

# DCS Data Viewer: Status and New Developments

## Software & Computing Workshop

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### **Developer Team:**

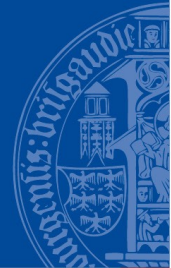
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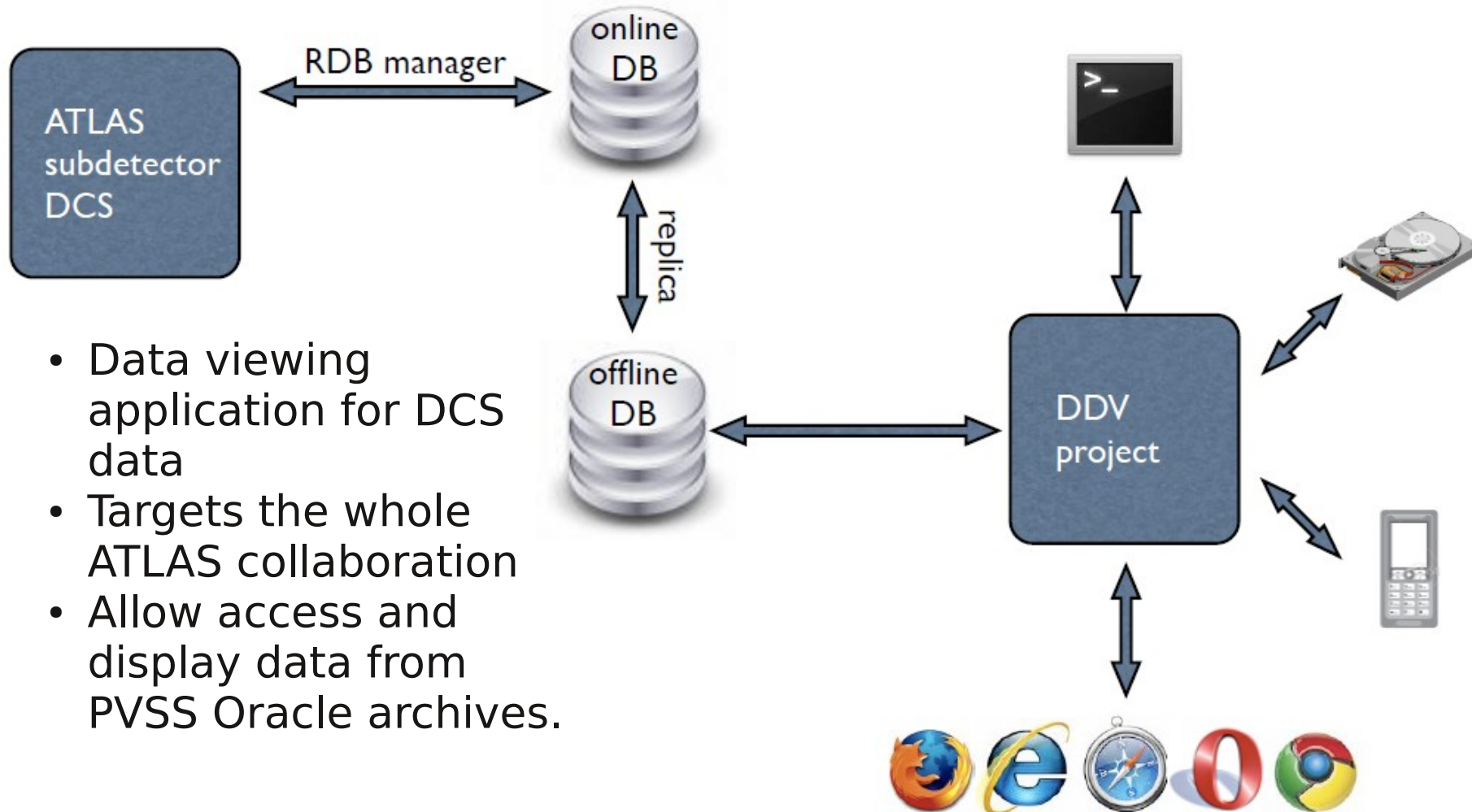


