



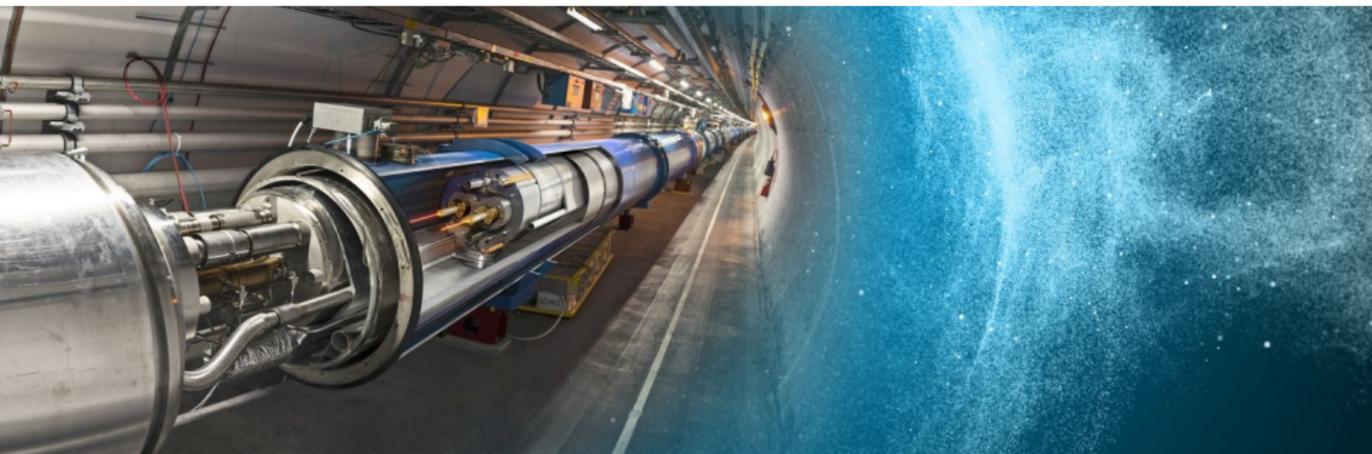
Trigger Activities

Arantxa, Emma, Mariia, Varsha

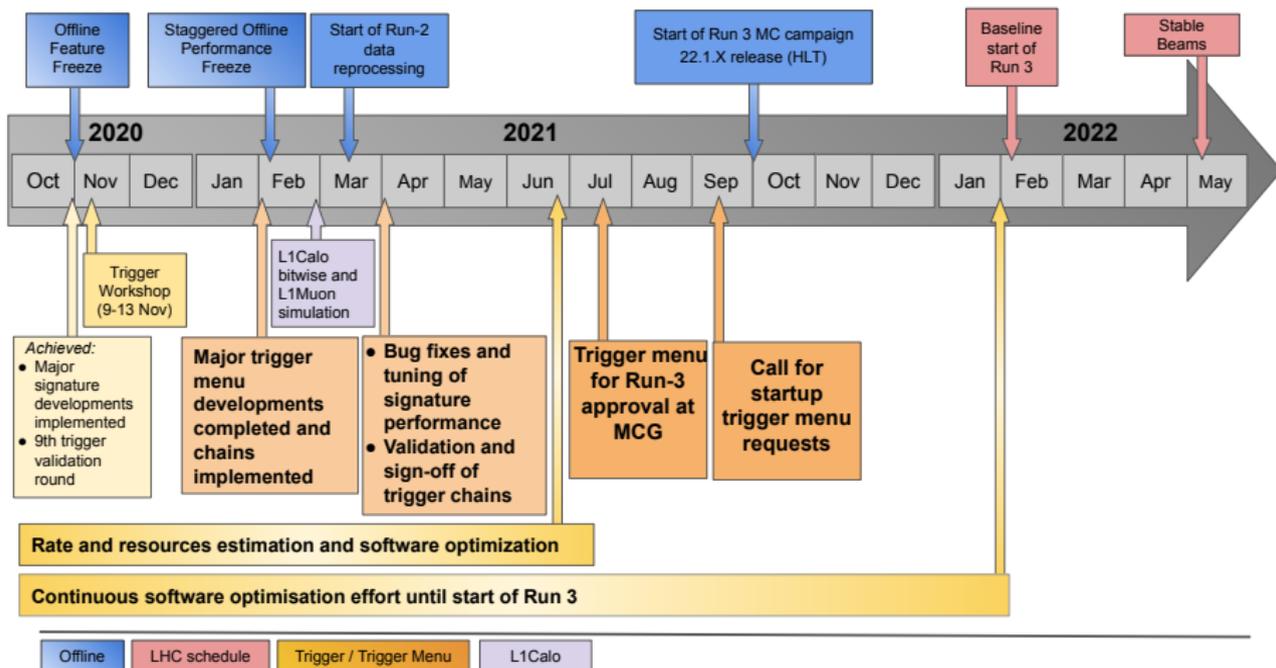
10 December 2020



UNIVERSITAT
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Trigger timelines



