponse** that determines the further life cycle of the request. Depending on the context, this response allows cancelling or redirecting a request (`onBeforeRequest`), cancelling a request or modifying headers (`onBeforeSendHeaders`, `onHeadersReceived`), and cancelling a request or providing authentication credentials (`onAuthRequired`).

If the optional `opt_extraInfoSpec` array contains the string `'asyncBlocking'` instead (only allowed for `onAuthRequired`), the extension can generate the **webRequest.BlockingResponse** asynchronously.

The **webRequest.RequestFilter** `filter` allows limiting the requests for which events are triggered in various dimensions:

URLs
: **URL patterns** such as `*://www.google.com/foo*bar`.

Types
: Request types such as `main_frame` (a document that is loaded for a top-level frame), `sub_frame` (a document that is loaded for an embedded frame), and `image` (an image on a web site). See **webRequest.RequestFilter**.

Tab ID
: The identifier for one tab.

Window ID
: The identifier for a window.

Depending on the event type, you can specify strings in `opt_extraInfoSpec` to ask for additional information about the request. This is used to provide detailed information on request's data only if explicitly requested.

Implementation details

Several implementation details can be important to understand when developing an extension that uses the web request API:

Conflict resolution

In the current implementation of the web request API, a request is considered as cancelled if at least one extension instructs to cancel the request. If an extension cancels a request, all extensions are notified by an `onErrorOccurred` event. Only one extension is allowed to redirect a request or modify a header at a time. If more than one extension attempts to modify the request, the most recently installed extension wins and all others are ignored. An extension is not notified if its instruction to modify or redirect has been ignored.

Caching

Chrome employs two caches — an on-disk cache and a very fast in-memory cache. The lifetime of an in-memory cache is attached to the lifetime of a render process, which roughly corresponds to a tab. Requests that are answered from the in-memory cache are invisible to the web request API. If a request handler changes its behavior (for example, the behavior according to which requests are blocked), a simple page refresh might not respect this changed behavior. To make sure the behavior change goes through, call `handlerBehaviorChanged()` to flush the in-memory cache. But don't do it often; flushing the cache is a very expensive operation. You don't need to call `handlerBehaviorChanged()` after registering or unregistering an event listener.

Timestamps

The `timestamp` property of web request events is only guaranteed to be *internally* consistent. Comparing one event to another event will give you the correct offset between them, but comparing them to the current time inside the extension (via `(new Date()).getTime()`, for instance) might give unexpected results.

Error handling

If you try to register an event with invalid arguments, then a JavaScript error will be thrown, and the event handler will not be registered. If an error is thrown while an event is handled, or if an event handler returns an invalid blocking response, an error message is logged to your extension's console and the handler is ignored for that request.

Examples

The following example illustrates how to block all requests to `www.evil.com`:

```
chrome.webRequest.onBeforeRequest.addListener(
  function(details) {
    return {cancel: details.url.indexOf("://www.evil.com/") != -1};
  },
  {urls: ["<all_urls>"]},
  ["blocking"]);
```

As this function uses a blocking event handler, it requires the "webRequest" as well as the "webRequestBlocking" permission in the manifest file.

The following example achieves the same goal in a more efficient way because requests that are not targeted to `www.evil.com` do not need to be passed to the extension:

```
chrome.webRequest.onBeforeRequest.addListener(
  function(details) { return {cancel: true}; },
  {urls: ["*://www.evil.com/*"]},
  ["blocking"]);
```

The following example illustrates how to delete the User-Agent header from all requests:

```
chrome.webRequest.onBeforeSendHeaders.addListener(
  function(details) {
    for (var i = 0; i < details.requestHeaders.length; ++i) {
      if (details.requestHeaders[i].name === 'User-Agent') {
            details.requestHeaders.splice(i, 1);
            break;
          }
        }
        return {requestHeaders: details.requestHeaders};
      },
      {urls: ["<all_urls>"]},
      ["blocking", "requestHeaders"]);
```

For more example code, see the **web request samples**.

