# MyProject Documentation

# Contents

| Module SuperHelper                   |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 3           |
|--------------------------------------|-----|-----|---|---|---|-------|---|---|-------|---|---|---|---|---|---|------|---|-------------|
| Sub-modules                          |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 4           |
| Variables                            |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 4           |
| Variable AppDir                      |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 4           |
| Variable AppName                     |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 4           |
| Module SuperHelper.Core              |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 4           |
| Sub-modules                          |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 4           |
| Functions                            |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 4           |
| Function load_added_modules .        |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 4           |
| Function load_core_commands .        |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 4           |
| Function main_entry                  |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 4           |
| Function pass_config                 |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   |             |
| Function run_startup                 |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 5           |
| Function save_config                 |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 5<br>5<br>5 |
| runction save_config                 |     |     | • | • | • | <br>• | • | • | <br>• | • | • | • | • | • | • |      | • | ,           |
| Module SuperHelper.Core.Config       |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 5           |
| Sub-modules                          |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 5           |
| Functions                            |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 5           |
| Function load_app_config             |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 5           |
| Function make_config_global .        |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 6           |
| Function pass_config                 |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   | <br> |   | 6           |
| Function save_app_config             |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   | <br> |   | 6           |
| Classes                              |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 6           |
| Class Config                         |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 6           |
| Static methods                       |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 7           |
| Methods                              |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 7           |
| Module SuperHelper.Core.Config.app_c | onf | i « |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 9           |
| Functions                            |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 9           |
| Function load_app_config             |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 9           |
|                                      |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 9           |
| Function save_app_config             |     | ٠.  | • | • | • | <br>• | • | • | <br>• | • | • | • | • | • |   |      | • | 9           |
| Module SuperHelper.Core.Config.confi |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 9           |
| Functions                            |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 9           |
| Function make_config_global .        |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 9           |
| Function pass_config                 |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 9           |
| Classes                              |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 10          |
| Class Config                         |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 10          |
| Static methods                       |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 10          |
| Methods                              |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 10          |
| Modulo Generalisanos Generalista     |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 12          |
| Module SuperHelper.Core.Utils        |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 12          |
| Sub-modules                          |     |     |   |   |   |       |   |   |       |   |   |   |   |   |   |      |   | 12          |
| Functions                            |     | ٠.  | ٠ | ٠ | • | <br>• | ٠ | • | <br>٠ | • | ٠ | • | • | • | • |      | ٠ | 12          |

| Classes                                    | 12  |
|--|-----|
| Class BitOps                               |     |
| Static methods                             |     |
| Class Cryptographer                        |     |
| Static methods                             | 13  |
| Methods                                    |     |
| Class FP                                   |     |
| Ancestors (in MRO)                         |     |
| Class variables                            |     |
| Class FileOps                              |     |
| Static methods                             |     |
| Class TypeCheck                            |     |
| Static methods                             | 19  |
| Module SuperHelper.Core.Utils.bit_ops      | 24  |
| Classes                                    |     |
| Class BitOps                               |     |
| Static methods                             |     |
| Static methods                             |     |
| Module SuperHelper.Core.Utils.crypto_ops   | 24  |
| Classes                                    | 24  |
| Class Cryptographer                        |     |
| Static methods                             |     |
| Methods                                    | 20  |
|  |     |
| Module SuperHelper.Core.Utils.file_ops     | 2   |
| Classes                                    |     |
| Class FP                                   |     |
| Ancestors (in MRO)                         |     |
| Class variables                            |     |
| Class FileOps                              |     |
| Static methods                             | 28  |
| Madulan management                         | 2.4 |
| Module SuperHelper.Core.Utils.logger       | 30  |
| Functions                                  |     |
| Function setup_core_logger                 |     |
| Module SuperHelper.Core.Utils.type_ensure  | 3:  |
| Classes                                    | _   |
| Class TypeCheck                            |     |
| Static methods                             |     |
| Static methods                             |     |
| Module SuperHelper.Core.Utils.type_hinting | 3!  |
| Variables                                  | 3!  |
| Variable PathLike                          |     |
|  |     |
| Module SuperHelper.Core.core_cli           | 3!  |
| Functions                                  |     |
| Function load_config                       |     |
| Function main_entry                        |     |
| Function run_startup                       |     |
| Function save_config                       |     |
|  |     |
| Module SuperHelper.Core.core_commands      | 3(  |
| Functions                                  |     |
| Function load_core_commands                |     |
| Module SuperHelper.Core.core_loader        | 30  |
| Functions                                  |     |
| Function load added modules                | 30  |
|  |     |

| Sub-modules  | 30               |
|--|------------------|
| Module SuperHelper.Modules.FocusEnabler                      | 3                |
| Module SuperHelper.Modules.Stenographer                      | 3                |
| Module SuperHelper.Tests Sub-modules                         | 3 <sup>°</sup> 3 |
| Module SuperHelper.Tests.test_base Functions                 | 3                |
| Module SuperHelper.Tests.test_config Classes                 | 38               |
| Module SuperHelper.Tests.test_core Functions                 |                  |
| Module SuperHelper.Tests.test_core_command           Classes |                  |
| Module SuperHelper.Tests.test_module_FocusEnabler  Classes   | 40               |
| Module SuperHelper.Tests.test_module_Stenographer  Classes   | 4                |
| Module SuperHelper.Tests.test_utils Classes                  | 4<br>4<br>4<br>  |
| Static methods   |                  |

# Module SuperHelper

#### Sub-modules

- SuperHelper.Core
- SuperHelper.Modules
- SuperHelper.Tests

#### **Variables**

Variable AppDir

Path to the application directory.

Variable AppName

Name of the application.

### Module SuperHelper.Core

#### Sub-modules

- SuperHelper.Core.Config
- SuperHelper.Core.Utils
- SuperHelper.Core.core cli
- SuperHelper.Core.core commands
- SuperHelper.Core.core\_loader

#### **Functions**

Function load\_added\_modules

```
def load_added_modules(
    config: dict
) -> list
```

Loads all added modules.

Returns ——— A list of a 2-tuple elements, where the first index is the click.command object, and the second index is the technical name of the command. For example:

```
[(main, "main"), ...]
```

The first index can be added to a click.group, i.e the cli function.

Function load\_core\_commands

```
def load_core_commands() -> list
```

Loads the Core CLI commands.

Returns ——— A list of a 2-tuple elements, where the first index is the click.command object, and the second index is the technical name of the command. For example:

```
[(add_modules, "core_add"), ...]
```

The first index can be added to a click.group, i.e the cli function.