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# Reminder: General Idea

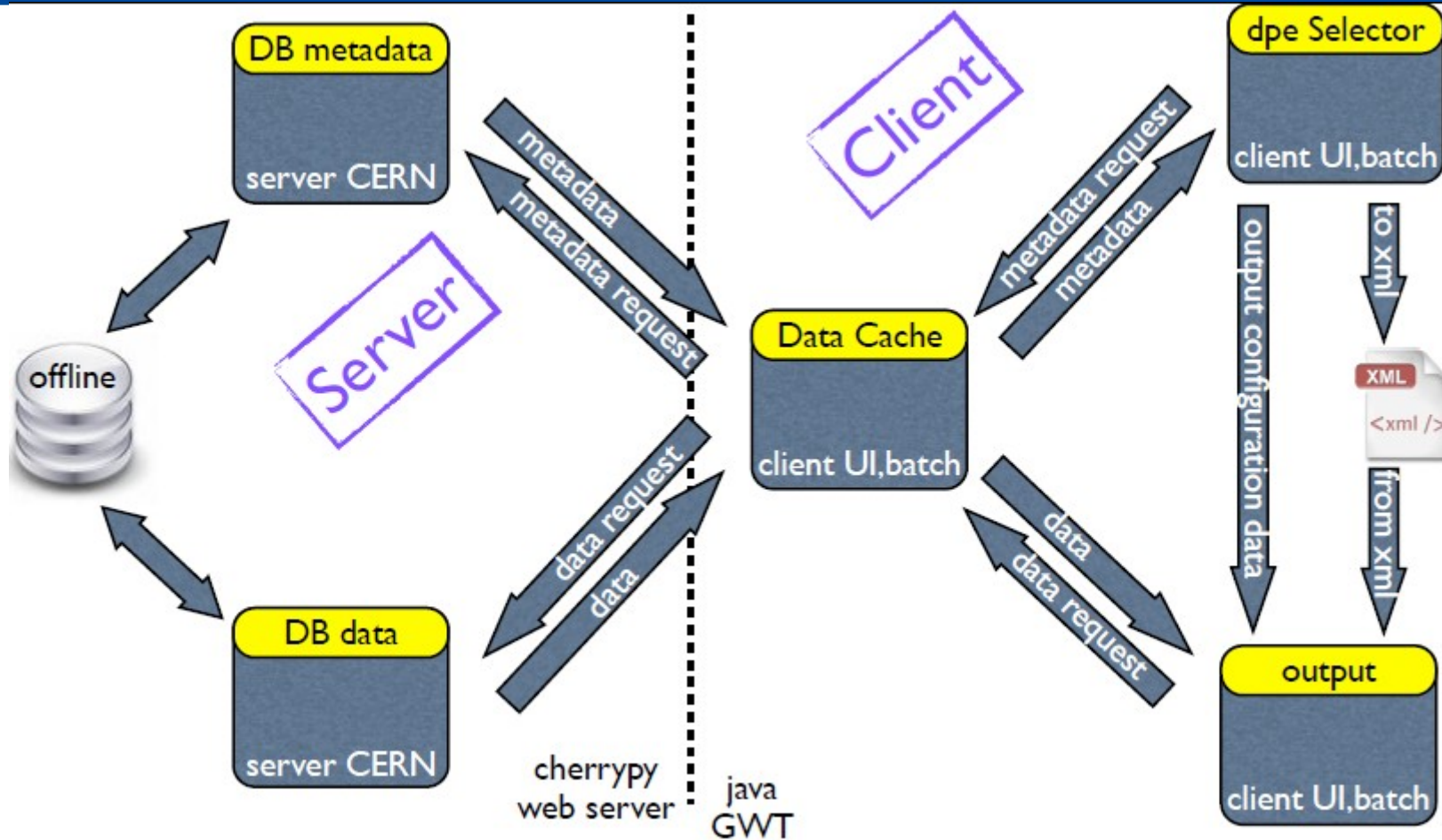
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- Data viewing application for DCS data
- Targets the whole ATLAS collaboration
- Allow access and display data from PVSS Oracle archives.

