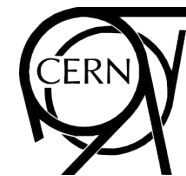


ami

Scientific Metadata Ecosystem

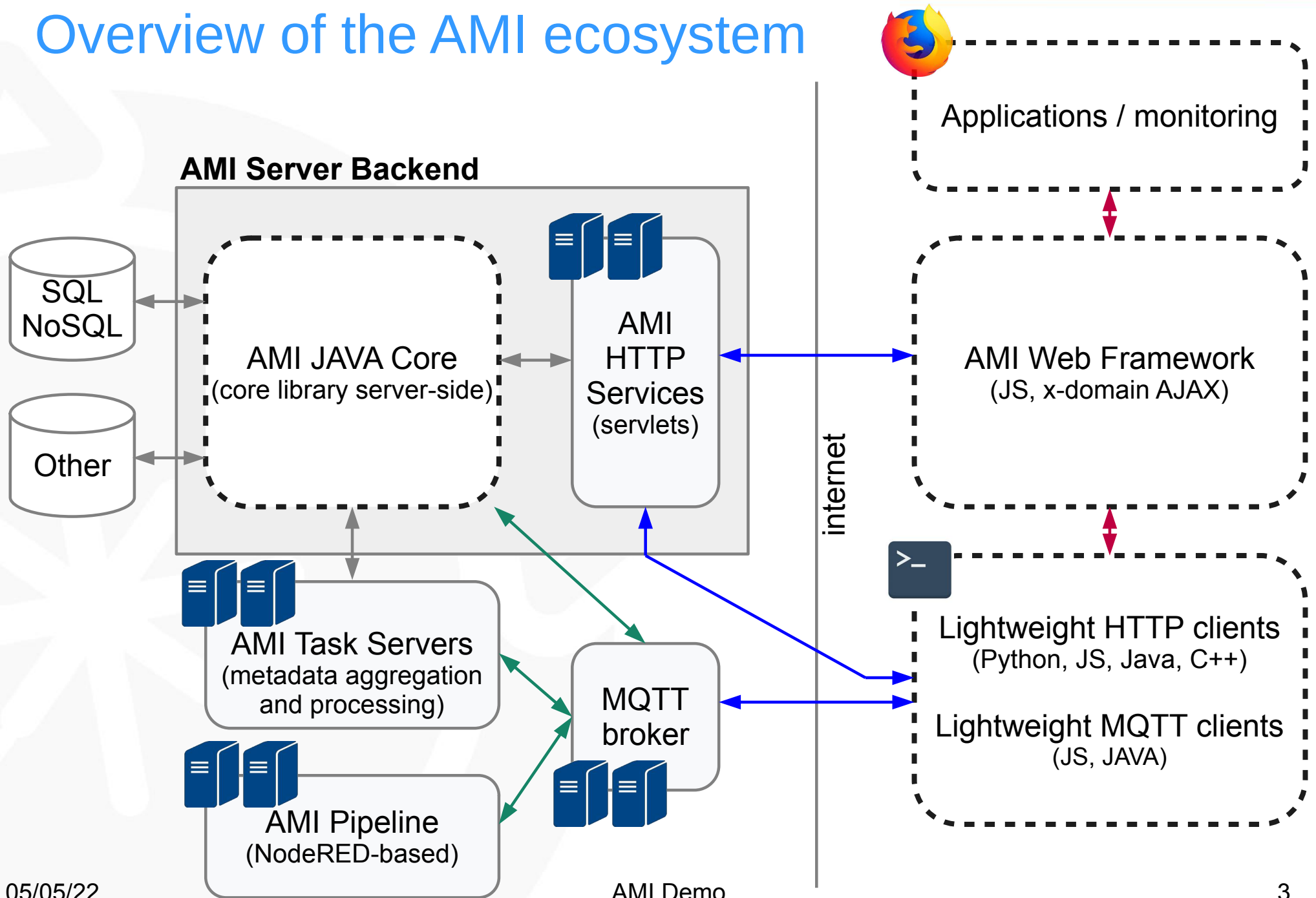
Fabian Lambert, Jérôme Fulachier, Jérôme Odier, Maxime Jaume, Pierre-Antoine Delsart



