nord

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CONTENTS:

Nord is a client for interacting with the NordVPN service.

At its core is a high-level Python API for interacting both with the web service provided by NordVPN, and for connecting to VPN servers using OpenVPN.

Nord also contains components that expose this API as a command line tool, and (soon) as a web service and frontend.

OVERVIEW

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TWO

LICENCE

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THREE

INSTALLATION

```
pip install nord
```

USAGE

Run `nord --help` for the full usage instructions.

Connect to a specific NordVPN server:

```
nord connect -u my_user -p my_password us893
```

Connect to any NordVPN server in a given country:

```
nord connect -u my_user -p my_password US
```

Serve a web app that allows you to select the country to which you wish to connect:

```
nord web -u my_user -p my_password
```

You can also supply your password from a file using the `-f` flag. The special value `-` means "read from stdin". This is particularly useful when your password is stored in a utility such as pass:

```
pass nordvpn_password | nord connect -u my_user -f - us893
```

FIVE

PREREQUESITES

- GNU/Linux system

- Python 3.6

- `openvpn`

- `sudo`

nord contains many Linux-isms (e.g. using the `sudo` program to obtain root access) so it will certainly not work on Windows, it may possibly work on OSX and *BSD, but support for these platforms is not a goal.

Most recent versions of popular GNU/Linux distributions (with the exception of Debian) have both an OpenVPN client and Python 3.6 in their official repositories. Debian users will have to take *additional steps* to get a Python 3.6 installation.

5.1 Ubuntu 16.10 and newer

Ubuntu comes with `sudo` already installed, so we just need to install Python and openVPN:

```
sudo apt-get install python3.6 openvpn
```

5.2 Fedora 26 and newer

Fedora comes with `sudo` already installed, so we just need to install Python and openVPN:

```
sudo dnf install python36 openvpn
```

5.3 Arch Linux

Run the following as root:

```
pacman -S sudo python openvpn
```

Then configure `sudo` by following the Arch wiki to give privileges to the user that nord will be running as.

5.4 Debian

First run the following as root to install the openVPN client and `sudo` from the Debian repositories:

```
apt install sudo openvpn
```

Then configure `sudo` by following the Debian wiki to give privileges to the user that nord will be running as.

There are a couple of options for installing Python3.6 on Debian:

- Installing from the `unstable` repositories
- Installing from source (easier than you might think

Both of these methods are explained in top-rated answers to this stackexchange question.

DEVELOPING

You will need Python 3.6 and Yarn (for the web components).

```
git clone https://github.com/jbweston/nord
cd nord
virtualenv -p python3.6
source venv/bin/activate
pip install -e .[dev]
yarn install
```

Periodically check your code with the linter:

```
pylint nord
```

6.1 Web components

When developing the web frontend you can execute the following command to run an auto-reloading web server:

```
yarn dev
```

6.2 Building the API documentation

```
make -C docs html
xdg-open docs/build/html/index.html
```

CHANGELOG

7.1 v0.3.0

- Implement Web frontend for interacting with Nord VPN servers
- Fix a bug where an exception would be raised when incorrect credentials are provided to the CLI

7.2 v0.2.0 | 2018-02-01

- Improve help messages in CLI
- Add API method to rank hosts by availability
- CLI accepts country code and selects best host automatically
- Connect to Nord API via HTTPS
- Reduce refresh period for sudo credentials to 30 seconds
- Add changelog to docs

7.3 v0.1.0 | 2017-09-09

- First publically released version
- Python API + command line client

API DOCUMENTATION

8.1 `nord.api`

Interface to the NordVPN web API.

This module contains a single class, *Client*, which encapsulates all the methods provided by NordVPN.

class nord.api.**Client**(*api_url='https://api.nordvpn.com/'*)
> Interface to the NordVPN web API.
>
> Instances of this class can be used as async context managers to auto-close the session with the Nord API on exit.
>
> > **Parameters api_url** (str, default: 'https://api.nordvpn.com') –
>
> **async close**()
> > Close the underlying aiohttp.ClientSession.
>
> **async current_ip**()
> > Return our current public IP address, as detected by NordVPN.
>
> **async dns_servers**()
> > Return a list of ip addresses of NordVPN DNS servers.
>
> **async host_config**(*host*, *protocol='tcp'*)
> > Return the OpenVPN config file contents for a NordVPN host.
> >
> > > **Parameters**
> > >
> > > - **host** (*str*) – This hostname may be provided either with or without the trailing '.nordvpn.com'.
> > >
> > > - **protocol** (*str, 'tcp' or 'udp'*) –
>
> **async host_info**()
> > Return detailed information about all hosts.
> >
> > > **Returns host_info** – A map from hostnames to host info dictionaries.
> > >
> > > **Return type** (dict: str → dict)
>
> **async host_load**(*host=None*)
> > Return the load on a NordVPN host.
> >
> > > **Parameters host** (*str, optional*) – This hostname may be provided either with or without the trailing '.nordvpn.com'. If not provided, get the load on all NordVPN hosts.
> > >
> > > **Returns load** – If 'host' was provided, returns the load on the host as a percentage, otherwise returns a map from hostname to percentage load.

