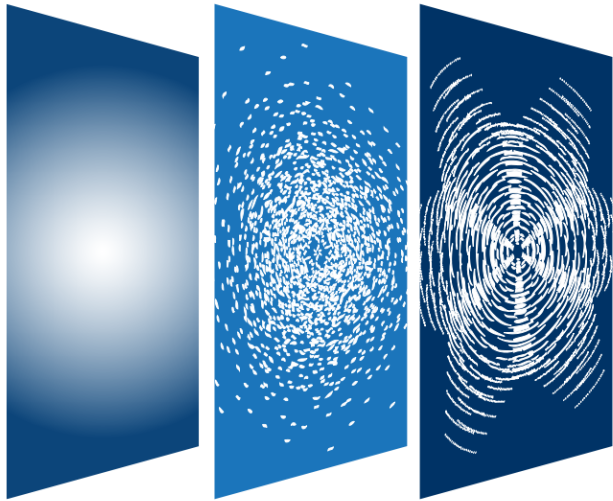


Installing CASA

Stefanie Mühle
April 2020

The background of the slide features several thick, light gray, wavy lines that flow from the bottom left towards the top right, creating a sense of movement and depth.

What is CASA?



CASA

Common Astronomy
Software Applications

- software for data reduction and analysis of *next generation* radio astronomical data
- Tools written in C++
- interactive iPython interface
- developed by **NRAO (USA)**, ESO (Europe), NAOJ (Japan), ASIAA (Taiwan), CSIRO (Australia), ASTRON (Netherlands)

Installing CASA



National Radio Astronomy Observatory
Enabling forefront research into the Universe at radio wavelengths



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1) go to the CASA homepage:
<https://casa.nrao.edu/>

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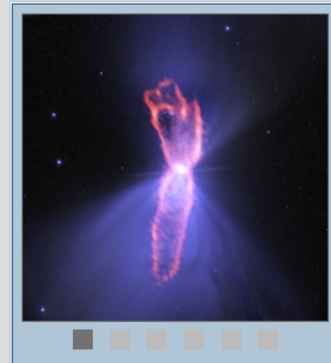
About CASA

CASA, the *Common Astronomy Software Applications* package, is being developed with the primary goal of supporting the data post-processing needs of the next generation of radio astronomical telescopes such as [ALMA](#) and [VLA](#). The package can process both interferometric and single dish data. The CASA infrastructure consists of a set of C++ tools bundled together under an iPython interface as data reduction tasks. This structure provides flexibility to process the data via task interface or as a python script. In addition to the data reduction tasks, many post-processing tools are available for even more flexibility and special purpose reduction needs.

CASA is developed by an international consortium of scientists based at the National Radio Astronomical Observatory (NRAO), the European Southern Observatory (ESO), the National Astronomical Observatory of Japan (NAOJ), the Academia Sinica Institute of Astronomy and Astrophysics (ASIAA), the CSIRO division for Astronomy and Space Science (CASS), and the Netherlands Institute for Radio Astronomy (ASTRON) under the guidance of NRAO.



Common Astronomy
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2) go to the section “Download” and scroll down ...

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News

Feb 19, 2020: A new CASA 5.6.2-3 patch is available for use with the VLA pipeline. The previous version CASA 5.6.2-2 contained a bug in the VLA pipeline, where restoration of MSs (e.g., when restored through the new interface to the [NRAO archive](#)) produced incorrect results between Oct 21 2019 and Feb 2020. All CASA functionality in CASA 5.6.2-3 is equivalent to that in CASA 5.6.2-2 and CASA 5.6.1-8. See [CASA Docs](#) for more information.

Dec 17, 2019: CASA 6 is now available for developers and power users. This CASA 6 version offers the CASA tools and tasks as modules for pip-wheel installation in Python 3. The tools and tasks in CASA 6 are in content the same as those in CASA 5.6.1. Not all GUIs are included in this first version of CASA 6. See the Section "CASA 6" below for details.

Dec 3, 2019: Catalina OSX 10.15 version of CASA 5.6.1 is now available. This 10.15 version is not officially supported by the CASA team, but it passed the standard tests, so it should work the same way as the OSX 10.14 version. This 10.15 version can be downloaded [here](#). More details are given in the section below on Supported Operating Systems.

Obtaining the CASA Release

Supported Operating Systems

The latest CASA release 5.6.1 is available for the following operating systems:

- Linux
 - Red Hat 7
 - Red Hat 6
- Mac OS X
 - macOS 10.14 (Mojave)
 - macOS 10.13 (High Sierra)
















CASA may also work on other flavors of Linux, but only the operating systems listed above are officially supported by CASA, because these we run regular tests on.

Installing CASA

Downloads

Please follow these links for download instructions. For Linux and Mac OS X, download instructions are provided, too. CASA *Pre-releases* are code snapshots and not well documented.

Alert for pipeline use: The ALMA pipeline is not yet scientifically validated for ALMA.

	CASA Release 5.6.1-8*	CASA Pre-releases	CASA containing ALMA pipeline 5.6.1-8**	CASA containing VLA pipeline 5.6.2-3***
Linux Packages	Installation			
Red Hat 7				
Red Hat 6				
Mac OS X Packages	Installation			
OS X 10.14 (Mojave)				
OS X 10.13 (High Sierra)				

* The CASA 5.6.1-8 version for general use is identical to the CASA 5.6.1-8 pipeline version that is used by the ALMA pipeline. Both links therefore point to the same casa-pipeline-release-5.6.1-8.x file, which has the VLA pipeline included. The CASA 5.6.1-8 version is also functionally equivalent to CASA 5.6.2-3, which contains two bug fixes relevant to the VLA pipeline.

