



Peter Camporeale &lt;petercamporeale@gmail.com&gt;

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**Tile+L1Calo runs**

14 messages

**Oleg Solovyanov** <oleg.solovyanov@cern.ch>

Mon, Mar 6, 2023 at 4:33 PM

To: Peter Thomas Camporeale &lt;peter.thomas.camporeale@cern.ch&gt;

Cc: Sanya Solodkov &lt;Sanya.Solodkov@cern.ch&gt;, Danijela Bogavac &lt;danijela.bogavac@cern.ch&gt;

Hi Peter,

For L1Calo we use the following C++ software to execute and process Python scripts:

<https://gitlab.cern.ch/atlas-tile-online/TileModules/-/blob/master/src/TileDigiTTCModuleCISDataChannel.cpp><https://gitlab.cern.ch/atlas-tile-online/TileModules/-/blob/master/src/TileDigiTTCModuleCISFormat.cpp>

Python scripts are located at P1 different places.

The main steering file is from takecalib suite, for L1Calo+Tile:

`/det/l1calo/scripts/takeCalib/L1CaloRunTypes.py`The Tile part is generated on the fly by `/det/l1calo/scripts/tileCisSetup.sh` calling Java code JPanelCIS<https://gitlab.cern.ch/atlas-tile-online/TileGui/-/blob/master/src/JPanelCIS.java>

L1Calo use energy scan, pmt scan, and phos4scan.

Energy scan fires all PMTs changing injected charge every N events

PMT scan fires only one PMT to check the input from individual PMTs

phos4scan presumably varies the sampling phase in L1Calo

Somewhere we need to implement the reading of file to disable or modify the injector of certain 3in1 cards.

Best regards,

Oleg.

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**Peter Camporeale** <petercamporeale@gmail.com>

Tue, Mar 7, 2023 at 2:36 PM

To: Jacky Li &lt;jackymengyangli@uchicago.edu&gt;

Peter

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**Peter Camporeale** <petercamporeale@gmail.com>

Wed, Mar 8, 2023 at 4:14 PM

To: Oleg Solovyanov &lt;oleg.solovyanov@cern.ch&gt;

Cc: Peter Thomas Camporeale &lt;peter.thomas.camporeale@cern.ch&gt;, Sanya Solodkov &lt;Sanya.Solodkov@cern.ch&gt;, Danijela Bogavac &lt;danijela.bogavac@cern.ch&gt;, Jacky Li &lt;jackymengyangli@uchicago.edu&gt;

Dear Oleg,

I was just beginning to look into the scripts when it seems that the links give me "404 Not Found" errors.

I checked <https://gitlab.cern.ch/atlas-tile-online/TileModules/> and <https://gitlab.cern.ch/atlas-tile-online/Tilegui/> too, but there is nothing in these folders. I can't find anything in Athena, either. Are the correct links elsewhere, or is it perhaps an issue with file permissions?

Best,  
Peter

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**Oleg Solovyanov** <[oleg.solovyanov@cern.ch](mailto:oleg.solovyanov@cern.ch)>

Wed, Mar 8, 2023 at 4:28 PM

To: "petercamporeale@gmail.com" <[petercamporeale@gmail.com](mailto:petercamporeale@gmail.com)>

Cc: Peter Thomas Camporeale <[peter.thomas.camporeale@cern.ch](mailto:peter.thomas.camporeale@cern.ch)>, Sanya Solodkov <[Sanya.Solodkov@cern.ch](mailto:Sanya.Solodkov@cern.ch)>, Danijela Bogavac <[danijela.bogavac@cern.ch](mailto:danijela.bogavac@cern.ch)>, "jackymengyangli@uchicago.edu" <[jackymengyangli@uchicago.edu](mailto:jackymengyangli@uchicago.edu)>

That are the permissions, try now, I sent you an invite, cannot find Jacky though...

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**From:** Peter Camporeale [[petercamporeale@gmail.com](mailto:petercamporeale@gmail.com)]

**Sent:** 08 March 2023 16:14

**To:** Oleg Solovyanov

**Cc:** Peter Thomas Camporeale; Sanya Solodkov; Danijela Bogavac; [jackymengyangli@uchicago.edu](mailto:jackymengyangli@uchicago.edu)

**Subject:** Re: Tile+L1Calo runs

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**Jacky Li** <[jackymengyangli@uchicago.edu](mailto:jackymengyangli@uchicago.edu)>

Wed, Mar 8, 2023 at 4:29 PM

To: Oleg Solovyanov <[oleg.solovyanov@cern.ch](mailto:oleg.solovyanov@cern.ch)>, "petercamporeale@gmail.com" <[petercamporeale@gmail.com](mailto:petercamporeale@gmail.com)>

Cc: Peter Thomas Camporeale <[peter.thomas.camporeale@cern.ch](mailto:peter.thomas.camporeale@cern.ch)>, Sanya Solodkov <[Sanya.Solodkov@cern.ch](mailto:Sanya.Solodkov@cern.ch)>, Danijela Bogavac <[danijela.bogavac@cern.ch](mailto:danijela.bogavac@cern.ch)>

Dear Oleg,

Would you try MENG YANG LI and see if you could find me then...?

