SatNOGS Config

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SatNOGS

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SatNOGS Config is a utility for generating the configuration for a Debian-based SatNOGS client system. It is a menu driven configuration tool built on-top of `pythondialog`. The main purpose of this utility is to create the YAML configuration file for SatNOGS Client Ansible which provisions the system. In addition to that, it interacts with `satnogs-setup`, which is a wrapper to bootstrap Ansible, upgrades the system packages using APT and probes the hardware to show the user a more limited set of configuration options.

CHAPTER

ONE

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1.1 User guide

1.1.1 Requirements

- Python 3.4+

1.1.2 Installation

To install SatNOGS Config run:

```
$ pip install satnogs-config
```

This will install a console script called `satnogs-config`.

1.1.3 Usage

To execute the script, run it on the command line:

```
$ satnogs-config
```

The main menu will be shown

1.1.3.1 Basic

The `Basic` sub-menu contains the minimum required configuration options for provisioning the SatNOGS client system.

1.1.3.2 Advanced

The `Advanced` sub-menu contains a larger set of configuration options. It is intended for advanced users and contains options categorized by component.

1.1.3.3 Show

The `Show` option displays the current configuration file.

1.1.3.4 Upgrade

The `Upgrade` option calls `APT` utilities to upgrade the distribution packages.

1.1.3.5 Update

The `Update` option works in conjunction with `satnogs-setup` to re-bootstrap Ansible and update the configuration tools.

1.1.3.6 Reset

The `Reset` option resets the configuration file generated by the utility, effectively removing all the configuration options set by the user.

1.1.3.7 Apply

The `Apply` option runs SatNOGS Client Ansible which provisions Debian to become a SatNOGS client system.

1.2 Developer guide

1.2.1 Installation

To install SatNOGS Config for development run in the project root directory:

```
$ pip install -e .
```

1.2.2 Configuration

This project uses `python-dotenv`. Configuration of `satnogsconfig/settings.py` can be overridden by setting the respective environment variables or an `.env` file placed on the project root directory.

1.2.3 Extending

SatNOGS Config functionality can be extended by implementing additional helpers. The helpers are used to enhance menu functionality beyond the core function of generating a YAML file for Ansible.

1.2.4 Modifying the menu

The menu itself is also expressed in YAML format. The menu structure is defined in `menu.yml` file and shipped along with the package.

1.2.5 Code Quality Assurance

The following code quality assurance tools are used in this project:

- `flake8`
- `isort`
- `yapf`
- `pylint`

1.2.6 Automation

`tox` is used to automate development tasks. To execute the default list of tasks run:

```
$ tox
```

1.3 Modules reference

1.3.1 satnogsconfig

SatNOGS Config module initialization

satnogsconfig.**main**()
SatNOGS Setup utility

1.3.2 satnogsconfig.config

Configuration module

class satnogsconfig.config.**Config**(*filename*)
Manage configuration file

Parameters **filename** (*str*) – File path of configuration

_load_config()
Load and parse YAML configuration

Returns Configuration dictionary

Return type dict or NoneType

clear_config()
Clear configuration file

dump_config(*to_file=False*)
Dump configuration in YAML format

Parameters **to_file** (*bool*) – Dump to file

Returns YAML configuration

Return type str

get_variable(*variable*)
Get variable value from configuration

Parameters **variable** (*str*) – Variable to get the value

Returns Value of variable

Return type str or bool or NoneType

set_variable(*variable*, *value*)
Set variable value in configuration

Parameters

- **variable** (*str*) – Variable to set the value
- **value** (*str or bool or NoneType*) – Value of variable

1.3.3 satnogsconfig.helpers

Helpers module

class satnogsconfig.helpers.**SatnogsSetup**
Interract with satnogs-setup

request_bootstrap()
Request bootstrapping from satnog-setup

property satnogs_client_ansible_version
Get installed SatNOGS Client Ansible version

property satnogs_client_version
Get installed SatNOGS Client version

static sync_reboot()
Flush buffers and reboot

property tags
Get satnogs-setup tags

Returns Set of tags

Return type set

upgrade_system()
Upgrade system packages

Returns Whether packages were upgraded

Return type bool

class satnogsconfig.helpers.**GrSatnogs**
Get and set gr-satnogs configuration

property gr_satnogs_version
Get gr-satnogs version

probe_soapysdr()
Probe SoapySDR hardware

1.3.4 satnogsconfig.menu

Menu module

class satnogsconfig.menu.**Menu**(*menu*, *config*, *backtitle=None*)
Show a menu structure based on dialog

Parameters

- **menu** (*dict*) – Menu dictionary
- **config** (*dict*) – Configuration dictionary
- **backtitle** (*str, optional*) – Default dialog backtitle

static _apply(*_*)
Request setup from configuration management tool

_configbox(*menu*)
Show scrollbox for viewing configuration

Parameters **menu** (*dict*) – Menu dictionary

_exit(*menu*)
Exit the utility

Parameters **menu** (*dict*) – Menu dictionary

_get_common_options(*menu*)
Get dialog common options

Parameters **menu** (*dict*) – Menu dictionary

Returns Common option dictionary

Return type dict

_msgbox(*menu*)
Show msgbox

Parameters **menu** (*dict*) – Menu dictionary

_resetyesno(*menu*)
Reset configuration

Parameters **menu** (*dict*) – Menu dictionary

_submenu(*menu*)
Show submenu

Parameters **menu** (*dict*) – Menu dictionary

_update(*_*)
Request tool update

_upgrade(*menu*)
Run system upgrade

Parameters **menu** (*dict*) – Menu dictionary

_variablebox(*menu*)
Show inputbox for setting a variable

Parameters **menu** (*dict*) – Menu dictionary

_variableyesno(*menu*)
Show boolean selection for setting a variable

Parameters **menu** (*dict*) – Menu dictionary

property backtitle
Get default backtitle

Returns Background title

Return type str

show()
Show dialog menu structure

satnogsconfig.menu.**_load_menu**(*file*)
Load menu structure from YAML file

Parameters **file** (*file*) – Menu file stream

Returns Menu dictionary

Return type dict

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