esa XMM-Newton Science Archive

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INTRODUCTION

Since April 2002, first version of the XMM-Newton Science Archive (XSA), the ESA Science Data Centre Team (ESDC) has improved and updated this valuable service to the X-Ray Astronomical Community. Based on the ABSI (Archive Building System Infrastructure), the XSA has a common architecture with the rest of the archives developed by ESA. In 2013, a full redesign was implemented into the archive to produce a pure Web based interface using state of the art technologies: a modern User Interface using GWT (Google Web Toolkit), complex geometrical queries support by using data base geometrical indexing (pgsphere) and updates on the Virtual Observatory services. Recently, a new IVOA TAP complaint service (Tabular Access Protocol) interface has been made available to access the metadata of the XMM Epic Source catalogue, OM source catalogue and Slew catalogue in a very powerful interface, allowing data mining tasks. Also, and in line with the development of the ESA Sky application, new HiPS (Hierarchical Progressive Survey) has been generated for EPIC and OM cameras to expose XMM-Newton data in an exploration interface. Finally, although XMM-Newton mission is still in operations, the XMM-Newton Science Archive is already ready for the legacy phase that will take place in the next years.

XSA Content

Content in numbers of the XMM-Newton Science Archive (XSA):

- Observation Data Files (ODF) and Pipleline Products of ~12600 pointed observations.
- Slew Data Files of ~3700 Slew Survey Observations and 177000 Slew survey sub-pointings.
- 678680 EPIC Sources (3XMM-DR6 catalogue.)
- 6246432 OM Sources (OM-SUSS2.1 catalogue).
- 41423 Slew Survey sources (XMMSL1 DR6).
- Ancillary info (proposals, publications, etc).

