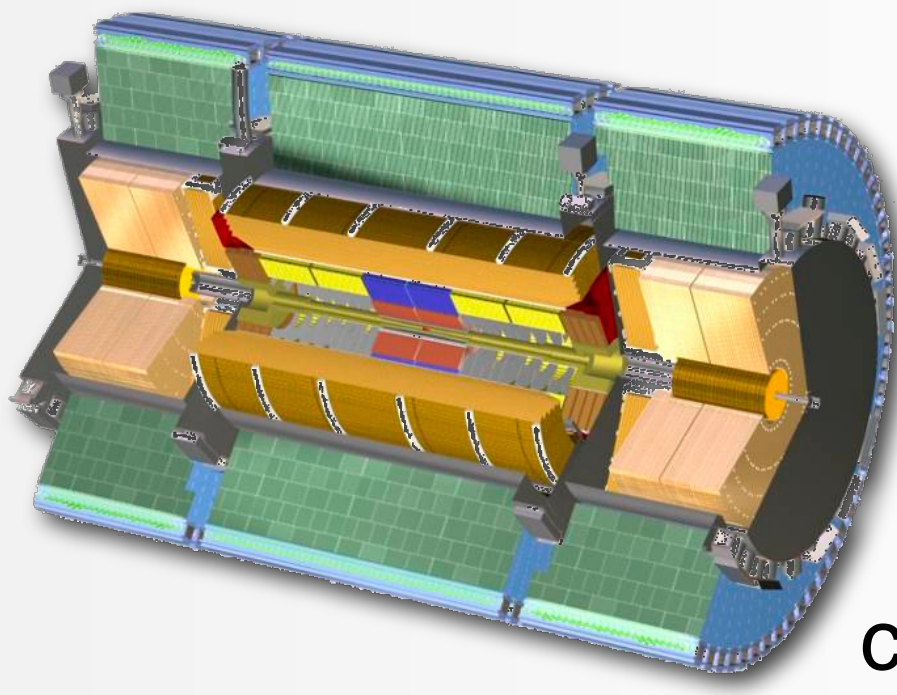# Web System for Data Quality Assessment of Tile Calorimeter During the ATLAS Operation

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on behalf of the ATLAS Tile Calorimeter Group

Tile Calorimeter

TileCal is the hadronic calorimeter of the **ATLAS** detector. It has ~10,000 readout channels, that collect the signal produced by thousands of particles emerging from the collisions at the Large Hadron Collider (**LHC**). After data reconstruction, the Data Quality (DQ) responsible asserts the proper operation of the detector. Since the collisions have started, thousands of plots from calibration runs are generated every day. This represents a dramatic increase in the amount of data that the systems we developed during the commissioning phase could handle. The systems have, therefore, been restructured to provide an integrated view of the validation process, and to improve the **performance** and **reliability**.

1

Summary of run analysis

Responsible shifter

Plot icon takes to **step 2**

List of **available runs**, most recent first

Status evolution **over time**

Validator **Considerations**, for cross-checking

2

Overview of the status of the module for the **last 5 runs**

List of modules for a **single run**

List of available **plots** for current module

3

Results for automatic data quality tests (**DQM**)

4

Module status for this run, filled by the validator

A status can be **propagated** to multiple modules

Comments for each module of the run

5

Summarize validator's **reports** and submit to the ATLAS Collaboration

6

Summarizes the known **problematic channels** and supports the data quality group responsible updating the (new) **bad channels** list.

Colors are given according to the number of problematic channels.

TileCal is divided in **4 cylinders**, each one with **64 modules**. Each module (wedge) contains up to **48 channels.**

7

Display the summarized detector's **HV power supplies**.

Colors are given according to the HV performance.

