VIBRANIUM AUDITS

Security Assessment

aeternity-snap

Verified by Vibranium Audits on 13 March 2024

Vibranium Audits Verified on February 17th, 2024

Aeternity Snap

The security assessment was prepared by Vibranium Audits.

Executive Summary

TYPES	ECOSYSTEM	METHODS
Metamask Snap	N/A	Manual Review, penetration testing and Static Analysis
LANGUAGE	**TIMELINE**	**KEY COMPONENTS**
TypeScript	Delivered on 18/03/2024	N/A
CODEBASE		**COMMITS**
JavaScript		1c93bdb2e29572dc91b69b16f3db7b5bdae5822c

Vulnerability Summary

4	0	0	0	4	0	0
Total Findings	Resolved	Mitigated	Partially Resolved	Acknowledged	Declined	Unresolved

0 Critical	0 Resolved	Critical vulnerabilities are usually straightforward to exploit and can lead to the loss of user funds or contract state manipulation by external or internal actors.
1 High	0 Resolved	High vulnerabilities are usually harder to exploit, requiring specific conditions, or have a more limited scope, but can still lead to the loss of user funds or contract state manipulation by external or internal actors.
3 Medium	0 Resolved	Medium vulnerabilities are usually limited to state manipulations, but cannot lead to assets loss. Major deviations from best practices are also in this category.
0 Low	0 Resolved	Low vulnerabilities are related to outdated and unused code or minor gas optimization. These issues won't have a significant impact on code execution, but affect the code quality.
0 Informational	0 Resolved	Informational errors are often recommendations to improve the style of the code or certain operations to fall within industry best practices. They usually do not affect the overall functioning of the code.

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CODEBASE | Aeternity Snap

Repository

https://github.com/4-point-0/aeternity-snap/

Commits

1c93bdb2e29572dc91b69b16f3db7b5bdae5822c

APPROACH & METHODS | Aeternity Snap

This report has been prepared for Aeternity Snap(2024) to discover issues and vulnerabilities in the source code of the Aeternity Snap project as well as any contract dependencies that were not part of an officially recognized library. A comprehensive examination has been performed, utilizing Manual Review, rigorous Penetration Testing and Static Analysis techniques.

The auditing process pays special attention to the following considerations:

- Pen-Testing the Snaps against both common and uncommon attack vectors.
- Assessing the code base to ensure compliance with current best practices and industry standards
- Ensuring Snap logic meets the specifications and intentions of the client.
- Thorough line-by-line manual review of the entire code base by industry experts.

The security assessment resulted in findings that ranged from critical to informational We recommend addressing these findings to ensure a high level of security standards and industry practices.
We suggest recommendations that could better serve the project from the security perspective:

- Testing the Snap against both common and uncommon attack vectors.
- Enhance general coding practices for better structures of source codes.
- Review unit tests to cover the possible use cases.
- Review functions for readability, especially for future development work.

FINDINGS | Aeternity Snap

4	1	3	0	0
Total Findings	High	Medium	Low	Informational

This report has been prepared to discover issues and vulnerabilities for Aeternity snap. Through this audit, we have uncovered 4 issues ranging from different severity levels. Utilizing the techniques of Manual Review, Penetration Testing & Static Analysis to complement rigorous manual code reviews, we discovered the following findings:

