

# ami

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## Scientific Metadata Ecosystem

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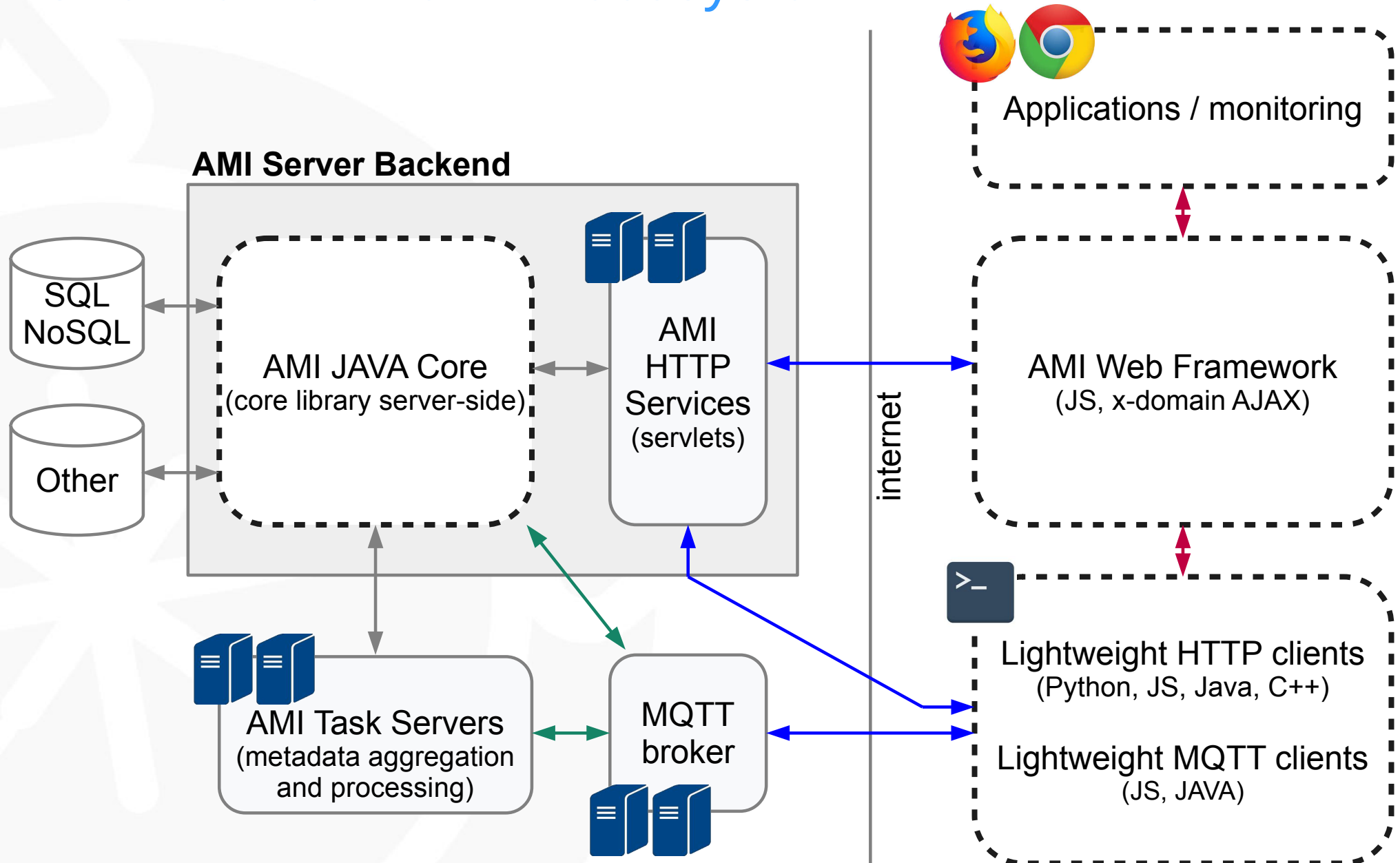


# What is AMI?

- AMI (ATLAS Metadata Interface) is a generic ecosystem for metadata:
  - Heterogenous datasource connectivity
  - Primitives for metadata extraction and processing
  - High level tools for selecting data by metadata criteria
- The ecosystem has development kits for:
  - Developing JAVA business objects (server-side)
  - Developing metadata-oriented Web applications (client-side)
- AMI is designed for:
  - Scalability, evolutivity and maintainability

