

VULNERABILITY DETAILS

Chrome is protecting privileged origins like https://chrome.google.com/webstore/category/extensions against modifications by malicious WebExtensions. These protections include the

prohibition of intercepting requests via the WebRequest functionality or

injecting custom JavaScript via Content or Background scripts.

Additionally Chrome does not allow to attach a debugger to these origins. In case a tab is already debugged when a privileged origin is loaded,

the debugger gets disconnected.

It was discovered that this protection can be bypassed, which allows a WebExtension to execute JavaScript in these origins via the debugger

functionality. At first a malicious WebExtension loads a new about:blank tab and

attaches a debugger. The debugger registers interception so it is able

to modify any HTTP responses received inside this tab. Now the

WebExtension can load an API endpoint like

e/category/extensions as the top

origin in the debugged tab. The WebExtension is not only able to see the request but also able to return a custom HTTP response for this

endpoint. By simply returning an HTML payload, it is possible to execute

JavaScript in https://chrome.google.com/webstore/category/extensions. Afterwards the debugger gets finally

disconnected from the tab, but the custom response was already rendered. It must be noted that this attack scenario works for other privileged

origins like the NTP as well.

It is recommended that a debugger gets detached as soon as a request to a privileged origin is triggered. This ensures that the current security design handles top navigations as well and therefore protects these origins properly.

VERSION

Chrome Version: 79.0.3945.56 beta Operating System: Windows 10

REPRODUCTION CASE

- 1. Extract attached ZIP file
- Load the folder as unpacked extension
 Observe an alert in CWS

interception.zip

2.7 KB Download

Components: Platform>Extensions

Just FYI, this bug was found internally by someone else, but I'm reporting on behalf of him.

Comment 2 by metzman@chromium.org on Wed, Dec 4, 2019, 10:52 AM EST

Cc: rdevl...@chromium.org karandeepb@chromium.org

Labels: Security_Severity-Medium OS-Chrome OS-Fuchsia OS-Linux OS-Mac OS-Windows Pri-1

rdevlin.cronin@ or karandeepb@ could one of you please take a look?

Thanks!

Comment 3 by rdevl...@chromium.org on Wed, Dec 4, 2019, 2:46 PM EST

Status: Assigned (was: Unconfirmed) Owner: caseq@chromium.org

Thanks for the report!

Over to caseq for devtools / debugger API. Is there a way we could prevent the extension from intercepting requests to origins it doesn't have access to (at least, top-level requests like this?). It seems like that would be a good generic check, in addition to protecting the webstore.

Comment 4 by sheriffbot@chromium.org on Thu, Dec 5, 2019, 9:57 AM EST

Labels: Target-79 M-79

Setting milestone and target because of Security_Impact=Beta and medium severity.

For more details visit https://www.chromium.org/issue-tracking/autotriage - Your friendly Sheriffbot

Comment 5 by sheriffbot@chromium.org on Thu, Dec 5, 2019, 10:02 AM EST

Labels: ReleaseBlock-Stable

This is a serious security regression. If you are not able to fix this quickly, please revert the change that introduced it.

If this doesn't affect a release branch, or has not been properly classified for severity, please update the Security Impact or Security Severity labels, and remove the ReleaseBlock label. To disable this altogether, apply ReleaseBlock-NA

For more details visit https://www.chromium.org/issue-tracking/autotriage - Your friendly Sheriffbot

Comment 6 by gov...@chromium.org on Thu, Dec 5, 2019, 10:19 AM EST

Cc: adetaylor@chromium.org pbomm...@chromium.org

+adetaylor@ (Security TPM).

This is security severity "Medium" and no fix available. Can we please target this for M80?

Comment 7 by adetaylor@chromium.org on Thu, Dec 5, 2019, 12:19 PM EST

This is marked as Security_Impact-Beta, which implies it is a serious regression between 78 and 79. I doubt that's the case. caseq@/rdevlin.cronin@ - can you confirm this affects M78 and earlier too?