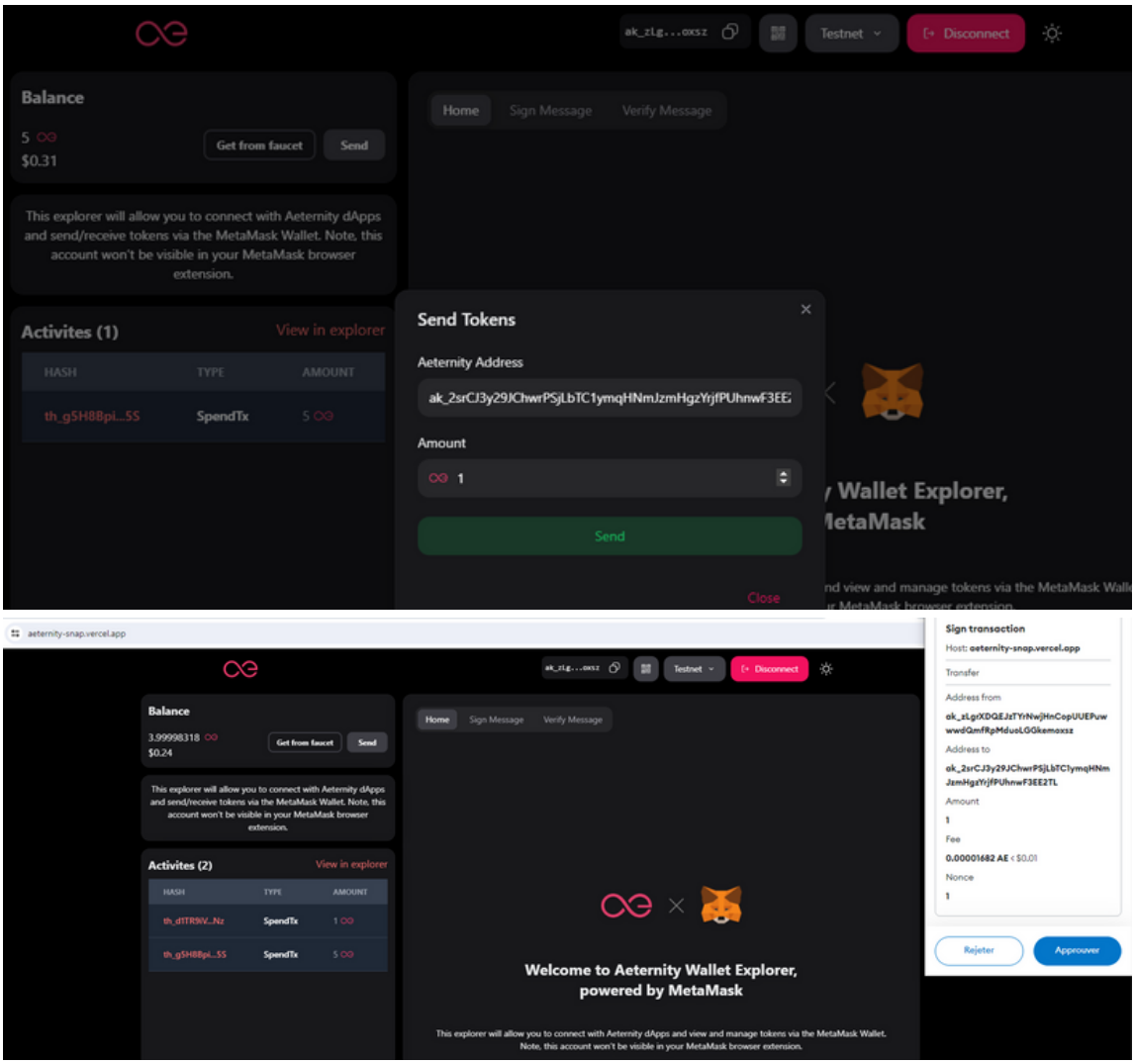
ID	Title	Category	Severity	Status
VA-01	Unhandled confirmation	Design Issue	Medium	Acknowledged
VA-02	Dapp May Suppress User Confirmation	Design Issue	Medium	Acknowledged
VA-03	Superfluous Permission	Design Issue	High	Acknowledged
VA-04	Vulnerable Outdated dependency	Design Issue	Medium	Acknowledged

VA-01 | Unhandled confirmation

Category	Severity	Location	Status
Design Issue	Medium	1c93bdb2e29572dc91b69b16f3db7b5bdae5822c	Acknowledged

Description

For key Snap functionalities (such as transferring funds or signing of a message), dialogs are displayed for the user to confirm whether they are aware of what they are doing. If the user confirms the transaction, it is executed. The snap in the send tokens functionality perform the action without the confirmation from the user. In case the user made a mistake and want to cancel the transfer it won't be possible. The confirmation pop up shows but the transaction is already being processed .



Recommendation

Handle the confirmation dialog before processing the user action.

