

How to create a browser extension and
integrate it with any website

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▼ Uncategorized Cards

This is a very first issue



Is everything works fine?



⋮ ▼ Yet another feature DEMO-3



Implement this cool new feature that will make user happy



Fix weird bug!



New bug



⋮ ▼ Important user story DEMO-6

First card



One more issue from foo



Second card



▼ Uncategorized Cards

DEMO-1 This is a very first issue



DEMO

Task

M



DEMO-2 Is everything works fine?



ok! x

important x

DEMO

Task

S



⋮ ▼ Yet another feature DEMO-3



DEMO-4 Implement this cool new feature that will make user happy



DEMO

Task

S

C

DEMO-5 Fix weird bug!



DEMO

Bug



DEMO-12 New bug



DEMO

Bug



⋮ ▼ Important user story DEMO-6

DEMO-16 First card



DEMO

Task

C

M

FOO-2 One more issue from foo



Foo

Task

DEMO-17 Second card



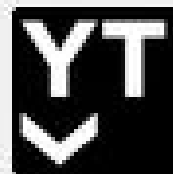
DEMO

Task

M



bug
myjetbrains.com
DEMO/First sprint by max.e...



Close

Settings



▼ Uncategorized Cards3 cards

DEMO-1 This is a very first issue

MEDEMO TaskM

+

DEMO-34 bug

DEMO Bug

+

DEMO-2 Is everything works fine?

MEok! ximportant xDEMO TaskS

+

▼ Yet another feature DEMO-3

4 cards

DEMO-4 Implement this cool new feature that will make user happy

MEDEMO TaskSC

+

DEMO-5 Fix weird bug!

MEDEMO Bug

+

DEMO-12 New bug

DEMO Bug

+

DEMO-14 One more bug

MEDEMO Bug

+

▼ Important user story DEMO-6

8 cards

DEMO-16 First card

MEDEMO TaskCM

+

DEMO-19 Forth card

DEMO TaskM

+

DEMO-20 Fifth card

DEMO TaskM

+

FOO-2 One more issue from foo

MEFoo Task

+

FOO-1 Issue from foo

MEFoo Task

+

FOO-5 buugg

MEFoo Bug

+

DEMO-17 Second card

MEDEMO TaskM

+

DEMO-18 Third card

MEDEMO TaskM

+

Select tweak to add new one

Import/Export tweaks

Cards

enabled

Project Show full name Auto-generated colors

Type Show full name Use field colors

Subsystem Show first letter only Auto-generated colors

Subsystems Show first letter only Use field colors

Notifications

enabled

Additional message: %boardName%/%sprintName% by %reporterName%

Type = Bug

Agile board super-copy hotkey

enabled

Group by this field: State

Per issue message format: %link%: %summary%

Agile board layout (Darcula & Compact)

enabled

ME

Q

⚙

2

2 cards

DEMO-

ME

+

4 cards

Targets and goals

- Create a system that allows user to customize layout and functionality of YouTrack
- Should works for any domain (in-cloud and standalone)
- Configuration should be stored per user
- Should be easy to share through teammates

Basics

- Manifest
- Background script
- Content script
- Popup menu

manifest.json

```
"background": {  
  "scripts": ["background.js"]  
},  
"content_scripts": [{  
  "js": ["content_script.js"],  
  "matches": ["*://*/*"]  
}],  
"browser_action": {  
  "default_popup": "popup.html"  
},  
"permissions": [ "*://*/*", "storage", "tabs"],  
"externally_connectable" : {  
  "matches" : ["*://*.youtrack-tweaks.com/*"]  
}
```

Permissions

https://developer.chrome.com/apps/declare_permissions

serial
usb
storage
audio, audioCapture
video, videoCapture
background
clipboard (read & write)
fileSystem
geolocation
unlimitedStorage (indexedDB and
localStorage)
tts
system (memory, cpu e.t.c)
...

```
chrome.permissions.request({  
  permissions: ['tabs'],  
  origins: ['http://www.google.com/']  
}, granted => {  
  ...  
});
```

