AlpgenInterface
Status for CMSSW 3 and 2_2_7 Production

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Updates since last time.

- Please check Mar 16th presentation for extra information.

  - http://indico.cern.ch/getFile.py/access?
    subContId=5&contribId=6&resId=0&materialId=slides&confId=54417

- Source-Producer separation.

  - Source part: no changes.

    - AlpgenInterface/src/AlpgenSource.cc

  - Producer part: migration to gen::JetMatching inherited class complete.

    - PartonShowerVeto/src/JetMatchingAlpgen.cc

- Tags for CMSSW_3_1_0_pre5:

  - GeneratorInterface/AlpgenInterface V01-01-00
    GeneratorInterface/PartonShowerVeto V00-00-05

- UPSHOT: we are ready!

Documentation

- Fully updated Twiki:

  - http://www.sprace.org.br/Twiki/bin/view/Main/NewAlpgenInterface

  - Question: where do I put the old Twiki?

- I've decided to make the Twiki for AlpgenInterface the entrance point for everything related to ALPGEN in CMS.

  - Link to another Twiki dedicated to sample generation?

  - Link to more dedicated Twikis detailing the code?

- Question: what of the doxygen documentation?

  - This page doesn't help much, for it doesn't work:
    https://twiki.cern.ch/twiki/bin/view/CMS/SWGuideDevelopersGuide#Documenting_the_code

The 2_2_7 ALPGEN Production

- AlpgenInterface has a mechanism to prevent merging of "incompatible" runs. Runs with different LHE headers can't be merged.

  - Problem: definition of "different" is too strict! Runs with exactly the same configurations, but with different random seeds, generate different (but functionally equivalent) sets of weighted and unweighted events.

  - There is no obvious way to merge the EDM files resulting from these runs.

    - The ALPGEN configuration files can't all be made identical $\rightarrow$ that would simply generate copies of the same set of events.

    - The weighted events can't be merged in any meaningful way.

    - The unweighted events can be merged, but one can't make an one-to-one relation between a weighted and an unweighted event.

- The "split and merge" procedure used during official Production triggered this mechanism, which turned out to be a showstopper.

The 2_2_7 ALPGEN Production

- Solution: add a specific ALPGEN workaround:

  - SimDataFormats/GeneratorProducts/src/LHERunInfoProduct.cc   V00-00-04

- This solution will allow for Production in 2_2_8.

- Some lessons to be learned:

  - The full Production chain has to be exercised to the very end, including the "split and merge" step, prior to the release. Failure to do so may result in a last minute, showstopper bug that completely prevents Production.

  - Generators are sometimes used in ways unforeseen. From the structure of ALPGEN, it is clear that any "split and merge" step was thought to occur only at the unweighted event level. It is our duty to try to foresee those use cases and integrate the generators in such a way as to support them.

Plans for the future.

- Test suites?

  – Right now: shell script that automatically generates WGT and UNW events, runs the AlpgenSource, the JetMatchingAlpgen, and checks that everything runs ok and parameters were passed around correctly.

  – Basic physics validation (Vista-like?)

  – Alpgen-specific validation (test of the MLM matching?)

  – NEW: test split and merge procedure.

- ALPGEN + Herwig?

  – It is available in ALPGEN standalone. Do we have users interested on that?

- For the DISTANT future: ALPGEN + Pythia8? ALPGEN + ThePEG?

  – This would need a radical change in ALPGEN architecture → close interaction with authors.