

CALIBRATION

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Subject:[jrpc-meetings] Re: O1 readiness: request for inputs on critical deliverables

Date:Thu, 10 Sep 2015 14:50:50 -0700

From:Jeff Kissel <jkissel@ligo.mit.edu>

Reply-To:jrpc-meetings@ligo.org

To:jrpc-meetings@ligo.org

CC:Joint Run Planning Committee <jrpc@ligo.org>, dac-chairs@sympa.ligo.org
<dac-chairs@sympa.ligo.org>, Mike Landry <mlandry@ligo-wa.caltech.edu>,
brian@ligo-la.caltech.edu >> Brian O'Reilly <brian@ligo-la.caltech.edu>,
Calibration <calibration@ligo.org>

Hey Lisa, JRPC,

Apologies ahead of time to the delay and ghant-chart-in-email form. I list below the list of not-ready-deliverables, their dependencies, and the predicted time to completion. They're numbered, but several tasks can be parallelized, please look at the dependences and expected completion times / dates, as they take this into account.

Thank you very much for the consideration of delaying the run.

(1) Completion of a matlab DARM model, verified against Actuation Function Measurements DARM Open Loop Gain TFs and/or PCAL TFs.

(Not ready at LLO, will be ready by Friday Sept 11 at the earliest)

[No dependencies other than limited man-power]

(2) Completion of installation of updated parameters into CAL-CS front-end model, and verification of fidelity preservation from matlab model.

(*Just* completed at LHO, currently verifying fidelity, Not ready at LLO, to be completed by Friday at the earliest)

[Dependent on completion of matlab model, (1)]

(3) Installation of EPICs records that report matlab model values at calibration line frequencies for tracking time dependence

(Not ready at LLO, to be completed by the "start of business" Saturday)

[Dependent on completion of matlab model (1)]

(4) Updating of high-frequency and time-delay parameters into GDS pipeline, informed by matlab model, + verification of fidelity

(Not ready at either site, to be completed by start of business tomorrow at LHO, by the "start of business" Saturday)

[Dependent on completion of matlab model, (1)]

The rest have not yet been done at either site:

(5) Installation of hardware injection inverse actuation filter

(To be completed by start of business tomorrow at LHO, by the "start of business" Saturday)

[Dependent on completion of matlab model (1)]

(6) Release of new GDS pipeline code, verification of functionality on test stand LDAS / DMT machines

(To be deployed at both sites on Monday-ish)

[Dependent on updating GDS filter parameters (3)]

(7) A day-or-two test of slow time-dependent corrections, check for fidelity of GDS calibration w.r.t front-end calibration

(To be started Monday-ish)

[Dependent on GDS code release at both sites (7), installation of CAL-CS front end model parameters (2), and installation of EPICs records for slow time-dependence (3)]

(8) Calibrated ASD, using GDS-CALIB strain channel, with the expected amplitude of PCAL Calibration Lines Marked; confirmation that the calibrated ASD and PCAL estimate agree to better than 10%.

(To be completed within hours of GDS pipeline deployment, call it close-of-business Monday)

[Dependent on start of the GDS pipeline, say mid-step (7)]

(9) A day-or-two hardware injections (blind and not blind) to help verify the calibration with Hardware Injection Group

(To be started within hours of GDS pipeline deployment, call it close-of-business Monday)

[Dependent on start of the GDS pipeline, say mid-step (7)]

(10) An "looks good!" answer from the hardware injection team

(To be received after ~one day worth of analysis from the search groups)

[Dependent on finish of hardware injection analysis]

With the above list, if all goes well, I suspect the calibration group can give the "GO" by next week Thursday Sept 17th.

Cheers,

Jeff Kissel

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COMPUTING

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Subject:[jrpc-meetings] Re: [dac-chairs] O1 readiness: request for inputs on critical deliverables

Date:Thu, 10 Sep 2015 22:24:08 -0700

From:Stuart Anderson <anderson@ligo.caltech.edu>

Reply-To:jrpc-meetings@ligo.org

To:dac-chairs@sympa.ligo.org, Lisa Barsotti <lisabar@ligo.mit.edu>

CC:Joint Run Planning Committee <jrpc@ligo.org>, jrpc-meetings@ligo.org,
Mike Landry <mlandry@ligo-wa.caltech.edu>, brian@ligo-la.caltech.edu >>
Brian O'Reilly <brian@ligo-la.caltech.edu>

Below is a report on O1 Computing readiness.

The following response is based on a definition of the O1 start criteria that assumes all critical functions have already been demonstrated to work stably for a minimum of 3 days prior to the start of the run. Since there are still 3 days until the baseline start date some of these deliverables may meet that criteria before then (see estimates below). It is also possible that the OMT may use a looser start criteria, e.g., do we have complete confidence in the data we are acquiring that we can make a detection claim from any observing epoch even if such a claim may need to be delayed if it happens very early in the run. In my opinion is we should not allow for a "soft start" of O1, and that quality data "in the can" is necessary but not sufficient. Instead we should be willing to make a delayed detection claim during an Engineering Run if all systems were in a nominal state. However, in the "soft start" model only item B) is of interest as I am quite confident that A) and C) will be resolved on a timescale of 1 week. Item B) still has a reasonable chance of passing by Monday. > - a list of not-yet-ready deliverables of your group which are considered critical to start O1 A) Offline h(t) generation within LDAS is unable to robustly and automatically process a 3 day stretch of archival science frames. It is a detection claim requirement that we be able to go back to the archival Science frames and reproduce an interesting result from those data. The current leading hypothesis is that this

problem is limited to time intervals when $h(t)$ generation is scientifically uninteresting, however, that has not been conclusively proven yet as far as I know (but this is a rapidly evolving investigation). B) GDS $h(t)$ generation and DQ segment generation have not yet passed a 3 day integrated stability test without failures. Additional stability fixes were put in place 2 days ago to address a reliability problem with GDS frame broadcasts that were one source of failure. The failure rate for GDS broadcasts was approximately once per 2 days, and while that failure has not been observed in the last 2 days since a fix was deployed that is not yet a statistically significant statement. Confirmation that the other failure modes have been fully understood and resolved during the last 3 days is not yet known (hopefully an update on that tomorrow). C) DQ segment generation from offline $h(t)$ generation has not yet been tested due to prioritizing this below A and since is only critical for run start if B is problematic. > - a list of dependencies of each deliverable (i.e.: what are you waiting on) A) Updates to the GDS calibration pipeline code or sufficient validation of the known failure modes to confirm they have no impact on time intervals of science interest. B) Waiting for analysis of stability since Tuesday maintenance to confirm (or deny) this has passed a 3 day stability test. C) Offline code capable of reproducing the online segment generation (critical for run start only if B fails). Such code is thought to exist but has not been demonstrated to work in this mode yet. > - an estimate of the amount of time required to provide those deliverables, once their dependencies are satisfied A) 3 day stability run after code updates are deployed. B) Same 3 day stability criteria C) 2 days, if B is problematic Thanks. -- Stuart Anderson anderson@ligo.caltech.edu <http://www.ligo.caltech.edu/~anderson>

INPUTS FROM DATA ANALYSIS GROUPS

<https://wiki.ligo.org/DAC/O1gonogoDAC>