Phase2 ObsPrep

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the ObsPrep team

Agenda

- History
- Motivation
- Architecture
- Features
- Future developments

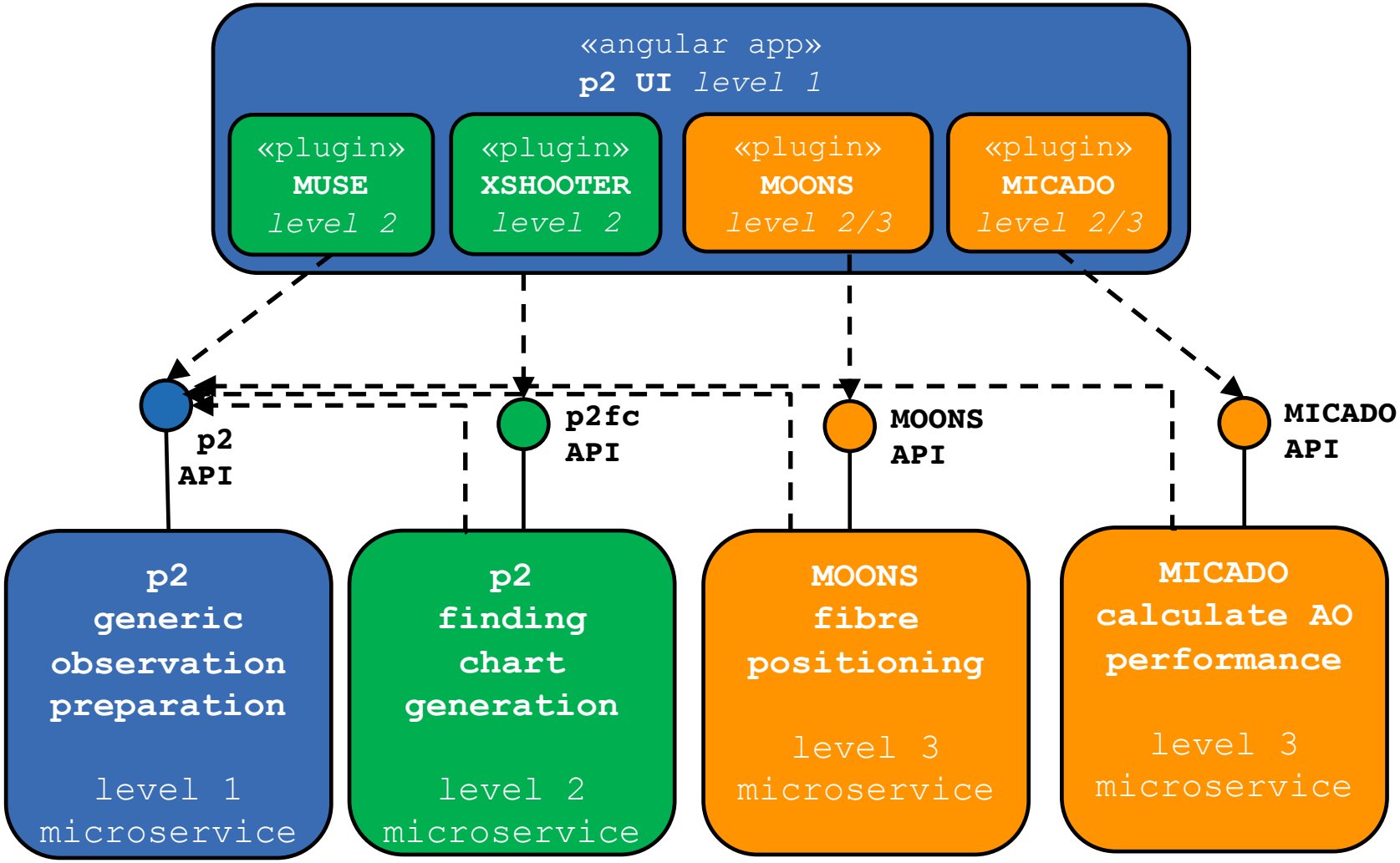
History

- Phase 2:
  - P2PP
    - v2: until 2007 (Paranal), 2019 (La Silla)
    - v3: 2007-2018 (Paranal only)
  - Web based p2: 2018 (Paranal), 2019 (La Silla)
- Observation preparation:
  - Dedicated versions of TCL/TK based GuideCamTool (VIMOS, PILMOS) until 2015
  - Unified GuideCamTool: (2015-2019)
  - Web based ObsPrep: 2019