Background script

```
"background": {  
  "scripts": ["background.js"]  
}
```

- Persistent
- Has access to various APIs like tabs (chrome.tabs), messaging (chrome.runtime.onMessage) e.t.c.
- Can execute JS code on any tab regarding to the
"permissions": [".*://*/.*", "storage", "tabs"]
- **DANGER: avoid memory leaks**

Content script

```
"content_scripts": [{  
  "js": ["content_script.js"],  
  "matches": ["*://*/*"]  
}]
```

- Injects to every page that matches pattern
- JS is in the sandbox mode (DOM only)
- Can communicate with background script

Background script

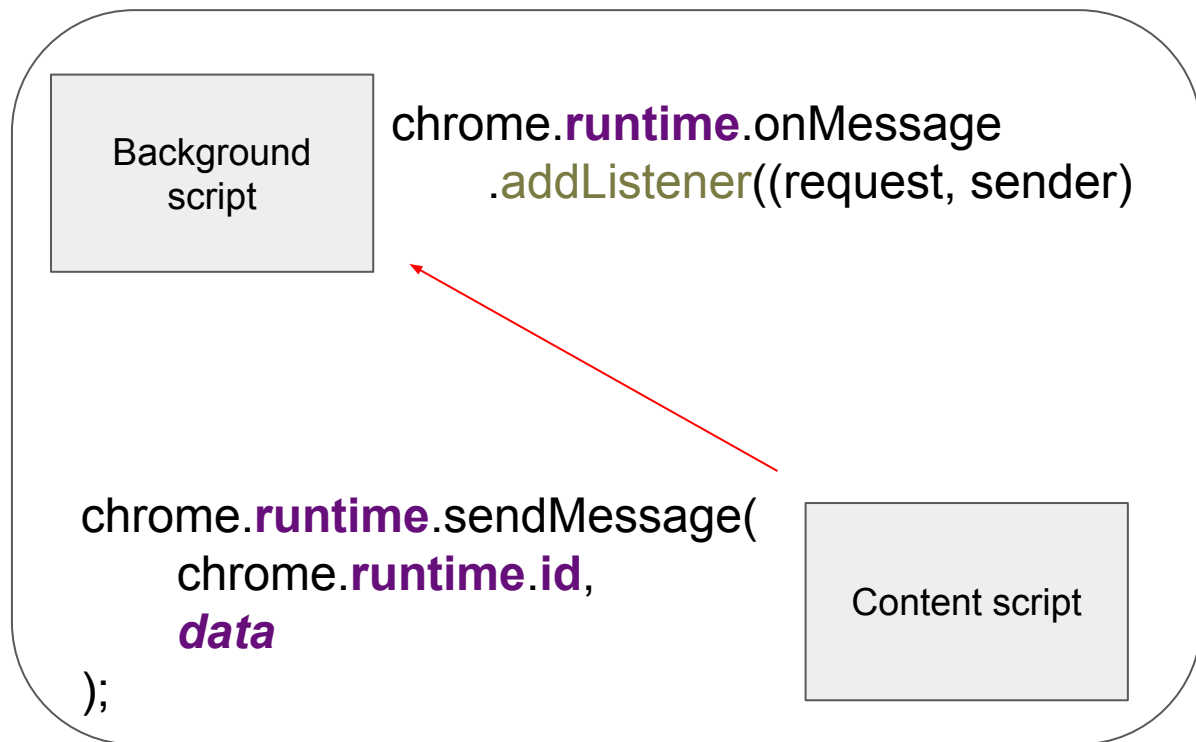
Content script

```
chrome.tabs.executeScript(  
  tabId,  
  {code: 'var a = 1;'},  
  callback  
);
```


var **a** = 1;

