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Tracker Alignment Constants for Run II -- 2018

Description: Timeline of these tags is ordered from bottom to the top which means the tag on the top is always the latest one.

Complete: 

Alignment and Surface Deformation Objects

Special high voltage runs

Three special runs (317475, 317478 and 317484) at high voltage during 2018.

Their alignment conditions are:

- Alignment: [TrackerAlignment_2018_ultralegacy_v3_specialIOV](#)
- APEs: [TrackerAlignmentExtendedErrors_2018_ultralegacy_v3_specialIOV](#)

Internal validations can be found [here](#) and the hn announcement is [here](#).

These alignment conditions have been combined with 2017 and 2018 UL to form offline tags:

- Alignment: [TrackerAlignment_v26_offline](#)
- APEs: [TrackerAlignmentExtendedErrors_2018_ultralegacy_v13_offline_IOVs](#)

The hn announcement can be found [here](#).

2018 Ultra Legacy conditions

Tags at conddb:

- Alignment: [TrackerAlignment_2018_ultralegacy_v1](#)
- Surface deformations: [TrackerSurfaceDeformations_2018_ultralegacy_v1](#)
- APEs: [TrackerAlignmentExtendedErrors_2018_ultralegacy_v1](#)

Starting run: 314472

As the name suggests, 2018_ultralegacy only contains the 2018 part.

Internal validation is [here](#)

_HI 2018_v1

Tag at CondDB : [TrackerAlignment_HI 2018_v1](#).

- hp2803

- pixel ML alignment to be used for the HL data-taking

Details of the object and validation

- Starting geometry : [TrackerAlignment_PCL_byRun_v2_express](#)
- Internal validation: [link](#).
- Announcement to Al Ca /DB for central validation : [link](#).

PreMD4_v1

Tag at CondDB : [TrackerAlignment_PreMD4_v1](#).

- mp2910 (jobn)
- a module-level alignment of the pixel detector, which goes together with new pixel templates to be used for the HL data-taking
- including the latest pixel templates:
Si Pixel TemplateDBObject_phase1_38T_2018_v12

Details of the object and validation

- Starting geometry : [102X_dataRun2_Prompt_v11](#)
- Internal validation: [link](#).
- Announcement to Al Ca /DB for central validation : [link](#).

Post MD3_v1

Tag at CondDB : [TrackerAlignment_PostMD2_v1](#).

- mp2885
- pixel ML + strip fixed
- including the latest pixel templates: Si Pixel TemplateDBObject_phase1_38T_2018_v11

Details of the object and validation

- Starting geometry : [TrackerAlignment_PreMD3_450V_v1](#)
- Internal validation: [link](#).
- Announcement to Al Ca /DB for central validation : [link](#).

PreMD3_450V_v1 and PreMD3_400V_v1 (temporary)

Tag at CondDB : [TrackerAlignment_PreMD3_450V_v1](#),
[TrackerAlignment_PreMD3_400V_v1](#)

- mp2865 for 450V with pixel templates
Si Pixel TemplateDBObject_phase1_38T_2018_v10
- mp2869 for 400V with pixel templates
Si Pixel TemplateDBObject_phase1_38T_2018_v9

Details of the object and validation

- Starting geometry : [TrackerAlignment_v24_offline](#) with respective pixel templates.
- Internal validation: [link](#) and [link](#).

- Announce to AlCa /DB for central validation : [link](#).

_v24_offline

For Summer18 ReReco of the eras ABC(D)

- CondDB tag contains TrackerAlignment_v23_offline + additional 80 IOVs from mp2853/jobm3 (starting from 313041)
- Please find announcement on AlCa HN

_Summer Camp2018_test RunB and _Summer Camp2018_test RunC

Single-IOV tags for testing purposes of dependent workflows in ReRecoABC campaign, derived on representative runs in eras B and C:

- Run B (316559-316757): [TrackerAlignment_Summer Camp2018_test RunB](#)
- Run C (319337-320336): [TrackerAlignment_Summer Camp2018_test RunC](#)

The payloads are the alignment objects for the two above IOVs derived in mp2848/jobm3:

- 12 IOV strip HL mechanical and pixel ladder/blades alignment
- pixel and strips in addition aligned at sensor level

Details are provided at Tracker Alignment Meeting, August 21, 2018 .

