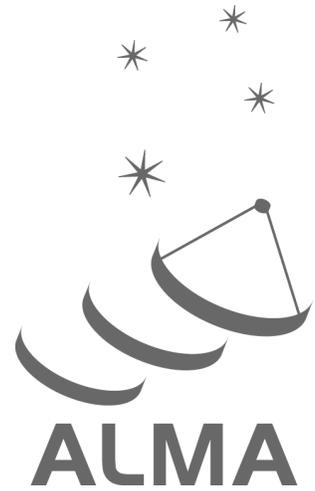


# The ALMA Project Tracker reference manual for Principal Investigators



[www.almascience.org](http://www.almascience.org)

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ALMA, an international astronomy facility, is a partnership of Europe, North America and East Asia  
in cooperation with the Republic of Chile.

## User Support:

For further information or to comment on this document, please contact your regional Helpdesk through the ALMA User Portal at [www.almascience.org](http://www.almascience.org). Helpdesk tickets will be directed to the appropriate ALMA Regional Center at ESO, NAOJ or NRAO.

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## Contributors

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# 1 The ALMA Project Tracker

The Project Tracker is the software tool for Principal Investigators (PIs) to track the observational and processing status of their ALMA Science projects. This document is a summary of how PIs can view the relevant information regarding their projects and status history.

## 1.1 Tracking an ALMA project

Principal investigators are only permitted to track their own projects. They will use the Project Tracker mostly as a 'monitoring tool'. If any help regarding the use of Project Tracker is needed, PIs should send their questions to the [ALMA Helpdesk](#).

## 1.2 How to access the Project Tracker

The Project Tracker is accessible to registered ALMA users after logging into the ALMA Science Portal (<http://almascience.org/>). The Project Tracker is accessed by clicking the corresponding link under the “Observing” item in the left side menu of the portal webpage.

# 2 Contents

Once the tool is loaded into the browser, PIs will see a main window with the list of their available projects (see Figure 1). This list includes Project “unique identifier” or UID (see a Glossary at the end of the manual), project code, user account ID, Executive, name of the project, state of the project, last saved version of the project, time of creation of the project (date when the phase 1 products were created) and timed out date (i.e., date when the project stopped being eligible for additional observations, either because it met the user-specified goals or because the observing season ended).

At the very top level of this and all subsequent views is a button with upward (downward) pointing triangle. Clicking on this will hide (open) display areas with additional information. Below There is a row of buttons to take you back to the main science portal page, or to logout from the Project Tracker.

Project UID	Project Code	PI Name	Execut	Name	State	Version	Time of Creation	Timed Out
uid://A002 /X57814d/X6e	TEST.1.00002.:	testuser	NA		Ready	13	2012-12-26	
uid://A002 /X5c0871/X1	TEST.1.00003.:	testuser	EA		InProgress	0.7	2013-01-31	
uid://A002 /X57814d/X2	2011.0.00983.S	testuser	EA		Phase2Submitted	2.7	2012-12-26	
uid://A002 /X57814d/X38	TEST.1.00001.:	testuser	EA		Ready	2.7	2012-12-26	

Results 10 per page

**Figure 1: Main window for Project Tracker. This presents a list of all projects available to the logged in user.**

## 2.1 Life Cycle Diagrams

An observing project is composed of a hierarchy of structures, with the project at the top level, followed by ObsUnitSets (Group and Member), and Scheduling Blocks (SchedBlocks or SBs) at the lowest level (see the glossary at the end of this document for a description of these components). At any moment in time, each of these project component has a well defined state. All the possible states, and the transitions between them, are defined in a life cycle diagram for the specific project component. The life cycles for the project, ObsUnitSets, and Scheduling Blocks components are given in the appendix of this document. In the following, we briefly describe the states that are listed in the various views of the project tracker, but users can refer to the life cycle diagrams to more fully understand the meaning of each state and state transition.

