The New Reference Manual

THtml News, How To, "Hidden Features"

The New THtml, Today:

How to write doc:

- Documenting classes, functions, data members
- Grouping classes to modules
- Referencing external reference guides

What's new?

- Style
- Functionality

How to use THtml to get better code

How To Write Doc – Syntax

Class doc: comment starting with e.g. `//_____`

Function doc: comment right after opening {

Data members: comment right behind declaration

```
//_____________________________________________
// Doc for MyClass

class MyClass {
  MyClass() {
    // function doc
  }
  int fData; // data member doc
};
```

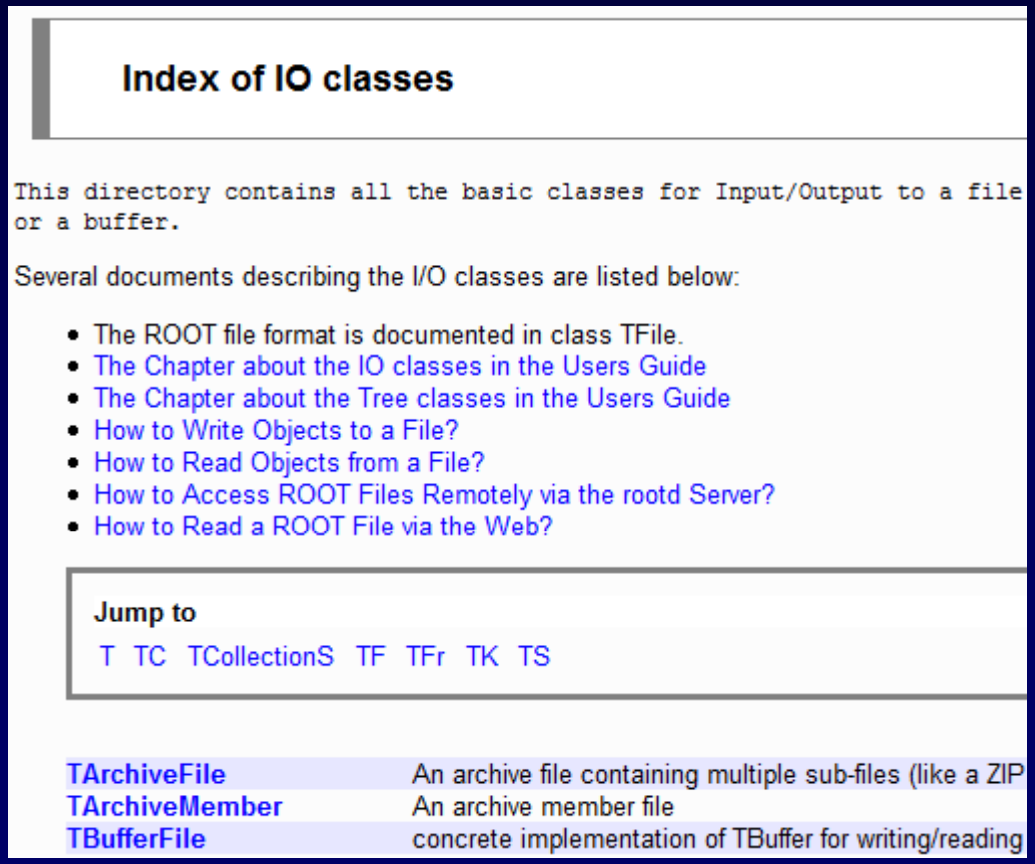
`THtml h; h.MakeAll()` and you have it!

How To Write Doc – Modules

Module: group of classes, e.g. ROOT "cont" directory

Either implement TMyHtml::GetModuleName() or put sources into module/src/ (like ROOT)

New: module index with optional extra documentation



Index of IO classes

This directory contains all the basic classes for Input/Output to a file or a buffer.

Several documents describing the I/O classes are listed below:

- The ROOT file format is documented in class TFile.
- The Chapter about the IO classes in the Users Guide
- The Chapter about the Tree classes in the Users Guide
- How to Write Objects to a File?
- How to Read Objects from a File?
- How to Access ROOT Files Remotely via the rootd Server?
- How to Read a ROOT File via the Web?

Jump to

T TC TCollectionS TF TFr TK TS

TArchiveFile	An archive file containing multiple sub-files (like a ZIP
TArchiveMember	An archive member file
TBufferFile	concrete implementation of TBuffer for writing/reading

How To Write Doc – External Links

Each class knows its library: e.g. TMyClass is in libMyLib

Call `gHtml->SetLibURL("MyLib", "http://url.org")`: THtml assumes doc for TMyClass is at http://myurl.org/

Allows to have separate doc for dependent projects

What's New?