Function main\_entry

```
def main_entry() -> NoReturn
```

#### Function pass\_config

```
def pass_config(
    core: bool = None,
    module_name: str = None,
    lock: bool = False,
    param_name: str = 'config'
) -> Callable
```

Passes the requested config to decorated functions.

The wrapped function will receive the config (as requested). When the function returns (or raises SystemExit), this decorator will capture that signal, save the config (if locked) before returning (or re-raising SystemExit).

Args ——= core: bool: Whether to request core config.

module\_name: str The name of the module.

lock: bool Whether to lock the config, i.e allow writing to the config.

param\_name : str The name of the parameter that the config will be passed as.

Returns ——— A Callable instance (the decorated function).

Raises —-= SystemExit : Re-raises the SystemExit() raised by the wrapped function.

ValueError Both core and module name are specified.

```
Function run_startup
```

```
def run_startup()
```

Function save\_config

def save\_config()

Saves application config.

### Module SuperHelper.Core.Config

#### Sub-modules

- SuperHelper.Core.Config.app config
- SuperHelper.Core.Config.config\_class

#### **Functions**

```
Function load_app_config
```

```
def load_app_config(
    config_path: ~PathLike
) -> NoneType
```

Loads the configuration of the application.

Args —-= config\_path: PathLike: The path to config file.

Returns --= None

Raises ——— SystemExit : Config file is unreadable.

```
Function make_config_global
     def make_config_global(
        cfg: Config
     ) -> NoneType
Makes the configuration global.
Args —-= cfg: Config: The Config instance.
Returns —-= None
Function pass_config
    def pass config(
        core: bool = None,
        module_name: str = None,
        lock: bool = False,
        param_name: str = 'config'
     ) -> Callable
Passes the requested config to decorated functions.
The wrapped function will receive the config (as requested). When the function returns (or
raises SystemExit), this decorator will capture that signal, save the config (if locked) before
returning (or re-raising SystemExit).
Args —-= core: bool: Whether to request core config.
module_name : str The name of the module.
lock: bool Whether to lock the config, i.e allow writing to the config.
param_name: str The name of the parameter that the config will be passed as.
Returns ——— A Callable instance (the decorated function).
Raises —-= SystemExit: Re-raises the SystemExit() raised by the wrapped function.
ValueError Both core and module name are specified.
Function save_app_config
     def save_app_config(
         config: SuperHelper.Core.Config.config_class.Config,
         config_path: ~PathLike
     ) -> NoneType
Saves the configuration of the application.
Args —-= config: Config: The global Config instance
config_path: PathLike The path to config file
Returns --- None
Raises ——— SystemExit : Config file is not writable.
Classes
Class Config
     class Config(
        core: dict[str, ...] = None,
```

The configuration of the application.

)

modules: dict[str, dict[str, ...]] = None

#### Static methods

```
Method from dict
     def from_dict(
         config: dict[str]
     ) -> SuperHelper.Core.Config.config_class.Config
Methods
Method apply_core_patch
     def apply_core_patch(
         self,
         config: dict[str, ...]
     ) -> NoneType
Applies a new patch to core configuration.
This function should only be used by Core CLI.
Args ——= config : dict[str, ...] : The patch of the configuration.
Returns --= None
Raises —-= RuntimeError: An error has occurred in self.get core config()
Method apply_module_patch
     def apply_module_patch(
         self,
         module_name: str,
         config: dict[str, ...]
     ) -> NoneType
Applies a new patch to the module configuration.
Args —-= module_name : str : The name of the module to apply patch to.
config: dict[str, ...] The patch of the configuration.
Returns --= None
Method get_core_config
     def get_core_config(
         self,
         lock: bool = True
     ) -> dict
Gets the configuration of Core CLI.
This function is intended for internal use only, used for the decorator pass config().
Args —-= lock: bool: Whether to lock the config or not.
Returns ——— A dictionary mapping keys to corresponding values of the core config. Each
entry is represented by a key-value pair of the dictionary. For example:
{"DEBUG": ..., "INSTALLED_MODULES": [...]}
The keys are always strings, and the values can be of any JSON-serializable type.
Raises ——= RuntimeError: The core config is locked by another call.
```

```
Method get_module_config
```

```
def get_module_config(
    self,
    module_name: str,
    lock: bool = True
) -> dict
```

Gets the configuration of the specified module.

This function is intended for internal use only, used for the decorator pass config().

Args —-= module\_name: str: The name of the module that the config belongs to.

lock: bool Whether to lock the config or not.

Returns ——— A dictionary mapping keys to corresponding values of the module config. Each entry is represented by a key-value pair of the dictionary. For example:

```
{"DEBUG": ..., "INSTALLED_MODULES": [...]}
```

The keys are always strings, and the values can be of any JSON-serializable type.

Raises ——— RuntimeError: The module config is locked by another call.

```
Method set_core_config
```

```
def set_core_config(
    self,
    config: dict[str, ...]
) -> NoneType
```

Sets the configuration of Core CLI.

This function is intended for internal use only, used for the decorator pass config().

Args —-= config: dict[str, ...]: A dictionary with string keys of the core configuration.

Returns --= None

Raises —-= RuntimeError : The last retrieval of the core config was not locked, hence it is read-only.

#### Method set\_module\_config

```
def set_module_config(
    self,
    module_name: str,
    config: dict[str, ...]
) -> NoneType
```

Sets the module configuration.

This function is intended for internal use only, used for the decorator pass\_config().

```
Args —-= module_name: str: The name of the module that the config belongs to.
```

config: dict[str, ...] A dictionary with string keys of the core configuration.

Returns --= None

Raises ——— RuntimeError : The last retrieval of the module config was not locked, hence it is read-only.

### Module SuperHelper.Core.Config.app\_config

#### **Functions**

```
Function load_app_config
    def load_app_config(
         config_path: ~PathLike
     ) -> NoneType
Loads the configuration of the application.
Args —-= config_path: PathLike: The path to config file.
Returns --= None
Raises ——= SystemExit : Config file is unreadable.
Function save_app_config
    def save app config(
        config: SuperHelper.Core.Config.config_class.Config,
         config_path: ~PathLike
     ) -> NoneType
Saves the configuration of the application.
Args —-= config: Config: The global Config instance
config_path: PathLike The path to config file
Returns --= None
Raises ——— SystemExit : Config file is not writable.
```

### Module SuperHelper.Core.Config.config\_class

#### **Functions**

```
Function make_config_global

    def make_config_global(
        cfg: Config
    ) -> NoneType

Makes the configuration global.

Args --= cfg: Config: The Config instance.

Returns --= None

Function pass_config

    def pass_config(
        core: bool = None,
        module_name: str = None,
        lock: bool = False,
        param_name: str = 'config'
    ) -> Callable
```

Passes the requested config to decorated functions.

