# Instruction of ALMA Observing Tool

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## almascience.org → Tools



### almascience.org

- $\rightarrow$  Tools
- → Observing Tool
- $\rightarrow$  Installer

In this page,

(~6 min)

**Quickstart Guide** 

Video tutorials

User Manual.



### **Observing Tool**

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. 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. 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.



Site Map Accessibility Contact Privacy Statement

## almascience.org

- $\rightarrow$  Tools
- $\rightarrow$  Observing Tool  $\rightarrow$  Installer  $(\rightarrow Mac OS)$

Installer) almaot-C8-2021.zip Download may take 20-30 min...



ZIP

C8-2021.zip

almaot-C8-2021

### almaot-C8-2021 should run in Catalina and Big Sur as well.



Click on one of the links next to the OT Logo to download the Cycle-8 2021 OT Installer for your particular operating system. The Installer is an executable file which can be started by double-clicking in a file-manager window or started from a shell's command line. Once started, it will take you through a number of screens which, for example, allow you to change the default amount of memory available to the OT. In most cases you can just accept all the defaults using the 'Next' button and click 'Install' when you are happy.

After the Installer has finished, an executable file ('ALMA-OT.sh' on Linux and 'ALMA-OT.app' on Macs) should be found inside a directory named 'ALMAOT-C8-2021'. This can be run from the command line or by double-clicking in a file manager if this is configured in this way. We recommend that the name of this directory not be changed so that multiple versions of the OT (for use in different cycles) can be maintained on your computer. On Macs, a shortcut will be created on your Desktop with the name 'ALMAOT-C8-2021' - the OS will probably ask to control your Finder for this to happen.

### Additional Information

The Mac download is a zip archive which must first be opened in order to extract the installer. This will often be done automatically for you or a suitable program will be suggested ('Archive Utility').

### Cycle 8-2021 ALMA Observing Tool

### Choose Install Folder For the ALMA Observing Tool

### Choose Install Folder Fo...

- Pre-Installation Summary
- OT Resource Allocation
- Installing...
- Install Complete

Please choose a destination folder for this installation.

### Where Would You Like to Install?

inside "ALMAOT-C8-2021" in the folder "Applications" on the disk "Macintosh HD"



Restore Default Folder Choose...

Previous



Cancel

Help

Next

## Pre-Installation Summary

Choose Install Folder For ...
 Pre-Installation Summary
 OT Resource Allocation
 Installing...
 Install Complete

Please Review the Following Before Continuing:

Product Name: ALMAOT-C8-2021

Install Folder: "ALMAOT-C8-2021" in the folder "Applications" on the disk "Macintosh HD"

Disk Space Information (for Installation Target):Required:308.62 MegaBytesAvailable:130,421.7MegaBytes



Cancel

N

Previous



## OT Resource Allocation

Choose Install Folder For ...
 Pre-Installation Summary
 OT Resource Allocation
 Installing...
 Install Complete

Select the amount of working memory for the OT. Allocating 8GB of RAM or more will result in improved OT performance. If you are likely to be creating a complex project with lots of science goals or clusters, it is highly recommended that you allocate a larger amount of memory accordant with the amount of available memory on the host computer to prevent exhausting resources.

4 GB
 8 GB
 12 GB
 16 GB

Choose working memory

Previous

Install



Cycle 8-2021 ALMA Observing Tool

Choose Install Folder For ...
 Pre-Installation Summary
 OT Resource Allocation
 Installing...

Install Complete

ALMAOT-C8-2021 has been successfully installed to:

/Applications/ALMAOT-C8-2021

The OT can be started using the script /Applications/ALMAOT-C8-2021/ALMA-OT.app **Some permissions needed Click, "ok", "ok". Then, done.** 



Cancel





Previous

Install Complete

# ALMAOT-C8-2021 in Application & a shortcut in Desktop



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$\bigcirc$	Create a new DDT proposal
$\bigcirc$	Open an existing project from disk
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### Title

### Abstract

## **Proposal Type**

Scientific Category

Two Keywords (write)

Student project

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Select PI (science portal account needed)

Reviewer has a PhD? No  $\rightarrow$  Mentor name

Science case (attach a PDF file)

**Duplicate observation** 

Observatory Use Only



Just for you to distinguish science goals.

