iwinfo

Release 3.4.2

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CONTENTS:

CHAPTER

ONE

IWINFO

1.1 Overview

iwinfo : Provide useful information about wireless network(s)

This is a command line program which is run in any terminal. It shows some information about existing wireless connections along with the result of an optional scan for wireless devices. Scan is turned on using *-s* option.

Scanning wireless networks requires elevated privileges, which means either by running as root or by being provided with the required cap_net_xxx capablilities. Scanning is only permitted to users who are members of *wheel* group.

This package provides the application, written in python, along with a small C-program which is installed with cap_net_raw and cap_net_admin[3] and it provides the capabilities for the program to be run non-root.

Since this does add some level of risk, scanning is limited to root and members of the *wheel* group only.

Some addititional information is gathered using *iwctl* when *iwd* is running. These are the *ip addres*, *security mode* (e.g. WPA2), and *transmission type* (e.g. 802.11ax). These require either root or membership in *network* or *wheel* groups.

Others will still be able to get local wireless device and connection info, but will not be able to scan the network(s).

Summary:

Info	User	Group *network*	Group *wheel* or root
Basic	✓	✓	✓
Extra	×	✓	✓
Scan	×	×	✓

1.2 Key features

- Shows local wireless device(s) and connection info.
- Show summary of wireless hardware capabilities
- Scans wireless network(s) and provides compact report

1.3 New / Interesting

- All git tags are signed with arch@sapience.com key which is available via WKD or download from https://www.sapience.com/tech. Add the key to your package builder gpg keyring. The key is included in the Arch package and the source= line with *?signed* at the end can be used to verify the git tag. You can also manually verify the signature

[3] See man capabilities.

CHAPTER

TWO

GETTING STARTED

2.1 Usage

Run in a terminal :

```
iwinfo --help
iwinfo
iwinfo --scan
```

2.2 Configuration

An optional configuration file for iwinfo goes in:

```
/etc/iwinfo/wifi.db
```

wifi.db allows you to provide additional information about known wireless devices on the netwwork. File is in *toml* format and a sample is installed in */etc/iwinfo/wifi.db.sample*. If available, then this information is used in generating the reports.

Each device listed in the file should have an entry of the form:

```
[ap0]
    ip = '10.0.0.10'
    mac_map = [['5GHz', 'x:x:x:x:x:x'],
           ['24Ghz', 'x:x:x:x:x:x'],
            ['lan', 'x:x:x:x:x:x'],
            ]
    model = 'Netgear R9000'
    info = 'Location Office 1'
```

The mac_map is a list of pairs of [key, mac-address]. The key can be any convenient string you choose.

2.2.1 Options

By default no network scan is performed. To turn this on use:

- (*-s, –scan*)

2.2.2 Sample Output

Sample output:

```
Interfaces:
  wlan0:
      ap_bssid : xx:xx:xx:xx:xx:xx : Netgear xr500 Location Office 1
          ssid :  MagicalPlaces
          freq :  5745.0
      signal :  -53 dBm
  rx_bitrate :  866.7 MBit/s VHT-MCS 9 80MHz short GI VHT-NSS 2
  tx_bitrate :  866.7 MBit/s VHT-MCS 9 80MHz short GI VHT-NSS 2

  Devices:
      phy0:
              wifi-6E (802.11ax)   3-bands : 2.4-GHz 5-GHz 6-GHz
```

With –scan:

```
Scan Results:
  wlan0:
  xx:xx:xx:xx:xx:xx:  MagicalPlaces-24     2432.0   -32.00 dBm : Netgear 9000  Office 1
* xx:xx:xx:xx:xx:xx:  MagicalPlaces        5745.0   -49.00 dBm : Netgear 9000  Office 1
  yy:yy:yy:yy:yy:yy:  MyNeighbor-6G        5955.0   -55.00 dBm : Asus GT11000  Test Lab
  ...
```

The asterisk indicates machine is currently connected to that AP

CHAPTER

THREE

APPENDIX

3.1 Note on CET Shadow Stack

The code is compiled with this turned on. If for some reason you get an error compiling then you may turn it off by changing the load flag to 'cet-report=warning' in *src/ambient/Makefile*.

