

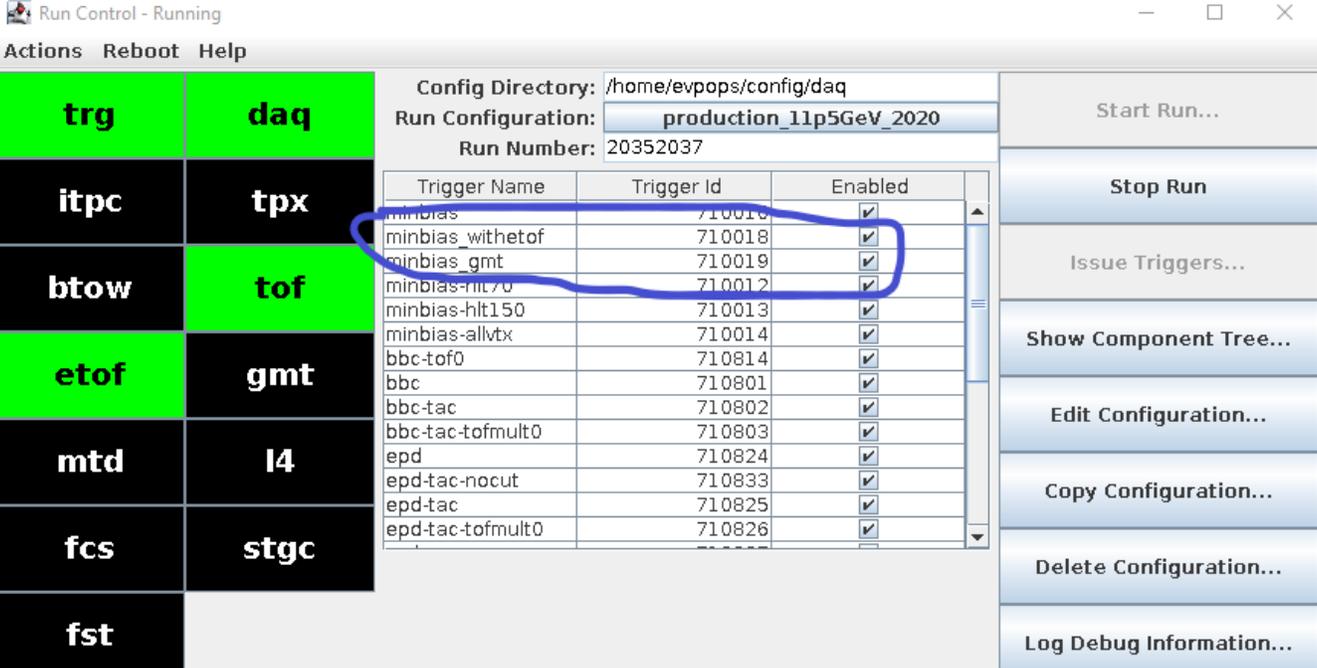
# Procedure for including ETOF in runs while ramping up/down.

The idea of the new procedure for the ETOF is that there should be only one run per fill. Unless there are other problems, there is no need to start/stop runs for the ETOF. Assuming that the ETOF low voltages are ready the procedure is:

1. Do NOT wait for ETOF to finish ramping it's high voltages. Start the run as soon as the other STAR detectors are running and include the ETOF in all production runs.
2. After the ETOF high voltages are ramped, clear the ETOF busy.
3. The ETOF detector will start accumulating events. The “minbias-withetof” events should also begin accumulating.
4. 2 minutes before the beam is to be dumped, assert the ETOF busy, and then ramp the ETOF down while the run continues.
5. Stop the run immediately before dumping the beam.

The following describes the steps above in more detail:

There is now another trigger in the production configuration called “minbias\_withetof”. This is a copy of the minbias trigger which requires ETOF be present in the event. The previously existing triggers,



Run Control - Running

Actions Reboot Help

Config Directory: /home/evpops/config/daq  
Run Configuration: production\_11p5GeV\_2020  
Run Number: 20352037

Trigger Name	Trigger Id	Enabled
minbias	710016	<input checked="" type="checkbox"/>
minbias_withetof	710018	<input checked="" type="checkbox"/>
minbias_gmt	710019	<input checked="" type="checkbox"/>
minbias-nit70	710012	<input checked="" type="checkbox"/>
minbias-ht150	710013	<input checked="" type="checkbox"/>
minbias-allvtx	710014	<input checked="" type="checkbox"/>
bbc-tof0	710814	<input checked="" type="checkbox"/>
bbc	710801	<input checked="" type="checkbox"/>
bbc-tac	710802	<input checked="" type="checkbox"/>
bbc-tac-tofmult0	710803	<input checked="" type="checkbox"/>
epd	710824	<input checked="" type="checkbox"/>
epd-tac-nocut	710833	<input checked="" type="checkbox"/>
epd-tac	710825	<input checked="" type="checkbox"/>
epd-tac-tofmult0	710826	<input checked="" type="checkbox"/>

Start Run...  
Stop Run  
Issue Triggers...  
Show Component Tree...  
Edit Configuration...  
Copy Configuration...  
Delete Configuration...  
Log Debug Information...