_Post MD2_v3

Tag at CondDB : [TrackerAlignment_Post MD2_v3](#).

- mp2843
- including the latest pixel templates: Si Pixel TemplateDBObject_phase1_38T_2018_v8

Details of the object and validation

- Starting geometry : [TrackerAlignment_Post MD2_v2](#).
- Internal validation: [link](#).
- Announce to AlCa /DB for central validation : [link](#).

_Post MD2_v2

Tag at CondDB : [TrackerAlignment_Post MD2_v2](#).

- mp2830
- PCL-like alignment with 320673

Details of the object and validation

- Starting geometry : [TrackerAlignment_Post MD2_v1](#) which started from [TrackerAlignment_PCL_byRun_v2_express](#) (Run 320551).
- Internal validation: [link](#).
- Announce to AlCa /DB for central validation : [link](#).

[TrackerAlignment_PreMD3_450V_v1](#) and [TrackerAlignment_PreMD3_400V_v1](#) (temporary)

_PreMD2_v1

Tag at Conddb : TrackerAlignment_PreMD2_v1 [↗](#).

- mp2806
- pixel ML + strip fixed
- pre-MD2 object

Details of the object and validation

- Starting geometry : FirstCollisions2018_v3
- Validation link : [here](#) [↗](#).
- Announcement to AlCa /DB for validation [here](#) [↗](#).

_FirstCollisions2018_v3

Tag at Conddb : TrackerAlignment_FirstCollisions2018_v3 [↗](#).

The first module-level alignment of the year (at least in pixel and inner strip). There is no update of the surface deformations.

Details of the object and validation

- mp2765
- Starting geometry : CRUZET/ CRAFT (mp2705)
- Announcement to AlCa /DB for validation [here](#) [↗](#).

_CRUZET_CRAFT_2018_v1 and _StartUp2018_v2

Tag at Conddb : TrackerAlignment_CRUZET_CRAFT_2018_v1 [↗](#),
TrackerAlignment_StartUp2018_v2 [↗](#)

This object contains two IOVs, one for CRUZET starting from 311450 and one for CRAFT starting from 313041. The CRAFT IOV is interested for production GT which is uploaded alone under tag "TrackerAlignment_StartUp2018_v2".

Details of the object and validation

- The alignment was done in several iterations: express GT --> mp2688 (HL) --> mp2693_jobn2 (ladder in the pixels) --> sm2515 (ladder in the pixels, best CRUZET alignment) --> mp2700 (ladder in the pixels, best CRAFT alignment)
- Then we started a multiIOV alignment, with corrections for the LA using the procedure from Gregor, starting from sm2515 for CRUZET and mp2700 for CRAFT:
- mp2702 (HL) --> mp2705 (ML in the pixels)
- Announcement to AlCa /DB for validation [here](#) [↗](#).

APE Objects

The following APE scenarios were created with fixed APE (given in num in the tag name) and are valid for the Phase-I detector.

APE PROD Objects:

date	object (DB)
2018-04-11	TrackerAlignmentExtendedErrors_StartUp2018_v2 ↗
2018-04-11	TrackerAlignmentExtendedErrors_BPIX10_FPIX10_TIB10_TOB10_TID15_TEC15 ↗
2018-05-25	TrackerAlignmentExtendedErrors_FirstCollisions2018_v1 ↗
2018-09-05	TrackerAlignmentExtendedErrors_v10_offline_IOVs ↗

Custom GT as starting geometry

custom GT	description
102X_dataRun2_TkAlignmentSummerCamp_SG_v4 ↗	Different from the main GT can be found here ↗
102X_dataRun2_TkAlignmentSummerCamp_SG_v3 ↗	Different from the main GT can be found here ↗
102X_dataRun2_TkAlignmentSummerCamp_SG_v2 ↗	Different from the main GT can be found here ↗
102X_dataRun2_TkAlignmentSummerCamp_SG ↗	Different from the main GT can be found here ↗

Alignment and Surface Deformation Objects

Ultra legacy conditions

Tags at conddb:

- Alignment: TrackerAlignment_2018_ultralegacym_v2 [↗](#)
- APEs: TrackerAlignmentExtendedErrors_2018_ultralegacym_v2 [↗](#)

Internal validations can be found here [↗](#). The announcement on HN is here [↗](#).

