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DISCLAIMER

this page is work in progress

obtain (more) reliable information from the Brunel release notes, the minutes of the PAC meetings, the PPTS meetings, ... svn diff, svn log. It is hereby encouraged to ask for reconstruction versions / changes on the corresponding mailing list lhcb-reconstruction or your liaison person (charged PID, calorimeter objects, tracking-alignment-vertexing).

for reconstruction experts

I wrote the REC versions to enable package lookup via <http://lhcb-release-area.web.cern.ch/LHCb-release-area/DOC/rec/releases/v13r3p1/> (although you can reach the the same information via cmt show uses)

2010

2011

at the time of writing, for a maximum data set, you want **either** Reco12 **or** Reco14. Since it's more up to date and Reco12 will be deprecated, Reco14 will be better available on the grid, Reco12 is sooner to disappear, Reco14/Stripping20r1(p1) is recommended.

Reco12

reprocessing of all 2011 data.

new wrt 2010

- replaced PatVelo by FastVelo, TsaSeeding by PatSeeding, TrackMatching by PatMatch. none of these brought a systematic change I'm aware of.

ANNPID available on DST in tuning FIXME

Reco12a

FIXME

for the experts: Reco12a uses REC v12r0 in Brunel v41r1p1

Reco14

reprocessing of all 2011 data (used with stripping 20r1) new wrt Reco12

- consistent reconstruction wrt. 2012 end of year reprocessing
- all features developed during 2012 (see below)
- (among others - i only list those which triggered questions to me)
 - ◆ new clone killing (new definition of track multiplicity)
 - ◆ new track fit in OT (smaller χ^2 ; new χ^2 values; cut at $\chi^2 < 3$ introduced)
 - ◆ ghost probability available
- better alignment & calibration (better momentum/mass resolution)
- see Patrick's slides for ununderstood features
<https://indico.cern.ch/getFile.py/access?contribId=2&resId=0&materialId=0&confId=226054>

ANNPID available on DST in tuning FIXME(something older than MC12TuneV2) ->superseded by MC12TuneV2 (automatically provided when opening with DV v33r3p3 onwards)

2012

at the time of writing, for a maximum data set, you want Reco14/Stripping20(r0p1) (yes, don't combine Reco14/Stripping19x with Reco14/Stripping20)

didn't look up what went on exactly. let's call it a beta test for Reco13.

There is only Stripping18 selected, not okay PreReco13

all PreReco13 data is also available as Reco13

Reco13 (runs 111761-114685; from 08 Apr to 07 May)

prompt reconstruction of 2012 data

used in Stripping18 (mainly ICHEP stream iirc) and Stripping19

- **new OT projector**: real tracks have smaller track chi2 values than before (if they go through the OT). This changes the phi distribution of real tracks wrt. Reco12 (at a given overall cut efficiency). The track chi2 distribution for real IT and OT tracks are more similar to each other than before. Also chi2 values for ghosts are smaller than before. The discrimination power is slightly better than in Reco12 (checked on the Upsilon resonance. inclusive track samples (aka SPD efficiency study) make me believe this might not be the case for all selections).
- ghost problems introduced with the new OT projector. see ghosts in Reco13 for details.
- also K_S seem to have a problem since Reco13. both longtrack-longtrack (FIXME link to wouter's talks) and downstream-downstream (FIXME link to patrick's talks) combinations are affected. FIXME Patrick's K_S puzzle has been solved FIXME link
- **new FastVelo version (v1r7)**: better track finding efficiency for high IP tracks. reduced effect of upper life time acceptance.
- various pattern recognition tunings: no impact on physics observed so far
- negative side effects: new track chi2 cut tuning needed. probably new acceptance studies needed. higher ghost rate than reco12

for the experts: Reco13 uses REC v13r2 in Brunel v42r2p2

Reco13a (runs 114686-118880; from 07 May to 18 Jun)

prompt reconstruction of 2012 data

used in Stripping19a

- **new clone killing strategy**: more elaborate strategy of deciding which track of a particle to keep. improved performance for downstream & Velo tracks. longtrack efficiency rather stable. cuts aligned with standard particle cuts in rich reco and davinci => no tracks with **chi2>3** kept on DST. Hence (on the same events) there are less tracks than in earlier reco versions. on dedicated request, yet another wording: this means that the track multiplicities are lower than in earlier reco versions.
- no new negative side effects known so far.

for the experts: Reco13a uses REC v13r3 in Brunel v42r3p2

Reco13b (not used in production)

use **Reco13c if available** prompt reconstruction of 2012 data

not used for any good flagged data. not to be used

- **FastVelo internal clone reduction improved (v1r10)**: slightly better longtracking efficiency than reco12 in combination with the new clone killer (introduced in reco13a).
- this version came with wrong database settings (correct me if i'm wrong / inaccurate here).
- no new negative side effects known which are inherent to the reconstruction changes

for the experts: Reco13b uses REC v14r0 in Brunel v43r0

Reco13c (runs 119956-125115 ; from 02 Jul to 10 Aug)

prompt reconstruction of 2012 data

used in Stripping19b

- **no reconstruction changes. corrected database**
- negative side effects as in Reco13

