The ALMA Proposal Preparation Process

How to get started and what to expect

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This talk is for you if...

- You are new to ALMA and have not yet had experience with the relevant documentation...
- You have not downloaded the ALMA Observing Tool (OT) or even know where to get it.
- You have a fabulous science case that will be essential to follow-up with ALMA facilities...
- You would like examples of science use cases for ALMA
- You were familiar with past Cycles and wonder what Cycle 9 capabilities are now available and what changes will be made before the Call for Proposals.

This talk will be available online for reference after this workshop.
FINAL WARNING!!!!

THERE IS NO SUCH THING AS A “LATE” PROPOSAL

“My internet is down…”

“My proposal won’t validate…”

“My power went out…”

“I thought the time was 16UT not 15UT…”

“My dog at my proposal…”

There is no excuse for a late proposal UNLESS the Observatory grants an extension.
Proposal Checklist

• Read relevant documentation (CfP, Guide, Primer, etc.)
• Create an ALMA account by registering at the Science Portal (almascience.org)
• Download the Observing Tool (OT) & related guides
• Prepare the Science Case
  • New capabilities for Cycle 9!
• Prepare Science Goals (sources, frequency & correlator setup, integration times) within the OT
• Make use of the Helpdesk & the Knowledgebase
Cycle 9 Documentation & Timeline

- Call for Proposals
- Proposer’s Guide
- ALMA Primer
- OT Guide
- ALMA Technical Handbook

Timeline for Cycle 9
- 24 Mar – Call for Proposals
- 21 Apr – Proposal Deadline
- August – Results to PIs
- Oct. 2022 – Start of Cycle 9
- Sept. 2023 – End of Cycle 9
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ALMA Science Portal @ NRAO

www.almascience.org

The ALMA Science Portal is a one-stop source for information and tools aimed at the scientific community as a whole, including proposers, archive researchers, ALMA staff, journalists, and funding agencies.

Quick Links

ALMA Basics

ALMA Cycle 9 Proposal Workshop @ Yale
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Select the Installer or Tarball
Installer will automatically update if there is a new version of the OT pushed out.

Downloading the ALMA OT

The ALMA Observing Tool (OT) is a Java desktop application used for the preparation and submission of ALMA Phase 1 proposals and, for those which are accepted, Phase 2 materials (Scheduling Blocks). It is also used for preparing and submitting Director’s Discretionary Time (DDT) proposals and Supplemental Call (ACA stand-alone) proposals. The current Cycle 8 2021 release of the OT is configured for the present capabilities of ALMA as described in the Cycle 8 2021 Call For Proposals and the Cycle 8 Supplemental Call. Note that in order to submit proposals you will have to register with the ALMA Science Portal beforehand.

Download & Installation

The OT should run on all common operating systems and depends on a version of Java being available. In previous releases of the OT, it was the responsibility of the user to ensure that a suitable version of Java was installed, but the Cycle 8 version of the OT will come with its own version of Java 11 and thus the user need no longer worry about their local Java installation. Unfortunately, as Java 11 does not include Web Start, this version of the OT is no longer available. (Web Start remains available for the Cycle 7 OT currently used for the submission of DDT proposals.) The Cycle 8 OT can be installed in two different ways, either with a modern installer or manually with a tarball distribution.

It is recommended that the OT be installed using the ALMA OT Installer. This uses a modern graphical interface to report the progress of the installation and allows the user to change various settings from their defaults, including the amount of memory the OT may use. The installation will produce an executable file that can be used to start the OT. With the loss of Web Start, automatic updates of the tool are no longer possible, but the OT will detect if an update is available at start-up and inform the user. If problems are encountered with the installer, then the tarball must be used. The first release of the OT Installer in 2020 would not run on macOS Catalina due to security issues, but these have now been resolved and it should run correctly on all macOS releases, including Catalina and Big Sur.

The tarball version must be installed manually and the instructions for doing this have not changed.

Documentation

Extensive documentation is available to help you work with the OT and optimally prepare your proposal:

- If you are a novice OT user you should start with the OT Quickstart Guide, which takes you through the basic steps of ALMA proposal preparation.
- Audio-visual illustrations of different aspects of the OT can be found in the OT video tutorials. These are recommended for novices and advanced users alike.
- More in-depth information on the OT can be found in the User Manual, while concise explanations of all fields and menu items in the OT are given in the Reference Manual. These two documents are also available within the OT under the Help menu.

