

AITAS : Assembly Integration Test data Archiving System

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Abstract

The aim of AITAS is to automatically archive and index data acquired from an instrument during test and validation phase. AITAS product has been built initially to fulfil the needs of the IRDIS-SPHERE (ESO-VLT) project to archive and organise data during the test phase.

We have developed robust and secure tools to retrieve data from the acquisition workstation, build an archive and index data by keywords to provide search functionality among large amount of data. This import of data is done automatically after setting some configuration file. In addition APIs and GUI client have been developed in order to retrieve data from a generic interface and use them in test processing phase. The end user is able to select data and retrieve using any criteria listed in the metadata of the files.

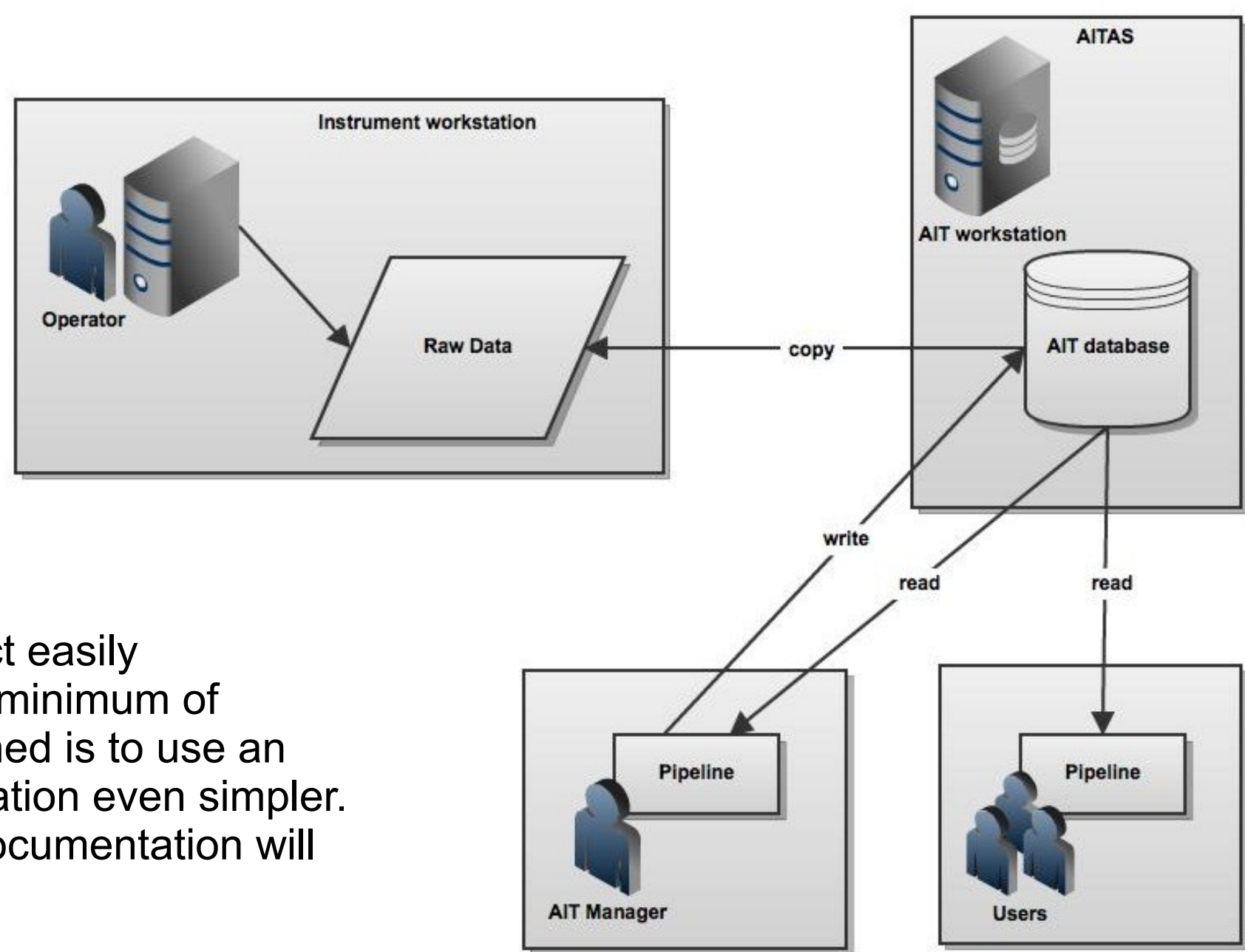
One main advantage of this system is that it is intrinsically generic so that it can be used in instrument project in astrophysical laboratories without any further modifications.

Technical solutions

AITAS aims to archive automatically and safely data during tests, format taken into account is FITS. It was developped in JAVA using JDBC and Postgresql DBMS.

