APERO Documentation

Version 0.6.010

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Chapter 1

Installation

1.1 Prerequisites

APERO is tested with python 3

The following python modules are required:

```
astropy
matplotlib
numpy
scipy
```

The following python modules are recommended:

```
astroquery
barycorrpy
bottleneck
ipdb
numba
pandas
PIL
tqdm
```

1.2 Download from GitHub

1.2.1 Clone

Clone from github:

```
> git clone https://github.com/njcuk9999/apero-drs
```

This may take some time (in future most of the data required will be a separate download), and we still have many (now redundant) files from the spirou_py3 repository.

1.2.2 Choose branch

Change to the *apero-drs* directory

Choose which branch:

- **master version** This is the version currently recommended for all general use. It may not contain the most up-to-date features until long term support and stability can be verified.
  Change to this branch with:

```
> git checkout master
> git pull origin master
```

- **developer version** Note the developer version should have been tested and semi-stable but not ready for full sets of processing and definitely not for release for non-developers or for data put on archives. Some changes may not be in this version that are in the working version.
  Change to this branch with:

```
> git checkout developer
> git pull origin developer
```

- **working version** Note the working version will be the most up-to-date version but has not been tested for stability - use at own risk.
  Change to this branch with:

```
> git checkout working
> git pull origin working
```

1.3 Setup

1.3.1 Run the installation script

Change to the *apero-drs* directory

Run the installation script:

```
python setup/install.py
```

1.3.2 Step-by-step guide

Follow the step-by-step guide:

- A: User configuration path
  This is the path where your configuration will be saved. If it doesn't exist you will be prompted to create it. (This will be referred to as *DRS_UCONFIG* from now on (default is `/home/user/apero/`)
- B: Instrument settings
  Install *INSTRUMENT*. If yes it will install the instrument if not then it will not install the instrument. Currently only SPIRou is supported
- C: Set up paths
  The first question will ask whether to set up paths individually. If *[Y]es* it will allow you to set each path separately (i.e. for raw, tmp, reduced, calibDB etc). If *[N]o* you will just set one path and all folders (raw, tmp, reduced, calibDB etc)) will be created under this directory.
- D: Setting the directory/directories
  Will prompt you to enter the directory path/paths (will ask you for each if you answered that paths be set up individually in step C above.
- E: Clean install
  If you type [Y]es you will be prompted (later) to reset the directories this means any previous data in these directories will be removed. Note you can always say later to individual cases.

Warning: Resetting a directory will remove all files/sub-directories from within these folders

Note: A to E will repeat for all installable instruments (To step up just one use the *–instrument* argument

1.3.3 Additional options

One will be prompted to give installation paths to various optional tools (currently *ds9* and *pdflatex* note the user will not be prompted if these were automatically found using the *where* command)

1.4 Updating from github

1. Choose a branch (as in *Choose branch*)
2. Update the branch (pull from github):

```
> git pull origin {branch}
```

3. Update using the installation script:

```
> python setup/install.py --update
```

This will use all current settings and update the

Chapter 2

Using APERO

This section describes the process to use APERO.

Chapter 3

Known Issues

Currently known issues and problems with APERO.

Chapter 4

TODO

This is the currently list of items that need to still be completed.

Chapter 5

The recipes

These are all the standard recipes to use with APERO.

Chapter 6

The Tools

These are all userful tools to use with APERO.

Chapter 7

Developer guide

Below is a guide for those developping APERO for the current set of instruments and for future instruments.

7.1 Developer how to guide

The methodology and how things work in APERO.

7.1.1 Adding a new constant

7.1.2 Adding a new keyword

7.1.3 Adding a new recipe

7.1.4 Adding a new filetype

7.1.5 Adding a new plot

Chapter 8

Other

- genindex
- modindex
- search

8.1 Constants

DRS_UCONFIG
- The directory containing the users configurations files
- default is `/home/user/apero/`

INSTRUMENT
- This is the instrument used at a specific telescope. Some settings are instrument specific.
- Currently supported instruments are:: SPIROU

8.2 Glossary

ds9
- An astronomical imaging and data visualization application
- see ds9.si.edu

pdflatex
- The pdf latex compiler
- see www.latex-project.org