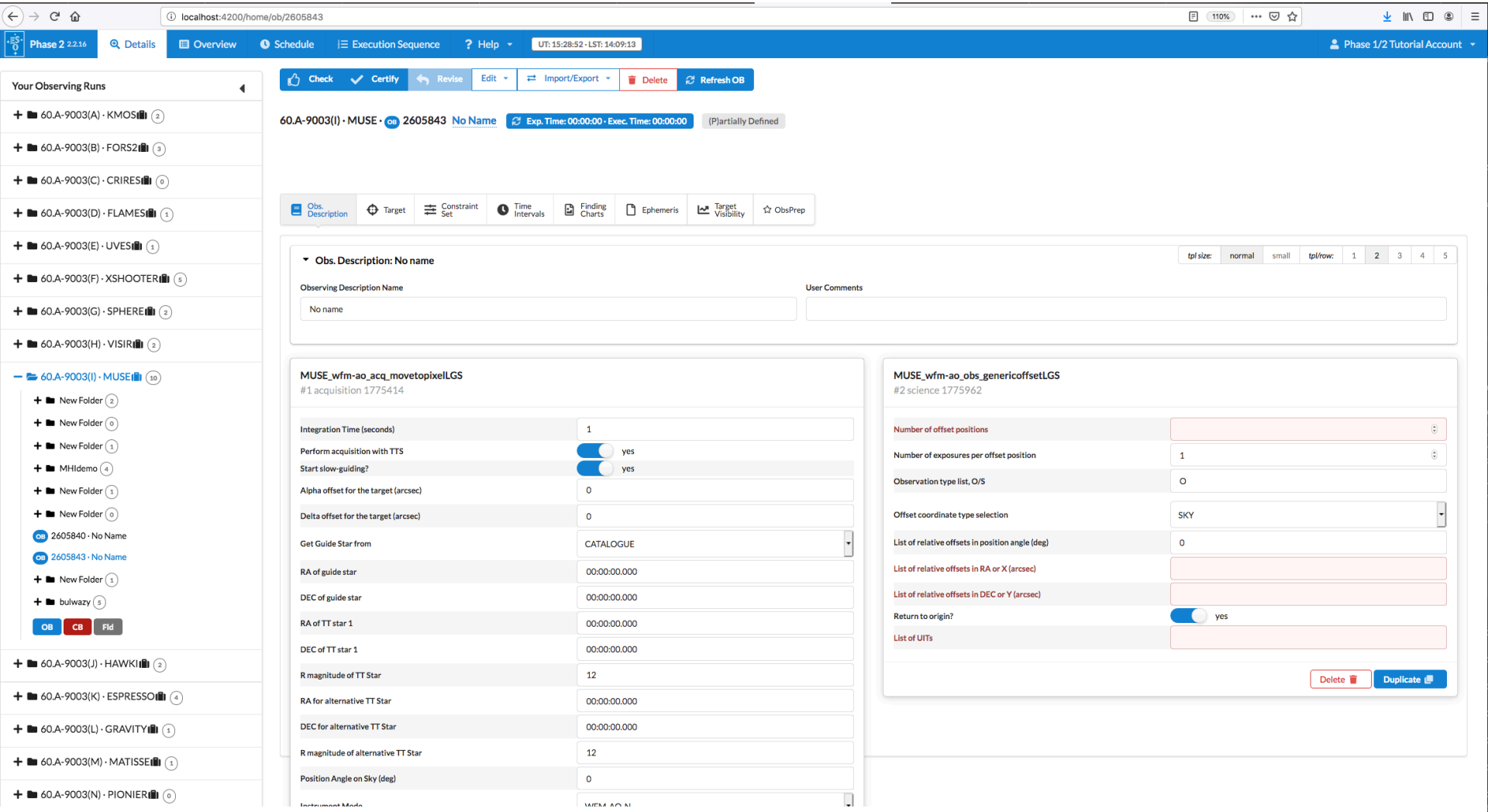
Motivation

- For the desktop tool:
  - Reduce the number of tools needed by the user
  - Harmonize observation preparation
  - Hide the specifics of the different instruments to the user
- For the web tool:
  - Improve user experience:
    - Integrated into p2, no need to go back and forth between two different tools
    - Homogeneous controls and conventions
  - No need to download desktop tools
  - We can transparently deploy new features and bugfixes

Architecture



P2: main interface



P2: ObsPrep UI

Obs. Description | Target | Constraint Set | Time Intervals | Finding Charts | Ephemeris | Target Visibility | ObsPrep

Pointing | Blind Offset | Observing Offsets | AO Stars | VLT Guide Stars

Field Center coordinates are not editable: enter the target coordinates in the Target tab.
If needed, fine-tune the pointing by changing the position angle and/or drag the field on the sky image.