It include three main modules :

- Ingest** module : is responsible for checking for new data, copy them to the AIT-workstation on a secured data space and create a new entry in the AIT database. Then it deletes the data from the workstation after a fixed time. This module is launched regularly by a cron.
- Update** module: it indexes each new file entry according to predefined keywords (may be all keywords found) to allow fast and easy multi-criteria search.
- Client** : provides tools for data access and multi-criteria search using FITS keywords. It is described in its own section below.



AITAS consists of one maven project easily deployable on Linux platform with a minimum of configuration. Future evolution planned is to use an embedded database to make installation even simpler. By december 2011, AITAS and its documentation will be available at the following URL :

<http://projets.oamp.fr/projects/sphere>

CeSAM

The **Centre de données Astrophysiques de Marseille (CeSAM)** has been set up to provide access to quality controlled data via web based applications, tools, pipeline developments and VO compliant application to astrophysical community.

For further details, see CeSAM's posters P001 and P149 in this session.

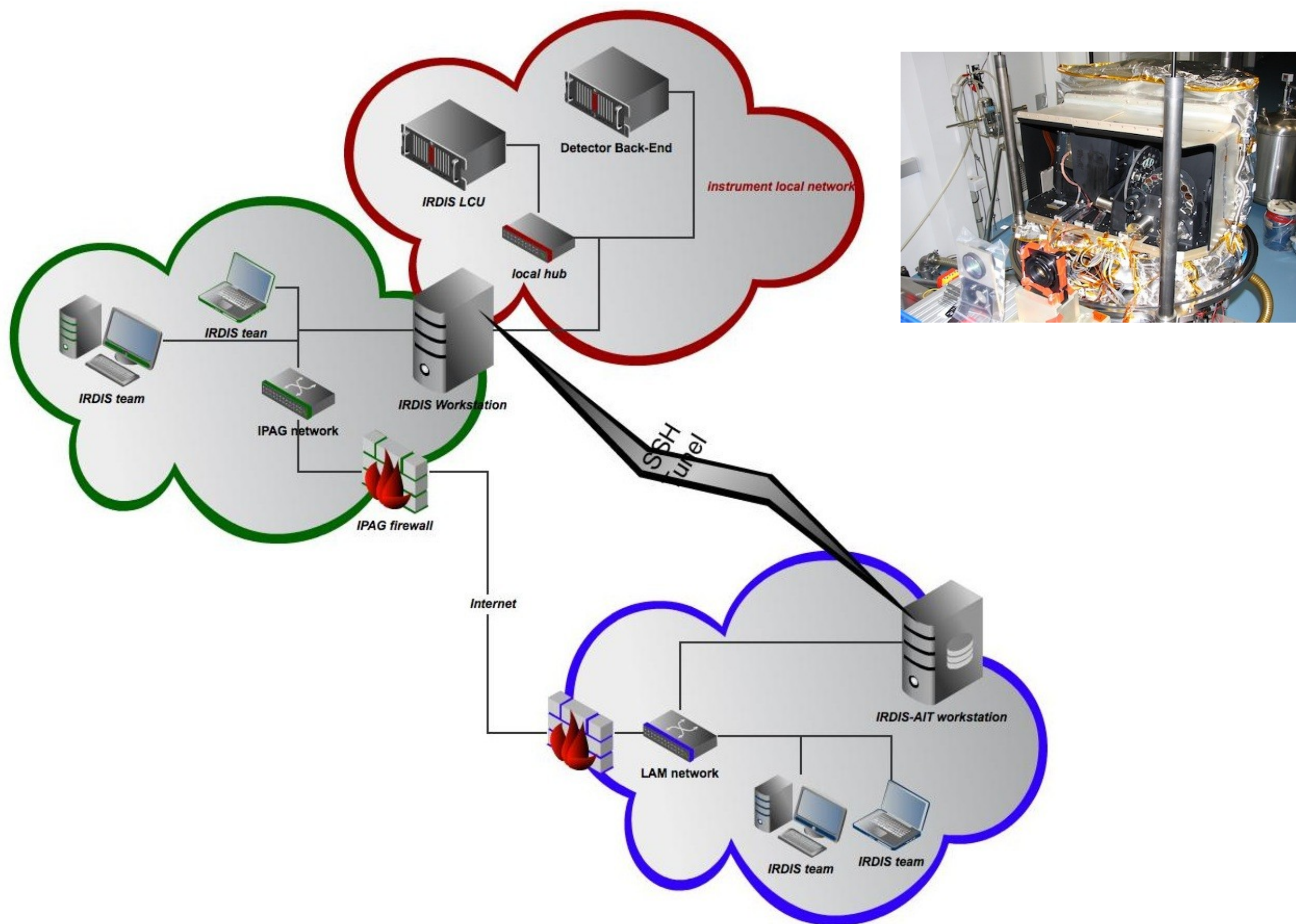
Applications developed by the CeSAM can be found at <http://lam.oamp.fr/cesam/les-outils/>.