7th edition of the ATLAS Trigger Workshop series!



Trigger Workshop 2020, online

9-13 November

<https://indico.cern.ch/event/948344/>

Workshop scope: “Ready for Run 3” - Trigger strategy and commissioning in 2022

Mattermost: will be monitored, use if you have difficulties making a comment / asking a question.

<https://mattermost.web.cern.ch/atlas/channels/trigger-workshop-2020>

Twiki: <https://twiki.cern.ch/twiki/bin/viewauth/Atlas/TriggerWorkshop2020>

Session Layout:

Time	Monday	Tuesday	Wednesday	Thursday	Friday
AM-1		DAQ Data Preparation, Computing Convener: Christine Ott			
AM-Break		Break			
AM-2	Introduction and Scopes of Run 3 Convener: Inesa Ru	Menu (baseline) Convener: Javier Morado / Jonathan Ballester	Menu (startup) Convener: Tetsuya Higuchi	Detector and Legion Signatures Convener: Julien Mauer	
Lunch		Lunch	Lunch	Lunch	
PM-1	L1 Trigger Algorithms and Performances Convener: Arkady Mestch		Menu (evolution) Convener: James East	Hadronic Signatures Convener: Joel Barr	Software for Run 3 Convener: Frank Wittwer
PM-Break		Break	Break	Break	Break
PM-2	L1 Commissioning Convener: Alex Stefan	Menu (advanced) Convener: Javier Morado / Jonathan Ballester	Trigger Operation Convener: Severina Shew	Heavy Flavor Signatures Convener: Quentin Bue	Trigger for Analysis Convener: Lukas Heinrich
Associated peer members for each-day sessions	Helen Christine Schuler-Coslov, Jörg Steier, David Stone	Zachary Marshall (AM-1), Kuntaro Nagano (AM-1, PM-2), Caterina Dionigi (AM-2, PM-2), Peter Ogilvie (PM-2)	Caterina Dionigi (AM-2), Kuntaro Nagano (AM-2, PM-2), Peter Ogilvie (PM-2, PM-2), Tomasz Skow (PM-2)	Stavros Stathopoulos, Guillaume Urell	Tomaz Boal, Zachary Marshall

Goals:

- Feedback on start-up trigger menu (incl. special runs)
- Feedback on draft of Run 3 menu and trigger strategy
- Review and assessment of signature strategies and algorithm performance wrt menu / needs / resources
- Discussion/feedback on requests for prescaled / end-of-fill / supporting / TLA / PEB / delayed streams
- Discussion on commissioning of the trigger system and menu including L1 systems to arrive at an overall commissioning strategy
- Review of LS2 migration plans, in particular, athenaMT framework and core software related areas.

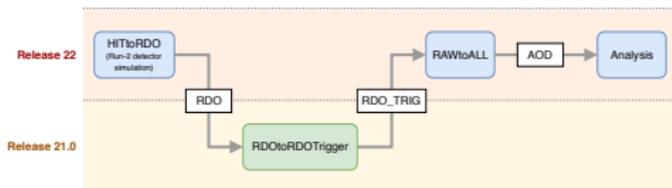
For questions or comments, contact the workshop panel <atlas-trigger-workshop-2020-panel at cern.ch> .