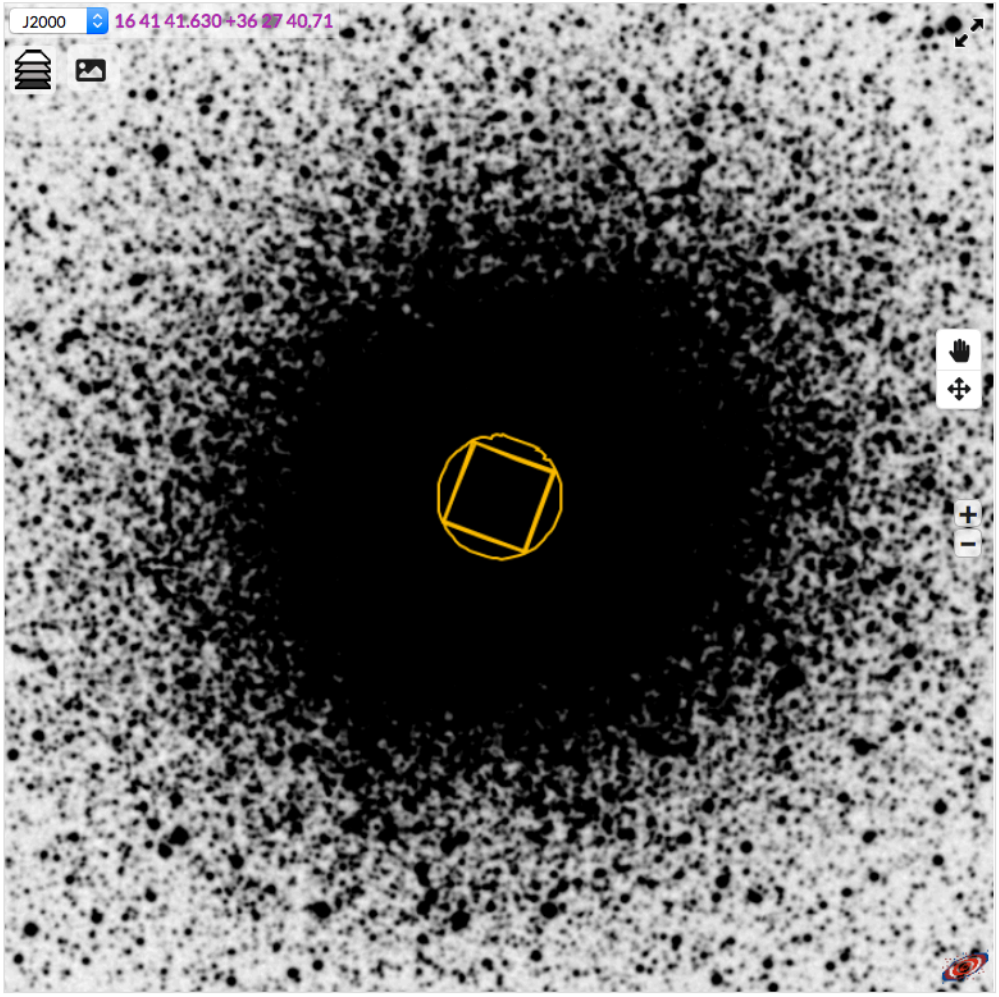
Field Center

Right Ascension: 16:41:41.630

Declination: 36:27:40.714

Position Angle

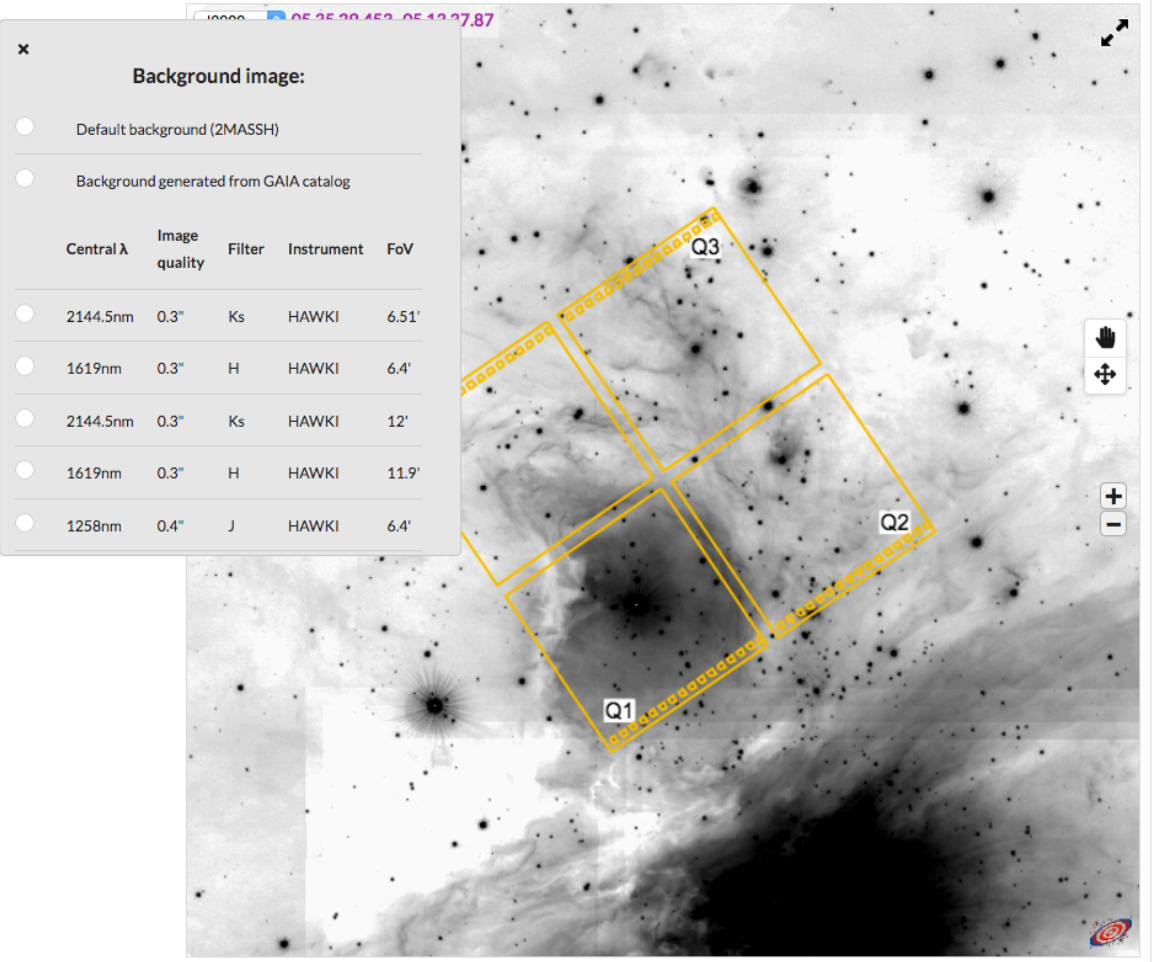
159.1

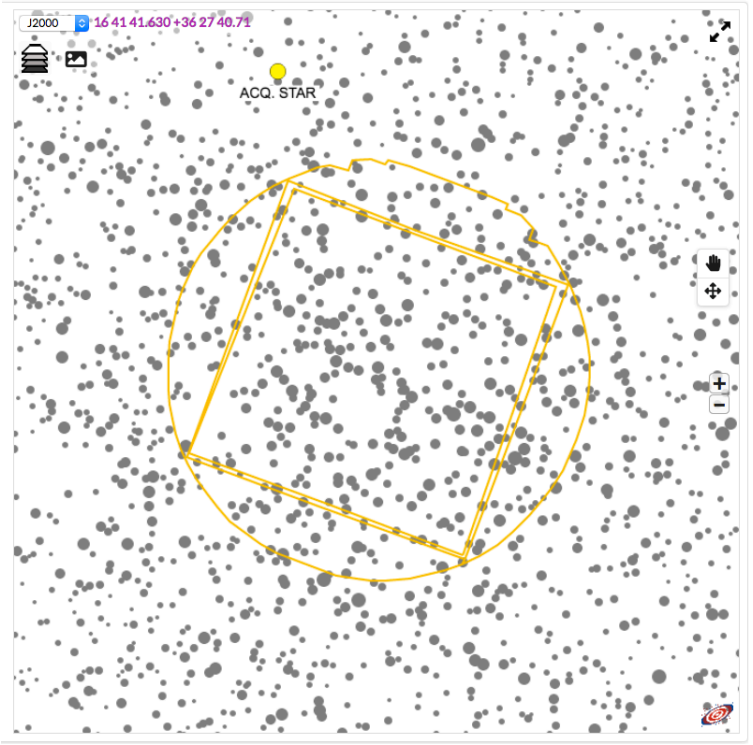


Features - Background

- Defined in the instrument configuration, can depend on the filter defined in the OB
- Standard surveys: DSS2, 2MASS
- Images from the ESO science portal
- Image generated from the GAIA DR2 catalog
- Image loaded from local disk

