Stanford Linear Accelerator Center



Basics of UI command

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Geant4 Tutorial Course @ Fermi Lab

October 27th, 2003

Geant 4



Geant4 UI command

- A command consists of
 - Command directory
 - ▶ Command
 - Parameter(s)

- /run/verbose 1
 /vis/viewer/flush
- A parameter can be a type of string, boolean, integer or double.
 - Space is a delimiter.
 - Use double-quotes ("") for string with space(s).
- A parameter may be "omittable". If it is the case, a default value will be taken if you omit the parameter.
 - Default value is either predefined default value or current value according to its definition
 - If you want to use the default value for your first parameter while you want to set your second parameter, use "!" as a place holder.

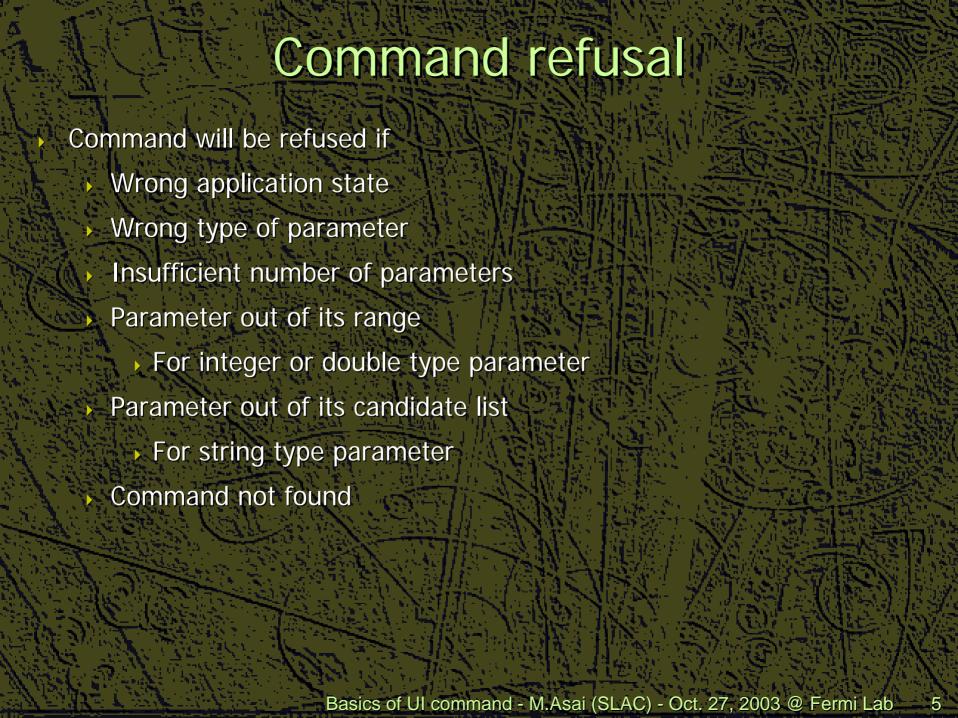
/dir/command ! second

Command submission

- Geant4 UI command can be issued by
 - (G)UI interactive command submission
 - Macro file
 - Hard-coded implementation
 - Slow but no need for the targeting class pointer
 - Should not be used inside an event loop

```
G4UImanager* UI = G4UImanager::GetUIpointer();
UI->ApplyCommand("/run/verbose 1");
```

- The availability of individual command, the ranges of parameters, the available candidates on individual command parameter vary according to the implementation of your application and may even vary dynamically during the execution of your job.
- some commands are available only for limited Geant4 application state(s).
 - E.g. /run/beamOn is available only for Idle states.



Macro file

- Macro file is an ASCII file contains UI commands.
- All commands must be given with their full-path directories.
- Use "#" for comment line.
 - First "#" to the end of the line will be ignored.
 - Comment lines will be echoed if /control/verbose is set to 2.
- Macro file can be executed
 - interactively or in (other) macro file
 /control/execute file_name
 - hard-coded

```
G4UImanager* UI = G4UImanager::GetUIpointer();
UI->ApplyCommand("/control/execute file_name");
```

Available Commands

- You can get a list of available commands including your custom ones by /control/manual [directory]
 - Plane text format to standard output
 - /control/createHTML [directory]
 HTML file(s)
 - List of built-in commands is also available in section 7.1 of *User's Guide For Application Developers.*

G4UIterminal

- G4UIterminal is a concrete implementation derived from G4UIsession abstract class. It provides character-base interactive terminal functionality to issue Geant4 UI commands.
 - C-shell or TC-shell (Linux only)
 new G4UIterminal(new G4UItcsh);
- It supports some Unix-like commands for directory.
 - cd, pwd change and display current command directory
 - By setting the current command directory, you may omit (part of) directory string.
 - 1s list available UI commands and sub-directories
- It also supports some other commands:
 - history show previous commands
 - historyID re-issue previous command
 - arrow keys (TC-shell only)
 - ?UIcommand show current value
 - help [UIcommand] help
 - exit job termination
- Above commands are interpreted in G4UIterminal and are not passed to Geant4 kernel. You cannot use them in a macro file.