Troubleshooting

If you have problems with the OT, particularly with installation and/or startup, please see the troubleshooting page. A list of currently known bugs, their status, and possible workarounds can be found on the similarly updated known OT issues page. A further source of
OT Video Tutorials

Note: the videos presently only play in the Firebox browser. We are working on a fix.

The OT video tutorials provide an audio-visual demonstration of different aspects of proposal preparation in the OT. Novice users should start with the first video and work their way down, while more experienced users may want to jump straight to one of the special topics.

The video tutorials have not been updated for some time, but continue to be available in the hope that they might prove useful. Some new features, however, will not be covered and the appearance of the OT will have undergone some changes.

OT Video Tutorial 1: Useful to Know

This video will help you get started with the OT and introduce you to some handy tips and tricks. Topics covered include navigating the OT, using the help function, the template library, time estimation, validation, opening & submitting projects including re-submission.

OT Video Tutorial 2: Cycle 9 Proposal Workshop @ Yale

ALMA Cycle 9 Proposal Workshop @ Yale
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Science Case

Must include:
- Astronomical Importance
- Estimated intensity, S/N

May include:
- Figures
- Tables
- References

Free-form PDF document
- 12+ font, English only! (OT will check for font size)
- 20 MB file size
- 4 pages (6 for Large Programs)
Dual-Anonymous Proposal Review Guidelines:

- Do not identify the PI or any of the co-PIs or co-Is in the proposal.
  - Figure 1 shows the image from our Cycle 7 ALMA program (2019.1.02045.S, PI Smith).
  - Figure 1 shows the data from a ALMA Cycle 7 program (private communication).

- Proposers should use third person or neutral wording when referencing their own work.
  - In Smith et al. (2018), we demonstrated…
  - As demonstrated in Smith et al. (2018)…

- Do not refer to data from ALMA or other observatories in a self-identifying fashion. If data from a project have been published, then a reference to that publication may be used. Unpublished data can be referenced as private communication or by listing the project code, but a PI name cannot be listed.
  - Figure 1 shows the CO image of the cloud from Chang et al. (in preparation)
  - Figure 1 shows the CO image of the cloud (private communication).
  - This is a resubmission of our ongoing Cycle 7 program 2019.1.02045.S (PI: Smith).
  - This is a resubmission of our ongoing Cycle 7 program.
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New Capabilities for Cycle 9

- Solar total power regional mapping in bands 3, 5, 6, and 7
- VLBI continuum observations in Band 7
- VLBI spectral line observations in Band 3 with one spectral window fixed on the 86 GHz SiO maser line
- High frequency + long-baseline observations, including Band 8 in 12m configurations up through C43-10, Band 9 in configurations up through C43-9, and Band 10 in configurations up through C43-8
Cycle 9 Capabilities - I

- **Antennas:** 43+ in the 12-m Array; ten 7-m antennas; three 12-m total power, spectral line antennas in the ACA

- **Receiver bands:** 3, 4, 5, 6, 7, 8, 9, 10
  - (wavelengths 3.1, 2.1, 1.5, 1.3, 0.87, 0.74, 0.44, 0.35 mm)

- **Maximum baselines/largest 12m array configurations:**
  - 16.2 km (bands 3–8), 13.9 km (band 9), 8.5 km (band 10)
  - C43-10 (bands 3-8), C43-9 (band 9), C43-8 (band 10)

- **Spectral line, continuum, and mosaic observations:**
  - Spectral line and continuum observations with the 12-m and 7-m Arrays in all bands
  - Single field interferometry (all bands) and mosaics (Bands 3 - 9) with both the 12-m and 7-m arrays
  - Single dish (total power) spectral line in Bands 3 - 8
Cycle 9 Capabilities - II

- **Polarization**
  - Single pointing, on-axis, full linear or circular polarization for continuum and full spectral resolution observations in Bands 3-7 on the 12-m Array
  - Linear polarization near on-axis imaging in continuum and full spectral resolution modes at the 0.1% (3σ) fractional polarization level with the very brightest calibrators and 0.2% (3σ) level for a typical observation
  - Minimum detectable circular polarization 1.8% of peak flux for both continuum & full spectral resolution observations
  - Mosaicing of continuum linear polarization observations in Bands 3 to 7
  - Single pointing on-axis linear polarization in Bands 3-7 with the standalone ACA (ACA + 12m pol not available)
Cycle 9 Capabilities - III

The following capabilities were introduced in Cycle 8-2021:

• Solar observations in Band 5
• Phased array mode for
  – VLBI on faint science targets having < 500 mJy in an unresolved core at ALMA, on baselines up to 1 km with a known bright phase calibrator within 5°
  – Band 3-only phased array .P projects (pulsars)
• HF Band 9 and 10 observing with the standalone 7-m Array
• Mosaicking continuum lin. pol. in bands 3-7 with 12m Array
• Spectral scans with the 7-m Array including standalone ACA
• A step toward astrometry “enhanced positional accuracy”
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Click here to make sure that your project can be validated by the OT. If it won’t, you will not be able to submit it.

