Trigger DAQ problems with deadtimes / crate failures DURING PHYSICS RUNS:

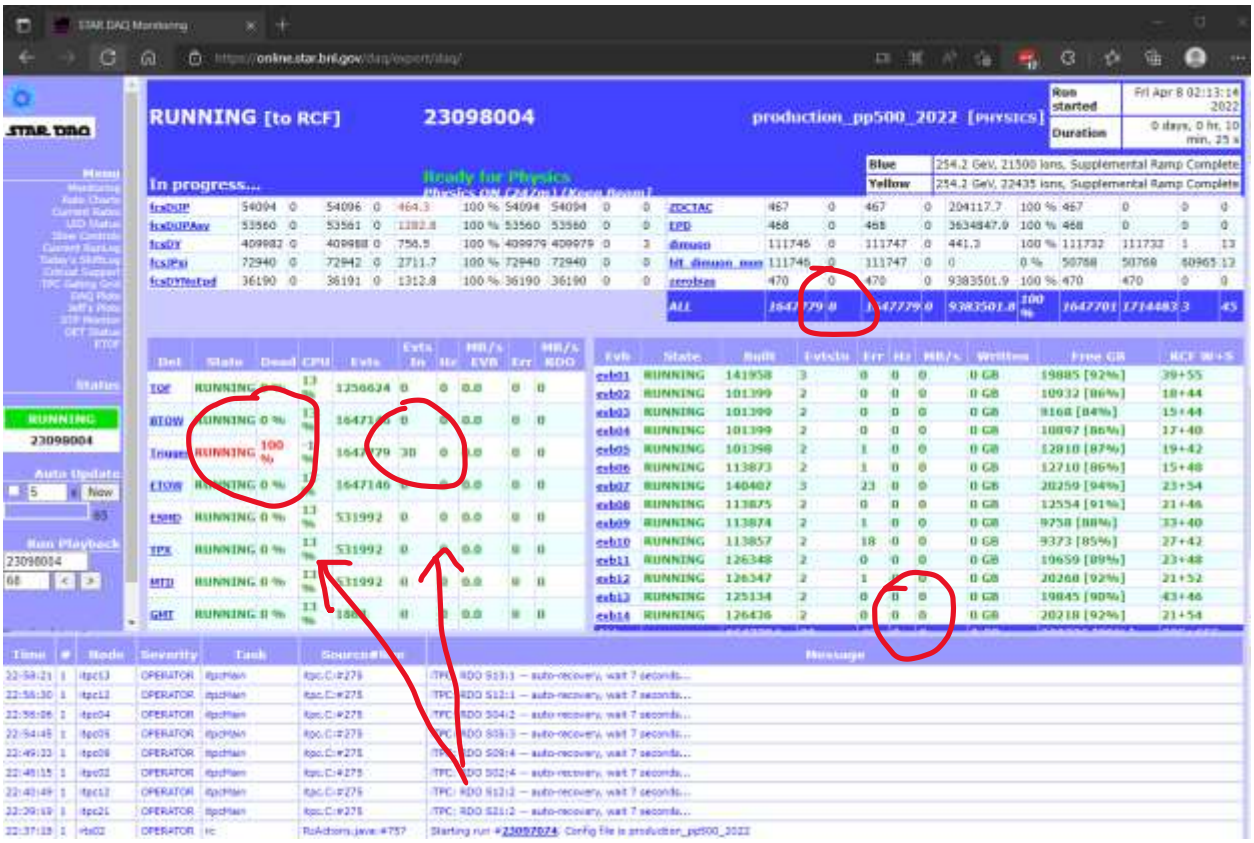
(4/8/22)

Note that during pedestal runs, or other calibration runs it is normal to have high deadtimes. The following prescriptions ONLY apply for standard production physics runs!!!

There are several different failure modes you need to be aware of:

1. L0 Trigger 100% dead with 30 tokens in trigger

Symptoms



The primary indicator here is that the trigger system is 100% dead AND the “Evts In” column for trigger has 30 tokens. You will also notice that the event rates are zero throughout the entire system.

Remediation:

Stop the run and restart the run.

2. L2 Timeouts

Symptoms:

The run dies, or else goes to paused AND you see the messages in the daq monitor pages saying:

			L2 stopping run
L2new	L2new.c	#1963	Most timed out nodes : BBC (2000)
L2new	L2new.c	#1959	More than 2000 timeouts... Supressing further timeout error messages. STOP the run!