The wrapped function will receive the config (as requested). When the function returns (or raises SystemExit), this decorator will capture that signal, save the config (if locked) before returning (or re-raising SystemExit).

```
Args —-= core: bool: Whether to request core config.
module_name: str The name of the module.
lock: bool Whether to lock the config, i.e allow writing to the config.
param name: str The name of the parameter that the config will be passed as.
Returns ——— A Callable instance (the decorated function).
Raises ——= SystemExit: Re-raises the SystemExit() raised by the wrapped function.
ValueError Both core and module name are specified.
Classes
Class Config
     class Config(
         core: dict[str, ...] = None,
         modules: dict[str, dict[str, ...]] = None
     )
The configuration of the application.
Static methods
Method from_dict
     def from_dict(
         config: dict[str]
     ) -> SuperHelper.Core.Config.config_class.Config
Methods
Method apply_core_patch
     def apply_core_patch(
         self,
         config: dict[str, ...]
     ) -> NoneType
Applies a new patch to core configuration.
This function should only be used by Core CLI.
Args ——= config: dict[str, ...]: The patch of the configuration.
Returns —-= None
Raises —-= RuntimeError : An error has occurred in self.get_core_config()
Method apply_module_patch
     def apply_module_patch(
         self,
         module_name: str,
         config: dict[str, ...]
     ) -> NoneType
Applies a new patch to the module configuration.
Args —-= module_name : str : The name of the module to apply patch to.
config : dict[str, ...] The patch of the configuration.
Returns --= None
```

```
Method get_core_config
```

```
def get_core_config(
    self,
    lock: bool = True
) -> dict
```

Gets the configuration of Core CLI.

This function is intended for internal use only, used for the decorator pass config().

```
Args ——= lock: bool: Whether to lock the config or not.
```

Returns ——— A dictionary mapping keys to corresponding values of the core config. Each entry is represented by a key-value pair of the dictionary. For example:

```
{"DEBUG": ..., "INSTALLED_MODULES": [...]}
```

The keys are always strings, and the values can be of any JSON-serializable type.

Raises ——= RuntimeError: The core config is locked by another call.

```
Method get_module_config
```

```
def get_module_config(
    self,
    module_name: str,
    lock: bool = True
) -> dict
```

Gets the configuration of the specified module.

This function is intended for internal use only, used for the decorator pass\_config().

Args —-= module\_name: str: The name of the module that the config belongs to.

lock: bool Whether to lock the config or not.

Returns ——— A dictionary mapping keys to corresponding values of the module config. Each entry is represented by a key-value pair of the dictionary. For example:

```
{"DEBUG": ..., "INSTALLED_MODULES": [...]}
```

The keys are always strings, and the values can be of any JSON-serializable type.

Raises ——— RuntimeError: The module config is locked by another call.

#### Method set\_core\_config

```
def set_core_config(
    self,
    config: dict[str, ...]
) -> NoneType
```

Sets the configuration of Core CLI.

This function is intended for internal use only, used for the decorator pass\_config().

Args —-= config: dict[str, ...]: A dictionary with string keys of the core configuration.

Returns --= None

Raises ——= RuntimeError : The last retrieval of the core config was not locked, hence it is read-only.

```
Method set_module_config

def set_module_config(
    self,
    module_name: str,
    config: dict[str, ...]
) -> NoneType
```

Sets the module configuration.

This function is intended for internal use only, used for the decorator pass config().

Args —-= module\_name: str: The name of the module that the config belongs to.

config: dict[str, ...] A dictionary with string keys of the core configuration.

Returns --= None

Raises —-= RuntimeError : The last retrieval of the module config was not locked, hence it is read-only.

### Module SuperHelper.Core.Utils

#### Sub-modules

- SuperHelper.Core.Utils.bit ops
- SuperHelper.Core.Utils.crypto ops
- SuperHelper.Core.Utils.file ops
- SuperHelper.Core.Utils.logger
- SuperHelper.Core.Utils.type ensure
- SuperHelper.Core.Utils.type\_hinting

#### **Functions**

```
Function setup_core_logger
```

```
def setup_core_logger(
     logging_path: ~PathLike
) -> logging.Logger
```

Sets up the core logger.

Args ——= logging\_path: PathLike: The path to the logging file.

Returns ——— A logging.Logger instance with name set to SuperHelper.

#### Classes

Class BitOps

class BitOps

A utility class for bitwise operations.

#### Static methods

```
Method is_bit_set

def is_bit_set(
    i: int,
    pos: int
) -> bool
```

```
Checks if the pos-th bit of the integer i is set.
Args --= i: int: The integer to check.
pos: int The zero-indexed position of the bit (from LSB) to check.
Returns ——— True if the specified bit is set, otherwise False
Method set_bit
     def set_bit(
         i: int,
         pos: int
     ) -> int
Sets the the pos-th bit of the integer i.
Args --= i: int: The integer to modify.
pos: int The zero-indexed position of the bit (from LSB) to set.
Returns ——— The integer with the specified bit set.
Method unset_bit
     def unset_bit(
         i: int,
         pos: int
     ) -> int
Unsets the the pos-th bit of the integer i.
Args --= i: int: The integer to modify.
pos: int The zero-indexed position of the bit (from LSB) to unset.
Returns ——— The integer with the specified bit unset.
Class Cryptographer
     class Cryptographer(
         salt: bytes,
         auth_key: bytes,
         encrypt: bool = True
     )
A utility class for cryptographic functions.
Initialises a Cryptographer instance.
Args —-= salt : bytes : The raw salt, in bytes.
auth_key: bytes The authentication key, in bytes.
encrypt: bool True to make an encrypter, otherwise False.
Static methods
Method decode_salt
```

```
def decode_salt(
     salt: str
) -> bytes
```

```
Decodes the salt string to raw salt.
Args —-= salt : str : The Base64-encoded string of the raw salt.
Returns —-= The raw salt
Method encode_salt
    def encode_salt(
        salt: bytes
     ) -> str
Encodes the raw salt as string.
Args —-= salt : bytes : The raw salt, in bytes.
Returns —-= The Base64-encoded string of the raw salt
Method make decrypter
    def make_decrypter(
        salt: str,
        key: str
    ) -> SuperHelper.Core.Utils.crypto_ops.Cryptographer
Makes a Fernet decrypter for salt and key.
Args —-= salt : str : The Base64-encoded string of the raw salt.
key: str The authentication key.
Returns ——— A Cryptographer instance, which can be used to decrypt data.
Method make_encrypter
    def make_encrypter(
        salt: str,
        key: str
    ) -> SuperHelper.Core.Utils.crypto_ops.Cryptographer
Makes a Fernet encrypter for salt and key.
Args —-= salt : str : The Base64-encoded string of the raw salt.
key: str The authentication key.
Returns ——— A Cryptographer instance, which can be used to encrypt data.
Method make_fernet
    def make_fernet(
        key: bytes
    ) -> cryptography.fernet.Fernet
Makes a Fernet encrypter/decrypter from the derived key.
Args --= key: bytes: The derived key, in bytes.
Returns ——— A Fernet instance, which can be used to either encrypt or decrypt data.
Method make_kdf
    def make_kdf(
        salt: bytes
```

