MSL-Package-Manager Documentation

Release 2.6.0.dev0

Measurement Standards Laboratory of New Zealand

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CONTENTS

The **MSL Package Manager** allows one to install, uninstall, update, list and create packages that are used at the Measurement Standards Laboratory of New Zealand.

All MSL packages that start with `msl-` are part of the **msl** namespace. This allows one to split sub-packages and modules across multiple, separate distribution packages while still maintaining a single, unifying package structure.

All MSL packages are available as GitHub repositories and some have been published as PyPI packages.

CHAPTER

ONE

CONTENTS

1.1 Install the MSL Package Manager

To install the **MSL Package Manager** run:

```
pip install msl-package-manager
```

1.1.1 Dependencies

- Python 3.8+
- setuptools
- colorama

1.2 Command Line Interface

Once the MSL Package Manager has been *installed* you will be able to install, uninstall, update, list and create MSL packages by using the command line interface.

You can also directly call these functions through the API.

Attention: Since MSL packages are part of a namespace, uninstalling MSL packages using `pip uninstall msl-<packaage name>` will break the namespace. Therefore, it is recommended to use `msl uninstall <packaage name>` to uninstall MSL packages.

Note: The information about the MSL repositories that are available on GitHub and the MSL packages on PyPI are cached for 24 hours after you request information about a repository or package. After 24 hours a subsequent request will automatically update the GitHub or PyPI cache. To force the cache to be updated immediately include the `--update-cache` flag.

To read the help documentation from the command line, run

```
msl --help
```

or, for help about a specific command (for example, the *install* command), run

```
msl install --help
```

1.2.1 install

Install all MSL packages that are available

```
msl install --all
```

Install all MSL packages without asking for confirmation

```
msl install --all --yes
```

Install a specific MSL package, for example **msl-loadlib** (you can ignore the **msl-** prefix)

```
msl install loadlib
```

Install a package from a git branch (by default the **main** branch is used if the package is not available on PyPI)

```
msl install loadlib --branch develop
```

Install a package from a git tag

```
msl install loadlib --tag v0.3.0
```

Install a package from the hash value of a commit

```
msl install loadlib --commit 12591bade80321c3a165f7a7364ef13f568d622b
```

Install multiple MSL packages

```
msl install loadlib equipment qt
```

Install a specific version of a package (the package must be available as a PyPI package)

```
msl install loadlib==0.6.0
```

Specify a version range of a package – make sure to surround the package and version range in quotes (the package must be available as a PyPI package)

```
msl install "loadlib>=0.4,<0.6"
```

Install a package and its extra dependencies

```
msl install loadlib[com]
```

You can also use a wildcard, for example, to install all packages that start with `pr-`

```
msl install pr-*
```

You can also include all options that the `pip install` command accepts, run `pip help install` for more details

```
msl install loadlib equipment qt --user --retries 10
```

1.2.2 uninstall

Uninstall all MSL packages (except for the **msl-package-manager**)

```
msl uninstall --all
```

Tip: You can also use `remove` as an alias for `uninstall`, e.g., `msl remove --all`

Note: To uninstall the MSL Package Manager run `pip uninstall msl-package-manager`. Use with caution. If you uninstall the MSL Package Manager and you still have other MSL packages installed then you may break the MSL namespace.

Uninstall all MSL packages without asking for confirmation

```
msl uninstall --all --yes
```

Uninstall a specific MSL package, for example **msl-loadlib** (you can ignore the **msl-** prefix)

```
msl uninstall loadlib
```

Uninstall multiple MSL packages

```
msl uninstall loadlib equipment qt
```

You can also include all options that the `pip uninstall` command accepts, run `pip help uninstall` for more details

```
msl uninstall io qt --no-python-version-warning
```

1.2.3 update

Update all MSL packages that are installed

```
msl update --all
```

Tip: You can also use `upgrade` as an alias for `update`, e.g., `msl upgrade --all`

Update all MSL packages without asking for confirmation

```
msl update --all --yes
```

Update a specific MSL package, for example **msl-loadlib** (you can ignore the **msl-** prefix)

```
msl update loadlib
```

Update to a package that was released *<24 hours ago*

```
msl update loadlib --update-cache
```

Update a package to a git branch (by default the **main** branch is used if the package is not available on PyPI)

```
msl update loadlib --branch develop
```

Update a package to a git tag

```
msl update loadlib --tag v0.3.0
```

Update a package using the hash value of a commit

```
msl update loadlib --commit 12591bade80321c3a165f7a7364ef13f568d622b
```

Update multiple MSL packages

```
msl update loadlib equipment qt
```

You can also include all options that the `pip install` command accepts, run `pip help install` for more details (the `--upgrade` option is automatically included by default)

```
msl update loadlib io --no-deps
```

1.2.4 list

List all MSL packages that are installed

```
msl list
```

List all MSL repositories that are available on GitHub

```
msl list --github
```

List all MSL packages that are available on PyPI

```
msl list --pypi
```

Update the GitHub *cache* and then list all repositories that are available

```
msl list --github --update-cache
```

Update the PyPI *cache* and then list all packages that are available

```
msl list --pypi --update-cache
```

Show the information about the repositories (includes information about the branches and the tags) in JSON format

```
msl list --github --json
```

1.2.5 create

To create a new package called **MyPackage**, run

```
msl create MyPackage
```

This will create a new folder (in the current working directory) called **msl-MyPackage**.

To import the package you would use

```
>>> from msl import MyPackage
```

Running the `create` command attempts to determine your user name and email address from your git account to use as the **author** and **email** values in the files that it creates. You do not need git to be installed to use the `create` command, but it helps to make the process more automated. Optionally, you can specify the name to use for the **author** and the **email** address by passing additional arguments

```
msl create MyPackage --author Firstname Lastname --email my.email@address.com
```

You can also specify where to create the package (instead of the default location which is in the current working directory) by specifying a value for the `--dir` argument and to automatically accept the default **author** name and **email** address values by adding the `--yes` argument

```
msl create MyPackage --yes --dir D:\create\package\here
```

To create a new package that is part of a different namespace, you can run

```
msl create monochromator --namespace pr
```

To import this package you would use

```
>>> from pr import monochromator
```

To create a new package that is not part of a namespace, run

```
msl create mypackage --no-namespace
```

To import this package you would use

```
>>> import mypackage
```

1.2.6 authorise

When requesting information about the MSL repositories that are available on GitHub there is a limit to how often you can send requests to the GitHub API (this is the primary reason for *caching* the information). If you have a GitHub account and include your username and a personal access token with each request then this limit is increased. If you do not have a GitHub account then you could sign up to create an account.

By running this command you will be asked for your GitHub username and personal access token so that you send authorised requests to the GitHub API.

```
msl authorise
```

Tip: You can also use `authorize` as an alias for `authorise`, e.g., `msl authorize`

Important: Your GitHub username and personal access token are saved in plain text in the file that is created. You should set the file permissions provided by your operating system to ensure that your GitHub credentials are safe.

1.3 API Usage

In cases where using the *command-line interface* is not desired, you can use the *API* functions directly to install, uninstall, update, list and create MSL packages.

First, import the **MSL Package Manager**

```
>>> from msl import package_manager as pm
```

Tip: You can set what information is displayed on the screen by changing the Logging Levels

```
>>> import logging
>>> pm.set_log_level(logging.INFO)
```

1.3.1 install

`install` the **msl-network** and **msl-qt** packages

```
>>> pm.install('network', 'qt')
The following MSL packages will be INSTALLED:

msl-network  0.5.0  [PyPI]
msl-qt              [GitHub]

Proceed (Y/n)?
```

1.3.2 uninstall

uninstall the **msl-loadlib** package

```
>>> pm.uninstall('loadlib')
The following MSL packages will be REMOVED:

  msl-loadlib  0.6.0

Proceed (Y/n)?
```

1.3.3 update

update the **msl-loadlib** package

```
>>> pm.update('loadlib')
The following MSL packages will be UPDATED:

  msl-loadlib  0.6.0 --> 0.7.0  [PyPI]

Proceed (Y/n)?
```

1.3.4 list

Display the information about the MSL packages that are installed, see *info()*

```
>>> pm.info()
    MSL Package     Version                           Description
------------------- ------- -------------------------------------------------------
↪--------------------
        msl-loadlib 0.6.0   Load a shared library (and access a 32-bit␣
↪library from 64-bit Python)
msl-package-manager 2.4.0   Install, uninstall, update, list and create MSL␣
↪packages
```

Display the information about the MSL repositories that are available

```
>>> pm.info(from_github=True)
   MSL Repository   Version                           Description
------------------- ------- -------------------------------------------------------
↪--------------------
                GTC 1.2.1   The GUM Tree Calculator for Python
     Quantity-Value 0.1.0   A package that supports physical quantity-
↪correctness in Python code
      msl-equipment         Manage and communicate with equipment in the␣
↪laboratory
             msl-io         Read and write data files
        msl-loadlib 0.7.0   Load a shared library (and access a 32-bit␣
↪library from 64-bit Python)
```

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```
        msl-network 0.5.0   Concurrent and asynchronous network I/O
msl-package-manager 2.4.0   Install, uninstall, update, list and create MSL␣
↪packages
             msl-qt         Custom Qt components for the user interface
```

Get a dictionary of all MSL packages that are *installed()*

```
>>> pkgs = pm.installed()
>>> for pkg, info in pkgs.items():
...     print(pkg, info)
...
msl-loadlib {'version': '0.6.0', 'description': 'Load a shared library (and␣
↪access a 32-bit library from 64-bit Python)', 'repo_name': 'msl-loadlib'}
msl-package-manager {'version': '2.4.0', 'description': 'Install, uninstall,␣
↪update, list and create MSL packages', 'repo_name': 'msl-package-manager'}
```

Get a dictionary of all MSL repositories on GitHub, see *github()*

```
>>> pkgs = pm.github()
>>> for key, value in pkgs['msl-package-manager'].items():
...     print('{}: {}'.format(key, value))
...
description: Install, uninstall, update, list and create MSL packages
version: 2.4.0
tags: ['v2.4.0', 'v2.3.0', 'v2.2.0', 'v2.1.0', 'v2.0.0', 'v1.5.1', 'v1.5.0',
↪'v1.4.1', 'v1.4.0', 'v1.3.0', 'v1.2.0', 'v1.1.0', 'v1.0.3', 'v1.0.2', 'v1.0.
↪1', 'v1.0.0', 'v0.1.0']
branches: ['main']
```

Get a dictionary of all MSL packages on PyPI, see *pypi()*

```
>>> pkgs = pm.pypi()
>>> pkgs['msl-package-manager']
{'description': 'Install, uninstall, update, list and create MSL packages',
↪'version': '2.4.0'}
```

1.3.5 create

create a new **MSL-MyPackage** package

```
>>> pm.create('MyPackage', author='my name', email='my@email.com', directory=
↪'D:/create/here')
Created msl-MyPackage in 'D:/create/here\\msl-MyPackage'
```

1.3.6 authorise

Create an authorisation file for the GitHub API, see *authorise()*