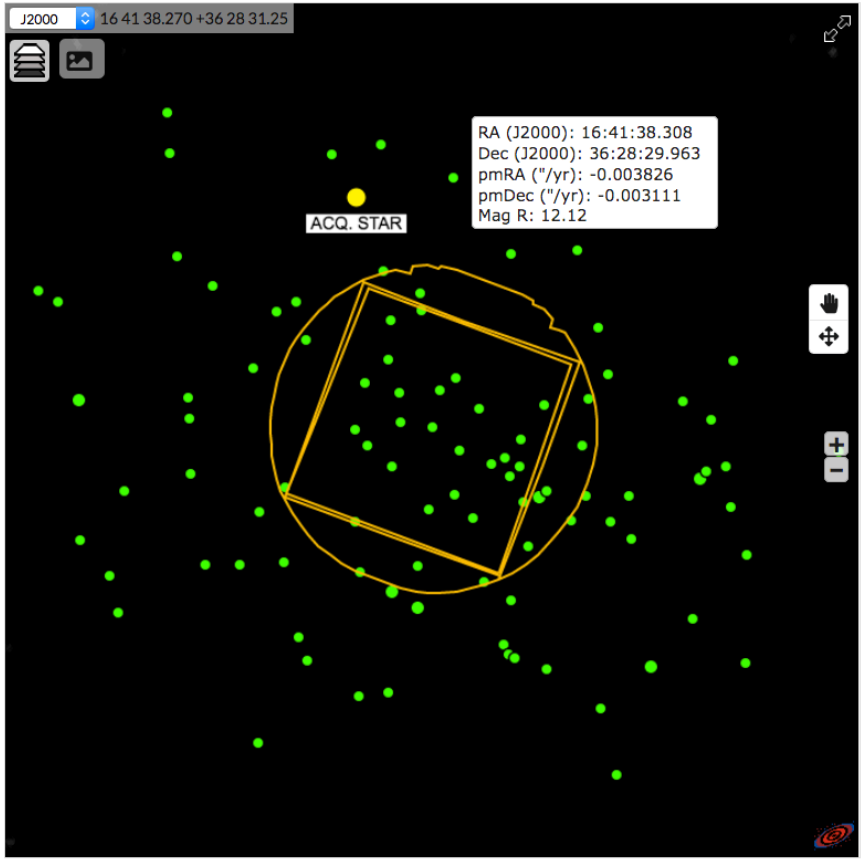
Background


Background image:
Default background (2MASSH)
Background generated from GAIA catalog
Central λ
Image quality
Filter
Instrument
FoV
2144.5nm 0.3" Ks HAWKI 6.51'
1619nm 0.3" H HAWKI 6.4'
2144.5nm 0.3" Ks HAWKI 12'
1619nm 0.3" H HAWKI 11.9'
1258nm 0.4" J HAWKI 6.4'
Q3
Q2
Q1


J2000
16 41 41.630 +36 27 40.71
ACQ. STAR

Object selection

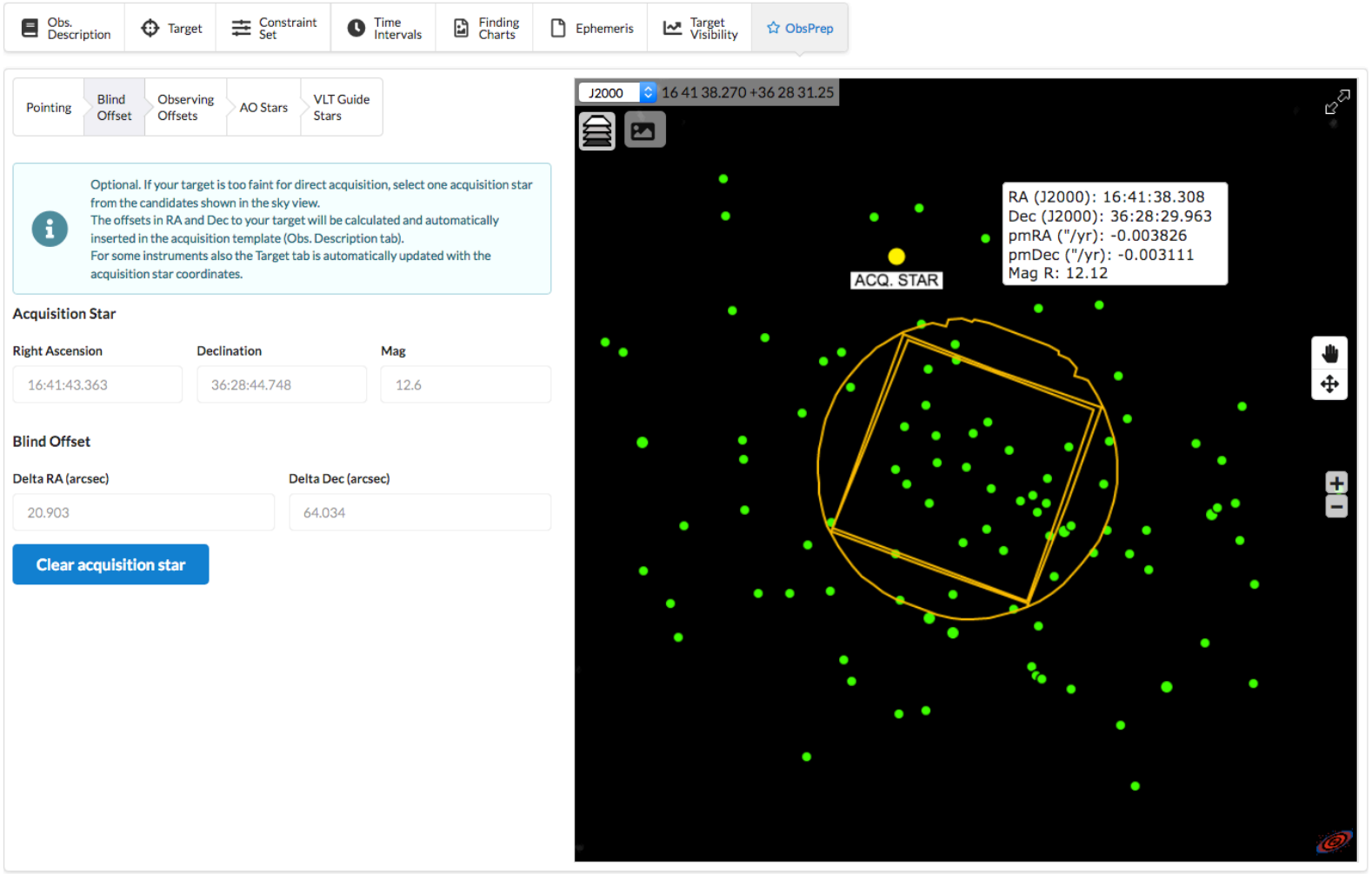
- Stars (TTS, NGS, acquisition star…) can be selected from a catalog
- GAIA DR2 is currently used for all queries
- Magnitude ranges are instrument and OB dependent



Proper motion

- All coordinates (Target, TTS, NGS…) are corrected with the proper motion, if present.
- The coordinates are calculated at the middle of the planned observing period.
- The tool saves the corrected coordinates, and calculates all the offsets based on them.