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**

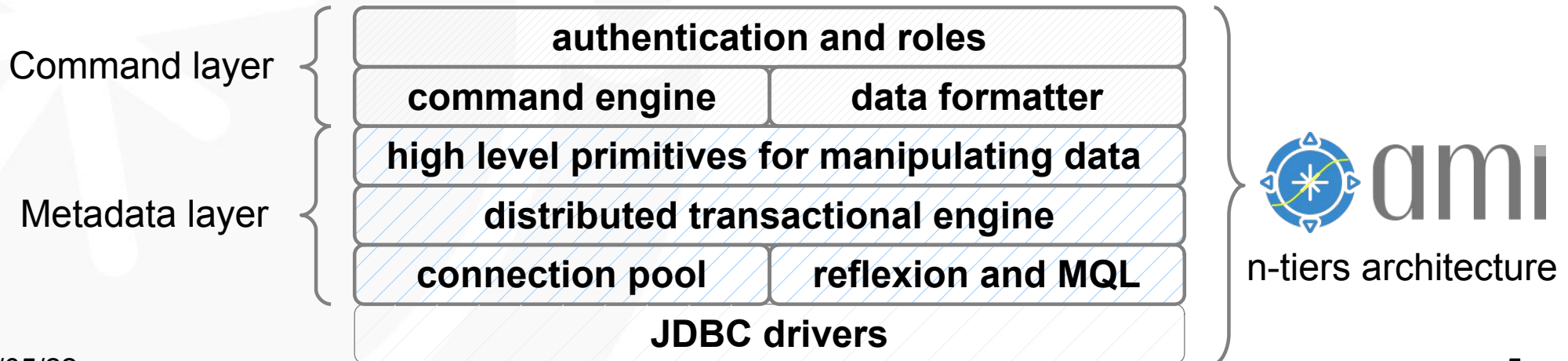
Overview of the AMI ecosystem



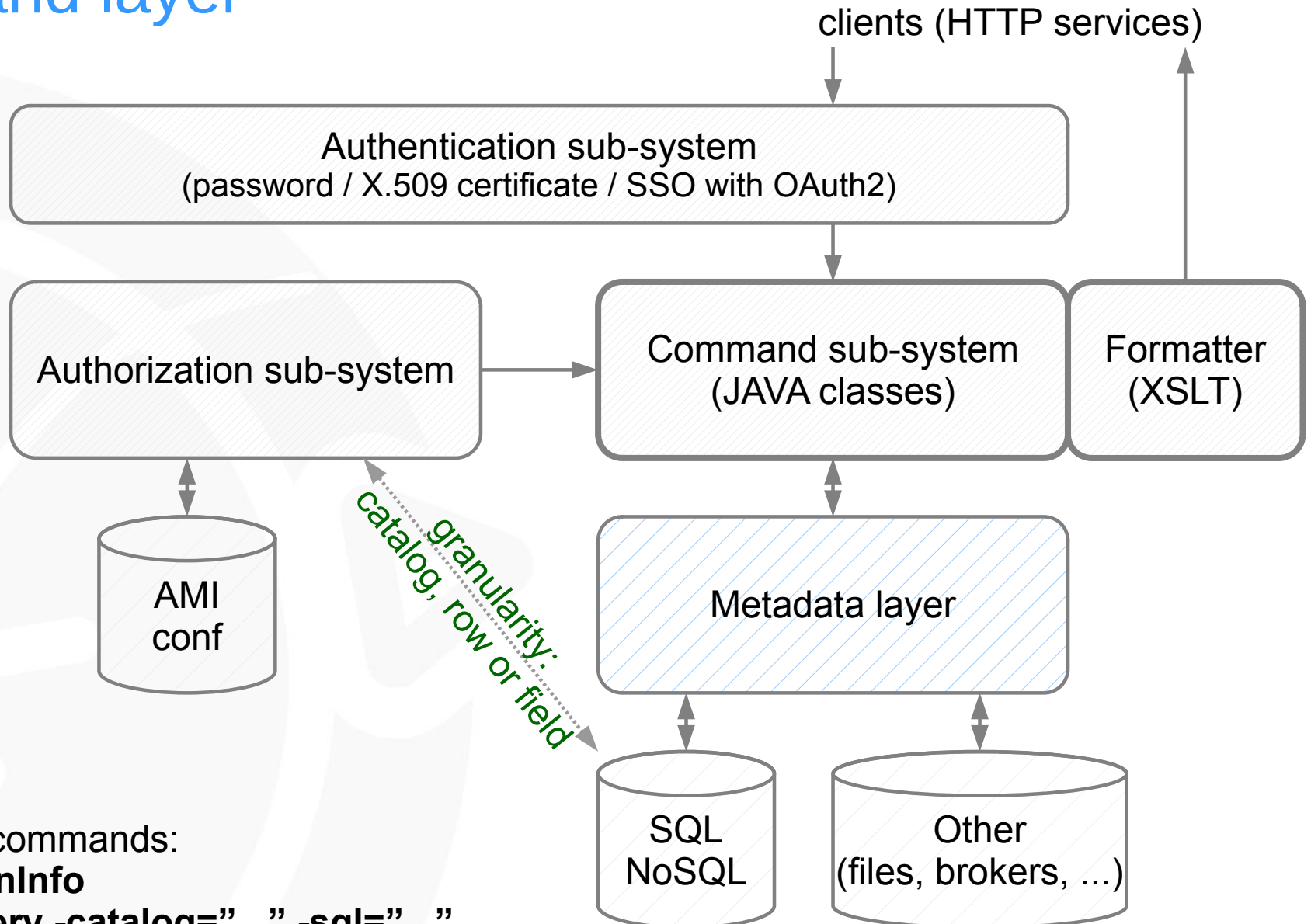
AMI JAVA Core

AMI JAVA Core features

- AMI JAVA Core is the central part of the AMI ecosystem
- Main features:
 - Authentication (SSO, OAuth2) and authorizations
 - Command engine (~100 generic 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



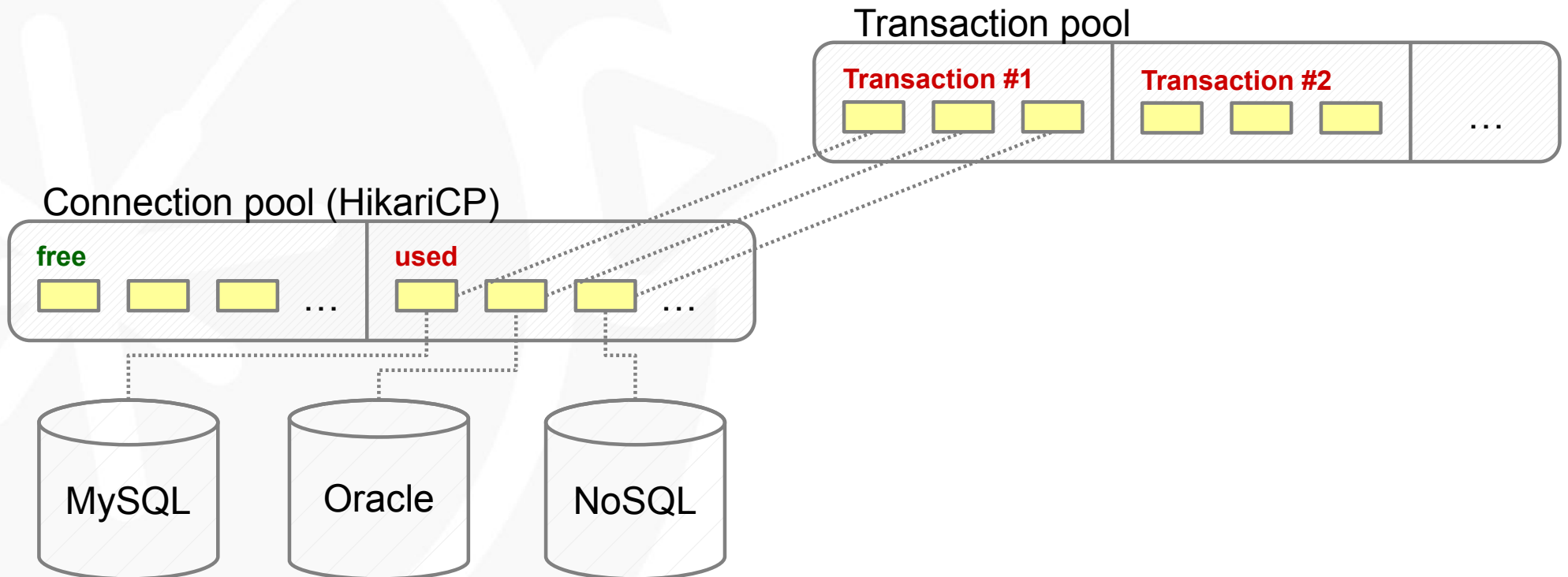
Example of commands:

GetSessionInfo

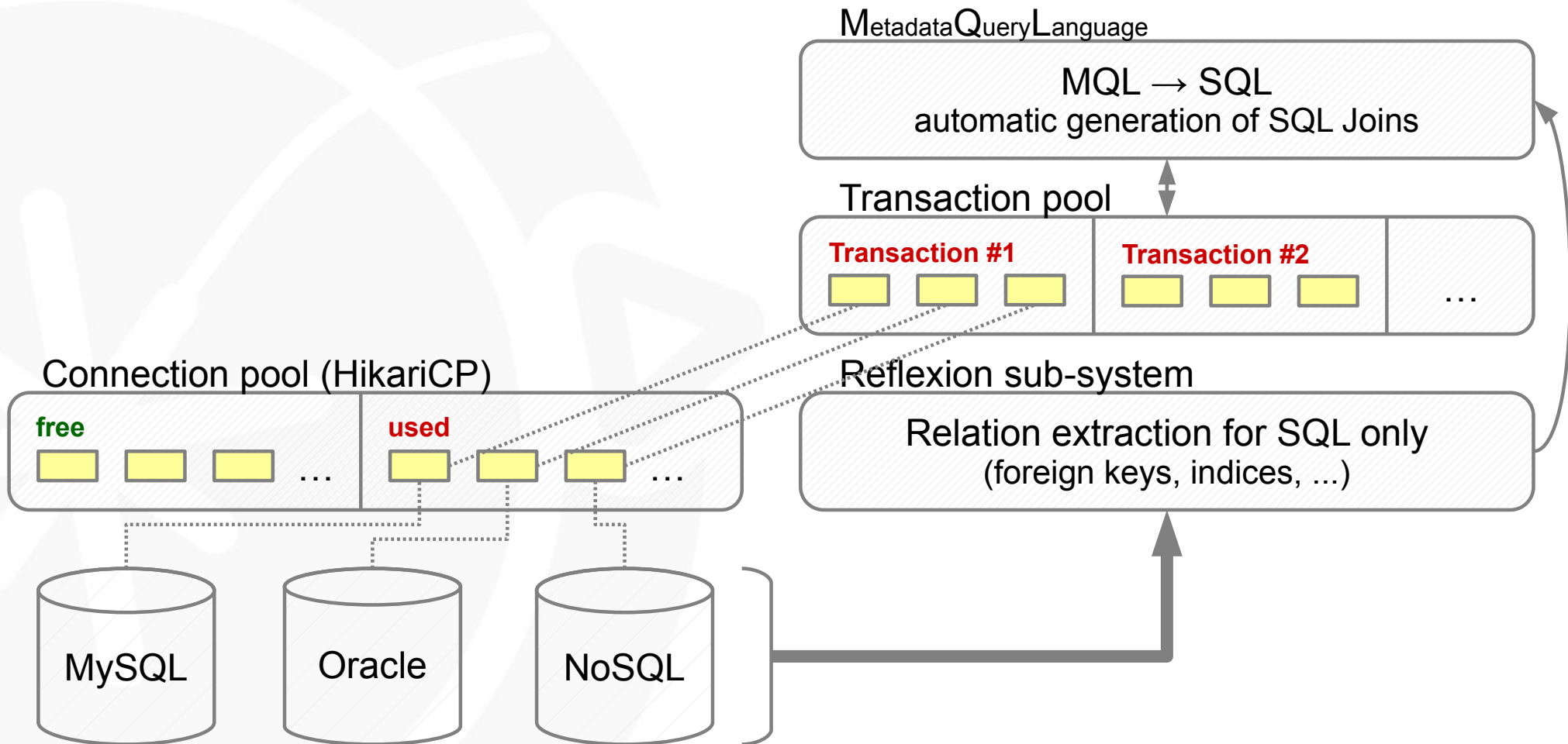
SearchQuery -catalog="..." -sql="..."

GetDatasetInfo -logicalDatasetName="..." (for ATLAS, getting detailed dataset info)