```
>>> pm.authorise()
Enter your GitHub username [default: ...]: >?
Enter your GitHub personal access token: >?
```

1.4 MSL Package Manager API Documentation

The root package is

msl.package_manager	Install, uninstall, update, list and create MSL packages.

which has the following functions

authorise([username, token])	Create an authorisation file for the GitHub API.
create(*names, **kwargs)	Create a new package.
github([update_cache])	Get the information about the MSL repositories that are available on GitHub.
info([from_github, from_pypi, update_cache, ...])	Show information about MSL packages.
install(*names, **kwargs)	Install MSL packages.
installed()	Get the information about the MSL packages that are installed.
set_log_level(level)	Set the logging level.
pypi([update_cache])	Get the information about the MSL packages that are available on PyPI.
uninstall(*names, **kwargs)	Uninstall MSL packages.
update(*names, **kwargs)	Update MSL packages.

1.4.1 Package Structure

msl.package_manager package

Install, uninstall, update, list and create MSL packages.

The following constants are available.

`msl.package_manager.`**`version_info = version_info(major=2, minor=6, micro=0, releaselevel='dev0')`**

Contains the version information as a (major, minor, micro, releaselevel) tuple.

Type
`namedtuple`

msl.package_manager.authorise module

Create an authorisation file for the GitHub API.

`msl.package_manager.authorise.`**`authorise`**(*username=None*, *token=None*)

Create an authorisation file for the GitHub API.

When requesting information about the MSL repositories that are available on GitHub there is a limit to how often you can send requests to the GitHub API. If you have a GitHub account and include your username and a personal access token with each request then this limit is increased.

Important: Calling this function will create a file that contains your GitHub username and a personal access token so that GitHub requests are authorised. Your username and personal access token are saved in plain text in the file that is created. You should set the file permissions provided by your operating system to ensure that your GitHub credentials are safe.

New in version 2.3.0.

Changed in version 2.4.0: Renamed the *password* keyword argument to *token*.

Changed in version 2.5.0: Renamed function to *authorise*.

Parameters

- **`username`** (`str`, optional) – The GitHub username. If `None` then you will be asked for the *username*.
- **`token`** (`str`, optional) – A GitHub personal access token for *username*. If `None` then you will be asked for the *token*.

msl.package_manager.cli module

Main entry point to either *install*, *uninstall*, *update*, *list* or *create* MSL packages using the command-line interface (CLI).

`msl.package_manager.cli.`**`configure_parser`**`()`

`ArgumentParser`: Returns the argument parser.

`msl.package_manager.cli.`**`parse_args`**`(`*args*`)`

Parse arguments.

Parameters
`args` (`list` of `str`) – The arguments to parse.

Returns
An `argparse.Namespace` or `None` if there was an error.

`msl.package_manager.cli.`**`main`**`(`**args*`)`

Main entry point to either *install*, *uninstall*, *update*, *list* or *create* MSL packages using the CLI.

msl.package_manager.cli_argparse module

Custom argument parsers.

`class` `msl.package_manager.cli_argparse.`**`ArgumentParser`**`(`**args*, ***kwargs*`)`

Bases: `ArgumentParser`

A custom argument parser.

`get_command_name``()`

`str`: Returns the name of the command, e.g., `install`, `list`, …

`contains_package_names``(`*quiet=False*`)`

Check whether package names were specified or the `--all` flag was used.

Changed in version 2.5.0: Added the *quiet* keyword argument.

Parameters
`quiet` (`bool`) – Whether to suppress the error message from being shown.

Returns
`bool` – Whether package names were specified or the `--all` flag was used.

`msl.package_manager.cli_argparse.`**`add_argument_all`**`(`*parser*`)`

Add an `--all` argument to the parser.

`msl.package_manager.cli_argparse.`**`add_argument_branch`**`(`*parser*`)`

Add a `--branch` argument to the parser.

`msl.package_manager.cli_argparse.`**`add_argument_package_names`**`(`*parser*`)`

Add a `--names` argument to the parser.

`msl.package_manager.cli_argparse.`**`add_argument_quiet`**`(`*parser*`)`

Add a `--quiet` argument to the parser.

msl.package_manager.cli_argparse.**add_argument_tag**(*parser*)

Add a `--tag` argument to the parser.

msl.package_manager.cli_argparse.**add_argument_update_cache**(*parser*)

Add an `--update-cache` argument to the parser.

msl.package_manager.cli_argparse.**add_argument_yes**(*parser*)

Add a `--yes` argument to the parser.

msl.package_manager.cli_argparse.**add_argument_disable_mslpm_version_check**(*parser*)

Add a `--disable-mslpm-version-check` argument to the parser.

msl.package_manager.cli_argparse.**add_argument_commit**(*parser*)

Add a `--commit` argument to the parser.

msl.package_manager.cli_authorise module

Command line interface for the *authorise* command.

msl.package_manager.cli_authorise.**add_parser_authorise**(*parser*, *name='authorise'*)

Add the *authorise* command to the parser.

msl.package_manager.cli_authorise.**execute**(*args*, *parser*)

Executes the *authorise* command.

msl.package_manager.cli_create module

Command line interface for the *create* command.

msl.package_manager.cli_create.**add_parser_create**(*parser*)

Add the *create* command to the parser.

msl.package_manager.cli_create.**execute**(*args*, *parser*)

Executes the *create* command.

msl.package_manager.cli_install module

Command line interface for the *install* command.

msl.package_manager.cli_install.**add_parser_install**(*parser*)

Add the *install* command to the parser.

msl.package_manager.cli_install.**execute**(*args*, *parser*)

Executes the *install* command.

msl.package_manager.cli_list module

Command line interface for the *list* command.

`msl.package_manager.cli_list.`**`add_parser_list`**`(`*parser*`)`

Add the *list* command to the parser.

`msl.package_manager.cli_list.`**`execute`**`(`*args*, *parser*`)`

Executes the *list* command.

msl.package_manager.cli_uninstall module

Command line interface for the *uninstall* command.

`msl.package_manager.cli_uninstall.`**`add_parser_uninstall`**`(`*parser*, *name='uninstall'*`)`

Add the *uninstall* command to the parser.

`msl.package_manager.cli_uninstall.`**`execute`**`(`*args*, *parser*`)`

Executes the *uninstall* command.

msl.package_manager.cli_update module

Command line interface for the *update* command.

`msl.package_manager.cli_update.`**`add_parser_update`**`(`*parser*, *name='update'*`)`

Add the *update* command to the parser.

`msl.package_manager.cli_update.`**`execute`**`(`*args*, *parser*`)`

Executes the *update* command.

msl.package_manager.create module

Create a new package.

`msl.package_manager.create.`**`create`**`(`**names*, ***kwargs*`)`

Create a new package.

Parameters

- **`*names`** – The name(s) of the package(s) to create.
- **`**kwargs`** –
  - **author** – `str`
    The name of the author to use for the new package. If `None` then uses *`utils.get_username()`* to determine the author's name. Default is `None`.
  - **directory** – `str`
    The directory to create the new package(s) in. If `None` then creates the new package(s) in the current working directory. Default is `None`.
  - **email** – `str`
    The author's email address. If `None` then uses *`utils.get_email()`* to determine the author's email address. Default is `None`.

- **namespace** – `str`
  The namespace that the package belongs to. If *namespace* is `None` or an empty string then create a new package that is not part of a namespace. Default is the `'msl'` namespace.
- **yes** – `bool`
  If `True` then don't ask for verification for the *author* name and for the *email* address. This argument is only used if you do not specify the *author* or the *email* value. The verification step allows you to change the value that was automatically determined before the package is created. The default is to ask for verification before creating the package if the *author* or the *email* value was not specified. Default is `False`.

msl.package_manager.install module

Install MSL packages.

`msl.package_manager.install.`**`install`**`(`**names*, ***kwargs*`)`

Install MSL packages.

MSL packages can be installed from PyPI packages (only if a release has been uploaded to PyPI) or from GitHub repositories.

Note: If the MSL packages are available on PyPI then PyPI is used as the default location to install the package. If you want to force the installation to occur from the `main` branch from GitHub (even though the package is available on PyPI) then set `branch='main'`. If the package is not available on PyPI then the `main` branch is used as the default installation location.

Changed in version 2.4.0: Added the *pip_options* keyword argument.

Changed in version 2.5.0: Added the *commit* keyword argument. The default name of a repository branch changed to `main`.

Parameters

- **`*names`** – The name(s) of the MSL package(s) to install. If not specified then install all MSL packages that begin with the `msl-` prefix. The `msl-` prefix can be omitted (e.g., `'loadlib'` is equivalent to `'msl-loadlib'`). Also accepts shell-style wildcards (e.g., `'pr-*'`).
- **`**kwargs`** –
  - **branch** – `str`
    The name of a git branch to install. If not specified and neither a *tag* nor *commit* was specified then the `main` branch is used to install a package if it is not available on PyPI.
  - **commit** – `str`
    The hash value of a git commit to use to install a package.
  - **tag** – `str`
    The name of a git tag to use to install a package.
  - **update_cache** – `bool`
    The information about the MSL packages that are available on PyPI and

about the repositories that are available on GitHub are cached to use for subsequent calls to this function. After 24 hours the cache is automatically updated. Set *update_cache* to be `True` to force the cache to be updated when you call this function. Default is `False`.

– **yes** – `bool`
  If `True` then don't ask for confirmation before installing. The default is `False` (ask before installing).

– **pip_options** – `list` **of** `str`
  Optional arguments to pass to the `pip install` command, e.g., `['--retries', '10', '--user']`

msl.package_manager.uninstall module

Uninstall MSL packages.

`msl.package_manager.uninstall.`**`uninstall`**`(`**names*, ***kwargs*`)`

Uninstall MSL packages.

Changed in version 2.4.0: Added the *pip_options* keyword argument.

Parameters

- **`*names`** – The name(s) of the MSL package(s) to uninstall. If not specified then uninstall all MSL packages (except for the **MSL Package Manager** – in which case use `pip uninstall msl-package-manager`). The `msl-` prefix can be omitted (e.g., `'loadlib'` is equivalent to `'msl-loadlib'`). Also accepts shell-style wildcards (e.g., `'pr-*'`).
- **`**kwargs`** –

  – **yes** – `bool`
    If `True` then don't ask for confirmation before uninstalling. The default is `False` (ask before uninstalling).

  – **pip_options** – `list` **of** `str`
    Optional arguments to pass to the `pip uninstall` command, e.g., `['--no-python-version-warning']`

msl.package_manager.update module

Update MSL packages.

`msl.package_manager.update.`**`update`**`(`**names*, ***kwargs*`)`

Update MSL packages.

MSL packages can be updated from PyPI packages (only if a release has been uploaded to PyPI) or from GitHub repositories.

Note: If the MSL packages are available on PyPI then PyPI is used as the default URI to update the package. If you want to force the update to occur from the `main` branch of the GitHub repository then set `branch='main'`. If the package is not available on PyPI then the `main` branch is used as the default update URI.

Changed in version 2.4.0: Added the *pip_options* keyword argument.

Changed in version 2.5.0: Added the *include_non_msl* and *commit* keyword arguments. The default name of a repository branch changed to `main`.

Parameters

- **`*names`** – The name(s) of the MSL package(s) to update. If not specified then update all MSL packages. The `msl-` prefix can be omitted (e.g., `'loadlib'` is equivalent to `'msl-loadlib'`). Also accepts shell-style wildcards (e.g., `'pr-*'`).
- **`**kwargs`** –
  - **branch** – `str`
    The name of a git branch to use to update the package(s) to.
  - **commit** – `str`
    The hash value of a git commit to use to update a package.
  - **tag** – `str`
    The name of a git tag to use to update a package.
  - **update_cache** – `bool`
    The information about the MSL packages that are available on PyPI and about the repositories that are available on GitHub are cached to use for subsequent calls to this function. After 24 hours the cache is automatically updated. Set *update_cache* to be `True` to force the cache to be updated when you call this function. Default is `False`.
  - **yes** – `bool`
    If `True` then don't ask for confirmation before updating. The default is `False` (ask before updating).
  - **pip_options** – `list` **of** `str`
    Optional arguments to pass to the `pip install --upgrade` command, e.g., `['--upgrade-strategy', 'eager']`
  - **include_non_msl** – `bool`
    If `True` then also update all non-MSL packages. The default is `False` (only update the specified MSL packages). Warning, enable this option with caution.

Important: If you specify a *branch*, *commit* or *tag* then the update will be forced.

msl.package_manager.utils module

Functions for the API.

`msl.package_manager.utils.`**`get_email`**`()`

Try to determine the user's email address.

If git is installed then it returns the `user.email` parameter from the user's git account to use as the user's email address. If git is not installed then returns `None`.

Returns

`str` or `None` – The user's email address.

`msl.package_manager.utils.`**`get_username`**`()`

Determine the name of the user.

If git is installed then it returns the `user.name` parameter from the user's git account. If git is not installed or if the `user.name` parameter does not exist then `getpass.getuser()` is used to determine the username.

Returns

`str` – The user's name.

`msl.package_manager.utils.`**`github`**`(`*update_cache=False*`)`

Get the information about the MSL repositories that are available on GitHub.

Parameters

`update_cache` (`bool`, optional) – The information about the repositories that are available on GitHub are cached to use for subsequent calls to this function. After 24 hours the cache is automatically updated. Set *update_cache* to be `True` to force the cache to be updated when you call this function.

Returns

`dict` – The information about the MSL repositories that are available on GitHub.

`msl.package_manager.utils.`**`info`**`(`*from_github=False*, *from_pypi=False*, *update_cache=False*, *as_json=False*`)`

Show information about MSL packages.

The information about the packages can be either those that are installed or those that are available as repositories on GitHub or as packages on PyPI.

The default action is to show the information about the MSL packages that are installed.

Parameters

- **`from_github`** (`bool`, optional) – Whether to show the information about the MSL repositories that are available on GitHub.
- **`from_pypi`** (`bool`, optional) – Whether to show the information about the MSL packages that are available on PyPI.
- **`update_cache`** (`bool`, optional) – The information about the MSL packages that are available on PyPI and about the repositories that are available on GitHub are cached to use for subsequent calls to this function. After 24 hours the cache is automatically updated. Set *update_cache* to be `True` to force the cache to be updated when you call this function. If *from_github* is `True` then

the cache for the repositories is updated. If *from_pypi* is `True` then the cache for the packages is updated.

- **`as_json`** (`bool`, optional) – Whether to show the information in JSON format. If enabled then the information about the MSL repositories includes additional information about the branches and tags.

`msl.package_manager.utils.`**`installed`**`()`

Get the information about the MSL packages that are installed.

Returns

`dict` – The information about the MSL packages that are installed.

`msl.package_manager.utils.`**`outdated_pypi_packages`**`(`*msl_installed=None*`)`

Check PyPI for all non-MSL packages that are outdated.

New in version 2.5.0.

Parameters

`msl_installed` (`dict`, optional) – The MSL packages that are installed. If not specified then calls *`installed()`* to determine the installed packages.

Returns

`dict` – The information about the PyPI packages that are outdated.

`msl.package_manager.utils.`**`pypi`**`(`*update_cache=False*`)`

Get the information about the MSL packages that are available on PyPI.

Parameters

`update_cache` (`bool`, optional) – The information about the MSL packages that are available on PyPI are cached to use for subsequent calls to this function. After 24 hours the cache is automatically updated. Set *update_cache* to be `True` to force the cache to be updated when you call this function.

Returns

`dict` – The information about the MSL packages that are available on PyPI.

`msl.package_manager.utils.`**`set_log_level`**`(`*level*`)`

Set the logging level.

Parameters

`level` (`int`) – A value from one of the Logging Levels.

1.5 “create” ReadMe

The MSL package that is created by running the *msl create* command contains two scripts to help make development easier: *setup.py* and *condatests.py*.

1.5.1 setup.py

The **setup.py** file (that is created by running *msl create*) includes additional commands that can be used to run unit tests and to create the documentation for your MSL package.

Note: The Python packages that are required to execute the following commands (e.g., pytest and sphinx) are automatically installed (into the **.eggs** directory) if they are not already installed in your environment. Therefore, the first time that you run the following commands it will take longer to finish executing the command because these packages (and their own dependencies) need to be downloaded then installed. If you prefer to install these packages directly into your environment you can run `conda install pytest pytest-cov pytest-runner sphinx sphinx_rtd_theme`, or if you are using pip as your package manager then replace `conda` with `pip`.

The following command will run all test modules that pytest finds as well as testing all the example code that is located within the docstrings of the source code and in the **.rst** files in the **docs/** directory. To modify the options that pytest will use to run the tests you can edit the **[tool:pytest]** section in **setup.cfg**. A coverage report is created in the **htmlcov/index.html** file. This report provides an overview of which parts of the code have been executed during the tests.