XSA TAP Service

XSA Data can be queried via TAP using ADQL (Astronomical Data Query Language using Topcat of via command line.
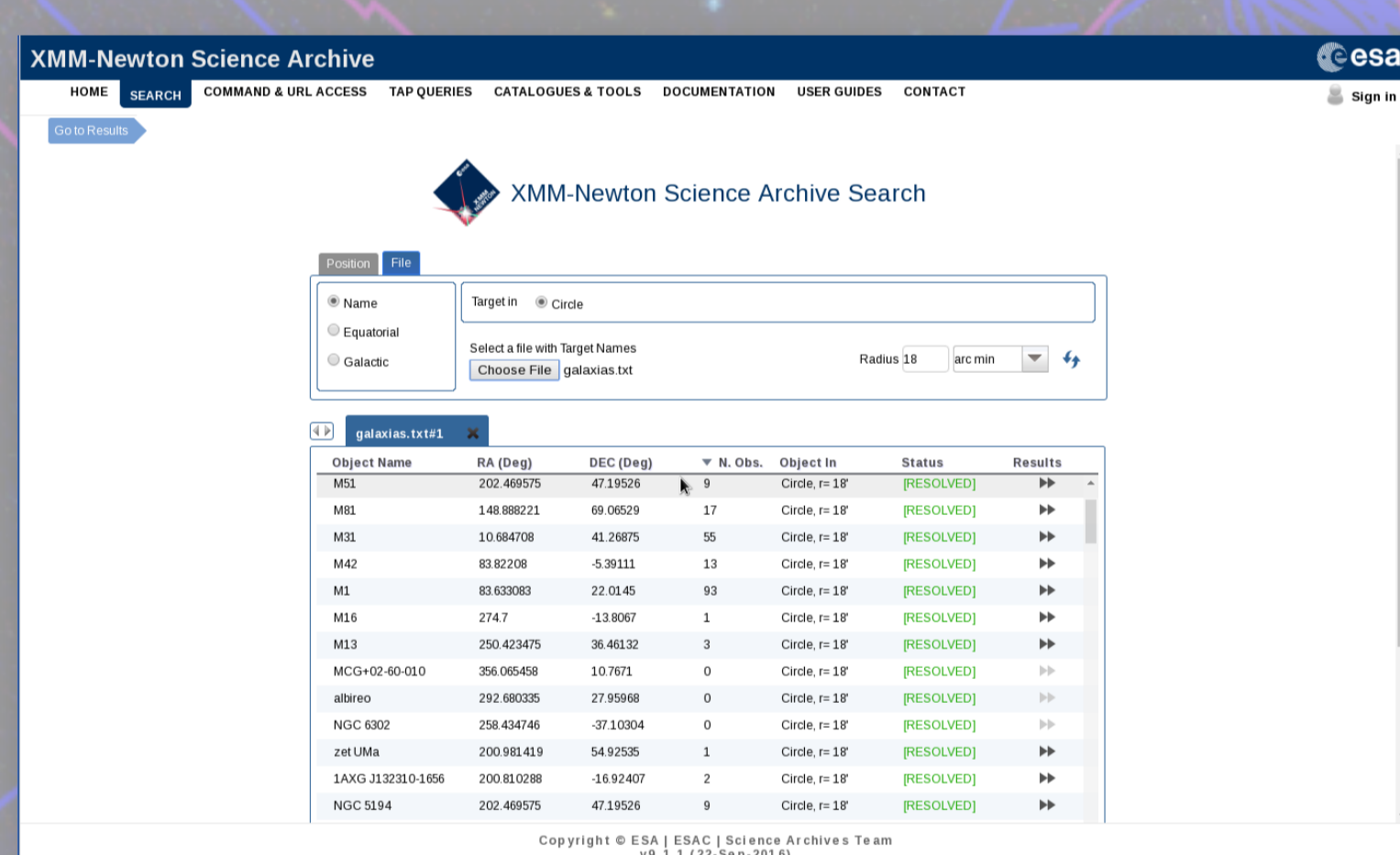
Example:

```
SELECT ra,dec,src_num,observation_id
FROM v_epic_source_cat
WHERE
