## The Experiment Dashboard

## A generic, scalable solution for monitoring of the LHC computing activities, distributed sites and services

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The Experiment Dashboard system provides common solutions for monitoring job processing, data transfers and site/service usability. Over the last seven years, it proved to play a crucial role in the monitoring of the LHC computing activities, distributed sites and services. It has been one of the key elements during the commissioning of the distributed computing systems of the LHC experiments. The first years of data taking represented a serious test for Experiment Dashboard in terms of functionality, scalability and performance. And given that the usage of the Experiment Dashboard applications has been steadily increasing over time, it can be asserted that all the objectives were fully accomplished.

## Job Monitoring

The Experiment Dashboard offers various applications for job monitoring, focused on the needs of the different user categories: end users, site administrators, experiments managers... Most of these applications are generic, and are shared by several experiments.

## **Task Monitoring**



#### **Historical views**

#### **Interactive Job Monitoring**













#### **Analysis statistics**



## **Data Management Monitoring**

The following applications focus on the data management, and allow to follow up the transfers between the WLCG sites. Originally data transfer monitor was developed for ATLAS Distributed Data Management (DDM). The new WLCG Transfers Dashboard to inherited most of the implementation of the ATLAS DDM Dashboard.

## **ATLAS DDM Monitoring**





## WLCG transfers Monitoring





## Sites and Services

There are three applications to follow up the status of services and sites: the Services Usability Monitor (SUM) web portal, the Site Status Board (SSB), and the CMS Critical services. The first two are generic applications that have been deployed for the four LHC experiments, and they are heavily used during the operations.



#### **Site Status Board**

## **CMS Critical Services**



## Dissemination

These two applications give a nice overview of the LHC computing activities on the GRID. The WLCG Experiment Dashboard Google Earth shows in real time the transfers and jobs of the four LHC experiments. Siteview shows status of a particular site and LHC computing activities performed at this site.

#### WLCG Google Earth

## Framework

There is an automatic build of all the dashboard modules. At the moment, there are more than a hundred different modules and nine thousand files. Most of the applications report to Google analytics, therefore providing statistics of their usage.

# <complex-block>

# Running jobs: 120293.0 Transfer rate: 2.30 GiB/sec



#### Siteview



## Quality of code

ow 100 + entries												Search:	
Package Name	#Files	#Lines	PYTHON Files	PYTHON Score	XML Files	XML Score	Java Script	JS Score (Wrong Files)	Dependency	Reverse Dependency	Last Access Date / Time	User	
arda.dashboard(0.1.0_rc5)	364	139498	44	2.65.0	187	4 wrong-files				Reverse Dependency	2012-01-26 16:21:50 ( )	ddieguez	
arda.dashboard.agis(0.1.0_rc35)	89	10288	43	6.31.0	26	All correct			Internal(5) Dependency Graph External(1)	Reverse Dependency	2012-05-02 13:41:18()	psaiz	
arda.dashboard.apel(-)	69	6824	33	7.22.0	17	All correct				Reverse Dependency	2012-04-30 15:48:39()	psaiz	
arda.dashboard.api(-)	39	2662	30	8.20.0	0					Reverse Dependency	2011-07-18 11:12:08 ()	psaiz	
arda.dashboard.api-agis(-)	15	964	7	8.18.0	0					Reverse Dependency	2011-07-18 11:12:08 ()	psaiz	
arda.dashboard.api-data(-)	51	5054	38	246.0	5	All correct				Reverse Dependency	2011-07-18 11:12:08 ()	psaiz	
arda.dashboard.api-job(0.1.0_rc8)	26	1137	17	<u>3.47 ()</u>	1	All correct			Internal(1) Dependency Graph	Reverse Dependency	2011-07-18 11:12:08 ( )	psaiz	
arda.dashboard.api-job-production(-)	20	717	12	<u>5.42.0</u>	0					Reverse Dependency	2011-07-18 11:12:08 ()	psaiz	
arda.dashboard.api-service(-)	24	851	16	7.27.0	0					Reverse Dependency	2011-07-18 11:12:08 ()	psaiz	
arda.dashboard.api-site(-)	25	885	17	2.07.0	0					Reverse Dependency	2011-07-18 11:12:08 ()	psaiz	
arda.dashboard.awstats-master(-)	18	753	6	8.15.0	1	All correct				Reverse Dependency	2012-04-23 13:47:53 ()	psaiz	
arda.dashboard.cli(-)	18	1180	6	2.56.0	3	All correct				Reverse Dependency	2011-07-18 11:12:08 ()	psaiz	
arda.dashboard.cli-agis(-)	26	1972	12	<u>6.05.()</u>	6	All correct				Reverse Dependency	2011-07-18 11:12:08 ()	psaiz	
arda.dashboard.cli-data(-)	19	1590	7	2.91.0	4	All correct				Reverse Dependency	2011-07-18 11:12:08 ()	psaiz	
arda.dashboard.cli-job(-)	15	905	6	<u>6.67.0</u>	2	All correct				Reverse Dependency	2011-07-18 11:12:08 ()	psaiz	
arda.dashboard.cli-service(-)	18	1175	7	2.16.0	3	All correct				Reverse Dependency	2011-07-18 11:12:08 ()	psaiz	
arda.dashboard.cli-site(-)	15	800	5	2.32.0	2	All correct				Reverse Dependency	2011-07-18 11:12:08 ()	psaiz	
arda.dashboard.cms- crit-services(0.1.0_rc21)	31	2122	8	0.000	1	All correct			Internal(2) Dependency Graph	Reverse Dependency	2012-04-23 13:47:53 ( )	psaiz	
arda.dashboard.common(0.5.0_rc3)	113	2993	35	<u>6.82.()</u>	0				External(1)	Reverse Dependency	2012-02-15 18:19:16()	dtuckett	
arda.dashboard.cream-monitor(-)	34	19849	0	0	0					Reverse Dependency	2010-04-14 21:25:54 ( )	sbelov	
arda.dashboard.dailyWLCG(-)	45	3637	3	<u>6.45.0</u>	0					Reverse Dependency	2012-04-23 13:47:53 ()	psaiz	
											2012-05-14		