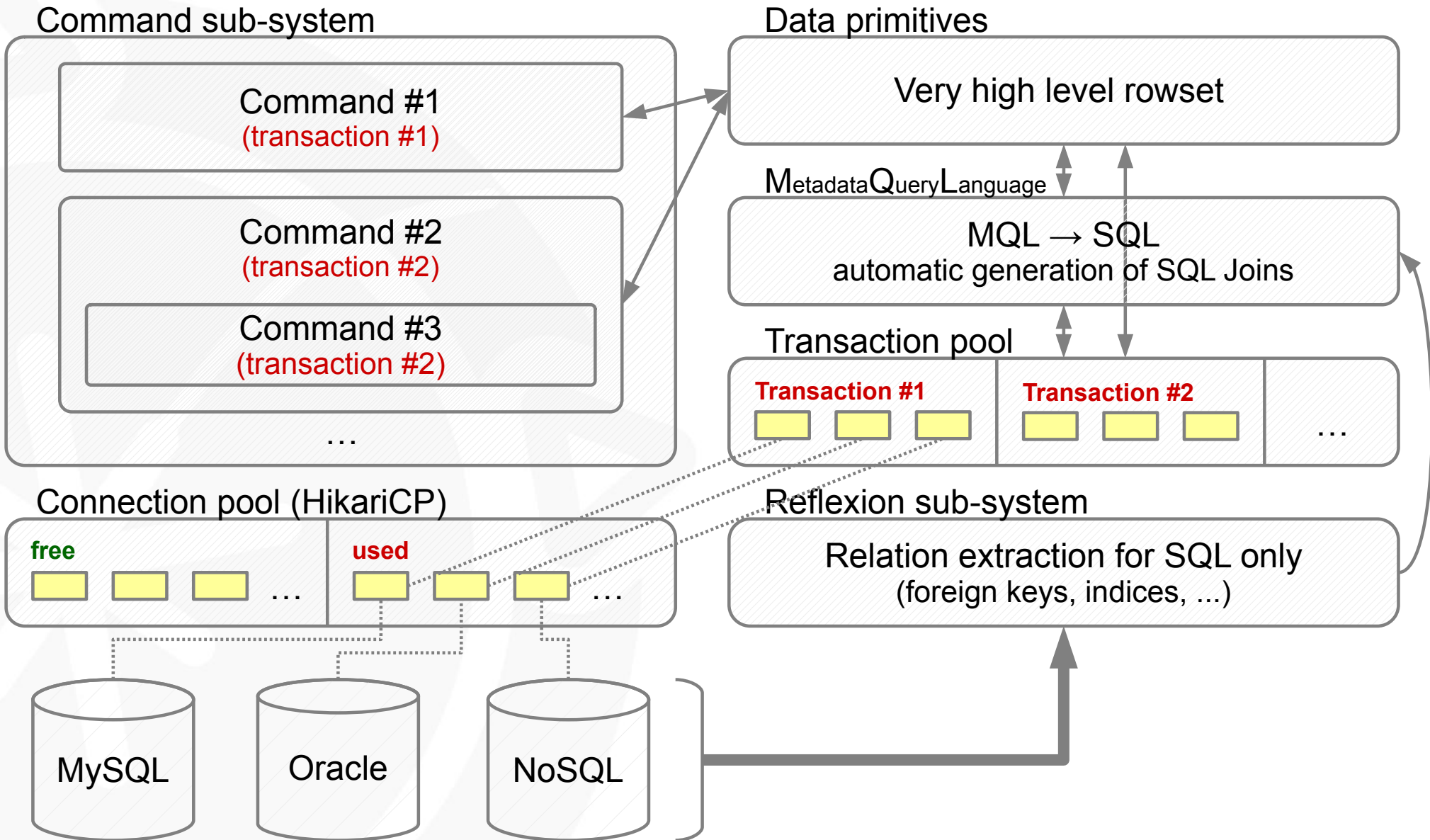
Metadata layer



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' ]
```

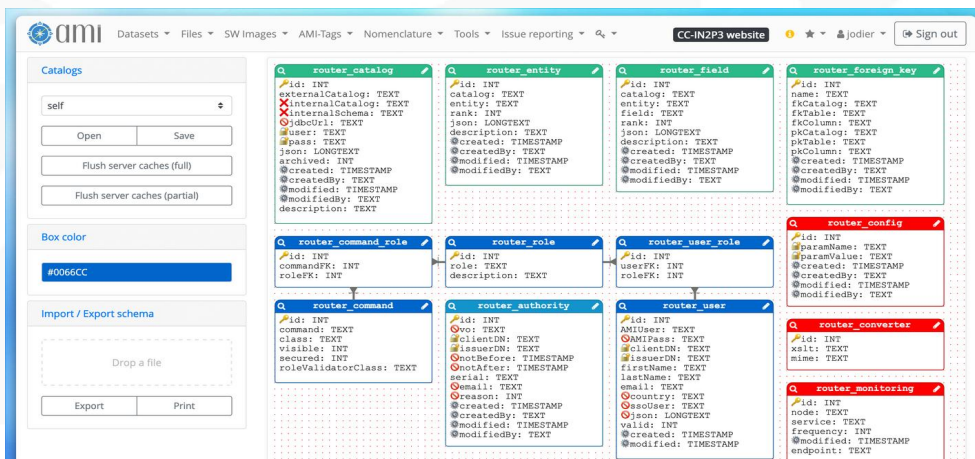
MQL to SQL

```
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`
    )
  )
)
```

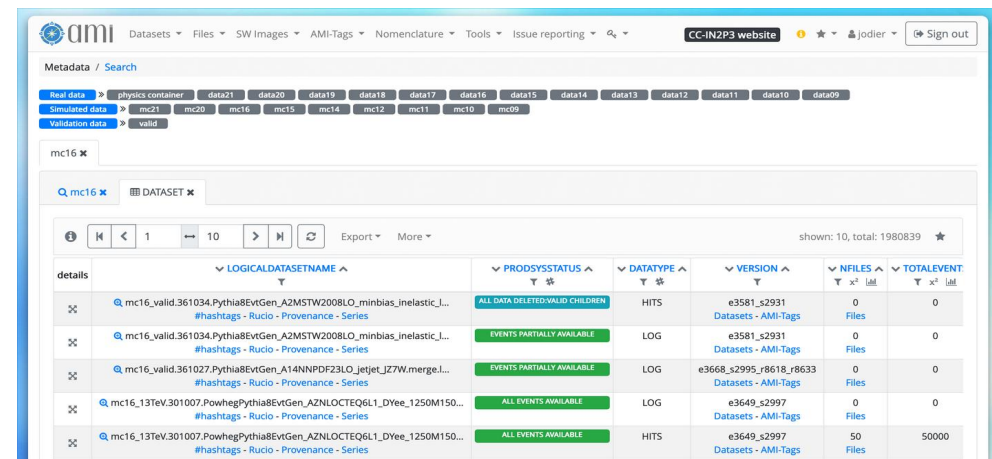
AMI Web Framework

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 (JS5 bundles with using Webpack and Babel), CSS3, HTML5
 - JQuery, Twitter Bootstrap 4 and 5, AMI-Twig (MVC pattern, JS Twig template engine implementation), Vue.js 3 (MVVM pattern)
- Nginx-based image on Docker Hub



The screenshot shows the AMI web interface with a metadata editor. The interface includes a top navigation bar with 'AMI Datasets', 'Files', 'SW Images', 'AMI-Tags', 'Nomenclature', 'Tools', and 'Issue reporting'. The main content area displays a grid of metadata fields for 'router_catalog', 'router_entity', 'router_field', 'router_foreign_key', 'router_command_role', 'router_role', 'router_user_role', 'router_config', 'router_command', 'router_authority', 'router_user', 'router_converter', and 'router_monitoring'. Each field is represented by a card with its name and a list of attributes and their data types.



The screenshot shows the AMI web interface with a metadata search results table. The interface includes a top navigation bar with 'AMI Datasets', 'Files', 'SW Images', 'AMI-Tags', 'Nomenclature', 'Tools', and 'Issue reporting'. The main content area displays a table of search results for 'mc16'. The table has columns for 'LOGICALDATASETNAME', 'PRODSYSSTATUS', 'DATATYPE', 'VERSION', 'NFILES', and 'TOALEVENT'. The table contains several rows of data, including dataset names, status, data type, version, number of files, and total events.

LOGICALDATASETNAME	PRODSYSSTATUS	DATATYPE	VERSION	NFILES	TOALEVENT
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_IJZ7W.merge.L... #hashtags - Rucio - Provenance - Series	EVENTS PARTIALLY AVAILABLE	LOG	e3668_s2995_r8618_r8633 Datasets - AMI-Tags	0 Files	0
mc16_13TeV.301007.PowhegPythia8EvtGen_A2NLOCTEQ6L1_Dvee_1250M150... #hashtags - Rucio - Provenance - Series	ALL EVENTS AVAILABLE	LOG	e3649_s2997 Datasets - AMI-Tags	0 Files	0
mc16_13TeV.301007.PowhegPythia8EvtGen_A2NLOCTEQ6L1_Dvee_1250M150... #hashtags - Rucio - Provenance - Series	ALL EVENTS AVAILABLE	HITS	e3649_s2997 Datasets - AMI-Tags	50 Files	50000

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 (work in progress!)

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	TOTALEVENTS
✖	mc16_valid.361034.Pythia8EvtGen_A2MSTW2008LO_minbias_inelastic_C... #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_C... #hashtags - Rucio - Provenance - Series	EVENTS PARTIALLY AVAILABLE	LOG	e3581_s2931 Datasets - AMI-Tags	0 Files	0
✖	mc16_valid.361027.Pythia8EvtGen_A14NNPDF23LO_jetjet_LJZTW.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_LJZTW.simul.L... #hashtags - Rucio - Provenance - Series	ALL EVENTS AVAILABLE	LOG	e3569_s2997 Datasets - AMI-Tags	0 Files	0

Support

MC16 Dibosons samples

Datasets below have their "processGroup" in the form "Diboson_XXX_YYYY"

MC16 Powheg samples

dibosons processes generated by Powheg

Datasets found : 1163

mc16_13TeV.363893.PowhegPy8EG_CT10nloME_AZNLOCTEQ6L1_ZZqqll_mqz20ml20

EVNT HITS AOD NTUP_PILEUP dataset ✖

Details Empty fields hidden

Metadata	
Identifier	301372
logicalDatasetName	mc16_13TeV.363893.PowhegPy8EG_CT10nloME_AZNLOCTEQ6L1_ZZqqll_mqz20ml20.simul.HITS.e5154_s3126 Rucio - Provenance - Series
nFiles	5983
totalEvents	7977350
totalSize	5553506367244
dataType	HITS
prodsysStatus	EVENTS PARTIALLY AVAILABLE
completion	99.97

ami Datasets Files AMI-Tags Nomenclature Physics Tools Issue reporting

ami-tags / Add/Reset/Clone 66 new version

AMI-Tags Add tag Reset tag Clone tag prod. Add a missing release yourself

AMI-Tag name: r8410

AMI-Tag type: r

Production step: recon (f, k, r, v, w, x)

Release: AtlasProduction_20.20.5.4

Transform: Reco_tf.py

additional dpds