Best,  
Jacky Li

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**From:** Oleg Solovyanov <[oleg.solovyanov@cern.ch](mailto:oleg.solovyanov@cern.ch)>

**Sent:** Wednesday, March 8, 2023 4:28:32 PM

**To:** [petercamporeale@gmail.com](mailto:petercamporeale@gmail.com) <[petercamporeale@gmail.com](mailto:petercamporeale@gmail.com)>

**Cc:** Peter Thomas Camporeale <[peter.thomas.camporeale@cern.ch](mailto:peter.thomas.camporeale@cern.ch)>; Sanya Solodkov <[Sanya.Solodkov@cern.ch](mailto:Sanya.Solodkov@cern.ch)>; Danijela Bogavac <[danijela.bogavac@cern.ch](mailto:danijela.bogavac@cern.ch)>; Jacky Li <[jackymengyangli@uchicago.edu](mailto:jackymengyangli@uchicago.edu)>

**Subject:** RE: Tile+L1Calo runs

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**Peter Camporeale** <[petercamporeale@gmail.com](mailto:petercamporeale@gmail.com)>

Wed, Mar 8, 2023 at 4:30 PM

To: Oleg Solovyanov <[oleg.solovyanov@cern.ch](mailto:oleg.solovyanov@cern.ch)>

Cc: Peter Thomas Camporeale <[peter.thomas.camporeale@cern.ch](mailto:peter.thomas.camporeale@cern.ch)>, Sanya Solodkov <[Sanya.Solodkov@cern.ch](mailto:Sanya.Solodkov@cern.ch)>, Danijela Bogavac <[danijela.bogavac@cern.ch](mailto:danijela.bogavac@cern.ch)>, "jackymengyangli@uchicago.edu" <[jackymengyangli@uchicago.edu](mailto:jackymengyangli@uchicago.edu)>

It works now, thank you!

Jacky's CERN email is [Mengyang.Li@cern.ch](mailto:Mengyang.Li@cern.ch)

Best,  
Peter

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Wed, May 3, 2023 at 2:17 PM

**Peter Camporeale** <petercamporeale@gmail.com>

To: Oleg Solovyanov &lt;oleg.solovyanov@cern.ch&gt;

Cc: Peter Thomas Camporeale &lt;peter.thomas.camporeale@cern.ch&gt;, Sanya Solodkov &lt;Sanya.Solodkov@cern.ch&gt;, Danijela Bogavac &lt;danijela.bogavac@cern.ch&gt;, "jackymengyangli@uchicago.edu" &lt;jackymengyangli@uchicago.edu&gt;

Dear Oleg,

Danijela and I have been trying to understand the various calibration scripts and how they interact. However, were still rather stuck on where to read a file that would disable/enable certain PMTs, after asking various people and inspecting the scripts you sent.

Additionally, we do not really have a way of testing the scripts. The setup in B175 does not include the portions of code relating to L1Calo, supposedly.

Would you perhaps be available sometime this week or next to meet to help us understand the code and where we could implement the proposed changes? What times would work best for you generally?

Thanks for your help with this!

Best,  
Peter

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**Oleg Solovyanov** <oleg.solovyanov@cern.ch>

Wed, May 3, 2023 at 6:58 PM

To: "petercamporeale@gmail.com" &lt;petercamporeale@gmail.com&gt;

Cc: Peter Thomas Camporeale &lt;peter.thomas.camporeale@cern.ch&gt;, Sanya Solodkov &lt;Sanya.Solodkov@cern.ch&gt;, Danijela Bogavac &lt;danijela.bogavac@cern.ch&gt;, "jackymengyangli@uchicago.edu" &lt;jackymengyangli@uchicago.edu&gt;

Dear Peter and all,

How about tomorrow (Thursday) around 11:00 in b.40 cafeteria?

Best regards,  
Oleg.