Nicer pages: new look, CSS, easier to navigate

More functionality: auto-generate images from macros or latex, class charts, library dependencies

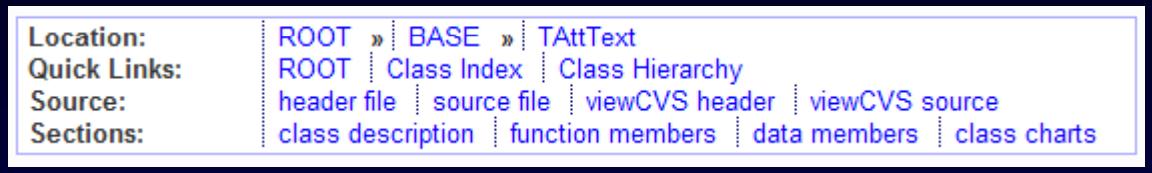
Cleaner API:

- setters for all gEnv variables
- Structured code – THtml remains API, new worker classes TDocParser, TDocDirective,…

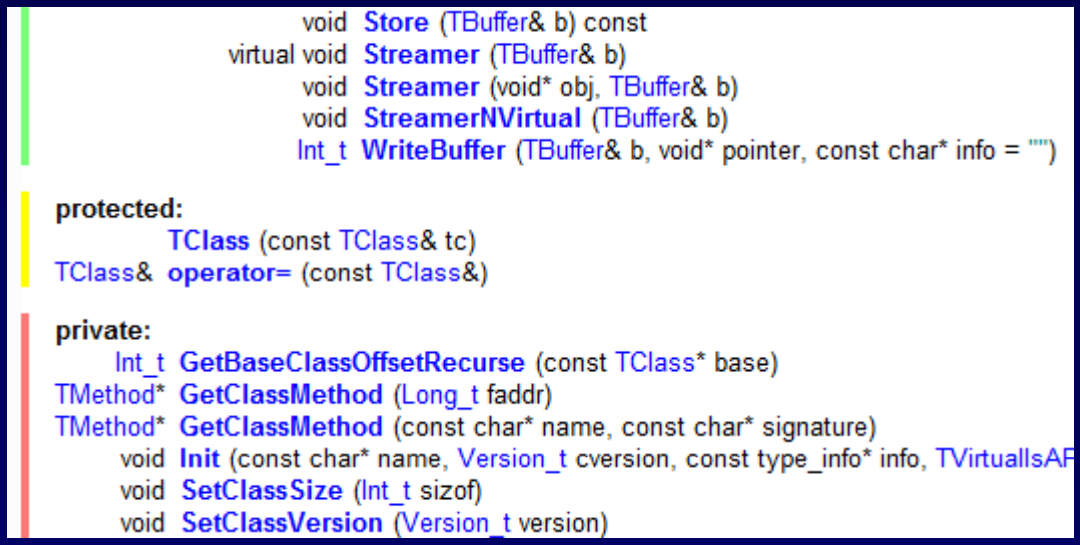
What's New? The Look.

New CSS-based layout:

- quick links on top



- clearly separated class description
- color coded lists of function and data members



What's New? The Look.

Beautified sources

- comments,
- strings,
- linked types,
- tooltips!

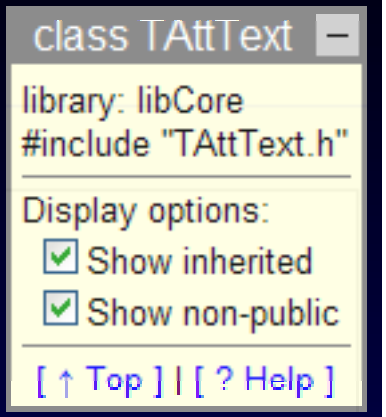
```
// If we are not given an object, make one.
// Note: We handle singletons carefully.
if (!realDataObject) {
   if (!strcmp(GetName(), "TROOT")) {
      realDataObject = gROOT;
   } else if (!strcmp(GetName(), "TGWin32")) {
      realDataObject = gVirtualX;
   } else if (!strcmp(GetName(), "TGQt")) {
      realDataObject = gVirtualX;
   } else {
      realDataObject = New();
   }
}
```

void* TClass::New(TClass::ENewType defConstructor=kClassNew) or overloads

- context-aware syntax analysis:
  Class::member, Class->member, Class.member

You won't notice because it's so obvious – so it works!

What's New? Functionality!



Customize views with the clingy toolbox

- Show inherited members, too? Or only current class's (traditional THtml view)?
- Show only public members? Or also protected and private?

Settings are persistent (cookie)

Developers: "no inherited/non-public"

Users: "inherited/only public"

What's New? Functionality!

