

Table of Contents

THIS INFORMATION IS OUT OF DATE AS OF Feb 11, 2020. LINK TO UPDATED information available soon.....	1
Introduction.....	2
Generating First LUTs.....	3
Generating Second LUTs and comparing.....	4

THIS INFORMATION IS OUT OF DATE AS OF Feb 11, 2020. LINK TO UPDATED information available soon

Introduction

* For a good description of what the Look Up Tables are read through this (slightly dated) LUTs for Luddites [↗](#)

Generating First LUTs

Assumes running on lxplus

We will start by generating LUTs corresponding to the LUTs used in production 2018v8, which were for radiation damage corrections for 35-45/fb

```
cmsrel CMSSW_10_4_0_pre1
cd CMSSW_10_4_0_pre1/src
cmsenv
git cms-merge-topic -u akhukhun:xmlformat
```

Open CaloOnlineTools/HcalOnlineDb/src/HcalLutManager.cc in your favorite editor and comment out lines 1737 and 1738

```
const std::map<int, std::shared_ptr<LutXml> > _zdc_lut_xml = getZdcLutXml( _tag, split_by_crate);
addLutMap( xml, _zdc_lut_xml );
```

now compile

```
scram b
cd CaloOnlineTools/HcalOnlineDb/test/
```

copy the following example card into an executable file (cardPhysics18v1.sh) this is the test GT used for the production LUTs 2018v8

```
Tag=Physics2018v1
Run=321200 #For new LUTs use a future run number
GlobalTag=101X_dataRun2_HLT_Candidate_2018_08_10_14_55_01
description="Radiation damage corrections for 35-45/fb, hcal gains and pedestals conditions update"
HOAsciiInput=HO_ped9_inputLUTcoderDec.txt

ElectronicsMap=""
LutMetadata=""
LUTCORRS=""
QIETypes=""
QIEData=""
SiMPParameters=""
TPParameters=""
TPChannelParameters=""

ChannelQuality=""
Gains=""
Pedestals=""
RespCorrs=""

OldTag=Physics2018v10
OldRun=322800

O2OL1TriggerObjects=false
O2OInputs=false
```

Now we dump the conditions from the GT

```
./genLUT.sh dumpAll card=cardPhysics18v1.sh
```

Generate the LUTs and new L1TriggerObjects from the dumped conditions

```
./genLUT.sh generate card=cardPhysics18v1.sh
```

Generating Second LUTs and comparing

Now that we have a baseline set of LUTs we will do the radiation damage corrections by applying new Gains and ChannelQuality Tags

```
HcalChannelQuality_2018_v4.0_data  
HcalGains_2018_HEHFRaddam_50fb_data
```

copy the previous card to cardPhysics18v2.sh Change Run to Run=321800 set the GT to GlobalTag=101X_dataRun2_HLT_Queue

in the card add the tags for new channel quality and gains

Change OldTag and OldRun to match the first card

dump conditions and generate LUTs

diff the LUTs with ./genLuts.sh diff new old The rad dam corrections should have changed the endcap and forward calorimeter luts. generate validation plots

Now compare the LUTs using ./genLuts.sh validate card=cardPhysics18v2.sh

as sanity check look at the file GainLutScatterHBHE.pdf in conditions/Physics2018v2/figures it should be diagonal. (same for HF but need to change scale)

-- RhysAndrewTaus - 2019-09-12

This topic: Sandbox > LUTsAtHCALdays2019

Topic revision: r4 - 2020-02-11 - RhysAndrewTaus



Copyright &© 2008-2021 by the contributing authors. All material on this collaboration platform is the property of the contributing authors.

or Ideas, requests, problems regarding TWiki? use Discourse or Send feedback