1=contains(epic_source_cat_equatorial_spoint,circle('ICRS',
266.41683,-29.0078055556,1))
ORDER BY ep_8_flux DESC
```
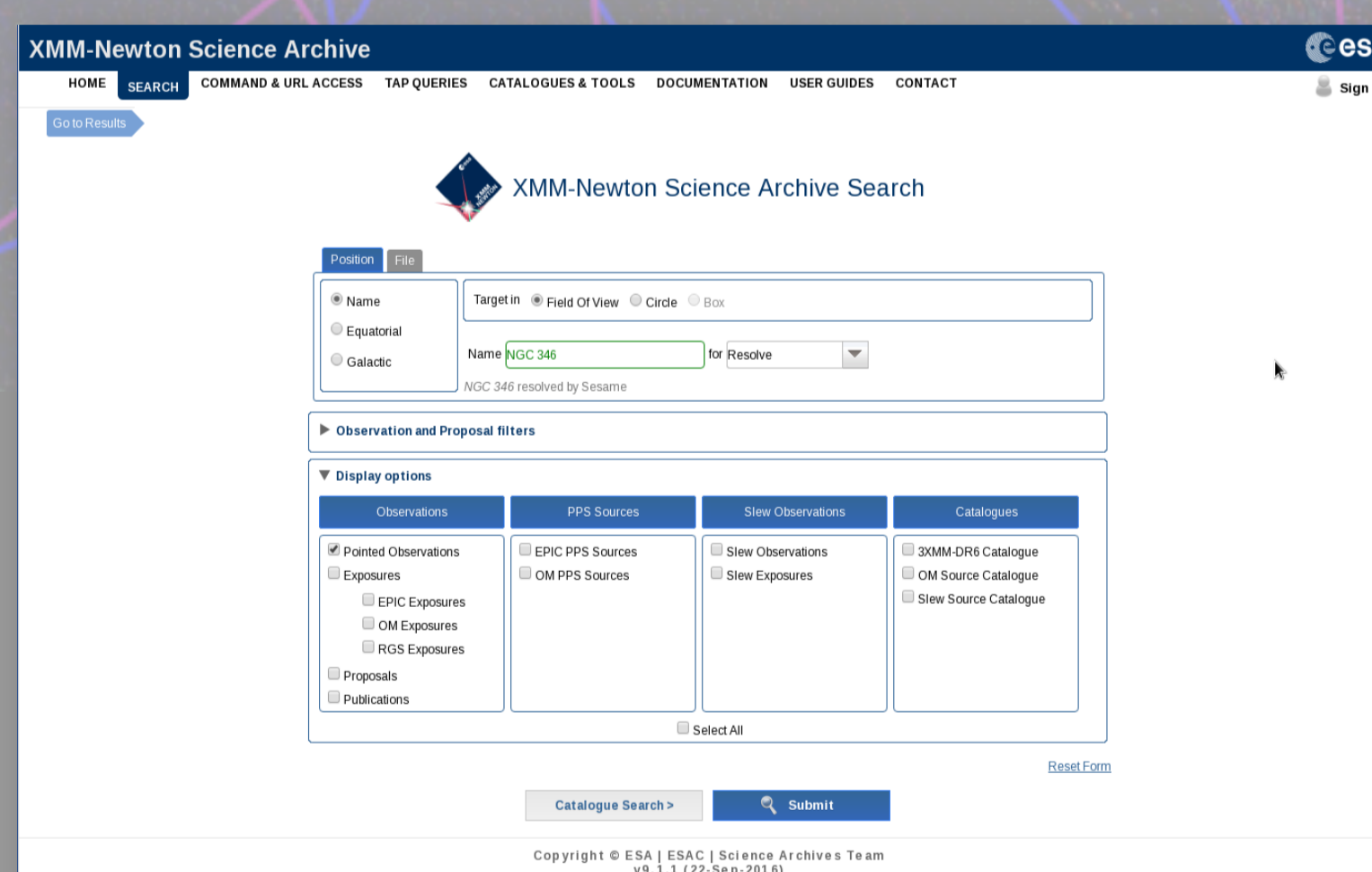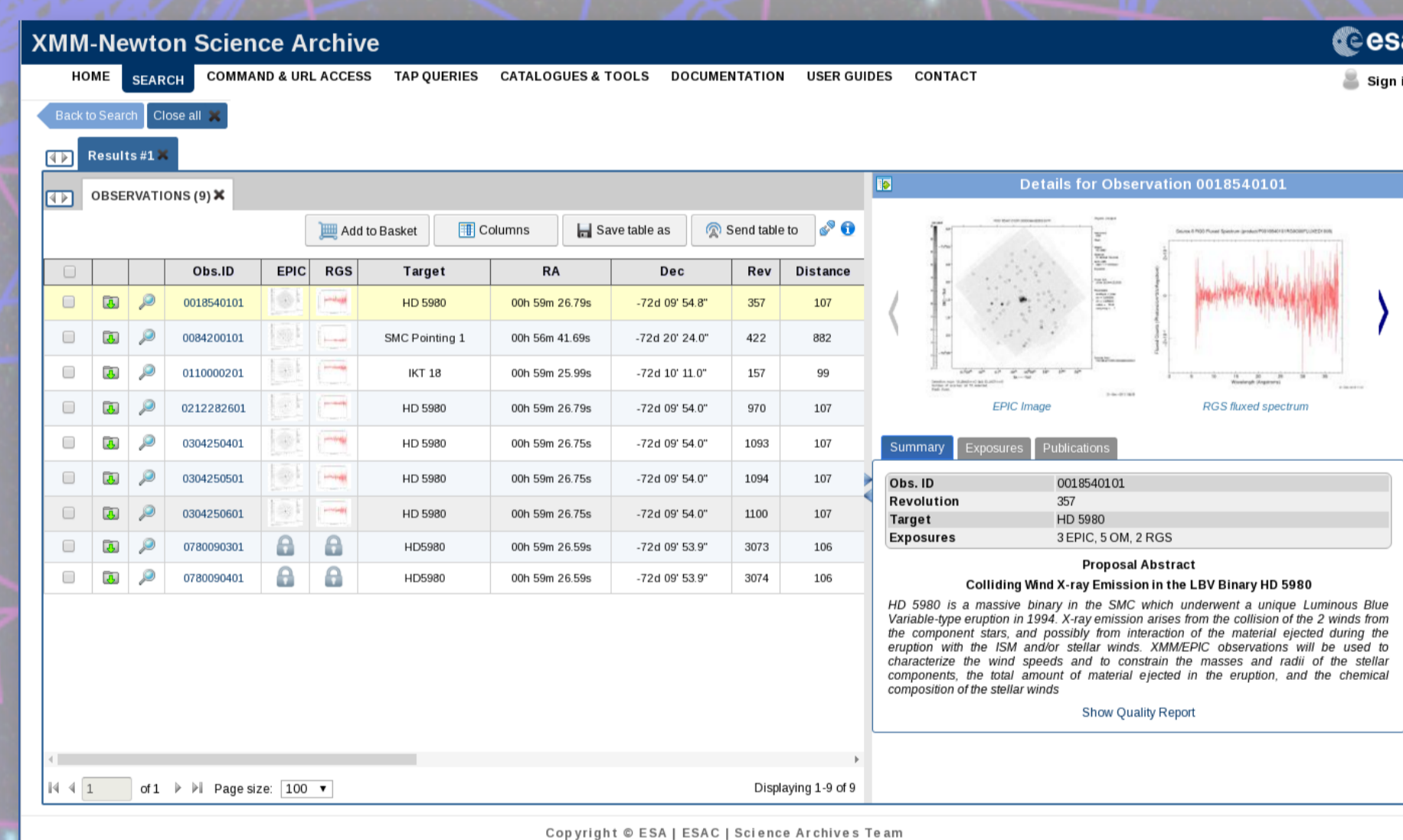
Check QR code for more info:
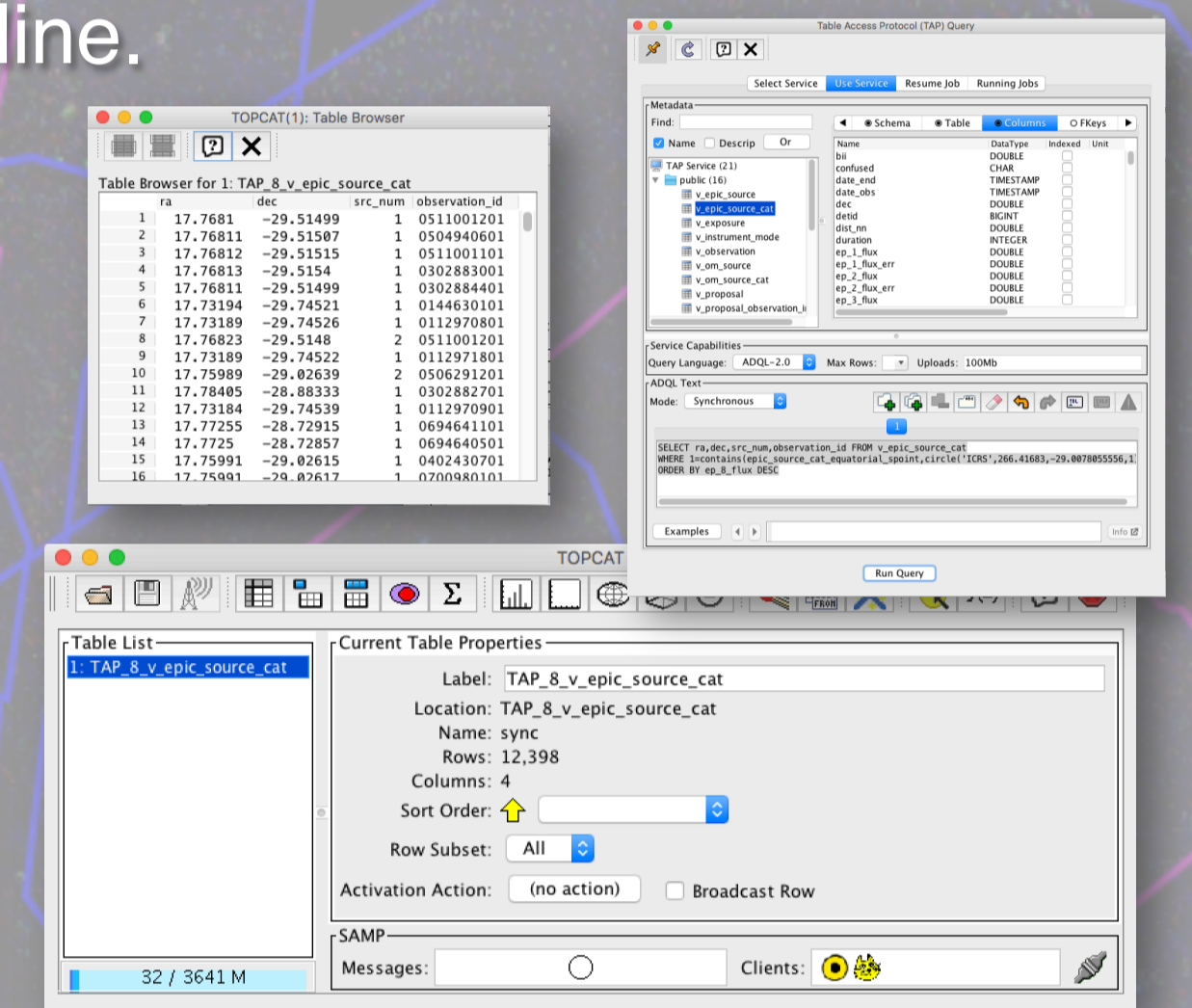
Discover XSA Web Interface