- Used by the ATLAS production system

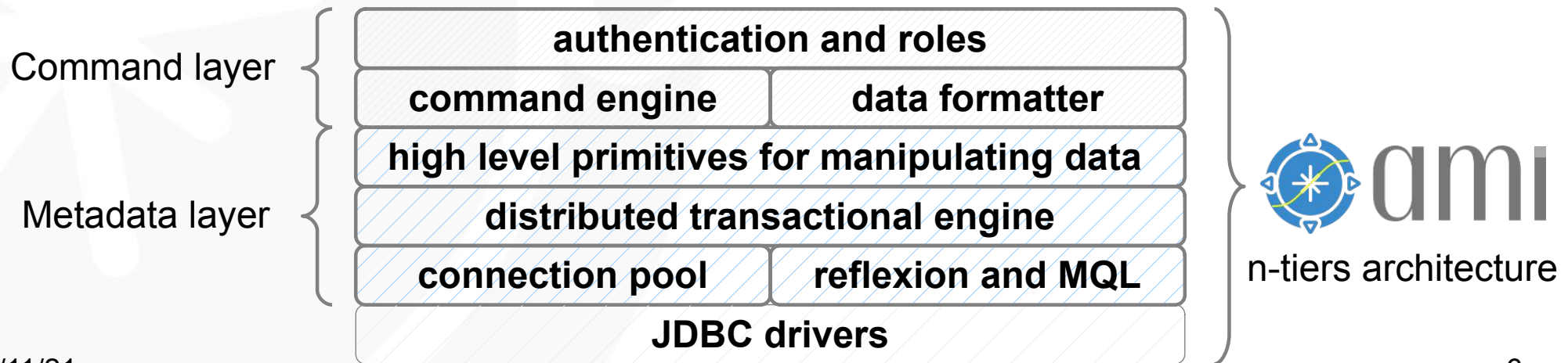
# Overview of the AMI ecosystem



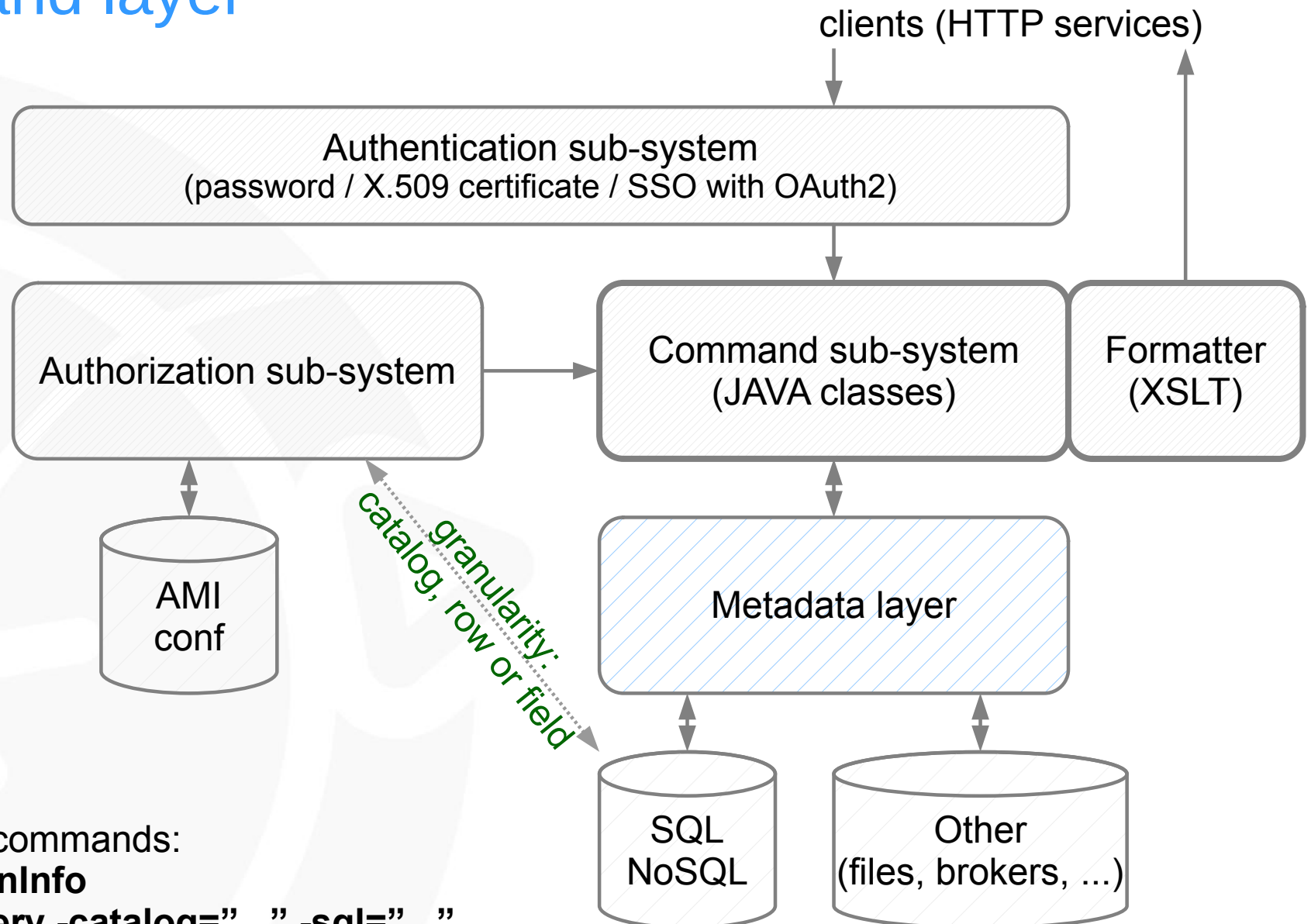
# AMI JAVA Core

# AMI JAVA Core features

- AMI JAVA Core is the central part of the AMI ecosystem
- Main features:
  - Authentication and authorizations
  - Command engine (~100 generic commands, ~500 ATLAS-specific commands)
    - Metadata queries (trivial [SQL, MQL] or more complex, read or write), experiment-specific commands, service administration, ...
  - High level primitives for manipulating data
    - DB rowsets, JSON documents, XML documents, remote access, ...
  - Metadata Query Language (MQL) and Structured Query Language (SQL)



# Command layer



Example of commands:

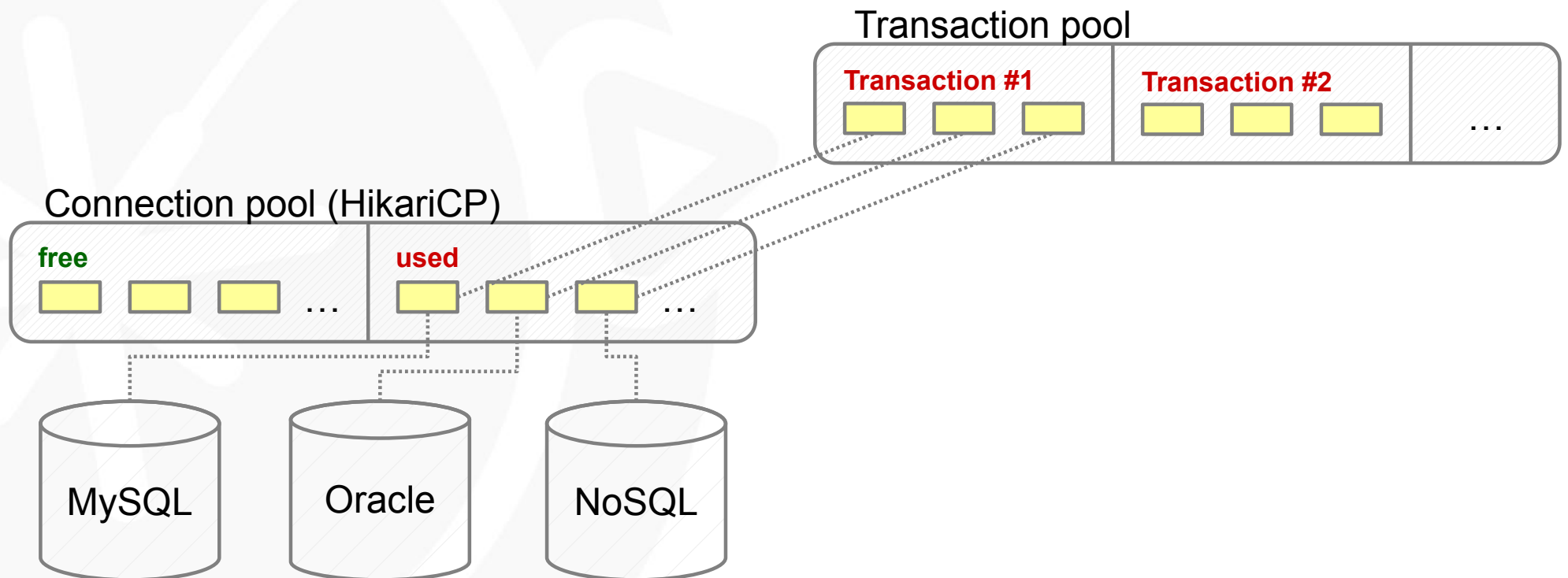
**GetSessionInfo**

**SearchQuery** -catalog="..." -sql="..."

**GetDatasetInfo** -logicalDatasetName="..."

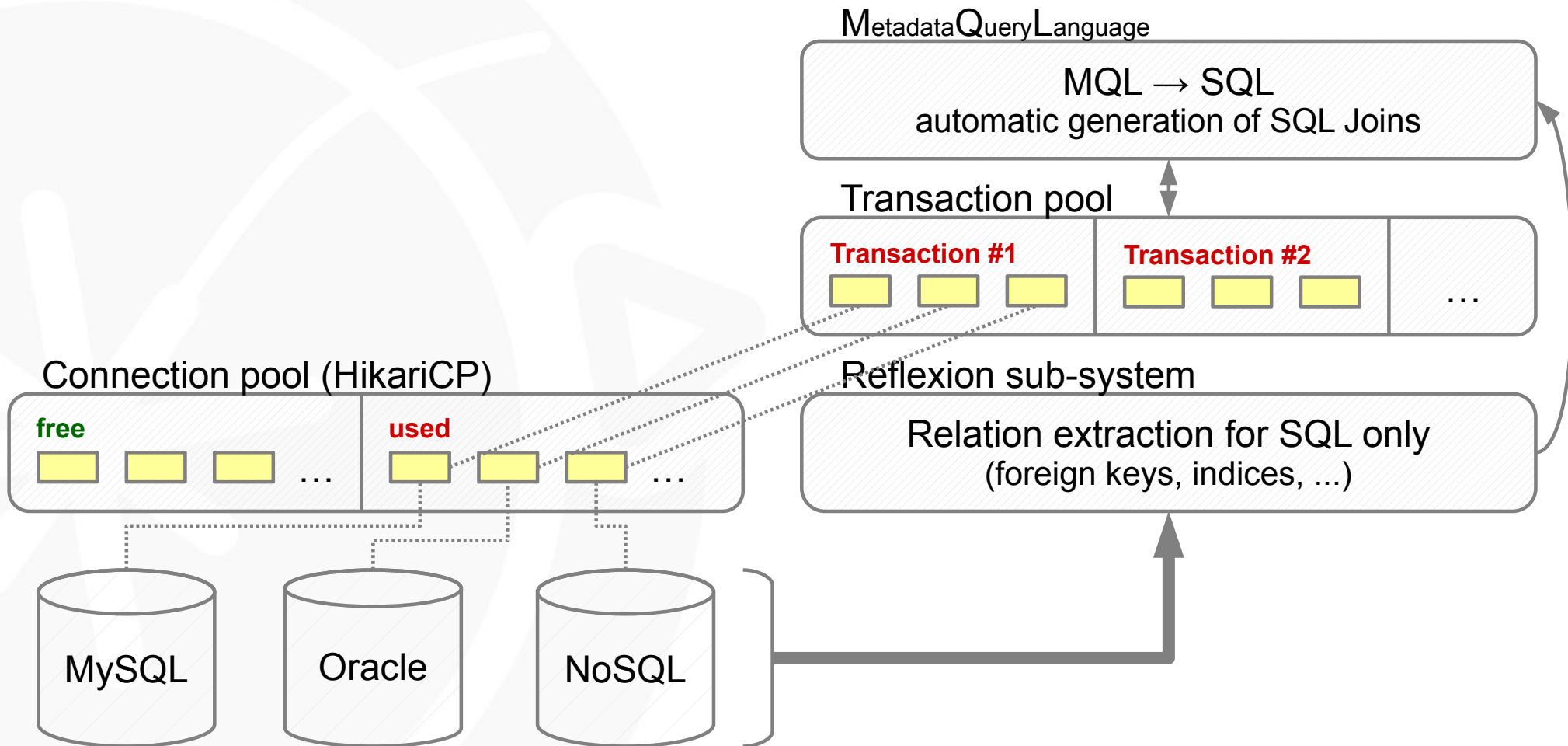
(for ATLAS, getting detailed dataset info)