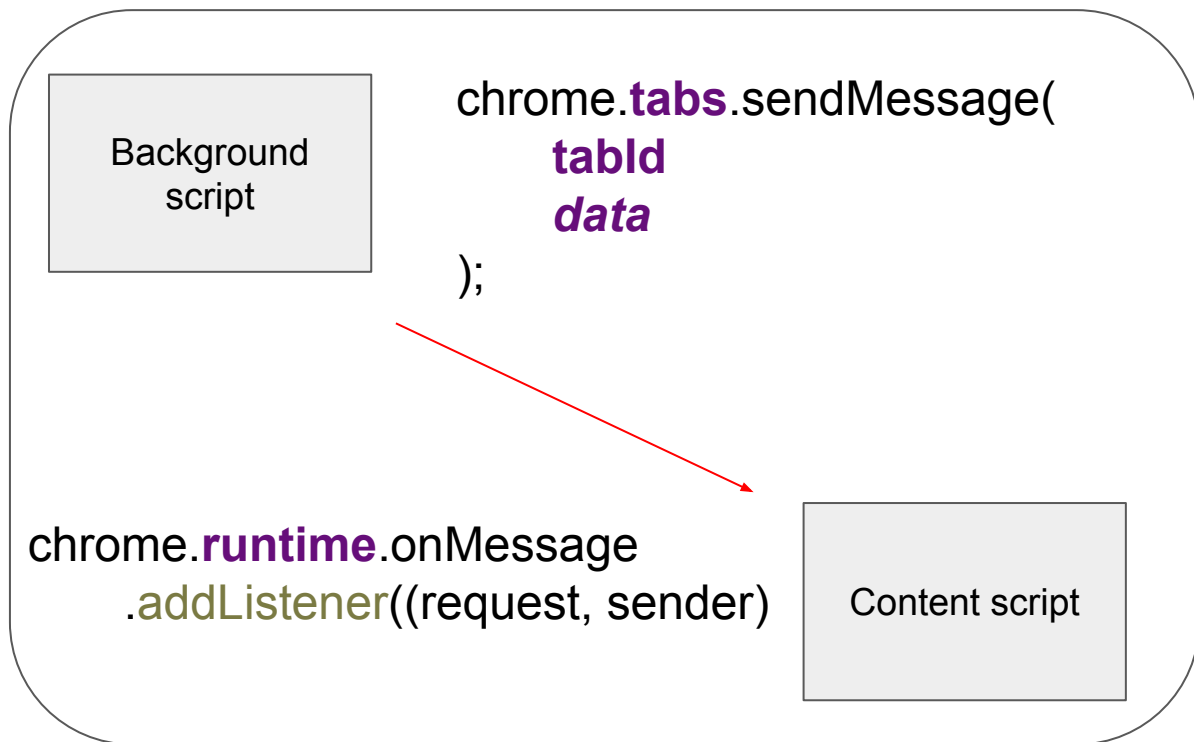


Content script to Background script



Page scripts
(AngularJS)

