Imaging Roadmap

This roadmap guides the reader, step-by-step, through the process of designing a JWST imaging observing program using NIRCam or MIRI.

> Note: NIRISS imaging is only offered for coordinated parallel observations. For this reason NIRISS links below are shown in parentheses.

Preliminary Considerations

1. Choose the instrument(s) suitable for your science based on needed wavelength coverage. NIRISS imaging may be obtained in parallel with NIRCam, offering sensitivity and wavelengths similar to NIRCam and extending the spatial coverage to a nearby area.
   Imaging Options
   Imaging Performance
   NIRCam Imaging (0.6–5.0 μm), NIRCam Imaging Recommended Strategies
   MIRI Imaging (5.6–25.5 μm), MIRI Imaging Recommended Strategies
   (NIRISS Imaging (0.8–5.0 μm), NIRISS Imaging Recommended Strategies)

2. Decide whether you will observe with multiple instruments simultaneously.
   Coordinated Parallel Observations
   Note: work through the steps below for the primary imaging instrument before adding the coordinated parallel observations, which may be imaging or some other allowed mode.

For each instrument you will use, proceed through the steps below.

Standard Imaging

1. Check the feasibility of your observations to achieve your science goals.
   NIRCam Imaging Sensitivity
   MIRI Sensitivity
   (NIRISS Imaging Sensitivity)

2. Select your wavelength coverage and filters.
   NIRCam Filters
   MIRI Filters and Dispersers
   (NIRISS Filters)

3. Consider areal coverage needed and whether mosaicking of the instrument field of view will be needed.
   NIRCam Mosaics
   MIRI Imaging Mosaics
   JWST APT Simple Mosaic Example
   Use the Aladin viewer in APT to view instrument fields of view on sky images.

4. Based on brightness of your target, determine whether a subarray is needed to avoid saturation. (Note: subarrays are not offered for the NIRISS imaging mode)
   NIRCam Bright Source Limits, NIRCam Detector Subarrays
   MIRI Bright Source Limits, MIRI Detector Subarrays

5. Select dithering strategy.
   NIRCam Dithers and Mosaics
   MIRI Dithering
   If proposing coordinated parallel observations, consider:
   Custom Dithers for Coordinated Parallel Observations

6. For selected instrument(s), calculate the required exposure times using the JWST Exposure Time Calculator (ETC).
   JWST ETC Imaging Aperture Photometry Strategy

7. Fill out the Astronomers Proposal Tool (APT) for your observation.
   NIRCam Imaging Template APT Guide
   MIRI Imaging Template APT Guide
   (NIRISS Imaging APT Template)

8. If adding coordinated parallel observations, now is the time to do that. See the separate Roadmap for coordinated parallels.

Go to the General Proposal Planning Workflow to complete the steps for proposal submission.