## 2.2 Detailed Views

The project hierarchy is represented in the Project Tracker by a project “tree” structure (see Fig. 2) which is displayed along the left hand side of each detailed view. Each project component is represented by a successively indented level or “leaf” in this tree. Each leaf (Project, Proposal, Observing Program and ObsUnitSet (OUSs), Science Goal OUSs, Group OUSs, Member OUSs and SBs) is preceded by a box with a “+” or “-”. Click on this box to expand or collapse the lower-levels of the project hierarchy.

A detailed view of each component is displayed by clicking on the corresponding leaf as indicated in Fig. 2. The status of the component is displayed in the column to the right of the project tree. The currently selected view is indicated by blue highlighting in the project tree. Figure 2 shows that the ObsUnitSet view is currently selected.

	Entity	Status
Click here to see the Project View	TEST.1.00003.S	InProgress
Click here to see the Proposal View	Proposal	none
Click here to see the OUS View	ObsUnitSet	PartiallyObserved
Click here to see the SG OUS View	SG OUS (M83 CO imaging)	PartiallyObserved
	Group OUS	PartiallyObserved
	Member OUS (m83)	PartiallyObserved
Click here to see the SchedBlock View	m83_12m	PartiallyObserved
	Member OUS (m83)	Ready
	m83_7m	PartiallyObserved

**Figure 2: Project Tree and expanded leaves for each component. Clicking on the leaves as indicated provides a detailed view of the corresponding project component.**

## 2.3 Project View

When a PI opens the Project view (top level in Fig. 2), the main information of the project will be displayed (Fig. 3), including the Project name, project code, PI Full name and email, date of project creation (date when the proposal was submitted from the ALMA-OT), executive, and Project identification code (Project UID).

Within this pane is a “Project Report” button that provides access to a detailed observing report in either pdf or html formats. If any observations for the project were attempted, then clicking on this button will produce a document with all the information regarding its observational progress. This includes the observing log entries with the execution date, Start/End execution time, SchedBlock name and ID, Execblock ID, correlator used, observing frequency/band, name of antennas used and the zeroth-level Quality Assurance (QA0) pass/fail status. A QA0 pass grade means that the execution completed successfully and observed all necessary calibrators (see the Glossary for more on the Quality Assurance criteria). Note that the final level QA report (QA2) is not available through the Project Tracker, and is instead retrieved through the ALMA Science Archive after data delivery to PIs.

Project: M83 - uid://A002/X5c0871/X1

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**Project**

Name	<span style="background-color: #ccc; border: 1px solid #ccc; display: inline-block; width: 100%; height: 1em;"></span>	Id	uid://A002/X5c0871/X1
Code	TEST.1.00003.S		
PI Full Name	Test User		
Email	test-user@alma.cl		
Creation date	2013-01-31 21:27:46		
Executives	EA		

Project Report
No entries for this project yet
PDF
HTML

---

**Project status history**

State	Timestamp
Phase2Submitted	Thu, 31 Jan 2013 21:27:53 GMT
Ready	Fri, 01 Feb 2013 14:30:26 GMT
InProgress	Fri, 01 Feb 2013 14:31:47 GMT

---

**Project execution summary**

Seconds observed	( 0 of 0) mins
Unit sets completed	( 0 of 1)
Unit sets failed	( 0 of 1)
SBs completed	( 0 of 0)
SBs failed	( 0 of 0)

**Figure 3: Project View.** PI can see information such as Name of the Project, Code, PI Full name, email, creation date, executive, project id, Project state history, and Project Execution summary. It also provides access to the Project Report.