Background script to Content script



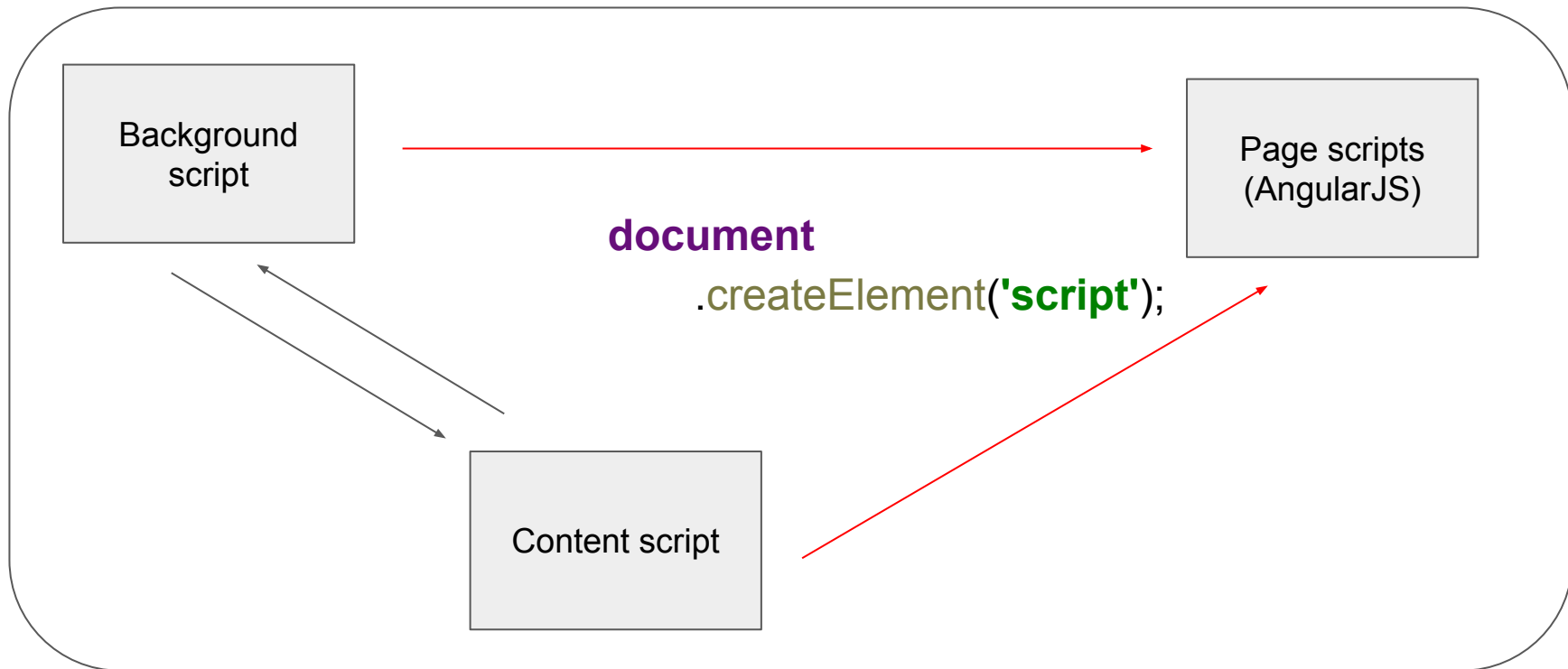
Page scripts
(AngularJS)

