Run25 preparation status

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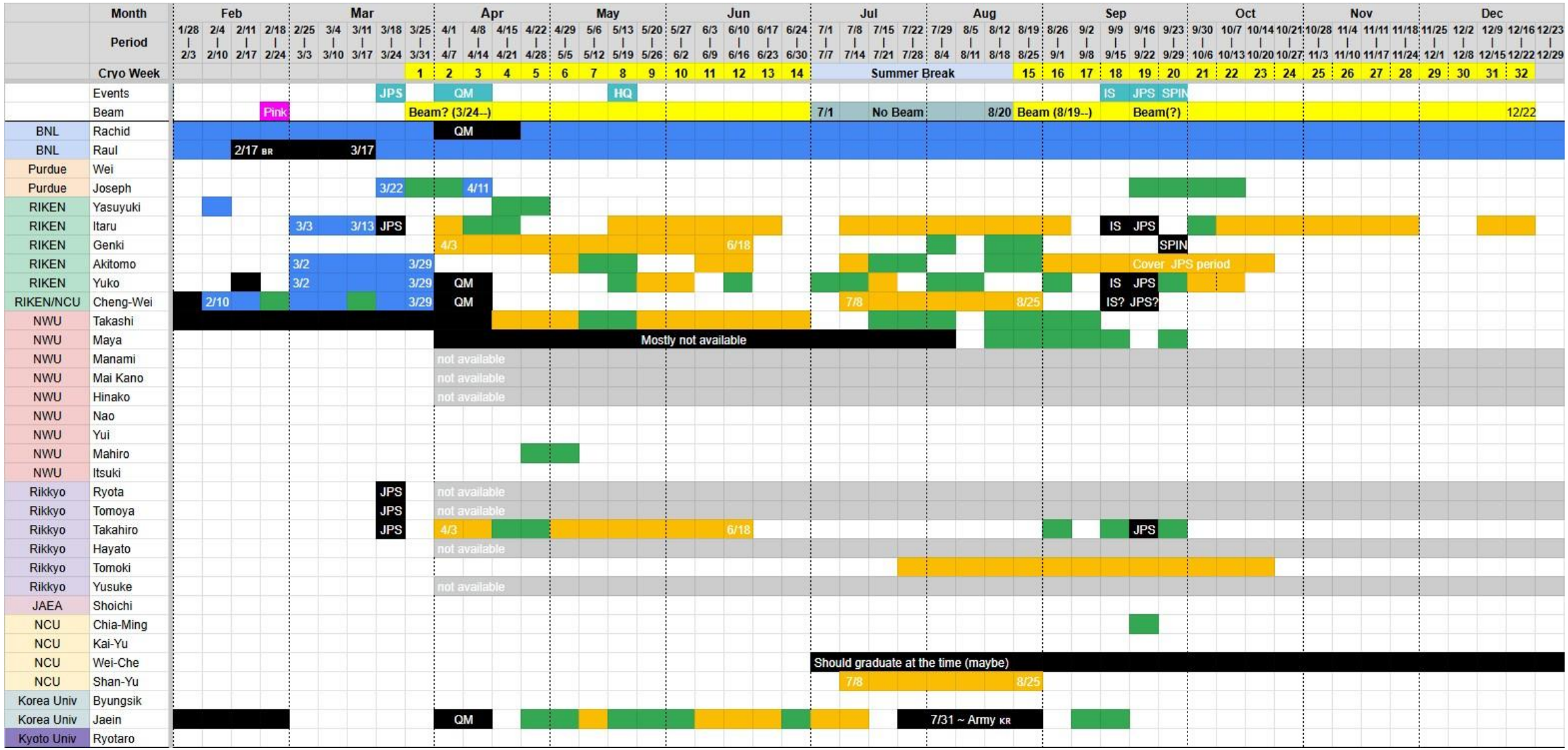
BNL Travel



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RBRC team rental car

- As a RBRC rule, a team rental car will be provided to students if more than two students are on cite, with an exception:
  - No RIKEN staff on-site BNL

- Any RBRC staff who has a rental car has a responsibility to give students without team rental car rides to office/apt/shopping
  - Don’t hesitate to ask for a ride in advance or call staff (w/ rental car) anytime as necessary.