Summary

Types
ResourceType
OnBeforeRequestOptions
OnBeforeSendHeadersOptions
OnSendHeadersOptions
OnHeadersReceivedOptions
OnAuthRequiredOptions
OnResponseStartedOptions
OnBeforeRedirectOptions
OnCompletedOptions
RequestFilter
HttpHeaders
BlockingResponse
UploadData
FormDataItem
IgnoredActionType
Properties
MAX_HANDLER_BEHAVIOR_CHANGED_CALLS_PER_10_MINUTES
Methods
handlerBehaviorChanged – `chrome.webRequest.handlerBehaviorChanged(function callback)`
Events
onBeforeRequest
onBeforeSendHeaders
onSendHeaders
onHeadersReceived
onAuthRequired
onResponseStarted
onBeforeRedirect
onCompleted
onErrorOccurred
onActionIgnored

Types

ResourceType

Enum
`"main_frame"`, `"sub_frame"`, `"stylesheet"`, `"script"`, `"image"`, `"font"`, `"object"`, `"xmlhttprequest"`, `"ping"`, `"csp_report"`, `"media"`, `"websocket"`, or `"other"`

OnBeforeRequestOptions

Enum
`"blocking"`, or `"requestBody"`

OnBeforeSendHeadersOptions

Enum
`"requestHeaders"`, or `"blocking"`

OnSendHeadersOptions

Enum
`"requestHeaders"`

OnHeadersReceivedOptions

Enum
`"blocking"`, or `"responseHeaders"`

OnAuthRequiredOptions

Enum
`"responseHeaders"`, `"blocking"`, or `"asyncBlocking"`

OnResponseStartedOptions

Enum
`"responseHeaders"`

OnBeforeRedirectOptions

Enum
`"responseHeaders"`

OnCompletedOptions

Enum
"responseHeaders"

RequestFilter

An object describing filters to apply to webRequest events.

properties		
array of string	urls	A list of URLs or URL patterns. Requests that cannot match any of the URLs will be filtered out.
array of **ResourceType**	(optional) types	A list of request types. Requests that cannot match any of the types will be filtered out.
integer	(optional) tabId	
integer	(optional) windowId	

HttpHeaders

array of object
An array of HTTP headers. Each header is represented as a dictionary containing the keys `name` and either `value` or `binaryValue`.

BlockingResponse

Returns value for event handlers that have the 'blocking' extraInfoSpec applied. Allows the event handler to modify network requests.

properties		
boolean	(optional) cancel	If true, the request is cancelled. This prevents the request from being sent. This can be used as a response to the onBeforeRequest, onBeforeSendHeaders, onHeadersReceived and onAuthRequired events.
string	(optional) redirectUrl	Only used as a response to the onBeforeRequest and onHeadersReceived events. If set, the original request is prevented from being sent/completed and is instead redirected to the given URL. Redirections to non-HTTP schemes such as `data:` are allowed. Redirects initiated by a redirect action use the original request method for the redirect, with one exception: If the redirect is initiated at the onHeadersReceived stage, then the redirect will be issued using the GET method. Redirects from URLs with `ws://` and `wss://` schemes are **ignored**.
HttpHeaders	(optional) requestHeaders	Only used as a response to the onBeforeSendHeaders event. If set, the request is made with these request headers instead.
HttpHeaders	(optional) responseHeaders	Only used as a response to the onHeadersReceived event. If set, the server is assumed to have responded with these response headers instead. Only return `responseHeaders` if you really want to modify the headers in order to limit the number of conflicts (only one extension may modify `responseHeaders` for each request).

object	(optional) authCredentials	Only used as a response to the onAuthRequired event. If set, the request is made using the supplied credentials. string — username string — password

UploadData

Contains data uploaded in a URL request.

properties		
any	(optional) bytes	An ArrayBuffer with a copy of the data.
string	(optional) file	A string with the file's path and name.

FormDataItem

Since Chrome 66.

binary or string
Contains data passed within form data. For urlencoded form it is stored as string if data is utf-8 string and as ArrayBuffer otherwise. For form-data it is ArrayBuffer. If form-data represents uploading file, it is string with filename, if the filename is provided.

IgnoredActionType

Enum
`"redirect"`, `"request_headers"`, `"response_headers"`, or `"auth_credentials"`

Properties

`20`	`chrome.webRequest.MAX_HANDLER_BEHAVIOR_CHANGED_CALLS_PER_10_MINUTES`	The maximum number of times that `handlerBehaviorChanged` can be called per 10 minute sustained interval. `handlerBehaviorChanged` is an expensive function call that shouldn't be called often.