```
python setup.py tests
```

Warning: pytest can only load one configuration file and uses the following search order to find that file:

1. *pytest.ini* - used even if it does not contain a **[pytest]** section
2. *tox.ini* - must contain a **[pytest]** section to be used
3. *setup.cfg* - must contain a **[tool:pytest]** section to be used

See the *configuration file* section for an example if you want to run pytest with custom options without modifying any of these configuration files.

Create the documentation files, uses sphinx-build. The documentation can be viewed by opening **docs/_build/html/index.html**

```
python setup.py docs
```

Automatically create the API documentation from the docstrings in the source code, uses sphinx-apidoc. The files are saved to **docs/_autosummary**

```
python setup.py apidocs
```

Attention: By default, the **docs/_autosummary** directory that is created by running this command is automatically generated (overwrites existing files). As such, it is excluded from the repository (i.e., this directory is specified in the **.gitignore** file). If you want to keep the files located in **docs/_autosummary** you should rename the directory to, for example, **docs/_api** and then the changes made to the files in the **docs/_api** directory will be kept and can be included in the repository.

You can view additional help for **setup.py** by running

```
python setup.py --help
```

or

```
python setup.py --help-commands
```

1.5.2 condatests.py

Important: The following assumes that you are using conda as your environment manager.

Additionally, there is a **condatests.py** file that is created by running *msl create*. This script will run the tests in all specified conda environments. At the time of writing this script, tox and conda were not compatible and so this script provided a way around this issue.

You can either pass options from the *command line* or by creating a *configuration file*.

command line

condatests.py accepts the following command-line arguments:

- `--create` - the Python version numbers to use to create conda environments (e.g., 2 3.6 3.7.2)
- `--include` - the conda environments to include (supports regex)
- `--exclude` - the conda environments to exclude (supports regex)
- `--requires` - additional packages to install for the tests (can also be a path to a file)
- `--command` - the command to execute with each conda environment
- `--ini` - the path to a *configuration file*
- `--list` - list the conda environments that will be used for the tests and then exit

You can view the help for **condatests.py** by running

```
python condatests.py --help
```

Run the tests with all conda environment's using the `python -m pytest` command. This assumes that a *configuration file* does not exist (which could change the default options).

```
python condatests.py
```

Run the tests with all conda environments that include *py* in the environment name

```
python condatests.py --include py
```

Run the tests with all conda environments but exclude those that contain *py26* and *py33* in the environment name

```
python condatests.py --exclude py26 py33
```

Tip: Since a regex search is used to filter the environment names that follow the `--exclude` (and also the `--include`) option, the above command could be replaced with `--exclude "py(26|33)"`. Surrounding the regex pattern with a `"` is necessary so that the *OR*, `|`, regex symbol is not mistaken for a pipe symbol.

Run the tests with all conda environments that include *dev* in the environment name but exclude those with *dev33* in the environment name

```
python condatests.py --include dev --exclude dev33
```

Create new conda environments for the specified Python versions (if the *minor* or *micro* version numbers are not specified then the latest Python version that is available to conda will be installed). After the test finishes the newly-created environment is removed. For example, the following command will create environments for the latest Python 2.x.x version, for the latest Python 3.6.x version and for Python 3.7.4 and exclude all environments that already exist

```
python condatests.py --create 2 3.6 3.7.4 --exclude .
```

You can also mix the `--create`, `--include` and `--exclude` arguments

```
python condatests.py --create 3.7 --include dev --exclude dev33
```

Run the tests with all conda environments using the command `nosetests`

```
python condatests.py --command nosetests
```

Run the tests with all conda environments using the command `unittest discover -s tests/`

```
python condatests.py --command "unittest discover -s tests/"
```

Run the tests with all conda environments using the command `unittest discover -s tests/` and ensure that all the packages specified in a requirements file are installed in each environment

```
python condatests.py --command "unittest discover -s tests/" --requires my_
↪requirements.txt
```

List all conda environments that will be used for the tests and then exit

```
python condatests.py --list
```

You can also use *–show* as an alias for *–list*

```
python condatests.py --show
```

List the conda environments that include *dev* in the environment name and then exit

```
python condatests.py --include dev --list
```

Specify the path to a *condatests.ini* file

```
python condatests.py --ini C:\Users\Me\my_condatests_config.ini
```

configuration file

In addition to passing *command line* options, you can also save the options in an **condatests.ini** configuration file. This is a standard ini-style configuration file with the options *create*, *include*, *exclude*, *command* and *requires* specified under the **[envs]** section.

If a **condatests.ini** configuration file exists in the current working directory then it will automatically be loaded by running

```
python condatests.py
```

Alternatively, you can also specify the path to the configuration file from the command line

```
python condatests.py --ini C:\Users\Me\my_condatests_config.ini
```

You can pass in command-line arguments as well as reading from the configuration file. The following will load the **condatests.ini** file in the current working directory, print the conda environments that will be used for the tests and then exit

```
python condatests.py --show
```

Since every developer can name their environments to be anything that they want, the **condatests.ini** file is included in **.gitignore**.

The following are example **condatests.ini** files.

Example 1: Run `python -m pytest` (see *setup.py*) with all conda environments except for the *base* environment

```ini
[envs]
exclude=base
```

Example 2: Run `python -m pytest` with all conda environments that include the text *py* in the name of the environment but exclude the environments that contain *py33* in the name (recall that a regex search is used to filter the environment names)

```ini
[envs]
include=py
exclude=py33
```

Example 3: Run `python -m pytest` only with newly-created conda environments, exclude all environments that already exist and ensure that *scipy* is installed in each new environment (if the *minor* or *micro* version numbers of the Python environments are not specified then the latest Python version that is available to conda will be installed)

```ini
[envs]
create=2 3.5 3.6 3.7
exclude=.
requires=scipy
```

Example 4: Run `python -m pytest` with newly-created conda environments and all conda environments that already exist that contain the text *dev* in the name of the environment except for the *dev33* environment

```
[envs]
create=3.6 3.7.3 3.7.4
include=dev
exclude=dev33
```

Example 5: Run `unittest`, for all modules in the **tests** directory, with all conda environments that include the text *dev* in the environment name

```
[envs]
include=dev
command=unittest discover -s tests/
```

Example 6: Run pytest with customized options (i.e., ignoring any *pytest.ini*, *tox.ini* or *setup.cfg* files that might exist) with the specified conda environments.

```
[envs]
create=3.7
include=dev27 myenvironment py36
command=pytest -c condatests.ini

[pytest]
addopts =
   -x
  --verbose
```

Note: The environment names specified in the *create*, *include*, *exclude* and *requires* option can be separated by a comma, by whitespace or both. So, `include=py27,py36,py37`, `include=py27 py36 py37` and `include=py27, py36, py37` are all equivalent.

1.6 MSL Developers Guide

This guide[1] shows you how to:

- *Install and set up Python, Git and PyCharm*
- *Commit changes to a repository*
- *Use the setup.py and condatests.py scripts*
- *Edit source code using the style guide*

and describes *one way* to set up an environment to develop Python programs. The guide does not intend to imply that the following is the *best way* to develop programs in the Python language.

[1] Software is identified in this guide in order to specify the installation and configuration procedure adequately. Such identification is not intended to imply recommendation or endorsement by the Measurement Standards Laboratory of New Zealand, nor is it intended to imply that the software identified are necessarily the best available for the purpose.

1.6.1 Install and set up Python, Git and PyCharm

This section uses the MSL-LoadLib repository as an example of a repository that one would like to clone and import into PyCharm.

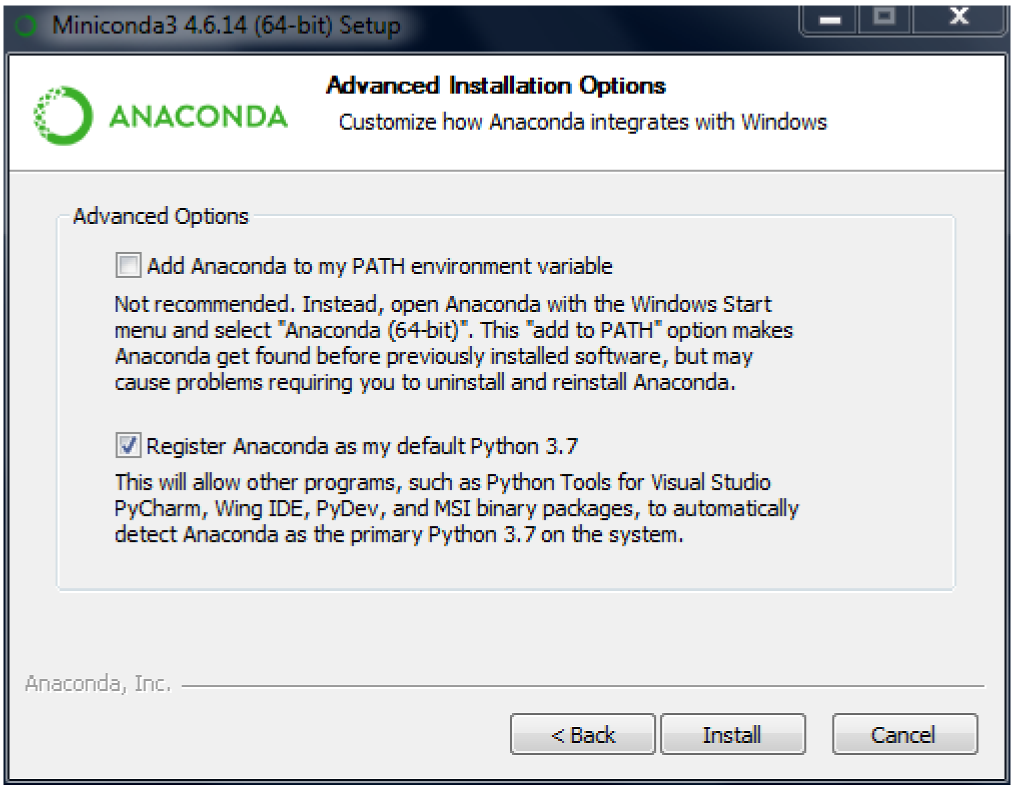
The following instructions are written for a Windows x64 operating system. To install the same software on a Debian architecture, such as Ubuntu, run