# Metadata layer

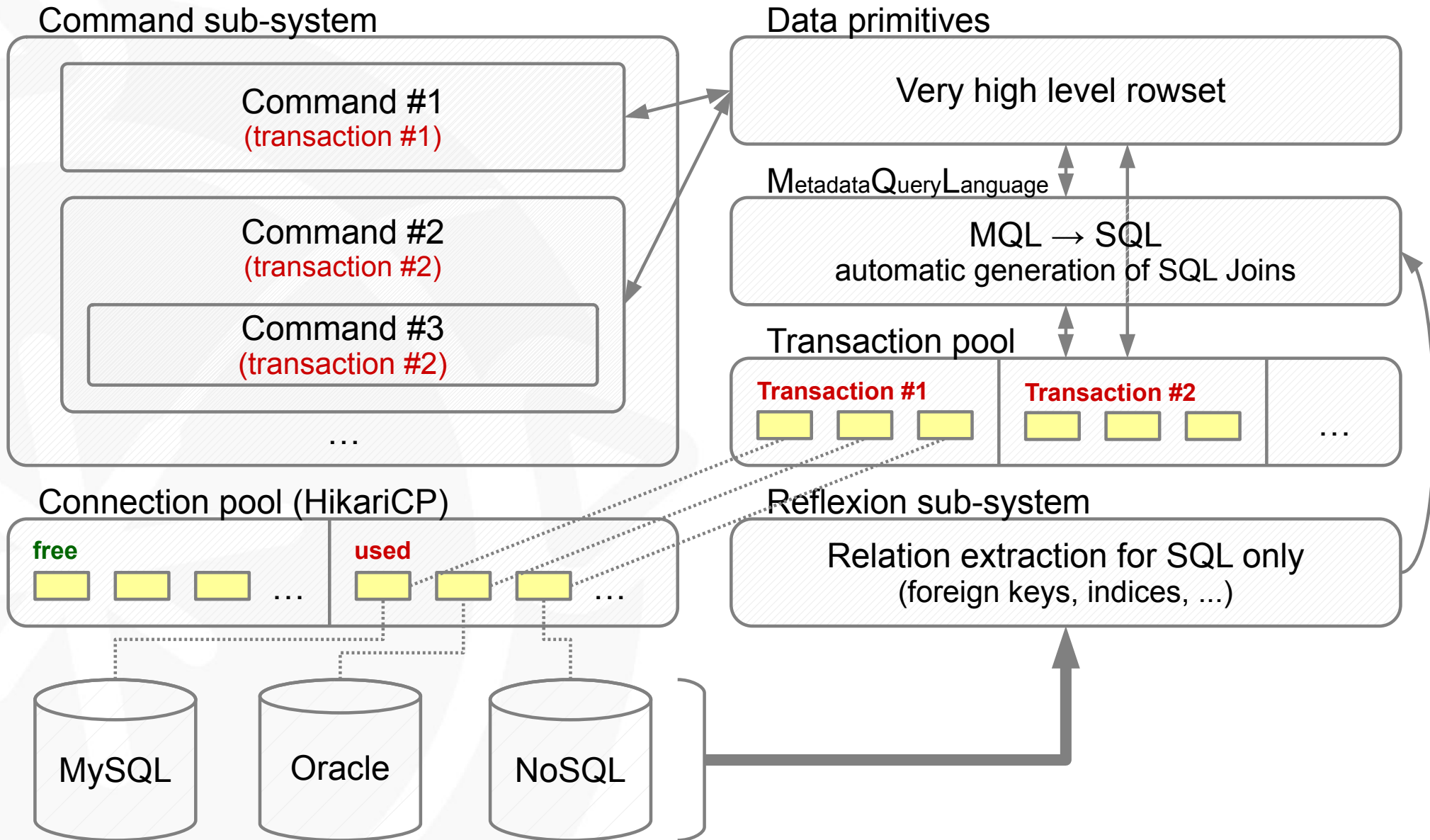




# Metadata layer



# Metadata layer



# Metadata Query Language (MQL)

- MQL is a kind of SQL without FROM clause nor join
- It makes it possible to build queries without (precisely) knowing relations
- Joins are automatically generated from the reflexion sub-system info
- MQL turns DB-oriented point of view to metadata-oriented point of view
- When there are cycles in relations, there is a dedicated syntax to apply path constraints

```
SELECT * WHERE (`AMISTATUS` = 'VALID')
AND
[`DATASET_KEYWORDS`.`KEYWORD` = 'stau']
AND
[`KEYWORD` = 'stop']
```

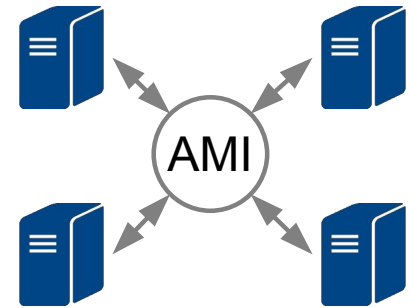
MQL to SQL

```
SELECT * FROM `ATLAS_AMI_MC16_02`,`DATASET`
WHERE
(
  `ATLAS_AMI_MC16_02`,`DATASET`,`AMISTATUS` = 'VALID'
)
AND (
  `ATLAS_AMI_MC16_02`,`DATASET`,`IDENTIFIER` IN (
    SELECT
      `ATLAS_AMI_MC16_02`,`DATASET`,`IDENTIFIER`
    FROM
      `ATLAS_AMI_MC16_02`,`DATASET_KEYWORDS`,
      `ATLAS_AMI_MC16_02`,`DATASET`
    WHERE
      (
        `ATLAS_AMI_MC16_02`,`DATASET_KEYWORDS`,`KEYWORD` = 'stau'
      )
      AND `ATLAS_AMI_MC16_02`,`DATASET_KEYWORDS`,`DATASETFK` = `ATLAS_AMI_MC16_02`,`DATASET`,`IDENTIFIER`
    )
  )
)
AND (
  `ATLAS_AMI_MC16_02`,`DATASET`,`IDENTIFIER` IN (
    SELECT
      `ATLAS_AMI_MC16_02`,`DATASET`,`IDENTIFIER`
    FROM
      `ATLAS_AMI_MC16_02`,`DATASET_KEYWORDS`,
      `ATLAS_AMI_MC16_02`,`DATASET`
    WHERE
      (
        `ATLAS_AMI_MC16_02`,`DATASET_KEYWORDS`,`KEYWORD` = 'stop'
      )
      AND `ATLAS_AMI_MC16_02`,`DATASET_KEYWORDS`,`DATASETFK` = `ATLAS_AMI_MC16_02`,`DATASET`,`IDENTIFIER`
    )
  )
)
```