) -> cryptography.hazmat.primitives.kdf.pbkdf2.PBKDF2HMAC

Makes a key derivation function from raw salt.

```
Args —-= salt : bytes : The raw salt, in bytes.
```

Returns ——— A PBKDF2HMAC instance, which can be used to derive key from the authentication key.

```
Method make_salt
```

```
def make_salt() -> bytes
```

Generates a cryptographically secure salt for cryptography.

Returns —-= A 16-byte raw salt

#### Methods

#### Method decrypt

```
def decrypt(
    self,
    encrypted_data: bytes
) -> bytes
```

Decrypts the encrypted data.

Args —-= encrypted\_data: bytes: The encrypted data to be decrypted.

Returns ——— The decrypted data, in bytes, which is decrypted using the Fernet (created by Cryptography.make\_fernet)

#### Method encrypt

```
def encrypt(
    self,
    raw_data: bytes
) -> bytes
```

Encrypts raw data.

Args —-= raw\_data: bytes: The raw data to be encrypted.

Returns ——— The encrypted data, in bytes, which is encrypted using the Fernet (created by Cryptography.make\_fernet)

Raises ——— ValueError : A decrypter is used to encrypt.

#### Method get\_salt\_string

```
def get_salt_string(
    self
) -> str
```

String-ify the raw salt.

Returns ——— The Base64-encoded string of the raw salt.

#### Class FP

```
class FP(
   value,
   names=None,
   *,
   module=None,
```

```
qualname=None,
        type=None,
        start=1
Contains file permission flags.
R = Read
W = Write
X = Execute
USR = User (file owner)
GRP = Group owner
OTH = Other users/groups
Ancestors (in MRO)
  • enum.Flag
  • enum.Enum
Class variables
Variable R_GRP Group readable.
Variable R_OTH Other readable.
Variable R_USR User readable.
Variable W_GRP Group writable.
Variable w_OTH Other writable.
Variable w_usr User writable.
Variable X_GRP Group executable.
Variable X_OTH Other executable.
Variable X_USR User executable.
```

Class FileOps

class FileOps

A utility class for file ownership and permissions.

Static methods

#### Method check\_fp

```
def check_fp(
    path: ~PathLike,
    fp: SuperHelper.Core.Utils.file_ops.FP
) -> bool
```

Checks if the file contains the specified file permissions.

:param path: Path to the file to check :type path: PathLike :param fp: The flags of the file permissions to check. :type fp: FP :return: True if all the flags are valid, otherwise False :rtype: bool

#### Method get\_stat

```
def get_stat(
    path: ~PathLike
) -> os.stat_result
```

Gets the stat of file pointed by the path.

This function is decorated by @cache to reduce the amount of syscall, since os.stat is an expensive function.

```
Args --- path: PathLike: Path to the file to check
```

Returns ——— An os.stat result instance containing the stat of the file.

#### Method is\_group\_executable

```
def is_group_executable(
    path: ~PathLike
) -> bool
```

Checks if the group owner of the file can execute it.

:param path: Path to the file to check :type path: PathLike :return: True if the file is executable by its group owner, otherwise False :rtype: bool

#### Method is\_group\_readable

```
def is_group_readable(
    path: ~PathLike
) -> bool
```

Checks if the group owner of the file can read it.

:param path: Path to the file to check :type path: PathLike :return: True if the file is readable by its group owner, otherwise False :rtype: bool

#### Method is\_group\_writable

```
def is_group_writable(
    path: ~PathLike
) -> bool
```

Checks if the group owner of the file can write to it.

:param path: Path to the file to check :type path: PathLike :return: True if the file is writable by its group owner, otherwise False :rtype: bool

#### Method is\_mine

```
def is_mine(
    path: ~PathLike
) -> bool
```

Checks if the file is owned by the current user.

:param path: Path to the file to check :type path: PathLike :return: True if the file is owned by the current user, otherwise False :rtype: bool

#### Method is\_other\_executable

```
def is_other_executable(
    path: ~PathLike
) -> bool
```

Checks if the other users or groups can execute the file.

:param path: Path to the file to check :type path: PathLike :return: True if the file is executable by them, otherwise False :rtype: bool

#### Method is\_other\_readable

```
def is_other_readable(
    path: ~PathLike
) -> bool
```

Checks if the other users or groups can read the file.

:param path: Path to the file to check :type path: PathLike :return: True if the file is readable by them, otherwise False :rtype: bool

#### Method is\_other\_writable

```
def is_other_writable(
    path: ~PathLike
) -> bool
```

Checks if the other users or groups can write the file.

:param path: Path to the file to check :type path: PathLike :return: True if the file is writable by them, otherwise False :rtype: bool

#### Method is\_owner\_executable

```
def is_owner_executable(
    path: ~PathLike
) -> bool
```

Checks if the owner of the file can execute it.

:param path: Path to the file to check :type path: PathLike :return: True if the file is executable by its owner, otherwise False :rtype: bool

#### Method is\_owner\_readable

```
def is_owner_readable(
    path: ~PathLike
) -> bool
```

Checks if the owner of the file can read it.

:param path: Path to the file to check :type path: PathLike :return: True if the file is readable by its owner, otherwise False :rtype: bool

#### Method is\_owner\_writable

```
def is_owner_writable(
    path: ~PathLike
) -> bool
```

Checks if the owner of the file can write to it.

:param path: Path to the file to check :type path: PathLike :return: True if the file is writable by its owner, otherwise False :rtype: bool

#### Method is\_roots

```
def is_roots(
    path: ~PathLike
) -> bool
```

Check if the file is owned by root.

:param path: Path to the file to check :type path: PathLike :return: True if the file is owned by root, otherwise False :rtype: bool

#### Method is\_user\_own

```
def is_user_own(
    uid: int,
    path: ~PathLike
) -> bool
```

Checks if the file is owned by the user with uid.

:param uid: The UID of the user :type uid: int :param path: Path to the file to check :type path: PathLike :return: True if the file is owned by the uid, otherwise False :rtype: bool

#### Class TypeCheck

```
class TypeCheck
```

A utility class for type checking functions.