Blind offset



Observing Offsets

Obs. Description | Target | Constraint Set | Time Intervals | Finding Charts | Ephemeris | Target Visibility | ObsPrep

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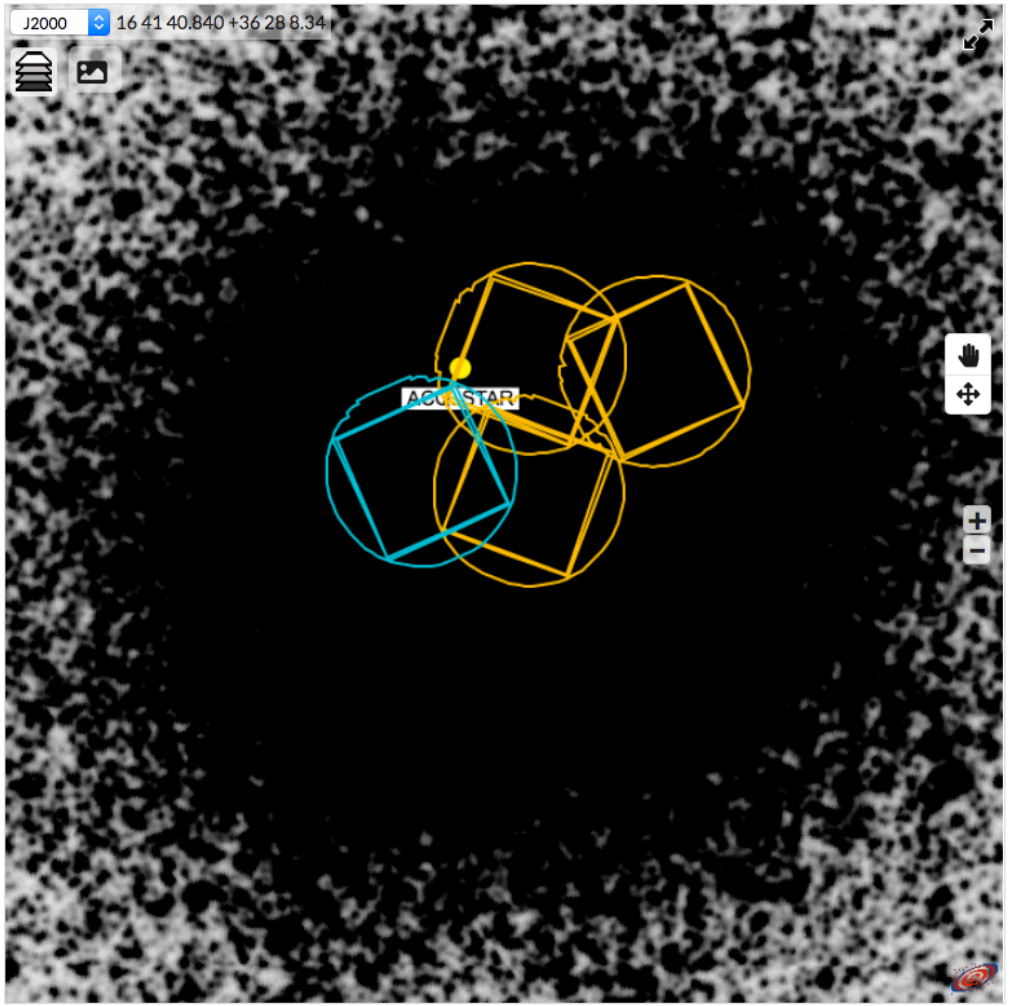
Optional. Select a science template to visualize and specify observing offsets.
Updated offsets are automatically inserted in the corresponding science template.

#1 MUSE_wfm-ao_obs_genericoffsetLGS

Sky coordinates Detector coordinates

RA	Dec	Rotation	Type
-11.155	5.628	0	O
50.317	9.115	45	S
-52.002	53.021	45	O
-58.763	-5.412	45	O
		0	O



Adaptive optics

Obs. Description | Target | Constraint Set | Time Intervals | Finding Charts | Ephemeris | Target Visibility | ObsPrep

