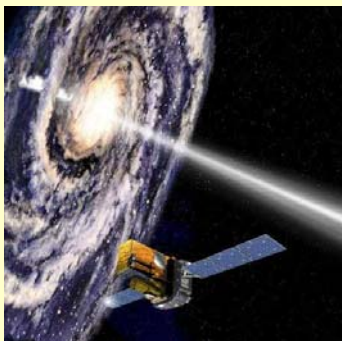


How to Adapt existing Archives to VO: the ISO and XMM-Newton cases



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ESAC and VO Services

□ ISO Data Archive

- Standard User Interface : <http://www.iso.vilspa.esa.es/ida/>
- SIAP : <http://pma.iso.vilspa.esa.es:8080/aio/jsp/siap.jsp?FORMAT=METADATA>
- SSA :
<http://pma.iso.vilspa.esa.es:8080/aio/jsp/siap.jsp?POS=304,38&SIZE=1&imagetype=spectrum>

□ XMM-Newton Science Archive

- Standard User Interface : <http://xmm.vilspa.esa.es/xsa/>
- SIAP : <http://xsa.vilspa.esa.es:8080/aio/jsp/siap.jsp?FORMAT=METADATA>

□ VOSpec

- Tool to handle spectra from VO SSAP compliant server
- <http://pma.standby.vilspa.esa.es:8080/vospec/>



Inter-Operability : 3 steps process

- ❑ Step 1: Specific inter-operability services
 - Postcard Server (access to preview images) via HTML
 - Product Server (access to data) via HTML request and data back by FTP

- ❑ Step 2: Generic Archive Inter-Operability System (AIO)
 - Includes original HTML postcard and product servers
 - Query Server (access to metadata)
 - Product Server (access to data) in socket mode, with XML request

- ❑ Step 3: VO compliant Inter-Operability System
 - Build extra layer on top of existing AIO system to comply with Virtual Observatory standards
 - Flexibility for any future standard changes



Archive VO compliant Architecture

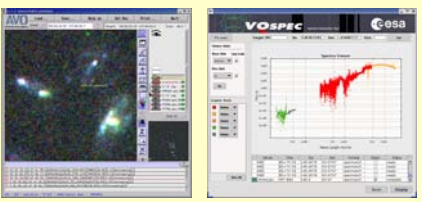


GUI Database/Product Request

GUI Database Result / Product



(Scriptable Interface)
 Foreach observation in (list)
 AIOgetdata (datatype)
 Process data



SIAP/SSA Request

VOTable / Product

Translation Layer

Project Product Request

Project Product

Archive Inter Operability

Project Business Logic

Translation Layer

DB/Product Request

DB Result / Product

DB/Product Request

DB Result / Product

DB/Product Request

DB Result / Product



Meta Data in Database

Products

Product Request



Data Products on hard disks

From outside to ISO data

From IRSA

ISO Visualizer

A tool for displaying ISO observations on the sky and provide links to the ISO postcard results.

Click here to see information and instructions

Background Image: 12 Micron, 60 Micron, ALL, 25 Micron, 100 Micron

Overlays: IRIS Point Sources, Coordinate Grid, IRIS Field Sources, ISO Observations

Coordinates for Object Name: (RA, Dec) 5.0

Locations Examples: 239 5648 11 3074 ex | 19117ex | 259623 Eqr J2000 | 46 5377 - 82516 ga | M 31

Default: ESA ISO Data Center | ISO Data Archive Access

ISO Postcard Server

How to get these data for publication

About the observing mode for this observation

Observation Quality Flag: Good

M51_LW3 17-DEC-1995 CAM01
(RA,Dec)=(19h29m53.50s,+47°13'44") (J2000) T0F No 03003401

CAM Filter centre: 14.30 μm - FWHM: 3.0 arcsec, Polar: HOLE

Click on the image (CAM01) for a zoomed view

ISOID	ObsID	File	DEC	RA	Physical Size	Resolution	Date of Observation	Equivalent	Field of View
ISO0001	M51_LW3_01	19951217_01	47.22311	19.49872	0.0000	0.0000	1995-12-17 00:00:00	0.0000	0.0000
ISO0002	M51_LW3_02	19951217_02	47.22311	19.49872	0.0000	0.0000	1995-12-17 00:00:00	0.0000	0.0000

From CDS/VizieR

VizieR Result Page

Result of VizieR Search within 15 minutes of M 51 (J2000+13 29 52 +47 13 41) (no other constraint specified)

ISO Observation Log of validated data (ISO Data Center, 2001) (Read/No)

Star	RA	DEC	Target	ADT	TID	RA(J2000)	DEC(J2000)	Star Name
1	19.49872	47.22311	M51	SWISST	0300020	282.4883	+47.1881	3286
2	19.49872	47.22311	M51	SWISST	0300020	282.4700	+47.1952	3962

From ADS

NASA ADS Abstract Service

ISO Observation Log of validated data (ISO Data Center, 2001) (Read/No)