# Reminder: Architecture

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- written in python
- CherryPy , pythonic HTTP access
- oracle client , cx\_oracle plugin, pysqlite

- written in java
- Google Web Toolkit (GWT), web application framework
- jFreeChart , chart plotting library



<https://atlas-ddv.cern.ch>

- Accessible (after CERN authentication) inside/outside GPN and from P1
- Project runs on a machine administrated by ATLAS central services - availability guaranteed
- twiki :  
<https://twiki.cern.ch/twiki/bin/viewauth/Atlas/AtlasDcsDdv>
- Many thanks for the support to ATLAS Central Services

# DDV Status Information (from Central Service tools)

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DDV Status information for the tool in twiki:  
<https://twiki.cern.ch/twiki/bin/viewauth/Atlas/DDVStatistics>

- Service Level Status (check if DDV is up)

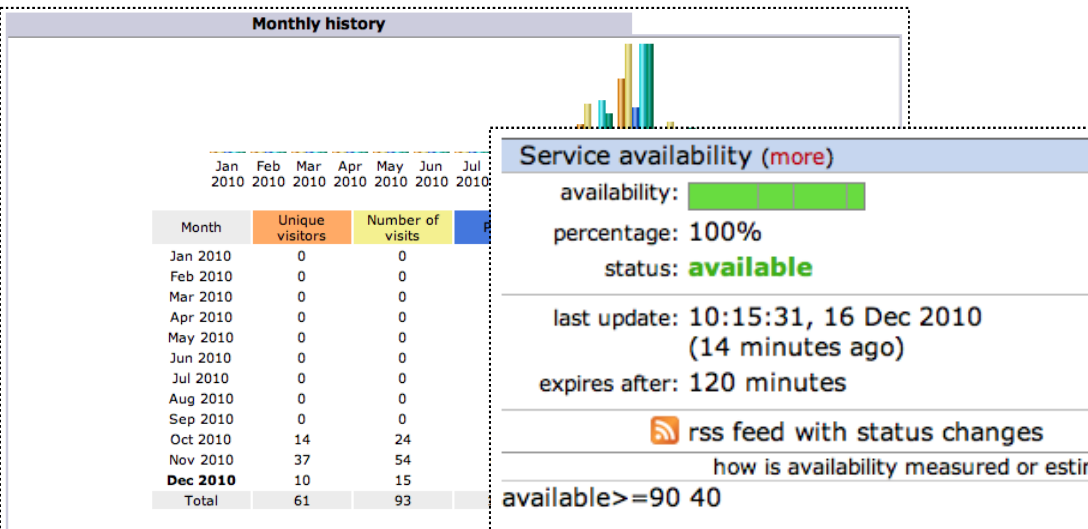
<https://sls.cern.ch/sls/service.php?id=ATLAS-ddv>

- AWStats

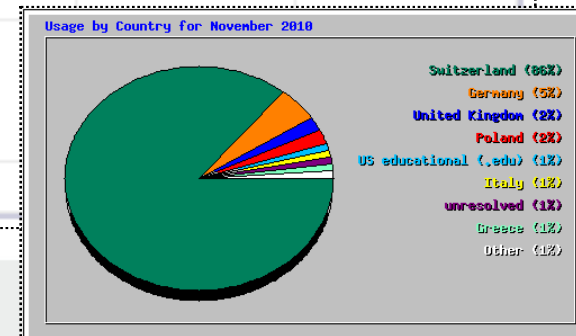
<http://voatlas53.cern.ch/awstats/awstats.pl?config=atlas-ddv.cern.ch>

- webalizer

<https://voatlas53.cern.ch/usage/>



Browsers	Grabber	Hits	Percent
<b>Firefox</b>	No	785	50.6 %
<b>Safari</b>	No	461	29.7 %
<b>MS Internet Explorer</b>	No	228	14.7 %
<b>Google Chrome</b>	No	40	2.5 %
<b>Android browser (PDA/Phone browser)</b>	No		
<b>Konqueror</b>	No		





# DB protection mechanism

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DDV protects DB from excessive access and malicious requests