** Pipeline version number 42866.

*** Not available for OSX 10.13. For manual processing, please use CASA 5.6.1-8.

DISCLAIMER:

CASA now collects usage statistics including task execution timings and crash reports. This data will be periodically sent

... to get the latest version for your operating system
Release = stable version
Pre-release = development version

Installing CASA

Hardware Requirements

Small detour: older CASA versions are available further down that same page

hardware, and a balanced configuration regarding
run CASA.

and ALMA data can be found on the [Hardware](#)

to raise the ulimit to avoid an error "too many open
to only raise the soft limit, but also the hard-limit,
users to set ulimit to at least 16384 for both the soft
in tclean.

Older Releases

CASA 5.6.1 ([Redhat 7](#) - [Redhat 6](#) - [MacOS 10.14](#) - [MacOS 10.13](#))

[RedHat 7 \(CASA 4.7-5.6.0\)](#)
[RedHat 6 \(CASA 4.3-5.6.0\)](#)
[RedHat 5 \(CASA 4.3 - 4.6\)](#)
[RedHat \(CASA <=4.2.2\)](#)

Linux users

[MacOS 10.14 \(CASA 5.5-5.6.0\)](#)
[MacOS 10.13 \(CASA 5.3-5.6.0\)](#)
[MacOS 10.12 \(CASA 5.0-5.4.2\)](#)
[MacOS 10.11 \(CASA 4.6-5.1.2\)](#)
[MacOS 10.10 \(CASA 4.4 - 4.7\)](#)
[MacOS 10.9 \(CASA 4.4 - 4.5\)](#)
[MacOS 10.8 \(4.3\); OSX 10.8 \(<=4.2.2\)](#)
[MacOS 10.7](#)
[MacOS 10.6](#)
[MacOS 10.5](#)

Mac users

- [Release information](#) previous casa versions

Other Links

[CASA Source Code](#) -- (Notes).

[Contributed CASA scripts](#)

















If you need additional help, please consult our [NRAO helpdesk](#) or [ALMA helpdesk](#)

Installing CASA

Downloads

Please follow these links for downloading the *current release* of the code for your specific operating system. Installation instructions are provided, too. Links to *previous releases* are given at the bottom of this page. CASA *Pre-releases* are code under development. Use with caution as the code is still undergoing changes, is less tested and not well documented.

Alert for pipeline use: The ALMA and VLA pipelines are included only in certain versions of CASA. Please ensure to download the correct CASA pipeline version for your data. The latest versions of CASA with a pipeline that has been scientifically validated for ALMA or VLA are given below.

	CASA		Pipelines	
	CASA Release 5.6.1-8*	CASA Pre-releases	CASA containing ALMA pipeline 5.6.1-8**	CASA containing VLA pipeline 5.6.2-3***
Linux Packages	Installation			
Red Hat 7				
Red Hat 6				
Mac OS X Packages	Installation			
OS X 10.14 (Mojave)				
OS X 10.13 (High Sierra)				

* The CASA 5.6.1-8 version for general use is identical to the CASA 5.6.1-8 pipeline version that is used by the ALMA pipeline. Both links therefore point to the same casa-pipeline-release-5.6.1-8.x file, which has the VLA pipeline included. The CASA 5.6.1-8 version is also functionally equivalent to CASA 5.6.2-3, which contains two bug fixes relevant to the VLA pipeline.

** Pipeline version number 42866.

*** Not available for OSX 10.13. For manual processing, please use CASA 5.6.1-8.

In class, we will use CASA version 5.6.1-8

Installing CASA

Installation overview:

- No root or sudo permissions required!
- go to https://casa.nrao.edu/casa_obtaining.shtml
- download CASA release 5.6.1-8
- [recommended: check download with md5sum]
- follow the installation instructions on the following slides according to your operating system
- all executables will be in `<yourpath>/<yourrelease>/bin`

Installing CASA

Linux installation:

- select CASA release **5.6.1-8** for your operating system (for Ubuntu and other Debian-derivatives use RedHat 6)
- save `casa-release-5.6.1-8.el<n>.tar.gz` to your software directory (<n> = 6 or 7, depending on your operating system)
- **`tar xzvf casa-release-5.6.1-8.el<n>.tar.gz`**
- add the executables to your PATH
 - bash: **`export PATH = $PATH: <yourpath> casa-release-5.6.1-8.el<n>/bin`**
 - csh: **`set path = ($path <yourpath> casa-release-5.6.1-8.el<n>/bin)`**
- check that it worked by typing **`which casa`** in a new terminal

Installing CASA

Mac installation:

- select CASA release **5.6.1-8 for your OS version**
- download CASA disk image to disk (self-contained Mac application)
- [open the disk image file, if your browser does not do so automatically]
- drag the CASA application to your Applications folder
- eject the CASA disk image
- double-click the CASA application to run it for the first time
- optional: create symbolic links to the CASA version and its executables (administrator privileges required), which will allow you to run `casa`, `casaviewer`, `casaplotms`, etc. from any terminal command line. To do so, run `!create-symlinks` from a CASA prompt.

Further reading

- <https://casa.nrao.edu>
in particular:
- https://casa.nrao.edu/casa_obtaining.shtml (and links on that page)

CASA User Reference and Cookbook:

- https://casa.nrao.edu/ref_cookbook.shtml
- https://casa.nrao.edu/casa_gettingstarted.shtml
- <https://casa.nrao.edu/using.shtml>