# Astronomers Proposal Tool

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IMPRS Summer School, 04-08.09.2023, Heidelberg

# The JWST Astronomer's Proposal Tool

The **Astronomer's Proposal Tool (APT)** is used to specify proposed observations for JWST and submit them for consideration, by the Time Allocation Committee (TAC).

- The scientific justification PDF must be attached, at the bottom of the Proposal Information page, prior to submission.

**APT** is also a resource estimator.

- Need a resource estimate for the TAC.
- APT uses a system of overhead charges to make this resource estimate possible.

# APT Basics

- **Observation** – basic proposal design element specified by the user. Observations are divided into one or more visits by APT.
- **Visit** – set of exposures (included overheads) obtained on a single guide star without scheduling interruptions. (This is the scheduling unit.)
- **Observation Template** – GUI form filled out by the user.
- **Overhead** – charged time for operations activities performed by the observatory.
- **Graphical Timeline** – provides a visual display of overheads for each visit.
- **Visit Planner** – checks the schedulability of an observation (including guide star availability).
- **Smart Accounting** – updates the full proposal's resource estimates and remove excess overheads prior to submission.

# How to start?

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9 errors & warnings (Click for Details)

# What is an APT Observation?

- User specified
- Single observing mode (template)
- All parameters for exposures and scheduling requests

Additional Resource: [JDox Article: APT Observations]

# Special Requirements

- Additional constraints placed on specific observations.
  - Applied at the observation level.
  - Affects all visits within an observation
  - **Must be justified by the science goals**
- Can decrease scheduling availability

Additional Resources:

- JDox Article: APT Special Requirements
- YouTube Video Tutorial: APT Special Requirements

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- Implicit requirements: set by APT and reported for your information.
- Examples: Timing, Position Angle, Target of Opportunity, Background Limited, Offset, No Parallel

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# V3 Position Angle (V3PA) vs Aperture Position Angle (APA)

- V3PA is the observatory reference angle used by APT diagnostics and the scheduling system.
- APA is specific to each instrument, and is the PA (degrees east of north as projected onto the sky) of the reference axes shown as light blue arrows at left.

| Instrument | Offset Angle from V3 |
|---|---|
| NIRCam | 0.0° |
| MIRI | 4.45° |
| NIRISS | 0.57° |
| NIRSpec | 138.5° |

Additional Resource: [JDox Article: Position Angles, Ranges and Offsets]

# APT Visit Planner

- The APT visit planner performs a detailed check of the schedulability of the visits in observations, including target visibility, constraint checking, and whether guide stars are available.

- Diagnostic information is provided when scheduling checks fail. But interpreting this information can be tricky.

Additional Resources:

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- YouTube Video Tutorial: APT Visit Planner

# APT Visit Planner Diagnostics – Position Angle Problems

Note: all constraints windows need to have a window of schedulability at the same time.

# APT Visit Planner Diagnostics – Position Angle Problems

Now it is schedulable!

# Other Useful APT Capabilities

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Important: to revise a label to provide clear tracking within your proposal.

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Cycle
BROKE...
Reset to Draft...
Explain unschedulable observations
Supply Meteoroid Zone Justification
Science Time (hours)
10.95
Charged Time (hours)
16.01
Run Smart Accounting
Data Volume (MB)
15831.56
Request custom time allocation
Edit Previous
New
Edit Proposal Description
3 errors & warnings (Click for Details)

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POS TARG XY Axes
FoV
Single Aperture
Opacity
Coverage Circles
Orient Ranges
Grid
Apply Proper Motion to Epoch 2024.17
BOT Data
Labels
Load DSS
JWST GS
GS Check
Reset Orients
Color Map
Lock Context
Manage Proposal Changes
No Pending Changes
Clear Selected
Clear All
Commit Selected
Commit All
Graphically repositioning targets and exposures in Aladin creates pending changes which can be committed back to the proposal.
Note that when the Create POS TARGs button is toggled, an exposure will be offset from its target instead of moving the target.
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Commit All
JWST All Apertures
JWST Draft Proposal
Targets
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To: <05:35:27.52732 -69:16:10.3075>
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# Additional Resources for Help with APT

- JWST User Documentation Website https://jwst-docs.stsci.edu/, including
  - The JWST Astronomer's Proposal Tool Overview (and links therein)
  - Help with Individual APT Templates
  - Example Science Programs, each of which has a specific APT step-by-step guide.

- YouTube Tutorial Videos https://www.youtube.com/jwstobserver, and in particular, the Playlist of APT-specific Videos

- Context Sensitive Help within APT
  - Clicking on Blue headings within APT opens a browser and points to relevant JDox support information.