- server does not allow requested data periods  $> 2$  years
- server does not allow requests with number of elements  $> 200$
- query time prediction:  
prevents queries that are estimated to have long response time
- server cancels requests with DB response time  $> 20$  sec  
e.g. response for very big number of selected items ( $> 200$ )

The screenshot shows the DCS Data Viewer interface with a 'Configure Data Request' dialog box open. The dialog box contains the following text:

DDV Server info:  
Number of  
request items  
greater than 200,  
please decrease  
number of items

ok

The background interface shows a table with columns: Navigate, Search Engine, Advanced Search Engine, and Configure Data Request. The 'Advanced Search Engine' column contains a list of items: ELMB/, \_Pager\_1., \_ReduManager., \_ReduManager\_2., \_Ui\_1., \_Ui\_10., \_Ui\_2., \_Ui\_3., \_Ui\_4., \_Ui\_5., \_Ui\_6., and \_Ui\_7. The 'Configure Data Request' column is currently empty.

# DDV relational queries

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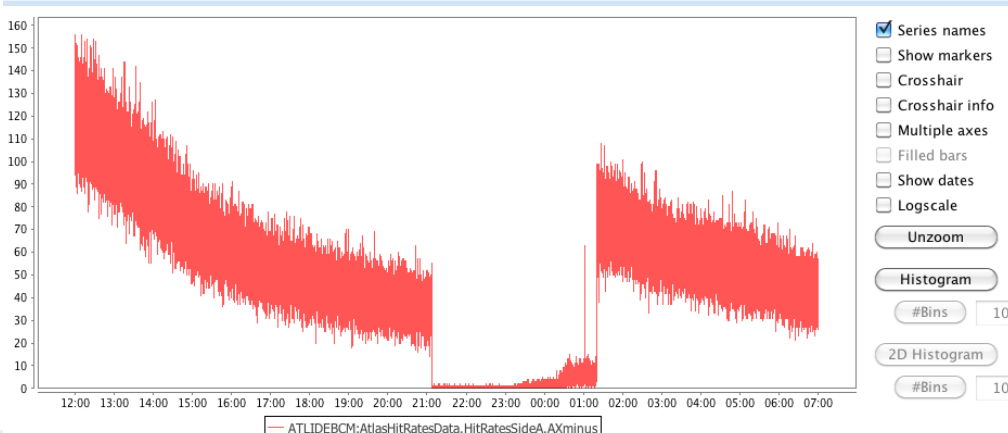
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DDV interface showing the 'Configure Data Request' step. It features a 'Relational Query' field with a dropdown menu set to 'id' and a value of 70. Below the query field are buttons for '+', '-', and 'Reset'. A table below the query field shows the selected items and configurations.

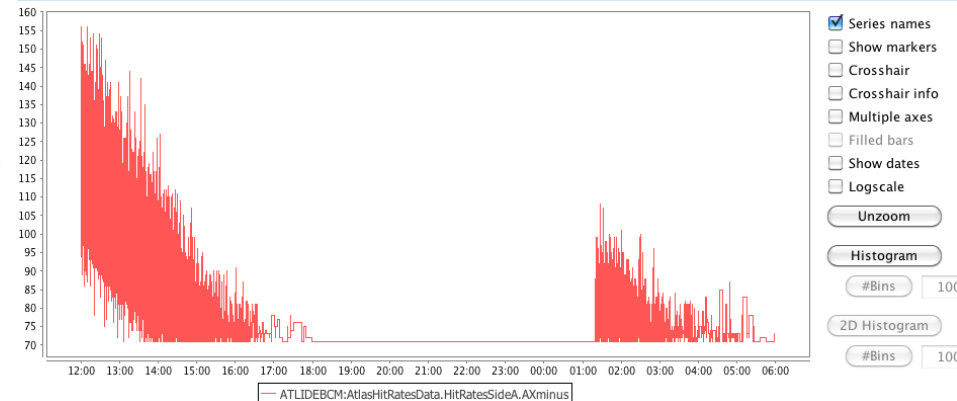
Remove	Selected Items	Configurations
X	ATLIDEBCM:AtlasHitRatesData.HitRatesSideA.AXminus	1

Reduce amount of data  
e.g. find peaks

DDV interface showing the 'Plot' step. It features a 'Plot' button, a 'Clear List (1)' button, a 'Save Configuration' button, a 'Choose File' button (no file selected), and a 'Plot from file' button.



