

# D0TrigSim Status/News

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Trigger Meeting  
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## Outline

- New Way to Run d0trigsim
- d0trigsim and the Trigger Database
- MC Samples for Trigger Studies
- Certification of p10
- Plans/Schedule for p11

# A New Way to TrigSim

- D0 Trigger Simulation used to be run using a script (Runme.sh) stored in the d0trigsim package. Now we have joined d0tools.

- Cookbook:

```
setup D0RunII p10.05.00 |
setup d0tools
runD0trigsim -nocoorsim -filelist=myfiles.dat
```

- Some options:

-filelist=??	file containing lists of files or SAM datasets to run on
-defname=??	SAM dataset name to run on
-trglist=??	XML trigger list to parse
-nocoorsim	don't try to parse a new xml trigger list
-localbuild	use local build of d0trigsim exe
-localrcp	use local rcps in addition to release
-debug	run totalview
-purify	run purify
-batch	use the batch system (works on d0mino clued0 support done...being tested)
-q=??	choose batch queue

- Examples:

```
runD0trigsim -h
runD0trigsim -nocoorsim -filelist=myfiles.dat -batch -q=large
```

## D0TrigSim and the Trigger Database

- The trigger database is now in production. A 20 trigger list has been written for MC use and is available from the web.

[http://www-d0.fnal.gov/trigger\\_meister/private/trigdb/tdb\\_front-gallas-prd.html](http://www-d0.fnal.gov/trigger_meister/private/trigdb/tdb_front-gallas-prd.html)

(not necessarily permanent location....)

- List has been entered but we are still dealing with XML/coorsim bugs in version from database. Debugging cycle continues.

# D0TrigSim and the Trigger Database

Trigger List Report

TRIGGER LIST Name= **X.test\_xml** , Version= **0.03** , Use\_Status= **unused** , Current\_Status= **local**  
 Implementation in: **primary** DAQ system , Configuration Type = **global** , autopause= **no** , comics\_runtype= **data**  
 Description: **A trigger list to test the xml generator**  
 Device Group Name/Version = **allcrates** / (version 1) , l3\_type= **regular** , num\_nodes= **0**  
 created /modified by **gallas / gallas** on **29-Aug-2001 / 30-Aug-2001**