Comment 8 by caseq@chromium.org on Thu, Dec 5, 2019, 5:35 PM EST

Status: Started (was: Assigned)

Labels: -ReleaseBlock-Stable

Thanks for the report, that's an impressive trick -- we'll work on fixing this soon! However, I don't think this is new for m79, the API being exploited has been around for a while. Removing RB-Stable based on this, but will still treat this as P1

Comment 9 by jun.k...@microsoft.com on Thu, Dec 5, 2019, 5:37 PM EST Project Member

I did see Stable build blocking this attack. I think this is a regression. Have you tested in Stable build?

Comment 10 by caseq@chromium.org on Thu, Dec 5, 2019, 9:40 PM EST

Labels: ReleaseBlock-Stable

Comment 11 by caseq@chromium.org on Thu, Dec 5, 2019, 9:47 PM EST

Jun, you're right, I couldn't reproduce this on m78 so far. My understanding is that this is prevented by the check for current _visible_ URL of the tab being debugged, which happens to be new (not yet committed URL of the privileged origin) in m78 and old (about:blank) in m79. Bringing RBS back for the time being, although I *think* m78 may be exploitable as well with some modifications, let me try...

Comment 12 by pbomm...@chromium.org on Fri. Dec 6, 2019, 12:25 PM EST

Cc: benmason@chromium.org

Comment 13 by caseq@chromium.org on Fri, Dec 6, 2019, 5:30 PM EST

Owner: tiudkins@chromium.org

Cc: tjudkins@chromium.org sa...@chromium.org caseq@chromium.org

I bisected this down to this CL: https://chromium-review.googlesource.com/c/chromium/src/+/1737819. Over to tiudkins@ whether the side effect that we have is expected and whether fixes in other places are required.

For some background, DebuggerFunction::InitAgentHost() started somehow started using the last committed URL (about:blank) instead of new, not-yet-comitted, restricted URL in a call to ExtensionCanAttachToURL() here: https://cs.chromium.org/chromium/s rcl=11f4508e563f02e900ad9f963e7c4e90a4c1d637&l=431. I don't see what exactly in the CL lead to this behavior, but are we using the right web contents there?

We can fix this by having checks elsewhere in DevTools, but I'd like someone who's more familiar with extensions code to assess whether there may be a similar problem

Comment 14 by adetaylor@chromium.org on Fri, Dec 6, 2019, 6:01 PM EST

Labels: -ReleaseBlock-Stable ReleaseBlock-NA

Discussed with Devlin. It's essentially too late to wait for a fix here for M79, so the only option is to revert iscus 081628. But that would be a horrendous revert - it's a huge change and has developer-visible consequences. I am removing RBS for that reason.

So, we will unfortunately need to ship with this regression in M79. However we should include this in the first stable update of M79 as it's a regression, even though it's only medium severity. Once this is fixed, please add Merge-Request-79.

Consequences of this bug potentially include spoofing extensions or triggering extension installation flow. There might be other protected origins with even more serious consequences. But this can only be triggered from a malicious extension, and there will still be a native confirmation dialog which cannot be bypassed, so it remains medium severity.

Comment 15 by caseq@chromium.org on Fri, Dec 6, 2019, 6:05 PM EST

I'm not suggesting we have to revert this as a fix, there may be other fixes available. Also, my understanding that the observed change may be due to this:

mium-review.googlesource.com/c/chromium/src/+/1737819/31/chrome/browser/extensions/api/tabs/tabs_api.cc

In which case there's a chance there's a chance this exploit can be slightly modified to work on m78 as well (investigating this right now).