# AMI Task Server

# AMI Task Server features

- The AMI Task Server is used for:
  - Extracting metadata from primary sources (pull mode)
  - (Re)Processing metadata
  - Storing metadata in AMI
- It can run any kind of tasks (shell, python, java, ...)
- When needed, it can benefit from the AMI Java Core library
- Main features:
  - Kind of super CRON
  - The AMI Task Server is distributed
  - Web interfaces and monitoring (via MQTT)
  - Mutual exclusion mechanism between tasks
  - Priority lottery scheduler for avoiding starvation (not real time)
  - One shot tasks



for instance  
4 AMI Task Servers

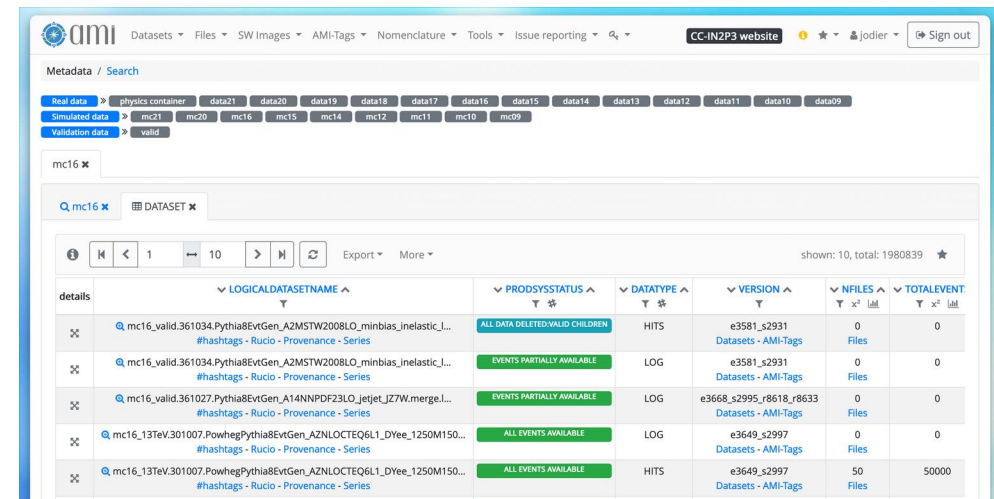
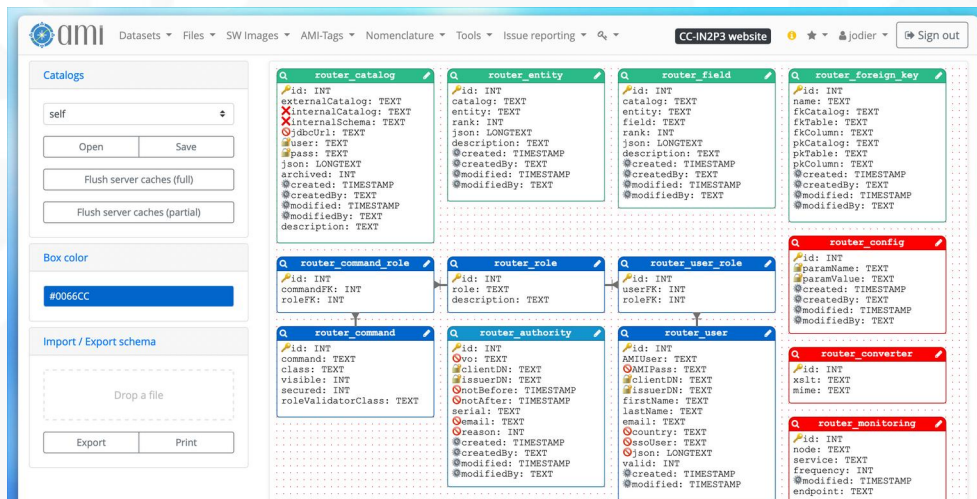
## In ATLAS:

- Metadata extraction from Tier0 (real data)
- Metadata extraction from ProdSys (simulated data, reprocessing)
- ActiveMQ messages from RUCIO (data placement)
- ~50 other tasks

# AMI Web Framework

# AMI Web Framework (AWF)

- A Web framework for designing metadata-oriented applications
- AWF can be used without the AMI Server Backend
  - Server-side, libraries AMIMini{PHP,Python,JAVA} can easily bridge AWF to existing services
- AWF is based on standard technologies:
  - JS2020 (transpiled to JS5 using webpack and babel), CSS3, HTML5
  - JQuery, Twitter Bootstrap 4 and 5, AMI-Twig (MVC pattern, homemade JavaScript Twig template engine implementation), Vue.js 3 (MVVM pattern)



# Features and patterns

- Authentication & roles
- URL router, short URLs
- Sub-applications and reusable graphic controls (object paradigm)
- Centralized resource live cycle management (CSS, JS, JSON, xml, Twig files; AMI sub-applications; AMI controls)
- Wizards for generating sub-application and control skeletons
- Patterns:
  - MVC
    - Model → AMI commands
    - View → TWIG templates
    - Controller → classes `ami.SubApp`, `ami.Control` (JavaScript)
  - MVVM
    - based on Vue.js 3 (new!)



# Default controls and applications

- Controls can be embedded in external Web pages such as wikis
- Applications are generally built by assembling controls
- Main available controls:
  - Dialog boxes
  - Controls for searching (Google-like Search, Criteria Search, ...)
  - Controls for displaying (Schema Viewer, Tab, Table, Element Info, ...)
  - Controls for annotating entities (WhiteBoard, ...)
- Main available applications:
  - Embedded CMS
  - AMI command interpreter
  - Admin Dashboard and Monitoring
  - Schema Viewer, Table Viewer, Simple Search, Criteria Search, Search Modeler, ...

# Screenshots

Searching ATLAS datasets by criteria

Displaying search results in AMI

Search Form

View Selection Selected datasets: 39287 (events: 44508947520, files: 7130962)

Simulated Data mc16

☒ Valid datasets

☐ projectName

☐ productionStep

☒ dataType

☒ version (AMI Tag)

☐ logicalDatasetName

☐ campaign

☐ subcampaign

☐ bunchspacing

☐ geometryVersion

☐ prodsysStatus

☐ datasetNumber

☐ generatorName

☐ ecmEnergy

☐ generatorTune

version (AMI Tag)

Any  
e2623\_s2997\_r8957  
e2623\_s2997\_r8957\_r8996  
e2623\_s2997\_r9191  
e2623\_s2997\_r9191\_r9128  
e2623\_s2997\_r9370  
e2623\_s2997\_r9370\_r9315

☐ Exact

dataType

Any  
AOD  
DAOD\_BPHY1  
DAOD\_BPHY4  
DAOD\_BPHY5  
DAOD\_BPHY6  
DAOD\_BPHY7

Select

details	LOGICALDATASETNAME	PRODSYSSTATUS	DATATYPE	VERSION	NFILES	TOTALEVENT
✖	mc16_valid.361034.Pythia8EvtGen_A2MSTW2008LO_minbias_inelastic_L... #hashtags - Rucio - Provenance - Series	ALL DATA DELETED/VALID CHILDREN	HITS	e3581_s2931 Datasets - AMI-Tags	0 Files	0
✖	mc16_valid.361034.Pythia8EvtGen_A2MSTW2008LO_minbias_inelastic_L... #hashtags - Rucio - Provenance - Series	EVENTS PARTIALLY AVAILABLE	LOG	e3581_s2931 Datasets - AMI-Tags	0 Files	0
✖	mc16_valid.361027.Pythia8EvtGen_A14NNPDF23LO_jetjet_J7W.merge_L... #hashtags - Rucio - Provenance - Series	EVENTS PARTIALLY AVAILABLE	LOG	e3668_s2995_r8618_r8633 Datasets - AMI-Tags	0 Files	0
✖	mc16_13TeV.301007.PowhegPythia8EvtGen_AZNLOCTEQ6L1_DYee_1250M150... #hashtags - Rucio - Provenance - Series	ALL EVENTS AVAILABLE	LOG	e3649_s2997 Datasets - AMI-Tags	0 Files	0
✖	mc16_13TeV.301007.PowhegPythia8EvtGen_AZNLOCTEQ6L1_DYee_1250M150... #hashtags - Rucio - Provenance - Series	ALL EVENTS AVAILABLE	HITS	e3649_s2997 Datasets - AMI-Tags	50 Files	50000
✖	mc16_13TeV.423000.ParticleGun_single_electron_egammaET.simul.log... #hashtags - Rucio - Provenance - Series	EVENTS PARTIALLY AVAILABLE	LOG	e3566_s3007 Datasets - AMI-Tags	0 Files	0
✖	mc16_13TeV.423000.ParticleGun_single_electron_egammaET.simul.HIT... #hashtags - Rucio - Provenance - Series	ALL DATA DELETED/VALID CHILDREN	HITS	e3566_s3007 Datasets - AMI-Tags	0 Files	0
✖	mc16_13TeV.301006.PowhegPythia8EvtGen_AZNLOCTEQ6L1_DYee_1000M125... #hashtags - Rucio - Provenance - Series	ALL DATA DELETED/VALID CHILDREN	HITS	e3649_s2997 Datasets - AMI-Tags	0 Files	0
✖	mc16_13TeV.301006.PowhegPythia8EvtGen_AZNLOCTEQ6L1_DYee_1000M125... #hashtags - Rucio - Provenance - Series	ALL EVENTS AVAILABLE	LOG	e3649_s2997 Datasets - AMI-Tags	0 Files	0
✖	mc16_13TeV.361021.Pythia8EvtGen_A14NNPDF23LO_jetjet_J7W.simul.L... #hashtags - Rucio - Provenance - Series	ALL EVENTS AVAILABLE	LOG	e3569_s2997 Datasets - AMI-Tags	0 Files	0