“minbias”, “minbias-hlt70”, may or may not have the ETOF. Prior to 12/18/19 the ETOF was required by these triggers except when the ETOF detector was not included in the run, so it was already necessary to check whether ETOF was present in the events. Now it will be possible for the ETOF detector to be absent from these triggers a specific times during the run, and present at other times.

The operational change is that if the ETOF low voltages are ready, the ETOF should always be included in the run. The “minbias\_withetof” should always remain clicked in on the run control. It will be automatically disabled if the ETOF detector is not included in the run.

### Start of the run:

When the run is started, you will see an operator message stating, “ETOF: asserting BUSY! Don’t forget to clear it later. You will also see that the “Dead” column in the detector list for ETOF is red and has the value 100%. This means that the ETOF is not taking data. During this time the ETOF should be ramping it’s high voltages.

The screenshot displays the STAR DAQ monitoring interface. At the top, it shows 'STARTING... [to RCF] 20352038' and 'No beam in RHIC'. A table lists detectors in progress, including ETOF which is in a 'RUNNING' state with a 'Dead' percentage of 100%. A second table shows the status of various detectors, with ETOF again highlighted as 'RUNNING' with 100% dead. The bottom log window shows an operator message: 'ETOF: asserting BUSY! Don't forget to clear it later.'

**Menu**

- Monitoring
- Rate Charts
- Current Rates
- LED Status
- Slow Controls
- Current RunLog
- Today's ShiftLog
- Critical Support
- TPC Gating Grid
- DAQ Plots
- Jeff's Plots
- STP Monitor
- DET Status
- ETOF

**Status**

STARTING...  
20352038

Auto Update  
 5 s Now

Run Playback  
00000000  
1 < >

In progress...												No beam in RHIC				
<a href="#">bbc-tac-tofmult0</a>	0	0	0	0	0	0	0 %	0	0	0	0	<a href="#">mb_zdcomponent</a>				
<a href="#">epd</a>	0	0	0	0	0	0	0 %	0	0	0	0	<a href="#">testLaserFire</a>				
<a href="#">epd-tac-nocut</a>	0	0	0	0	0	0	0 %	0	0	0	0	<a href="#">testLaserProtect</a>				
<a href="#">epd-tac</a>	0	0	0	0	0	0	0 %	0	0	0	0	<a href="#">zerobias</a>				
												<b>ALL</b>				

Det	State	Dead	CPU	Evts	Evts In	Hz	MB/s EVB	Err	MB/s RDO	Evb	State	Built	Ev	
<b>ETOF</b>	<b>RUNNING</b>	<b>0 %</b>	<b>13 %</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0</b>	<a href="#">evb01</a>	<b>RUNNING</b>	<b>0</b>	<b>0</b>	
<a href="#">BTOW</a>	READY	0 %	0 %	11	0	0	0.0	0	0	<a href="#">evb02</a>	<b>RUNNING</b>	<b>0</b>	<b>0</b>	
<a href="#">Trigger</a>	PAUSED	0 %	-1 %	0	0	0	0.0	0	0	<a href="#">evb03</a>	<b>RUNNING</b>	<b>0</b>	<b>0</b>	
<a href="#">TPX</a>	READY	0 %	0 %	1100	0	0	0.0	0	0	<a href="#">evb04</a>	<b>RUNNING</b>	<b>0</b>	<b>0</b>	
<a href="#">MTD</a>	READY	0 %	0 %	0	0	0	0.0	0	0	<a href="#">evb05</a>	<b>RUNNING</b>	<b>0</b>	<b>0</b>	
<a href="#">GMT</a>	READY	0 %	0 %	30639	0	0	0.0	0	0	<a href="#">evb06</a>	<b>RUNNING</b>	<b>0</b>	<b>0</b>	
<a href="#">L4</a>	waiting...	0 %	0 %	0/0	0	0	0.0	0	0	<a href="#">evb07</a>	DEAD	0	0	
<b>ETOF</b>	<b>RUNNING</b>	<b>100 %</b>	<b>26 %</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0</b>	<a href="#">evb08</a>	<b>RUNNING</b>	<b>0</b>	<b>0</b>	
<a href="#">ITPC</a>	READY	0 %	1 %	1100	0	0	0.0	0	0	<a href="#">evb09</a>	<b>RUNNING</b>	<b>0</b>	<b>0</b>	
<a href="#">FCS</a>	READY	0 %	1 %	0	0	0	0.0	0	0	<a href="#">evb10</a>	<b>RUNNING</b>	<b>0</b>	<b>0</b>	
<a href="#">STGC</a>	READY	0 %	0 %	15	0	0	0.0	0	0	<a href="#">evb11</a>	<b>RUNNING</b>	<b>0</b>	<b>0</b>	
<a href="#">FST</a>	READY	0 %	0 %	0	0	0	0.0	0	0	<a href="#">evb12</a>	<b>RUNNING</b>	<b>0</b>	<b>0</b>	
											<a href="#">evb13</a>	<b>RUNNING</b>	<b>0</b>	<b>0</b>
											<a href="#">evb14</a>	<b>RUNNING</b>	<b>0</b>	<b>0</b>
												<b>ALL</b>	<b>0</b>	<b>0</b>