```

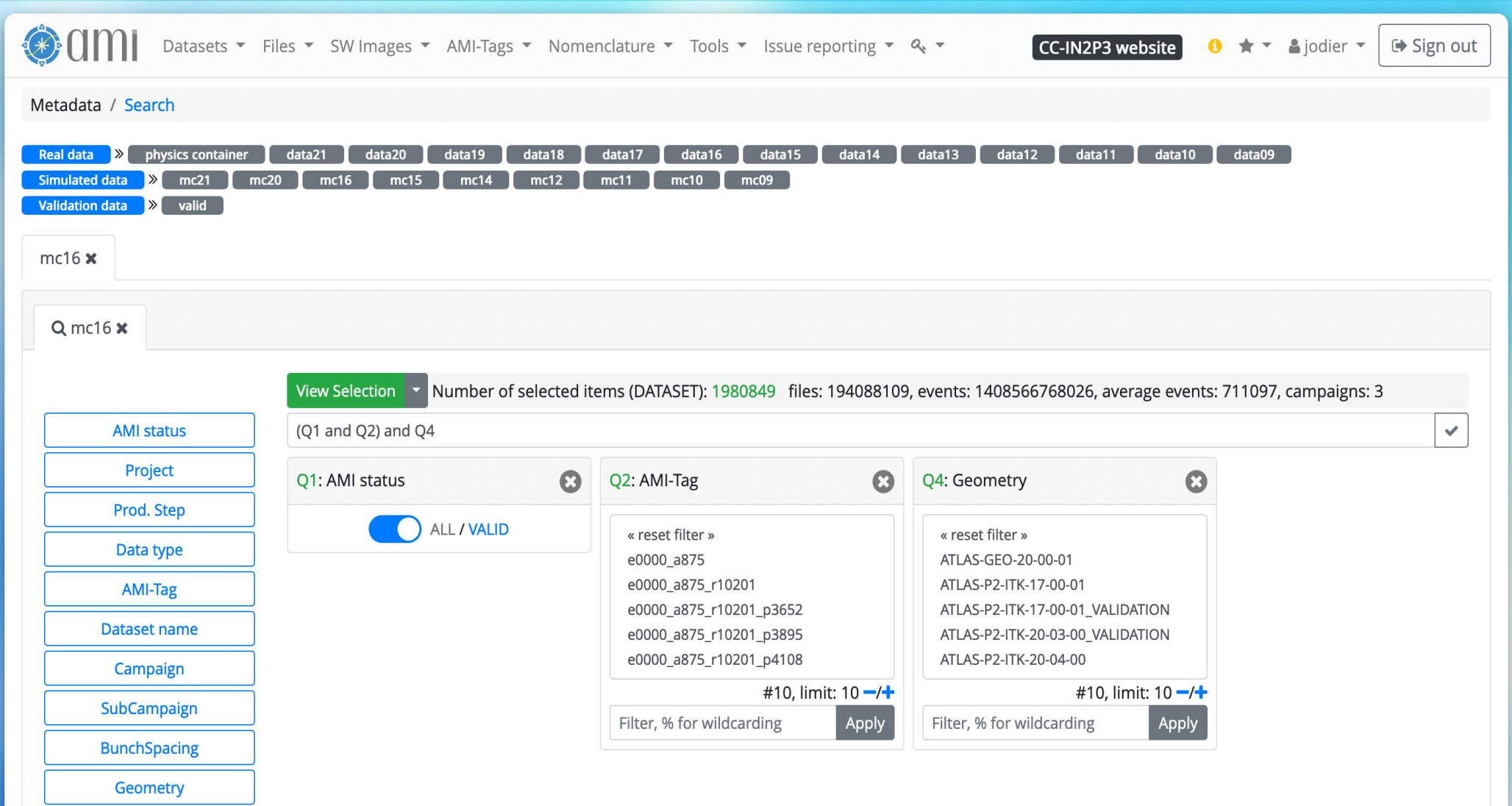
outputDAOD_HS62File file<AOD> outputDESDM_ZMUMUFile file<ESD> outputNTUP_EHBIASFile file<NTUP>
outputNTUP_FASTMONFile file<NTUP> outputNTUP_FastCaloSimFile file<NTUP>
outputNTUP_HECNOISEFile file<NTUP> outputNTUP_HIGMULTFile file<NTUP>
outputNTUP_LARNOISEFile file<NTUP> outputNTUP_MCPScaleFile file<NTUP> 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>
    
