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Migration of CMSSW software from 3_1_1 version to 4_2_4

Currently (r5094) we have in repository two parallel version of the code:

- **trunk** (svn+ssh://svn.cern.ch/reps/totem/trunk/offline/cmssw/src) containing software compatible with CMSSW 3_1_1
- **migration 4_2_4 branch** (svn+ssh://svn.cern.ch/reps/totem/branches/CMSSW_4_2_4/offline/cmssw/src) containing software compatible with CMSSW 4_2_4 (corresponds to r5094 of trunk)

On Monday 12.09.2011 there will be significant change and trunk will contain version of software compatible with CMSSW_4_2_4 and repository will be organized as following:

- **trunk** (svn+ssh://svn.cern.ch/reps/totem/trunk/offline/cmssw/src) containing software compatible with CMSSW 4_2_4
- **backward compatibility 3_1_1 branch** (svn+ssh://svn.cern.ch/reps/totem/branches/CMSSW_3_1_1/cmssw/src) containing software compatible with CMSSW 3_1_1 (corresponds to r5094 of trunk)

Detailed instructions how to use and compile code in both versions could be found in following places:

- short set of commands how to compile and run code in all versions
- detailed getting started for 3_1_1 version
- detailed getting started for 4_2_4 version
Important actions to take (after Monday 12.09.2011).

- **do not commit** from workspaces create before 12.09.2011. Let us assume that you did `svn checkout` .../trunk and have it in your directory. Now trunk contains completely different files (compatible with 4_2_4). `svn commit` could in such result with error or broken files in repository.

- **safe option to still work with 3_1_1** (only if you plan to develop and commit to repository). Recompile workspace from scratch, fetching code from different place in repository, according to instruction

- **less safe option to still work with 3_1_1** (only if you plan to develop and commit to repository). Remove src/ directory from workspace, fetch new one from backward compatibility 3_1_1 branch `(svn+ssh://svn.cern.ch/reps/totem/branches/CMSSW_3_1_1/cmssw/src)`

- **doing `svn update` on workspaces create before 12.09.2011** will overwrite your code with one compatible with 4_2_4 making your workspace not compiling.

- if you have some configuration files that are not in SVN repository and want to use them with 4_2_4 framework, they need to be adjusted according to list of changes below
Main differences:

- code works only on 64bit SLC5 machines (lxplus, lxbatch, pctotem31)
- different path to `cmsset_default.sh` file (now `/afs/cern.ch/cms/cmsset_default.sh`, before `/afs/cern.ch/cms/sw/cmsset_default.sh`). You need to change bash scripts used to submit jobs to cluster or others where you use this path.
- no need to prepare special version of Geant4
- some MC guns have different type (EDProducer instead of InputSource). You need to change `cfg` files used for simulation (use empty source and put generator at the beginning of the path), see example configuration in `Configuration/TotemStandardSequences/test/`. Changed MC guns:
  - `DPEProtons`
  - `FlatProtonLogKsiLogTGun`
  - `FlatProtonLogKsiLogTGunMul`
  - `MultFlatGunSourceEtaEMC2`
  - `MultFlatGunSource`
- obsolete modules from `RecoTotemT1T2` removed. You need to change `cfg` files used for raw data reconstruction and simulation. Replace `T2MakeCluster3` with `T2MakeCluster`, and others as following:
  - `T2MakeCluster` and `T2MakeCluster2` removed; `T2MakeCluster3` renamed as `T2MakeCluster`
  - `T2RecHit` removed; `T2RecHit2` renamed as `T2RecHit`
  - `T2RoadProducer` removed; `T2RoadProducer2` renamed as `T2RoadProducer`
  - `T2TrackProducer` removed
- obsolete plugins from `TotemRawData/RawToDigi` removed (all these plugins should be replaced with `Raw2DigiProducer` as this plugin covers functionality of all obsolete plugins):
  - `RPDataCCProducer`
  - `RPDataDigiProducer`
  - `T1XMLDataDigiProducer`
  - `T2DataDigiProducer`
  - `T2XMLDataDigiProducer`
- `TotemDQM` package will not compile by default, you need to configure `qtROOT` package and enable compilation in `BuildFile.xml` files of `TotemDQM` package.
- important when adding new package: configuration of SCRAM is now different. CMSSW_4_2_4 is using `BuildFile.xml` instead of `BuildFile`. See how does it look like in migrated packages. There is automatic converter to migrate between `BuildFile` and `BuildFile.xml`
- important when adding new class: in CMSSW 3_1_1 there was a method `virtual void beginJob(const edm::EventSetup&)`, now it doesn't take any parameter and is `virtual void beginJob();`. If you add put it in the code in the old way, method will not be called but you will also not see any compiler error. To use EventSetup at the beginning of the processing, use `virtual void beginRun(const edm::EventSetup&)`. 

```
Changelog:

- changelog: Changelog of migration between CMSSW_3_1_1 and CMSSW_4_2_4