•••	ALMA Observing Tool (Cycle 8 2021 (MainCall-Phase1)) - Project	
<u>File Edit View Tool Search</u>	Help Perspective 1	
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### Load/export a file

Clone Source

<u>File Edit View Tool Search</u>	Help Perspective 1	
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## Spectral Type

- Line (default)
- Continuum
- Spectral Scan

## Polarization

- XX
- DUAL (defult)
- FULL

	Help Perspective
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Proposal Proposal Planned Observer Construction Planned Observer Planned Observ	Fraction     Centre Freq (rest,lsrk)     Centre Freq (sky,bath     Transition     Bandwidth, Resolution (smoothed)
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Case of "Spectral Line"

Add specific lines or frequencies manually .

### Create spectral windows centred on spectral lines

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• • •	ALMA Observing Tool (Cycle 8 2021 (MainCall-Phase1)) - Project
<u>File E</u> dit <u>V</u> iew <u>T</u> ool <u>S</u> earch	Help Perspective 1
Project Structure Proposal Program Insubmitted Proposal Project Proposal Proposal Planned Observice ScienceGoal General Field Set Spectral Calibrati	Editors         Spectral       Spatial       Calibration Setup         Select calibration strategy.       Goal Calibrators         Goal Calibrators       By default, calibrators will be selected automatically at runtime and a single observation will be used to calibrate the bandpass and flu: <ul> <li>System-defined calibration (recommended)</li> <li>System-defined calibration (force separate amplitude calibration using solar-system object)</li> <li>User-defined calibration</li> </ul>
- Control a	Astrometry If you wish positional accuracy that is better than that provided by default (see the Proposer's Guide for more information) then select e Standard positional accuracy (default) Enhanced positional accuracy DGC Override (observatory-use only)

## Usually the default is fine for Calibration Setup

						Time Estimate			
•••	ALMA Observing Tool (Cycle 8 2021 (MainCall-Phase1)) - Project					Note: The time in brackets is that required to reach the sensitivity. Operational requirements often mean that the actual observed time is longer, especially for mosaics. Please see the User Manual for more			
<u>File Edit View Tool Search</u>	<u>H</u> elp			Perspe	deta	uls.			
					Inpu	ut Parameters	1.000e-05 lv		
Project Structure					Banc	dwidth used for sensitivity	7.500 GHz		
Proposal Program	Spectral Spatial Control and	d Performance	Repr	resentative frequency (sky, first source)	228.992 GHz				
Unsubmitted Proposal	Spectral Spatial Control and		Most compact 12m	configuration Most autonded 12m conf	Esti	imated Total time for Science Goal	22.94 h		
e Project		ACA 7 m configuration	Most compact 12m	configuration Most extended 12m confi	Cluster 1				
Proposal	Longest baseline	0.049 km	0.161 km	8.548 km	Source N	Name RA Dec	Velocity		
🕈 🚍 Planned Observ	Synthesized beamsize	0.000 arcsec	0.000 arcsec	0.000 arcsec	tmcla	04:39:35.1936 25:41:44.725	0.000 km/s		
👇 💽 ScienceGoal									
- 🗋 General	Shortest baseline	0.009 km	0.015 km	0.113 km		Possible Configuration Combinati	ons		
- 🗋 Field Set	Maximum recoverable scale	0.000 arcsec	0.000 arcsec	0.000 arcsec	12-m (1)	12-m (2) 7-m TP Nominal Beam(")	Max expected		
		Check	the feasible ra	anges	C43-5 0	C43-2 Yes Yes 0.245 x 0.343	2.5		
- 🗋 Calibrati	Desired Performance	Check		angee					
	Largest Angular Structure Desired mosaic sensitivity <b>"Jy" is indepe</b> Bandwidth used for Sensiti Override OT's sensitivity-b	in source Undefin o.000 ondent of the b ivity Fines	arcsec to arcsec to arcsec arcsec a	arcsec ar	Input Pai Precipital Time req Time on 3 Total nun Number of Total time Total cali Other ove Total time	rameters ble water vapour (all sources) 1.796mm (5th Octile) quired for 12m (1) [C43-5] source per pointing (first source) 2.99 h [ 2.96 h] mber of pointings (all sources) 1 of tunings 1 e on source 2.99 h [ 2.96 h] bration time 2.15 h erheads 15.57 min e for 1 SR everytion 135 h Close	•		
	time estimate (must be just Science Goal time estimate (includes configuration and	stified) e d beam information)	e Estimate			From the resolution	n and		
	Simultaneous 12 m and A					LAS, OI decides o	ne		
	Simulaneous 12-m and A	CA Observations O Yes				10 m configuration	and		
	Are the observations time-	-constrained? Ves	NO NO			12-m conliguration	, anu		
	▲ 	II				if necessary, anoth m 7-m and Toal P	er 12- ower		
Overview									

