New issue

Jump to bottom

fix buffer overflow in mifare ul load #1697

Merged

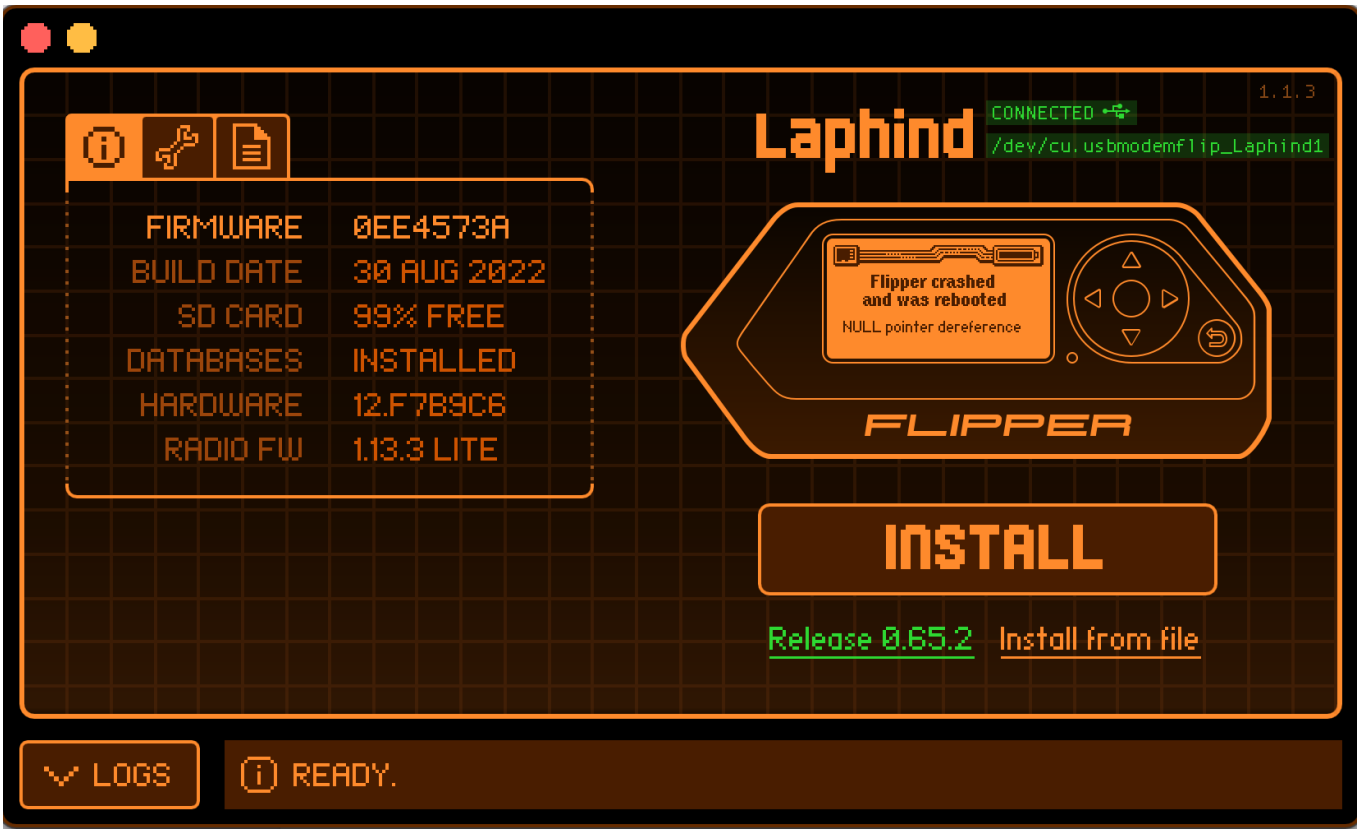
skotopes merged 2 commits into `flipperdevices:dev` from `VVX7:mifare_ul_buffer_overflow` on Sep 5

VVX7 commented on Sep 2 • edited by skotopes Contributor

What's new

A buffer overflow exists in `nfc_device_load_mifare_ul_data` when the `pages_total` value is greater than `MF_UL_MAX_DUMP_SIZE` . This occurs because `pages_total` is parsed from the nfc file and not checked against the max size of the buffer. An nfc file with a page count greater than 2040 will result in an out of bounds write.

This may result in various crashes including a BusFault crash, and a NULL point exception. In some cases, this require re-flashing flipper firmware to recover the device :(



Shout out to https://tmpout.sh/bggp/3/ for giving me a reason to look for bugs!! Maybe more to come ;)

Verification

Upload an nfc file containing more than 2040 pages. An example file (that will produce a null pointer deference) is provided here:
https://gist.github.com/VVX7/c55b122846253e12f1647e2a85ab2775

Steps:

- Upload the nfc file
- Navigate to `saved` nfc submenu and load the file
- view file info to trigger the crash

Note:
Larger files will result in similar unexpected behaviour and may not require viewing file info to trigger crash.

Impact

An attacker could place a malicious Amiibo file in a repository like this:
https://github.com/Gioman101/FlipperAmiibo/

Checklist (For Reviewer)

- [x] PR has description of feature/bug or link to Confluence/Jira task
- [x] Description contains actions to verify feature/bugfix
- [x] I've built this code, uploaded it to the device and verified feature/bugfix

`fix buffer overflow in mifar ul load` `e77bf96`

VVX7 requested review from **skotopes**, **DrZlo13**, **hedger** and **gornekich** as code owners 3 months ago

gornekich commented on Sep 2 — Contributor

Hello **@VVX7** . Am I right that there is no actual NFC tag with so many pages? This file was made by hands?

VVX7 commented on Sep 2 — Contributor, Author

hiya **@gornekich** , that's right. The file was made by hand. The risk comes from someone inserting a malicious file into database of Amiibos or something similar as I linked above.

Might also be able to emulate an NFC with unusually high page count using a proxmark or hydrabus, idk. I should go poke at that...

`Merge branch 'dev' into mifare_ul_buffer_overflow` `c329926`

gornekich approved these changes on Sep 5

View changes

skotopes merged commit **8d8481b** into `flipperdevices:dev` on Sep 5

View details

8 checks passed

VVX7 deleted the `mifare_ul_buffer_overflow` branch 3 months ago

hedger pushed a commit that referenced this pull request on Sep 5

`fix buffer overflow in mifar ul load (#1697)` ... `40bc8be`

Dig03 pushed a commit to Dig03/flipperzero-firmware that referenced this pull request on Sep 6

`fix buffer overflow in mifar ul load (flipperdevices#1697)` ... `74a46f8`

litui pushed a commit to litui/flipperzero-firmware that referenced this pull request on Sep 10

`fix buffer overflow in mifar ul load (flipperdevices#1697)` ··· `ce6f8e5`

qistoph pushed a commit to qistoph/flipperzero-firmware that referenced this pull request on Oct 11

`fix buffer overflow in mifar ul load (flipperdevices#1697)` ··· `689547f`

Reviewers

 **gornekich**

 **skotopes**

 **DrZlo13**

 **hedger**

Assignees

No one assigned

Labels

None yet

Projects

None yet

Milestone

No milestone

Development

Successfully merging this pull request may close these issues.

None yet

3 participants