

# Runs DB Requirements

Specifically – requirements on DAQ/DB application and related infrastructure. The application is being developed now and we need to determine requirements for the application.

## Prevention of data loss

- Staging of run metadata

**Proposed requirement:** The full run “blob” stored on persistent directory for length of protoDUNE run. *This is likely overkill.*

- Mirror of ucondb “blob” in CERN mongoDB

**Proposed requirement:** Each run blob stored in mongoDB. *Not sure if this is practical or even possible.*

# Runs DB Requirements cont...

- Post-transfer data integrity

**Proposed requirement:** Simple(?) check performed on each file transferred into ucondb. *Suggestions on something reasonable here?*

## Run Condition Parameters

- Realtime metadata required for each run

**Proposed requirement:** For each run the following realtime metadata will be captured:

- Run number
- Start time
- Run type (trigger)
- Start of run comment
- End run time
- End of run condition
- End of run comment

# Runs DB Requirements cont...

- Parameter set version

**Proposed requirement:** Changes to run parameters passed to DBs will be reflected in the run configuration version. *If the changes require changes to DAQ/DB code it is expected that this will also be reflected in online code version. We likely also need to impose restrictions on changes in parameter sets – minimize changes post protoDUNE run start in September.*

## Application Functionality

- Transfer timing

**Proposed requirement:** As soon as run ends transfer of run conditions data begins. *An argument can be made for starting the transfer as soon as the run begins with the caveat that a crashed run might cause complications. In any case we want as much information regarding such runs stored.*

# Runs DB Requirements cont...

- Interruptions in network or data transfer

**Proposed requirement:** Following any interruption in CERN to FNAL transfer the transfers will resume in order determined by increasing run number of queued run metadata. *An application will be needed to facilitate re-syncing the transfers follow interruption.*

- Ucondb “blob” format

**Proposed requirement:** Keyword headers will delineate each section or block. For example, SSP0:{corresponding fhicl}SSP1:{...}, etc... to ensure ease of unpacking, while maintaining flexibility. *A list of components will be part of the blob and can be used as a check against the included subsystem blocks.*

# Runs DB Requirements cont...

## DB Data Handling

- Minimizing handling of metadata

**Proposed requirement:** Effort should be made to minimize the handling, or formatting, of run parameters. *The current plan is to put things in JSON format, which is an incremental change from fhicl. It would be safest, where possible, to have any manipulation done at the ucondb -> RDB stage of the process.*

There are surely more that have been left of this list but this is a good starting point.

I didn't address file sizes or things like compression as they are probably not going to be concerns for protoDUNE. We may need to return to these for DUNE.