Methods

handlerBehaviorChanged

```
chrome.webRequest.handlerBehaviorChanged(function callback)
```

Needs to be called when the behavior of the webRequest handlers has changed to prevent incorrect handling due to caching. This function call is expensive. Don't call it often.

Parameters		
function	(optional) callback	If you specify the *callback* parameter, it should be a function that looks like this: `function() {...};`

Events

onBeforeRequest

Fired when a request is about to occur.

addListener

```
chrome.webRequest.onBeforeRequest.addListener(function callback)
```

Parameters		
function	callback	The *callback* parameter should be a function that looks like this: `function(object details) {...};`

object	details	(see below)

details:

string	requestId	The ID of the request. Request IDs are unique within a browser session. As a result, they could be used to relate different events of the same request.
string	url	
string	method	Standard HTTP method.
integer	frameId	The value 0 indicates that the request happens in the main frame; a positive value indicates the ID of a subframe in which the request happens. If the document of a (sub-)frame is loaded (`type` is `main_frame` or `sub_frame`), `frameId` indicates the ID of this frame, not the ID of the outer frame. Frame IDs are unique within a tab.
integer	parentFrameId	ID of frame that wraps the frame which sent the request. Set to -1 if no parent frame exists.
object	(optional) requestBody	Contains the HTTP request body data. Only provided if extraInfoSpec contains 'requestBody'.

requestBody:

string	(optional) error	Errors when obtaining request body data.
object	(optional) formData	If the request method is POST and the body is a sequence of key-value pairs encoded in UTF8, encoded as either multipart/form-data, or application/x-www-form-urlencoded, this dictionary is present and

		for each key contains the list of all values for that key. If the data is of another media type, or if it is malformed, the dictionary is not present. An example value of this dictionary is {'key': ['value1', 'value2']}.
array of **UploadData**	(optional) raw	If the request method is PUT or POST, and the body is not already parsed in formData, then the unparsed request body elements are contained in this array.

integer	tabId	The ID of the tab in which the request takes place. Set to -1 if the request isn't related to a tab.
ResourceType	type	How the requested resource will be used.
string	(optional) initiator	Since Chrome 63. The origin where the request was initiated. This does not change through redirects. If this is an opaque origin, the string 'null' will be used.
double	timeStamp	The time when this signal is triggered, in milliseconds since the epoch.

onBeforeSendHeaders

Fired before sending an HTTP request, once the request headers are available. This may occur after a TCP connection is made to the server, but before any HTTP data is sent.

addListener

```
chrome.webRequest.onBeforeSendHeaders.addListener(function callback)
```

Parameters

function callback — The *callback* parameter should be a function that looks like this:

```
function(object details) {...};
```

object details

string	requestId	The ID of the request. Request IDs are unique within a browser session. As a result, they could be used to relate different events of the same request.
string	url	
string	method	Standard HTTP method.

integer	frameId	The value 0 indicates that the request happens in the main frame; a positive value indicates the ID of a subframe in which the request happens. If the document of a (sub-)frame is loaded (`type` is `main_frame` or `sub_frame`), `frameId` indicates the ID of this frame, not the ID of the outer frame. Frame IDs are unique within a tab.
integer	parentFrameId	ID of frame that wraps the frame which sent the request. Set to -1 if no parent frame exists.
integer	tabId	The ID of the tab in which the request takes place. Set to -1 if the request isn't related to a tab.
string	(optional) initiator	Since Chrome 63. The origin where the request was initiated. This does not change through redirects. If this is an opaque origin, the string 'null' will be used.
ResourceType	type	How the requested resource will be used.
double	timeStamp	The time when this signal is triggered, in milliseconds since the epoch.
HttpHeaders	(optional) requestHeaders	The HTTP request headers that are going to be sent out with this request.

onSendHeaders

Fired just before a request is going to be sent to the server (modifications of previous onBeforeSendHeaders callbacks are visible by the time onSendHeaders is fired).

addListener

```
chrome.webRequest.onSendHeaders.addListener(function callback)
```

