

COMA Trigger Tables
for
ATLAS Event Index

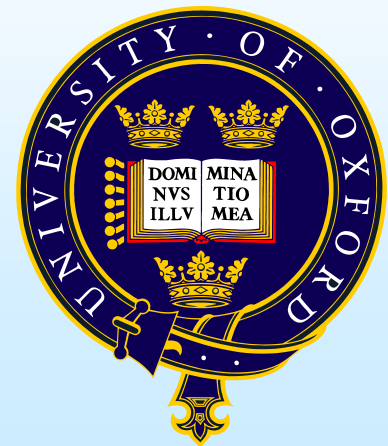


Elizabeth Gallas

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Event Index Workshop

Valencia



2 new tables in COMA (on ATLARC)

- See Table/Column documentation
http://gallas.web.cern.ch/gallas/TableDoc_COMA.html
- Tables have a new name (similar to existing): COMA_CB_*
 - The new tables contain ALL SMKs for ALL Runs since Dec 2009

Table: COMA_CB_MASTER_KEYS

Table of primary trigger key indexes (Master Trigger Configuration Key) and related information.

Column_Name	Type	Description
TRIGKEY_INDEX	NUMBER(22)	Primary. Integer identifier for this set of triggers chains. Super Master Key when source is Trigger DB. Foreign Key to CB_MK_TRIGGERS.
SMT_NAME	VARCHAR2(50)	Trigger DB name for this SuperMasterKey (when source is Trigger DB)
SMT_VERSION	NUMBER(22)	Trigger DB version of this SMT_NAME (when source is Trigger DB)
COMA_LOAD_DATE	DATE(7)	The date this SMK was fully loaded into COMA (including chains/items in CB_MK_TRIGGERS)
MK_DESCRIPTION	VARCHAR2(4000)	Trigger DB SuperMasterTable SMT_COMMENT.

Table: COMA_CB_MK_TRIGGERS

Table of the set of trigger chains/items for each trigger master key

Column_Name	Type	Description
TRIGGER_INDEX	NUMBER(22)	Primary. Integer identifier for this trigger chain/item.
TRIGKEY_INDEX	NUMBER(22)	Integer identifier for this set of triggers chains. Foreign Key from CB_MASTER_KEYS.
TRIGGER_LEVEL	NUMBER(22)	Trigger Level (1 == Level 1, 2 == Level 2, 3 == Event Filter or HLT).
CHAIN_COUNTER	NUMBER(22)	HLT Chain Counter Number or Level 1 item number.
CHAIN_NAME	VARCHAR2(255)	HLT Chain Name or Level 1 item name.
CHAIN_VERSION	NUMBER(22)	Version of this Chain Name (if available).
LOWER_CHAIN_NAME	VARCHAR2(4000)	Lower Chain Name of this Chain (NULL for Level 1).
STREAM_INFO	VARCHAR2(255)	StreamInfo containing the Stream Name to which this trigger is written during event recording.

COMA Table w/Runs and Basic Trigger Menu

Full metadata is collected in COMA for a subset of all runs

- RUNS (3558)
- MASTER_KEYS (310)
- MK_TRIGGERS (tbd)

RUNS *

RUN_INDEX
DATA_SOURCE
RUN_TYPE
PRESCALE_INDEX
TRIGKEY_INDEX
FILENAME_TAG
DAQ_CONFIGURATION
RECORDING_ENABLED
CLEAN_STOP
START_TIME
END_TIME
DURATION
START_LBN
END_LBN
CONFIG_SOURCE

Master_Keys *

P - TRIGKEY_INDEX
MK_DESCRIPTION
SMT_NAME
SMT_VERSION

MK_Triggers *

P - TRIGGER_INDEX
UF TRIGKEY_INDEX
U - TRIGGER_LEVEL
U - CHAIN_COUNTER
CHAIN_NAME
CHAIN_VERSION
LOWER_CHAIN_NAME
RERUN_PRESCALE
STREAM_INFO

* Deprecated columns not shown

3 COMA tables: all ATLAS runs & menus (since 141748 Dec 2009)

- CB_RUNS (123544, 9132 w/SMK)
- CB_MASTER_KEYS (555)
- CB_MK_TRIGGERS (538178)

CB_RUNS

RUN_INDEX
RUN_TYPE
FILENAME_TAG
RECORDING_ENABLED
START_TIME
END_TIME
CLEAN_STOP
PARTITION_NAME
RECORDED_EVENTS
START_LBN_TIME
END_LBN_TIME
START_LBN
END_LBN
TRIGKEY_INDEX
CBRUN_INFO