The middle section of the Project View provides the project status history, with the date and time that a given state was last updated. The available states for a project are described in the project life cycle diagram (see appendix). The ones displayed in the PI view are as follows:

- **Phase1Submitted:** Proposal has been submitted by PI via the OT
- **Reviewed:** Proposal has been reviewed by an international committee. Whether or not the proposal will be observe will depend on the proposal grade and science rank; see Proposers Guide for details.
- **Phase2Submitted:** All SBs in proposals have been generated and submitted to the archive as part of the Phase2 process
- **Ready:** Project is ready for execution at the telescope (set by ALMA staff as part of the phase2 process)
- **InProgress:** Project has been partially observed
- **Broken:** There is a problem with the project, which needs to be corrected by ALMA staff (and possibly re-approved by the PI)
- **Repaired:** A formerly broken project has been corrected and resubmitted

- **Completed:** All OUSs in the project have been delivered to the PI
- **Observing TimedOut:** Project is no longer eligible for additional observations, either because it met the user-specified goals or because the observing season ended

Finally, the lower section of the Project View pane gives a “Project execution summary”, which is a high-level summary of the project progress towards completion (total execution time; number of OUS successfully completed; number OUS failed QA0; number of scheduling blocks successfully completed; number SBs failed QA0).

## 2.4 Proposal View

If the PI clicks the “Proposal” element in the Project Tree (2<sup>nd</sup> level in Fig. 2), they will see information of relevance to the proposal review process, such as the Project Code, title, PI name, scientific category, abstract, proposal cycle, and proposal type.

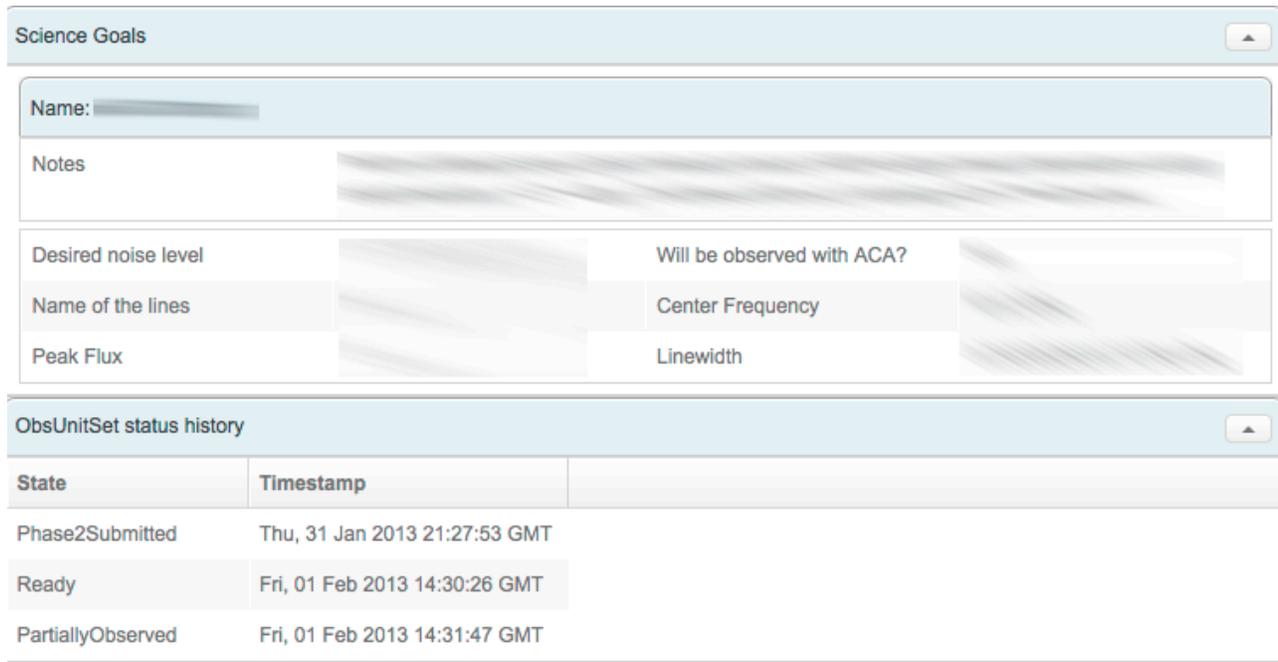
## 2.5 ObsUnitSet Views

The Project Tracker displays several ObsUnitSets (OUSs) views. If the PI clicks on the top most OUSs (labeled “ObsUnitSet” in Fig. 2) they will see the ObsUnitSet status history, with each state transition listed along with the corresponding timestamp (see Fig. 4). Similar information is displayed when selecting the Group and Member OUS leaves in the Project Tree.

