



JWST Master Class 2020

Astronomer's Proposal Tool Assignment

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The JWST Astronomer's Proposal Tool Assignment

The Astronomer's Proposal Tool (APT) is the application you will need to use to develop and ultimately submit JWST proposals. This Master Class assignment is intended to encourage you to explore and become familiar with the APT and its basic functionality. If you have followed our Getting Started Guide you should already have [APT downloaded and installed](#).

1. Getting Started

[Here](#) you can find video tutorials on YouTube for help with various aspects of APT. If you have never used APT before, you might want to watch the [APT GUI overview](#) video first.

To get started, open APT and go to File, JWST Demonstration Proposals and retrieve any of the offered examples. Explore the proposal and compare it to what you have learned in the video tutorial.

As you go through this exercise, you may see red Xs indicating "errors", many of which are simply currently missing information. You may enter dummy text in text boxes to make Xs disappear, or just select "legal" options. The point of this exercise is for you to learn basic APT functionality: for instance, do not worry about entering scientifically accurate information for exposure parameters in the templates (e.g. readout mode, groups and integrations) unless this is explicitly requested by the instructions below.

The bulk of your homework assignment is to create observations for the following 4 scenarios. Below each scenario, you will find pointers to JDOx and video help, but if

you have unresolved questions, use the [JWST Help Desk](#). It is suggested that you save your work frequently rather than waiting until the end of each exercise.

2. First Exercise

Create a mosaic using NIRCcam Imaging of the galaxy M51 and its companion:

- Use the Fixed Target Resolver in the Target section of APT to get the coordinates.
- Use Aladin to choose an orient that works well with the shape/orientation of the galaxy and its companion.
- Use Aladin to move the target from the center of M51 to the center of the galaxy pair and commit the coordinate change back into the proposal.
- Check the Visit Planner to see if your proposed observation is schedulable. For tracking purposes, change the title of the observation folder to be *M51 NIRCcam mosaic*.

3. Second Exercise

Create an observation of the Coma Cluster that uses NIRCcam Imaging with MIRI Imaging as a coordinated parallel.

- Use Aladin to choose a position and orient that simultaneously obtains a bright galaxy in the field of view of each camera.
- Check the schedulability of the observation.
- Label your observation folder *Coma Cluster with parallel imaging*.
- You might find the JDox page on [Coordinated Parallel Observations](#) useful.

4. Third Exercise

Create a MIRI MRS (Medium Resolution Spectrometer) observation of the central object of HH111 that uses the full MRS spectral coverage.

- Use Aladin to find a nearby star that can be used for target acquisition.
- Add this as a new target and specify it for the target acquisition.
- Assume that the observations are background limited and set the appropriate special requirement at a level of 20% of the lowest background.
- Check the schedulability.
- Label your observation folder *HH111 MIRI MRS spectroscopy*.
- You might find the [video on APT Special Requirements](#) and the [JDox page on special requirements](#) helpful.

5. Fourth Exercise

Create a NIRISS Wide-Field Slitless Spectroscopy observation of galaxy cluster Abell 370.

- Use a 3x3 mosaic to cover more of the galaxy cluster. Specify observations with both grisms.
- Check the schedulability.
- Label your observation folder *Abell 370 NIRISS WFSS*.
- You might find the [mosaic video](#) useful here. Additional information is available at the [JDox NIRISS WFSS](#) page.

Once you have these observations in your APT proposal and have saved it, you should review the proposal for any errors and warnings. Errors are shown as red Xs, and should be addressed before submitting any proposal. Warnings provide valuable relevant information, and while it is important to understand their origin, they need not be fixed before submission of your JWST GO proposal. You can find further information in this [APT video tutorial](#).

We hope you have enjoyed this APT exploratory journey!