DDV interface showing the 'Plot' step. It features a 'Plot' button, a 'Clear List (1)' button, a 'Save Configuration' button, a 'Choose File' button (no file selected), and a 'Plot from file' button.



# DDV External Requests

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- plot - single - click solution
- embed DDV in other applications/twiki

- Upload xml file
- Embed xml file on server
- repository of xml files on server



Operation DCS

- ▶ DSS ALARMS
- ▶ ALARMS
- ▶ MASKED AL.

OVERVIEW

- ▶ PIX
- ▶ SCT
- ▶ TRT
- ▶ IDE
- ▶ LAR
- ▶ TIL
- ▶ MUON
- ▶ MDT
- ▶ RPC
- ▶ TGC
- ▶ CSC

SAFETY

- ▶ CIC
- ▶ EXT
- ▶ LHC
- ▶ TDQ
- ▶ FWD
- ▶ DCS BE
- ▶ DCS ON CALL
- ▶▶ 162153

ATLAS DETECTOR STATUS **ONLINE** [AUTO HISTORY](#) [OFFLINE](#)

RACKS USA15LEVEL1			
NOT_READY	ERROR		
TRIGGERL1 USAL1	READY	OK	
DAQ USAL1	READY	OK	
TGC USAL1	READY	OK	
MDT USAL1	READY	OK	
TILE USAL1	READY	OK	
BCM USAL1	READY	OK	
BLM USAL1	READY	OK	
NETWORK USAL1	READY	OK	
TRT USAL1	NOT_READY	E	
DCS USAL1	READY	OK	
RPC USAL1	READY	OK	
DSS USAL1	READY	OK	
MUON USAL1	READY	OK	
ROMANPOT USAL1	READY	OK	
ID USAL1	READY	OK	
CSC USAL1	READY	OK	
ZDC USAL1	READY	OK	
LHCF USAL1	NOT_READY	OK	
SMOKE USAL1	READY	OK	