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**De** : Peter Camporeale <petercamporeale@gmail.com>**Envoyé** : mercredi 3 mai 2023 14:17**À** : Oleg Solovyanov <oleg.solovyanov@cern.ch>**Cc** : Peter Thomas Camporeale <peter.thomas.camporeale@cern.ch>; Sanya Solodkov <Sanya.Solodkov@cern.ch>; Danijela Bogavac <danijela.bogavac@cern.ch>; jackymengyangli@uchicago.edu <jackymengyangli@uchicago.edu>**Objet** : Re: Tile+L1Calo runs

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**Peter Camporeale** <petercamporeale@gmail.com>

Wed, May 3, 2023 at 8:55 PM

To: Oleg Solovyanov &lt;oleg.solovyanov@cern.ch&gt;

Cc: Peter Thomas Camporeale &lt;peter.thomas.camporeale@cern.ch&gt;, Sanya Solodkov &lt;Sanya.Solodkov@cern.ch&gt;, Danijela Bogavac &lt;danijela.bogavac@cern.ch&gt;, jackymengyangli@uchicago.edu

Dear Oleg,

Thank you, that time indeed works for me. @Danijela would it also work for you?

Best,  
Peter

On May 3, 2023, at 6:58 PM, Oleg Solovyanov <[oleg.solovyanov@cern.ch](mailto:oleg.solovyanov@cern.ch)> wrote:

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**Danijela Bogavac** <[danijela.bogavac@cern.ch](mailto:danijela.bogavac@cern.ch)>

Thu, May 4, 2023 at 8:18 AM

To: Peter Camporeale <[petercamporeale@gmail.com](mailto:petercamporeale@gmail.com)>, Oleg Solovyanov <[oleg.solovyanov@cern.ch](mailto:oleg.solovyanov@cern.ch)>

Cc: Peter Thomas Camporeale <[peter.thomas.camporeale@cern.ch](mailto:peter.thomas.camporeale@cern.ch)>, Sanya Solodkov <[Sanya.Solodkov@cern.ch](mailto:Sanya.Solodkov@cern.ch)>, jackymengyangli@uchicago.edu

Dear Peter, all,

yes, it works.

See you later,

Danijela

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**Peter Camporeale** <[petercamporeale@gmail.com](mailto:petercamporeale@gmail.com)>

Thu, May 4, 2023 at 12:08 PM

To: Danijela Bogavac <[danijela.bogavac@cern.ch](mailto:danijela.bogavac@cern.ch)>

Cc: Oleg Solovyanov <[oleg.solovyanov@cern.ch](mailto:oleg.solovyanov@cern.ch)>, Peter Thomas Camporeale <[peter.thomas.camporeale@cern.ch](mailto:peter.thomas.camporeale@cern.ch)>, Sanya Solodkov <[Sanya.Solodkov@cern.ch](mailto:Sanya.Solodkov@cern.ch)>, jackymengyangli@uchicago.edu

Dear Sasha,

Oleg, Danijela, and I met this morning to discuss more and try to figure out what code to edit.

To be sure, we would just like to confirm exactly what we should be trying to enable, disable, or modify. Is the goal to just modify the 3-in-1 cards through the code, for example? Currently, the scripts have the option to mask the trigger by reading in an attribute from OKS. One suggestion is to also create a new OKS attribute indicating channels to disable., which we could get in the code in a similar way.

This will help us determine exactly which script we should modify, or whether we should be modifying C++ or Python code.

Best,  
Peter

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**Oleg Solovyanov** <[oleg.solovyanov@cern.ch](mailto:oleg.solovyanov@cern.ch)>

Thu, May 4, 2023 at 1:00 PM

To: Peter Thomas Camporeale <[peter.thomas.camporeale@cern.ch](mailto:peter.thomas.camporeale@cern.ch)>

Cc: Sanya Solodkov <[Sanya.Solodkov@cern.ch](mailto:Sanya.Solodkov@cern.ch)>, Danijela Bogavac <[danijela.bogavac@cern.ch](mailto:danijela.bogavac@cern.ch)>

Hi Peter,

Let's dig a bit into the sequence.

Before the start, L1Calo prepares the configuration based on /det/l1cal/scripts/takeCalib/L1CaloRunTypes.py:

```
class RunTypeL1CaloTile(RunTypeL1Calo):
```

```
...
```

```
def doBeforeConfigAction(self,subRun=0):
    """Actions to perform before sending CONFIG to the RootController."""
    self.publishTdaqRunPars()
    self.publishL1CaloRunPars()
    self.publishReceiverRunPars(subRun)
    self.writeTileCisScript()
...