This may happen if you have old glibc (pre 2.39).

3.2 Installation

Available on

- Github
- Archlinux AUR

On Arch you can build using the provided PKGBUILD in the packaging directory or from the AUR. To build manually, clone the repo and :

```
rm -f dist/*
/usr/bin/python -m build --wheel --no-isolation
root_dest="/"
./scripts/do-install $root_dest
```

When running as non-root then set root_dest a user writable directory

3.3 Dependencies

- Run Time :
  - python (>= 3.11)
- Building Package:
  - git
  - hatch
  - wheel
  - build
  - installer
  - rsync
  - gcc

  - make
  - libcap-ng
- Optional to buil docs:
  - sphinx
  - texlive-latexextra (archlinux packaguing of texlive tools)

3.4 Philosophy

We follow the *live at head commit* philosophy. This means we recommend using the latest commit on git master branch. We also provide git tags.

This approach is also taken by Google[1][2].

3.5 License

[1] https://github.com/google/googletest
[2] https://abseil.io/about/philosophy#upgrade-support

CHAPTER

FOUR

CHANGELOG

[3.4.2] —— 2024-12-31

```
Git tags are now signed.
Update SPDX tags
Add git signing key to Arch Package
update Docs/Changelog.rst Docs/iwinfo.pdf
```

[3.4.1] —— 2024-07-12

```
Update README
update Docs/Changelog.rst Docs/iwinfo.pdf
```

[3.4.0] —— 2024-07-10

```
Bugfix when no user wifi.db returning incorrect number of parameters
update Docs/Changelog.rst Docs/iwinfo.pdf
```

[3.3.0] —— 2024-07-10

```
Report interface info before starting network scan
update Docs/Changelog.rst Docs/iwinfo.pdf
```

[3.2.0] —— 2024-07-09

```
update Docs/Changelog.rst Docs/iwinfo.pdf
User wifi.db separate model into make, model
update Docs/Changelog.rst Docs/iwinfo.pdf
```

[3.0.0] —— 2024-07-09

```
Scan sort order now frequency band (high->low) then on signal (best->worst)
update Docs/Changelog.rst Docs/iwinfo.pdf
```

[2.10.0] —— 2024-07-09

```
Add channel and mac address to report
update Docs/Changelog.rst Docs/iwinfo.pdf
```

[2.9.0] —— 2024-07-09

```
Add channel and mac address to report
update Docs/Changelog.rst Docs/iwinfo.pdf
```

[2.8.0] —— 2024-07-08

```
Add IP address to report
update Docs/Changelog.rst Docs/iwinfo.pdf
```

[2.7.0] —— 2024-07-08

```
Ensure works even if no active wifi settings
update Docs/Changelog.rst Docs/iwinfo.pdf
```

[2.6.1] —— 2024-07-08

```
bug in scanning report from too much tidying - dont always listen to pylint
update Docs/Changelog.rst Docs/iwinfo.pdf
```

[2.5.0] —— 2024-07-08

```
Additional fieleds in report:
  connection status
  security and wifi tx/rx mode if iwd is used
update Docs/Changelog.rst Docs/iwinfo.pdf
```

[2.3.0] —— 2024-07-07

```
Scan report sort firt by band and then by signal instead of just signal
update Docs/Changelog.rst Docs/iwinfo.pdf
```

[2.2.0] —— 2024-05-04

```
libcap-ng versions >= 0.6 provide python binding. We now use it instad of using our own␣
↪calls to c-library libcap-ng.so
update Docs/Changelog.rst Docs/iwinfo.pdf
```

[2.1.0] —— 2024-05-04

```
We handle capabilities directly so drop all refs to prctl since its not used. Remove it␣
↪from PKGBUILD as well
update Docs/Changelog.rst Docs/iwinfo.pdf
```