Comment 17 by caseq@chromium.org on Fri, Dec 6, 2019, 6:14 PM EST

a-and it's so indeed. So basically the good news is that this is not a regression. The bad news is that we have this problem in earlier versions as well

What crrev.com/c/1737819 does essentially is that it switches the extension-initiated navigation to be treated as the renderer-initiated one. So if we update the exploit to use renderer-initiated navigation to navigate about:blank, we get it working for the older versions as well.

I'll grab this and implement a check upon initiating navigation request in the DevTools land

Comment 18 by adetaylor@chromium.org on Fri, Dec 6, 2019, 6:15 PM EST

Labels: -Security_Impact-Beta Security_Impact-Stable

Comment 19 by caseq@chromium.org on Mon, Dec 9, 2019, 7:40 PM EST

Cc: dgozman@chromium.org

Comment 20 by bugdroid on Mon, Dec 9, 2019, 11:28 PM EST

The following revision refers to this bug:

https://chromium.googlesource.com/chromium/src.git/+/0788b1d419f78050f1114fffefd1f68cd88d1dab

commit 0788b1d419f78050f1114fffefd1f68cd88d1dab

Author: Andrey Kosyakov <caseq@chromium.org>

Date: Tue Dec 10 04:28:11 2019

DevTools: check session can inspect URL we're about to navigate to

Change-Id: I0696686982f1a089dc554013847ab4a2dafce83b

Reviewed-on: https://chromium-review.googlesource.com/c/chromium/src/+/1956529

Reviewed-by: Devlin <rdevlin.cronin@chromium.org> Reviewed-by: Dmitry Gozman <dgozman@chromium.org>

Commit-Queue: Andrey Kosyakov <caseq@chromium.org>

Cr-Commit-Position: refs/heads/master@{#723234}

[modify] https://crrev.com/0788b1d419f78050f1114fffefd1f68cd88d1dab/chrome/browser/extensions/api/debugger/debugger_api.cc

[modify] https://crrev.com/0788b1d419f78050f1114fffefd1f68cd88d1dab/content/browser/devtools/devtools_instrumentation.cc

[modify] https://crrev.com/0788b1d419f78050f1114fffefd1f68cd88d1dab/content/browser/devtools/render_frame_devtools_agent_host.cc [modify] https://crrev.com/0788b1d419f78050f1114fffefd1f68cd88d1dab/content/browser/devtools/render_frame_devtools_agent_host.h

[modify] https://crrev.com/0788b1d419f78050f1114fffefd1f68cd88d1dab/content/public/browser/devtools_agent_host_client.cc

[modify] https://crrev.com/0788b1d419f78050f1114fffefd1f68cd88d1dab/content/public/browser/devtools_agent_host_client.h

Comment 21 by meacer@google.com on Thu, Jan 2, 2020, 1:29 PM EST

Andrey, thanks for the fix. Just checking if there is any remaining work here

Comment 22 by caseg@chromium.org on Thu, Jan 2, 2020, 1:43 PM EST

Status: Fixed (was: Started)

Ah, sorry, no, there's no more work to do. The fix is there, I just forgot to close the bug.

Comment 23 by sheriffbot@chromium.org on Fri, Jan 3, 2020, 10:43 AM EST

Labels: -Restrict-View-SecurityTeam Restrict-View-SecurityNotify

Comment 24 by natashapabrai@google.com on Mon, Jan 6, 2020, 12:57 PM EST

Labels: reward-topanel

Comment 25 by sheriffbot@chromium.org on Tue, Jan 7, 2020, 11:09 AM EST

Labels: Merge-Request-80

Requesting merge to beta M80 because latest trunk commit (723234) appears to be after beta branch point (722274).