Project: <span style="float: right;">- uid://A002/X5c0871/X1</span>	
ObsUnitSet status history	
State	Timestamp
Phase2Submitted	Thu, 31 Jan 2013 21:27:53 GMT
Ready	Fri, 01 Feb 2013 14:30:26 GMT
PartiallyObserved	Fri, 01 Feb 2013 14:31:47 GMT

Figure 4: ObsUnitSet View. ObsUnitSet status history is displayed.

For Science Goal OUS (“SG OUS” in Fig. 2), the science goal parameters entered by the PI are displayed in addition to the OUS status history. These include the PI specified desired noise level, name of spectral lines, peak flux, center frequency, line-width and whether the project will be observed with ACA, as shown in Fig. 5.



**Figure 5: Science Goal OUS view**

The possible states for OUSs are the following;

- **Phase2Submitted:** All SBs within the OUS have been submitted
- **Ready:** All SBs within the OUS are ready for execution
- **PartiallyObserved:** One or more SBs within the OUS (but not all) have been observed and passed QA0
- **FullyObserved:** All the SBs within the OUS have been observed and passed QA0
- **ReadyForProcessing:** The data are marked as eligible for being processed
- **PipelineProcessing:** The data are being processed through the Pipeline or (for Cycle 1) through the manual data reduction procedures
- **Processed:** The data reduction process has been completed, but the data products have not yet been inspected
- **QA2InProgress:** The data products are undergoing the 2<sup>nd</sup> level of Quality Assurance (QA2 – see glossary)
- **Verified:** The data have passed QA2 (OUSs that fail QA2 are returned to the Ready state – see OUS life cycle diagram)
- **ReadyToDeliver:** The data products have been transferred to the corresponding ARC for delivery
- **Delivered:** The PI has been notified by an ARC that the data products are available for retrieval from the archive

## 2.6 SchedBlock View

If the PI clicks on the SchedBlock level of the Project Tree (items preceded by a yellow “clock face” in Fig. 2) they see the SchedBlock View (see Fig. 6). The top part includes the SchedBlock main description (Source name, IDs and current state), followed by a section with details on the field source list, which lists all science and calibration targets included in the SB. Below this section is the last element of the SchedBlock view, the “Exec Status List”, which includes the SchedBlock state, QA0 status, start time, end time, and the unique ExecBlock id per SchedBlock execution.

Sched Block: HD163296_B6						
Source Name	HD163296_B6	State	<b>PartiallyObserved</b>			
Sched Block id	uid://A001/X8a/Xe	Status entity id	uid://A001/X8a/X14			
Sched Block details						
Field Source List						
Type	Name	RA (h:m:s)	Dec (d:m:s)			
Primary:	HD163296	17:56:21.2	-21:57:21			
Ampli Query	Titan	00:00:00.0	00:00:00			
PointingQgery	J1337-129	13:37:39.7	-12:57:24			
Bandpass Query	J1924-292	19:24:51.0	-29:14:30			
Phase Query	J1733-130	17:33:02.7	-13:04:49			
Exec Status List						
State	QA0 Status	Start Time (UT)	End Time (UT)	Start Time (LST)	End Time (LST)	ExecBlock id <a href="#">i</a>
Broken		2012-06-12 05:13:46.120	2012-06-12 05:16:18.480	2012-06-12 03:08:32	2012-06-12 03:11:05	uid://A002/X42b534/Xb3
FullyObserved		2012-06-12 06:08:54.718	2012-06-12 07:18:03.381	2012-06-12 04:03:49	2012-06-12 05:13:10	uid://A002/X42b534/X103
FullyObserved		2012-07-07 02:18:00.959	2012-07-07 03:40:00.846	2012-07-07 01:50:51	2012-07-07 03:13:05	uid://A002/X453114/X25b

Figure 6: SchedBlock detailed view.