- ⦿ Live page:
<https://indico.cern.ch/event/956675/>
- ⦿ 219 persons registered with 60-120 simultaneous connections
- ⦿ Trigger Workshop panel:
Chair: Yu Nakahama
Panel members: Tomasz Bold, Caterina Doglioni, Zachary Marshall, Kunihiro Nagano, Peter Onyisi, Steven Schramm, Hans-Christian Schultz-Coulon, Joerg Stelzer, David Strom, Guillaume Unal
Ex-officio: Catrin Bernius, Arantxa Ruiz Martinez, Andreas Hoecker, Jiri Masik, Stefano Veneziano
- ⦿ Highlights presented by Yu Nakahama in the ATLAS Weekly, 1 December 2020:
<https://indico.cern.ch/event/980316/>
- ⦿ Goal is to release trigger recommendations in early January 2021



- Overall status and plans:
 - Feature freeze at the end of October
 - Rel 22.0.20 built based on nightly 2020-11-11T2101 being validated
 - MC samples for offline CP groups will be launched before the Christmas break to derive tunes for the Run 2 reprocessing
 - Staggered Offline Performance freeze end of January and Run 2 reprocessing around March (Spring)
- Run 2 data reprocessing in R22:
 - Trigger decision information available in BS
- Run 2 MC production in R22:
 - Workflow requires running trigger simulation (RDOtoRDOTrigger) in R21
(21.0-mc16a, 21.0-mc16d, 21.0 for mc16e)

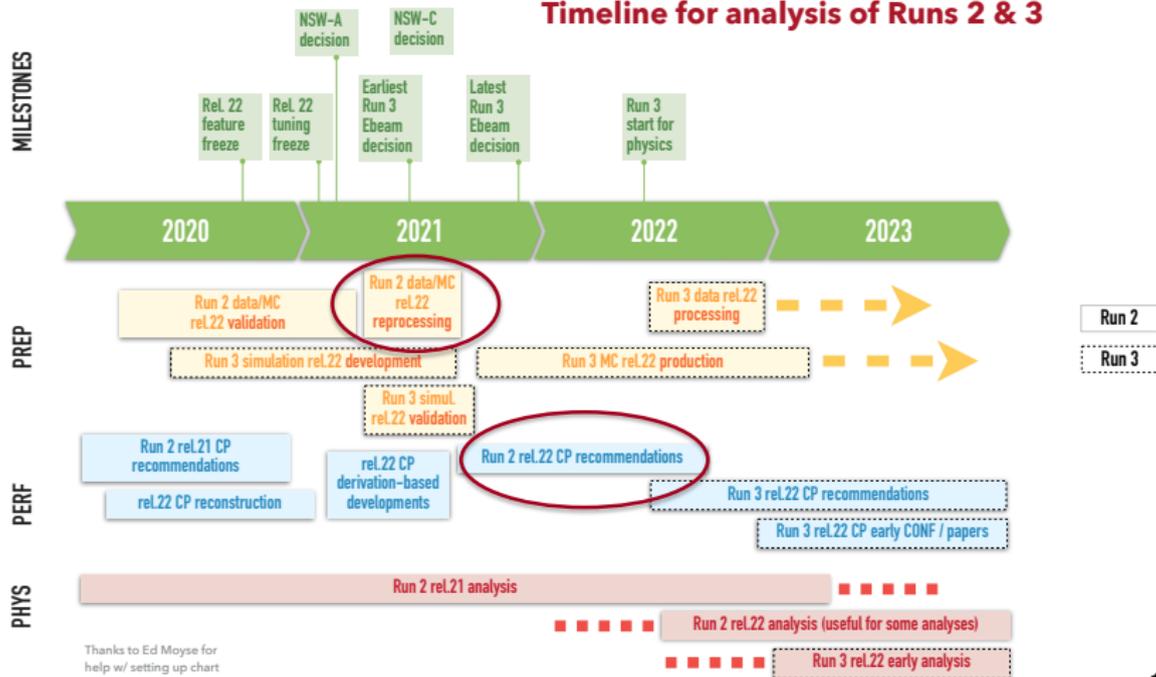
Run-2 simulation with r22 requires running HLT in r21



- Need adapting the Run-2 EDM trigger content to comply with AMSG-R3

Run 2 data reprocessing & MC production in R22

Timeline for analysis of Runs 2 & 3



Major milestones for Run 3 trigger readiness

- 1** Complete major Trigger Menu developments by end of Jan 2021
- 2** Trigger validation and sign off in Feb-Mar 2021
- 3** Trigger Menu for Run 3 approval in MCG in Jul 2021
- 4** Start of Run 3 MC production campaign in R22 in Sep-Oct 2021