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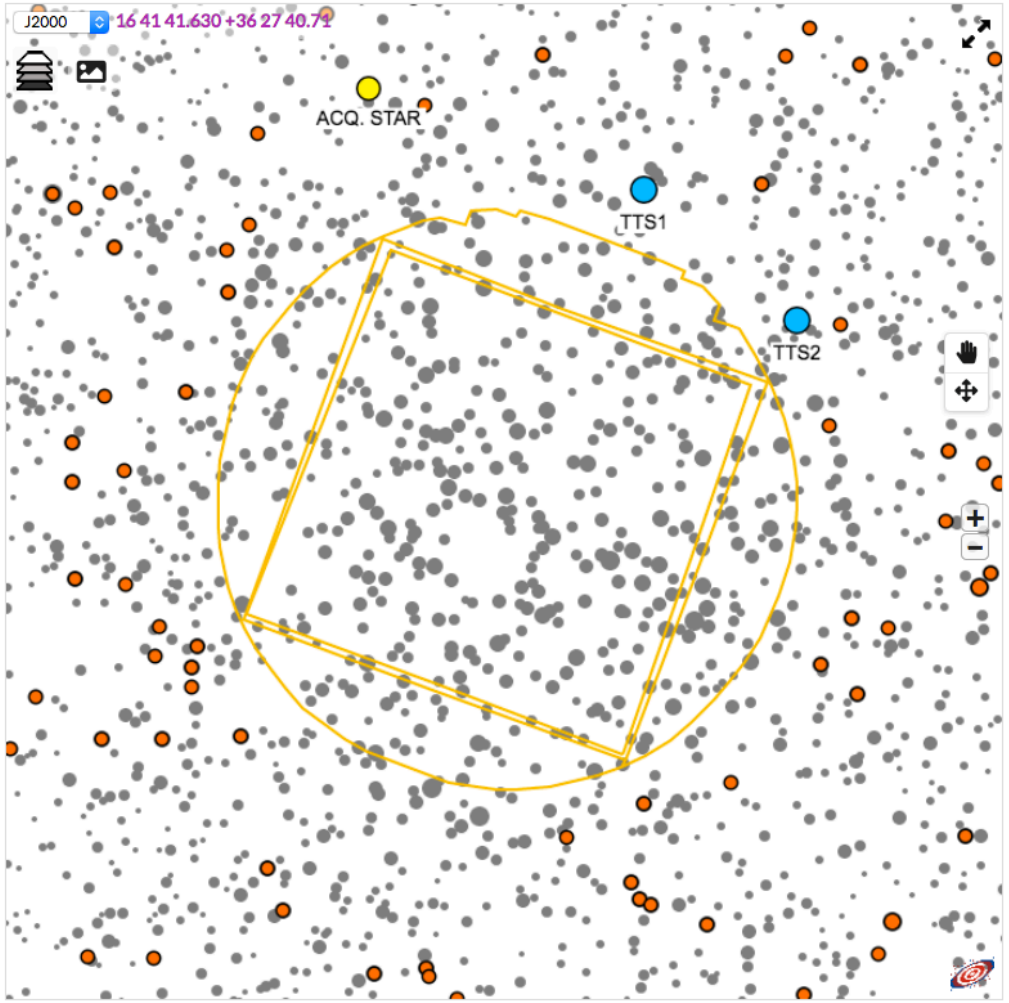
Select one or two TTS stars from the candidates shown in the sky view.

RA	Dec	Mag R	
16:41:39.827	36:28:29.027	11.67	✖
16:41:37.847	36:28:08.829	12.46	✖



VLT guide stars

Obs. Description | Target | Constraint Set | Time Intervals | Finding Charts | Ephemeris | Target Visibility | ObsPrep

