

Basic & Extended Examples Work Plan 2017 Status

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Outline

- Status of developments and work plan
 - Examples Review
 - Coding Guidelines
- Items for discussion
- AOB ?

Work Plan 2017

- New examples
 - New **physics_list** category:
 - Create a new examples category showing how to create or use a physics list (no details on physics, only the technical aspects). First example: Hadr05 (G4GenericPhysicsList) (1,2) - [Reminder to Physics Lists WG](#)
 - Biasing category: example illustrating the development(s) in generic biasing: "DXTRAN" MCNP-like option and implicit capture (1,2)
 - Medical/dna category: example **neuron** demonstrating modeling of neuron cell irradiation (1,2) - **DONE**
 - Hadronic category: example **Activation** demonstrating computation of the activities of an irradiated target, as a function of time. (1,2) - **DONE**
 - To be consistent with other examples names the example name should rather start with “a” instead of “A”

Work Plan 2017 (2)

- New examples (cont.)
 - Example demonstrating **monitoring** of steps/tracks, etc (in collaboration with Q&A WG) (1,2)
 - Will be moved to 2018
- Existing examples improvements:
 - Biasing category: *Resolve the overlap* in biasing B02/B03 and GB03 examples which implement the same use case. (1,2)
 - Will be (probably) moved to 2018
 - Electromagnetic & Hadronic categories: updating selected examples with *usage of G4Accumulable* (1,2)
 - errorpropagation category: *Porting Geant4e to MT* (1,2)
 - Medical category: Extend the DICOM reader with the RT Dose format (1,2) - **DONE**
 - Medical/dna category: Finalization of dna/microyz (1,2) - **DONE**

Work Plan 2017 (3)

- Code review:
 - Review examples macros and tests: make sure that provided macros cover all commands implemented in example and the cdash test covers all important example use cases (1,2)
 - Update Wiki page with obsolete features (1) - **DONE**
 - Remove the obsolete features from the code using the agreed replacement (1,2)
- Finish applying coding guidelines:
 - Review the status and update the table on the Wiki page (1) - **DONE**
 - Finish the examples not yet completed (1,2)

WG Group Wiki

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Novice & Extended Examples Working Group


The mandate of Geant4 Novice & Extended working group is the following:

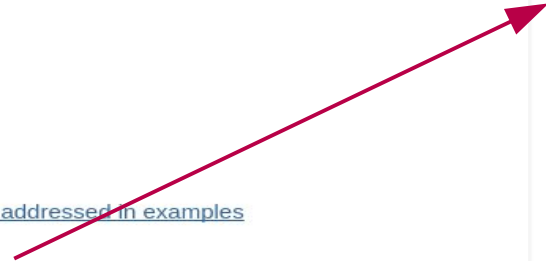
1. Coordinate the design, implementation and maintenance efforts of N&E examples;
2. Ensure the Geant4 toolkit functionalities, options and controls are well mapped into t
3. Maintain scenarios to organize the structure of the N&E examples;
4. Ensure the code quality of the examples, provide coding guidelines to developers, a review;
5. Ensure cross-references between examples:

Work plans

- [2014](#)
- [2013](#)
- [2012](#)
- [2011](#)

WG documents

- [Coding guidelines](#)
- [Users questions to be addressed in examples](#)
- [WG Wiki pages](#) 



- The link to Wiki pages is available from the WG Web page
- Access is restricted to Geant4 developers

TWiki >  Geant4 Web > [NoviceExtendedExamples](#) (14 Apr 2014, IvanaHrivnacova)

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N&E Examples WG

- [Adding A New Example](#)
- [Extended Examples Review](#)
- [Applying Coding Guidelines](#)
- [Examples Doxygen Documentation](#)
- [Status of Examples MT Migration](#)

-- [IvanaHrivnacova](#) - 11 Apr 2014

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Examples Review

- The list of obsolete features in extended examples with the lists of examples (or files) where they are present was reduced
- Improve `main()` as in basic examples (details on the next slide)
 - Remove `G4VIS_USE` and `G4UI_USE` macros to make the function `main()` easier to understand to users
 - `G4UIExecutive` should be instantiated at the same beginning of `main()`, if interactive mode is enabled This makes possible to handle the output and eventual exception via the Geant4 UI since the beginning of running example
- Explicitly defined physics lists in examples not demonstrating physics
 - Reduced from 23 (2015) to 12 (2016), 13 (2017)
- Explicit use of `std::cout`, `std::cerr`, `exit()`
 - Increased from 1 (2016) to ~10 (2017) !

Macros Review

- Objectives:
 - To review all examples and remove the commands, defined in the example messenger classes, if they are not directly relevant to the features demonstrated in the example.
 - All the useful remaining commands should be demonstrated in a macro, and all macros provided with an example should be referenced in the README.
- The lists of unused commands, generated in a semi-automatic way last year, are available on [the wiki page](#)

Coding Guidelines

- Following the coding guidelines is requested when adding a new example
- Progress with automating the procedure of checking
 - Now also the guidelines for class members names can be checked automatically (using modified Doxygen built from sources)
- The number of violations reduced significantly::
 - 663 data member names (sep15) => 95 (july16) => 68 (july17) + 108 in new DICOM reader where using a “the” prefix instead of “f”
 - 32 member function names (sep15) => 18 (july16) => 5 (july17)
- The list of violators (examples files) is available on the wiki page
- All developers which are responsible for the examples, where a violation of guidelines was detected, will be reminded by e-mail after the collaboration meeting

Discussion

Physics Lists Category

- Request to Physics List WG presented in Fermilab, Ferrara
- Create a new directory showing how to create or use a Physics List (no details on physics, only the technical aspects).
 - First example Hadr05 (G4GenericPhysicsList)
 - Example(s) demonstrating current/new Physics List factory