- If you don’t have much driving experience, drive only on-site BNL at least for a month. Ask experienced co-drivers or RIKEN staff to go shopping off-site
  - First-time driver needs to take a quick driving test with RIKEN staff

Run25 commissioning to do list

Task	Duration	Points	Beam condition	Other subsystem condition	Priority	Field	Trigger	Comment
Chip saturation study	10 mins for each	INTT in trigger mode Different open time 25, 40, 60, 80, 90, 110, 127 moderate ncollision, 2, 50, 100 If possible we need the long GTM busy window for this test	with collisions (with low rate)	With MBD, in global mode	High		MBD	This is to study the chip hit saturation issue discovered on Dec 10 2024. Whether we still see the cutoff in the chip nhit distribution even with the open time of 128 BCO? We also need to check the cluster phi size distribution We can also try to learn the correlation between the open_time and nhits
Carried over hit study	30 mins	INTT in trigger mode moderate open_time (80 or 128) ncollision 1 or 2 or 3 Short GTM busy window for this test	with collisions (with high rate)	With MBD, in global mode	High		MBD	As of Nov 25 2024, I think we never have the dataset with very narrow ncollision for the event-mixed-up study With the statistic approach, in the reality, we just cannot distinguish b/w mix-up hits and the hits from real collisions. So it's good to have such a dataset that we have the potential to believe that any abnomal behavior found in the data can be really came from anything other than the really collisions. In addition, by comparing with the previous dataset with ncollision 100, we can possibly learn where the event mixup happened.
Timing coarse delay scan	5 min x 6 points x 2 sets	lvl1 = 112, 113, 114, 115, 116, 117	With collisions	With MBD, standalone	Low	Any	MBD	After GTM is finalized
Single bunch crossing	10 mins?	one run ncollision 100 one run small ncollision	single or two bunch crossing(s) with collisions	Join the MVTX commissioning	Low			We never join the MVTX commissioning data taking. I think it's a good idea to take at least one run with single bunch crossing or five. We can learn the noise level and also the beam background, and also fraction of the hit moved to the next bin
DAC0 scan	5 min x 6 points x 2 sets	DAC0 = 15, 20, 25, 30, 35, 40	better to be with beam	Standalone	Middle		MBD	Better to take data in the same condition as Run2024 Au+Au commissioning, i.e. with Au+Au beam, with other subsystems on.
Digital control test?	5 min x 2 points x 2 sets	Digital Ctrl = 2, 10	With collisions	Standalone	High	Any	Any	
Renew chip/channel mask	1 min w/ FA	Need some iterations	No beam	Standalone	Must	Any	Any	Can be finished before Au beam comes

Renew online chips/channels mask

- Why we need to redo this?
  - To recover masked channels/chips if some of them might be heathy now
  - Some of chips were “aggressively” masked at FELIX for streaming readout, but Run25 AuAu data will be taken with trigger mode
- How to take data?
  - Unmask all chips/channels and take data with FA (a few seconds), then quickly check data with Joseph’s decoder
  - Mask hot channels and retake data again…
- When to take data?
  - No need for beam, so need to be finished before Mar 24
- Who to take/analyze data?
  - INTT experts at 1008
  - Need Raul to unmask FELIX masked chips at FELIX? Or Rachid will do this?
- Question
  - What is the good DAC0 during this work? DAC0=30?

Digital control

- Why we need to redo this?
  - We have 1~2% of half entry chips, and it would be great if we can recover them with
  - We took this during around the end of Run24 with no beam (with a low DAC0 value), but it was not successful. Retry it with collisions with a reasonable DAC0 value
- How to take data?
  - Need to modify /home/phnxrc/INTT/sphenix_inttpy/intt.py (def enable_ro)
- When to take data?
  - As soon as Au+Au beam comes (High priority)
- Who to take/analyze data?
  - DAQ: Itaru/Takahiro, Data analysis: Tomoki
- Question
  - Do we already have a functionality to set different digital control parameters to some specific chips?

DAC0 scan

- Why we need to redo this?
  - Noise level could be changed from the last year since new devices and frames which are connected ROC support are installed
- How to take data?
  - Change DAC0 parameter provided to intt_ext.py
    - Rewrite DAC0 value in /home/phnxrc/INTT/sphenix_inttpy/run_scripts/fphx_parameters_xxx which is read from /home/phnxrc/INTT/sphenix_inttpy/run.py
    - DAC0 = 15, 20, 25, 30, 35, 40, 45
- When to take data?
  - With most noisy condition and after updating online mask
    - Hopefully with a high intensity beam condition
- Who to take/analyze data?
  - DAQ: Akitomo or Genki, Analysis: Wei-Chi or Nao?
- Question
  - Do we set the same DAC0 value for all the modules as before?