```
sudo apt update
sudo apt install git snapd
sudo snap install pycharm-community --classic
wget https://repo.anaconda.com/miniconda/Miniconda3-latest-Linux-x86_64.sh
bash Miniconda*
```

and answer the questions that you are asked. After running these commands you can follow the appropriate steps below.

Attention: The screenshots below might not represent exactly what you see during the installation or configuration procedure as this depends on the version of the software that you are using.

1. Download a 64-bit version of Miniconda.
2. Install Miniconda. It is recommended to **Register** Anaconda but not to **Add** it to your PATH.


Miniconda3 4.6.14 (64-bit) Setup

Advanced Installation Options

Customize how Anaconda integrates with Windows

Advanced Options

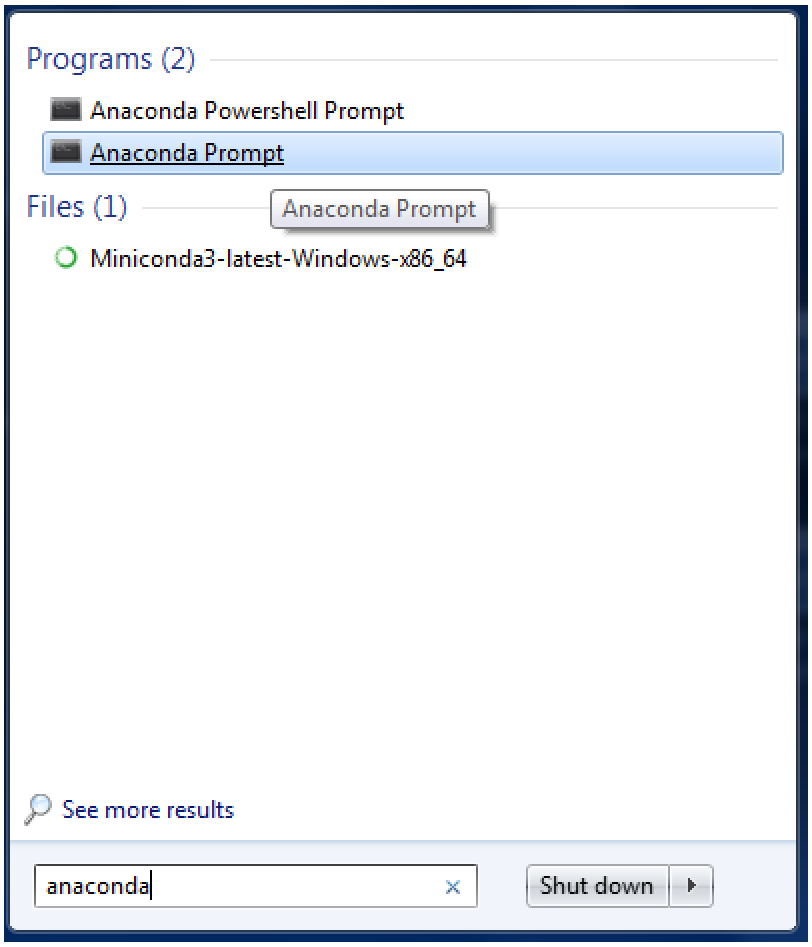
[ ] Add Anaconda to my PATH environment variable

Not recommended. Instead, open Anaconda with the Windows Start menu and select "Anaconda (64-bit)". This "add to PATH" option makes Anaconda get found before previously installed software, but may cause problems requiring you to uninstall and reinstall Anaconda.

[✓] Register Anaconda as my default Python 3.7

This will allow other programs, such as Python Tools for Visual Studio PyCharm, Wing IDE, PyDev, and MSI binary packages, to automatically detect Anaconda as the primary Python 3.7 on the system.

3. Open the Anaconda Command Prompt



and then enter the following command to update all Miniconda packages:

```
conda update --all
```

4. It is usually best to create a new virtual environment for each Python project that you are working on to avoid possible conflicts between the packages that are required for each Python project or to test the code against different versions of Python (i.e., it solves the *Project X depends on version 1.x but Project Y depends on version 4.x* dilemma).

   In the Anaconda Command Prompt create a new `py37` virtual environment (you can pick another name, `py37` is just an example of a name) and install the Python 3.7 interpreter in this environment *(NOTE: You can also create conda environment's from within PyCharm if you are not comfortable with the command line, see Step 9)*

   ```
   conda create --name py37 python=3.7
   ```

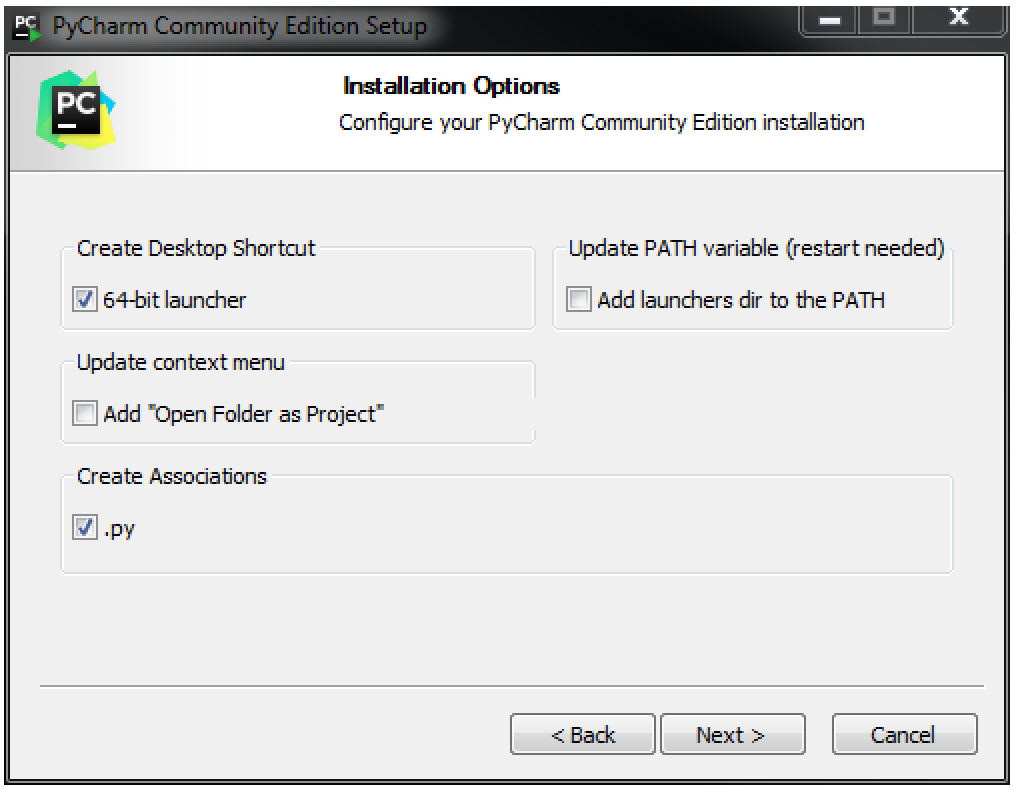
   You may also want to create another virtual environment so that you can run the code against another Python version. For example, here is an example of how to create a Python 2.7 virtual environment named `py27`:

   ```
   conda create --name py27 python=2.7
   ```

5. Create a GitHub account *(if you do not already have one)*.

6. Download and install git *(accept the default settings)*. This program is used as the version control system.

7. Download and install the Community Edition of PyCharm to use as an IDE. This IDE is free to use and it provides a lot of the features that one expects from an IDE. When asked to **Create associations** check the **.py** checkbox and you can also create a shortcut on the desktop *(you can accept the default settings for everything else that you are asked during the installation)*



PyCharm Community Edition Setup

Installation Options

Configure your PyCharm Community Edition installation

Create Desktop Shortcut

[✓] 64-bit launcher

Update PATH variable (restart needed)

[ ] Add launchers dir to the PATH

Update context menu

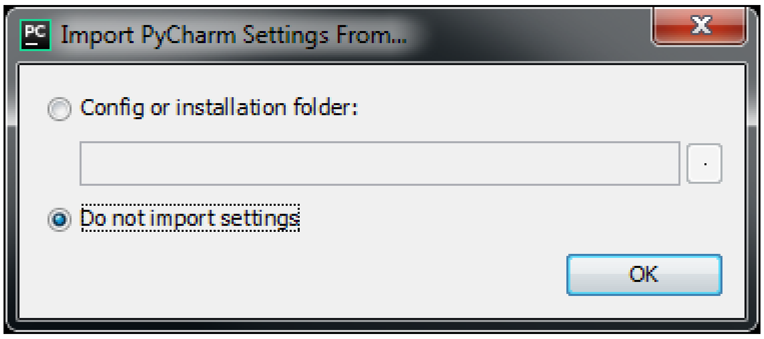
[ ] Add "Open Folder as Project"

Create Associations

[✓] .py

8. Run PyCharm and perform the following:

   a) Import settings from a previous version of PyCharm *(if available)*

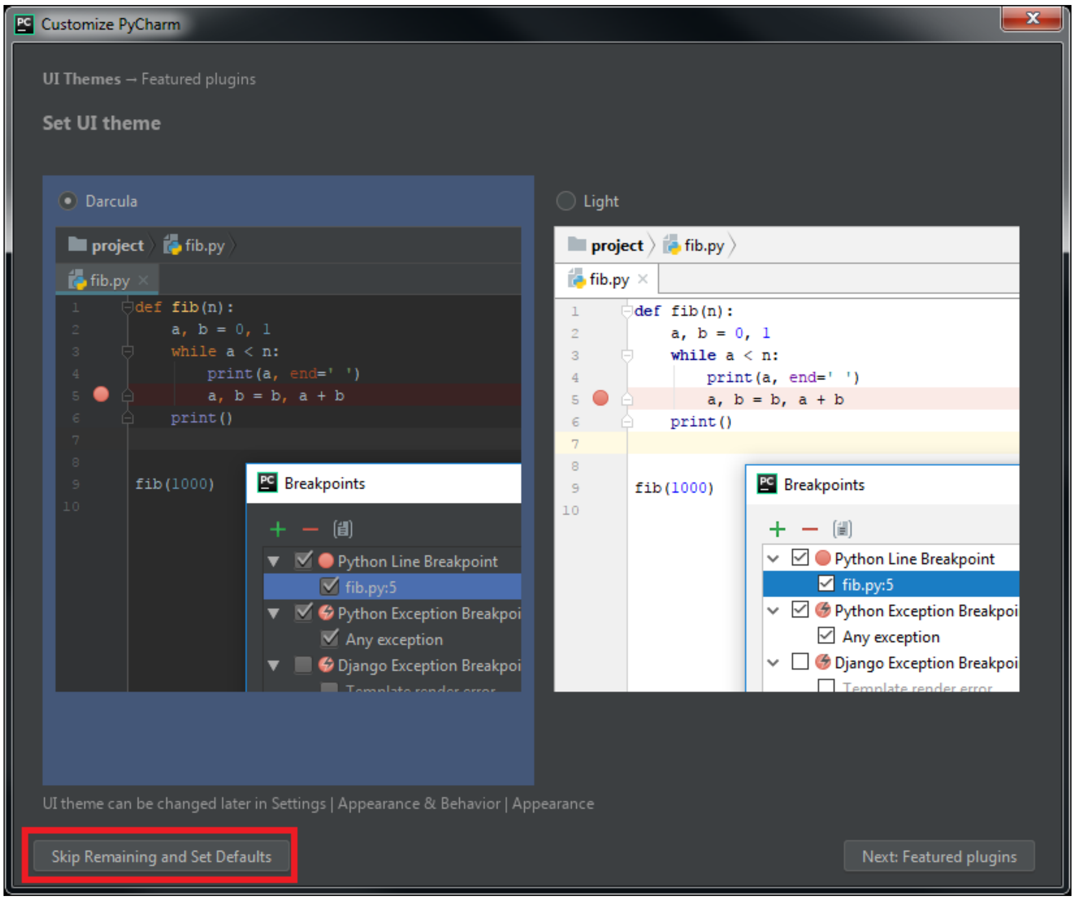


Import PyCharm Settings From...

○ Config or installation folder:

[● Do not import settings]

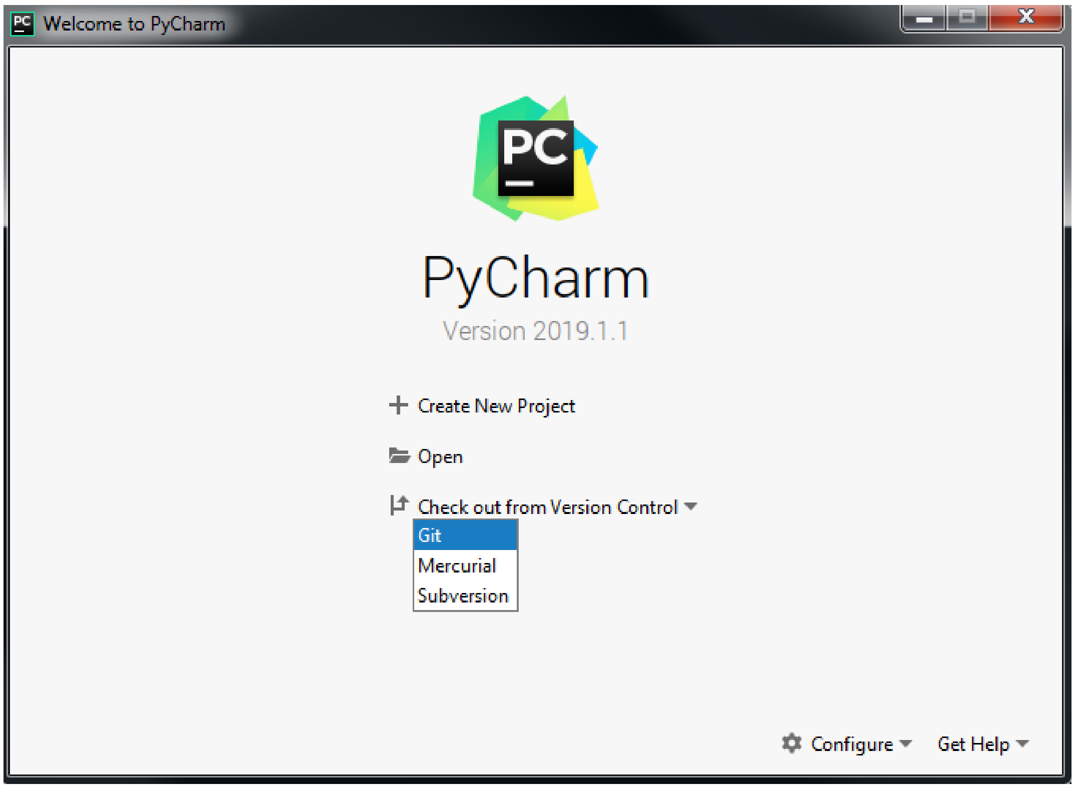
   b) Select the default editor theme *(you can also change the theme later)* and click **Skip Remaining and Set Defaults**



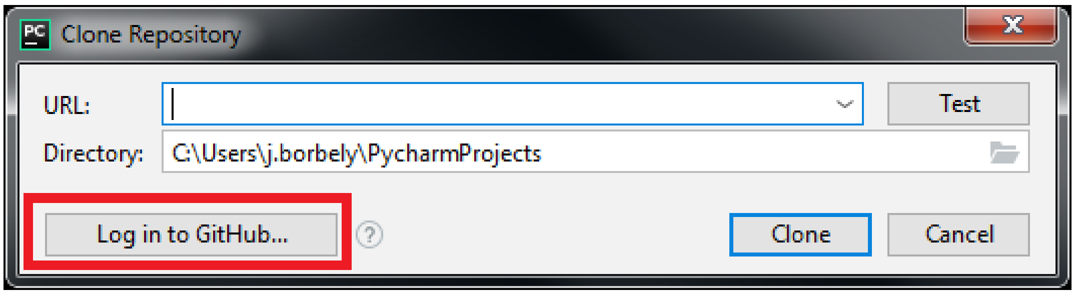
```
def fib(n):
    a, b = 0, 1
    while a < n:
        print(a, end=' ')
        a, b = b, a + b
    print()


