

PyEMTG Documentation Readme

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Revision Date	Author	Description of Change
July 22, 2022	Noble Hatten	Initial creation and migration of markdown content into this document.
October 25, 2023	Edwin Dove	Updated instructions to point to the new documentation location.

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List of Acronyms

EMTG Evolutionary Mission Trajectory Generator

rst restructured text

1 Introduction

The purpose of this document is to describe:

- The available documentation for PyEMTG (Section 2).
- How to add new documentation to PyEMTG (Section 3).

2 PyEMTG Documentation

PyEMTG documentation is located in the Evolutionary Mission Trajectory Generator (EMTG) git repo. The following notation is used in this documentation to represent folder locations:

- **<EMTG_root_dir>** - EMTG git repo root directory
- **<PyEMTG-autogen_dir>** - root directory of the auto generated PyEMTG documentation and sphinx configuration files:
<EMTG_root_dir>/docs/1_Developers/python_modules/

The PyEMTG documentation consists of:

- A \LaTeX -based user guide located in **<EMTG_root_dir>/docs/0_Users/PyEMTG_User_GuideUser/**
- Auto-generated restructured text (rst) documentation based on specially formatted comments in PyEMTG .py scripts. rst files may be used to produce multiple formats of end-user documentation. The EMTG repo contains html versions of this documentation that may be accessed via **<PyEMTG-autogen_dir>/_autogendocs/html/index.html**. After opening this file in a web browser, the browser may be used to navigate between different pages of documentation.

3 Creating New PyEMTG Restructured Text Documentation

3.1 Prerequisites

PyEMTG documentation is generated using the Sphinx Python Documentation Generator (<https://www.sphinx-doc.org/en/master/index.html>). A user must have the sphinx package installed in their Python environment in order to build the documentation.

3.2 Updating Documentation

Documentation may be added directly to Python source files. For examples of the syntax of adding documentation, see `<EMTG_root_dir>/PyEMTG/Journey.py` and web sites like <https://eikonomega.medium.com/getting-started-with-sphinx-autodoc-part-1-2cebbbca5365>.

If updating auto-generated documentation for the python files in `<EMTG_root_dir>/PyEMTG/` that already contains the same names as the rst files in the `<PyEMTG-autogen_dir>/` subdirectories, then all a user needs to do for updates to appear in the html documents is to rebuild the documentation. See Section 3.3.

If adding a new subdirectory to the `<EMTG_root_dir>/PyEMTG/` directory, the following steps must be followed prior to rebuilding in order for documentation to be produced for Python files in the new subdirectory:

1. Create a directory in `<PyEMTG-autogen_dir>/` with the name of the new directory that was created in `<EMTG_root_dir>/PyEMTG/`.
2. Open a terminal with access to the Python environment with sphinx.
3. In the terminal, execute
`sphinx-apidoc -o <PyEMTG-autogen_dir>/<name of your new directory>
<EMTG_root_dir>/PyEMTG/<name of your new directory>/`
4. Copy the index.rst file from a pre-existing
`<PyEMTG-autogen_dir>/` subdirectory to
`<PyEMTG-autogen_dir>/<name of your new directory>.`
5. Edit `<PyEMTG-autogen_dir>/<name of your new directory>/index.rst` so the title header text above the equal (=) characters reads "`<name of your new directory> documentation`".
6. Add `sys.path.insert(0, os.path.abspath('../../PyEMTG/<name of your new directory>'))` to the `<PyEMTG-autogen_dir>/docs/<dir>/conf.py` file.
7. Add `<name of your new directory>/index.rst` to the list of .rst files in `/PyEMTG/docs/index.rst`.
8. In the terminal, navigate to `<PyEMTG-autogen_dir>/`.

9. In the terminal, execute `make html`.

There may be warnings but hopefully there are no errors.

Note: These instructions were adapted from <https://dev.to/dev0928/how-to-generate-professional-documentation-with-sphinx-4n78> and <https://stackoverflow.com/questions/13116155/sphinx-apidoc-usage-multiple-source-python-directories>.

If `<EMTG_root_dir>/PyEMTG/<name of preexisting directory>` already exists in the `<PyEMTG-autogen_dir>/` directory and documentation is needed for a new python module, the following steps provides guidance producing the documentation:

1. Open a terminal with access to the Python environment with sphinx.
2. In the terminal, execute
`sphinx-apidoc -o <PyEMTG-autogen_dir>/<name of preexisting directory>
<EMTG_root_dir>/PyEMTG/<name of preexisting directory>/`
3. In the terminal, navigate to `<PyEMTG-autogen_dir>/`.
4. In the terminal, execute `make html`.
There may be warnings but hopefully there are no errors.

3.3 Building the Documentation

1. Open a terminal with access to the Python environment with sphinx.
2. Navigate to the `<PyEMTG-autogen_dir>/` directory.
3. In the terminal, execute `make html` to produce the html-based documentation.