Open the box

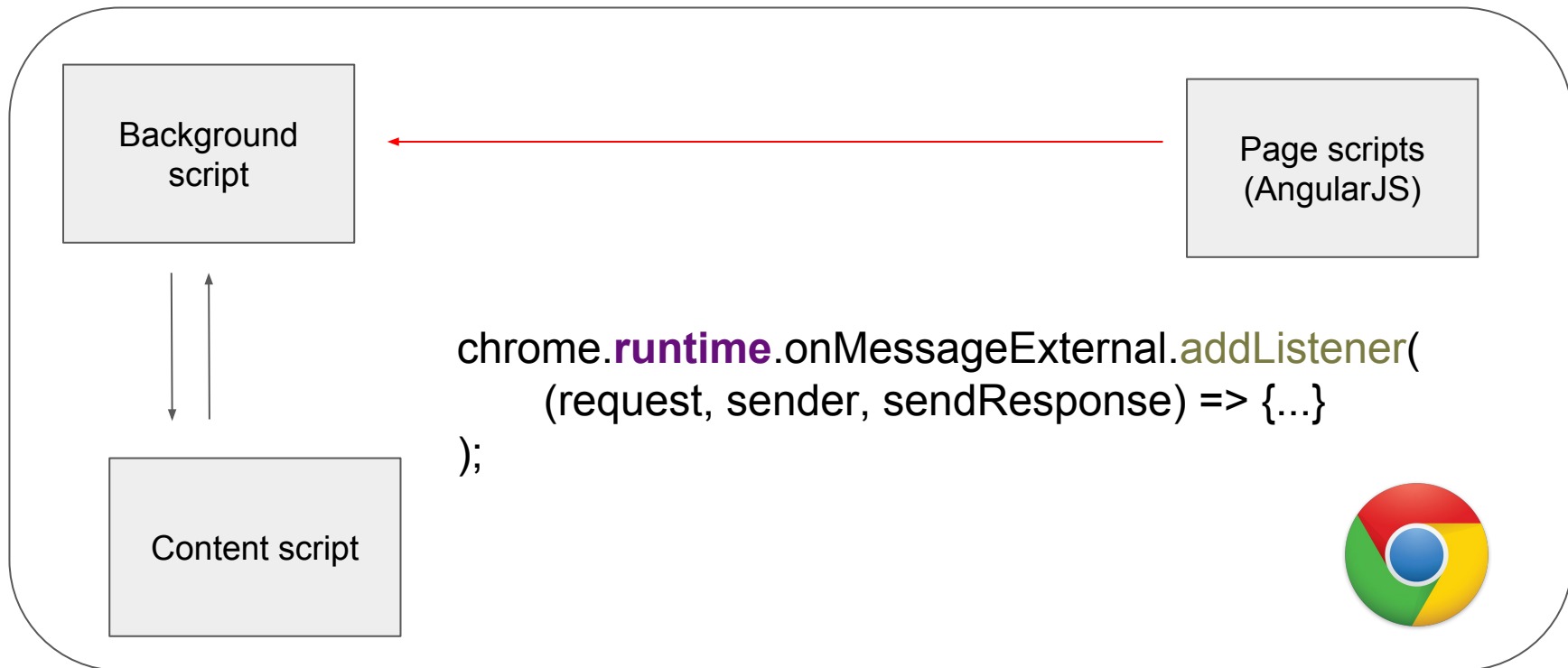
```
const script = document.createElement('script');  
script.textContent = '${escapedCode}';  
document.body.appendChild(script);
```

- Access to page environment
- No ability to communicate with background script

One-way messaging: to page



One-way messaging: from page to bg




onMessageExternal event

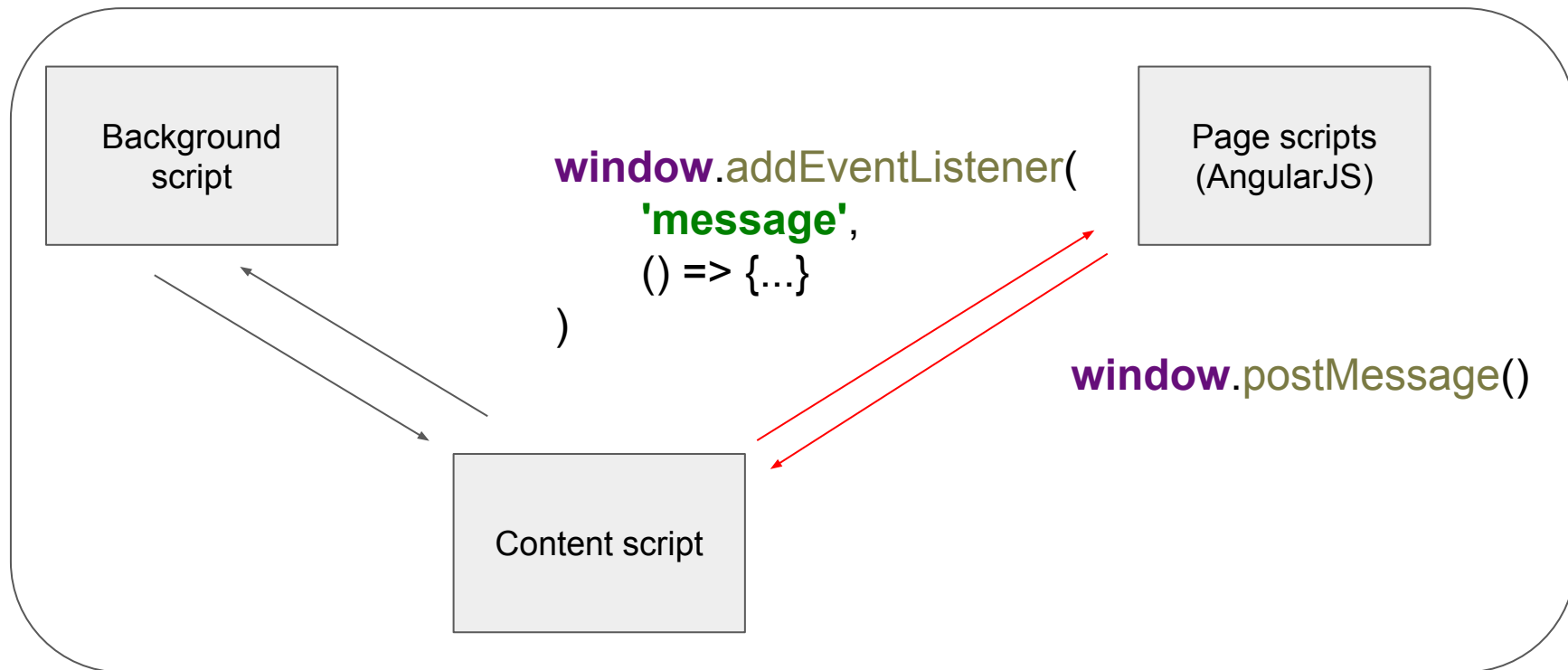
```
chrome.runtime.onMessageExternal.addListener(  
  (request, sender, sendResponse) => {  
    ...  
  }  
);
```

```
"externally_connectable" : {  
  "matches" : [  
    ".*://*.youtrack-tweaks.com/*"  
  ]  
}
```

```
"externally_connectable" : {  
  "matches" : [".*://*/.*"]  
}
```

