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# SatNOGS Config

*Release 0.4.1+0.g822753e.dirty*

**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.



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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

Interact with satnogs-setup

**property** gr\_satnogs\_version

Get installed gr-satnogs version

**Returns** Version of gr-satnogs

**Return type** str

**property** is\_applied

Check whether configuration has been applied

**Returns** Whether configuration has been applied

**Return type** bool

**static** restart (*boot=False*)

Restart satnogs-setup script

**Parameters** **boot** (*bool*) – Whether to bootstrap or not

**property** satnogs\_client\_ansible\_version

Get installed SatNOGS Client Ansible version

**property** satnogs\_client\_version

Get installed SatNOGS Client version

**Returns** Version of SatNOGS Client

**Return type** str

**property** tags

Get satnogs-setup tags

**Returns** Set of tags

**Return type** set

```

upgrade_system()
    Upgrade system packages

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

    property gr_satnogs_version
        Get gr-satnogs version

    probe_soapysdr()
        Probe SoapySDR hardware

class satnogsconfig.helpers.Ansible (ansible_dir)
    Call Ansible playbooks

    run (playbooks, tags=None, extra_args=None)
        Run Ansible playbook

        Parameters

- tags (list) – List of tags
- playbooks (list) – List of playbooks
- extra_args (list) – List of extra arguments to pass to Ansible

Returns Whether Ansible execution succeeded

Return type bool

```

### 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

_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

**\_\_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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