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TOTEM shifter instruction

DAQ

To start a run with The vFAT Duck:

- Press Start processes
- Press Start

To stop a run with The vFAT Duck:

- Press Stop

When to start a new run:

- If run crashes. In that case, click "Halt" in LTC Control page before starting a new run.
- If CMS stops the run
- When beam ramp starts: One should stop run. Call trigger expert if the Active filling scheme has changed before starting the new run.

If XDAQ online web-page is not running


How to include RP into the DAQ configuration

- Make sure that the DAQ is stopped.
- Go to the Connected Run Parameters by pressing its < button
- Go to the Disconnected Configuration by pressing its < button
- Press its Define button, and select load
- Select from the list of possible configurations the T2+RP+Trigger, and press OK. Press OK again, but beware that this panel appears in the lower monitor!
- Press the > button of the Disconnected Configuration
- Press the > button of the Connected Run Parameters
- Go to the LCT Control windows and check there is a checkmark the sTTS(3). If not, check and press Apply. Until starting the run this might look in busy state.

How to remove RP from the DAQ configuration

- Make sure that the DAQ is stopped.
- Go to the Connected Run Parameters by pressing its < button
- Go to the Disconnected Configuration by pressing its < button
- Press its Define button, and select load
- Select from the list of possible configurations the T2+Trigger, and press OK. Press OK again, but beware that this panel appears in the lower monitor!
- Press the > button of the Disconnected Configuration
- Press the > button of the Connected Run Parameters
- Go to the LCT Control windows and check that there is no checkmark in the sTTS(3). If checked, uncheck and click Apply. Until starting the run this might look in busy state.
Runlog

Make a new entry for each run in https://totem-runlog.web.cern.ch/totem-runlog/fcgi/runs/new/

- Click New run

Where to find the information to fill in:

- Run number: The vFat Duck
- Date/time: The vFat Duck
- Status: successful if run didn’t crash
- Run type: physics for stable beams, otherwise commissioning
- Events count: LTC control: Triggers
- Lost triggers: LTC control: Blocked L1As
- Average rate: new_trigger_scalers_CMS.sh last column
- HV settings, Threshold settings, latency settings: take from previous run
- Comments: If run taken together with CMS, add CMS run number. If L1SA bit is included, write what was the configuration of L1SA

DCS

To start DCS:

- ssh nturini@cmsusr0
- (ask password from experts)
- cd .rdesktop
- rm (the only file in the directory)
- rdesktop -u username -d CERN cerntscms g1920x1080
- give your password
- click TOTEM DCS (TOTEM User Interface Window)
- or use "remote desktop connection" on your own computer, and log in to cerntscms01, cerntscms02 (137.138.240.46)

Monitor DCS for T2 voltages and current

- Go to T2 page by clicking the box next to word T2.
- If something is red, call Nicola (160907)

Check that TOTEM status flag is correct

- Go to LHC page by clicking the box next to word LHC
- Check TOTEM Status in Handshake box.
  ♦ If not correct, change it by selecting the right one from the drop-down menu
- Correct status flags:
  ♦ Physics: data taking with stable beams
  ♦ Standby: outside of stable beams
  ♦ Calibration: test runs, e.g. latency scans
Trigger rate scripts

Graphical view of trigger logic: T2_CMS_Triggers.pdf

Output from new_trigger_scalers_CMS.sh:

- Trigger paths separated by #:
- Columns for each trigger path:
  1. Raw trigger rate
  2. Trigger rate after the fork (fork = pre-selection of bunches that trigger)
  3. Pre-scaled trigger rate after the fork
- Trigger paths from left to right:
  1. RP vertical 220
  2. RP horizontal 220
  3. CMS L1
  4. L1SA
  5. T2 minbias
  6. T2 low multiplicity
  7. CMS L1
  8. TOTEM L1

Output from CMSPath_scalers.sh:

- Rates that TOTEM sends to CMS
- Trigger paths separated by #:
- Columns for each trigger path:
  1. Raw trigger rate
  2. Trigger rate after the fork (fork = pre-selection of bunches that trigger)
  3. Pre-scaled trigger rate after the fork
- Trigger paths from left to right:
  1. RP vertical 220
  2. RP horizontal 220
  3. Bunch crossing
  4. T2 SD
  5. T2 min bias
  6. T2 low multiplicity
  7. L1 to CMS

Orbit synchronization

Check LTC Control for orbin sync

- Go to LTC Control page
- Make sure the page is refreshing (Autorefresh OFF button is visible)! If not, start autorefresh.
- Check Orbit in sync.?
  - If no
    1. Go to Main Config tab
    2. Select Reset (under QPLLCTRL B it 5 (ignored if not external):
    3. Click Apply
    4. Select No Reset
    5. Click Apply
Check if Roman Pots are in place

This can be checked in DCS, please find an example screenshot below:

Start of run checklist

- Wait until Beam mode = SETUP
- Check that CMS is in LHC clock. You can ask the DAQ shifter or check from the Level0-FM screen.
- Check the LTC orbit
- Start the Trigger rate scripts if necessary
- Run ./ResetCMSFlags.sh if configuration has changed or if you are not sure if you should.
- Wait until Beam mode = FLAT TOP
- Check if CMS flag starts with 7 in the new_trigger_scalers.
- Run the appropriate setup script (eg. T2L1SA.sh). Call expert if not sure.
- Wait for collisions. Check that T2(53) rate is between 40 and 60 and that L1 rate is < 900. If not, call T2 expert.
- Wait until Beam mode = STABLE BEAMS. Call Mario for RP insertion if taking data with RPs
- Press Start processes in The vFAT Duck. Press the Start button once it activates.

End of run checklist

- Press Stop in The vFat Duck
- Stop autorefresh in LTC Control window
- Fill in the event counts and lost triggers etc. in the Runlog and submit.
- Set TOTEM status flag to standby in the DCS.
- Ramp down the detectors in the DCS if necessary.
- Please don’t close the DCS window (nturini@cmsusr0)

Contact numbers

- TOTEM shifter: 16 2476
- DAQ: 16 1531
• T2: 16 2474
• T2 GEM Eraldo: 16 6126
• DCS:
  1. Ivan: 16 8864
  2. Sascha: 16 3680
• Trigger Nicola: 16 0907
• Complaints, worries, organisation: Mario 16 3762 (no general run strategy discussions before 9:00 !)