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manTree Root Trees

Introduction

These are old instructions - please see ManTree

The manTree package contains a set of classes for storing physics objects for final analysis. It can be used outside of athena, for example in SFrame. The code is in [svn](#) and the html descriptions of the classes can be found [here](#).

First Time Use

First compile the package with `sframe`, following the instructions. Make sure you source the main `SFrame` `setup.sh` file (this makes sure `root` loads the `manTree` library). Then you should be able to open a file with the `TBrowser` in `root` and have a look around. A file with `ttbar` events can be found at:

```
/afs/hep.man.ac.uk/d/atlas-neutrino/ManTrees/MC/AcceptanceChallenge/14-10-10/tree.nocuts.root
```

Documentation for the functions for the various classes is [here](#).

Using with Root's TTree Draw()

You can also use `root`'s `TTree.Draw()` functionality with these files, as long as you have set up the library (via setting up `sframe`) for example:

```
root /afs/hep.man.ac.uk/d/atlas-neutrino/Trees/MC08/NoSkim/16-6-09/ttbar/tree.root -l
TTree* tree = (TTree*)_file0->Get("ManTree");
tree->Draw("MElectron.Pt()", "", "");
new TCanvas
tree->Draw("MElectron.Pt()", "(MElectron.Pt()>20000.0) && (MElectron.IsMedium())", "");
```

The first draw command produces a plot of the p_T of all electrons in the events. The second command plots the p_T of electrons in the events with $p_T > 20$ GeV that pass the ATLAS 'medium' electron criteria.

Using with SFrame

An example package showing simple use within `SFrame` is in the `manchester` svn repository [here](#). The following lines show how to checkout & compile the package (first setup `sframe`):

```
cd $SFRAME_DIR
svn co svn+ssh://svn.cern.ch/repos/atlasgrp/Institutes/Manchester/SFrame/manTreeSFrameBase/trunk m
cd manTreeSFrameBase
make
cd $SFRAME_DIR
svn co svn+ssh://svn.cern.ch/repos/atlasgrp/Institutes/Manchester/SFrame/exampleManTreeCycle/trunk
cd exampleManTreeCycle
make
```

There is a sample config file in the `config` directory, which you can run as follows:

```
cd config
sframe_main TestCycle_config.xml
```

You will get lots of output to the screen, since it is set to `VERBOSE` output level. You can change this in the config file. You can modify the cycle code (`include/TestCycle.h` and `src/TestCycle.cxx`), then just type `make` in the `exampleManTreeCycle` directory to build your changes. You can then rerun as before.

Instructions for using the code for the top acceptance challenge are [here](#).

Compiling the package

The package can be compiled in two ways, using cmt within an athena release and using the standalone Makefile from SFrame. The two methods are described below. For each one you need to checkout code from the manchester svn repository. The easiest way to access this from linux8 is to obtain a cern kerberos ticket:

```
kinit --no-afslog username@CERN.CH
```

Compiling in Athena

To compile in athena, first set up an athena release & then checkout the package & compile:

```
cd $TestArea
cmt co -d SFrame/manTree $SVNMAN/SFrame/manTree
cd SFrame/manTree/cmt
make -j
```

Note: You can only use \$SVNMAN if you're using one of the linux8 machines at Manchester and your username is the same at Manchester and CERN. You can freely replace \$SVNMAN with:

```
svn+ssh://*cernusername*@svn.cern.ch/repos/atlasgrp/Institutes/Manchester
```

Compiling with SFrame

First checkout & compile SFrame (see the SFrame page[?]). Then checkout & compile manTree:

```
cd $SFRAME_DIR
svn co svn+ssh://svn.cern.ch/repos/atlasgrp/Institutes/Manchester/SFrame/manTree/trunk manTree
cd manTree
make
```

Common ATLAS Tools in SFrame

Good Runs List

See the instructions [here](#).

SFrame Pileup Tool

For information about installing the SFrame Pileup Tool click [here](#).

Current Tag List

Here we keep a list of the stable tags of the packages that are being used:

Package	svn tag for rel 15	svn tag for 16.0.3.3.3	svn tag for 16.0.3.8.2
manTree ↗	manTree-00-06-10-02	manTree-00-07-05	manTree-00-07-07
manTreeMaker ↗	manTreeMaker-00-06-09-01	manTreeMaker-00-07-00-branch	manTreeMaker-00-07-01
topUtils ↗	topUtils-01-00-02	topUtils-01-01-03	topUtils-01-01-04
manTreeSFrameBase ↗	manTreeSFrameBase-02-00-01	manTreeSFrameBase-02-00-02	manTreeSFrameBase-02-00-03

Making manTrees

Please check if the sample you need has already been made.

Samples

A list of samples is at ManTreeSamples

Making new trees

To make manTrees, you need to work in the athena environment, so first setup your favorite release & then checkout & compile manTree (by following the above instructions **before** continuing). Using the same \$TestArea that you just compiled manTree in, checkout and compile the packages needed for the making of the trees:

```
cd $TestArea
cmt co -r egammaAnalysisUtils--00-02-18 Reconstruction/egamma/egammaAnalysis/egammaAnalysisUtils/
cd Reconstruction/egamma/egammaAnalysis/egammaAnalysisUtils/cmt/
make
cd $TestArea
cmt co -d ManAthenaTools/manTreeMaker $SVNMAN/ManAthenaTools/manTreeMaker
cd ManAthenaTools/manTreeMaker/cmt
make -j 2
cd $TestArea
cmt co -d ManAthenaTools/ManGridUtils $SVNMAN/ManAthenaTools/ManGridUtils
cd ManAthenaTools/ManGridUtils/cmt
make
```

Note: You can only use \$SVNMAN or \$SVNOFF if you're using one of the linux8 machines at Manchester and your username is the same at Manchester and CERN. You can freely replace \$SVNMAN as above and \$SVNOFF with:

```
svn+ssh://*cernusername*@svn.cern.ch/repos/atlasoff/
```

To use a tag of a package add the following to the cmt command, e.g.:

```
-r manTreeMaker-00-07-00
```

You are nearly ready to make manTrees by running on the Grid by following these instructions

```
-- MarkOwen - 13-May-2011
```

```
-- MarkOwen - 16-Sep-2011
```

This topic: AtlasSandbox > ManTreeOld

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