fib(1000)
```

UI theme can be changed later in Settings | Appearance & Behavior | Appearance

c) Select the **Git** option from **Check out from Version Control**

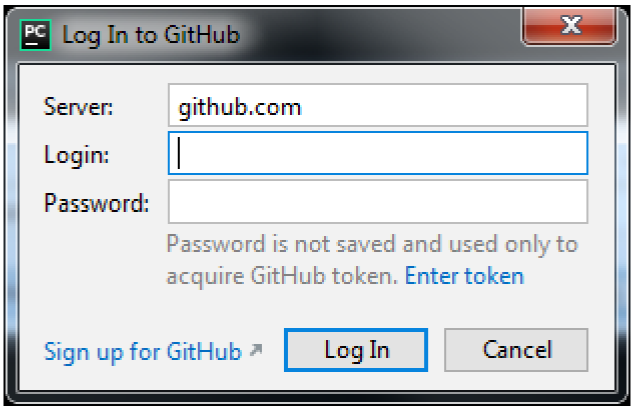


d) Click the **Log in to Github…** button



C:\Users\j.borbely\PycharmProjects

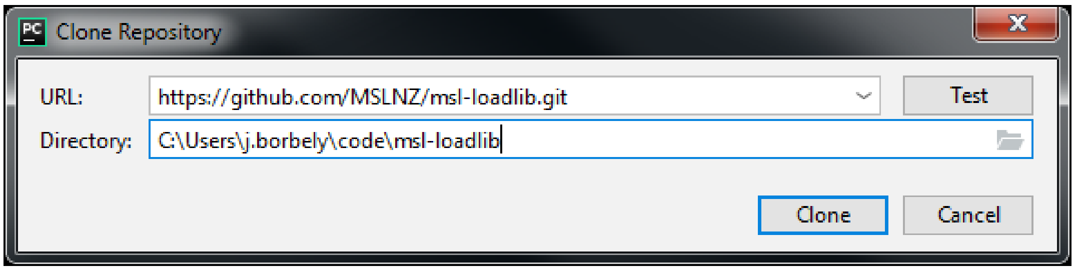
and then enter your GitHub account information *(see Step 5 above)* and click **Log In**



github.com

Password is not saved and used only to acquire GitHub token.

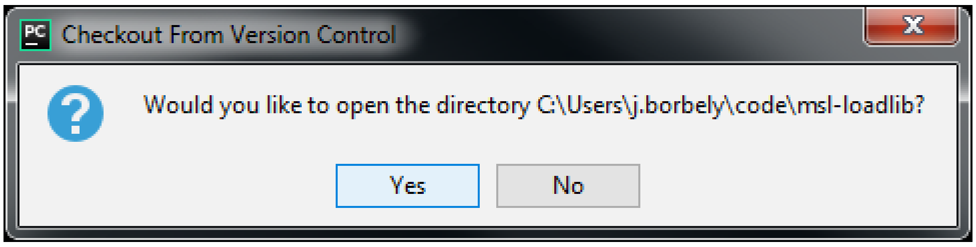
e) Clone the MSL-LoadLib repository. Specify the **Directory** where you want to clone the repository *(NOTE: the* MSL-LoadLib repository *will only appear if you are part of the* MSLNZ *organisation on GitHub. A list of your own repositories will be available.)*



https://github.com/MSLNZ/msl-loadlib.git

C:\Users\j.borbely\code\msl-loadlib

f) Open the MSL-LoadLib repository in PyCharm

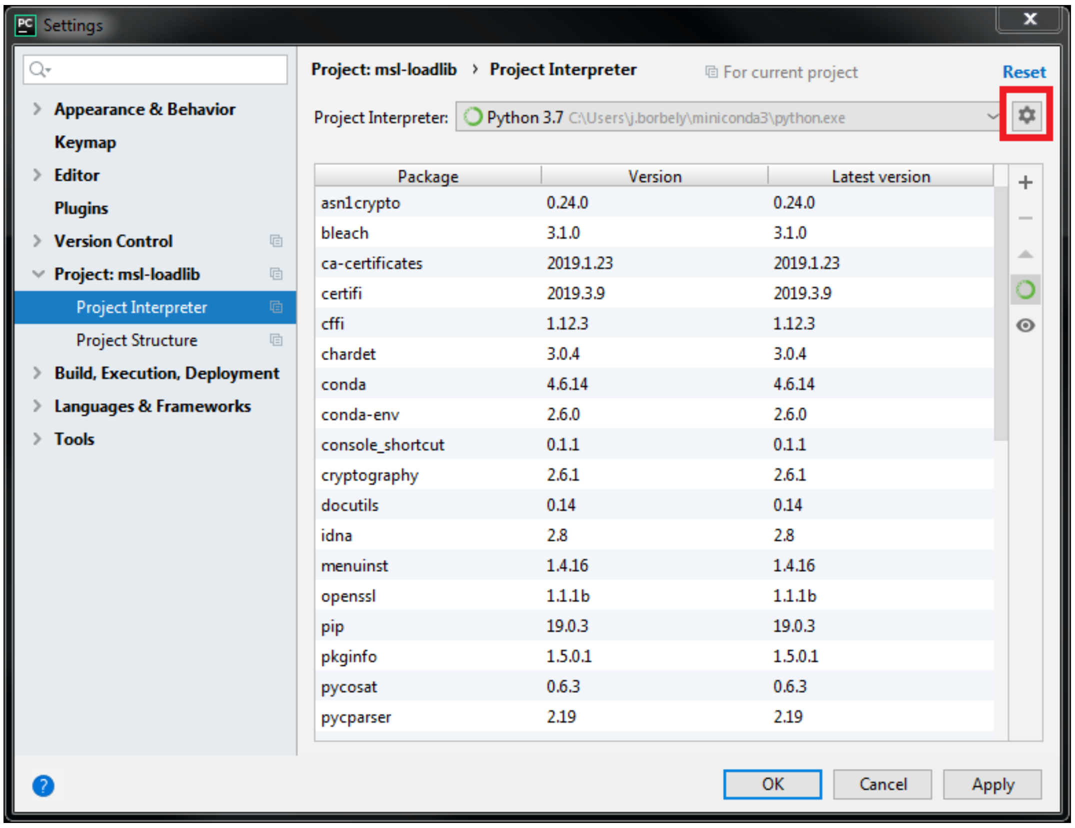


Would you like to open the directory C:\Users\j.borbely\code\msl-loadlib?

9. Add the `py37` virtual environment that was created in Step 4 as the **Project Interpreter** *(NOTE: you can also create a new conda environment in Step 9d)*

a) Press `CTRL+ALT+S` to open the **Settings** window

b) Go to **Project Interpreter** and click on the *gear* button in the top-right corner



Settings

- Appearance & Behavior
- Keymap
- Editor
- Plugins
- Version Control
- Project: msl-loadlib
  - Project Interpreter
  - Project Structure
- Build, Execution, Deployment
- Languages & Frameworks
- Tools

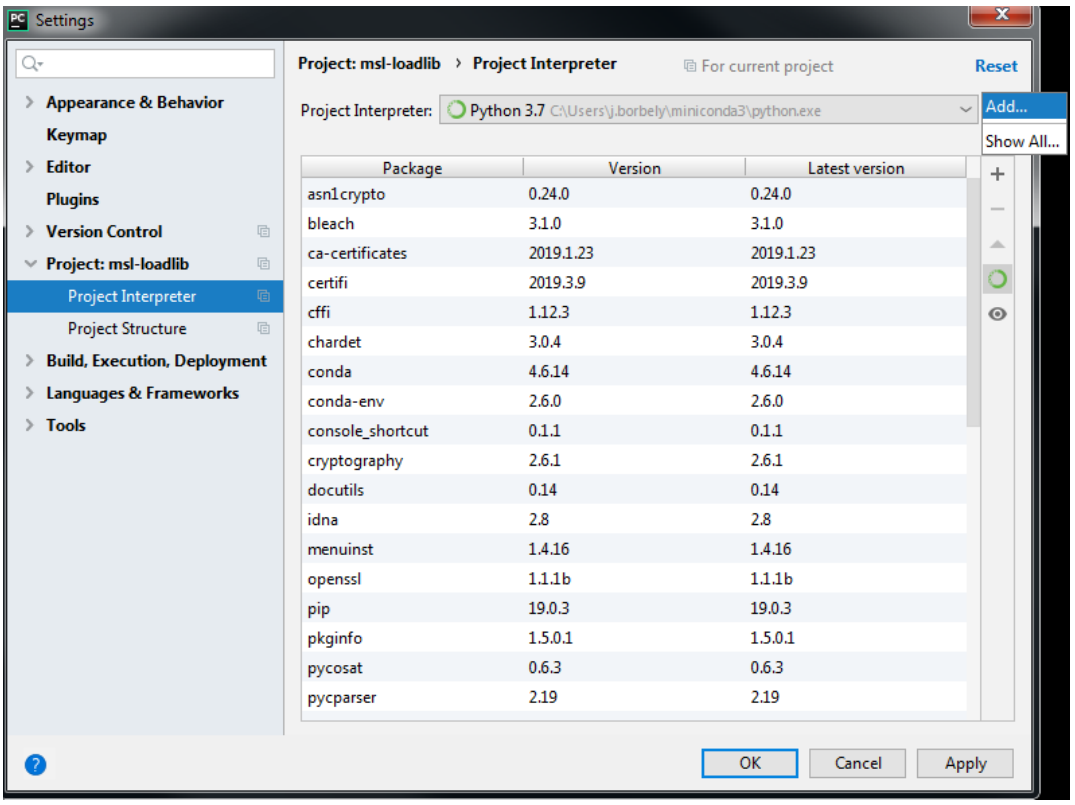
Project: msl-loadlib › Project Interpreter   For current project   Reset

Project Interpreter: Python 3.7 C:\Users\j.borbely\miniconda3\python.exe

Package	Version	Latest version
asn1crypto	0.24.0	0.24.0
bleach	3.1.0	3.1.0
ca-certificates	2019.1.23	2019.1.23
certifi	2019.3.9	2019.3.9
cffi	1.12.3	1.12.3
chardet	3.0.4	3.0.4
conda	4.6.14	4.6.14
conda-env	2.6.0	2.6.0
console_shortcut	0.1.1	0.1.1
cryptography	2.6.1	2.6.1
docutils	0.14	0.14
idna	2.8	2.8
menuinst	1.4.16	1.4.16
openssl	1.1.1b	1.1.1b
pip	19.0.3	19.0.3
pkginfo	1.5.0.1	1.5.0.1
pycosat	0.6.3	0.6.3
pycparser	2.19	2.19

OK Cancel Apply

c) Select **Add**



Settings

- Appearance & Behavior
- Keymap
- Editor
- Plugins
- Version Control
- Project: msl-loadlib
  - Project Interpreter
  - Project Structure
- Build, Execution, Deployment
- Languages & Frameworks
- Tools

Project: msl-loadlib › Project Interpreter   For current project   Reset

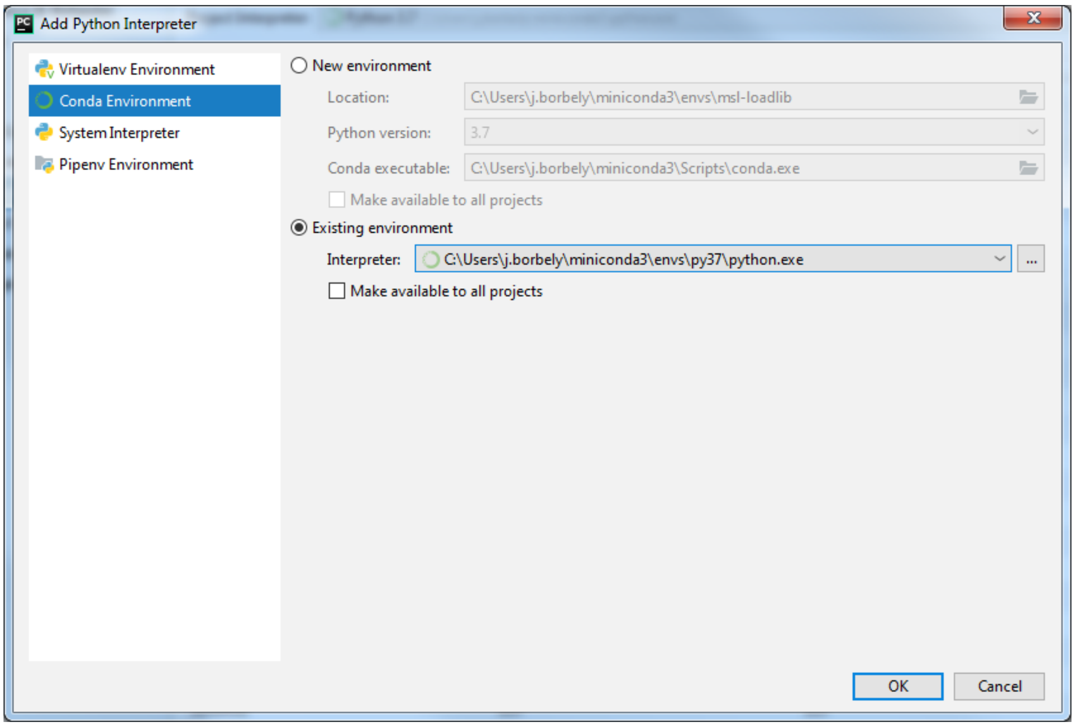