#### Static methods

#### Method ensure\_bool

```
def ensure_bool(
   obj: Ellipsis,
   name: str = None
) -> NoneType
```

Ensures the object is of type bool.

```
Args —-= obj : object : The object to check.
```

name: str The name of the object.

Returns --= None

Raises ——— TypeError : The type of the object is not the specified type.

```
Method ensure_bytearray
     def ensure_bytearray(
         obj: Ellipsis,
        name: str = None
     ) -> NoneType
Ensures the object is of type bytearray.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --= None
Raises ——— TypeError: The type of the object is not the specified type.
Method ensure_bytes
     def ensure bytes(
         obj: Ellipsis,
        name: str = None
     ) -> NoneType
Ensures the object is of type bytes.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --= None
Raises ——— TypeError: The type of the object is not the specified type.
Method ensure_complex
     def ensure_complex(
         obj: Ellipsis,
         name: str = None
     ) -> NoneType
Ensures the object is of type complex.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --= None
Raises ——— TypeError: The type of the object is not the specified type.
Method ensure custom
     def ensure_custom(
        t: type,
         obj: Ellipsis,
         name: str = None
     ) -> NoneType
Ensures the object is of the expected type.
Args --= t: type: The expected type of the object.
оъј: object The object to check.
name: str The name of the object.
Returns --- None
```

Raises ——— TypeError: The type of the object is not the specified type.

```
Method ensure_dict
     def ensure_dict(
         obj: Ellipsis,
         name: str = None
     ) -> NoneType
Ensures the object is of type dict.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --= None
Raises ——— TypeError : The type of the object is not the specified type.
Method ensure_float
     def ensure float(
         obj: Ellipsis,
         name: str = None
     ) -> NoneType
Ensures the object is of type float.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --- None
Raises ——— TypeError : The type of the object is not the specified type.
Method ensure_frozenset
     def ensure_frozenset(
         obj: Ellipsis,
        name: str = None
     ) -> NoneType
Ensures the object is of type frozenset.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --- None
Raises ——— TypeError: The type of the object is not the specified type.
Method ensure_function
     def ensure_function(
         obj: Ellipsis,
         name: str = None
     ) -> NoneType
Ensures the object is a function.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --= None
Raises ——— TypeError: The type of the object is not the specified type.
```

```
Method ensure_generator
     def ensure_generator(
         obj: Ellipsis,
         name: str = None
     ) -> NoneType
Ensures the object is a generator.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --= None
Raises ——— TypeError: The type of the object is not the specified type.
Method ensure_int
     def ensure int(
         obj: Ellipsis,
        name: str = None
     ) -> NoneType
Ensures the object is of type int.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --- None
Raises ——— TypeError : The type of the object is not the specified type.
Method ensure_list
     def ensure_list(
         obj: Ellipsis,
        name: str = None
     ) -> NoneType
Ensures the object is of type list.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --= None
Raises ——— TypeError: The type of the object is not the specified type.
Method ensure_memoryview
     def ensure_memoryview(
         obj: Ellipsis,
         name: str = None
     ) -> NoneType
Ensures the object is of type memoryview.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --= None
```

Raises ——— TypeError: The type of the object is not the specified type.

```
Method ensure_path_like
     def ensure_path_like(
         obj: Ellipsis,
         name: str = None
Ensures the object can be used as a path.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --= None
Raises ——— TypeError: The type of the object is not the specified type.
Method ensure_set
     def ensure set(
         obj: Ellipsis,
        name: str = None
     ) -> NoneType
Ensures the object is of type set.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --- None
Raises ——— TypeError: The type of the object is not the specified type.
Method ensure_str
     def ensure_str(
         obj: Ellipsis,
        name: str = None
     ) -> NoneType
Ensures the object is of type str.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --- None
Raises ——— TypeError: The type of the object is not the specified type.
Method ensure_tuple
     def ensure_tuple(
         obj: Ellipsis,
         name: str = None
     ) -> NoneType
Ensures the object is of type tuple.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --= None
Raises ——— TypeError: The type of the object is not the specified type.
```

### Module SuperHelper.Core.Utils.bit\_ops

#### Classes

```
Class BitOps
```

class BitOps

A utility class for bitwise operations.

Static methods

```
Method is_bit_set

def is_bit_set(
    i: int,
    pos: int
) -> bool
```

Checks if the pos-th bit of the integer i is set.

```
Args --= i: int: The integer to check.
```

pos: int The zero-indexed position of the bit (from LSB) to check.

Returns ——— True if the specified bit is set, otherwise False

```
Method set_bit
```

```
def set_bit(
    i: int,
    pos: int
) -> int
```

Sets the the pos-th bit of the integer i.

```
Args --= i: int: The integer to modify.
```

pos: int The zero-indexed position of the bit (from LSB) to set.

Returns ——— The integer with the specified bit set.

```
Method unset_bit
```

```
def unset_bit(
    i: int,
    pos: int
) -> int
```

Unsets the the pos-th bit of the integer i.

```
Args --= i: int: The integer to modify.
```

 ${\tt pos}$  : int The zero-indexed position of the bit (from LSB) to unset.

Returns ——— The integer with the specified bit unset.

# Module SuperHelper.Core.Utils.crypto\_ops

#### Classes

Class Cryptographer

```
class Cryptographer(
```

```
salt: bytes,
         auth_key: bytes,
         encrypt: bool = True
A utility class for cryptographic functions.
Initialises a Cryptographer instance.
Args —-= salt : bytes : The raw salt, in bytes.
auth_key: bytes The authentication key, in bytes.
encrypt: bool True to make an encrypter, otherwise False.
Static methods
Method decode_salt
     def decode_salt(
         salt: str
     ) -> bytes
Decodes the salt string to raw salt.
Args —-= salt : str : The Base64-encoded string of the raw salt.
Returns —-= The raw salt
Method encode_salt
     def encode salt(
        salt: bytes
     ) -> str
Encodes the raw salt as string.
Args —-= salt : bytes : The raw salt, in bytes.
Returns —-= The Base64-encoded string of the raw salt
Method make_decrypter
     def make_decrypter(
         salt: str,
         key: str
     ) -> SuperHelper.Core.Utils.crypto_ops.Cryptographer
Makes a Fernet decrypter for salt and key.
Args —-= salt : str : The Base64-encoded string of the raw salt.
key: str The authentication key.
Returns ——— A Cryptographer instance, which can be used to decrypt data.
Method make_encrypter
     def make_encrypter(
        salt: str,
         key: str
     ) -> SuperHelper.Core.Utils.crypto_ops.Cryptographer
Makes a Fernet encrypter for salt and key.
```

Args —-= salt : str : The Base64-encoded string of the raw salt.

```
key: str The authentication key.
```

Returns ——— A Cryptographer instance, which can be used to encrypt data.

```
Method make_fernet
```

```
def make_fernet(
    key: bytes
) -> cryptography.fernet.Fernet
```

Makes a Fernet encrypter/decrypter from the derived key.

```
Args --= key: bytes: The derived key, in bytes.
```

Returns ——— A Fernet instance, which can be used to either encrypt or decrypt data.