Support

Webs

- Main
- Main Archive
- Plugins
- Sandbox for tests
- Public webs

Welcome Guest

Login or Register

## MC16 Dibosons samples

Datasets below have their "processGroup" in the form "Diboson\_XXX\_YYY"

MC16 Powheg samples

dibosons processes generated by Powheg

Datasets found: 1163

Use % for wildcarding

Filter

mc16\_13TeV.363893.PowhegPy8EQ\_CT10nloME\_AZNLOCTEQ6L1\_ZZqqll\_mq20ml20

EVNT HITS AOD NTUP\_PILEUP dataset

Details

Empty fields hidden

More...

Metadata

Identifier	301372	EI_METADATA
logicalDatasetName	mc16_13TeV.363893.PowhegPy8EQ_CT10nloME_AZNLOCTEQ6L1_ZZqqll_mq20ml20.simul.HITS.e5154_s3126	dataset
nFiles	5983	dataset_ki
totalEvents	7977350	dataset_or
totalSize	5553506367244	file
dataType	HITS	jobOpt
prodsysStatus	EVENTS PARTIALLY AVAILABLE	prodsys
completion	99.97	physicsParam

ami Datasets Files AMI-Tags Nomenclature Physics Tools Issue reporting

Jodier Sign out

AMI-Tags / Add/Reset/Clone 64 new version 99

AMI-Tags

Browse

Show/Edit

Compare

Add/Reset/Clone

Add tag Reset tag Clone tag

prod. Add a missing release yourself

AMI-Tag name

r8410

Import

AMI-Tag type

r

Production step

recon (f, k, r, v, w, x)

Release

AtlasProduction\_20.20.5.4

Transform

Reco\_tf.py

TViki about substeps

additional dpds

```

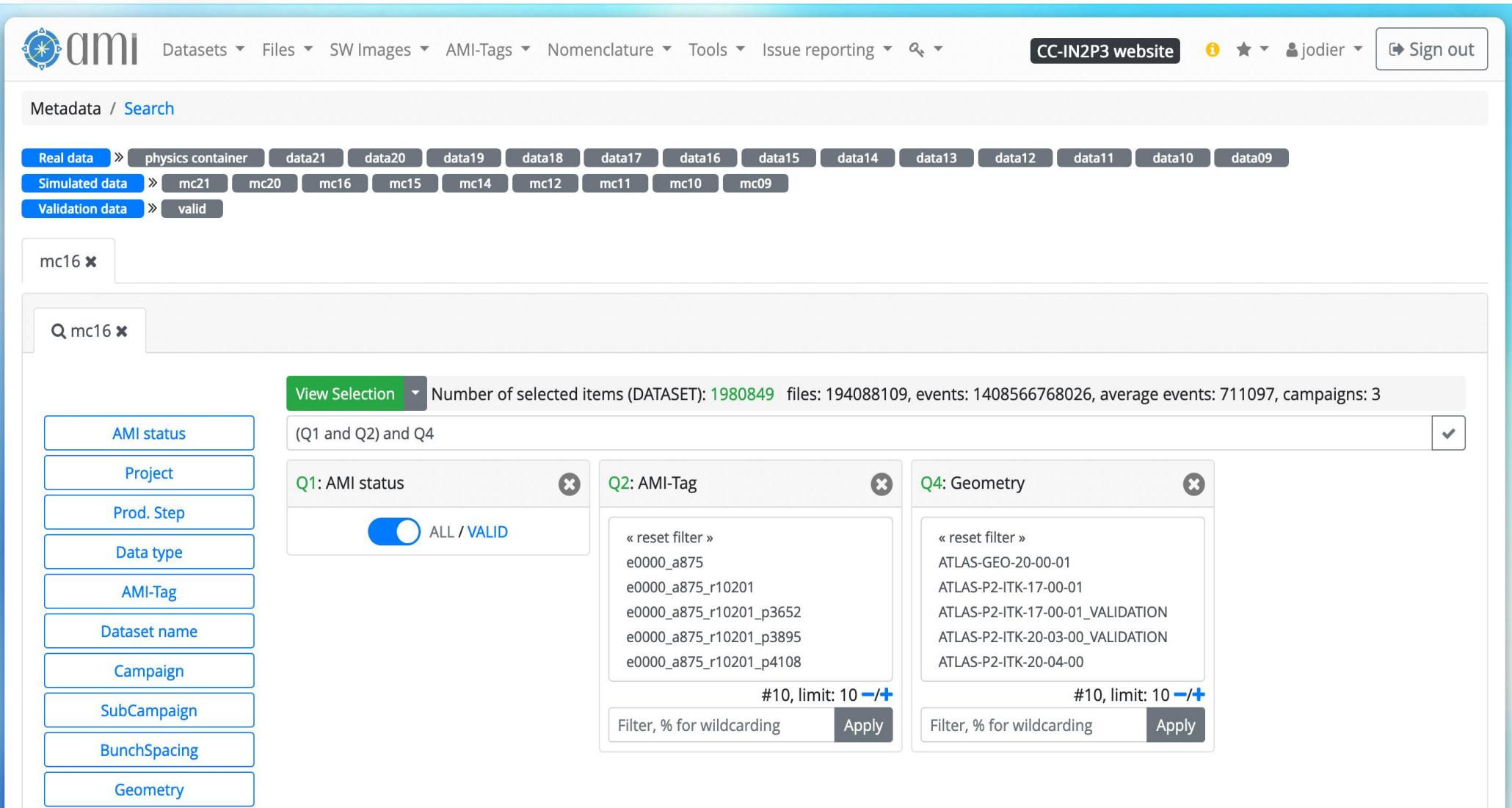
outputAOD_HSG2File file<AOD> outputDESIGN_ZMUMUFile file<ESD> outputNTUP_EHBIASFile file<NTUP>
outputNTUP_FASTMONFile file<NTUP> outputNTUP_FastCaloSimFile file<NTUP>
outputNTUP_HECNOISEFile file<NTUP> outputNTUP_HIGMULTIFile file<NTUP>
outputNTUP_LARNOISEFile file<NTUP> outputNTUP_MCPScaleFile file<NTUP> outputNTUP_MCPPTFile file<NTUP>
outputNTUP_MUONCALIBFile file<NTUP> outputNTUP_PROMPTPHOTFile file<NTUP> outputNTUP_SCTFile file<NTUP>
outputNTUP_SUSYTRUTHFile file<NTUP> outputNTUP_TRKVALIDFile file<NTUP> outputNTUP_TRTFile file<NTUP>
    
```

The AMI-Tags application

A control embedded in a wiki and connected to the central AMI service

This control executes the **GetDatasetInfo** command

# Screenshots



The screenshot shows the AMI web interface. At the top, there is a navigation bar with the AMI logo and a menu: Datasets, Files, SW Images, AMI-Tags, Nomenclature, Tools, Issue reporting, and a search icon. On the right of the navigation bar, there is a link to the CC-IN2P3 website, a user profile icon for 'jodier', and a 'Sign out' button.