```

The part above is called for the CONFIG state transition

```
def writeTileCisScript(self):
    """Write script that controls the Tile charge injection system."""
    if self.isFakeMode():
        return
    self.checkAbortFlag("writing Tile CIS script")
    self.output("Writing Tile CIS Script...")
    # NB tileCisOptions is itself a list.
    scriptFile = "/det/l1calo/scripts/tileCisSetup.sh"
    pname = self.getPartitionName()
    cmdArgs = [scriptFile,"-p",pname] + self.tileCisOptions
    self.systemCommandArgs(cmdArgs)

```

For the specific runs, also some options are set:

```
self.tileCisOptions = ["EnergyScan"]
self.tileCisOptions = ["PmtScan","100","200"] # DAC 100, 200 events/step
self.tileCisOptions = ["CisAll","750","1"] # DAC 750, small capacitor Phos4Scan

```

So, next we look into tileCisSetup.sh that is called with tileCisOptions as a parameter:

```
# tileCisSetup.sh
# Wrapper script for Tile CIS panel for use by takeCalib.
# The first two arguments must be -p partitionName
# followed by arguments for the Tile CIS options.
...
${TDAQ_JAVA_HOME}/bin/java JPanelCIS $@

```

Now let's see what's going on in JPanelCIS, that is supposed to prepare the CIS Python script

```
"Usage: java JPanelCIS patternName DACvalue EvtPerStep Capacitor"
"Usage for EnergyScan: java JPanelCIS patternName"
"Usage for PMTScan: java JPanelCIS patternName DACvalue EvtPerStep"
"Usage for CisAll: java JPanelCIS patternName DACvalue capacitor"

```

In the end we will have a file like

```
/det/tile/rcd/python/tilecis_energyscan.py

```

```
my_injectionPeriod = 200

```

```
# Charge scan
def run(i):
    j = CisAll()

```

```

if i==0:
    j.dac.value = 50
    j.smallCap.value = True
    j.largeCap.value = False
elif i==1:
    j.dac.value = 100
    j.smallCap.value = True
    j.largeCap.value = False
elif i==2:
    j.dac.value = 250
    j.smallCap.value = True
    j.largeCap.value = False
elif i==3:
    j.dac.value = 500
    j.smallCap.value = True
    j.largeCap.value = False

```

Here we see that the C++ will periodically call the run(i) function.  
 This function will create CisAll pattern and modify it changing the DAC and CAP values.  
 In PMT scan we use CisTriggerTower() pattern.

The CisAll in the Format code is doing something like this:

```

ResetAll()
command = new cSetDAC(ml, state, false);
target = new TileTarget(theTileSection->GetID(), 0, 0, 0, (unsigned int) m_dac);
theTileSection->Execute(command, target);

```

So they prepare the command (set DAC), define the region to be applied (TileTarget) and then execute it.

The low-level library is TileCIS - <https://twiki.cern.ch/twiki/bin/viewauth/Atlas/TileCIS>  
<https://gitlab.cern.ch/atlas-tile-online/TileCIS>

So looks like we need to modify CisAll to take into account disabled 3in1 cards.  
 For that we need to add additional "targets" and set DAC, Csmall, CLarge to 0.

Hmm, looks a bit complicated.

Best regards,  
 Oleg.

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**De :** Oleg Solovyanov <[oleg.solovyanov@cern.ch](mailto:oleg.solovyanov@cern.ch)>

**Envoyé :** lundi 6 mars 2023 16:33

**À :** Peter Thomas Camporeale <[peter.thomas.camporeale@cern.ch](mailto:peter.thomas.camporeale@cern.ch)>

**Cc :** Sanya Solodkov <[Sanya.Solodkov@cern.ch](mailto:Sanya.Solodkov@cern.ch)>; Danijela Bogavac <[danijela.bogavac@cern.ch](mailto:danijela.bogavac@cern.ch)>

**Objet :** Tile+L1Calo runs

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Thu, May 4, 2023 at 1:55 PM

**Peter Camporeale** <petercamporeale@gmail.com>  
To: Jacky Li <jackymengyangli@uchicago.edu>

Peter

----- Forwarded message -----

From: **Oleg Solovyanov** <oleg.solovyanov@cern.ch>

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**Peter Camporeale** <petercamporeale@gmail.com>  
To: Mark Oreglia <oreglia@uchicago.edu>

Wed, May 10, 2023 at 4:46 PM

Dear Mark,

Here is more information about the code as promised.

Best,  
Peter

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