The possible states for SBs are the following;

- **Phase2Submitted:** The phase 2 SB has been submitted
- **Ready:** The SB is ready for its first execution
- **PartiallyObserved:** The SB has been observed at least once
- **FullyObserved:** The SB has been observed and the desired number of valid executions have been reached

The possible states for Execution Blocks can be:

- **FullyObserved:** The observation execution ended successfully
- **Broken:** The observation did not end successfully. Data obtained from a “Broken” execution can be used if its QA0 status is “Pass”

## 3 Glossary

### ID / UID

ID and UID are used interchangeably in the Project Tracker. They refer to the database Unique Identifier of ALMA data entities. These entities could be a table, ExecBlock, Project, SchedBlock, OUS, Status, etc.

### Execution Block / ExecBlock

A single observational execution of a SchedBlock.

### SchedBlock Execution State

It describes the state of a SB. “FullyObserved” means that the whole observation execution ended successfully, and “Broken” means that the observation did not end successfully and showed some problem that needs to be fixed (and probably approved by the P.I.).

### ExecBlock ID

The Unique Identifier for an ExecBlock within the ALMA system.

### ObsUnitSet / OUS

An ObsUnitSet or OUS is subset of an ALMA observation that would result in a dataset that meets (part of) a PI-specified science goal. For a more complete description of the ALMA project data structure, see Chapter 12 of the ALMA Technical Handbook. In the ALMA project model, OUSs are hierarchical structures with the following levels:

- The top-level ObsUnitSets are called ‘Science Goal ObsUnitSets’; they correspond to the Science Goals of an ObsProject.
- Below these are ‘Group ObsUnitSets’ which only contain other ObsUnitSets.
- At the lowest level are the ‘Member ObsUnitSets’, which only contain SchedBlocks.

### OUS UID

The Unique Identifier of an ObsUnitSet within the ALMA system.

**Project UID or ID**

The unique identifier of a Project within the ALMA system.

**QA0**

The Astronomer on Duty performs a first quality assurance (QA0) after a Session is observed, with the goal of determining whether the resulting data sets are valid. The available QA0 statuses are Pass and Fail. See Chapter 11 of the ALMA Technical Handbook for more on quality assurance process and pass/fail criteria.

**QA2**

Quality assurance 2 is performed for each ObsUnitSet after it has undergone Pipeline Processing, to determine whether the resulting data products meet the quality standards required by the PI. See Chapter 11 of the ALMA Technical Handbook for more on quality assurance process and pass/fail criteria.

**Scheduling Block / SchedBlock / SB**

A Scheduling Block is the smallest observing unit in ALMA that can be scheduled independently, and contains a full description of how the science and the calibration targets have to be observed.

**SB UID**

Unique identifier of a SchedBlock within ALMA.

**Status ID**

The Unique Identifier in the ALMA archive of a Status entity, such as a ProjectStatus, OUSStatus or SBStatus. The Status entity is an ALMA internal system document that works together with the corresponding ScheBlock/ObsUnitSet/Project and describes not only its state but also more details related to the execution of the observations.

**Timestamp**

It is defined as the time when an event hapen.