When you are satisfied that your proposal is complete, click here to submit your project to the ALMA Archive.
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After submission

• Remember, you can resubmit as often as needed, but keep in mind that the server is quite busy right before the deadline

• Distributed peer review will be used for all proposals requesting less than 50 hours on the 12-m Array, and ACA stand-alone proposals requesting less than 150 hours on the 7-m Array.

• In this review system, for each submitted proposal the PI (or one of the delegated co-Is) will be responsible for reviewing up to 10 other submitted proposals, thus increasing the involvement of the ALMA community in the review process – if you don’t submit reviews, YOUR proposal will be rejected!

• Large proposals will be reviewed by science review panels, as in previous cycles.

• All proposals will be subject to Technical Assessment by a selected group of JAO and ARC experts.
Proposals will be assessed on the basis of the overall scientific merit of the proposed investigation and its potential contribution to the advancement of scientific knowledge.

Following approval by the Directors Council, the outcome of the Proposal Review Process will be communicated to the PIs of all valid submitted proposals - expected around August 2022.

Any change requests need to go to the Helpdesk, and possibly a formal change request

Being prompt helps ensure your project can be observed!

Then wait – dynamic scheduling means your Contact Scientist doesn’t know when your project will run. As observations are made, updates are shown in the SnooPI tool on the Science Portal:

https://almascience.nrao.edu/observing/snoopi
www.almascience.org

ALMA Science Portal @ NRAO

ALMA Cycle 9 Proposal Workshop @ Yale
I could use a hand...

Have no fear, the ALMA Helpdesk is here...

Atacama Large Millimeter/submillimeter Array
Observer Support

ALMA Science

Help Center > Knowledgebase > TOO

Knowledgebase

- General (1)
  - What Cycle 8 proposal issues and clarifications should I be aware of?

- Proposal Handling (7)

- ALMA Observing Tool (OT) (47)
  - What are the restrictions on multiple spectral setups within a..."...
  - Can I set up monitoring observations with the OT?
  - How do I change which sideband my spectral windows are placed in?
  - How do I set up a mosaic in the OT?
  - How do I convert flux measurements given in Jy km/s or K km/s..."...

View all articles in General

View all articles in ALMA Observing Tool (OT)

ALMA Cycle 9 Proposal Workshop @ Yale
For “Face-to-Face Visit” – try the new “ALMA Chats” option which is more than a ticket but less than a full virtual f2f visit!
Submit Helpdesk Ticket

Please complete this form and one of our agents will reply to you by email as soon as possible.

Name *
Anthony Remijan

Email
aremijan@nrao.edu

Cc

Department *
Select

- Project Planning (NA)
- General Queries (NA)
- Face to Face Support (NA)
- Data Reduction (NA)
- Observing Tool (NA)
- Proposal Handling (NA)
- Archive and Data Retrieval (NA)

Proposal Submission Emergency

Choose files or Drag and drop

Submit  Reset

ALMA Helpdesk @ NRAO (logged in view)
help.almascience.org
The Atacama Large Millimeter/submillimeter Array (ALMA), an international astronomy facility, is a partnership of Europe, North America and East Asia in cooperation with the Republic of Chile. ALMA is funded in Europe by the European Organization for Astronomical Research in the Southern Hemisphere (ESO), in North America by the U.S. National Science Foundation (NSF) in cooperation with the National Research Council of Canada (NRC) and the National Science Council of Taiwan (NSC), and in East Asia by the National Institutes of Natural Sciences (NINS) of Japan in cooperation with the Academia Sinica (AS) in Taiwan. ALMA construction and operations are led on behalf of Europe by ESO, on behalf of North America by the National Radio Astronomy Observatory (NRAO), which is managed by Associated Universities, Inc. (AUI), and on behalf of East Asia by the National Astronomical Observatory of Japan (NAOJ). The Joint ALMA Observatory (JAO) provides the unified leadership and management of the construction and operation of ALMA.

For more info:
https://almascience.nrao.edu/
The National Radio Astronomy Observatory is a facility of the National Science Foundation operated under cooperative agreement by Associated Universities, Inc.