Timing scan

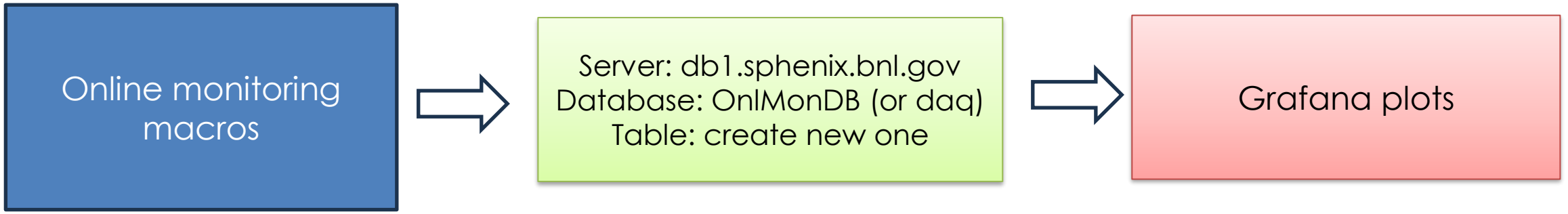
- Why we need to redo this?
  - Timing could be changed with GTM configuration, firmware updates etc, and we already have many updates on GTM from the last year
- When to take data?
  - With Au+Au collisions, but make sure GTM is finalized for Run25
  - A few bunches of beam is better than 111x111 or 56x56
- How to take data?
  - Rewrite L1 value in /home/phnxrc/operations/INTT/intt_gtm_l1delay.sh then LV/HV should be on
    - Note that we need to recycle LV/HV power every time we change L1 delay value
- Who to take/analyze data?
  - Akitomo/Yuko (March), Genki/Takahiro (April)
- Question
  - If we will take Au+Au data with n-collision=100, how much important is this timing scan to pursuit 1-BCO signal?

Other things to do at 1008 before beam

- Update Genki's Data Process GUI on mini-PC
  - Switch to Joseph's decoder for the commissioning plot page
  - Switch SDCC process from sphnx to sphnxuser machine for condor submission
- Clean up obsolete codes and work with Joseph's new DAQ related scripts on 1008 machine (after Mar 22)
- Fix a sluggish connection issue between database servers (opc2/Prometheus) and Grafana for LV monitor
- All things should be well written in INTT wiki
- Other things to do?

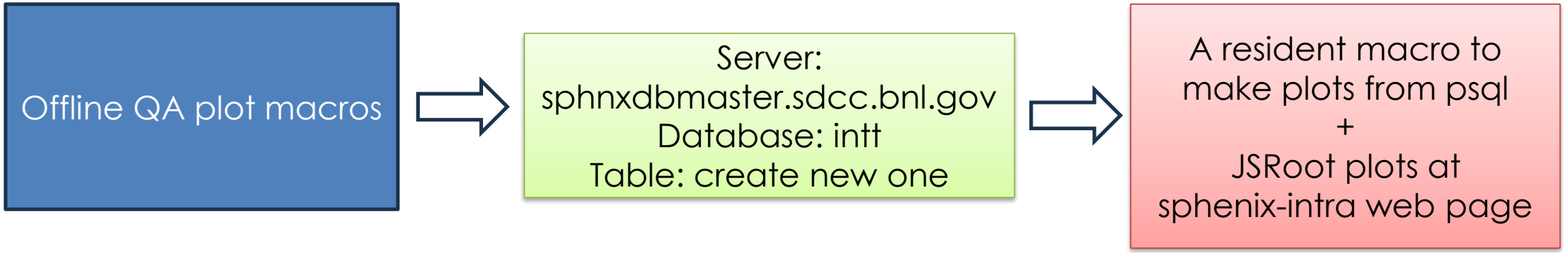
Idea of run dependence monitors

Semi-online plots at 1008



Need to create "OnlMonDB" database source in Grafana. ("daq" is already there.)

Automated plots at SDCC



Idea of run dependence monitors

- Semi-online plots at 1008
  - Pros: Fast to plot. Could be an input to change configuration paramteres
  - Cons: INTT server-by-server (No clustering, tracking), Not all events
  - What plots can we deliver?
    - Good chip ratio (like Jaein's analysis shown in the previous meeting)
    - Ladder-by-ladder (module-by-module) multiplicities

- Automated plots at SDCC
  - Pros: Any physics plot could be possible if the offline QA plot macro is setup
  - Cons: Slow to deliver (couple of days?)
  - What plots can we deliver?
    - Z/phi cluster size (Need fits to quantify them)
    - Fraction of mix-up events