SPHERE-IRDIS AIT infrasturcture

The SPHERE (Spectro-Polarimetric High-contrast Exoplanet Research) instrument is built by a wide consortium of European countries. It is based on an extreme adaptive optics system and employs coronagraphic devices for stellar diffraction suppression. It is equipped with three science channels : a differential imaging camera (IRDIS) an Integral Field Spectrograph (IFS) and a rapid switching polarimeter (ZIMPOL). IRDIS is designed to discovery and study extra-solar planets by direct imaging of the circumstellar environment.

To perform tests, test procedures have been defined in order to validate functionality and performance of IRDIS alone and as part of the SPHERE system in terms of instrument control and data processing capabilities, as well as calibration and operational strategies. All data taken shall be stored and indexed, so they could be analysed later in case of corrections or improvements of the software for example.

Data are stored on a dedicated workstation (AIT-workstation) at LAM. AITAS was first developped to manage data during tests of SPHERE-IRDIS locally. The instrument has moved to Grenoble at the IPAG laboratory, so now we use a SSH tunnel to fetch data from the IRDIS-workstation.



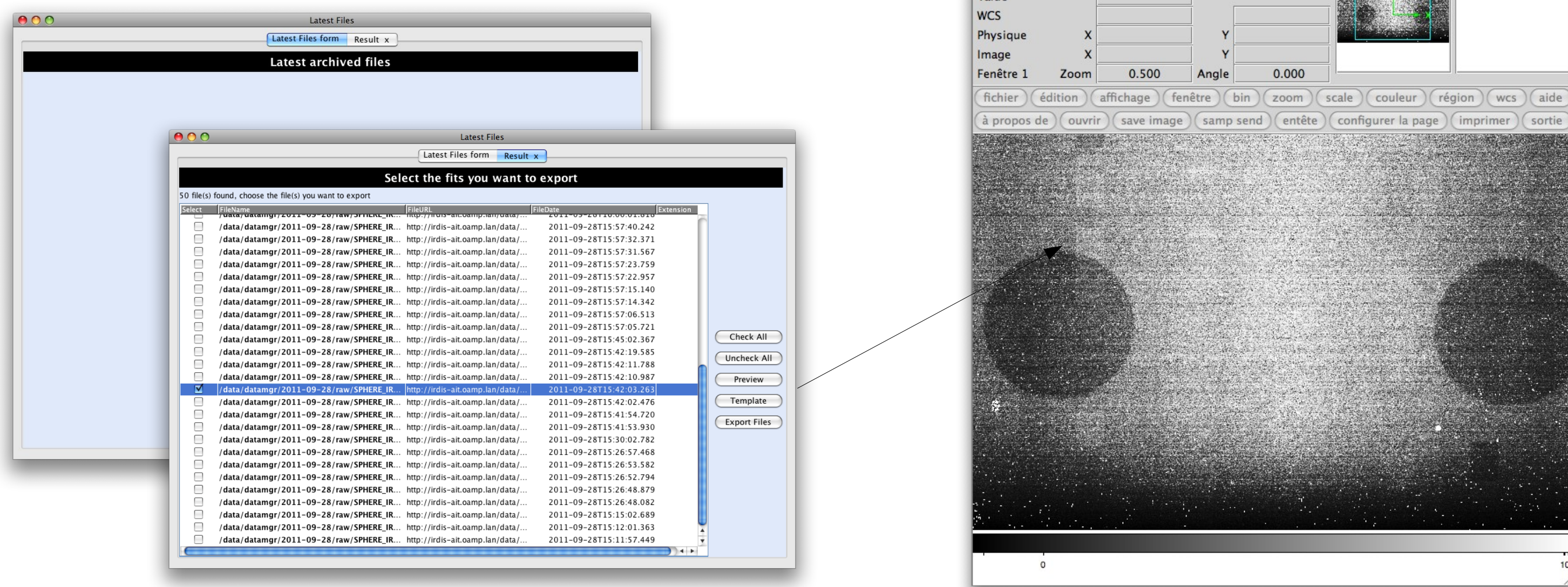
AIT Client

The client allow user, through **Global Search** menu option to build a Search Form to request as many keywords as wanted, optionally he can save the search form. Then the user can fill the Search Form with value or range of values in order to get the list of matching files.

The user can then preview one Fits file, save the list in text format that will serve as entry to the pipeline and data analysis tools, or even download them as a compressed .zip archive.

Other functionalities are :
to list the most recent files (**Latest Files**)
to use a Fits File as a template to builds a Search Form (**Template File**)
to load a predined Search Form (**Recorded Search**)

On the right, an example of the list of the 50 most recent files listing, with preview of data within DS9 :



Below, from left to right, the sequence of screenshots in the case of a global search : build the form, fill it, save it and view results :