- ⊗ Positions re-elected by TDIB for 1 March 2021 - 28 February 2023:
 - ⊗ TDAQ Project Leader: Stefano Veneziano (Rome I)
 - ⊗ TDAQ Phase-II Upgrade Project Leader: Benedetto Gorini (CERN)
- ⊗ ATLAS Software Development Grant applications:
 - ⊗ Three projects offered in the trigger:
<https://espace.cern.ch/atlas-nominations/SitePages/ATLAS%20Software%20Development%20Grants.aspx>
 - ⊗ Deadline on 30 Nov, selection of candidates to be finalised by 15 Dec
- ⊗ Qualification Tasks (QTs) in the trigger:
 - ⊗ 12 new QTs since October 2020
 - ⊗ Existing QTs:
<https://atlas-glance.cern.ch/atlas/membership/qualifications/track?id=8>
 - ⊗ Potential QTs:
<https://twiki.cern.ch/twiki/bin/view/Atlas/TriggerServiceTasks>
- ⊗ New appointment policy approved by the Trigger Coordination Group:
<https://twiki.cern.ch/twiki/bin/view/Atlas/TriggerAppointmentPolicy>
- ⊗ Call for nominations for important roles in the trigger group recently closed, new coordinators being appointed and approved by the Trigger Coordination Group to start on 1 Jan 2021

<https://cds.cern.ch/record/2746101>

<https://cds.cern.ch/record/2746103>

<https://www.youtube.com/watch?v=eXocKN-vYCCQ>

ATLAS Trigger photo group



Emma:

- ⊗ MET trigger software manager

Mariia:

- ⊗ Development of Level-1 isolated TAU objects applying EM fraction veto for displaced jet searches ([ATR-19924](#))

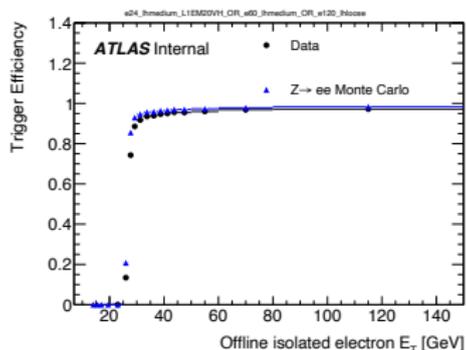
Varsha:

- ⊗ Qualification Task in the e/gamma trigger signature group ([ATR-22291](#))
- ⊗ Electron trigger scale factor measurements on demand for physics analyses using the official Egamma T&P framework (i.e., for PLV)
- ⊗ Investigate discrepancies seen in the electron trigger efficiencies between FullSim and AFII
- ⊗ Development and optimization of the official Egamma T&P framework (being rewritten)

Arantxa:

- ⊗ Trigger Coordination
- ⊗ TDAQ Speakers Committee (stepping down at the end of the year)

Results for 2015 data and MC16a



Backup

New Qualification Tasks since Oct 2020

Paula Martinez Suarez (Barcelona)	Simulation for Phase 1 Level-1 Topological (L1Topo) trigger wrt L1Muon	05 Oct 2020
Lars Beemster (Belgrade IP)	Migration and validation of the b-jet trigger emulation tool	12 Oct 2020
Roshan Joshi (Ohio SU)	Flavour tagging in large-R jet triggers	15 Oct 2020
Marina Aleksandrova (Moscow SU)	Di-muon trigger efficiency scale factors (SFs) for Run-2/MC16	15 Oct 2020
Benjamin Philip Kerridge (Warwick)	Large radius tracking trigger menu into AthenaMT	19 Oct 2020
Bijay Shrestha (Oklahoma)	CPU estimate and optimization of b-jet triggers	19 Oct 2020
Eva Guillonon (Warwick)	RoI based trigger chain using Large Radius Tracking Evaluation of performance of LRT	01 Nov 2020
Ondrej Theiner (Geneva)	To optimise the configuration of the track extrapolation for Particle Flow reconstruction in the HLT	01 Nov 2020
Alexander Kevin Gilbert (Krakow AGH-UST)	Cosmic ID tracking and minbias HMT triggers	01 Nov 2020
Zuchen Huang (Manchester)	Optimize the CPU cost vs overall performance of the fullscan tracking reconstruction to be used by jet and MET	01 Nov 2020
Marek Biros (Prague CU)	Migration of BLS validation tools to the Run-3 framework, development of validation tools	19 Nov 2020
Zoe Olivia Earnshaw (Sussex)	Implementation and deployment of new validation for the Inner Detector trigger	07 Dec 2020