**Creation Date**

It the the time when an project was submitted into the ALMA archive from the ALMA-OT

**Time-out**

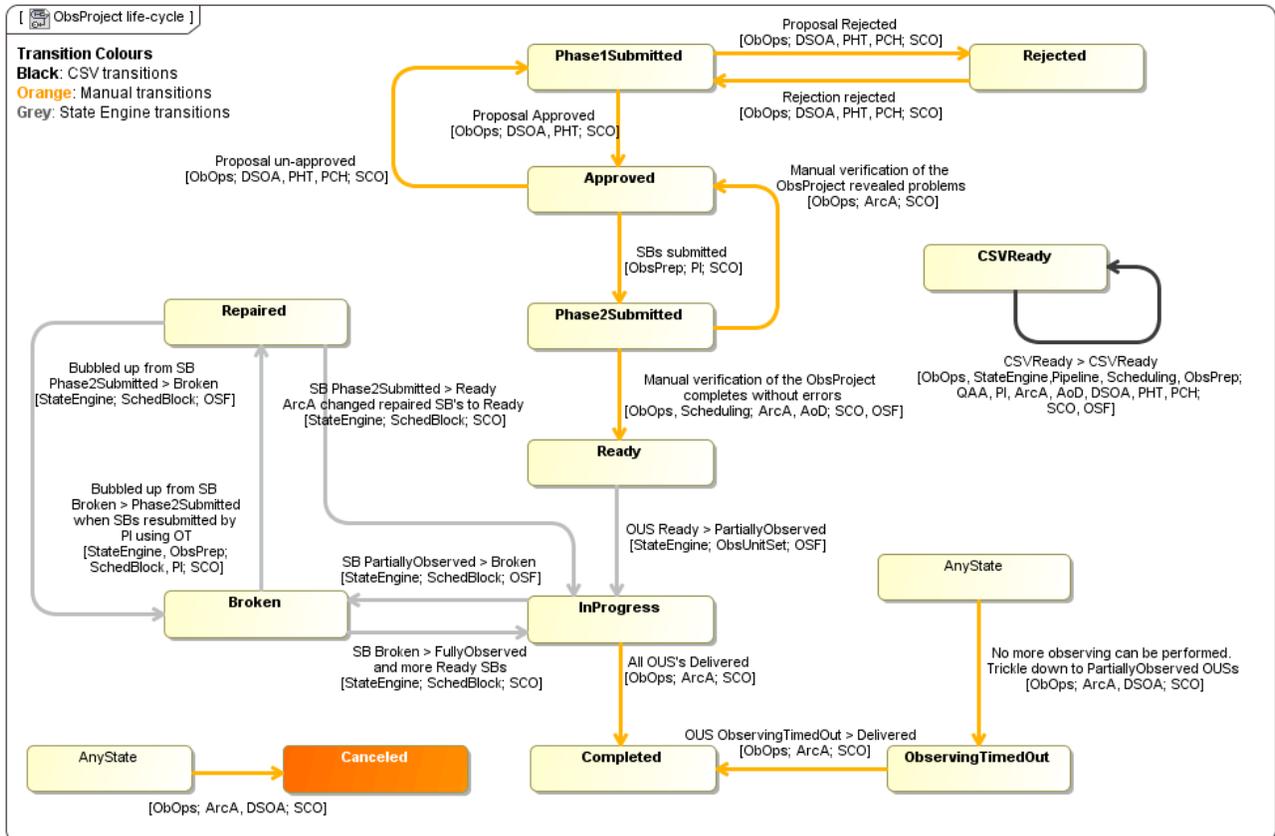
An ALMA project is in time-out when it is no longer eligible for additional observations, either because it met the user-specified goals or because the observing season ended