Parameters

function callback — The *callback* parameter should be a function that looks like this:

```
function(object details) {...};
```

object details

string	requestId	The ID of the request. Request IDs are unique within a browser session. As a result, they could be used to relate different events of the same request.
string	url	
string	method	Standard HTTP method.
integer	frameId	The value 0 indicates that the request happens in the main frame; a positive value indicates the ID of a subframe in which the

		request happens. If the document of a (sub-)frame is loaded (`type` is `main_frame` or `sub_frame`), `frameId` indicates the ID of this frame, not the ID of the outer frame. Frame IDs are unique within a tab.
integer	parentFrameId	ID of frame that wraps the frame which sent the request. Set to -1 if no parent frame exists.
integer	tabId	The ID of the tab in which the request takes place. Set to -1 if the request isn't related to a tab.
ResourceType	type	How the requested resource will be used.
string	(optional) initiator	Since Chrome 63. The origin where the request was initiated. This does not change through redirects. If this is an opaque origin, the string 'null' will be used.
double	timeStamp	The time when this signal is triggered, in milliseconds since the epoch.
HttpHeaders	(optional) requestHeaders	The HTTP request headers that have been sent out with this request.

onHeadersReceived

Fired when HTTP response headers of a request have been received.

addListener

```
chrome.webRequest.onHeadersReceived.addListener(function callback)
```

Parameters

function callback

The *callback* parameter should be a function that looks like this:

```
function(object details) {...};
```

object details — Since Chrome 31.

string	requestId	The ID of the request. Request IDs are unique within a browser session. As a result, they could be used to relate different events of the same request.
string	url	
string	method	Standard HTTP method.
integer	frameId	The value 0 indicates that the request happens in the main frame; a positive value indicates the ID of a subframe in which the request happens. If the document of a (sub-)frame is loaded (`type` is `main_frame` or `sub_frame`), `frameId` indicates the ID of this frame, not the ID of

		the outer frame. Frame IDs are unique within a tab.
integer	parentFrameId	ID of frame that wraps the frame which sent the request. Set to -1 if no parent frame exists.
integer	tabId	The ID of the tab in which the request takes place. Set to -1 if the request isn't related to a tab.
ResourceType	type	How the requested resource will be used.
string	(optional) initiator	Since Chrome 63. The origin where the request was initiated. This does not change through redirects. If this is an opaque origin, the string 'null' will be used.
double	timeStamp	The time when this signal is triggered, in milliseconds since the epoch.
string	statusLine	HTTP status line of the response or the 'HTTP/0.9 200 OK' string for HTTP/0.9 responses (i.e., responses that lack a status line).
HttpHeaders	(optional) responseHeaders	The HTTP response headers that have been received with this response.
integer	statusCode	Since Chrome 43. Standard HTTP status code returned by the server.

onAuthRequired

Fired when an authentication failure is received. The listener has three options: it can provide authentication credentials, it can cancel the request and display the error page, or it can take no action on the challenge. If bad user credentials are provided, this may be called multiple times for the same request. Note, only one of `'blocking'` or `'asyncBlocking'` modes must be specified in the `extraInfoSpec` parameter.

addListener

```
chrome.webRequest.onAuthRequired.addListener(function callback)
```

Parameters

function callback — The *callback* parameter should be a function that looks like this:

```
function(object details, function asyncCallback) {...};
```

object details:

string	requestId	The ID of the request. Request IDs are unique within a browser session. As a result, they could be used to relate different events of the same request.
string	url	
string	method	Standard HTTP method.

integer	frameId	The value 0 indicates that the request happens in the main frame; a positive value indicates the ID of a subframe in which the request happens. If the document of a (sub-)frame is loaded (`type` is `main_frame` or `sub_frame`), `frameId` indicates the ID of this frame, not the ID of the outer frame. Frame IDs are unique within a tab.
integer	parentFrameId	ID of frame that wraps the frame which sent the request. Set to -1 if no parent frame exists.
integer	tabId	The ID of the tab in which the request takes place. Set to -1 if the request isn't related to a tab.
ResourceType	type	How the requested resource will be used.
string	(optional) initiator	Since Chrome 63. The origin where the request was initiated. This does not change through redirects. If this is an opaque origin, the string 'null' will be used.
double	timeStamp	The time when this signal is triggered, in milliseconds since the epoch.
string	scheme	The authentication scheme, e.g. Basic or Digest.
string	(optional) realm	The authentication realm provided by the server, if there is one.
object	challenger	The server requesting authentication. string host; integer port
boolean	isProxy	True for Proxy-Authenticate, false for WWW-Authenticate.
HttpHeaders	(optional) responseHeaders	The HTTP response headers that were received along with this response.
string	statusLine	HTTP status line of the response or the 'HTTP/0.9 200 OK' string for HTTP/0.9 responses (i.e., responses that lack a status line) or an