VA-02 | Dapp May Suppress User Confirmation

Category	Severity	Location	Status
Design Issue	Medium	1c93bdb2e29572dc91b69b16f3db7b5bdae5822c	Acknowledged

Description

The dapp controls if the user is requested confirmation to return the public key. If the dapp sets confirm=false the user will not be informed that the dapp accessed their pubkey information (any account). Allowing the dapp to control if the user is asked to extract certain (derived) information from the snap is intransparent and may leak sensitive information. Especially in a setting where the snap is gatekeeping access to user specific information.

aeternity-snap / packages / snap / src / index.ts

Code | Blame | 128 lines (109 loc) · 3.33 KB

```
24  module.exports.onRpcRequest = async ({ origin, request }: any) => {
30
31    switch (request.method) {
32      case "getPublicKey": {
33        const { derivationPath, confirm = false } = request.params || {};
34
35        assertIsBoolean(confirm);
36
37        const keyPair = await deriveKeyPair(derivationPath);
38        const publicKey = encodePublicKey(keyPair.publicKey);
39
40        if (confirm) {
41          const accepted = await renderGetPublicKey(
42            dappHost,
43            "Are you sure you want to get account address?",
44          );
45          assertConfirmation(accepted);
46        }
```

Recommended

The snap should strictly enforce user confirmation on the first time the pubkey is requested from an origin. A potentially untrusted dapp (even though origin restricted; a dapp might turn malicious and should therefore be treated as untrusted) should never be able to silently dictate what security measures be enabled with a snap request.

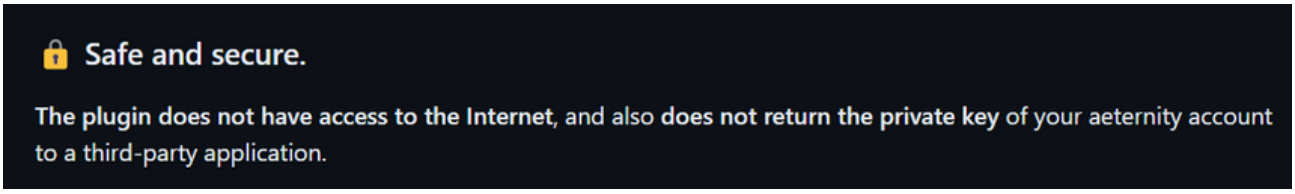
VA-03 | Superfluous Permission

Category	Severity	Location	Status
Design Issue	High	1c93bdb2e29572dc91b69b16f3db7b5bdae5822c	Acknowledged

Description

The snap requests permission endowment:network-access to interact with external entities over HTTP/fetch. While in the dApp repository it is written explicitly that the plugin does not have access to the internet, the dApp requests access to internet in order to continue using it.
The screenshot was taken from:
aeternity-snap/packages/snap/snap.manifest.json

```
26        },
27        "endowment:network-access": {},
28        "snap_getBip32Entropy": [
```



Recommended

Remove superfluous permissions.

VA-04 | Vulnerable Outdated dependency

Category	Severity	Location	Status
Design Issue	Medium	1c93bdb2e29572dc91b69b16f3db7b5bdae5822c	Acknowledged

Description

The snap uses a has a vulnerable dependency as described in package.json. The package postcss which version inferior to 8.4.31 is known to be vulnerable to 1 CVE. The package vulnerability details can be found under the reference CVE-2023-44270.

packages/site/package.json

```
38      "next": "^13.5.6",
39      "next-themes": "^0.2.1",
40      "nextjs-node-loader": "^1.1.5-alpha.0",
41      "postcss": "8.4.29",
42      "qrcode.react": "^3.1.0",
43      "react": "^18.2.0",
44      "react-dom": "^18.2.0",
```

GitHub Advisory Database / GitHub Reviewed / CVE-2023-44270

PostCSS line return parsing error

Moderate severity | GitHub Reviewed | Published on Sep 30, 2023 to the GitHub Advisory Database • Updated on Nov 5, 2023

Vulnerability details | Dependabot alerts 0

Package	Affected versions	Patched versions
postcss (npm)	< 8.4.31	8.4.31

Recommended

Remove unused dependencies, components and files.
Continuously inventory the versions of packages and monitor for any security updates especially.

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