#### Method make\_kdf

```
def make_kdf(
     salt: bytes
) -> cryptography.hazmat.primitives.kdf.pbkdf2.PBKDF2HMAC
```

Makes a key derivation function from raw salt.

```
Args —-= salt : bytes : The raw salt, in bytes.
```

Returns ——— A PBKDF2HMAC instance, which can be used to derive key from the authentication key.

#### Method make\_salt

```
def make_salt() -> bytes
```

Generates a cryptographically secure salt for cryptography.

Returns —-= A 16-byte raw salt

Methods

#### Method decrypt

```
def decrypt(
    self,
    encrypted_data: bytes
) -> bytes
```

Decrypts the encrypted data.

Args —-= encrypted\_data: bytes: The encrypted data to be decrypted.

Returns ——— The decrypted data, in bytes, which is decrypted using the Fernet (created by Cryptography.make\_fernet)

#### Method encrypt

```
def encrypt(
    self,
    raw_data: bytes
) -> bytes
```

Encrypts raw data.

Args —-= raw\_data: bytes: The raw data to be encrypted.

```
Returns ——— The encrypted data, in bytes, which is encrypted using the Fernet (created by Cryptography.make_fernet)
```

Raises —-= ValueError : A decrypter is used to encrypt.

```
Method get_salt_string
    def get_salt_string(
        self
    ) -> str
```

String-ify the raw salt.

Returns ——— The Base64-encoded string of the raw salt.

### Module SuperHelper.Core.Utils.file\_ops

#### Classes

```
Class FP
```

```
class FP(
    value,
    names=None,
    *,
    module=None,
    qualname=None,
    type=None,
    start=1
```

Contains file permission flags.

R = Read

W = Write

X = Execute

USR = User (file owner)

GRP = Group owner

OTH = Other users/groups

### Ancestors (in MRO)

- enum.Flag
- enum.Enum

#### Class variables

Variable R\_GRP Group readable.

Variable R\_OTH Other readable.

Variable R\_USR User readable.

Variable w\_GRP Group writable.

Variable W\_OTH Other writable.

Variable w\_usr User writable.

Variable X\_GRP Group executable.

Variable X\_OTH Other executable.

Variable X\_USR User executable.

#### Class FileOps

```
class FileOps
```

A utility class for file ownership and permissions.

Static methods

```
Method check_fp
```

```
def check_fp(
    path: ~PathLike,
    fp: SuperHelper.Core.Utils.file_ops.FP
) -> bool
```

Checks if the file contains the specified file permissions.

:param path: Path to the file to check :type path: PathLike :param fp: The flags of the file permissions to check. :type fp: FP :return: True if all the flags are valid, otherwise False :rtype: bool

#### Method get\_stat

```
def get_stat(
    path: ~PathLike
) -> os.stat result
```

Gets the stat of file pointed by the path.

This function is decorated by @cache to reduce the amount of syscall, since os.stat is an expensive function.

```
Args —-= path: PathLike: Path to the file to check
```

Returns ——— An os.stat\_result instance containing the stat of the file.

#### Method is\_group\_executable

```
def is_group_executable(
    path: ~PathLike
) -> bool
```

Checks if the group owner of the file can execute it.

:param path: Path to the file to check :type path: PathLike :return: True if the file is executable by its group owner, otherwise False :rtype: bool

#### Method is\_group\_readable

```
def is_group_readable(
    path: ~PathLike
) -> bool
```

Checks if the group owner of the file can read it.

:param path: Path to the file to check :type path: PathLike :return: True if the file is readable by its group owner, otherwise False :rtype: bool

#### Method is\_group\_writable

```
def is_group_writable(
    path: ~PathLike
) -> bool
```

Checks if the group owner of the file can write to it.

:param path: Path to the file to check :type path: PathLike :return: True if the file is writable by its group owner, otherwise False :rtype: bool

#### Method is\_mine

```
def is_mine(
    path: ~PathLike
) -> bool
```

Checks if the file is owned by the current user.

:param path: Path to the file to check :type path: PathLike :return: True if the file is owned by the current user, otherwise False :rtype: bool

#### Method is\_other\_executable

```
def is_other_executable(
    path: ~PathLike
) -> bool
```

Checks if the other users or groups can execute the file.

:param path: Path to the file to check :type path: PathLike :return: True if the file is executable by them, otherwise False :rtype: bool

#### Method is other readable

```
def is_other_readable(
    path: ~PathLike
) -> bool
```

Checks if the other users or groups can read the file.

:param path: Path to the file to check :type path: PathLike :return: True if the file is readable by them, otherwise False :rtype: bool

#### Method is\_other\_writable

```
def is_other_writable(
    path: ~PathLike
) -> bool
```

Checks if the other users or groups can write the file.

:param path: Path to the file to check :type path: PathLike :return: True if the file is writable by them, otherwise False :rtype: bool

#### Method is\_owner\_executable

```
def is_owner_executable(
    path: ~PathLike
) -> bool
```

Checks if the owner of the file can execute it.

:param path: Path to the file to check :type path: PathLike :return: True if the file is executable by its owner, otherwise False :rtype: bool

#### Method is\_owner\_readable

```
def is_owner_readable(
    path: ~PathLike
) -> bool
```

Checks if the owner of the file can read it.

:param path: Path to the file to check :type path: PathLike :return: True if the file is readable by its owner, otherwise False :rtype: bool

#### Method is\_owner\_writable

```
def is_owner_writable(
    path: ~PathLike
) -> bool
```

Checks if the owner of the file can write to it.

:param path: Path to the file to check :type path: PathLike :return: True if the file is writable by its owner, otherwise False :rtype: bool

#### Method is\_roots

```
def is_roots(
    path: ~PathLike
) -> bool
```

Check if the file is owned by root.

:param path: Path to the file to check :type path: PathLike :return: True if the file is owned by root, otherwise False :rtype: bool

#### Method is\_user\_own

```
def is_user_own(
    uid: int,
    path: ~PathLike
) -> bool
```

Checks if the file is owned by the user with uid.