		empty string if there are no headers.
integer	statusCode	Since Chrome 43. Standard HTTP status code returned by the server.

function	(optional) asyncCallback	Only valid if `'asyncBlocking'` is specified as one of the `OnAuthRequiredOptions`. If you specify the *asyncCallback* parameter, it should be a function that looks like this: `function( BlockingResponse response) {...};` **BlockingResponse** | response

onResponseStarted

Fired when the first byte of the response body is received. For HTTP requests, this means that the status line and response headers are available.

addListener

```
chrome.webRequest.onResponseStarted.addListener(function callback)
```

Parameters

function	callback	The *callback* parameter should be a function that looks like this: `function(object details) {...};`

object details

string	requestId	The ID of the request. Request IDs are unique within a browser session. As a result, they could be used to relate different events of the same request.
string	url	
string	method	Standard HTTP method.
integer	frameId	The value 0 indicates that the request happens in the main frame; a positive value indicates the ID of a subframe in which the request happens. If the document of a (sub-)frame is loaded (`type` is `main_frame` or `sub_frame`), `frameId` indicates the ID of this frame, not the ID of the outer frame. Frame IDs are unique within a tab.
integer	parentFrameId	ID of frame that wraps the frame which sent the request. Set to -1 if no parent frame exists.
integer	tabId	The ID of the tab in which the request takes place. Set to -1 if the request isn't related to a tab.
ResourceType	type	How the requested resource will be used.
string	(optional) initiator	Since Chrome 63.

		The origin where the request was initiated. This does not change through redirects. If this is an opaque origin, the string 'null' will be used.
double	timeStamp	The time when this signal is triggered, in milliseconds since the epoch.
string	(optional) ip	The server IP address that the request was actually sent to. Note that it may be a literal IPv6 address.
boolean	fromCache	Indicates if this response was fetched from disk cache.
integer	statusCode	Standard HTTP status code returned by the server.
HttpHeaders	(optional) responseHeaders	The HTTP response headers that were received along with this response.
string	statusLine	HTTP status line of the response or the 'HTTP/0.9 200 OK' string for HTTP/0.9 responses (i.e., responses that lack a status line) or an empty string if there are no headers.

onBeforeRedirect

Fired when a server-initiated redirect is about to occur.

addListener

```
chrome.webRequest.onBeforeRedirect.addListener(function callback)
```

Parameters

function callback

The *callback* parameter should be a function that looks like this:

```
function(object details) {...};
```

object details

string	requestId	The ID of the request. Request IDs are unique within a browser session. As a result, they could be used to relate different events of the same request.
string	url	
string	method	Standard HTTP method.
integer	frameId	The value 0 indicates that the request happens in the main frame; a positive value indicates the ID of a subframe in which the request happens. If the document of a (sub-)frame is loaded (`type` is `main_frame` or `sub_frame`), `frameId` indicates the ID of this frame, not the ID of the outer frame. Frame IDs are unique within a tab.

integer	parentFrameId	ID of frame that wraps the frame which sent the request. Set to -1 if no parent frame exists.
integer	tabId	The ID of the tab in which the request takes place. Set to -1 if the request isn't related to a tab.
ResourceType	type	How the requested resource will be used.
string	(optional) initiator	Since Chrome 63. The origin where the request was initiated. This does not change through redirects. If this is an opaque origin, the string 'null' will be used.
double	timeStamp	The time when this signal is triggered, in milliseconds since the epoch.
string	(optional) ip	The server IP address that the request was actually sent to. Note that it may be a literal IPv6 address.
boolean	fromCache	Indicates if this response was fetched from disk cache.
integer	statusCode	Standard HTTP status code returned by the server.
string	redirectUrl	The new URL.
HttpHeaders	(optional) responseHeaders	The HTTP response headers that were received along with this redirect.
string	statusLine	HTTP status line of the response or the 'HTTP/0.9 200 OK' string for HTTP/0.9 responses (i.e., responses that lack a status line) or an empty string if there are no headers.