For more details visit https://www.chromium.org/issue-tracking/autotriage - Your friendly Sheriffbot

Comment 26 by sheriffbot@chromium.org on Tue, Jan 7, 2020, 11:14 AM EST

Labels: -Merge-Request-80 Merge-Review-80 Hotlist-Merge-Review

This bug requires manual review: M80's targeted beta branch promotion date has already passed, so this requires manual review Before a merge request will be considered, the following information is required to be added to this bug:

- 1. Does your merge fit within the Merge Decision Guidelines?
- Chrome: https://goto.google.com/chrome-release-branch-merge-guidelines
- Chrome OS: https://goto.google.com/cros-release-branch-merge-guidelines
- 2. Links to the CLs you are requesting to merge.
- 3. Has the change landed and been verified on master/ToT?
- 4. Why are these changes required in this milestone after branch?
- 5. Is this a new feature?
- 6. If it is a new feature, is it behind a flag using finch?

Please contact the milestone owner if you have questions.

Owners: govind@(Android), Kariahda@(iOS), dgagnon@(ChromeOS), srinivassista@(Desktop)

For more details visit https://www.chromium.org/issue-tracking/autotriage - Your friendly Sheriffbot

Comment 27 by srinivassista@google.com on Tue, Jan 7, 2020, 11:54 AM EST caseq@ pls help answer the questions in comment #26 for merge-review

Comment 28 by caseq@google.com on Tue, Jan 7, 2020, 12:21 PM EST

- > 1. Does your merge fit within the Merge Decision Guidelines?
- > Chrome: https:/

This is a security fix, so I defer to security team for judgement on how critical this is. It should be mostly harmless, but it technically does introduce additional checks that may cause an extension to get disconnected, so potentially some extensions *may* be broken, although the chances of breaking some useful behavior appear pretty slim to

> 2. Links to the CLs you are requesting to merge.

https://chromium-review.googlesource.com/c/chromium/src/+/1956529

> 4. Why are these changes required in this milestone after branch?

This is a fix for a security problem.

- > 5. Is this a new feature?
- > 6. If it is a new feature, is it behind a flag using finch?

This is not a feature

Comment 29 by srinivassista@google.com on Tue, Jan 7, 2020, 1:10 PM EST

adetaylor@ can you chime in your thoughts if we should take this merge to M80?

Comment 30 by adetaylor@chromium.org on Tue, Jan 7, 2020, 2:36 PM EST

I'd say yes. This is not serious enough to want to merge to stable, but a merge to beta would be good, to get the fix out a bit sooner

Comment 31 by srinivassista@google.com on Thu, Jan 9, 2020, 1:00 AM EST

Labels: -Merge-Review-80 Merge-Approved-80

merge approved to M80 branch:3987

Comment 32 by natashapabrai@google.com on Thu, Jan 9, 2020, 11:51 AM EST

Labels: -reward-topanel reward-unpaid reward-5000

*** Boilerplate reminders! *

Please do NOT publicly disclose details until a fix has been released to all our users. Early public disclosure may cancel the provisional reward. Also, please be considerate about disclosure when the bug affects a core library that may be used by other products. Please do NOT share this information with third parties who are not directly involved in fixing the bug. Doing so may cancel the provisional reward. Please be honest if you have already disclosed anything publicly or to third parties. Lastly, we understand that some of you are not interested in money. We offer the option to donate your reward to an eligible charity. If you prefer this option, let us know and we will also match your donation - subject to our discretion. Any rewards that are unclaimed after 12 months will be donated to a charity of our choosing.

Please contact security-vrp@chromium.org with any questions.

Comment 33 by natashapabrai@google.com on Thu, Jan 9, 2020, 11:57 AM EST

Congrats! The Panel decided to reward \$5,000 for this report!

