

CBM

User Requirements Document of the Component DB for the CBM experiment

Abstract

This paper presents User Requirements Document (URD) of the Component DB for the CBM experiment.

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Table 1 Document Change Record

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1 Introduction

Component DB is used to store and manage properties of the detector hardware and electronic components centrally. Component DB contains characteristics of hardware and electronics components for the following subdetectors: STS, Magnet, PSD, RICH, ToF, MUCH, MVD, TRD, ECAL. The data should be entered to the Component DB as soon as they are ordered for mass fabrication.

1.1 Purpose of the document

This paper presents User Requirements Document (URD) for Component DB of the CBM experiment. This URD shall be the basis for the design and implementation of the Component DB for the CBM experiment.

1.2 Glossary, acronyms and abbreviations

Document [1] was used as external glossary.

1.2.1 Glossary

Simple Component

Hardware part of the detector attributes which is stored in the Component DB as a single entity. Simple component has no references to other hardware parts of the detector.

Assembled Component

Hardware part of the detector consists of one or more simple components and can have attributes that describe the assembled component.

DB Component

Simple or assembled component of the Component DB.

Common Data

Attributes that will be present in any component.

Specific Data

Attributes that will be present only in some groups of components of the Component DB.

Component Data

Common or specific data of a component

Component Children

List of components that form an assembled component.

User

Component DB user who has rights to view subdetector data.

Subdetector Administrator

Component DB user who has rights to edit and view subdetector data.

Detector Administrator

Component DB administrator shall manage user and subdetector administrator accounts. Detector administrator has rights to store backups and replicate the Component DB.

Test Info

Common or specific data obtained after QA process.

Component Location

Component attributes that contain data about the location of the component.

Component Trace

List of component locations at chronological order in time.

Component Cost

Component attributes which contain data about of unit price, unit measure, number of units.

1.2.2 Acronyms and Abbreviations

CDB CBM Component Database

SC Simple Component

AC Assembled Component

DA Detector Administrator

SDA Subdetector Administrator

DB Database

DC Database Component

1.3 References

[1] Technical Status Report for the Compressed Baryonic Matter Experiment, Darmstadt, February 2005

2 Constraints, Assumptions and Dependencies, Use Cases and Requirements

2.1 Constraints

CO001 Platforms

CDB should work on all platforms supported by the CBM collaboration.

CO002 Performance

CDB can have medium performance.

CO003 Availability

CDB can have medium availability.

CO004 Safety

CDB must have high fail safety.

CO005 Permission to view

CDB must check the permission of user to view DB content.

CO006 Permission to perform changes

Only SA and DA can change DB content.

CO007 Content

CDB must have only DC data.

CO008 Common data

DC should store common data for subdetectors.

Priority High

Note The following attributes should be stored: component name, description of component, test info, component trace, component location, certificates, component costs.

CO009 Specific data

DC may store specific data attributes.

2.2 Assumptions and Dependencies

AD001 Interaction with other data bases of CBM

CDB interacts with other DBs of CBM.

AD002 Interaction with other CBM software

CDB does not interact with other CBM software.

AD003 Interaction with WEB

CDB must have secure web access to view data.

2.3 Use Cases

There are three most important use cases described below.

UC001 Manage accounts

DA manage user and SDA accounts.

UC002 Create and edit data

SDA create and edit data concerning components for subdetectors.

UC003 View data

Users view CDB data.

2.4 Functional Requirements

UR001 Storage

CDB must store all DCs.

UR002 Authorization

CDB must have authorization.

Priority High

UR003 GUI view and edit data

CDB shall provide GUI to view and edit data.

Priority High

UR004 WEB view data

CDB shall provide web access to view data.

Priority Medium

2.5 Non-Functional Requirements

UR005 Code Repository

CDB shall use the same code repository and versioning system as the rest of the CBM software.

UR006 Documentation

CDB shall offer documentation for its design, implementation and usage.