Roman - Pandeia Engine Installation

For Pandeia Engine v2.0

Python Requirements:

Required	Recommended
python 3.8+	3.10.4
numpy 1.17+	1.21.2
scipy	1.7.3
astropy 5+	5.0.4
photutils	1.4.0
synphot 1.0+	1.1.1
stsynphot 1.0+	1.1.0
six	1.16.0
setuptools	58.0.4

Installing the Pandeia Engine requires a python environment with the dependencies listed above, a set of telescope-specific datafiles, and an optional (but highly recommended) second set of data files for additional spectral manipulation capabilities.

Code

The engine can be installed with

```
pip install pandeia.engine==2.0
```

> ⊘ We highly recommend installing into a fresh python environment, such as ones provided by the Anaconda Python distribution, to avoid problems. If you experience issues after installing the Pandeia Engine, consider starting again with a fresh python installation and a clean new set of data files.

Then set up the data files.

Data

Required Data

In order to function, the Pandeia Engine requires one set of reference data (containing instrument definitions): https://stsci.box.com/v/pandeia-refdata-v2p0-roman

Download and untar the files to a suitable location.

Environment variable: $pandeia_refdata must point to the location of the top of the data file tree (the directory containing the VERSION_PSF file)

Recommended Data

- An additional dataset: https://archive.stsci.edu/hlsp/reference-atlases can be used to provide more spectroscopic functionality (phoenix spectral models, normalization by HST bandpasses, among others).

Once untarred, the files will produce a directory tree of grp/redcat/trds. The pandeia.engine uses the contents of the trds directory.

Environment variable: `$PYSYN_CDBS` must point to the trds directory (NOT grp)

Verify Installation

Open up a terminal with access to the conda installation, and type

```
python -c "import pandeia.engine; pandeia.engine.pandeia_version()"
```

If properly installed and configured, it should show the refdata version and synphot data directory, like this:

```
Pandeia Engine version:  2.0
Pandeia RefData version:  2.0
Pysynphot Data:  /your/data/directory/synphot
```

Helper Script

The following script (which can also be added to your .bashrc or .bash_profile file) assumes you are operating in a BASH shell where a python installation has been installed and activated, that you've installed the pandeia refdata in `${HOME}/data/pandeia`, and the cdbs folder from the additional dataset moved and renamed to `${HOME}/data/synphot`

Installation script

```
#!/bin/sh
export PYSYN_CDBS=${HOME}/data/synphot
export pandeia_refdata=${HOME}/data/pandeia
```

Once in place, "`source`"ing this file will set up the pandeia environment.