Project Interpreter: Python 3.7 C:\Users\j.borbely\miniconda3\python.exe

Add...
Show All...

Package	Version	Latest version
asn1crypto	0.24.0	0.24.0
bleach	3.1.0	3.1.0
ca-certificates	2019.1.23	2019.1.23
certifi	2019.3.9	2019.3.9
cffi	1.12.3	1.12.3
chardet	3.0.4	3.0.4
conda	4.6.14	4.6.14
conda-env	2.6.0	2.6.0
console_shortcut	0.1.1	0.1.1
cryptography	2.6.1	2.6.1
docutils	0.14	0.14
idna	2.8	2.8
menuinst	1.4.16	1.4.16
openssl	1.1.1b	1.1.1b
pip	19.0.3	19.0.3
pkginfo	1.5.0.1	1.5.0.1
pycosat	0.6.3	0.6.3
pycparser	2.19	2.19

OK Cancel Apply

d) Select **Conda Environment** → **Existing environment** and select the py37 virtual environment that was created in Step 4 and then click **OK** *You can also create a new environment if you want*



New environment
Location: C:\Users\j.borbely\miniconda3\envs\msl-loadlib
Python version: 3.7
Conda executable: C:\Users\j.borbely\miniconda3\Scripts\conda.exe
Make available to all projects
Existing environment
Interpreter: C:\Users\j.borbely\miniconda3\envs\py37\python.exe
Make available to all projects

e) Click **Apply** then **OK**

f) If you created a `py27` virtual environment then repeat Steps 9b-9d to add the Python 2.7 environment

10. The **MSL-LoadLib** project is now shown in the **Project** window and you can begin to modify the code.

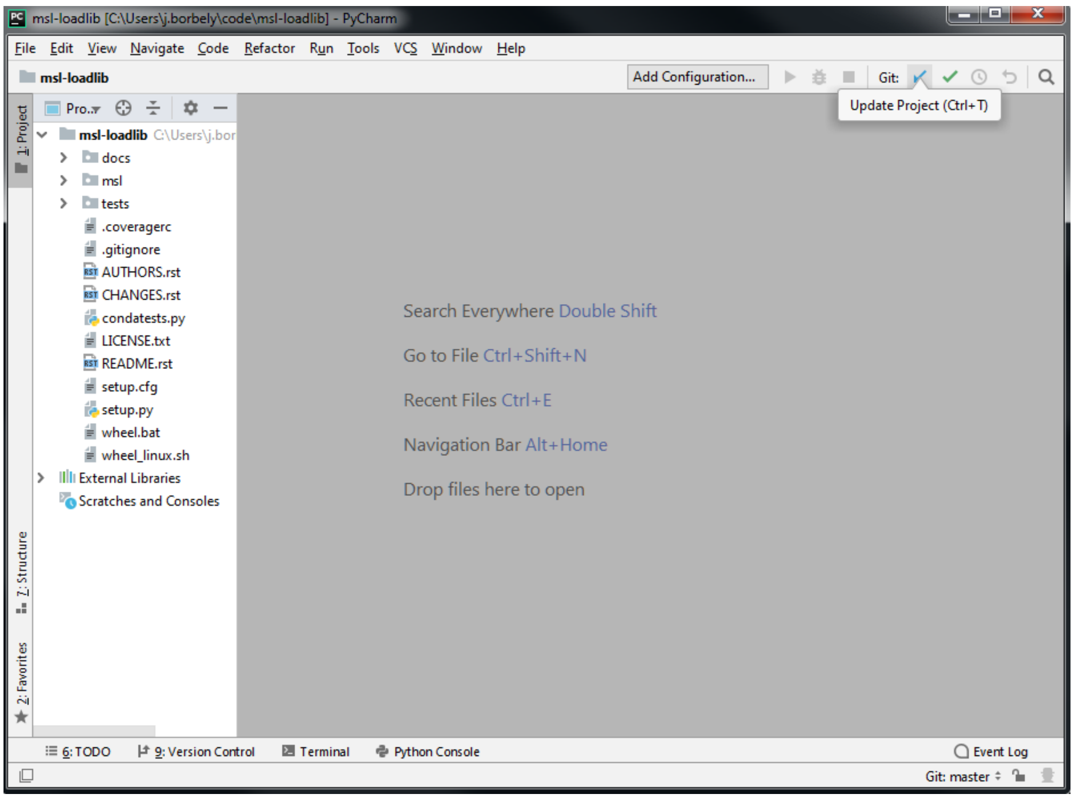
1.6.2 Commit changes to a repository

The following is only a very basic example of how to upload changes to the source code to the MSL-LoadLib repository by using PyCharm. See this link for a much more detailed overview on how to use git.

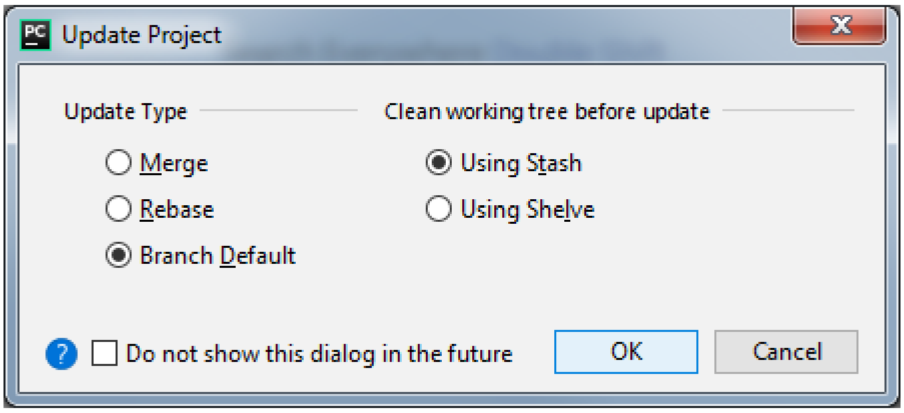
Note: This section assumes that you followed the instructions from *Install and set up Python, Git and PyCharm*.

1. Make sure that the git Branch you are working on is up to date by performing a Pull.

   a) Click on the blue, downward-arrow button in the top-right corner to update the project



b) Select the options for how you want to update the project *(the default options are usually okay)* and click **OK**


Update Project

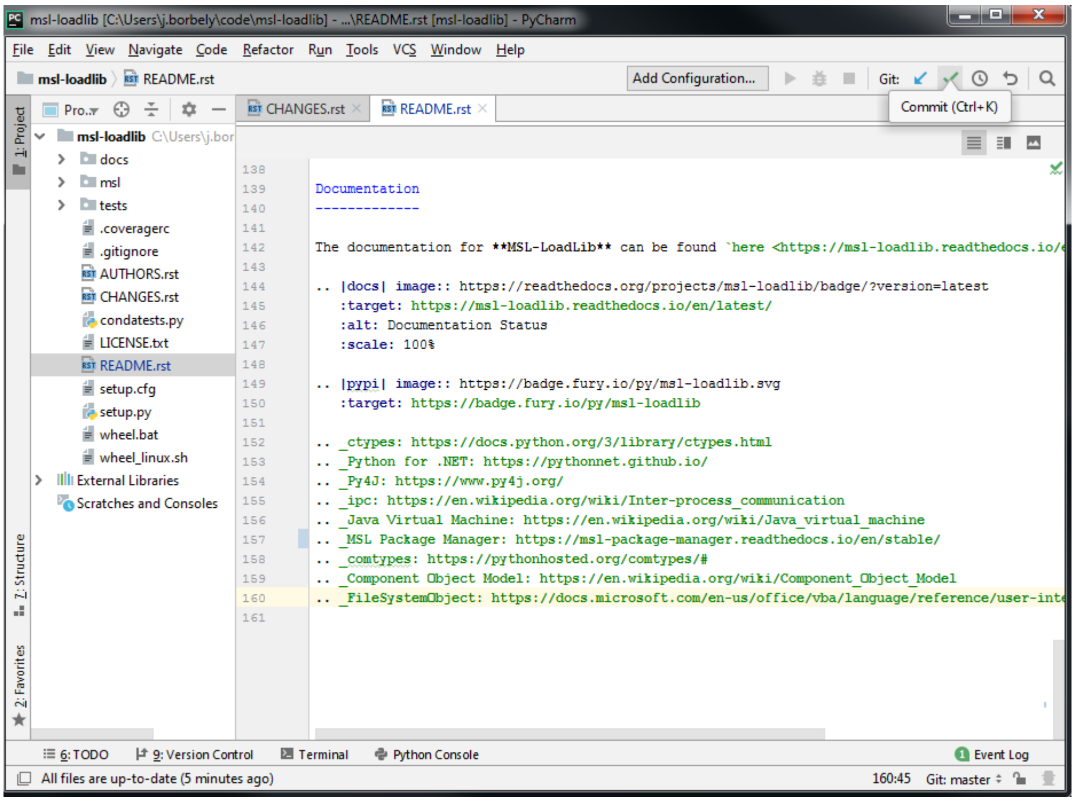
Update Type
- Merge
- Rebase
- [✓ Branch Default]

Clean working tree before update
- [✓ Using Stash]
- Using Shelve

☐ Do not show this dialog in the future

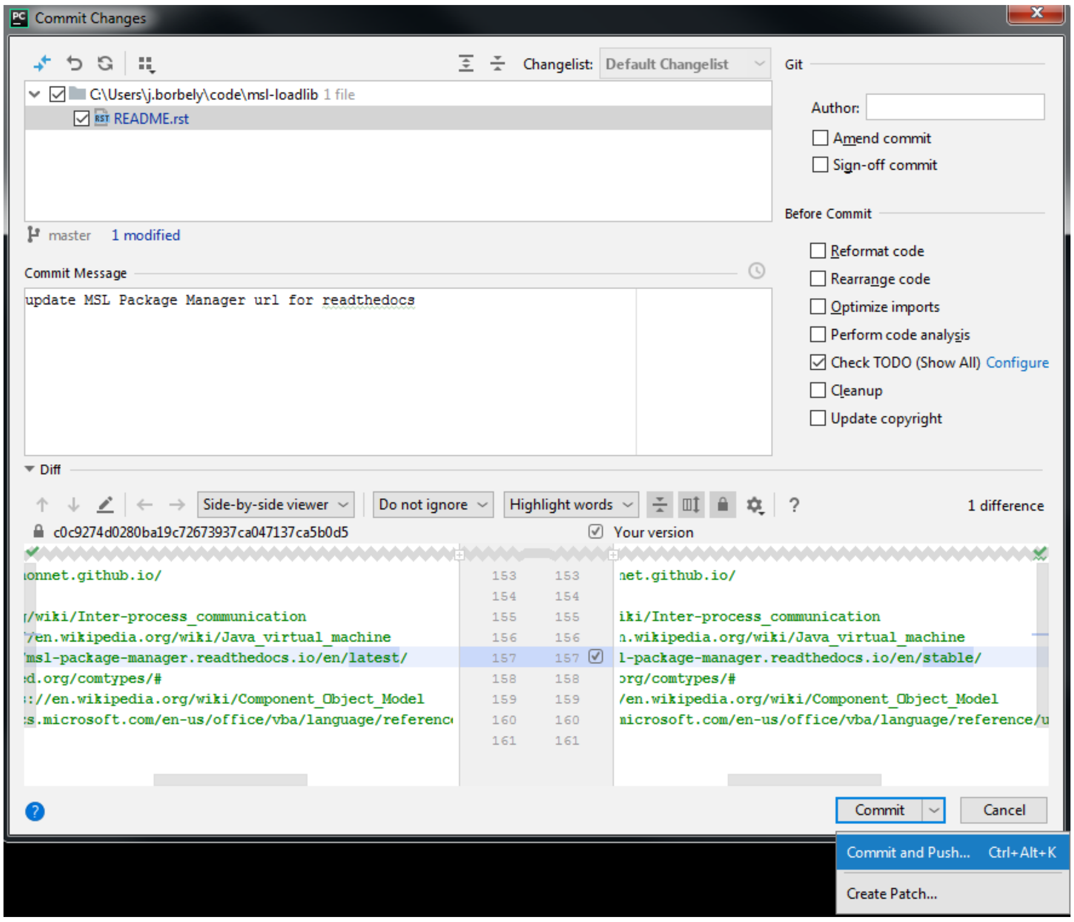
2. Make changes to the code.
3. When you are happy with the changes that you have made you should Push the changes to the MSL-LoadLib repository.

   a) Click on the green, check-mark button in the top-right corner to commit the changes