Search a list of Objects

Search with constraints.

Result Panel provides options to preview and download data.

Search for your data: An intuitive, clean and expandable search. You will be able to add filters for many physical and observational parameters, and even for publications.

Results Interface: The XSA results interface lets you explore and preview all the XMM-Newton data available matching your search filters, download all the associated data products and connect them to the VO world directly from the Web.

Access the XSA from its home at the ESAC Science Data Centre

XSA Direct Access

Examples of fast web access or command data download:

Searches via the web interface
- obsid: Search by the observation identifier.

http://nxsa.esac.esa.int/nxsa-web/#obsid=0112880801

Retrieve Data via AIO Server
- Retrieve all files for a given instrument (M1) and exposure flag (U for unscheduled) and exp number (003):

http://nxsa.esac.esa.int/nxsa-sl/servlet/data-action-aio?
obsno=0144090201&instname=M1&expflag=U&expno=003

Retrieve Data via command line
- Download all files for a given observation:

curl -o files.tar "http://nxsa.esac.esa.int/nxsa-sl/servlet/data-action-aio?obsno=0144090201"

References

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2. Arviset, C. "From ISO to Gaia: a 20-years journey through data
3. Salgado J. et al, "ESASky: A simple/performant interface on
4. Giordano, F. "ESAC Science Data Centre", D5, ADASS 2016 Demo Booth.

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