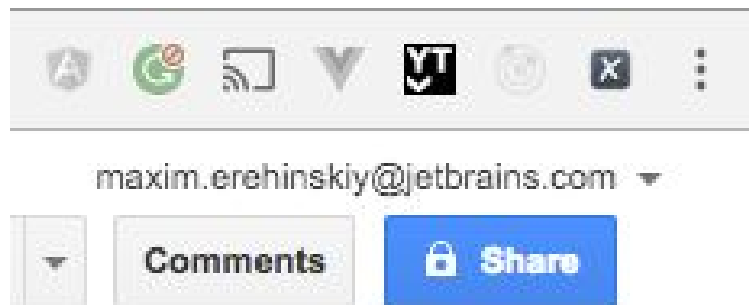


One-way messaging: from page



Popup

```
"browser_action": {  
  "default_icon": {  
    "16": "images/16.png",  
    "32": "images/32.png"  
  },  
  "default_popup": "popup.html"  
}
```



Content Security Policy

- No inline scripting
- No external resources
- You can't use string-to-JavaScript methods like `eval()` and `new Function()`

Make Angular2 works with restrictive Content Security Policy (CSP) #11939



xcao opened this issue on 27 Sep 2016 · 7 comments

Relax, take it easy

```
"content_security_policy":  
"script-src 'self' 'unsafe-eval'; object-src 'self'"
```

1. Only the default content security policy is supported: "script-src 'self'; object-src 'self';".
2. Firefox does not support 'http://127.0.0.1' or 'http://localhost' as script sources: they must be served over HTTPS.



https://developer.mozilla.org/en-US/Add-ons/WebExtensions/manifest.json/content_security_policy

Availability



Benefits of being an extension

- Simple installation
- Fast delivery (instant updates)
- Cross-platform & cross-browser
- Cloud-based configuration (for Google Chrome)

And what?

- Tool for instance-independent customization
- Playground for new features
- Source of statistic
- Some features are going to be implemented in YouTrack

Under the hood

- Code splitted into 4 parts:
extension / popup menu / injects repository / website
- Webpack x 3 (menu, injects, website)
- VueJS x 2 (menu & website)
- ES6
- Single build for all browsers

youtrack-tweaks.com