onCompleted

Fired when a request is completed.

addListener

```
chrome.webRequest.onCompleted.addListener(function callback)
```

Parameters

function callback

The *callback* parameter should be a function that looks like this:

```
function(object details) {...};
```

object details

string	requestId	The ID of the request. Request IDs are unique within a browser session. As a result, they could be used to relate different events of the same request.
string	url	

string	method	Standard HTTP method.
integer	frameId	The value 0 indicates that the request happens in the main frame; a positive value indicates the ID of a subframe in which the request happens. If the document of a (sub-)frame is loaded (`type` is `main_frame` or `sub_frame`), `frameId` indicates the ID of this frame, not the ID of the outer frame. Frame IDs are unique within a tab.
integer	parentFrameId	ID of frame that wraps the frame which sent the request. Set to -1 if no parent frame exists.
integer	tabId	The ID of the tab in which the request takes place. Set to -1 if the request isn't related to a tab.
ResourceType	type	How the requested resource will be used.
string	(optional) initiator	Since Chrome 63. The origin where the request was initiated. This does not change through redirects. If this is an opaque origin, the string 'null' will be used.
double	timeStamp	The time when this signal is triggered, in milliseconds since the epoch.
string	(optional) ip	The server IP address that the request was actually sent to. Note that it may be a literal IPv6 address.
boolean	fromCache	Indicates if this response was fetched from disk cache.
integer	statusCode	Standard HTTP status code returned by the server.
HttpHeaders	(optional) responseHeaders	The HTTP response headers that were received along with this response.
string	statusLine	HTTP status line of the response or the 'HTTP/0.9 200 OK' string for HTTP/0.9 responses (i.e., responses that lack a status line) or an empty string if there are no headers.

onErrorOccurred

Fired when an error occurs.

addListener

```
chrome.webRequest.onErrorOccurred.addListener(function callback)
```

Parameters

function	callback	The *callback* parameter should be a function that looks like this:

```
function(object details) {...};
```

object	details	

string	requestId	The ID of the request. Request IDs are unique within a browser session. As a result, they could be used to relate different events of the same request.
string	url	
string	method	Standard HTTP method.
integer	frameId	The value 0 indicates that the request happens in the main frame; a positive value indicates the ID of a subframe in which the request happens. If the document of a (sub-)frame is loaded (`type` is `main_frame` or `sub_frame`), `frameId` indicates the ID of this frame, not the ID of the outer frame. Frame IDs are unique within a tab.
integer	parentFrameId	ID of frame that wraps the frame which sent the request. Set to -1 if no parent frame exists.
integer	tabId	The ID of the tab in which the request takes place. Set to -1 if the request isn't related to a tab.
ResourceType	type	How the requested resource will be used.
string	(optional) initiator	Since Chrome 63. The origin where the request was initiated. This does not change through redirects. If this is an opaque origin, the string 'null' will be used.
double	timeStamp	The time when this signal is triggered, in milliseconds since the epoch.
string	(optional) ip	The server IP address that the request was actually sent to. Note that it may be a literal IPv6 address.
boolean	fromCache	Indicates if this response was fetched from disk cache.
string	error	The error description. This string is *not* guaranteed to remain backwards compatible between releases. You must not parse and act based upon its content.

onActionIgnored

Since Chrome 70. *Warning:* this is the current **Beta** channel. **Learn more**.

Fired when an extension's proposed modification to a network request is ignored. This happens in case of conflicts with other extensions.

addListener

```
chrome.webRequest.onActionIgnored.addListener(function callback)
```

Parameters		
function	callback	The *callback* parameter should be a function that looks like this: `function(object details) {...};`

object	details	string	requestId	The ID of the request. Request IDs are unique within a browser session. As a result, they could be used to relate different events of the same request.
		IgnoredActionType	action	The proposed action which was ignored.