:param uid: The UID of the user :type uid: int :param path: Path to the file to check :type path: PathLike :return: True if the file is owned by the uid, otherwise False :rtype: bool

### Module SuperHelper.Core.Utils.logger

#### **Functions**

```
Function setup_core_logger
```

def setup\_core\_logger(

```
logging_path: ~PathLike
    ) -> logging.Logger
Sets up the core logger.
Args ——= logging_path: PathLike: The path to the logging file.
Returns ——— A logging.Logger instance with name set to SuperHelper.
Module SuperHelper.Core.Utils.type_ensure
Classes
Class TypeCheck
    class TypeCheck
A utility class for type checking functions.
Static methods
Method ensure_bool
    def ensure_bool(
        obj: Ellipsis,
        name: str = None
    ) -> NoneType
Ensures the object is of type bool.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --- None
Raises ——— TypeError: The type of the object is not the specified type.
Method ensure_bytearray
    def ensure_bytearray(
        obj: Ellipsis,
        name: str = None
    ) -> NoneType
Ensures the object is of type bytearray.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --- None
Raises ——— TypeError : The type of the object is not the specified type.
Method ensure_bytes
    def ensure_bytes(
        obj: Ellipsis,
        name: str = None
    ) -> NoneType
Ensures the object is of type bytes.
```

Args —-= obj : object : The object to check.

```
name: str The name of the object.
Returns --= None
Raises ——— TypeError: The type of the object is not the specified type.
Method ensure_complex
    def ensure_complex(
         obj: Ellipsis,
        name: str = None
     ) -> NoneType
Ensures the object is of type complex.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --= None
Raises ——— TypeError: The type of the object is not the specified type.
Method ensure_custom
    def ensure_custom(
        t: type,
        obj: Ellipsis,
        name: str = None
     ) -> NoneType
Ensures the object is of the expected type.
Args --= t: type: The expected type of the object.
оъј: object The object to check.
name: str The name of the object.
Returns --= None
Raises ——— TypeError : The type of the object is not the specified type.
Method ensure_dict
    def ensure_dict(
        obj: Ellipsis,
        name: str = None
    ) -> NoneType
Ensures the object is of type dict.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --= None
Raises ——— TypeError: The type of the object is not the specified type.
Method ensure_float
    def ensure_float(
        obj: Ellipsis,
        name: str = None
```

) -> NoneType

```
Ensures the object is of type float.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --= None
Raises ——— TypeError: The type of the object is not the specified type.
Method ensure_frozenset
    def ensure_frozenset(
        obj: Ellipsis,
        name: str = None
    ) -> NoneType
Ensures the object is of type frozenset.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --- None
Raises ——— TypeError: The type of the object is not the specified type.
Method ensure_function
    def ensure_function(
        obj: Ellipsis,
        name: str = None
    ) -> NoneType
Ensures the object is a function.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --= None
Raises ——— TypeError : The type of the object is not the specified type.
Method ensure_generator
    def ensure_generator(
        obj: Ellipsis,
        name: str = None
     ) -> NoneType
Ensures the object is a generator.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --= None
Raises ——— TypeError : The type of the object is not the specified type.
Method ensure_int
    def ensure_int(
        obj: Ellipsis,
        name: str = None
```

) -> NoneType

```
Ensures the object is of type int.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns —-= None
Raises ——— TypeError: The type of the object is not the specified type.
Method ensure_list
    def ensure_list(
        obj: Ellipsis,
        name: str = None
    ) -> NoneType
Ensures the object is of type list.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --- None
Raises ——— TypeError: The type of the object is not the specified type.
Method ensure_memoryview
    def ensure_memoryview(
        obj: Ellipsis,
        name: str = None
    ) -> NoneType
Ensures the object is of type memoryview.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --= None
Raises ——— TypeError : The type of the object is not the specified type.
Method ensure_path_like
    def ensure_path_like(
        obj: Ellipsis,
        name: str = None
     )
Ensures the object can be used as a path.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --- None
Raises ——— TypeError : The type of the object is not the specified type.
Method ensure_set
    def ensure_set(
        obj: Ellipsis,
        name: str = None
```

) -> NoneType

```
Ensures the object is of type set.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --= None
Raises ——— TypeError: The type of the object is not the specified type.
Method ensure_str
    def ensure_str(
        obj: Ellipsis,
        name: str = None
    ) -> NoneType
Ensures the object is of type str.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --- None
Raises ——— TypeError: The type of the object is not the specified type.
Method ensure_tuple
    def ensure_tuple(
        obj: Ellipsis,
        name: str = None
    ) -> NoneType
Ensures the object is of type tuple.
Args —-= obj : object : The object to check.
name: str The name of the object.
Returns --= None
Raises ——— TypeError : The type of the object is not the specified type.
```

### Module SuperHelper.Core.Utils.type\_hinting

#### **Variables**

Variable PathLike

Type: type

PathLike objects can be used as a path. It can be of type str, bytes or os.PathLike.

### Module SuperHelper.Core.core\_cli

#### **Functions**

```
Function load_config

def load_config()

Loads application config.
```

```
Function main_entry
    def main_entry() -> NoReturn

Function run_startup
    def run_startup()

Function save_config
    def save_config()

Saves application config.
```

# Module SuperHelper.Core.core\_commands

#### **Functions**

```
Function load_core_commands

def load_core_commands() -> list
```

Loads the Core CLI commands.

Returns ——— A list of a 2-tuple elements, where the first index is the click.command object, and the second index is the technical name of the command. For example:

```
[(add_modules, "core_add"), ...]
```

The first index can be added to a click.group, i.e the cli function.

### Module SuperHelper.Core.core\_loader

#### **Functions**

Function load\_added\_modules

```
def load_added_modules(
    config: dict
) -> list
```

Loads all added modules.

Returns --= A list of a 2-tuple elements, where the first index is the click.command object, and the second index is the technical name of the command. For example:

```
[(main, "main"), ...]
```

The first index can be added to a click.group, i.e the cli function.