Links for 1995Apr..498L..65L

- InfoSpace Observatory Clans 19951217L..AOT..61L
- InfoSpace Observatory Clans 19951217L..AOT..62L
- InfoSpace Observatory Clans 19951217L..AOT..63L
- InfoSpace Observatory Clans 19951217L..AOT..64L
- InfoSpace Observatory Clans 19951217L..AOT..65L
- InfoSpace Observatory Clans 19951217L..AOT..66L
- InfoSpace Observatory Clans 19951217L..AOT..67L
- InfoSpace Observatory Clans 19951217L..AOT..68L
- InfoSpace Observatory Clans 19951217L..AOT..69L
- InfoSpace Observatory Clans 19951217L..AOT..70L
- InfoSpace Observatory Clans 19951217L..AOT..71L
- InfoSpace Observatory Clans 19951217L..AOT..72L
- InfoSpace Observatory Clans 19951217L..AOT..73L
- InfoSpace Observatory Clans 19951217L..AOT..74L
- InfoSpace Observatory Clans 19951217L..AOT..75L
- InfoSpace Observatory Clans 19951217L..AOT..76L
- InfoSpace Observatory Clans 19951217L..AOT..77L
- InfoSpace Observatory Clans 19951217L..AOT..78L
- InfoSpace Observatory Clans 19951217L..AOT..79L
- InfoSpace Observatory Clans 19951217L..AOT..80L
- InfoSpace Observatory Clans 19951217L..AOT..81L
- InfoSpace Observatory Clans 19951217L..AOT..82L
- InfoSpace Observatory Clans 19951217L..AOT..83L
- InfoSpace Observatory Clans 19951217L..AOT..84L
- InfoSpace Observatory Clans 19951217L..AOT..85L
- InfoSpace Observatory Clans 19951217L..AOT..86L
- InfoSpace Observatory Clans 19951217L..AOT..87L
- InfoSpace Observatory Clans 19951217L..AOT..88L
- InfoSpace Observatory Clans 19951217L..AOT..89L
- InfoSpace Observatory Clans 19951217L..AOT..90L
- InfoSpace Observatory Clans 19951217L..AOT..91L
- InfoSpace Observatory Clans 19951217L..AOT..92L
- InfoSpace Observatory Clans 19951217L..AOT..93L
- InfoSpace Observatory Clans 19951217L..AOT..94L
- InfoSpace Observatory Clans 19951217L..AOT..95L
- InfoSpace Observatory Clans 19951217L..AOT..96L
- InfoSpace Observatory Clans 19951217L..AOT..97L
- InfoSpace Observatory Clans 19951217L..AOT..98L
- InfoSpace Observatory Clans 19951217L..AOT..99L
- InfoSpace Observatory Clans 19951217L..AOT..100L

From HEASARC

HEASARC Browse Search Results of 8 Apr 2002

Search results for: M51_LW3

ISOID	ObsID	File	DEC	RA	Physical Size	Resolution	Date of Observation	Equivalent	Field of View
ISO0001	M51_LW3_01	19951217_01	47.22311	19.49872	0.0000	0.0000	1995-12-17 00:00:00	0.0000	0.0000



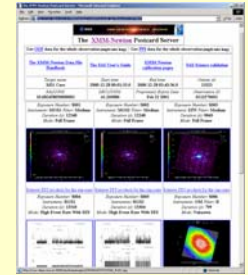
Step 1: Specific inter-operability services

- Remote client needs to know the list of observations (metadata) in the archive
 - Provision and regular updates of the “observation log”

- Access to postcard server via HTML
 - <http://xsa.vilspa.esa.es:8080/aio/jsp/createPostcards.jsp?obsno=0112570601>

- Access to product server via HTML, data back via FTP
 - <http://xsa01.vilspa.esa.es:8080/aio/jsp/product.jsp?obsno=0112570601&level=ODF>

- Drawbacks
 - Difficult and static access to metadata
 - Difficult to make automatic script to download lots of data
 - Limited level of data processing accessible (raw, fully processed)





Step 2: AIO System



- ❑ Complete Inter-Operability system
 - Access to metadata dynamically (via XML scripting)
 - Access to postcard server (preview image) as before via HTML
 - Access to product server (data) as before via HTML, data back in FTP
 - Access to product server in socket mode (XML request), data back through socket
 - Access to all level of data processing products, access to individual files

- ❑ Provides powerful scriptable interface for internal and external users

```
Foreach observation in (list)
  AIOgetdata (datatype)
  Process data
```

- ❑ Used a lot by Scientists for Calibration and Monitoring purposes
 - As if they have the complete data repository on their local disk



Step 3: VO compliant AIO System

- ❑ Our existing AIO already carried all the functionalities required by the new VO standards
 - Access to metadata (database)
 - Access to products (data repository)

- ❑ By using “Translation Layer”, easy to convert the VO standards interfaces into our AIO interfaces
 - Little effort required
 - Translation Layer easy to code using XML

- ❑ As VO standards evolve, our AIO system remains, but we just have to adapt our translation layers



Conclusions

- ❑ Archive Inter-Operability aspects
 - Own inter-operability system for project specific needs (AIO)
 - Adapt own AIO system to VO interoperability standards via translation layers

- ❑ Adapting ISO and XMM-Newton archives to VO standards (SIAP, SSAP)
 - Made easy by use of open 3-tier architecture
 - Keep your own project back-end (data store, database) as is
 - Use of translation layers will facilitate changes while VO standards are still evolving

- ❑ Jsp/Servlets/Java has proven to be a good suite for developing VO interoperability