TILE						
0319	0419	0519	0619	0719	0819	0919
ON	ON	ON	ON	ON	ON	ON
OK	OK	OK	OK	OK	OK	OK

TILE						
0316	0416	0516	0616	0716	0816	0916
ON	ON	ON	ON	ON	ON	ON
OK	OK	OK	OK	OK	OK	OK

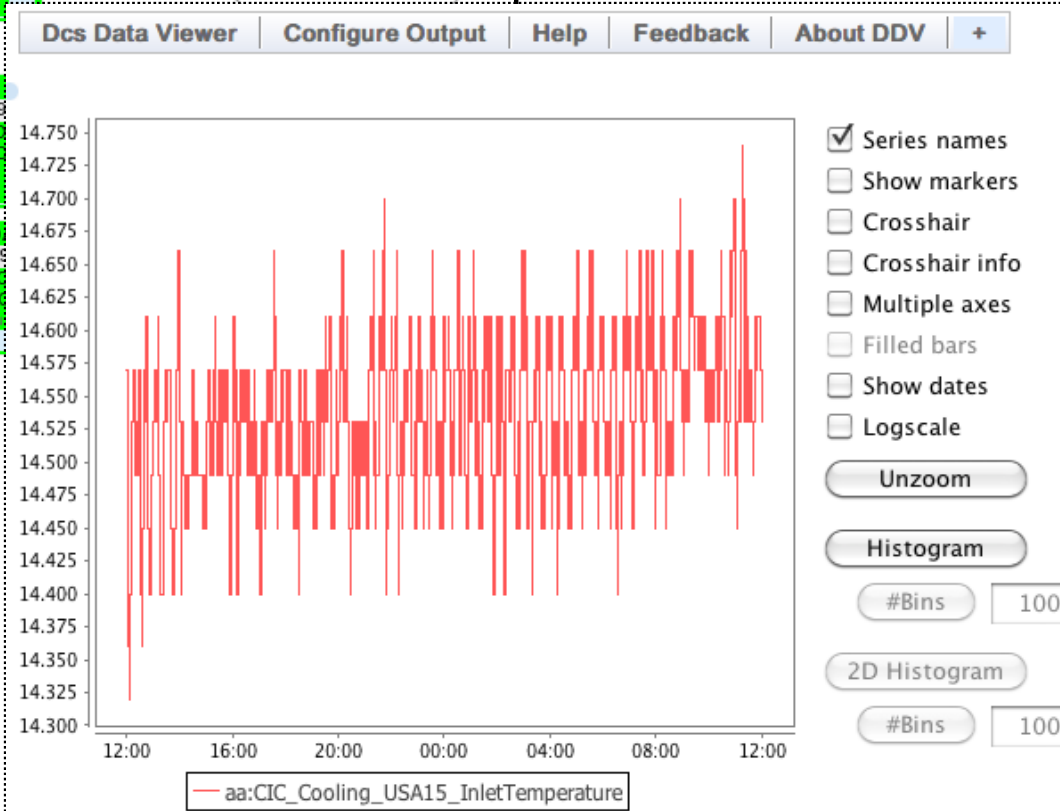
MDT		DSS		NW		D	
0314	0414	0514	0614	0714	0814	0914	1014
ON	ON	ON	ON	ON	ON	ON	ON
OK	OK	OK	OK	OK	OK	OK	OK

TGC		SMOKE	
0311	0411	0511	0611
ON	ON	ON	ON
OK	OK	OK	OK



DAQ			
0305	0405	0505	0605
ON	ON	ON	ON
OK	OK	OK	OK

Rack Control USA15 L2
Rack Control US15 L2
Rack Control UX15
Rack Control SDX1 L1
Rack Control SDX1 L2





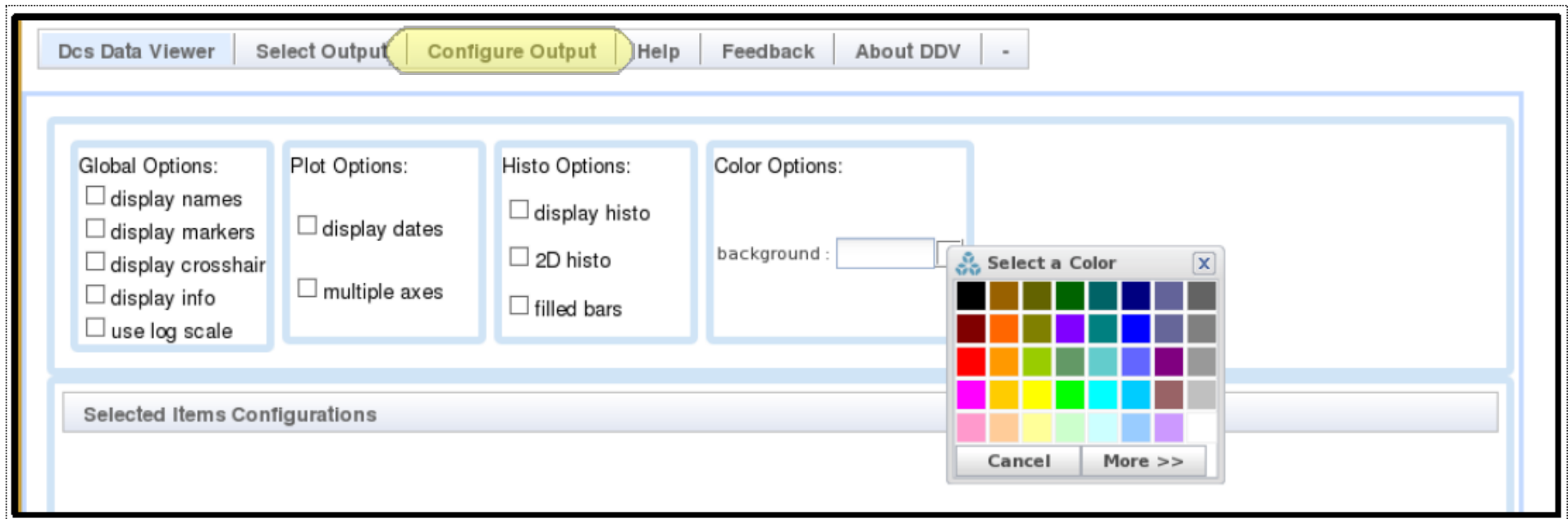
# Output configuration

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- **Under development**
- More freedom in configuring the output



