CMSSW-related tips

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Introduction

- Handling the CMSSW framework is one of things that CRAB usually does for you. These tips are however, for people who needs the framework as a set of dependencies for something other than cmsRun in a condor job.

Covered in this presentation

- Setting up the framework on the worker node

- Sandbox creation and unpacking

- Transfering files via e.g XRootD, gfal-copy, etc

Setup the framework

- If you just need to setup some version of the framework without adding any new packages, you can simply do that in your job as you usually do interactively.

- If you need to add packages via git and don't want every worker node to pull data and build every time, you can create a sandbox and unpack it on the worker node.

Setup the framework

- To setup the framework

```
#! /bin/bash
# Source cmsset_default
export VO_CMS_SW_DIR=/cvmfs/cms.cern.ch
source $VO_CMS_SW_DIR/cmsset_default.sh

#CMSSW configuration
export CMS_VERSION=CMSSW_7_4_7
export SCRAM_ARCH=slc6_amd64_gcc491

scramv1 project CMSSW ${CMS_VERSION}
cd ${CMS_VERSION}/src
eval `scramv1 runtime -sh`
… keep working….
```

Creating a Sandbox

- Now, assume you need not only to setup the framework but download your package… this can take a while and is a systematic procedure.

```
cd CMSSW_7_4_7/src/
git cms-merge-topic HuguesBrun:trigElecIdInCommonIsoSelection720
git clone https://github.com/cms-ttH/MiniAOD
cd MiniAOD; git checkout 0181312365929129567455eeca5b5d3f1732dc21; cd ..
git clone https://github.com/cms-ttH/ttH-13TeVMultiLeptons
cd ttH-13TeVMultiLeptons
git checkout 08de8b5bfc05770410dbc5481fb47be89f3e7e94
… more stuf…
done!
```

Creating a Sandbox

- You can simply pack it with your favorite compress tool, the trick is how to use it on the worker node

```
$ tar -jcf sandbox_cmssw_7_4_7.tar.bz2 CMSSW_7_4_7
```

- Your sandbox will have all sort of hardcoded paths, CMSSW_BASE, LOCALRT, python PATHs, etc…

- You might want to create a new release on the worker node based on your sandbox.

http://docs.uscms.org/Software+Access

Transfering Input/Output files

- Files at CMS are not small!

- We do have tools to access data files remotely

- Also, each CMS user has either:

  - A T2 storage space assigned

  - A storage space at the LPC CAF

- Use these features rather than relying on HTCondor transfer mechanisms.

Input files

- We rely mostly on AAA for remote access of data files.

  - If using ROOT:

TFile *f =TFile::Open("root://cmsxrootd.fnal.gov///store/mc/…root");

- with xrdcp:

xrdcp root://cmsxrootd.fnal.gov///store/mc/…root foo.root

Twiki Link

Output files

- You can stage out files via XRootD or e.g gfal-copy

- For FNAL for example:

xrdcp foo.root root://cmseos.fnal.gov:1094//eos/uscms/store/user/<user>

lcg-cp -bvD srmv2 foo.root srm://cmseos.fnal.gov:8443/srm/v2/server?
SFN=/eos/uscms/store/user/<user>/foo.root

gfal-copy foo.root srm://cmseos.fnal.gov:8443/srm/v2/server?SFN=/eos/
uscms/store/user/<user>/foo.root

Questions?