index	Trigger Name	Level 1	Level 2	Level 3
0	SRtools	This trigger definition includes a SRDirective to useL1=yes and a set of tools required by Level 3 ScriptRunner (a run configuration and an error handling tool). Because it includes 'null' scripts at Level 1 and 2, it is not part of any specific trigger (a bit is not assigned), rather, it defines tools used by general programming instructions to Level 3 for this configuration to be listed before any trigger specific tools or filters in the element.		
				SRtools
The following triggers belong to the same Exposure Group. They share Device Group = <b>allcrates</b> / (version 1) and Exposure related L1 And/Or Terms: [ <b>ALiveBX</b> & <b>ASkip0</b> & ]				
1	EM_5C_ps_tg	Central ( eta <1.5) electron with track (at L1) and preshower match (L2) with E_T>5 GeV CER(1,C,5)TEL(L,3)	EM(9,0.,5.,EM(3,3,5.,0,1))	L3FEle(ELE_TGHT_G,1,5.,0.,1,5)
2	EM_10C_ls	Trigger on central ( eta <1.5) EM candidates with loose selection criteria (no tracking or preshower match required). CER(1,C,10)	EM(9,0.,10.,EM(3,3,5.,0,0))	L3FEle(ELE_LOOSE,1,10.,0.,1,5)
3	EM_10C_ps_ls	Central ( eta <1.5) electron with preshower match (L2) with E_T>10 GeV CER(1,C,10)	EM(9,0.,10.,EM(3,3,5.,0,1))	L3FEle(ELE_LOOSE,1,10.,0.,1,5)
4	EM_10_ls	Central ( eta <3.0) electron with E_T>10 GeV meeting loose criteria CEM(1,10)	EM(9,0.,10.,EM(3,3,5.,0,0))	L3FEle(ELE_LOOSE,1,10.,0.,3.)
5	2EM_1hc_ps_ls	A J/Psi --> di-EM trigger. Requires 2 low E_T central electrons meeting loose requirements (E_T>1.5 GeV,  eta <1.5). CER(2,C,1.5)	2EM(9,0.,1.5,EM(3,3,1.5,0,1))	L3FEle(ELE_LOOSE,2,1.5,0.,1,5)
6	2EM_1hc_ps_mass	A low mass (J/Psi) --> di-EM trigger. Requires 2 low E_T central electrons meeting loose requirements and E_T>1.5 GeV and  eta <1.5. An electron pair must have a combined invariant mass between 1.5 and 15 GeV. CER(2,C,1.5)	2EM(9,0.,1.5,EM(3,3,1.5,0,1))	L3InvMass(ele_1h_ls,ele_1h_ls,1.5,15.)
7	MU_11AT_local	requires one muon track with p_T>11 GeV within  eta <1.5 satisfying tight requirements at Level 1. At least one segment is required at Level 3. MUO(1,pt4,A,T,T,X)	none	L3FMuoLocal(MUO_LOCAL,1)
8	MU_11CL_local	requires one central muon track with p_T>11 GeV within  eta <1.0 satisfying loose requirements at Level 1. At least one segment is required at Level 3. MUO(1,pt4,C,L,L,X)	none	L3FMuoLocal(MUO_LOCAL,1)
9	MU_7CL_local	requires one central muon track with p_T>7 GeV within  eta <1.0 satisfying loose requirements at Level 1. At least one segment is required at Level 3. MUO(1,pt3,C,L,L,X)	none	L3FMuoLocal(MUO_LOCAL,1)
10	2MU_2CL_local	requires two central muon tracks with p_T>2 GeV within  eta <1.0 satisfying loose requirements at Level 1. At least two segments are required at Level 3. MUO(2,pt1,C,L,L,X)MUO(1,pt2,C,T,T,X)	none	L3FMuoLocal(MUO_LOCAL,2)
11	TAU_5C_ls	requires a tau candidate with E_T>5 GeV,  eta <1.5 CEM(1,5)CJT(2,5)CJR(1,C,5)TIS(3)	2JET(5.,JET(5.,0.,10.))_EM(9,0.,5.,EM(3,3,5.,0,0))	L3FTau(TAU_LOOSE,1,5.,0.,1,5)
12	MET20_2JT5	Requires missing E_T>20 GeV along with 2 kt jets with E_T>5 GeV CME(20)CJT(2,5)	2JET(5.,JET(5.,0.,10.))_MET(20.,MET)	met20_2ktjet5
13	MET35	Requires missing E_T>35 GeV CME(35)	MET35	L3FMEt(CALMET,35.,2000.,0.)
14	3JT_10_kj	Requires 3 kt jets with E_T>10 GeV CJT(3,5)CJT(1,7)	3JET(10.,JET(5.,0.,10.))	L3FJet(KTJET_10,3,10.,0.,3.,0.,1.)
15	HT100_3JT10_kj	Requires a scalar H_T>100 GeV including 3 kt jets with E_T>10 GeV CET(70)CJT(3,5)	HT100(JT5)	L3FJet(KTJET_10,3,10.,0.,3.,0.,1.)
16	JT30	requires at least one jet with E_T>30 GeV found using a simple cone algorithm CJT(1,3)	JET(15.,JET(15.,0.,10.))	L3FJet(SCJET_30,1,30.,0.,3.,0.,1.)
17	JT50	requires at least one jet with E_T>50 GeV found using a simple cone algorithm CJT(1,10)	JET(30.,JET(15.,0.,10.))	L3FJet(SCJET_50,1,50.,0.,3.,0.,1.)
18	JT85	requires at least one jet with E_T>85 GeV found using a simple cone algorithm CJT(1,20)	JET(50.,JET(15.,0.,10.))	L3FJet(SCJET_85,1,85.,0.,3.,0.,1.)
19	JT115	requires at least one jet with E_T>115 GeV found using a simple cone algorithm CJT(1,30)	JET(70.,JET(15.,0.,10.))	L3FJet(SCJET_115,1,115.,0.,3.,0.,1.)
20	grack5	requires a track found by the GlobalTracker tool with E_T>5 GeV TTK(2,3)TIS(3)	EM(9,0.,5.,EM(3,3,5.,0,0))	L3FTrack(GlobalTracker,5.)

purple ==> **current** green ==> **future (test)** yellow ==> **local** pink ==> **obsolete** white ==> **unknown**

## MC Samples for Trigger Studies

- Volker Buescher proposed a “fast-turnaround” mode of processing samples of MC events needed on a short timescale.
- An effort is underway to produce 500k QCD events (various pt thresholds) on the farms and have the sample trigsimmed on d0mino by shifters.
- They have started appearing in SAM already! Look for QCD files produced by mcp08.

## p10 Status

- I have run p10.04.00 on nearly 40k events of various types and have not seen any crashes.
- p10.05.00 runs “out-of-the-box” (even with SAM files thanks to corrected rcps). Contains fix to L1muon output to L2, L2cps phi distribution.
- known problems: l1muo\_analyze is turned off, l1frm di-em trigger bits always zero

## Plans for p11

- D0Trigsim is formalizing its certification. We will be more reco-like in our tests (many samples).
- New functionality deadline for trigsim p11 is October 15.
- Expected:
  - All L1 packages pack like real data
  - All L1 packages work in data pass-through mode
  - L1FPS joins the simulation
  - All L2 analyze packages work on real data
  - L2STT joins the simulation
  - XML files from trigger database are all we ever use for trigsim config (no hand-editing XML or sim files)
  - d0\_analyze works fully as designed