- Global options, individual options
- Serialize the output configuration information
- send to applet or store in xml
- **Planned:** Use applet configuration, send back to gwt (and store in xml)

# External API used by DDV

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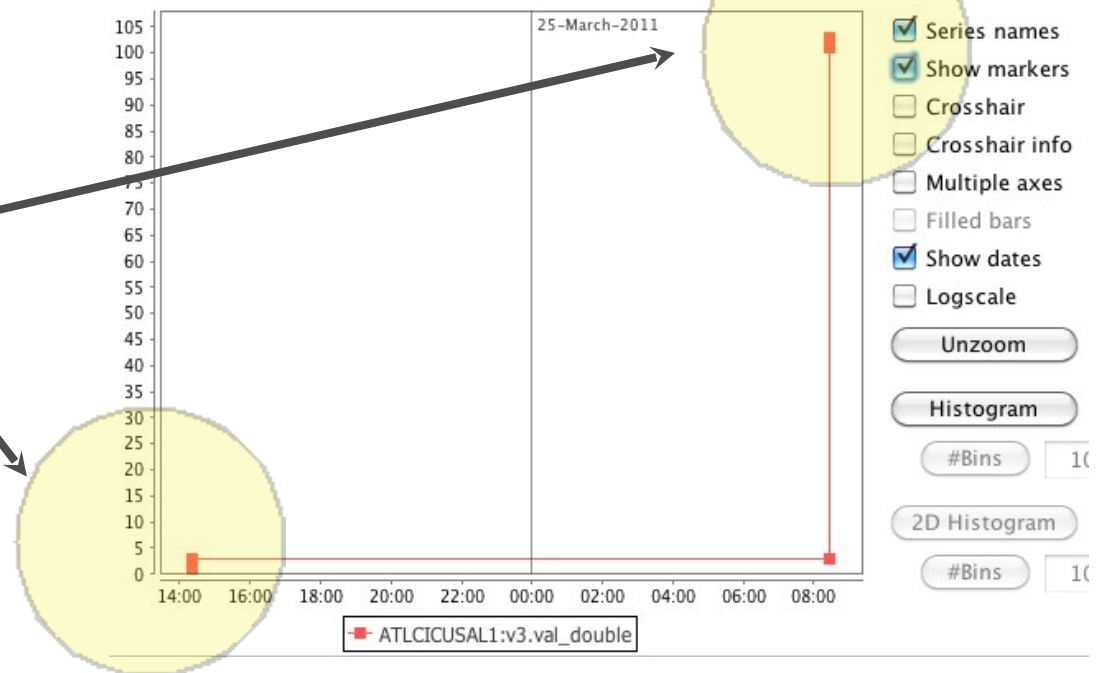
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## PVSS Archive PL/SQL API

- Access data stored by the PVSS RDB Archiver from an external application.
- Assure proper treatment of changes in the mapping between datapoint element names, IDs, and aliases.

Same alias,  
different element name

mapping works and  
data accessible for  
whole history



- DDV development server uses RDB API for data access.
- DB protection mechanisms are in place.
- **Performance tests are ongoing**

# Conclusion

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- DDV - a flexible , user friendly tool fetching ATLAS DCS data
- Many different Output formats (plot, ascii, root, tables, plugins)
- ‘Search Engine’ and ‘Relational Queries’ useful functionalities
- Configurations can be saved and used later
- Batch mode use possible
- Supports External Requests
- Can host on top of it other applications
- Long list of additional features to be implemented (contributions welcome)
- Runs as ATLAS central service in <https://atlas-ddv.cern.ch>



# Backup