Below the navigation bar, there is a 'Metadata / Search' section. It contains three tabs: 'Real data', 'Simulated data', and 'Validation data'. Under 'Real data', there are buttons for 'physics container' and a series of 'data' buttons from 'data21' to 'data09'. Under 'Simulated data', there are buttons for 'mc21' to 'mc09'. Under 'Validation data', there is a 'valid' button.

The 'mc16' dataset is selected, as indicated by the 'mc16 x' button. Below this, there is a search bar with 'Q mc16 x' and a search icon. To the left of the search results, there is a sidebar with filter categories: AMI status, Project, Prod. Step, Data type, AMI-Tag, Dataset name, Campaign, SubCampaign, BunchSpacing, and Geometry.

The main content area shows the 'View Selection' dropdown set to 'Number of selected items (DATASET): 1980849'. Below this, there is a summary of the selection: 'files: 194088109, events: 1408566768026, average events: 711097, campaigns: 3'. The selected items are '(Q1 and Q2) and Q4'.

Three filter panels are visible:



- Q1: AMI status**: A toggle switch is set to 'ALL / VALID'.
- Q2: AMI-Tag**: A list of tags is shown: « reset filter », e0000\_a875, e0000\_a875\_r10201, e0000\_a875\_r10201\_p3652, e0000\_a875\_r10201\_p3895, and e0000\_a875\_r10201\_p4108. Below the list, there is a filter input field with '#10, limit: 10 -/+ ' and an 'Apply' button.
- Q4: Geometry**: A list of geometry identifiers is shown: « reset filter », ATLAS-GEO-20-00-01, ATLAS-P2-ITK-17-00-01, ATLAS-P2-ITK-17-00-01\_VALIDATION, ATLAS-P2-ITK-20-03-00\_VALIDATION, and ATLAS-P2-ITK-20-04-00. Below the list, there is a filter input field with '#10, limit: 10 -/+ ' and an 'Apply' button.

# Screenshots

<div> <span>ⓘ</span> <span>⏮</span> <span>⏪</span> <span>1</span> <span>⏩</span> <span>10</span> <span>⏭</span> <span>⏹</span> <span>↺</span> <span>Export</span> <span>More</span> </div> <div>shown: 10, total: 1980839 <span>★</span></div>						
details	LOGICALDATASETNAME ▼	PRODSYSSTATUS ▼	DATATYPE ▼	VERSION ▼	NFILES ▼	TOTALEVENTS ▼
✕	<a href="#">mc16_valid.361034.Pythia8EvtGen_A2MSTW2008LO_minbias_inelastic_I...</a> <a href="#">#hashtags</a> - <a href="#">Rucio</a> - <a href="#">Provenance</a> - <a href="#">Series</a>	ALL DATA DELETED:VALID CHILDREN	HITS	e3581_s2931 <a href="#">Datasets</a> - <a href="#">AMI-Tags</a>	0 <a href="#">Files</a>	0
✕	<a href="#">mc16_valid.361034.Pythia8EvtGen_A2MSTW2008LO_minbias_inelastic_I...</a> <a href="#">#hashtags</a> - <a href="#">Rucio</a> - <a href="#">Provenance</a> - <a href="#">Series</a>	EVENTS PARTIALLY AVAILABLE	LOG	e3581_s2931 <a href="#">Datasets</a> - <a href="#">AMI-Tags</a>	0 <a href="#">Files</a>	0
✕	<a href="#">mc16_valid.361027.Pythia8EvtGen_A14NNPDF23LO_jetjet_JZ7W.merge.I...</a> <a href="#">#hashtags</a> - <a href="#">Rucio</a> - <a href="#">Provenance</a> - <a href="#">Series</a>	EVENTS PARTIALLY AVAILABLE	LOG	e3668_s2995_r8618_r8633 <a href="#">Datasets</a> - <a href="#">AMI-Tags</a>	0 <a href="#">Files</a>	0
✕	<a href="#">mc16_13TeV.301007.PowhegPythia8EvtGen_AZNLOCTEQ6L1_DYee_1250M150...</a> <a href="#">#hashtags</a> - <a href="#">Rucio</a> - <a href="#">Provenance</a> - <a href="#">Series</a>	ALL EVENTS AVAILABLE	LOG	e3649_s2997 <a href="#">Datasets</a> - <a href="#">AMI-Tags</a>	0 <a href="#">Files</a>	0
✕	<a href="#">mc16_13TeV.301007.PowhegPythia8EvtGen_AZNLOCTEQ6L1_DYee_1250M150...</a> <a href="#">#hashtags</a> - <a href="#">Rucio</a> - <a href="#">Provenance</a> - <a href="#">Series</a>	ALL EVENTS AVAILABLE	HITS	e3649_s2997 <a href="#">Datasets</a> - <a href="#">AMI-Tags</a>	50 <a href="#">Files</a>	50000
✕	<a href="#">mc16_13TeV.423000.ParticleGun_single_electron_egammaET.simul.log...</a> <a href="#">#hashtags</a> - <a href="#">Rucio</a> - <a href="#">Provenance</a> - <a href="#">Series</a>	EVENTS PARTIALLY AVAILABLE	LOG	e3566_s3007 <a href="#">Datasets</a> - <a href="#">AMI-Tags</a>	0 <a href="#">Files</a>	0
✕	<a href="#">mc16_13TeV.423000.ParticleGun_single_electron_egammaET.simul.HIT...</a> <a href="#">#hashtags</a> - <a href="#">Rucio</a> - <a href="#">Provenance</a> - <a href="#">Series</a>	ALL DATA DELETED:VALID CHILDREN	HITS	e3566_s3007 <a href="#">Datasets</a> - <a href="#">AMI-Tags</a>	0 <a href="#">Files</a>	0
✕	<a href="#">mc16_13TeV.301006.PowhegPythia8EvtGen_AZNLOCTEQ6L1_DYee_1000M125...</a> <a href="#">#hashtags</a> - <a href="#">Rucio</a> - <a href="#">Provenance</a> - <a href="#">Series</a>	ALL DATA DELETED:VALID CHILDREN	HITS	e3649_s2997 <a href="#">Datasets</a> - <a href="#">AMI-Tags</a>	0 <a href="#">Files</a>	0
✕	<a href="#">mc16_13TeV.301006.PowhegPythia8EvtGen_AZNLOCTEQ6L1_DYee_1000M125...</a> <a href="#">#hashtags</a> - <a href="#">Rucio</a> - <a href="#">Provenance</a> - <a href="#">Series</a>	ALL EVENTS AVAILABLE	LOG	e3649_s2997 <a href="#">Datasets</a> - <a href="#">AMI-Tags</a>	0 <a href="#">Files</a>	0
✕	<a href="#">mc16_13TeV.361021.Pythia8EvtGen_A14NNPDF23LO_jetjet_JZ1W.simul.I...</a> <a href="#">#hashtags</a> - <a href="#">Rucio</a> - <a href="#">Provenance</a> - <a href="#">Series</a>	ALL EVENTS AVAILABLE	LOG	e3569_s2997 <a href="#">Datasets</a> - <a href="#">AMI-Tags</a>	0 <a href="#">Files</a>	0