```
Documentation
-------------

The documentation for **MSL-LoadLib** can be found `here <https://msl-loadlib.readthedocs.io/e

.. |docs| image:: https://readthedocs.org/projects/msl-loadlib/badge/?version=latest
   :target: https://msl-loadlib.readthedocs.io/en/latest/
   :alt: Documentation Status
   :scale: 100%

.. |pypi| image:: https://badge.fury.io/py/msl-loadlib.svg
   :target: https://badge.fury.io/py/msl-loadlib

.. _ctypes: https://docs.python.org/3/library/ctypes.html
.. _Python for .NET: https://pythonnet.github.io/
.. _Py4J: https://www.py4j.org/
.. _ipc: https://en.wikipedia.org/wiki/Inter-process_communication
.. _Java Virtual Machine: https://en.wikipedia.org/wiki/Java_virtual_machine
.. _MSL Package Manager: https://msl-package-manager.readthedocs.io/en/stable/
.. _comtypes: https://pythonhosted.org/comtypes/#
.. _Component Object Model: https://en.wikipedia.org/wiki/Component_Object_Model
.. _FileSystemObject: https://docs.microsoft.com/en-us/office/vba/language/reference/user-inte
```

b) Select the file(s) that you want to upload to the MSL-LoadLib repository, add a useful message for the commit and then select **Commit and Push**.



☑ C:\Users\j.borbely\code\msl-loadlib
☑ README.rst

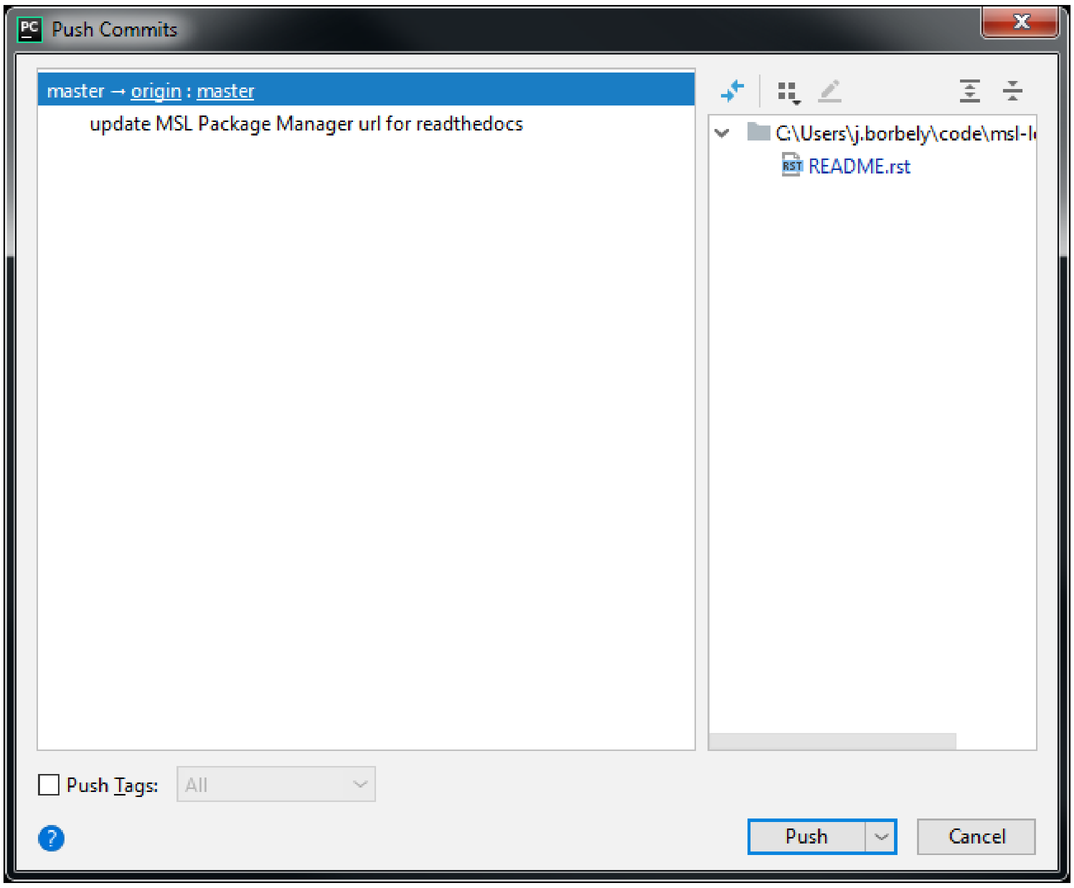
Commit Message:

```
update MSL Package Manager url for readthedocs
```

☐ Amend commit
☐ Sign-off commit
☐ Reformat code
☐ Rearrange code
☐ Optimize imports
☐ Perform code analysis
☑ Check TODO (Show All)
☐ Cleanup
☐ Update copyright

