

The Architecture of ASTRI Mini Array Cherenkov Camera Software Supervisor

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The ASTRI Mini-Array (MA) is an INAF project to construct and operate an experiment to study gamma-ray sources emitting up to the TeV spectral band. The ASTRI MA consists of an array of nine Imaging Atmospheric Cherenkov Telescopes that will be deployed at the Observatorio del Teide (Tenerife, Spain). These telescopes will be an evolution of the two-mirror ASTRI-Horn telescope, successfully tested since 2014 at the Serra La Nave Astronomical Station of the INAF Observatory of Catania. Each telescope will be equipped with the new version of the ASTRI Silicon Photo-Multiplier (SiPM) Cherenkov Camera.

The ASTRI-MA will be monitored and controlled by a Supervisory Control And Data Acquisition (SCADA) system which consists of different software subsystems. One of these is the Cherenkov Camera Supervisor (CCS) that controls each Cherenkov Camera.

Its main functionality is to realize an interface between each Camera and the central SCADA software.

The CCS provides the services to control and monitor the Camera through the Alma Common Software (ACS). This is a framework based on object-oriented CORBA middleware, which gives the infrastructure for the exchange of messages between distributed objects and system wide services. The CCS is based on the Open Platform Communications - Unified Architecture (OPC-UA) protocol, a platform-independent service-oriented architecture.

This work presents the design and the technologies used by the ASTRI Camera team to implement the CCS. It describes architecture and functionalities starting from the definition of the use cases and the system requirements.

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Subcategory

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