The system is described by the following database schema. It is an optimized version of the one used during the commissioning period. This enhanced version minimizes the server load.
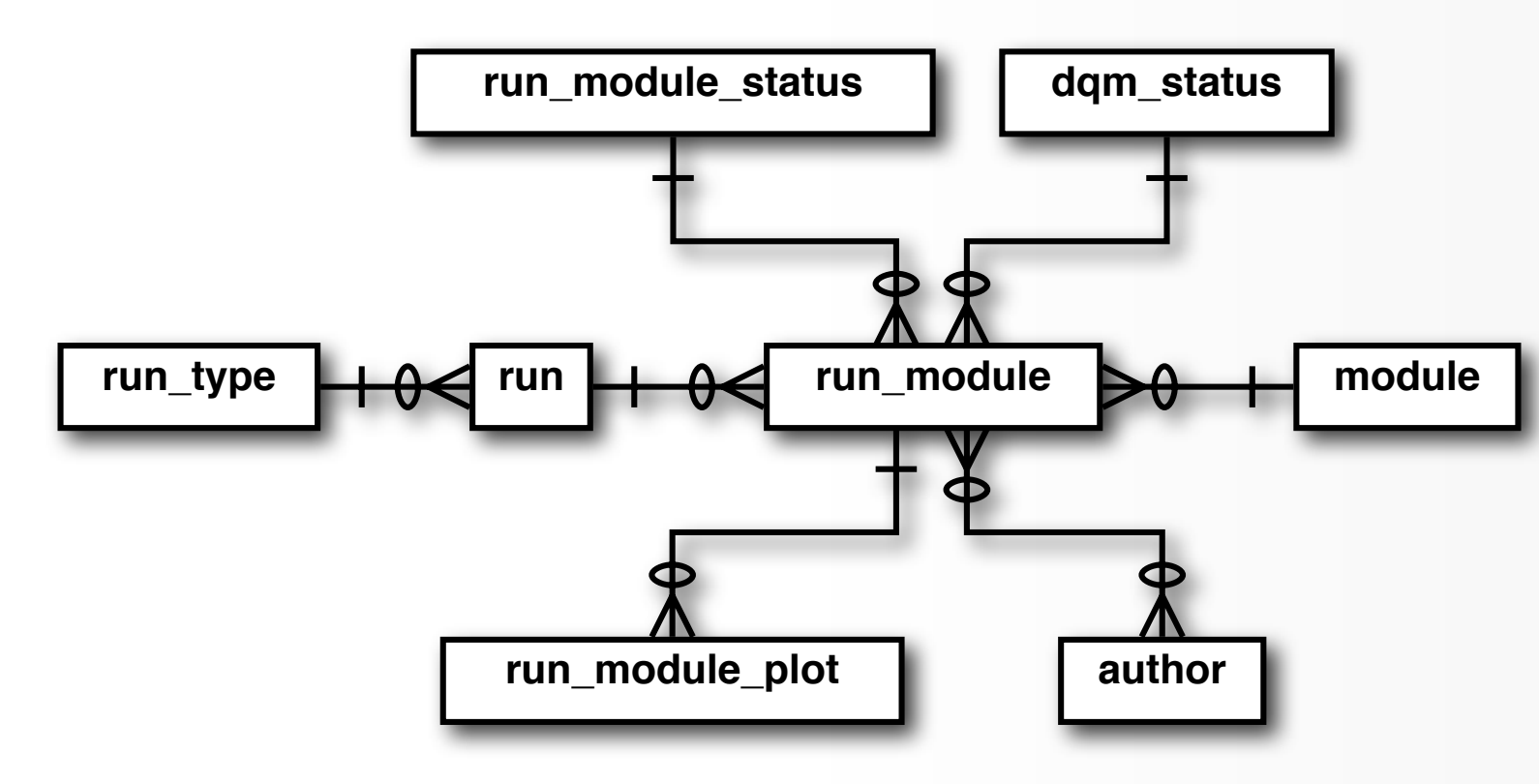
The requests to the server are made in an asynchronous way (*AJAX*). Several actions can be performed at the same time (e.g. give status for multiple modules), resulting in a large decrease of the application's response time.

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