**Version of a project**

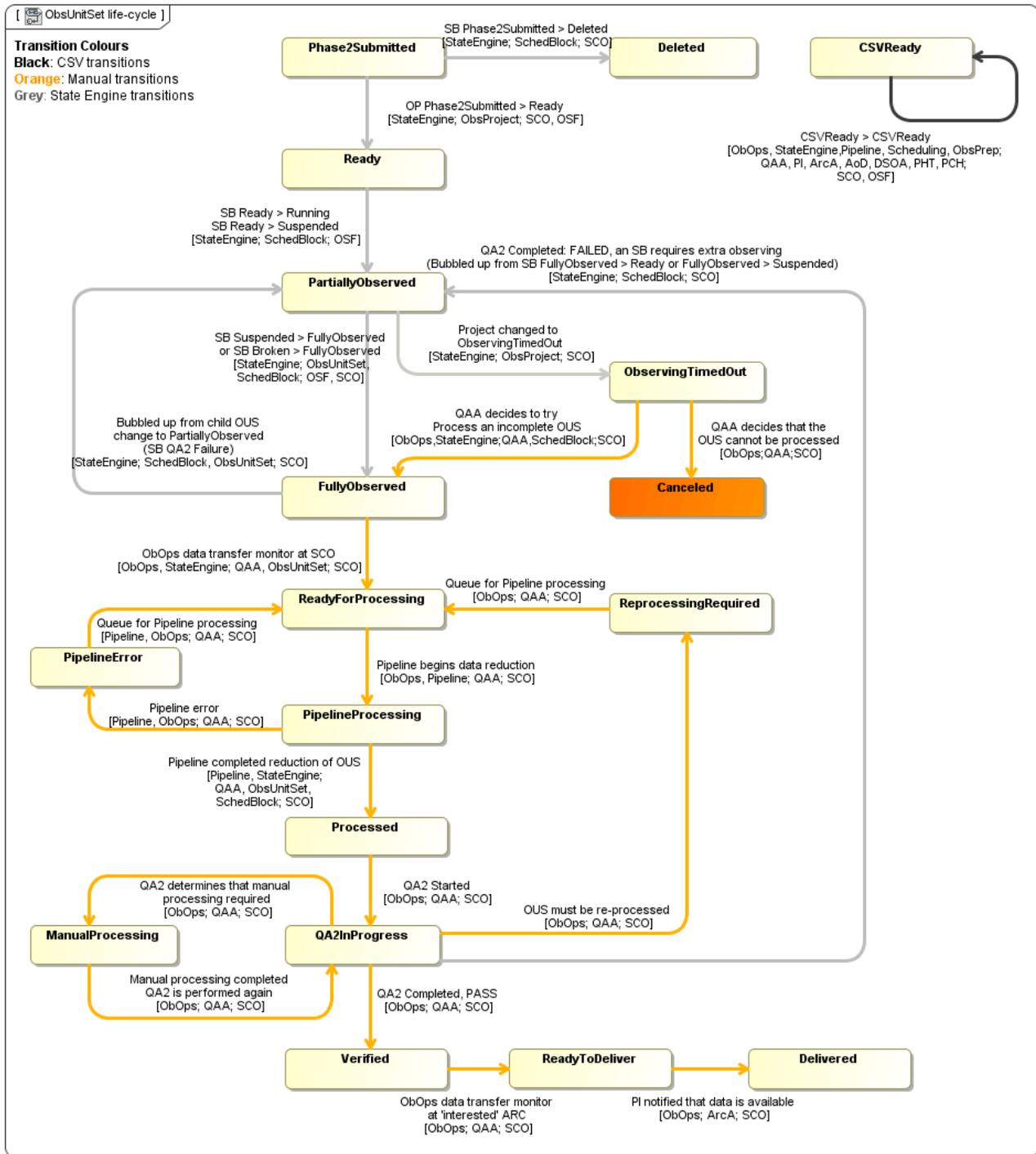
It is the latest Phase 2 version a the project submitted into the ALMA archive.

