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Geant4 Release Regression Testing on the Grid

Geant4 Production: Instructions

Introduction

This webpage describes all steps required to setup and run the Geant4 production.

Two areas are of importance for the production procedure:

- **RUN AREA** /afs/cern.ch/sw/arda/install/DIANE/Geant4/G4Prod The required subdirectories are:
  - run: contains all necessary scripts for executing the production
  - cand: directory from which the Geant4 candidate is downloaded to the sites
- **OUTPUT AREA** /afs/cern.ch/sw/geant4/stat_testing/june08 The required subdirectories are:
  - results: used for storing all the outputs
  - code: used for storing the Geant4 candidate versions

Preparing production run

Setting up environment (required for each run)

Commands assume **bash** shell.

Creating output directory

Create a new output directory in the output area. As a further step create within this new output directory a directory called "applications" E.g.

```
OUTPUT_DIR=/afs/cern.ch/sw/geant4/stat_testing/june08/results/output_$USER
cd $OUTPUT_DIR
mkdir -p diane
mkdir -p gangadir
```

Placing DIANE application adapter

Get the DIANE application adapter from CVS:

```
cd $OUTPUT_DIR/diane
cvs -d :kserver:isscvs.cern.ch:/local/reps/diane co apps/G4Production
```

Setting up grid/tool environment

Set the grid/tool environment by executing the following command in **bash**:

```
bash
source /afs/cern.ch/sw/arda/install/DIANE/Geant4/G4Prod/run/prodsetup_slc4.sh
```

The ganga configuration is in:
`/afs/cern.ch/sw/arda/install/DIANE/Geant4/G4Prod/run/ganga-geant4-june08-config`

Normally you do not need to change it, so make sure that your `~/.gangarc` configuration file does contain unnecessary modifications (use `ganga -g` to create an "empty" configuration file).

Creating the task scripts describing the physics configurations

Creating directory for task scripts

Create a subdirectory, which will contain the task scripts, in the directory /afs/cern.ch/sw/arda/install/DIANE/Geant4/G4Prod/run/taskscripts. E.g. cd /afs/cern.ch/sw/arda/install/DIANE/Geant4/G4Prod/run/taskscripts mkdir cand1_QGSP

Creating task scripts

Change to the directory created in II.2.A and use the script create_pyscripts.pl in combination with the template executable.template to create the required task scripts. IMPORTANT: Change the reference and candidate names in the template to the current tags before creating the task scripts. E.g. perl create_pyscripts.pl -pydir cand1_QGSP -template executable.template

Adapting the job description file and placing the candidate version

Copying candidate to download directory

Copy the current Geant4 candidate tarball to the directory /afs/cern.ch/sw/arda/install/DIANE/Geant4/G4Prod/cand

Preparing DIANE job description file

Introduce following two changes into the DIANE job description file /afs/cern.ch/sw/arda/install/DIANE/Geant4/G4Prod/run/runfiles/G4Prod_$USER.run

1. Change the path of local_exe_dir to be in coincidence with the full path of the subdirectory of taskscripts, which was created in II.2.A and which contains the task scripts E.g. local_exe_dir = '/afs/cern.ch/sw/arda/install/DIANE/Geant4/G4Prod/run/taskscripts/cand1_QGSP'

2. Change local_cand_name to the name of the current candidate tar-ball E.g. local_cand_name = 'g4prod-1.tgz'

Invoking production run (on lxb7232.cern.ch)

Run the following command in the directory /afs/cern.ch/sw/arda/install/DIANE/Geant4/G4Prod/run

```
env ORBendPoint=giop:tcp::23001 diane-run
/afs/cern.ch/sw/arda/install/DIANE/Geant4/G4Prod/run/runfiles/G4Prod_$USER.run
```

In another window:

```
cd /afs/cern.ch/sw/arda/install/DIANE/Geant4/G4Prod/workers
diane-env -d `which ganga` LCG.py --diane-worker-number=10
```

Hint: CERN CE selection `--CE ce117.cern.ch:2119/jobmanager-lcglsf-grid_geant4` (from 101 to 117)

Hint: for multiple selection use --CE-list command

Useful commands

Most command accept `--help`

Killing master: `diane-master-ping kill`

Check if master alive: `diane-master-ping`

Run worker interactively for debugging:

```
export VO_GEANT4_SW_DIR=/afs/cern.ch/sw/geant4/stat_testing/june08/code/dir32bits
diane-worker-start --workdir=/tmp/blah
```

Managing multiple masters

Make sure that every diane-run is done on a unique port number (`env ORBendPoint=giop:tcp::23NNN`).

Every master (diane-run) starts in its own directory in `$DIANE_USER_WORKSPACE/runs/XXX`. The master prints out its directory at startup.

All commands by default use the **last** started master. However you may specify the master number (XXX) to be used. The exact syntax depends on the command (this will be made uniform in the next release).

- to submit worker agents to the master XXX add the following option: `--diane-master=workspace:XXX`
- to kill master XXX: `diane-master-ping -f $DIANE_USER_WORKSPACE/runs/XXX/MasterOID kill`

There is a helper command: `./current_master` which prints the directory of the last master (this command is in the same directory as the other submission scripts `LCG.py, LSF.py` etc).

NSS2006 Paper

Get the source *(restricted access)*

```
cvs -d /afs/cern.ch/sw/arda/install/DIANE/Geant4/G4Prod/NSS2006_Geant4_paper/cvs co NSS200
```

-- JakubMoscicki - 09 Oct 2006

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