The SIMPLE interface for PACS processing and photometry

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NHSC

https://nhscsci.ipac.caltech.edu/sc/index.php/Pacs/Simple

Motivation for a simplified interface to PACS ipipe mapmaking scripts

- RAM needs force users from their desktops/laptops to remote machines

- Scripts require much editing depending on the science needs

- The user must perform many manual steps to complete their analysis

- HIPE has a steep learning curve

The SIMPLE interface has several key benefits

- User is guided through the options
  - Depending on science case

- Suitable for slow network connections to remote machines
  - Minimal graphics and editing scripts

- Concatenate several processing and analysis steps
  - E.g. data reduction and photometry

The implementation strategy can meet a wide range of user needs

- Controller script in Python
  - Can be local or (in future) on remote machine
  - Lightweight, easy to install
  - Scientific capabilities (ds9, AstroPy)
  - Easy to add GUIs or other data viewers
- HIPE on remote machine
  - NHSC handles installation
  - Virtualized: can freeze Java version, etc.
  - Data access is handled automatically
- Extends naturally to tools outside HIPE
  - 3rd party mapmakers
  - ds9, Sextractor, AstroPy, etc.

The current release 1.1.2 includes many capabilities

- Choice of mapmakers
  - High-pass filter
  - JScanam (extended emission)

- Choice of point source photometry
  - Single aperture on target position
  - Multiple apertures from user catalog
 - Automated detection and photometry

The current release 1.1.2 has some known issues

- ## High-pass filter pipeline
  - All masking modes not thoroughly tested

- ## JScanam pipeline
  - Pixel sizes not yet adjustable

- ## ds9 display can cause instabilities

SIMPLE now has a batch mode!

- First input: a parameter file from an interactive SIMPLE run

- Second input: comma-separated file of ObsIDs, one row per map

- Output: Maps and photometry for each row of ObsIDs

SIMPLE demo on Alpha Boo
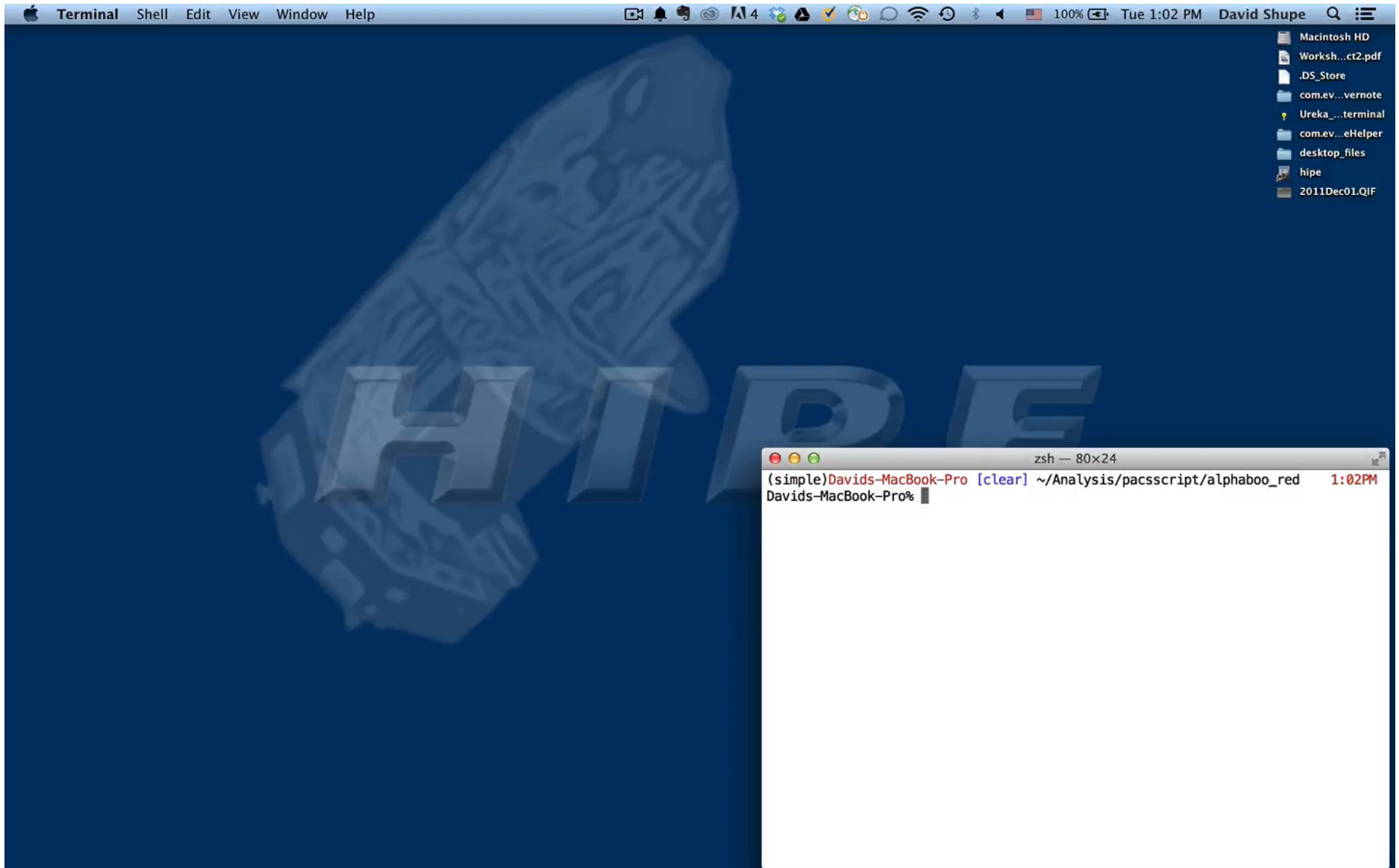
How to get SIMPLE

- NHSC remote computing account
  - See Remote Computing pages

- Install yourself
  - See SIMPLE page on NHSC site

- Vagrant virtual machine
  - (contact me; it's 5GB)

We'd love to have your input!

- Testing current capabilities

- Possible features
  - Web-form interface
  - PACS Spectroscopy modes