```

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

The AMI-Tags application

This control executes the **GetDatasetInfo** command

Screenshots



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

Below the navigation bar, there is a 'Metadata / Search' section. It features three main categories: 'Real data', 'Simulated data', and 'Validation data'. Each category has a list of sub-items represented by buttons. 'Real data' includes 'physics container' and a series of 'data' buttons from 'data21' to 'data09'. 'Simulated data' includes 'mc21' through 'mc09'. 'Validation data' includes 'valid'.

The main content area shows a search for 'mc16'. A search bar at the top left of the main area contains 'mc16' with a close button. Below the search bar, there is a 'View Selection' dropdown menu showing 'Number of selected items (DATASET): 1980849 files: 194088109, events: 1408566768026, average events: 711097, campaigns: 3'. Below this, a filter '(Q1 and Q2) and Q4' is applied, with a checkmark icon on the right.

On the left side of the main area, there is a vertical list of filter buttons: AMI status, Project, Prod. Step, Data type, AMI-Tag, Dataset name, Campaign, SubCampaign, BunchSpacing, and Geometry.

Three filter panels are visible on the right side of the main area:



- Q1: AMI status**: Contains a toggle switch for 'ALL / VALID' which is currently turned on.
- Q2: AMI-Tag**: Contains a list of tags: « reset filter », e0000_a875, e0000_a875_r10201, e0000_a875_r10201_p3652, e0000_a875_r10201_p3895, and e0000_a875_r10201_p4108. It has a limit of #10 and an 'Apply' button.
- Q4: Geometry**: Contains a list of geometry identifiers: « 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. It has a limit of #10 and an 'Apply' button.

Screenshots

ⓘ
⏪
⏩
1
↔
10
⏴
⏵
🔄
Export ▾
More ▾
shown: 10, total: 1980839 ★

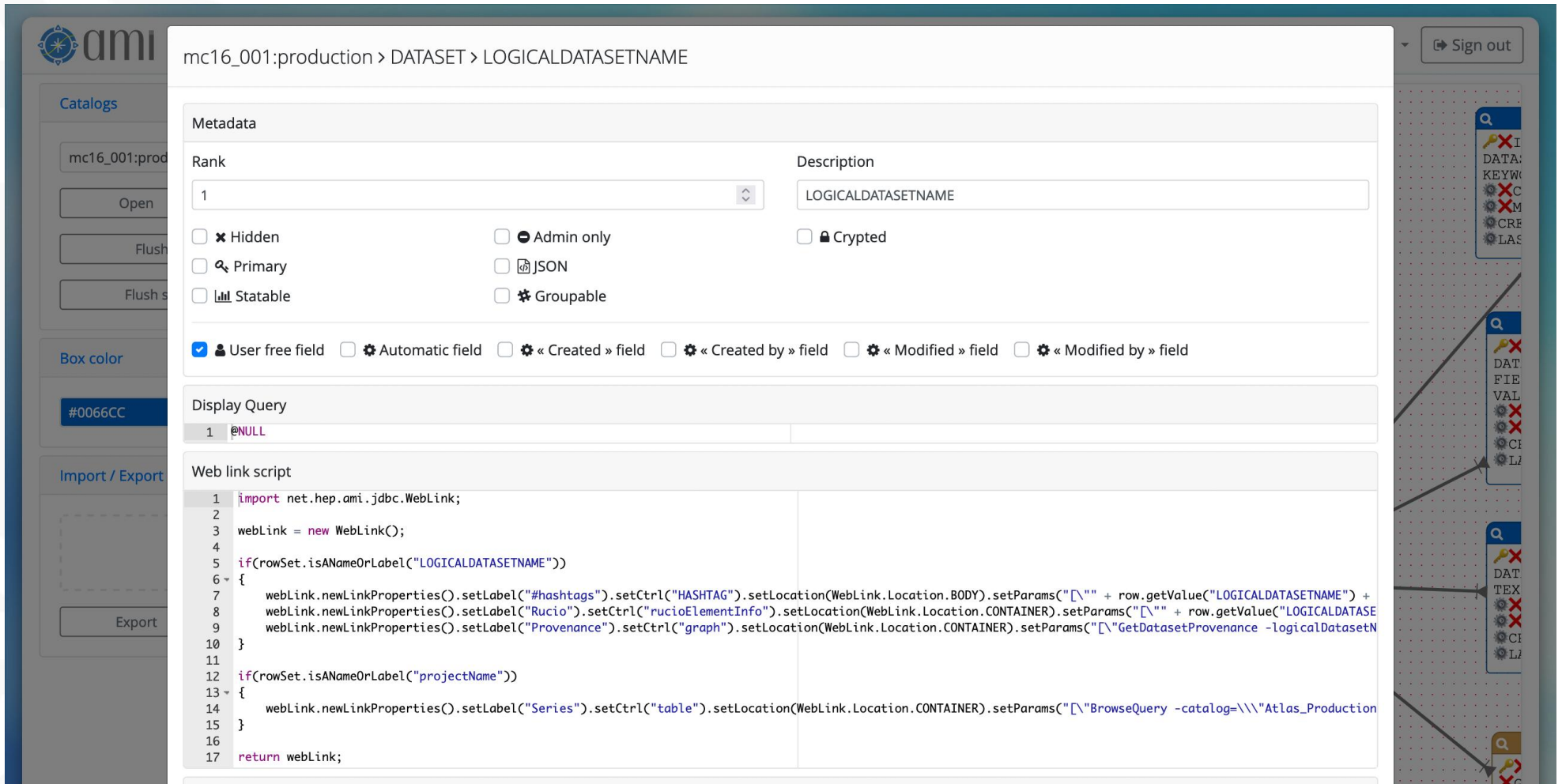
details	LOGICALDATASETNAME ^ ▼	PRODSYSSTATUS ^ ▼ *	DATATYPE ^ ▼ *	VERSION ^ ▼	NFILES ^ ▼ x ²	TOTALEVENT ^ ▼ x ²
✕	mc16_valid.361034.Pythia8EvtGen_A2MSTW2008LO_minbias_inelastic_I... #hashtags - Rucio - Provenance - Series	ALL DATA DELETED:VALID CHILDREN	HITS	e3581_s2931 Datasets - AMI-Tags	0 Files	0
✕	mc16_valid.361034.Pythia8EvtGen_A2MSTW2008LO_minbias_inelastic_I... #hashtags - Rucio - Provenance - Series	EVENTS PARTIALLY AVAILABLE	LOG	e3581_s2931 Datasets - AMI-Tags	0 Files	0
✕	mc16_valid.361027.Pythia8EvtGen_A14NNPDF23LO_jetjet_JZ7W.merge.I... #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_JZ1W.simul.I... #hashtags - Rucio - Provenance - Series	ALL EVENTS AVAILABLE	LOG	e3569_s2997 Datasets - AMI-Tags	0 Files	0

Screenshots



 empty fields hidden / shown More... ★

Metadata		Linked Entities	
LOGICALDATASETNAME	mc16_valid.361034.Pythia8EvtGen_A2MSTW2008LO_minbias_inelastic_l... #hashtags - Rucio - Provenance - Series	←	DATASET_COMMENT 0 record(s)
PRODSYSSTATUS	EVENTS PARTIALLY AVAILABLE	←	DATASET_EXTRA 1 record(s)
DATATYPE	LOG	←	DATASET_KEYWORDS 0 record(s)
VERSION	e3581_s2931 Datasets - AMI-Tags	↔	PHYSICSPARAMETERS 0 record(s)
NFILES	0 Files	←	DATASET_PROPERTY_BRIDGE 0 record(s)
TOTALEVENTS	0	←	FILES 0 record(s)
COMPLETION	99.0 %	←	JOBOPTIONS 0 record(s)
STATSALGORITHM	exclude_outliers	←	PRODSYS_TASK 1 record(s)
PROJECTNAME	mc16_valid Project	←	PHYSICSPARAMETERVALS_ALL 0 record(s)
PHYSICSSHORT	Pythia8EvtGen_A2MSTW2008LO_minbias_inelastic_low	←	EI_METADATA_STATES_ALL 1 record(s)
PHYSICISTRESPONSIBLE	UNKNOWN	←	HASHTAGS 0 record(s)
PRINCIPALPHYSICSGROUP	gen-user	←	CAMPAIGN 1 record(s)
DATASETNUMBER	361034	←	PHYSICSPARAMETERVALS 0 record(s)
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		

Screenshots



The screenshot displays the AMI web interface for configuring a Logical Dataset Name. The breadcrumb path is `mc16_001:production > DATASET > LOGICALDATASETNAME`. The interface is divided into several sections:

- Metadata:**
 - Rank:** A dropdown menu set to `1`.
 - Description:** A text input field containing `LOGICALDATASETNAME`.
 - Properties:** A grid of checkboxes for `Hidden`, `Primary`, `Statable`, `Admin only`, `JSON`, `Groupable`, and `Crypted`.
 - Advanced Properties:** A row of checkboxes for `User free field` (checked), `Automatic field`, `« Created » field`, `« Created by » field`, `« Modified » field`, and `« Modified by » field`.
- Display Query:** A text area containing the query `1 @NULL`.
- Web link script:** A code editor containing the following Java code:

