

artdaq Utilities - Feature #22388

DAQInterface should allow for a child subsystem to have more than one parent subsystem

04/16/2019 02:03 PM - John Freeman

Status:	Reviewed	Start date:	04/16/2019
Priority:	Normal	Due date:	
Assignee:	John Freeman	% Done:	100%
Category:		Estimated time:	0.00 hour
Target version:		Spent time:	0.00 hour
Experiment:	-	Co-Assignees:	
Description			
Right now, DAQInterface bookkeeping is set up so that a given subsystem can only have one parent subsystem. This requirement should be loosened so that a subsystem can have multiple parents. The requirement that a subsystem can have only one child subsystem, however, will be kept.			
Related issues:			
Blocked by artdaq - Bug #22451: DataSenderManager eliminates entry in routing...		Closed	04/25/2019

History

#1 - 04/23/2019 03:28 PM - John Freeman

- % Done changed from 0 to 80

- Status changed from New to Work in progress

I've created issue branch `feature/issue22388_multiple_parent_subsystems` to handle this. Right now, with commit `3cc0ab787d4cf8758dbec1e81c81677e54d8ebda`, I've been able to do the following:

- Sanity check: recreate the `dune_sample_system` FHiCL produced before my work on Issue [#22555](#) (i.e., when Kurt's DFO-specific bookkeeping was in place). Details in `mu2edaq01:/home/jcfree/run_records/2575`; compare with `/home/jcfree/run_records/2543`
- Added a subsystem 5 to `dune_sample_system`, consisting of a boardreader (`felixHF02`, basically a copy of `felixHF01`) and eventbuilder (`EventBuilder4`, a copy of `EventBuilder{1,2,3}` but with `routing_master` functionality stripped out). Subsystem 5 sends to subsystem 4, i.e., subsystem 4 receives data from two subsystems. No unusual warnings, data writes fine to disk. Details in `mu2edaq01:/home/jcfree/run_records/2574`

Having said that, I'm getting warnings under other circumstances which may or may not be a problem with the implementation on this issue branch - e.g., when I try to add a sixth subsystem to feed the DFO in subsystem 3. Before I mark this issue as resolved I want to understand these not-perfect runs a little better.

#2 - 04/25/2019 05:18 PM - John Freeman

- % Done changed from 80 to 100

- Status changed from Work in progress to Resolved

I consider this issue to be resolved and ready for review. Relevant notes are in the previous entry on this Issue. One thing to note is that I was running into problems when a parent subsystem's eventbuilder was handling more than one fragment AND a `routing_master` was mediating data transfer between the parent subsystem's eventbuilder and child subsystem's eventbuilder (Issue [#22451](#)), but it looks like this is something which can be fixed on the artdaq side.

#3 - 04/26/2019 10:40 AM - John Freeman

After discussing with Eric, it turns out that in order to run with an eventbuilder in a parent subsystem sending more than one fragment per event to an eventbuilder in a child subsystem when a `routing_master` is involved, artdaq's `feature/CFG_MultipleFragmentsPerRead` branch currently needs to be used. When this change to artdaq is made, `feature/issue22388_multiple_parent_subsystems` can handle this scenario just fine.

#4 - 05/14/2019 08:38 AM - Eric Flumerfelt

- Blocked by Bug #22451: DataSenderManager eliminates entry in `routing_table_` after sending just one fragment added

#5 - 06/24/2019 12:27 PM - Eric Flumerfelt

- Status changed from Resolved to Reviewed

- File `ConfigurationPlotter.dot.png` added

The code changes make sense and the example runs and builds the expected configuration.

#6 - 06/26/2019 02:07 PM - John Freeman

With Eric's review, I've merged feature/issue22388_multiple_parent_subsystems into develop. I had to resolve a couple of conflicts, but now on the head of develop (8caf59662521674e3bf7508a9da32c9ea751fcf1) I've performed a couple of successful sanity checks:

- Bookkeeping for run 1001771 is in agreement with 8396 on the ProtoDUNE cluster (a proof-of-DFO-concept run using protoDFO_SWTrig_Test00002)
- Bookkeeping for run 2659 is in agreement with 2574 on mu2eddaq01 (run 2574 described in earlier entry in this Issue)
- Bookkeeping for run 2660 is in agreement with 2575 on mu2eddaq01 (run 2575 described in earlier entry in this Issue)

Agreement doesn't mean physical agreement, but logical agreement - e.g., on mu2eddaq01, for the newer runs I had to rename DFO "DEffO" so DAQInterface wouldn't yell at me for having a DFO process in a parent subsystem of a subsystem with a routing_master.

Files

ConfigurationPlotter.dot.png	5.08 MB	06/24/2019	Eric Flumerfelt
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