CB_Master_Keys

P - TRIGKEY_INDEX
SMT_NAME
SMT_VERSION
COMA_LOAD_DATE
MK_DESCRIPTION

CB_MK_Triggers

P - TRIGGER_INDEX
UF TRIGKEY_INDEX
U - TRIGGER_LEVEL
U - CHAIN_COUNTER
CHAIN_NAME
CHAIN_VERSION
LOWER_CHAIN_NAME
STREAM_INFO

Differences between COMA and COMA_CB tables

- SMK & Trigger Tables are nearly column-identical:
 - **COMA_CB_Master_Keys:**
 - Contains a new column: **COMA_LOAD_DATE**
 - This is so Fedor can find easily if new rows are added
 - This will eventually be added to COMA_Master_Keys
 - **COMA_CB_MK_Triggers:**
 - Does not contain RERUN_PRESCALE (deprecated)
 - Just so you can't say I didn't mention (non-critical points):
 - Is there anything in COMA not in COMA_CB tables ?
 - Yes: earlier 2009 cosmic runs (COMA has a few earlier runs):
 - SMKs 483, 668, 669, 671, 672, 674, 676
 - COMA_CB tables start with the first Period Run of 2009: 141748
 - After Run 141748
 - Other than the run selection, there is nothing in COMA not in the COMA_CB tables as far as any difference in trigger names to bits
 - 2 SMK 'descriptions' changed (SMK 1433, 1554)
 - Trigger experts must have modified it after upload to COMA
- I do not think these differences are important for your purposes

Semi-Useful observations (1)

- Note: Row counts/table on slide w/tables & columns
- When does Run 1 end, Run 2 start ? It depends ...
 - Conditions DB folders: 'sometime' during LS1 (inconsistent): when subsystem experts switched to CONDBR2
 - Trigger Menu-wise:
 - Aug1, 2014: 1st Run 235742 SMK 1599 has 'HLT_*' names (no L2)
 - Dec8, 2014: last Run 248373 SMK 1670 from Run 1 Trigger DB
 - But SMK 1671 and 1672 were used in earlier Runs
 - Jan27, 2015: first Run 249785 SMK 2002 from Run 2 Trigger DB
 - An SMK can exist in Trigger DB, but never used online
 - For EventIndex:
 - you don't need to care since COMA combines them in same schema
 - Hope to do the same eventually for MC

Table here shows runs between SMK 1670 and 2002 w/SMK:

- No Runs between Dec 8 and Jan 27
- Run 249785 (not recorded)

Project	Run	Start	Smk
	249785	27-JAN-15	2002
data14_cos	248373	08-DEC-14	1670

Semi-Useful observations (2)

- New characters in HLT Chain and 1 Item names:
 - “.” → the dot (AKA period)
 - “-” → the hyphen (AKA dash)
- These characters start in SMK > 2000 (not before)
- HLT Example:
 - “HLT_noalg_L1HT1-J0.ETA49” (in 52 SMKs so far)
- Level 1 Examples:
 - “L1_J100.32ETA49” and “L1_EM15VH_JJ15.23ETA49”
- HLT Chain and L1 Item name lengths:
 - Longest names (74 and 77 characters):
 - HLT_tau35_perf_tracktwo_L1TAU20_tau25_perf_tracktwo_L1TAU12_L1TAU20_2TAU12
 - L1_NOT-02MATCH-EM9s1-AJj15all.ETA49_05RATIO-XE0-SUM0-EM9s1-HT0-AJj15all.ETA49
 - Average lengths (over all names, not weighted by usage):
 - HLT: 21.7 characters
 - LVL1: 12.5 characters

About SMK = 0 (and cross checks):

- SMK=0 does not exist ... it is a default value
 - Yes, there were Runs which the Conditions DB thinks used SMK=0. These runs probably had a real menu, but for some reason it was not recorded in the Conditions DB and experts decided it was not important to fix
- You SHOULD only worry/act if
 - EventIndex data has SMK=0 but COMA does not !!! ... This is an error in reconstruction processing of the data !!!
 - This should be tracked upstream in the software.
 - It could be:
 - An error in processing **upstream** of Event Index
 - An error in the EI Producer or in the EI chain of processing
 - If you find SMK=0 in COMA, but not in EventIndex data
 - Please let me know: I will investigate the Conditions DB side

Summary:

- COMA: long-promised trigger tables are loaded for all runs since December 2009
 - COMA_CB_[Master_Keys, MK_Triggers]
 - Thanks for your patience (sorry it was needed)
 - Glad you worked on other areas in the meantime
 - Good news:
 - No schema change between Run 1 and Run2 data
 - This means no “run period” dependent decoding for EventIndex
 - These menus are not in the standard COMA yet
 - These 2 tables did not change
 - But schema changes are needed in other COMA tables
 - I am continuing work in that area (many users interested)
 - This means COMA reports do not show the data
 - This is unfortunate for now ... I'll keep you updated
- Let me know if you see any problems with the data