```

1 import net.hep.ami.jdbc.WebLink;
2
3 webLink = new WebLink();
4
5 if(rowSet.isANameOrLabel("LOGICALDATASETNAME"))
6 {
7     webLink.newLinkProperties().setLabel("#hashtags").setCtrl("HASHTAG").setLocation(WebLink.Location.BODY).setParams("[\" + row.getValue("LOGICALDATASETNAME") +
8     webLink.newLinkProperties().setLabel("Rucio").setCtrl("rucioElementInfo").setLocation(WebLink.Location.CONTAINER).setParams("[\" + row.getValue("LOGICALDATASE
9     webLink.newLinkProperties().setLabel("Provenance").setCtrl("graph").setLocation(WebLink.Location.CONTAINER).setParams("[\"GetDatasetProvenance -logicalDatasetN
10 }
11
12 if(rowSet.isANameOrLabel("projectName"))
13 {
14     webLink.newLinkProperties().setLabel("Series").setCtrl("table").setLocation(WebLink.Location.CONTAINER).setParams("[\"BrowseQuery -catalog=\\\\"Atlas_Production
15 }
16
17 return webLink;

```

The right sidebar contains a search bar and a list of actions with icons for `DATA`, `KEYW`, `CRE`, `LAS`, `DAT`, `FIE`, `VAL`, `CI`, `LJ`, `DAT`, `TEX`, `CI`, and `LJ`.

Screenshots


ami 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*

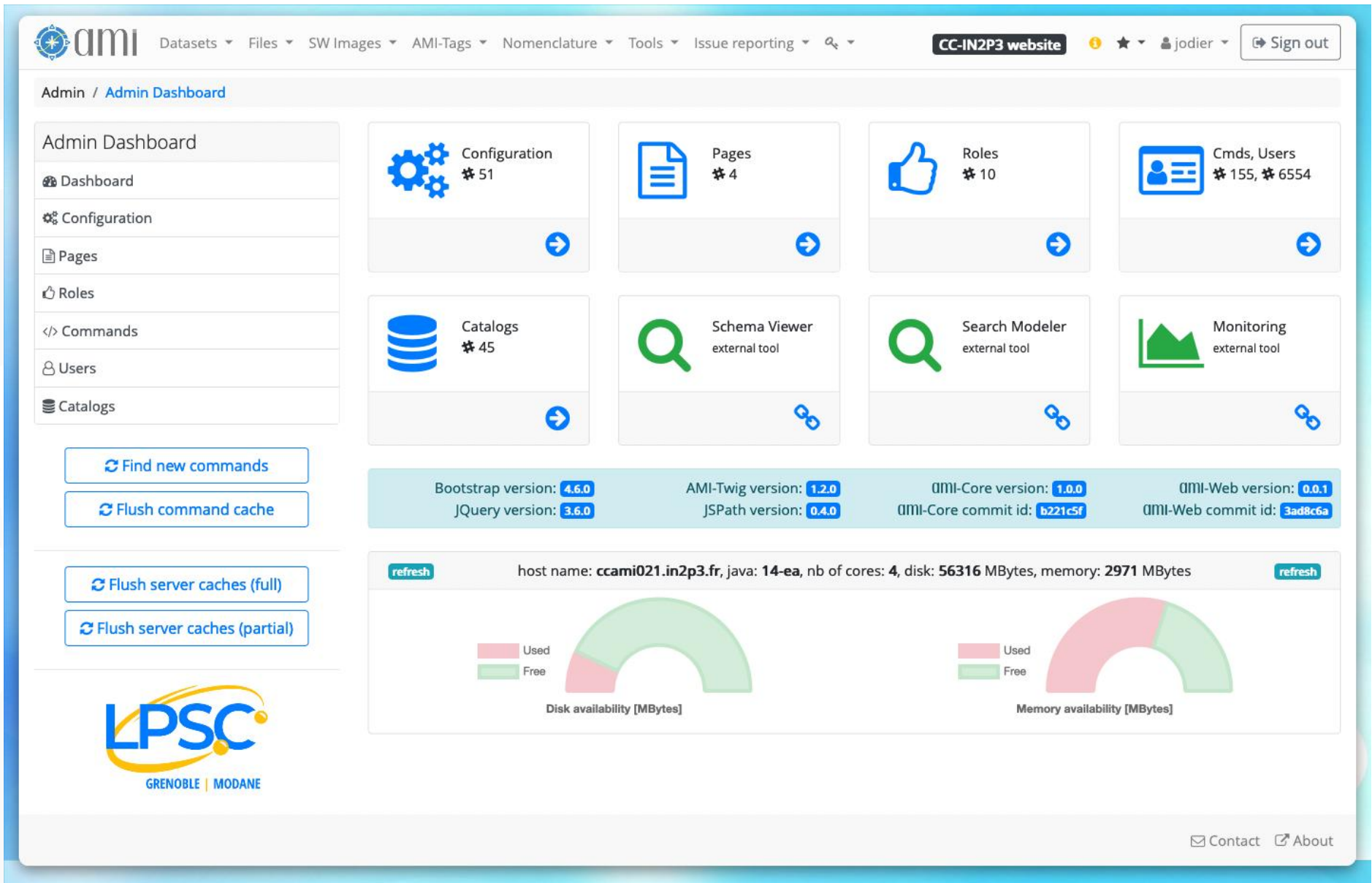
Entity*

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

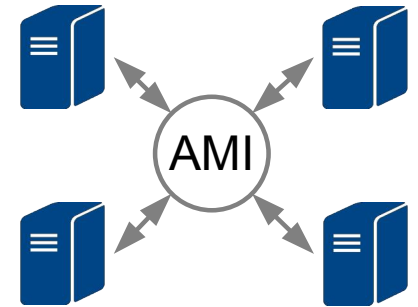


The screenshot shows the AMI Admin Dashboard interface. At the top, there is a navigation bar with the AMI logo, a menu (Datasets, Files, SW Images, AMI-Tags, Nomenclature, Tools, Issue reporting), a search icon, a user profile (jodier), and a Sign out button. The main content area is titled "Admin / Admin Dashboard" and features a sidebar on the left with a menu: Dashboard, Configuration, Pages, Roles, Commands, Users, and Catalogs. Below the sidebar are four buttons: "Find new commands", "Flush command cache", "Flush server caches (full)", and "Flush server caches (partial)". The main dashboard contains eight widget cards: Configuration (51), Pages (4), Roles (10), Cmds, Users (155, 6554), Catalogs (45), Schema Viewer (external tool), Search Modeler (external tool), and Monitoring (external tool). A status bar displays version information: Bootstrap version: 4.6.0, JQuery version: 3.6.0, AMI-Twig version: 1.2.0, JSPath version: 0.4.0, OMI-Core version: 1.0.0, OMI-Core commit id: b221c5f, OMI-Web version: 0.0.1, and OMI-Web commit id: 3ad8c6a. A monitoring section shows host name: ccami021.in2p3.fr, java: 14-ea, nb of cores: 4, disk: 56316 MBytes, and memory: 2971 MBytes. It includes two donut charts for "Disk availability [MBytes]" and "Memory availability [MBytes]", each with a legend for "Used" (red) and "Free" (green). The LPSC logo (GRENOBLE | MODANE) is in the bottom left, and "Contact" and "About" links are in the bottom right.