### Module SuperHelper.Modules

#### Sub-modules

- SuperHelper.Modules.FocusEnabler
- SuperHelper.Modules.Stenographer

Module SuperHelper.Modules.FocusEnabler

Module SuperHelper.Modules.Stenographer

### Module SuperHelper.Tests

#### Sub-modules

- SuperHelper.Tests.test base
- SuperHelper.Tests.test\_config
- SuperHelper.Tests.test core
- SuperHelper.Tests.test\_core\_command
- SuperHelper.Tests.test module FocusEnabler
- SuperHelper.Tests.test\_module\_Stenographer
- SuperHelper.Tests.test utils

#### **Functions**

```
Function run

    def run(
        args: str = None
    ) -> click.testing.Result

Function setup_and_cleanup
    def setup_and_cleanup()

Function test_data_dir
    def test_data_dir()
```

### Module SuperHelper.Tests.test\_base

#### **Functions**

```
Function run

    def run(
        args: str = None
    ) -> click.testing.Result

Function setup_and_cleanup
    def setup_and_cleanup()

Function test_data_dir
    def test_data_dir()
```

## Module SuperHelper.Tests.test\_config

#### Classes

```
Class TestConfig
    class TestConfig
Static methods
Method test_core_and_module
    def test_core_and_module()
Method test_core_and_no_module
    def test_core_and_no_module()
{\tt Method\ test\_from\_dict}
    def test_from_dict()
Method test_no_core_and_module_a
    def test_no_core_and_module_a()
Method test_no_core_and_module_b
    def test_no_core_and_module_b()
Module SuperHelper.Tests.test_core
Functions
Function test_main_entry
    def test_main_entry()
Module SuperHelper.Tests.test_core_command
Classes
Class TestCore
    class TestCore
Static methods
Method test_add_invalid
    def test_add_invalid()
Method test_add_multiple
    def test_add_multiple()
Method test_add_same
    def test_add_same()
```

```
Method test_add_single
    def test_add_single()
Method test_add_single_again
    def test_add_single_again()
Method test_list_all
    def test_list_all()
Method test_list_multiple_negative
    def test_list_multiple_negative()
Method test_list_multiple_positive
    def test_list_multiple_positive()
Method test_list_negative
    def test_list_negative()
Method test_list_single_negative
    def test_list_single_negative()
Method test_list_single_positive
    def test_list_single_positive()
Method test_remove_invalid
    def test_remove_invalid()
Method test_remove_multiple
    def test_remove_multiple()
Method test_remove_same
    def test_remove_same()
Method test_remove_single
    def test_remove_single()
Class TestOtherUtils
     class TestOtherUtils
Static methods
Method test_load_installed_modules_a
```

def test\_load\_installed\_modules\_a()

### Module SuperHelper.Tests.test\_module\_FocusEnabler

#### Classes

```
Class TestFocusEnabler
     class TestFocusEnabler
Static methods
Method setup
    def setup()
Method test_add_invalid
    def test_add_invalid()
Method test_add_multiple
    def test_add_multiple()
Method test_add_same
    def test_add_same()
Method test_add_single
    def test_add_single()
Method test_add_single_again
    def test_add_single_again()
Method test_help
    def test_help()
Method test_list_multiple_negative
    def test_list_multiple_negative()
Method test_list_multiple_positive
    def test_list_multiple_positive()
Method test_list_single_negative
    def test_list_single_negative()
Method test_list_single_positive
    def test_list_single_positive()
Method test_remove_invalid
    def test_remove_invalid()
```

```
Method test_remove_multiple
    def test_remove_multiple()
Method test_remove_same
    def test_remove_same()
Method test_remove_single
    def test_remove_single()
Method test_validate_setup
    def test_validate_setup(
        setup
Module SuperHelper.Tests.test_module_Stenographer
Classes
Class TestStenographer
    class TestStenographer
Static methods
Method setup
    def setup()
Method test_help
    def test_help()
Method test_validate_setup
    def test_validate_setup(
        setup
    )
Module SuperHelper.Tests.test_utils
Classes
Class TestBitOps
    class TestBitOps
Static methods
Method a
    def a()
```

```
Method test_is_bit_set
     def test_is_bit_set(
Method test_set_bit
    def test_set_bit(
         a
Method test_unset_bit
     def test_unset_bit(
Class TestCryptographer
     class TestCryptographer
Static methods
Method binary_salt
     def binary_salt()
Method data
     def data()
{\tt Method\ decrypted\_data}
    def decrypted_data(
        decrypter,
         {\tt encrypted\_data}
     )
Method decrypter
     def decrypter(
         string_salt,
         true_key
     )
Method encrypted_data
     def encrypted_data(
        encrypter,
         data
     )
Method encrypter
    def encrypter(
        string_salt,
        true_key
```

)

```
Method false_key
     def false_key()
Method string_salt
     def string_salt(
         binary_salt
Method test_decrypt_with_encrypter
     def test_decrypt_with_encrypter(
         encrypter,
         encrypted_data
     )
Method test_decrypted_data
     def test_decrypted_data(
         decrypted_data
Method test_encode_and_decode_salt
    def test_encode_and_decode_salt(
         string_salt,
         binary_salt
     )
Method test_encrypt_with_decrypter
     def test_encrypt_with_decrypter(
         decrypter,
         data
     )
Method test_encrypted_data
     def test_encrypted_data(
         {\tt encrypted\_data}
Method test_make_decrypter
     def test_make_decrypter(
         decrypter
     )
Method test_make_encrypter
     def test_make_encrypter(
         encrypter
```

```
Method test_make_kdf
    def test_make_kdf(
        binary_salt,
        true_key,
        false_key
    )
Method test_salt_in_class
    def test_salt_in_class(
        encrypter,
        decrypter,
        string_salt
    )
Method test_salt_length
    def test_salt_length(
        binary_salt
Method true_key
    def true_key()
Class TestFileOps
     class TestFileOps
Static methods
Method test_check_fp_grp
    def test_check_fp_grp()
Method test_check_fp_oth
    def test_check_fp_oth()
Method test_check_fp_usr
    def test_check_fp_usr()
Method test_is_mine_negative
    def test_is_mine_negative()
Method test_is_mine_positive
    def test_is_mine_positive()
Method test_is_root_negative
    def test_is_root_negative()
```

```
Method test_is_root_positive
    def test_is_root_positive()
Class TestTypeCheck
     class TestTypeCheck
Static methods
Method test_ensure_bool
    def test_ensure_bool()
Method test_ensure_bytearray
    def test_ensure_bytearray()
Method test_ensure_bytes
    def test_ensure_bytes()
Method test_ensure_complex
    def test_ensure_complex()
Method test_ensure_custom
    def test_ensure_custom()
Method test_ensure_dict
    def test_ensure_dict()
Method test_ensure_float
    def test_ensure_float()
Method test_ensure_frozenset
    def test_ensure_frozenset()
Method test_ensure_function
    def test_ensure_function()
Method test_ensure_generator
    def test_ensure_generator()
Method test_ensure_int
    def test_ensure_int()
Method test_ensure_list
    def test_ensure_list()
```

```
Method test_ensure_memoryview
    def test_ensure_memoryview()

Method test_ensure_path_like
    def test_ensure_path_like()

Method test_ensure_set
    def test_ensure_set()

Method test_ensure_str
    def test_ensure_str()

Method test_ensure_tuple
    def test_ensure_tuple()

Method test_ensure_tuple()
```

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