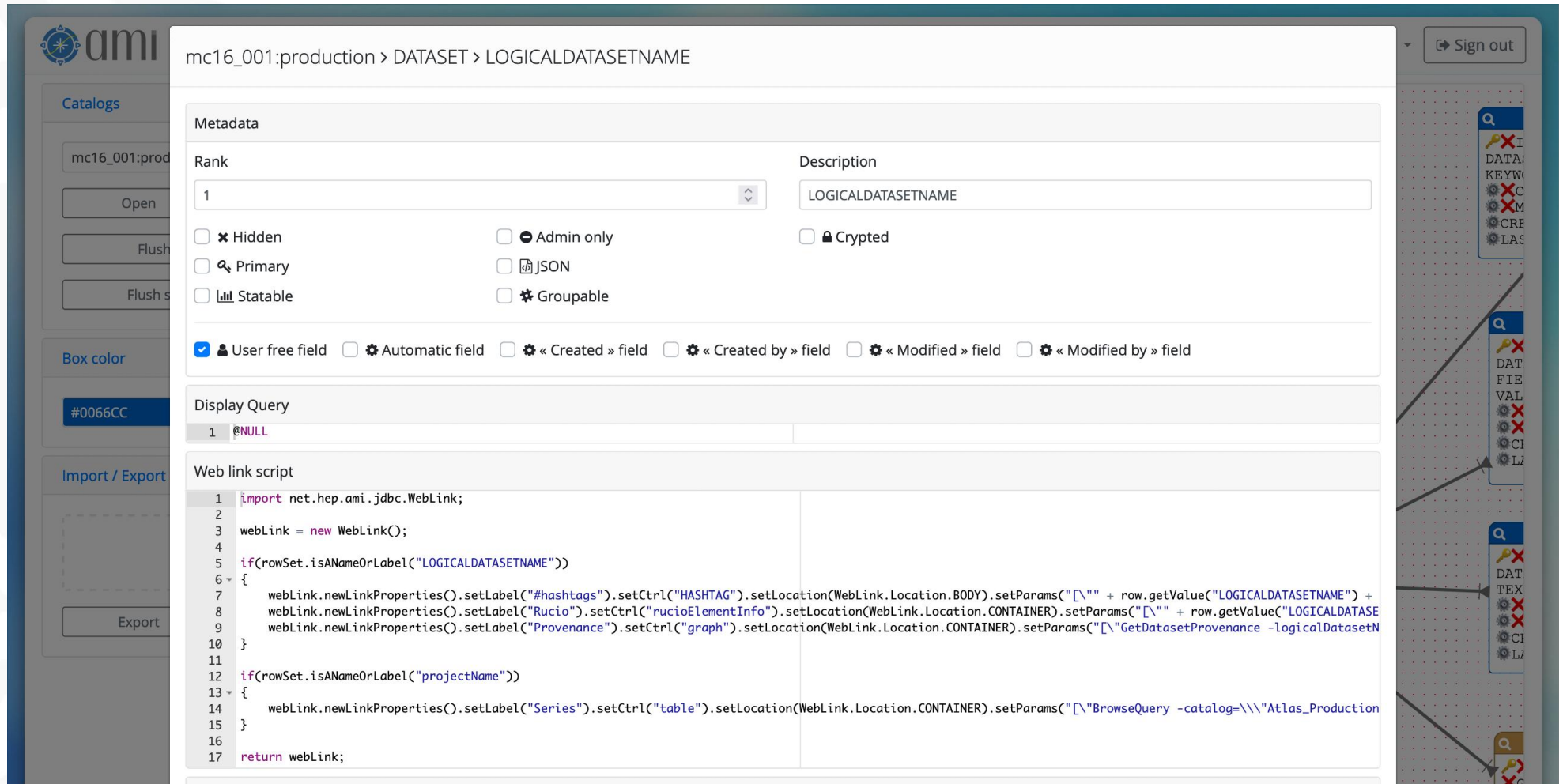


# Screenshots

<div>   <input type="checkbox"/> empty fields hidden / <span>shown</span> More... ▼         </div> <div>★</div>	
Metadata	
LOGICALDATASETNAME	<a href="#">mc16_valid.361034.Pythia8EvtGen_A2MSTW2008LO_minbias_inelastic_l...</a> <a href="#">#hashtags</a> - <a href="#">Rucio</a> - <a href="#">Provenance</a> - <a href="#">Series</a>
PRODSYSSTATUS	EVENTS PARTIALLY AVAILABLE
DATATYPE	LOG
VERSION	e3581_s2931 <a href="#">Datasets</a> - <a href="#">AMI-Tags</a>
NFILES	0 <a href="#">Files</a>
TOTALEVENTS	0
COMPLETION	99.0 %
STATSALGORITHM	exclude_outliers
PROJECTNAME	mc16_valid <a href="#">Project</a>
PHYSICSSHORT	Pythia8EvtGen_A2MSTW2008LO_minbias_inelastic_low
PHYSICISTRESPONSIBLE	UNKNOWN
PRINCIPALPHYSICSGROUP	gen-user
DATASETNUMBER	361034
GEOMETRYVERSION	ATLAS-R2-2016-00-00-00_VALIDATION
CONDITIONSTAG	OFLCOND-MC16-SDR-03
BEAMTYPE	collisions
RELATIONALLOADED	0
PRODUCTIONSTEP	simul
REQUESTEDBY	ycoadou
AMISTATUS	VALID
CREATED	2016-06-14 05:13:24.189510
LASTMODIFIED	2019-11-05 14:57:35.720279
GID	267210643

Linked Entities	
← <a href="#">DATASET_COMMENT</a>	0 record(s)
← <a href="#">DATASET_EXTRA</a>	1 record(s)
← <a href="#">DATASET_KEYWORDS</a>	0 record(s)
⇄ <a href="#">PHYSICSPARAMETERS</a>	0 record(s)
← <a href="#">DATASET_PROPERTY_BRIDGE</a>	0 record(s)
← <a href="#">FILES</a>	0 record(s)
← <a href="#">JOBOPTIONS</a>	0 record(s)
← <a href="#">PRODSYS_TASK</a>	1 record(s)
← <a href="#">PHYSICSPARAMETERVALS_ALL</a>	0 record(s)
← <a href="#">EI_METADATA_STATES_ALL</a>	1 record(s)
← <a href="#">HASHTAGS</a>	0 record(s)
← <a href="#">CAMPAIGN</a>	1 record(s)
← <a href="#">PHYSICSPARAMETERVALS</a>	0 record(s)

# Screenshots




The screenshot displays the AMI web interface for configuring a dataset. The breadcrumb navigation shows the path: mc16\_001:production > DATASET > LOGICALDATASETNAME. The interface is divided into several sections:

- Metadata:**
  - Rank:** A dropdown menu set to 1.
  - Description:** A text field containing "LOGICALDATASETNAME".
  - Properties:** A series of checkboxes for "Hidden", "Primary", "Statable", "Admin only", "JSON", "Groupable", and "Crypted".
  - Field Types:** A row of checkboxes for "User free field", "Automatic field", "« Created » field", "« Created by » field", "« Modified » field", and "« Modified by » field". The "User free field" option is selected.
- Display Query:** A section with a single query: 1 @NULL.
- Web link script:** A code editor containing a Java script that configures web links for the dataset. The script includes imports, object creation, and conditional logic to set link properties based on the dataset's name and project name.

The right sidebar contains a "Sign out" button and a vertical menu with icons for various data management functions.

# Screenshots



Datasets ▾ Files ▾ SW Images ▾ AMI-Tags ▾ Nomenclature ▾ Tools ▾ Issue reporting ▾ 🔍 ▾
CC-IN2P3 website ⓘ ★ ▾ jodier ▾ Sign out

Metadata / [Search Modeler](#)

### Search interfaces

- AMI-Tag :: dataset [goto ▾](#)
- AMI-Tag :: software [goto ▾](#)
- Software :: image [goto ▾](#)
- AMI-TagTest :: dataset [goto ▾](#)
- Real data :: physics container [goto ▾](#)
- Real data :: data21 [goto ▾](#)
- Real data :: data20 [goto ▾](#)
- Real data :: data19 [goto ▾](#)
- Real data :: data18 [goto ▾](#)
- Real data :: data17 [goto ▾](#)
- Real data :: data16 [goto ▾](#)
- Real data :: data15 [goto ▾](#)
- Real data :: data14 [goto ▾](#)
- Real data :: data13 [goto ▾](#)
- Real data :: data12 [goto ▾](#)
- Real data :: data11 [goto ▾](#)
- Real data :: data10 [goto ▾](#)
- Real data :: data09 [goto ▾](#)
- Simulated data :: mc21 [goto ▾](#)
- Simulated data :: mc20 [goto ▾](#)
- Simulated data :: mc16 [goto ▾](#)
- Simulated data :: mc15 [goto ▾](#)
- Simulated data :: mc14 [goto ▾](#)
- Simulated data :: mc12 [goto ▾](#)
- Simulated data :: mc11 [goto ▾](#)
- Simulated data :: mc10 [goto ▾](#)
- Simulated data :: mc09 [goto ▾](#)
- Validation data :: valid [goto ▾](#)

