ALMAQSO

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ALMAQSO

1.1 almaqso package

1.1.1 Submodules

1.1.2 almaqso.almaqso module

class Almaqso(*target: list[str]*, *band: int*, *cycle: str = ''*, *work_dir: str = './'*, *casapath: str = 'casa'*)

Bases: object

process(*n_parallel: int = 1*, *skip_previous_successful: bool = False*, *do_tclean: bool = False*, *tclean_mode: list[str] = ['mfs']*, *tclean_weightings: tuple[str, str] = ('natural', '')*, *do_selfcal: bool = False*, *kw_selfcal: dict[str, object] = {}*, *do_export_fits: bool = False*, *remove_casa_images: bool = False*, *remove_asdm: bool = False*, *remove_intermediate: bool = False*) → None

Download and process ALMA data.

Parameters

- **n_parallel** (*int*) – The number of the parallel execution.
- **do_tclean** (*bool*) – Perform tclean. Default is False.
- **skip_previous_successful** (*bool*) – Skip processing for previously successful tasks. Default is False.
- **tclean_mode** (*list[str]*) – List of imaging specmodes for tclean. “mfs” creates a MFS image, “mfs_spw” creates MFS images for each spw, and “cube” creates a cube image. Default is [“mfs”].
- **tclean_weightings** (*tuple[str, str]*) – Weighting scheme and robust parameter for tclean. Second element is the robust parameter for briggs weighting. Default is (“natural”, “”).
- **do_selfcal** (*bool*) – Perform self-calibration. Default is False.
- **kw_selfcal** (*dict[str, object]*) – Parameters for the self-calibration and *tclean* task.
- **do_export_fits** (*bool*) – Export the final image to FITS format. Default is False.
- **remove_casa_images** (*bool*) – Remove the CASA images after processing. This option only works if do_tclean is True. Default is False.
- **remove_asdm** (*bool*) – Remove the ASDM files after processing. Default is False.
- **remove_intermediate** (*bool*) – Remove the intermediate files after processing. Log of CASA will be retained. Default is False.

Returns
None

analysis() → None

Perform the analysis.

1.1.3 Module contents

class Almaqso(*target: list[str]*, *band: int*, *cycle: str = ''*, *work_dir: str = './'*, *casapath: str = 'casa'*)

Bases: object

analysis() → None

Perform the analysis.

process(*n_parallel: int = 1*, *skip_previous_successful: bool = False*, *do_tclean: bool = False*, *tclean_mode: list[str] = ['mfs']*, *tclean_weightings: tuple[str, str] = ('natural', '')*, *do_selfcal: bool = False*, *kw_selfcal: dict[str, object] = {}*, *do_export_fits: bool = False*, *remove_casa_images: bool = False*, *remove_asdm: bool = False*, *remove_intermediate: bool = False*) → None

Download and process ALMA data.

Parameters

- **n_parallel** (*int*) – The number of the parallel execution.
- **do_tclean** (*bool*) – Perform tclean. Default is False.
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- **remove_intermediate** (*bool*) – Remove the intermediate files after processing. Log of CASA will be retained. Default is False.

Returns
None

CHAPTER

TWO

ARCHITECTURE

2.1 System context

This section provides a general overview of the ALMAQSO system within user (researcher) and external system interactions.

2.1.1 Purpose

This diagram explains how ALMAQSO fits into the surrounding ecosystem and how researchers interact with external systems.

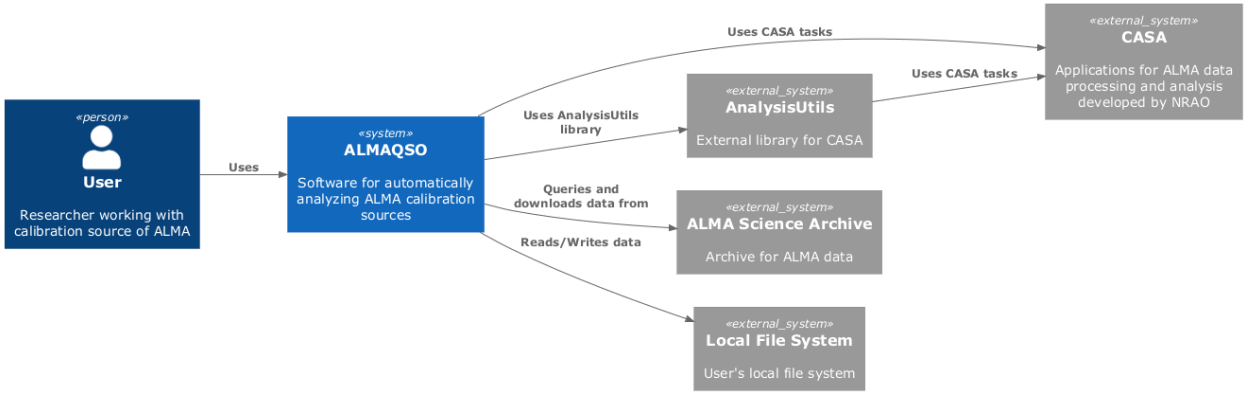
2.1.2 Audience

- Researchers using ALMAQSO
- New contributors
- Developers unfamiliar with CASA

2.1.3 Components

- **User**: Users who conduct data analysis using ALMAQSO. They are typically researchers in astronomy.
- **ALMAQSO**: This software system that provides automated data retrieval and analysis for ALMA calibration sources.
- **External Systems**: CASA, analysisUtils, ALMA Science Archive and local file systems that interact with ALMAQSO.

2.1.4 C4-Context Diagram



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