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# TestAtlas

# Introduction

Different strategies, corresponding to different ways to combine data from more ATLAS subdetectors, have been developed so far to measure and identify muon candidates:

- MS tracks backtracked to the interaction point (a.k.a. standalone reconstruction algorithms)
- ID tracks combined with full MS tracks (a.k.a. combined reconstruction algorithms)
- ID tracks extrapolated to the MS and combined with segments reconstructed in MS stations (a.k.a. segment tagging algorithms)
- ID tracks extrapolated through the Calorimeters and combined with energy deposits (a.k.a. calorimeter tagging algorithms)

For each of these strategies, more than one algorithm is currently available. Accordingly, muons in ESD/AOD are organized into three containers corresponding to the three muon families we currently have:

- StacoMuonCollection: contains muons from Muonboy (standalone) + Staco (combined) + MuTag (segment tagging);
- MuidMuonCollection: contains muons from MuidSA (standalone) + MuidCB (combined) + MuGirl + MuTagIMO (segment tagging);
- CaloMuonCollection: contains muons from MuCaloTag + MuCaloLR (both are calo tagging).

Apart from the reconstruction algorithms, muon combined reconstruction relies on alignment, calibrations, and several reconstruction tools, such as;

- Track extrapolators;
- Fitting tools operating on the combined muon candidates;
- Tracking geometry;
- Magnetic field services.

The goal of the Muon Combined Data Quality Monitoring (MCP DQ) is to check that common tools, alignment and database access were properly setup, and to decide for each of the reconstruction algorithm if the reconstructed muons can be considered in physic analyses .

A quality flag is thus assigned independently to each of the reconstruction algorithms:

- Muonboy
- Staco
- MuTag
- MuidSA (a.k.a. Moore)
- MuidCB
- MuGirl
- MuTagIMO
- MuCaloTag
- MuCaloLR

## Documentation

- Tutorial on MCP DQM [↗](#)
- Expected ATLAS muon reconstruction performance (CERN-OPEN-2008-020) [↗](#) (by chapter)
- ATLAS detector paper (2008) [↗](#) (by chapter)
- Data Quality Status Flags and Good Run Lists for Physics Analysis [↗](#) (ATL-COM-GEN-2009-15)
- Main ATLAS DQ web page located at: <http://atlasdqm.web.cern.ch/atlasdqm/> [↗](#)

# Sign up for shifts

Shifts are booked in 7-day blocks, with the first shift starting on a Monday. Once you have signed up for a block, you have until a week prior to your first shift to take your name off, so that the task leader has enough time to find a replacement. Please advise the MCP DQ task leader if you cannot take your shift.

To sign up for shift consult the OTP table, you first need to sign in into the OTP webtool (i.e. we cannot create a direct link). The easiest way to do this is to click on the following link, log into OTP and **look under Book My Shifts**: <https://pptev.cern.ch/mao/client/cern.ppt.mao.app.gwt.MaoClient/MaoClient.html>

Tool for shift manager:

[https://pptev.cern.ch/mao/client/cern.ppt.mao.app.gwt.MaoClient/MaoClient.html#Ma0\\_Task\\_panel\(N528979\)](https://pptev.cern.ch/mao/client/cern.ppt.mao.app.gwt.MaoClient/MaoClient.html#Ma0_Task_panel(N528979))

. **Note: If you haven't logged into the OTP system, you will be redirected to the main page and not to the Muon Combined DQA page.**

Tool for shift manager:

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# Requirements

The main purpose is to monitor muon reconstructed quantities for all of the 9 reconstruction algorithms, and to look at resolution and pull distribution when possible, i.e. for combined tracks where both ID and MS tracks are available. The monitoring is also sensitive to calibration, alignment constants, magnetic field and geometry setup.

What you need to do a MCP DQ shift is:

- A web browser;
- A Point-1 account to access the ATLAS ELog;
- Join the atlas-muoncomb-dqa mailing list from e-Group<sup>?</sup>. This mailing list is tied to the ATLAS ELog. When you fill information to the ELog, an email is then sent to the mailing list, and response from experts will be sent to you via that mailing list as well;
- Attend the daily DQ meeting<sup>?</sup> at 16:30 CERN time.

## Get Point 1 account

This account is separate from your normal CERN lxplus account. Request the Point-1 account from atlas-tdaq-sysadmins@cernNOSPAMPLEASE.ch and give the following information: role = ATLAS:observer.

P.S.: Don't forget to remove the SPAMNOT part of the email field!

## ATLAS ELog

You can access the ATLAS ELog outside Point 1 using the following link <https://pcatdwww.cern.ch/elog/ATLAS/ATLAS/>.

Further informations about the ATLAS ELog can be found under [http://pcatdwww.cern.ch/atlas-point1/ATLAS\\_Logbook.htm](http://pcatdwww.cern.ch/atlas-point1/ATLAS_Logbook.htm).

You must join MCP DQ e-log mailing list atlas-muoncomb-dqa (at least for the week leading up to the shift and while on shift), so that you can get up to date, post comments and receive feedback. If all goes well, you should only get a daily e-mail report from previous shifters as to the runs quality for their shift and details of any problems encountered. We will also reply via the e-log to any specific problems.

## Where can you do your shift?

Shifts can be taken remotely so there is no need to be at CERN!

However, if you are at CERN, you can take your shift in the Data Quality satellite room (DQ-SRC) of Point 1: 3162-2-C01. You can enter by the spinning door, then take the only door to the right and then go up the stairs. Last floor, first door to the left. When you enter the room, on the right hand side wall there are six computer screens. The 3 to the left are available for us to use. You can log in with your lxplus account. You can also bring your laptop which I advise. Power supplies and ethernet connections are available. The advantage of being in the satellite room is that there are other people from other groups, hence it is easier/quicker to communicate information. Also, you can go in person to the control room if you need to talk to the online/detector shifters.

# Shift organization

As the data are taken, they are reconstructed at Tier-0, subdivided in multiple streams. The express stream contains a subset (~10%) of the full data volume; it is reconstructed in quasi-real time, with the aim of obtaining results before the main reconstruction starts. Among the other streams, the followings are particularly interesting for MCP monitoring:

- [physics\_CosmicMuons] and
- [physics\_IDCosmic].

For each stream, the monitoring histograms are stored on castor and are then used to produce the Offline WebDisplay.

There is one offline shifter per day for Muon Combined Performance.

The shifter is expected to check the monitoring histograms from:

- the express streams as they come out;
- the runs processed the previous day.

For convenience, we split the days from 17:30 to 17:30 CERN time, such that your last shift ends with your final report to the DQ meeting.

For example, if you have a shift on the 23rd, you should look at the express streams processed between 17:30 the 22nd and 17:30 the 23rd, and then report at the DQ meeting on the 23rd.

All detector and CP groups need to report at the daily DQ meeting at 16:30 CERN time. In order to give experts a chance to look into problems, the shifter must post comments to the e-log mailing list by 15:00 CERN time. The MCP DQ flags must also be set in the database prior to the DQ meeting.

# Shifter guidebook

- When on shift, consult this page.

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## Major updates:

-- DominiqueFortin - 09-Nov-2009

%RESPONSIBLE% PeterJones

%REVIEW% **Never reviewed**

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