Reco13d (runs 125962 to 126304; from 18 to 23 Aug)

prompt reconstruction of 2012 data

used in Stripping19c

Reco13e (runs 126332 to FIXME ; from 24 Aug to September TS)

prompt reconstruction of 2012 data

used in Stripping19c

- Same code as Reco14 for reprocessing
- **New ghost probability tuning**: the ghost probability exists quite some time (latest change I'm aware of based on MC09 and available since some time afterwards). This is the first version which has ever been looked at on data. Furthermore the previous training was based on a Reco version which wasn't used on data. This new tuning is trained on Reco13d. It only affects longtracks - downstream tracks and others still have the MC09 tuning (work in progress).

Reco13f (runs FIXME to FIXME ; from September TS to end of year)

used in Stripping20 for prompt reconstruction. NB: 13f/20 and 14/20 have overlap!

- FIXME any note worthy change wrt. Reco13e?

Reco13x (where x is any letter other than a-f)

prompt reconstruction of data taken end of 2012 / beginning of 2013. not necessarily full scale (verify this). mainly used for special data and calibration (i.e. you're an expert already if you want to look at it. otherwise you're analyst and should go to Reco14)

Reco14 (end of year reprocessing)

used in Stripping20 for end of year processing

- Same code as Reco13e
- new calibrations wrt Reco13e

ANNPID available on DST in tuning FIXME(something older than MC12TuneV2) ->superseded by MC12TuneV2 (automatically provided when opening with DV v33r3p3 onwards)

2015

Reco15

prompt reconstruction

- everything is awesome
- new ghost probability tuning
- tunings of track finding changed
- track fit uses light clusters and simplified geometry (contact your tracking liaison if momentum/mass resolution is crucial for you)

Stripping versions

Albeit contrary rumours, it's easy to look up in the bookkeeping that the reco-stripping relation is neither 1:1, nor many:1, nor 1:many, but really many:many. See below:

available combinations (Stripping lookup):

Stripping	Reco
Stripping17	Reco12
Stripping17b	Reco12
Stripping19	Reco13
Stripping19a	Reco13a
Stripping19b	Reco13c
Stripping19c	Reco13e
Stripping20	Reco13f, Reco13g, Reco14
Stripping20r1	Reco14

available combinations (Reco lookup):

Reco	Stripping
Reco12	Stripping17, Stripping17b
Reco13	Stripping19
Reco13a	Stripping19a
Reco13c	Stripping19b
Reco13e	Stripping19c
Reco13f	Stripping20
Reco13g	Stripping20
Reco14	Stripping20, Stripping20r1

Cut on "(PT>250*MeV) & (MIPCHI2DV(PRIMARY) > 4.))" added for StdLoose common particles for Stripping17b onwards.

Note that you cannot avoid all cuts by using StdAllNoPIDs common particles. This list only gives the DaVinci / Stripping cuts. The Brunel cuts (applied in clone killing since Reco13a, and in the ProtoParticle creation since 2010) are superseded for StdLoose common particles, but not for StdAllNoPIDs common particles!

Stripping	DaVinci version	CommonParticles.Utils defaults	AppConfig
Stripping17b	v30r0p1	Chi2Cut < 5, KL > 5000, (PT>250*MeV) & (MIPCHI2DV(PRIMARY) > 4.)	MaxCandidates = 2000

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Stripping18	v30r2p3	Chi2Cut < 5, KL > 5000, (PT>250*MeV) & (MIPCHI2DV(PRIMARY) > 4.)	MaxCandidates = 2000, Chi2Cut < 3
Stripping18a	v30r2p3	Chi2Cut < 5, KL > 5000, (PT>250*MeV) & (MIPCHI2DV(PRIMARY) > 4.)	MaxCandidates = 2000, Chi2Cut < 3
Stripping18b	v30r2p3	Chi2Cut < 5, KL > 5000, (PT>250*MeV) & (MIPCHI2DV(PRIMARY) > 4.)	MaxCandidates = 2000, Chi2Cut < 3
Stripping19	v30r3	Chi2Cut < 5, KL > 5000, (PT>250*MeV) & (MIPCHI2DV(PRIMARY) > 4.)	MaxCandidates = 2000, Chi2Cut < 3
Stripping19a	v30r4p1	Chi2Cut < 5, KL > 5000, (PT>250*MeV) & (MIPCHI2DV(PRIMARY) > 4.)	MaxCandidates = 2000, Chi2Cut < 3
Stripping19b	v31r0	Chi2Cut < 5, KL > 5000, (PT>250*MeV) & (MIPCHI2DV(PRIMARY) > 4.)	MaxCandidates = 2000, Chi2Cut < 3

-- PaulSeyfert - 16-Jul-2012

This topic: LHCb > RecoXX

Topic revision: r23 - 2016-07-18 - PatrickSKoppenburg



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