> **Return type** int or (dict: str → int)

async rank_hosts(*country_code*, *max_load=70*, *ping_timeout=1*)

> Return hosts ranked by their suitability.
>
> First, all the NordVPN hosts are filtered to get a list of candidates, then the round-trip time is calculated using 'ping', then the candidates are sorted according to some scoring function.
>
> The initial filtering is done based on the country where the host is, and the max.
>
> > **Parameters**
> >
> > - **country_code** (`str`) – 2-letter country code (e.g. US for United States).
> >
> > - **max_load** (`int, default:  70`) – An integer between 0 and 100. Hosts with a load greater than this are filtered out.
> >
> > - **ping_timeout** (`int`) – Each host will be pinged for this amount of time. Larger values yield more accurate round-trip times.
> >
> > **Returns** **hosts** – Fully qualified domain names of valid hosts, sorted by their rank.
> >
> > **Return type** list of str

async valid_credentials(*username*, *password*)

> Return True if NordVPN accepts the username and password.
>
> Sometimes connecting to the VPN server gives an authentication error even if the correct credentials are given. This function is useful to first verify credentials so as to avoid unecessary reconnection attempts.
>
> > **Parameters** **password**(`username,`) –

nord.api.**normalized_hostname**(*hostname*)

> Return the fully qualified domain name of a NordVPN host.

8.2 `nord.vpn`

Tools for starting and supervising OpenVPN clients.

exception nord.vpn.**OpenVPNError**

> Errors from the OpenVPN subprocess

async nord.vpn.**run**(*config*, *username*, *password*, *dns_servers=()*)

> Run an OpenVPN client until it dies and return the exit code.
>
> Optionally provide DNS servers that will replace the contents of '/etc/resolv.conf' for the duration of the client.
>
> > **Parameters**
> >
> > - **config** (`str`) – The contents of the OpenVPN config file.
> >
> > - **password** (`username,`) – Credentials for the OpenVPN connection.
> >
> > - **dns_servers** (`tuple of str, optional`) – IP addresses of DNS servers with which to populate '/etc/resolv.conv' when the VPN is up.

async nord.vpn.**start**(*config*, *username*, *password*)

> Start an OpenVPN client with the given configuration.
>
> > **Parameters**
> >
> > - **config** (`str`) – The contents of the OpenVPN config file.
> >
> > - **password** (`username,`) – Credentials for the OpenVPN connection.

> **Returns proc**

> **Return type** asyncio.subprocess.Process

> **Raises**
>
> - **PermissionError if we cannot use 'sudo' without a password.** –
> - **OpenVPNError if the OpenVPN process does not start correctly.** –
> - **LockError if a lock could not be obtained for the lockfile.** –

Notes

Obtains a lock on a global lockfile before launching an OpenVPN client in a subprocess. The lock is released when the process dies.

async `nord.vpn.`**`supervise`**(*proc*)
> Supervise a process.

> This coroutine supervises a process and writes its stdout to a logger until it dies, or until the coroutine is cancelled, when the process will be killed.

> > **Parameters proc** (`asyncio.subprocess.Process`) –

> > **Returns returncode** – 'proc.returncode'.

> > **Return type** int

async `nord.vpn.`**`supervise_with_context`**(*proc*, *dns_servers=()*)
> Supervise an OpenVPN client until it dies and return the exit code.

> Optionally provide DNS servers that will replace the contents of '/etc/resolv.conf' for the duration of the client.

> > **Parameters**
> >
> > - **proc** (`asyncio.Task`) – The OpenVPN process to supervise
> > - **dns_servers** (`tuple of str, optional`) – IP addresses of DNS servers with which to populate '/etc/resolv.conv' when the VPN is up.

8.3 `nord.web`

Serve nord as a web app.

The API can be accessed by opening a websocket connection to '/api'.

8.3.1 Requests

The API accepts 2 types of request.

Connect

A request to connect to a server in the provided country. Countries are specified as case-insensitive ISO alpha-2 codes. An example request is:

```
{
  "method" : "connect",
  "country" : "NL"
}
```

Disconnect

A request to disconnect the current OpenVPN connection. An example request is:

```
{
  "method" : "disconnect"
}
```

8.3.2 Responses

Connecting

After receiving a "connect" request, the API will send a message to all connected peers with the following example format:

```
{
  "state" : "connecting",
  "country" : "nl",
}
```

Connected

When an OpenVPN connection is established, the API will send a message to all connected peers with the following example format:

```
{
  "state" : "connected",
  "host" : "nl123.nordvpn.com"
}
```

Disconnecting

After receiving a "disconnect" request, the API will send a message to all connected peers with the following example format:

```
{
  "state" : "disconnecting"
}
```

Disconnected

When an OpenVPN connection is established, the API will send a message to all connected peers with the following example format:

```
{
  "state" : "disconnected"
}
```

> **Error:** If there was some error on the server side the API will send a message to all connected peers in the following example format:
>
> ```
> {
>   "state" : "error",
>   "message" : "Something went wrong!"
> }
> ```

PYTHON MODULE INDEX

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