Remediation

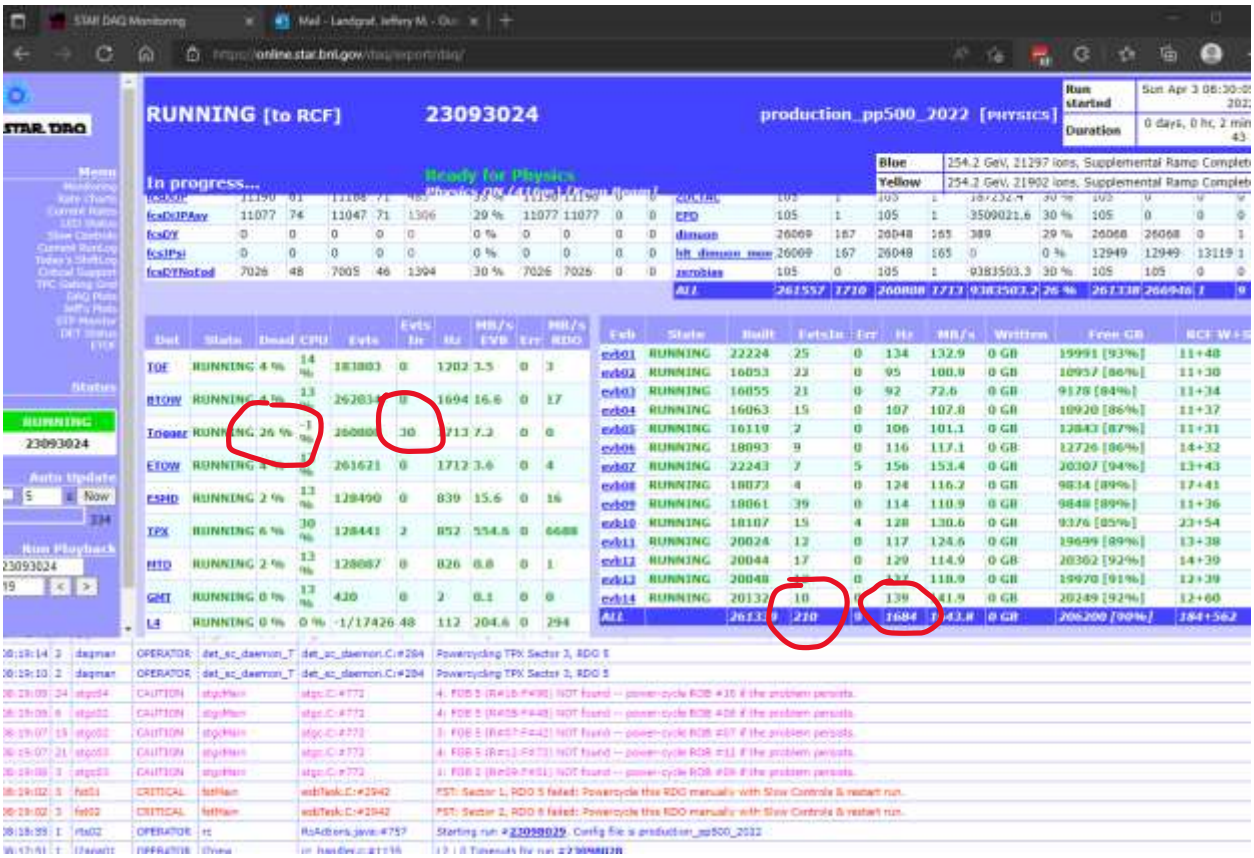
Look at the line that says “Most timed out nodes”:

If there is a single node listed, power cycle that node using slow controls

If there are more than 3 nodes listed, power cycle the L0L1 crate using slow controls

(see https://www.star.bnl.gov/public/trg/trouble/L2_stop_run_recovery.txt)

3. 30% trigger deadtime with low number of events in DAQ, low total rates, and low detector deadtime



Symptoms:

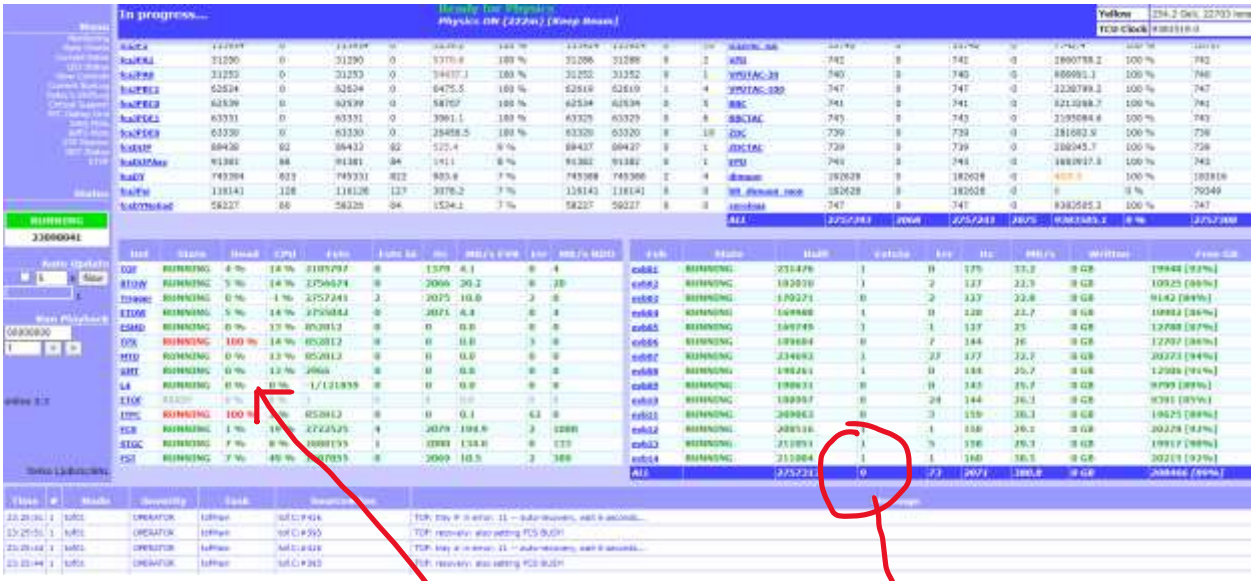
Here the trigger deadtime is high, but no detectors have any issues or errors. The “Evts In” for trigger has 30, while the “EvtsIn column for the event builders has a low number (compared to 4095).

Remediation:

Reboot All, then restart the run.

4. Other Busy Issues

   There are many problems that can lead to busy / trigger busy that have nothing to do with the trigger system.



Symptoms:

1. Other detectors showing busy:
   a. Auto-recoveries
   b. Dead Readout Boards
2. Trigger deadtime with the number of EvtsIn in the DAQ close to 4095

In these cases, follow the directions indicated on the DAQ monitoring page, the DAQ documentation, or contact a DAQ expert.