```
ionnet.github.io/                                   net.github.io/

:/wiki/Inter-process_communication                  iki/Inter-process_communication
/en.wikipedia.org/wiki/Java_virtual_machine         n.wikipedia.org/wiki/Java_virtual_machine
msl-package-manager.readthedocs.io/en/latest/       l-package-manager.readthedocs.io/en/stable/
d.org/comtypes/#                                    org/comtypes/#
://en.wikipedia.org/wiki/Component_Object_Model     /en.wikipedia.org/wiki/Component_Object_Model
s.microsoft.com/en-us/office/vba/language/referenc  microsoft.com/en-us/office/vba/language/reference/u
```

c) Finally, Push the changes to the MSL-LoadLib repository.


Push Commits
master → origin : master
update MSL Package Manager url for readthedocs
C:\Users\j.borbely\code\msl-l
README.rst
Push Tags:
All
Push
Cancel

1.6.3 Use the setup.py and condatests.py scripts

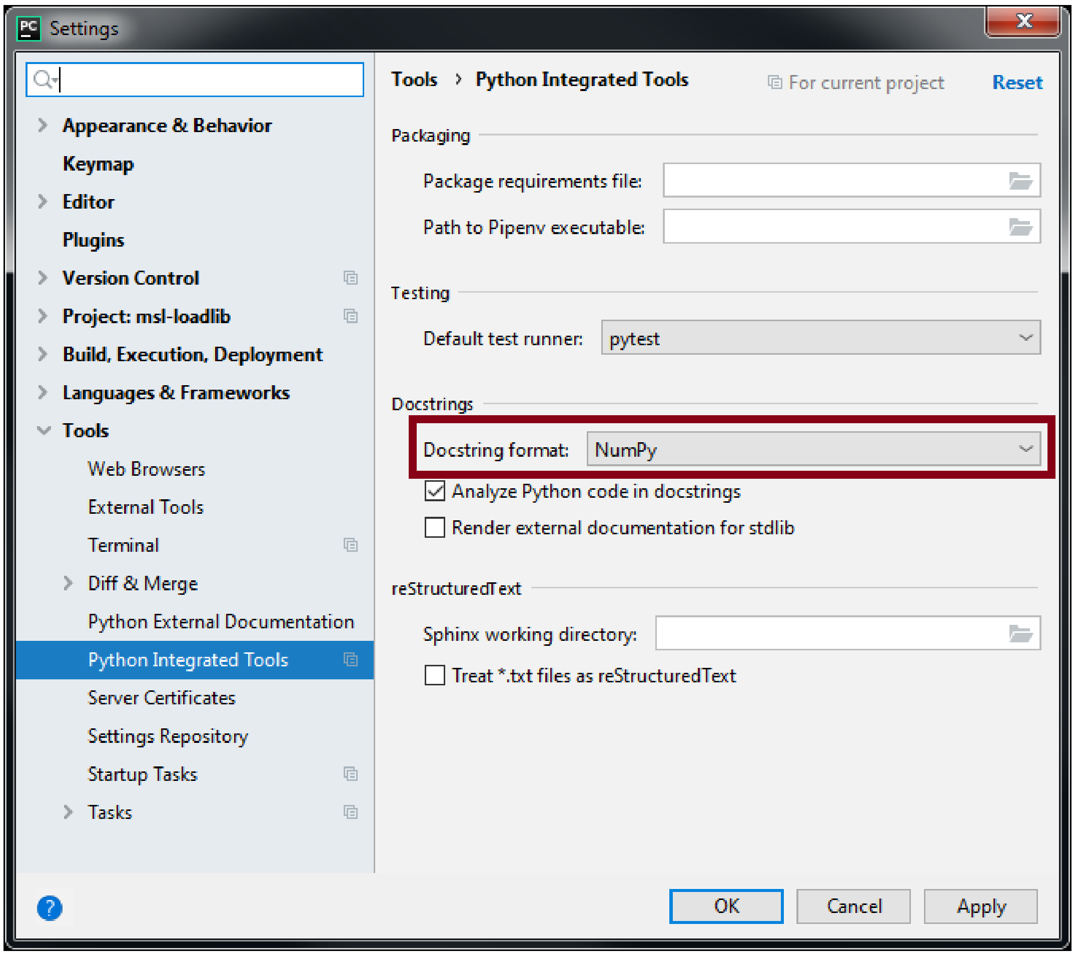
MSL packages come with two scripts to help make development easier: *setup.py* and *condatests.py*. See the *"create" ReadMe* page for an overview on how to use these scripts.

1.6.4 Edit source code using the style guide

Please adhere to the following style guides when contributing to **MSL** packages. With multiple people contributing to the code base it will be easier to understand if there is a coherent structure to how the code is written:

Note: This section assumes that you followed the instructions from *Install and set up Python, Git and PyCharm*.

- Follow the **PEP 8** style guide when possible *(by default, PyCharm will notify you if you do not)*.
- Docstrings must be provided for all public classes, methods and functions.
- For the docstrings use the NumPy Style format.
  - Press `CTRL+ALT+S` to open the **Settings** window and navigate to **Tools** → **Python Integrated Tools** to select the **NumPy** docstring format and then click **Apply** then **OK**.



Packaging

Package requirements file:

Path to Pipenv executable:

Testing

Default test runner: pytest

Docstrings

Docstring format: NumPy

✓ Analyze Python code in docstrings

☐ Render external documentation for stdlib

reStructuredText

Sphinx working directory:

☐ Treat *.txt files as reStructuredText

- Do not use `print()` statements to notify the end-user of the status of a program. Use `logging` instead. This has the advantage that you can use different logging levels to decide what message types are displayed and which are filtered and you can also easily redirect all messages, for example, to a GUI widget or to a file. The django project has a nice overview on how to use Python's builtin logging module.

1.7 License

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1.8 Developers

- Joseph Borbely <joseph.borbely@measurement.govt.nz>

1.9 Release Notes

1.9.1 Version 2.6.0 (in development)

1.9.2 Version 2.5.4 (2023-06-16)

This release will be the last to support Python 2.7, 3.5, 3.6 and 3.7

- Added
  - support for Python 3.11
- Fixed
  - do not update MSL packages that are installed in editable mode
  - issue #11 - TypeError: Object of type Requirement is not JSON serializable
  - issue #10 - GitHub rate-limit error message repeats
  - issue #9 - PyPI regex pattern is invalid for the /search endpoint

1.9.3 Version 2.5.2 (2021-11-08)

- Added
  - support for Python 3.10
- Fixed
  - increased the GitHub API pagination to 100 repositories per page
  - issue #8 - Invalid URL fragment with pip dependency resolver

1.9.4 Version 2.5.1 (2021-08-24)

- Fixed
  - issue #7 - Updating non-MSL packages can install the wrong version

1.9.5 Version 2.5.0 (2021-05-17)

- Added
  - install or update a package from the hash value of a commit
  - a `docs` key to `extras_require` in setup.py
  - update all outdated, non-MSL packages from PyPI
- Changed
  - renamed the `authorize` function to `authorise`
  - use `~/.msl/package-manager` as the HOME directory to save the GitHub token and the PyPI/GitHub caches.
  - use 4x additive `--quiet` flag (for silencing `DEBUG`, `INFO`, `WARNING` and `ERROR` logging levels)
  - direct logging messages less than `WARNING` to `sys.stdout` and greater than or equal to `WARNING` to `sys.stderr`
  - the default name of a repository branch is now *main* for the `install` and `update` commands
  - use the conda-forge channel (instead of the anaconda channel) when installing packages in condatests.py

1.9.6 Version 2.4.1 (2021-02-20)

- Added
  - support for Python 3.9
- Changed
  - only include the `--force-reinstall` flag when updating a package from GitHub (previously this flag was included when updating from PyPI as well)
  - include the `--no-deps` flag if no *extras require* option is specified when updating a package from GitHub
  - no longer use the XMLRPC API to get the information about the MSL packages that are available on PyPI

1.9.7 Version 2.4.0 (2020-04-20)

- Added
  - the `pip_options` kwarg to the `install`, `update` and `uninstall` functions
  - support for Python 3.8
  - can now create a new package that is not part of a namespace
  - `authorise` as an alias for `authorize` for the CLI
  - the `--create`, `--requires` and `--ini` arguments to `condatests.py`
- Changed
  - make the order of the log messages consistent: pypi -> github -> local
  - use a personal access token instead of a password for authentication to the GitHub API (authenticating to the GitHub API using a password is deprecated)
  - omit the *examples* directory from the coverage report and from pytest
- Fixed
  - call `getpass.getuser()` if git is installed but the *user.name* parameter has not been defined
  - do not split the text in the Description field to the next line in the middle of a word for the `info()` function
  - can now run `condatests.py` from any conda environment not just the *base* environment
  - check if an MSL package was installed via pip in *editable* mode
  - issue #6 - add support for specifying a version number when installing/updating
  - issue #5 - add support for specifying an extras_require value when installing/updating
  - issue #4 - error updating a package if the installed name != repository name
  - the *tests_require* list in `setup.py` now specifies *zipp<2.0*, *pyparsing<3.0* and *pytest<5.0* for Python 2.7
- Removed
  - support for Python 3.4

1.9.8 Version 2.3.0 (2019-06-10)

- Added
  - ability to install, update, create and uninstall MSL packages that do not start with `msl-`
  - the shorter `-D` flag for `--disable-mslpm-version-check`
  - use of a shell-style wildcard when specifying the package name(s)
  - *authorize* as an API function
- Changed
  - renamed the optional `--path` argument to `--dir` in the *create* command
  - renamed the `path` kwarg to `directory` in the *create* method

- renamed the `-uc` flag to `-u` for the `--update-cache` flag

- Fixed
  - running the `list` command did not align the Description text if the text continued on the next line
  - removed the `--quiet` flag in the *pip search msl-* query
  - removed the `--process-dependency-links` flag when installing packages (for compatibility with pip v19.0)

1.9.9 Version 2.2.0 (2019-01-06)

- Added
  - the `--doctest-glob='*.rst'` and `doctest_optionflags = NORMALIZE_WHITESPACE` options to the *setup.cfg* file that is generated when a new package is created
  - a `--disable-mslpm-version-check` flag
  - a `-uc` alias for `--upgrade-cache`
- Changed
  - renamed `test_envs.py` to `condatests.py` and made it compatible with an optional *condatests.ini* file
  - disable pip from checking for version updates by using the `--disable-pip-version-check` flag
  - rename the `--detailed` flag to be `--json`
  - moved the GitHub authorization file to the *.msl* directory and renamed the file to be *.mslpm-github-auth*
- Fixed
  - improved error handling if there is no internet connection
  - use `threading.Thread` instead of `multiprocessing.pool.ThreadPool` when fetching info from GitHub since using `ThreadPool` would cause some Python versions to hang (see https://bugs.python.org/issue34172)
  - colorama was not resetting properly

1.9.10 Version 2.1.0 (2018-08-24)

- Added
  - *autodoc_default_options* to conf.py for Sphinx 1.8 support
  - *nitpicky* to conf.py
  - the `version_info` named tuple now includes a *releaselevel*
  - can now update the MSL Package Manager using *msl update package-manager*
  - support for Python 3.7

- Removed
  - support for Python 3.3

1.9.11 Version 2.0.0 (2018-07-02)

- Added
  - ability to make authorized requests to the GitHub API (created `authorize` command)
  - create a 3x additive `--quiet` flag (for silencing WARNING, ERROR and CRITICAL logging levels)
  - show a message if the current version of the MSL Package Manager is not the latest release
  - `.pytest_cache/` and `junk/` directories are now in .gitignore
- Changed
  - use `pkg_resources.working_set` instead of `pip.get_installed_distributions` to get the information about the MSL packages that are installed
  - use logging instead of print statements
  - the function signature for `install`, `uninstall`, `update` and `create`
  - replace `--update-github-cache` and `--update-pypi-cache` flags with a single `--update-cache` flag
  - rename function `print_packages()` to `info()`
  - rename module `helper.py` to `utils.py`
  - show the detailed info about the GitHub repos in JSON format
  - many changes to the documentation
- Fixed
  - `ApiDocs` in `setup.py` failed to run with Sphinx >1.7.0
  - bug if the GitHub repo does not contain text in the Description field
  - searching PyPI packages showed results that contained the letters `msl` but did not start with `msl-`
- Removed
  - the constants `IS_PYTHON2`, `IS_PYTHON3` and `PKG_NAME`

1.9.12 Version 1.5.1 (2018-02-23)

- Fixed
  - the `setup.py` file is now compatible with Sphinx 1.7.0

1.9.13 Version 1.5.0 (2018-02-15)

- Added
  - the default install/update URI is PyPI (and uses the GitHub URI if the package does not exist on PyPI)
  - `--update-pypi-cache` and `--pypi` flags for the CLI
- Changed
  - default "yes/no" choice for the CLI was changed to be "yes"
  - `test_envs.py` has been updated to properly color the output text from pytest (v3.3.1) using colorama

1.9.14 Version 1.4.1 (2017-10-19)

- Added
  - `pip` as a dependency
- Changed
  - modified the template that is used for creating a new package:
    - the setup.py file is now self-contained, i.e., it no longer depends on other files to be available
    - removed requirements.txt and requirements-dev.txt so that one must specify the dependencies in install_requires
    - added the ApiDocs and BuildDocs classes from docs/docs_commands.py and removed docs/docs_commands.py
  - print the help message if no command-line argument was passed in
  - updated the documentation and the docstrings

1.9.15 Version 1.4.0 (2017-09-19)

- Added
  - add a `--branch` and `--tag` argument for the `install` and `update` commands
  - add a `--path` and `--yes` argument for the `create` command
  - added more functions to the helper module for the API:
    - check_msl_prefix
    - create_install_list
    - create_uninstall_list
    - get_zip_name
    - print_error
    - print_info

    * print_warning
    * print_install_uninstall_message
    * sort_packages

- Changed
  - the `print_list` function was renamed to `print_packages`
  - updated the documentation and the docstrings

1.9.16 Version 1.3.0 (2017-08-31)

- Added
  - use a thread pool to request the version number of a release for MSL repositories on GitHub
  - cache the package information about the GitHub repositories
  - add an `--update-github-cache` flag for the CLI
  - update documentation and docstrings
- Fixed
  - the `msl` namespace got destroyed after uninstalling a package in Python 2.7
  - running `python setup.py test` now sets `install_requires = []`
  - the `test_envs.py` file would hang if it had to "install eggs"
- Removed
  - the `--release-info` flag for the CLI is no longer supported

1.9.17 Version 1.2.0 (2017-08-10)

- add the `--all` flag for the CLI
- include `--process-dependency-links` argument for `pip install`
- create **upgrade** alias for **update**
- bug fixes and edits for the print messages

1.9.18 Version 1.1.0 (2017-05-09)

- update email address to "measurement"
- previous release date (in CHANGES.rst) was yyyy.dd.mm should have been yyyy.mm.dd
- previous release should have incremented the minor number (new **update** feature)

1.9.19 Version 1.0.3 (2017-05-09)

- add **update** command
- run pip commands using sys.executable

1.9.20 Version 1.0.2 (2017-03-27)

- split requirements.txt using `\n` instead of by any white space
- remove unnecessary "import time"

1.9.21 Version 1.0.1 (2017-03-03)

- show help message if no package name was specified for "create" command
- remove unused 'timeout' argument from test_envs.py
- reorganize if-statement in "list" command to display "Invalid request" when appropriate

1.9.22 Version 1.0.0 (2017-03-02)

- separate **install**, **uninstall**, **create** and **list** functions into different modules
- fix MSL namespace
- edit test_envs.py to work with colorama and update stdout in real time
- add `--yes` and `--release-info` flags for CLI
- create documentation and unit tests
- many bug fixes

1.9.23 Version 0.1.0 (2017-02-19)

- initial release

PYTHON MODULE INDEX

INDEX