Time	#	Node	Severity	Task	Source#line	Message
15:27:14	1	tcd-lx	OPERATOR	tcdMain	tcd.C:#319	ETOF: asserting BUSY! Don't forget to clear it later.
15:26:49	1	rts02	OPERATOR	rc	RcActions.java:#718	Starting run #20352038. Config file is production_11p5GeV_2020

## After ETOF High Voltages are finished ramping:

At this point one must clear the ETOF busy. To do this, press the “ETOOF” link under “Menu” on the left hand panel of the Monitoring screen to obtain:

The screenshot shows the 'ETOOF Busy Control' interface. On the left, the 'Menu' is open with 'ETOOF' selected. The main panel has a yellow background and contains the following text and buttons:

- In progress...** (top left)
- No beam in RHIC** (top right)
- ETOOF Busy Control** (center)
- Clear BUSY**
- Assert BUSY**

The left sidebar shows the 'Menu' with 'ETOOF' selected. Below the menu is the 'Status' section showing 'RUNNING' and '0352040'. At the bottom, there is an 'Auto Update' section with a '5 s' interval and a 'Now' button.

On this screen, click “Clear Busy”. There will be no action visible on this screen but if you go back to the “monitoring” tab you will see that the ETOF busy has gone away:

The screenshot shows the monitoring screen with a table of detector and event data. The 'ETOOF' detector is highlighted with a blue circle. The table has the following columns: Det, State, Dead, CPU, Evts, Evts In, Hz, MB/s EVB, Err, MB/s RDO, Evb, and State.

Det	State	Dead	CPU	Evts	Evts In	Hz	MB/s EVB	Err	MB/s RDO	Evb	State
<a href="#">bbc-tac-tofmult0</a>		0	0	0	0	0	0 %	0	0	0	<a href="#">mb_zdc</a>
<a href="#">epd</a>		1	0	1	0	0	0 %	1	0	0	<a href="#">testLas</a>
<a href="#">epd-tac-nocut</a>		0	0	0	0	0	0 %	0	0	0	<a href="#">testLas</a>
<a href="#">epd-tac</a>		0	0	0	0	0	0 %	0	0	0	<a href="#">zerobia</a>
<b>ALL</b>											
<a href="#">TOF</a>	<b>RUNNING</b>	0 %	12 %	340	0	0	0.0	0	0	<a href="#">evb01</a>	<b>RUNNING</b>
<a href="#">BTOW</a>	READY	0 %	0 %	11	0	0	0.0	0	0	<a href="#">evb02</a>	<b>RUNNING</b>
<a href="#">Trigger</a>	<b>RUNNING</b>	0 %	-1 %	340	0	1	0.0	0	0	<a href="#">evb03</a>	<b>RUNNING</b>
<a href="#">TPX</a>	READY	0 %	0 %	1100	0	0	0.0	0	0	<a href="#">evb04</a>	<b>RUNNING</b>
<a href="#">MTD</a>	READY	0 %	0 %	0	0	0	0.0	0	0	<a href="#">evb05</a>	<b>RUNNING</b>
<a href="#">GMI</a>	READY	0 %	0 %	30639	0	0	0.0	0	0	<a href="#">evb06</a>	<b>RUNNING</b>
<a href="#">L4</a>	waiting...	0 %	0 %	0/0	0	0	0.0	0	0	<a href="#">evb07</a>	DEAD
<a href="#">ETOOF</a>	<b>RUNNING</b>	0 %	26 %	0	0	0	0.0	0	0	<a href="#">evb08</a>	<b>RUNNING</b>
<a href="#">ITPC</a>	READY	0 %	0 %	1100	0	0	0.0	0	0	<a href="#">evb09</a>	<b>RUNNING</b>
<a href="#">FCS</a>	READY	0 %	2 %	0	0	0	0.0	0	0	<a href="#">evb10</a>	<b>RUNNING</b>
<a href="#">STGC</a>	READY	0 %	0 %	15	0	0	0.0	0	0	<a href="#">evb11</a>	<b>RUNNING</b>
										<a href="#">evb12</a>	<b>RUNNING</b>
										<a href="#">evb13</a>	<b>RUNNING</b>
										<a href="#">evb14</a>	<b>RUNNING</b>

The left sidebar shows the 'Menu' with 'ETOOF' selected. Below the menu is the 'Status' section showing 'RUNNING' and '0352040'. At the bottom, there is an 'Auto Update' section with a '5 s' interval and a 'Now' button.

## **Ramp down the ETOF High Voltages:**

In this case, simply follow the same step as above but press the “Assert Busy” button. Once the ETOF deadtime goes back to 100% it is safe to ramp the ETOF High Voltages down.