

JLab ALERT Responsibilities

1. Engineering/Design/Technical: Bob Miller

- Responsible for integration of ALERT tracker/TOF into solenoid of CLAS12 Central Detector
- JLab Survey/Alignment responsible for fiducializing detectors before installation and survey after installation (survey report to be provided)
- Responsible for definition of Central Detector keep-in zone for ALERT detectors
- Possible assistance with design of ALERT tracker gas system (to be clarified)
- Possible assistance with help related to ALERT tracker stringing procedure (to be clarified)
- Design of upgraded beam dump to allow for operations at currents up to $1 \mu\text{A}$

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2. Reconstruction Software: Nathan Baltzell

- Interact regularly with ALERT Group to provide support for their development activities, including:
 - implementation of the ALERT detector geometry in COATJAVA
 - conversion of this geometry for GEMC use
 - update of GEMC to handle ALERT detectors (hit process, materials, ...)
 - development of ALERT reconstruction and of the tracking, in particular
- The commitment from the CLAS12 Software Group is mostly to provide support and guidance as the ALERT group is working on these tasks
 - The only specific commitment of JLab is that Veronique will help set up the main components for their tracking, starting from what is used for central tracking (def. of state vector, helix, Kalman-filter, etc.)
 - No definite timeline has set yet because the work has been progressing based on requests/responses

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3. Slow Controls: Nathan Baltzell

- The new ALERT hardware is supposed to be just HV and gas. Additional hardware components that require slow controls support from JLab should be discussed and specified at least 1 year before the run in order to incorporate them into the slow controls system.
- Additional software components besides basic monitoring, control, and archiving of HV and gas systems, e.g. software interlocks, need to be specified 6 months before the run.
- On HV, the Run Group should spec and choose a power supply from one of the manufacturers Hall B currently supports in EPICS (which includes many CAEN and Wiener products, but check for confirmation) unless there is a good reason otherwise.
 - If the hardware is not previously supported by Hall B, I'd want to approve it first and then also have it in hand at least 6 months prior to the run in order to develop EPICS support.
 - The final HV channel mapping and naming scheme needs to be specified at least 2 months before the run and 2 weeks before available for testing.
 - If a detector-specific HV GUI is desired, it will need to be sketched and provided at least 1 month prior to it being available for testing.

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- Gas System:
 - On gas, my understanding is they will be re-using the BONUS gas system. If there will be hardware modifications, then probably additional design sign-offs are necessary, and those are for Bob I assume. Software for active hardware components in the gas controls system are programmed by DSG group, so any changes would need to be done by DSG, and then passed to me for EPICS. So the timeline for gas system changes involves multiple groups and would need input from them.
 - Modifications to existing BONUS gas EPICS GUIs and PV names will be necessary to convert to ALERT. These should be specified at least 1 month prior to it being available for testing.
- In all cases, finalizing EPICS variable names is required 2 weeks before archiving can start. HV statuses, voltages, and currents, and all gas system PVs, will be archived without request, but any others should be specifically requested.
 - Note that any GUI work could be done by the ALERT group if available.

Questions/Issues

1. Provide a timeline for completion of all R&D, design, and construction work with a clear breakdown of what must happen before the ERR and what will happen afterwards
2. A reply document should be generated to the report from the 2019 ERR committee (chaired by Beni Zihlmann) to assess which questions/issues are under control and which remain to be addressed
3. Provide timeline for tasks that JLab is responsible for to be sure that there are no schedule conflicts with ongoing JLab work tasks (engineering/design, reconstruction, Monte Carlo, slow controls)
4. Keep ALERT wikipages up-to-date week by week
5. Identify areas of concern with regard to preparations for ERR and where additional manpower is necessary
6. Identify list of questions where feedback is necessary from JLab Physics Division (Patrizia Rossi)
7. Define time frame for next ERR and when request will be made for Marco Battaglieri to review (necessary before formal request to Physics Division)
8. Begin planning for "formal" ERR dry runs ~ 2 months before actual ERR with Hall B staff