• • •	ALMA Observing Tool (Cycle 8 2021 (MainCall-Phase1)) - Project	_
e <u>E</u> dit <u>V</u> iew <u>T</u> ool <u>S</u> earch		Perspective 1
ject Structure roposal Program ubmitted Proposal Project Proposal ScienceGoal General Spectral Calibrati Control a Technica	Editors         Spectral       Spatial       Technical Justification         Enter a Technical Justification for this Science Goal, paying special attention to the parameters reproduced below.         Sensitivity         Requested RMS over       Is         For a peak flux density of       , the S/N is         Achieved RMS over the total       bandwidth is         For a peak line flux of       , the achieved S/N over 1/3 of the source line width ( [ / 3 = ] ) is         Note that one or more of the S/N estimates are < 3. Please double-check the RMS and/or line fluxes entered and/or are	S/N is ] dress the iss
	Imaging Ima	

Technical Justification

Sensitivity (velocity resolution for the calculation)

Angular range

Velocity resolution and total width

and special request



File

ALMA Observing Tool (Cycle 8 2021 (MainCall-Phase1)) - Project

?

New Proposal New DDT Proposal

Edit View Tool Search Help

D

Open Project from Disk Open Project from ALMA Archive Save Project to Disk

Q

**New Science Goal** 

Sensitivity Calculator Display Project Time Summary

Validate Go to previous Problem Go to next Problem

Contextual Help

			Sen	SIL	vity Calculato	)r					
Common Parar	meters										
		Dec		1	00:00:00.000						
	1	Polarization			Dual				-		
		Observing Frequency		3	GHz GHz			-			
		Observing Band			ALMA_RB_07				-		
	1	Bandwidth per Polarization		n 7	.50000	GHz			-		
	1	Water Vapour Column Density Trx, tau, Tsky Tsys			Automatic Choice      Manual Choice						
					0.913mm (3rd Octile)						
	1				72 K, 0.158, 39.538 K 153.278 K						
	5										
Individual Para	meters	5									
		12m Array 43			7m Array			Total Power Array			
Number of Ant	ennas				10			3			
Resolution	Resolution Sensitivity (rms) (equivalent to)	0.00000	arcsec	•	0.00000	arcse	•	16.9	)	arcsec	
Sensitivity (rms		0.00000	ųJy	•	0.00000	uJy	-	0.00000		uJy K	•
(equivalent to		Unknown	К	•	Unknown	К	-				
Integration Tim	ne	60.00000	s	•	60.00000	s	-	60.0	0000	s	1
					Integration	Time Uni	t Opti	on Au	tomatic		-
					Sens	itivity Uni	t Opti	on Au	tomatic		•
	Ca	lculate Integrati	on Time	]	Calculate	Sensitivity	,		Close		
	-			1				-			
itivity Calcula	tor										

Please refer to the numbers in "Control and Performance".