[2.0.6] —— 2024-04-30

```
Take Changelog "hack" out of PKGBUILD ... was a bad idea
update Docs/Changelog.rst Docs/iwinfo.pdf
```

[2.0.5] —— 2024-04-29

```
Improve pulling Changelog for pacman -Qc
update Docs/Changelog.rst Docs/iwinfo.pdf
```

[2.0.4] —— 2024-04-13

```
improve readme
tweak readme
```

[2.0.3] —— 2024-04-13

```
update Docs/Changelog.rst Docs/iwinfo.pdf
Add changelog to package so pacman -Qc shows it
update Docs/Changelog.rst Docs/iwinfo.pdf
```

[2.0.2] —— 2024-04-13

```
Change gitname in PKGBUILD
update Docs/Changelog.rst Docs/iwinfo.pdf
```

[2.0.1] —— 2024-04-13

```
Improve package description
Initial public release
```

CHAPTER

FIVE

MIT LICENSE

CHAPTER

SIX

HOW TO HELP WITH THIS PROJECT

Thank you for your interest in improving this project. This project is open-source under the MIT license.

6.1 Important resources

- Git Repo

6.2 Reporting Bugs or feature requests

Please report bugs on the issue tracker in the git repo. To make the report as useful as possible, please include

- operating system used
- version of python
- explanation of the problem or enhancement request.

6.3 Code Changes

If you make code changes, please update the documentation if it's appropriate.

CHAPTER

SEVEN

CONTRIBUTOR COVENANT CODE OF CONDUCT

7.1 Our Pledge

In the interest of fostering an open and welcoming environment, we as contributors and maintainers pledge to making participation in our project and our community a harassment-free experience for everyone, regardless of age, body size, disability, ethnicity, sex characteristics, gender identity and expression, level of experience, education, socio-economic status, nationality, personal appearance, race, religion, or sexual identity and orientation.

7.2 Our Standards

Examples of behavior that contributes to creating a positive environment include:

- Using welcoming and inclusive language
- Being respectful of differing viewpoints and experiences
- Gracefully accepting constructive criticism
- Focusing on what is best for the community
- Showing empathy towards other community members

Examples of unacceptable behavior by participants include:

- The use of sexualized language or imagery and unwelcome sexual attention or advances
- Trolling, insulting/derogatory comments, and personal or political attacks
- Public or private harassment
- Publishing others' private information, such as a physical or electronic address, without explicit permission
- Other conduct which could reasonably be considered inappropriate in a professional setting

7.3 Our Responsibilities

Maintainers are responsible for clarifying the standards of acceptable behavior and are expected to take appropriate and fair corrective action in response to any instances of unacceptable behavior.

Maintainers have the right and responsibility to remove, edit, or reject comments, commits, code, wiki edits, issues, and other contributions that are not aligned to this Code of Conduct, or to ban temporarily or permanently any contributor for other behaviors that they deem inappropriate, threatening, offensive, or harmful.

7.4 Scope

This Code of Conduct applies both within project spaces and in public spaces when an individual is representing the project or its community. Examples of representing a project or community include using an official project e-mail address, posting via an official social media account, or acting as an appointed representative at an online or offline event. Representation of a project may be further defined and clarified by project maintainers.

7.5 Enforcement

Instances of abusive, harassing, or otherwise unacceptable behavior may be reported by contacting the project team at <arch@sapience.com>. All complaints will be reviewed and investigated and will result in a response that is deemed necessary and appropriate to the circumstances. The Code of Conduct Committee is obligated to maintain confidentiality with regard to the reporter of an incident. Further details of specific enforcement policies may be posted separately.

7.6 Attribution

This Code of Conduct is adapted from the Contributor Covenant, version 1.4, available at https://www.contributor-covenant.org/version/1/4/code-of-conduct.html

7.7 Interpretation

The interpretation of this document is at the discretion of the project team.

CHAPTER

EIGHT

INDICES AND TABLES

- genindex
- modindex
- search