Run QA Manual

Introduction

This manual is prepared to do the run QA for the purpose of W analysis at STAR for year 2013. I would like to thank Hal Spinka for all his effort towards preparing run QA instructions which at the end of the day has converted to this manual, providing sample QA'd list and including example good/bad monitoring plots to use in run QA. Below find some directions to prepare for run QA and then steps involving run QA and at the end the status key codes.

Directions

First, download your run list spreadsheet from the following link, *https://drupal.star.bnl.gov/STAR/blog/devika/2013/jul/19/run-qa-w-2013* and add a column with heading "Items checked " anywhere you want. Use this column to keep the track of items you checked (use some binary codes) for your convenience. When you return the sheet back simply remove that column.

The runQA inputs should be under columns "status" and "remarks". Replace the "??" presently in the **status** column with the corresponding status codes and write any of your comments under column **remarks**.

When you have finished with a run, place your initials after whatever remarks you have, such as "+ABC" where your initials will replace ABC.

Please find a sample list QA'd by Hal and possible problems found in monitoring plots in his blog here:
https://drupal.star.bnl.gov/STAR/blog/spinka/2013/jul/03/run13-runqa

Sample list:> FirstPriority_Apr20_26.xlsx
Possible problems in monitoring plots:> RunQA_Examples.ppt

All the runs in your spreadsheet satisfy minimum requirement of subsystems "emc"(BEMC) and "tpx"(TPC).

Steps

1) Check if the run has scalars (from the following list).
   https://drupal.star.bnl.gov/STAR/system/files/run13_sca_det.bd04.bd05.082_runDuration.list_.txt
   If the run do not exist under the scalars list, write under remarks as "No Scalars" but still go through next steps.

2) Check the shift log for comments about the run
   - Use the following link to access the shift log for run 13.
     http://online.star.bnl.gov/apps/shiftLog2013/
   - Go to "Access the Browser" and then "Browse by Period" and insert dates of the runs you are checking. (The corresponding date and the time for a given run can be found on your spreadsheet under the column "startRunTimeBnl")
   - Status codes for causes of runs being stopped, data collected during polarization measurement and any other comments can be added to the run list spreadsheet based on information from the shift log.
   - Check Fast Offline report for possible problems

3) Go to the run log *http://online.star.bnl.gov/RunLogRun13/* and find runs to be checked.
   - Check DAQ rates plots for extended (>10% of the time) jumps in dead time or trigger rates (status "Tr").
     i. Example of good plots
        http://online.star.bnl.gov/daq/export/timeline.php?run=14110051
     ii. Example of problems (with FGT)
        http://online.star.bnl.gov/daq/export/timeline.php?run=14110052

     iii. Example of problems (TPX data exceed all other data ; 2nd plot)

http://online.star.bnl.gov/daq/export/timeline.php?run=14147065

- J-plots:

https://drupal.star.bnl.gov/STAR/blog/devika/2013/aug/05/runqaj-plots

    i. Pages 5-7 - vertex positions - ??
    ii. ZDC -> Pages 8, 11
    iii. VPD -> Pages 12,13
    iv. TOF -> Page 16 , Page 84
    v. Bunch Crossing -> Page 18
    vi. TPC/TPX -> Pages 21,22 and page 25 if laser run)
    vii. BTOW -> Page 27 - missing crates/data, Page 28 - TP/HT Trigger status, Page 41 – BSMD left plot
    viii. ETOW -> Pages 45,46,48
    ix. Other EEMC trigger plots??
    x. Pages 62,63 - ESMD, Epre, and Epost
    xi. Pages 68-73 - ESMD, Epre, and Epost - ??
    xii. BBC -> Pages 98-101

4) L2 monitoring plots .....

Status key codes

General	
Code	Description
Ok	All seems reasonable with the run
Xx	Do not use this run for any analysis
??	This run has not been checked

Trigger rates	
Code	Description
Tr	Trigger rates anomalies in rate plots

Run stopped due to	
Code	Description
Db	BEMC problems
De	EEMC problems
Dg	Any thing wrong with other STAR triggers
Dm	Magnet crash
Do	Problems with other STAR detectors
Dq	DAQ problems/crash
Dp	Polarization measurement
Dt	TPC problems

TPC	
Code	Description
Cm	Minor TPC problems
Cx	TPC not usable(but run ok for calorimeter analysis)

BEMC	
Code	Description

Bc	Any barrel tower, crate bad or off, but most working
Bx	All/most barrel towers unusable/corrupted/off
Bh	Any thing wrong with barrel high tower trigger
Bj	Any thing wrong with barrel jet patch trigger
Sc	Any barrel SMD crate bad or off, but most working
Sx	Barrel SMD system unusable/off

EEMC	
Code	Description
Ec	Any endcap tower, crate bad or off, but most working
Ex	All/most endcap towers unusable/corrupted/off
Eh	Any thing wrong with endcap high tower trigger
Ej	Any thing wrong with endcap jet patch trigger
Mc	Any endcap SMD crate bad or off, but most working
Mx	endcap SMD system unusable/off

TOF	
Code	Description
Fc	TOF problems for a subnet of the detectors
Fx	TOF unusable/off

ZDC	
Code	Description
Zt	Multiple peaks in ZDC timing plots

FGT	
Code	Description
Gc	Minor problems with FGT detector
Gx	FGT unusable (100% dead time)

BBC	
Code	Description
Am	BBC minor problems
Ax	BBC major problems

VPD	
Code	Description
Vm	**VPD minor problems**
Vx	**VPD major problems**

Online plots	
Code	Description
Pc	**Minor problems for a subnet of the plots**
Px	**Major problems with one or more online plots**

Other	
Code	Description
Qa	**Anomalies QA plots reported in the shift log**
Qb	**Excessive beam background reported in the shift log**
Qc	**Data takes during polarization measurement**
Qx	**Bunch crossing or spin pattern problems (**many bunches >20% or < 20% different from the rest, excluding abort gaps)
Qj	**No J-plots**
Qs	**No Scalers**
Ql	**Laser run**