

Masked Science Segments of KAGRA O4a Low-latency Strain Data

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KAGRA O4a Run

- KAGRA's O4a observation run is from **1368975618 s** (2023/05/25 00:00:00 JST) to **1371337218 s** (2023/06/21 08:00:00 JST).
- The science segments without IPC glitches are recorded here on KAGRA Main Data Server (kmst2-01):
/home/detchar/Segments/K1-GRD_SCIENCE_MODE_NO_IPC_ERROR/K1-GRD_SCIENCE_MODE_NO_IPC_ERROR_MARGIIN_3SEC_SEGMENT.UTC_O4a.txt.

Gaps in the O4a Low-latency Frame Files

- The gwf files of KAGRA O4a low-latency strain can be found in the following directory on KAGRA Main Data Server (kmst2-01):
[/data/LVK/low-latency/ll_merged_A/K1](#).
- Each gwf file is merged from the 1-second long low-latency gwf files and should have the length of 4096 s. However, in some gwf files, some data points are missing causing the “gaps” in the files.
- These gaps will cause I/O error while reading the low-latency strain even the acquired data is within science segments.

Masked Science Segments

- Before the O4a data is regenerated, The “masked” science segments that mask out these gaps can help us to avoid the I/O error and appropriately distribute the analysis workflow.

Masked Science Segments

- The output of `lalfr-dump` of each gwf files can be found here on Main Data Server (kmst2-01): `/home/chia-jui.chou/KAGRA_O4/o4a-lalfr-dump`.
- The python scripts to run `lalfr-dump` and log the outputs can be found here: `/home/chia-jui.chou/KAGRA_O4/Scripts/lalfrdump-o4a.py`.

Masked Science Segments

- The gaps are recorded here: /home/chia-jui.chou/KAGRA_O4/K1-o4a-gaps.txt.
- The masked science segments are recorded here: /home/chia-jui.chou/KAGRA_O4/K1-o4a-masked-science-segments.txt.
- The python scripts to find the gaps and generate the masked science segments is here: /home/chia-jui.chou/KAGRA_O4/Scripts/K1-o4a-masked-science-segments.py.