On-the-fly Data Reprocessing and Analysis Capabilities from the XMM-Newton Science Archive



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The XMM-Newton Science Archive (XSA) now includes the possibility to perform on-the-fly data processing with SAS through the Remote Interface for Science Analysis (RISA) system.

The analysis options presently available include extraction of spectra and light curves of user defined EPIC regions, events list filtering, image production and full reprocessing of data with the most recent SAS and calibration.

SAS + RISA

RISA is a Java web Client/Server application, which makes use of grid technologies offering all SAS functionalities over the network. Obviating the need to install SAS, any associated third party libraries or grid credentials, RISA follows the paradigm of bringing code to the data. It makes use of Virtual Observatory technology to interface with the XMM-Newton Archive (XSA) in order to retrieve data (SIAP) or to exchange information between different VO enabled applications through SAMP.





We offer a reduced suite of SAS functionalities integrated in the archive to process XMM-Newton data directly from the XSA through the RISA system. The new layer focuses on automatic data reduction using pre-defined workflows. This has been developed using RestFul services and gets executed on the ESAC grid using the same infrastructure as the whole RISA web services. As a possible future development, we are studying the migration of RISA web services from the grid to the cloud.

Scientific added value

Offering scientific data processing software as a SaaS application is a way to provide new functionality to data centres hosting data and science applications. Through "SAMPlyfication" or "RESTification" the data processing services can be offered to any potential client anywhere on the web.

Software curation

This conceptual system architecture is based on software virtualisation and the corresponding encapsulation within the processing layer.

This can extend the use of data processing packages and archive systems well beyond the end of operational phases.



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See the demo movie following this QR: or the link: https://youtu.be/2vNI1ABRgMQ