AMI Task Server and AMI Pipeline

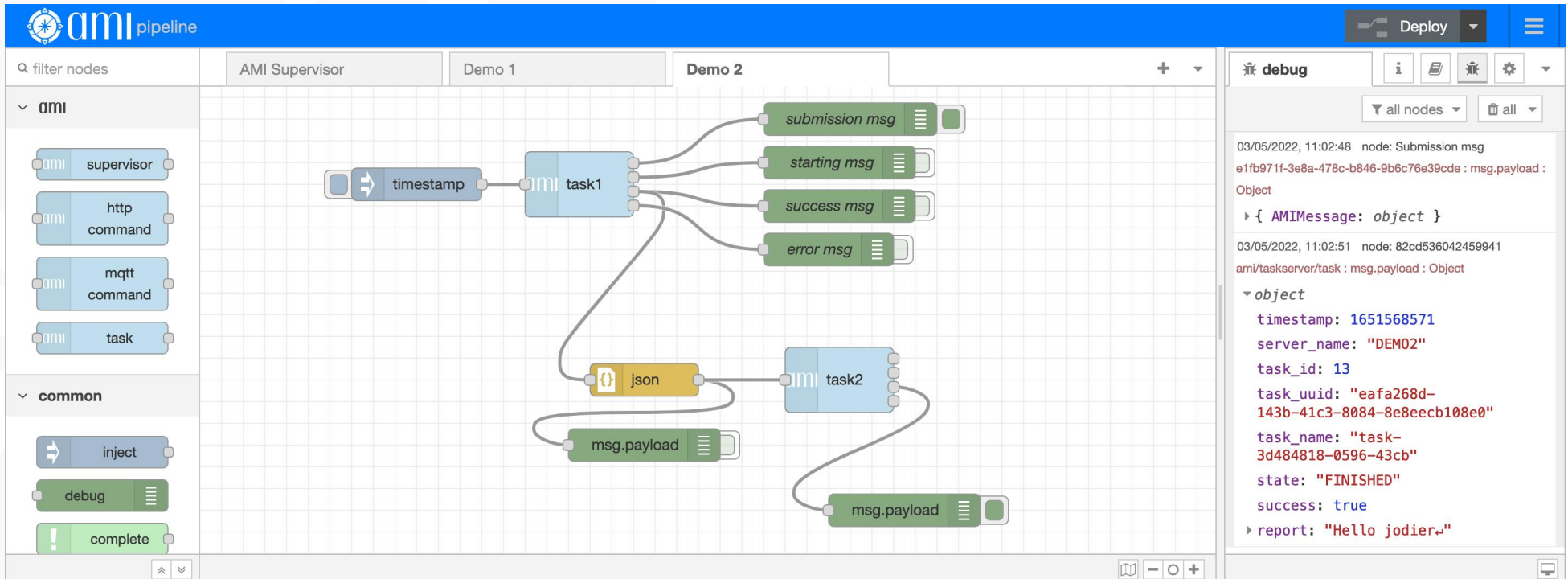
AMI Task Server features

- The AMI Task Server is used for:
 - Extracting metadata from primary sources (pull mode)
 - (Re)Processing and storing metadata in AMI
- It can run any kind of tasks (shell, python, java, ...)
- Can benefit from the AMI Java Core library
- Main features:
 - Kind of super CRON
 - The AMI Task Server is distributed
 - Control and monitoring (via MQTT)
 - Mutual exclusion mechanism between tasks
 - Priority lottery scheduler for avoiding starvation (not real time)
 - Pipelined tasks with execution report
 - Image in Docker Hub



AMI Pipeline features

- AMI provides a Node-RED-based low-code programming system for task pipeline definitions
- Image available on Docker Hub
- Demo: <http://localhost:1880>



The screenshot displays the AMI Pipeline interface, which is a Node-RED-based low-code programming system. The interface is divided into several sections:

- Left Panel (Nodes):** Contains a search bar and two categories of nodes:
 - ami:** supervisor, http command, mqtt command, task.
 - common:** inject, debug, complete.
- Center Panel (Workflow):** Shows a pipeline with the following nodes:
 - timestamp:** A blue node that triggers the start of the pipeline.
 - task1:** A blue node that receives the trigger and outputs four messages: submission msg, starting msg, success msg, and error msg.
 - json:** A yellow node that receives a message and outputs a msg.payload.
 - task2:** A blue node that receives the msg.payload from the json node and outputs another msg.payload.
- Right Panel (Debug Console):** Shows the execution history of the pipeline. It includes a "debug" button and a "Deploy" button. The console displays the following data:


```

03/05/2022, 11:02:48 node: Submission msg
e1fb971f-3e8a-478c-b846-9b6c76e39cde : msg.payload :
Object
  > { AMIMessage: object }

03/05/2022, 11:02:51 node: 82cd536042459941
ami/taskserver/task : msg.payload : Object
  > object
    timestamp: 1651568571
    server_name: "DEM02"
    task_id: 13
    task_uuid: "eafa268d-143b-41c3-8084-8e8eecb108e0"
    task_name: "task-3d484818-0596-43cb"
    state: "FINISHED"
    success: true
    > report: "Hello jodier~"
      
```


Conclusion

Conclusion

- AMI is mature metadata ecosystem of more than 20 years of existence
- 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 Web Framework
 - For developing metadata-oriented Web applications and graphic controls
- AMI Task Server
 - Distributed system for extracting, processing and storing metadata
- AMI Pipeline
 - Low-code programming for task pipeline definitions
- <https://hub.docker.com/repository/docker/amiteam/>

Questions?