DIAMON2
Improved Monitoring of CERN’s Accelerator Controls Infrastructure

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CERN's accelerators infrastructure
DIAgnostic and MONitoring version 2

- Provides tools for accelerator controls infrastructure monitoring
- Delivers easy to use first line diagnostics and means to
  - solve problems or
  - help to decide about intervention
- Offers monitoring as well as on-demand enquiries
- Integrates with other systems including publishing, notification and alarms
- For operators and equipment groups
CERN Control & Monitoring: $C^2$MON

• Collaboration of two Departments to build a generic framework for building inter-operational monitoring solutions

• Applications based on $C^2$MON framework
  • Beams Department: DIAMON2
  • General Services Department: TIM2

• Properties
  • Ready-to-use solutions for the majority of required functionalities
  • Robust, modular, extensible system
DIAMON2 architecture
DIAMON2 DAQ Components

C²MON DAQ Core

CLIC
JAPC
JMX
JMS
PING

Statistics consumer
BLACK BOX
BLACK BOX

JMS
ActiveMQ
JMS
ActiveMQ
JMS
SonicMQ

CMW-RDA
SNMP

JMS

CERN
ICALEPCS
DIAMON2 CLIC

• The CLIC agent
  • Written in C++, small footprint
  • Deployed on over 2000 computers: LynxOS, Linux & Windows

• The communication
  • STOMP / JMS protocol with text messages
  • Offering subscription and command – reply

• Modular approach is providing flexibility
  • Different modules are available on different platforms
DIAMON2 Server

• Modular approach based on C²MON
Metric, limits, equipment limits
DIAMON2 Console
Operational experience since 2012

• Seamless transition to the new system

• Large scale deployment
  • 4820 equipment (including 2060 CLIC)
  • 67 500 metrics and 30 500 limits
  • Processing about 200 updates per second

• Positive user feedback
  • However configuration maintenance to be simplified
Future plans

• Simplification of configuration maintenance

• Integration of a new alarm system

• Web based user interfaces
  • Including functionality for mobile devices

• Making DIAMON2 Open Source