# 4 Appendix: ALMA Data Structure Life Cycle or State Diagrams

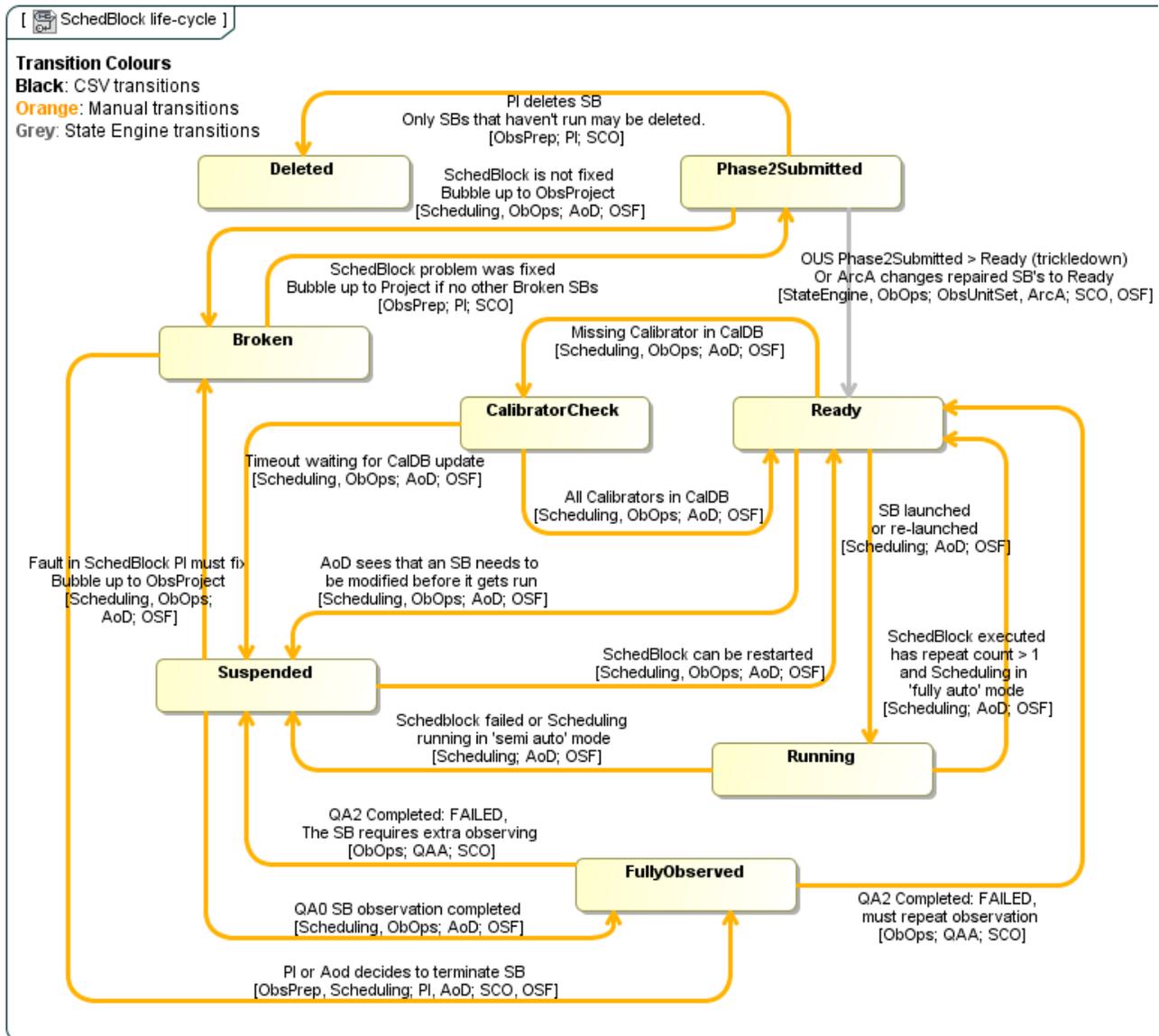
## 4.1 Project Life Cycle



## 4.2 ObsUnitSet Life Cycle



### 4.3 Scheduling Block Life Cycle





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, commissioning and operation of ALMA.

