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# Use of LIGO and LSC Software Systems & Tools During The Upper Limits Data Run and Analysis

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# UL Data Run and Analysis

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- The upper limit run is approaching fast, much work has been accomplished, being completed on the data analysis software for this run
- Historically, the researchers have “gravitated” to one set of tools or another ... (case in point: boot camp@Caltech)
  - » LAL
  - » LDAS/Guild
  - » DMT/DTT
  - » GDS
  - » Matlab, C- code, ...
- Desirable (necessary?) to ensure that all interfaces that are needed between them are identified.



# UL Data Run and Analysis

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- Discussion for next 45 minutes should focus on plans by UL groups on how these tools, environments will be used and interact:
- Identify analysis models, flows
- Identify missing interfaces (hopefully none)



# 1 - On-line tools

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- Use of on-line tools (DMT, DTT, etc.)
  - » How will the on-line analysis software be verified/compared with, e.g., LAL?
  - » How will these analyses be folded into the data analysis flow?
  - » What monitors will be run during the run?
  - » Do monitors have to be re-run after the run?
  - » Which triggers will need to be stored in the LDAS databases?
  - » Do the existing tables fit these triggers?



## 2 - Use of LDAS

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- How will each search fit into the pipeline model that has evolved through past MDCs?
  - » Will all searches be conducted in LAL/LDAS?
  - » What are other analysis models?
  - » How are these models going to be validated?
- How are the resultant data products going to be integrated into the databases being developed?



## 2a - LDAS Analysis

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- What channels will be needed in the pipeline for processing?
- What signal conditioning is expected to be required?
- Which channels will require response functions/calibrations?
- What other data will be required for the pipeline that is not readily available within frames?
- How many nodes are needed for any one search?
- Where will the pipeline analysis be performed (on-site/off-site)?
- How many separate (parallel?) searches are going to be run at the same time?
- How many node and mode-hours are needed to perform the analysis?
- Is keeping up with real time a driver?



## 3 - Data Analysis Flow

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- What is the block diagram of the end-to-end analysis flow?
- How do the DMT and any "non-LAL"/"non-LDAS" blocks fit into the picture?



## 4 - Data Products

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- What are the final data products?
- How will they be stored/ingested in the various databases that have been developed?





## 5 - Simulations

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- How will simulations be used in each specific analysis?
- Where are these being conducted?
- How will these results be integrated into the overall analysis?
- How will simulation results be archived?