_MC2018_v2

Tag at Conddb: TrackerAlignment_MC2018_v2 [↗](#)

- mp3027
- SG: 104X_upgrade2018_realistic_pixelCand_v1

Details of the object can be found here [↗](#). The announcement on HN is here [↗](#).

MC M sal i gnment Scenari os

9 pure weak modes from starting geometry 103X_upgrade2018_design_v4 [↗](#):

- TrackerAlignment_Msalignment_WeakMode_Bowling_SG_103X_upgrade2018_design_v4 [↗](#)
- TrackerAlignment_Msalignment_WeakMode_Elliptical_SG_103X_upgrade2018_design_v4 [↗](#)
- TrackerAlignment_Msalignment_WeakMode_LayerRot_SG_103X_upgrade2018_design_v4 [↗](#)
- TrackerAlignment_Msalignment_WeakMode_Radial_SG_103X_upgrade2018_design_v4 [↗](#)
- TrackerAlignment_Msalignment_WeakMode_Sagitta_SG_103X_upgrade2018_design_v4 [↗](#)
- TrackerAlignment_Msalignment_WeakMode_Skew_SG_103X_upgrade2018_design_v4 [↗](#)
- TrackerAlignment_Msalignment_WeakMode_Telescope_SG_103X_upgrade2018_design_v4 [↗](#)
- TrackerAlignment_Msalignment_WeakMode_Twist_SG_103X_upgrade2018_design_v4 [↗](#)
- TrackerAlignment_Msalignment_WeakMode_zExp_SG_103X_upgrade2018_design_v4 [↗](#)

Random Gaussian movement of the full tracker:

- TrackerAlignment_Msalignment_RandomGaussianFullTracker_100mm_SG_103X_upgrade2018_design_v4 [↗](#)
- TrackerAlignment_Msalignment_RandomGaussianFullTracker_200mm_SG_103X_upgrade2018_design_v4 [↗](#)

Random movement of one of the subdetectors:

- TrackerAlignment_Msalignment_RandomP1PXB_SG_103X_upgrade2018_design_v4 [↗](#)
- TrackerAlignment_Msalignment_RandomP1PXC_SG_103X_upgrade2018_design_v4 [↗](#)
- TrackerAlignment_Msalignment_RandomP1PXD_SG_103X_upgrade2018_design_v4 [↗](#)
- TrackerAlignment_Msalignment_RandomP1PXE_SG_103X_upgrade2018_design_v4 [↗](#)
- TrackerAlignment_Msalignment_RandomP1PXF_SG_103X_upgrade2018_design_v4 [↗](#)
- TrackerAlignment_Msalignment_RandomP1PXB_SG_103X_upgrade2018_design_v4 [↗](#)

MC2018_v1

Tag at CondDB : TrackerAlignment_MC2018_v1 [↗](#)

- mp2837
- SG : TrackerAlignment_Upgrade2017_pseudoAsymptotic_v3

Details of the object can be found [here](#) [↗](#). The announcement on HN is [here](#) [↗](#).

Upgrade2017_realistic_v3

Tag at CondDB : TrackerAlignment_Upgrade2017_realistic_v3 [↗](#)

- mp2813
- SG : TrackerAlignment_Upgrade2017_pseudoAsymptotic_v3

MC Scenari os

9 Msalignments (pure weak modes) for MiAl studies as described in Sandra's presentation [↗](#) and Twiki.

- Bowling_6p77e-9 [↗](#)
- Elliptical_5e-4 [↗](#)
- LayerRot_9p43e-6 [↗](#)

- [Radial_5e-4](#)
- [Sagitta_5p0e-4](#)
- [Skew_5p5e-2](#)
- [Telescope_5e-4](#)
- [Twist_2p04e-6](#)
- [ZexP_2p02e-4](#)

-- Chayanit Asawatangkuldee - 2018-04-11

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