

SEAScope installation manual for Linux

The main component of SEAScope is a viewer application whose capabilities can be extended using an optional Python module.

The Python module enables interactive features in the viewer: it allows you to extract data as serialized Python objects (pickle format) or produce plots by clicking on buttons in the user interface.

It also provides an API to control the viewer (even remotely, over the network) using scripts or notebooks.

Other SEAScope-related subjects are covered by documents available on the SEAScope website:

- User manual for the viewer and the Python package:
https://seascope.oceandatalab.com/docs/seascope_user_manual_20190703.pdf
- Intermediate Data Format definition, general concept and glossary:
https://seascope.oceandatalab.com/docs/idf_specifications_1.2.pdf

Requirements

Viewer

Aside from a consumer-grade computer with a 3D graphics card, the SEAScope viewer requires:

- a Linux operating system
- an OpenGL-compatible GPU driver (OpenGL version 3.3 or above)
- a graphical environment (X server)
- Linux C library version 6 (or GNU C library version 2)
- GLEW version 1.10.0 or above

If you are using a Linux PC with a graphical environment and if your Linux distribution has less than four or five years, you are probably already set.

Python package

The Python package for SEAScope comes in two flavors:

- a lightweight version which provides only the API for writing your own scripts.
- a full version which contains both the API and the processing tools for extractions and transects.

The lightweight version requires:

- Python 2.7 or 3.x
- flatbuffers (<https://pypi.org/project/flatbuffers/>)

In addition to these dependencies, the full version also requires:

- pyproj (<https://pypi.org/project/pyproj/>)
- numpy (<https://pypi.org/project/numpy/>)
- matplotlib (<https://pypi.org/project/matplotlib/>)
- scipy (<https://pypi.org/project/scipy/>)

Installation

Viewer

The SEAScope application has a small memory footprint (around 20 megabytes).

You should install the application on a partition with at least a few gigabytes though because it is easier to keep SEAScope, the data you want to display and the application workspace in the same directory (default behavior).

Simply extract the contents of the seascope-viewer-20190628.tar.gz file somewhere on the partition you chose:

```
tar xzf seascope-viewer-20190628.tar.gz
```

If your system meets the requirements, the installation of the SEAScope viewer is complete. Easy :)

Python package

The preferred way to install the SEAScope Python package is to use the "pip" command.

Retrieve the package on the SEAScope website:

```
pip download --no-deps "https://seascope.oceandatalab.com/python/seascope-python-0.2.162.tar.gz"
```

Then,

- for the lightweight version of the package, run:

```
pip install ./seascope-python-0.2.162.tar.gz
```

- for the full version of the package, use:

```
pip install "./seascope-python-0.2.162.tar.gz[processor]"
```

In order to avoid version conflicts between Python packages, we recommend to use virtual environments.

Python package (alternative)

If you are not accustomed to virtualenv and pip, you can use the following procedure to install both pip, virtualenv and the SEAScope "full" package as a user (no root permissions required).

Choose a path where the SEAScope package and its dependencies will be installed. This path is referred to as <INSTALL_DIR> in the following examples:

```
wget "https://seascope.oceandatalab.com/tools/python_install.sh"
chmod +x python_install.sh
./python_install.sh <INSTALL_DIR>
```

In order to load the environment and have access to its contents, use:

```
source <INSTALL_DIR>/env/bin/activate
```

Troubleshooting

FAQ

Issues which have already been solved are documented on the SEAScope website, you can consult them at the following address: <https://seascope.oceandatalab.com/faq.html>

Compatibility

The SEAScope viewer has been tested on several Linux systems, you can check the results in the following table:

Ubuntu 12.04 (fails due to libc version)
Ubuntu 14.04
Ubuntu 16.10
ArchLinux
Debian 8.6.0
Mint 18
openSUSE 13.2
Fedora 24

System diagnostic

If you are not sure about the versions of the C and GLEW libraries installed on your system, we provide a script that will try to find them for you, as well as other information about your system which can be useful to detect compatibility or configuration issues.

To get this script:

```
wget "https://seascope.oceandatalab.com/tools/seascope_system_info.sh"
```

Contact us

For any question, comment or bug report, please send an email to seascope@oceandatalab.com

You can also post a message in the SEAScope forum <https://forum.oceandatalab.com/seascope>

In order for issues to be solved quickly, bug reports must contain the output of the system diagnostic script.