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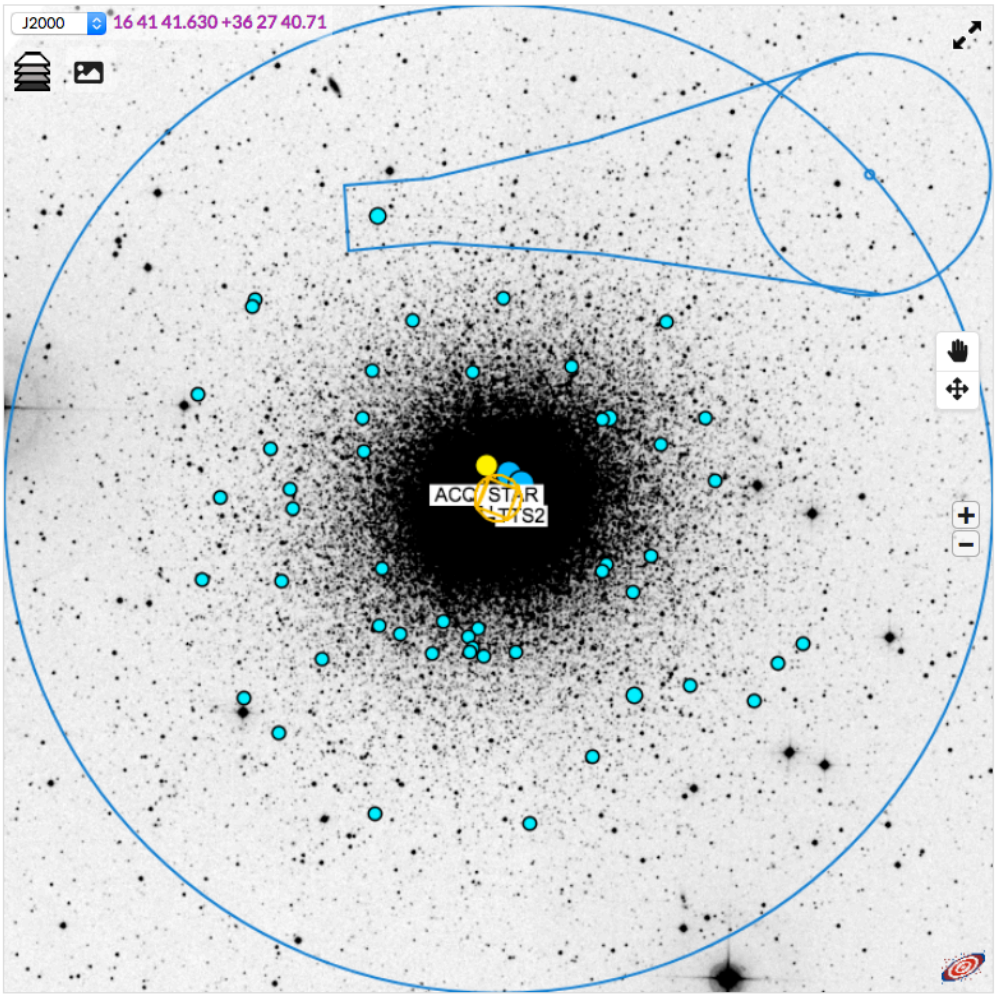
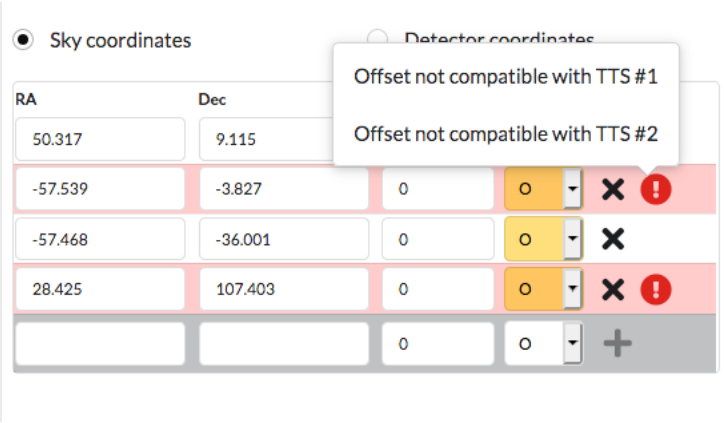
Optional. Select one VLT guide star from the candidates shown in the sky view. Make sure your science field is not vignetted by the guide probe arm (change position NEG to POS if needed).

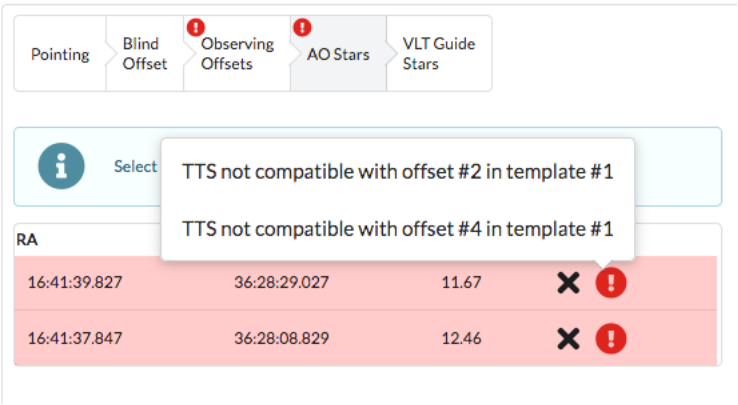
RA	Dec	Mag R	Position	
16:42:01.064	36:36:50.491	11.43	NEG	✖



Validation

- The tool verifies that:
  - The blind offset is compatible with the VLT GS
  - The observing offsets are compatible with the VLT GS
  - The observing offsets (object) are compatible with the TTS/NGS





Customization

- The vast majority of parameters is configurable and can depend on the Instrument/OB/template:
  - Magnitude to be queried for TTS/NGS/acquisition stars
  - Search radius (area) for TTS/NGS/acquisition stars
  - Offset conventions
  - Template keywords
  - …
- There is no concept of instrument mode
- Instrument specific features can be added in dedicated tabs:
  - MOONS: fiber positioning
  - MICADO: AO performance

Supported instruments

- **MUSE**
- **HAWK-I**
- X-SHOOTER
- ESPRESSO
- UVES
- **VISIR**
- CRIRES+ (commissioning)

Future developments

- 2020:
  - Finalize CRIRES+
  - Add support for ERIS
  - Implement the microservice infrastructure and integrate it with the tools from the consortia (MOONS)
  - Improve usability (user testing)
- 2021+:
  - Support for more VLT instruments (MOONS…)
  - Support for ELT instruments

https://www.eso.org/p2demo