Comment 34 by natashapabrai@google.com on Thu, Jan 9, 2020, 11:58 AM EST

Labels: -reward-unpaid reward-decline

Comment 35 by bugdroid on Thu, Jan 9, 2020, 11:47 PM EST

Labels: -merge-approved-80 merge-merged-3987 merge-merged-80

The following revision refers to this bug:

https://chromium.googlesource.com/chromium/src.git/+/a8264ba685f1bdfde1a1e8b17ec30ef6194a0decates and the second control of the se

commit a8264ba685f1bdfde1a1e8b17ec30ef6194a0dec

Author: Andrey Kosyakov <caseq@chromium.org

Date: Fri Jan 10 04:45:57 2020

DevTools: check session can inspect URL we're about to navigate to

TBR=rdevlin.cronin@chromium.org

(cherry picked from commit 0788b1d419f78050f1114fffefd1f68cd88d1dab)

Bug: 1030411

Change-Id: I0696686982f1a089dc554013847ab4a2dafce83b

Reviewed-on: https://chromium-review.googlesource.com/c/chromium/src/+/1956529

Reviewed-by: Devlin <rdevlin.cronin@chromium.org>
Reviewed-by: Dmitry Gozman <dgozman@chromium.org>

Commit-Queue: Andrey Kosyakov <aseq@chromium.org>
Cr-Original-Commit-Position: refs/heads/master@{#723234}

Reviewed-on: https://chromium-review.googlesource.com/c/chromium/src/+/1992764

Reviewed-by: Andrey Kosyakov <caseq@chromium.org>

Cr-Commit-Position: refs/branch-heads/3987@{#456}

 $Cr-Branched-From: c4e8da9871cc266be74481e212f3a5252972509d-refs/heads/master @ \{\#722274\} \\$

[modify] https://crrev.com/a8264ba685f1bdfde1a1e8b17ec30ef6194a0dec/chrome/browser/extensions/api/debugger/debugger_api.cc

[modify] https://crrev.com/a8264ba685f1bdfde1a1e8b17ec30ef6194a0dec/content/browser/devtools/devtools_instrumentation.cc

[modify] https://crrev.com/a8264ba685f1bdfde1a1e8b17ec30ef6194a0dec/content/browser/devtools/render_frame_devtools_agent_host.cc [modify] https://crrev.com/a8264ba685f1bdfde1a1e8b17ec30ef6194a0dec/content/browser/devtools/render_frame_devtools_agent_host.h

[modify] https://crrev.com/a8264ba685f1bdfde1a1e8b17ec30ef6194a0dec/content/public/browser/devtools_agent_host_client.cc

 $\textbf{[modify]} \ https://crrev.com/a8264ba685f1bdfde1a1e8b17ec30ef6194a0dec/content/public/browser/devtools_agent_host_client.html. \\$

Comment 36 by adetaylor@google.com on Sat, Feb 1, 2020, 8:13 PM EST

Labels: Release-0-M80

Comment 37 by adetaylor@google.com on Mon, Feb 3, 2020, 3:59 PM EST

jun.kokatsu@microsoft.com - in #c1 you mention this was found by someone else. By default, I'll credit you in the release notes, but if you'd like the original reporter to be credited, please let me know the correct attribution in the next hour or two. Thanks!

Comment 38 by jun.k...@microsoft.com on Mon, Feb 3, 2020, 4:32 PM EST Project Member

Hi, please use "Microsoft Edge Team" as a credit.

Comment 39 by adetaylor@chromium.org on Mon, Feb 3, 2020, 4:36 PM EST

Will do, thanks!

Comment 40 by adetaylor@chromium.org on Mon, Feb 3, 2020, 6:47 PM EST

Labels: CVE-2020-6392 CVE_description-missing

Comment 41 by adetaylor@chromium.org on Mon, Feb 10, 2020, 4:37 PM EST

Labels: -CVE_description-missing CVE_description-submitted

Comment 42 by adetaylor@google.com on Wed, Mar 4, 2020, 1:44 PM EST

Cc: achuith@chromium.org

Comment 43 by sheriffbot on Fri, Apr 10, 2020, 1:54 PM EDT

Labels: -Restrict-View-SecurityNotify allpublic

This bug has been closed for more than 14 weeks. Removing security view restrictions.

For more details visit https://www.chromium.org/issue-tracking/autotriage - Your friendly Sheriffbot

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