### Search interface modeler



Group\*

Name\*

Archived  
☒ no / yes

Options

Catalog\*

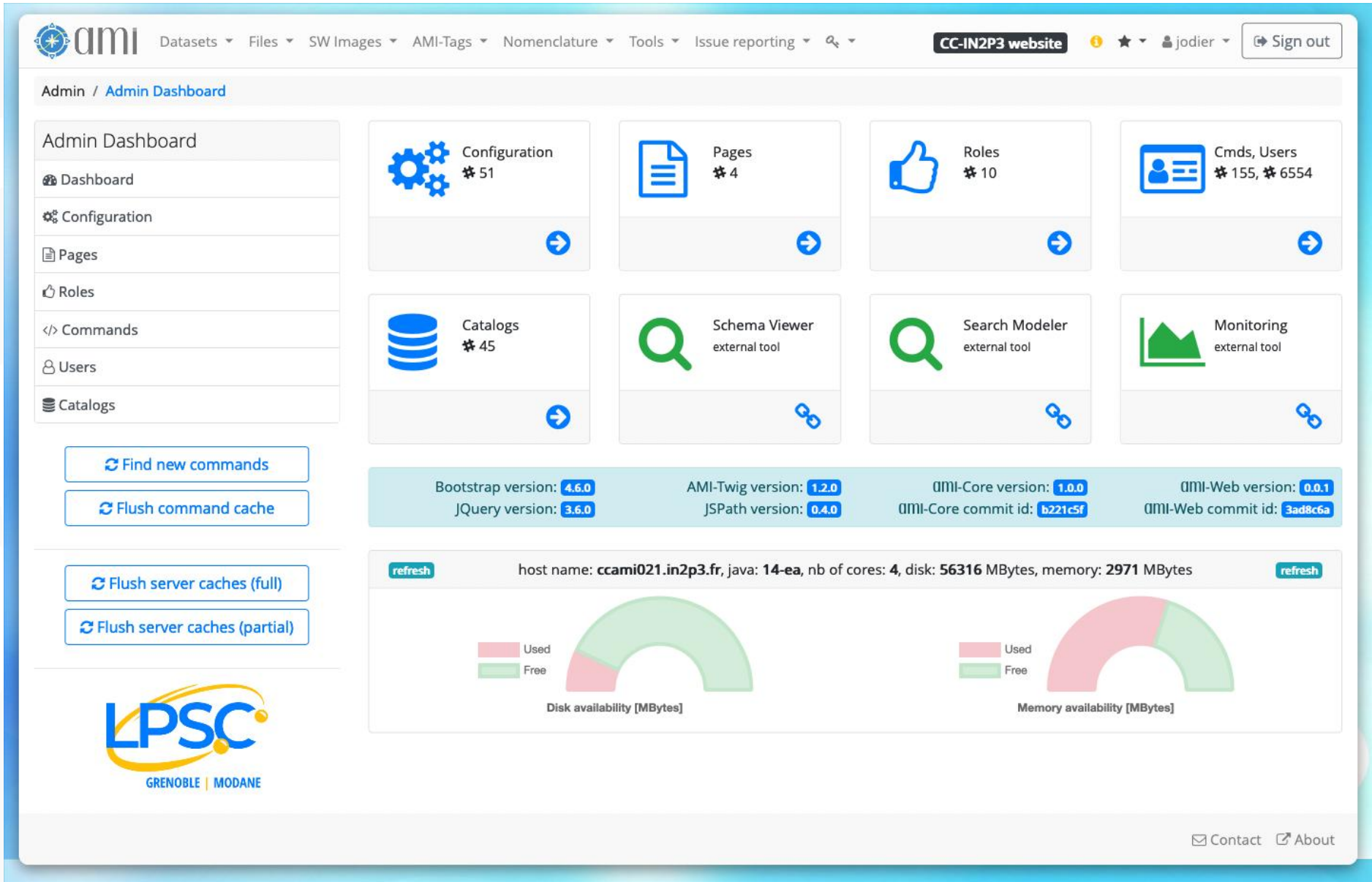
Entity\*

Primary field\*

Criteria (alias, catalog\*, entity\*, field\*, type\*)
➕ Add simple criterion
➕ Add key/val criterion

AMI status	data16_001:real_data	DATASET	AMISTATUS	boolean		
Project	data16_001:real_data	DATASET	PROJECTNAME	text (few results)		
Run number	data16_001:real_data	DATASET	RUNNUMBER	text (many results)		
Stream	data16_001:real_data	DATASET	STREAMNAME	text (few results)		
Prod. Step	data16_001:real_data	DATASET	PRODSTEP	text (few results)		
Data type	data16_001:real_data	DATASET	DATATYPE	text (few results)		
AMI-Tag	data16_001:real_data	DATASET	VERSION	text (many results)		
Dataset name	data16_001:real_data	DATASET	LOGICALDATASETNAME	text (many results)		
Campaign	data16_001:real_data	CAMPAIGN	CAMPAIGNNAME	text (few results)		
Period	data16_001:real_data	DATASET	PERIOD	text (few results)		
Geometry	data16_001:real_data	DATASET	GEOMETRYVERSION	text (many results)		
Status	data16_001:real_data	DATASET	PRODSYSSTATUS	text (few results)		
ECM energy	data16_001:real_data	DATASET	ECMENERGY	number		

# Screenshots



The screenshot displays the AMI Admin Dashboard. The top navigation bar includes links for Datasets, Files, SW Images, AMI-Tags, Nomenclature, Tools, and Issue reporting. The user is logged in as 'jodier' and can sign out. The dashboard is divided into several sections:

- Admin Dashboard:** A sidebar menu with links to Dashboard, Configuration, Pages, Roles, Commands, Users, and Catalogs.
- Configuration (51):** A card with a gear icon and a right arrow.
- Pages (4):** A card with a document icon and a right arrow.
- Roles (10):** A card with a thumbs up icon and a right arrow.
- Catalogs (45):** A card with a database icon and a right arrow.
- Schema Viewer:** An external tool card with a magnifying glass icon and a link icon.
- Search Modeler:** An external tool card with a magnifying glass icon and a link icon.
- Monitoring:** An external tool card with a line graph icon and a link icon.
- Cmds, Users (155, 6554):** A card with a user icon and a right arrow.
- Buttons:** A section with buttons for 'Find new commands', 'Flush command cache', 'Flush server caches (full)', and 'Flush server caches (partial)'.
- System Information:** A section showing versions for Bootstrap (4.6.0), JQuery (3.6.0), AMI-Twig (1.2.0), JSPath (0.4.0), OMI-Core (1.0.0), and OMI-Web (0.0.1), along with their respective commit IDs.
- Host Information:** A section showing host name 'ccami021.in2p3.fr', java version '14-ea', number of cores '4', disk size '56316 MBytes', and memory '2971 MBytes'.
- Availability Gauges:** Two donut charts showing 'Disk availability [MBytes]' and 'Memory availability [MBytes]' with 'Used' (pink) and 'Free' (green) segments.
- Footer:** The LPSC logo (Grenoble | Modane) and links for 'Contact' and 'About'.



# Conclusion

# Conclusion

- AMI is mature metadata ecosystem of more than 20 years of existence
- Originally developed for the ATLAS experiment:
  - i) Official dataset discovery tool (millions of datasets, billions of files),
  - ii) Used by the ATLAS production system (parameter definition for dataset processing), ...
- AMI Java Core
  - High level server-side JAVA library for processing metadata
    - i) High level primitives for manipulating metadata,
    - ii) Metadata Query Language (MQL),
    - iii) datasource connectivity.
- AMI Services + lightweight clients
  - AMI HTTP command service (proprietary), REST API, MQTT server control and monitoring
- AMI Task Server
  - Distributed system for extracting, processing and storing metadata
- AMI Web Framework
  - For developing metadata-oriented Web applications and graphic controls

Questions?