THtml interprets directives (Html, Macro, Latex)

- Begin_Html…End_Html: enclosed text is HTML

```
//////////////////////////////////////////////////////////////////////////
/* BEGIN_HTML
<p>The THtml class is designed to easily document
classes, code, and code related text files (like change logs). It generates HTML
pages conforming to the XHTML 1.0 transitional specifications; an example of
these pages is ROOT's own <a href="http://root.cern.ch/root/html/ClassIndex.html">
reference guide</a>. This page was verified to be valid XHTML 1.0 transitional,
which proves that all pages generated by THtml can be valid, as long as the user
provided XHTML (documentation, header, etc) is valid. You can check the current
THtml by clicking this icon:
<a href="http://validator.w3.org/check?uri=referer"><img
        src="http://www.w3.org/Icons/valid-xhtml10"
        alt="Valid XHTML 1.0 Transitional" height="31" width="88" style="border: nc
Overview:
<ol style="list-style-type: upper-roman;">
  <li><a href="#usage">Usage</a></li>
  <li><a href="#conf">Configuration</a>
  <ol><li><a href="#conf:input">Input files</a></li>
  <li><a href="#conf:output">Output directory</a></li>
```

The THtml class is designed to easily document classes, code, ar
generates HTML pages conforming to the XHTML 1.0 transitional s
ROOT's own reference guide. This page was verified to be valid XHT
generated by THtml can be valid, as long as the user provided XHT

can check the current THtml by clicking this icon: W3C XHTML 1.0

Overview:

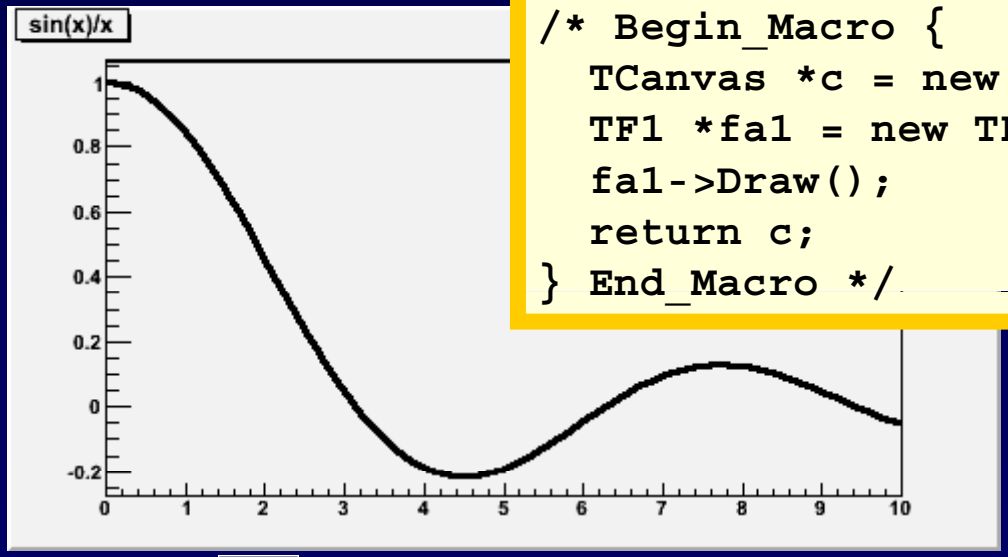
I. Usage
II. Configuration
    1. Input files
    2. Output directory

(this is old news)

What's New? Functionality!

THtml interprets directives (Html, Macro, Latex)

- Begin_Macro…End_Macro: enclosed text is a macro filename or source. THtml runs it, stores returned TObject as GIF, and links it into the doc page. Optional source tab displays the macro.




```
/* Begin_Macro {
   TCanvas *c = new TCanvas("c","c",0,0,500,300);
   TF1 *fa1 = new TF1("fa1","sin(x)/x",0,10);
   fa1->Draw();
   return c;
} End_Macro */
```

What's New? Functionality!

THtml interprets directives (Html, Macro, Latex)

- Begin_Latex…End_Latex: enclosed text is latex. THtml creates a TLatex from it, saves it as GIF, links image into the doc page

```
// Compute Quantiles for density distribution of this function
// Quantile x_q of a probability distribution Function F is defined as
// Begin_Latex
// F(x_{q}) = #int_{xmin}^{x_{q}} f dx = q with 0 <= q <= 1.
// End_Latex
```

Int_t **GetQuantiles** (Int_t nprobSum, Double_t *q, const Double_t *probSum)

Compute Quantiles for density distribution of this function
Quantile x_q of a probability distribution Function F is defined as

$$F(x_q) = \int_{xmin}^{x_q} f\,dx = q \text{ with } 0 <= q <= 1.$$

What's New? Functionality!

Class Charts with AT&T's GraphViz / dot:

- inheritance (previously ASCII art): overview of base and derived classes
- inherited members (previously PDF): all base classes' members, with access and "re-implemented here" information
- include file dependencies
- library dependencies

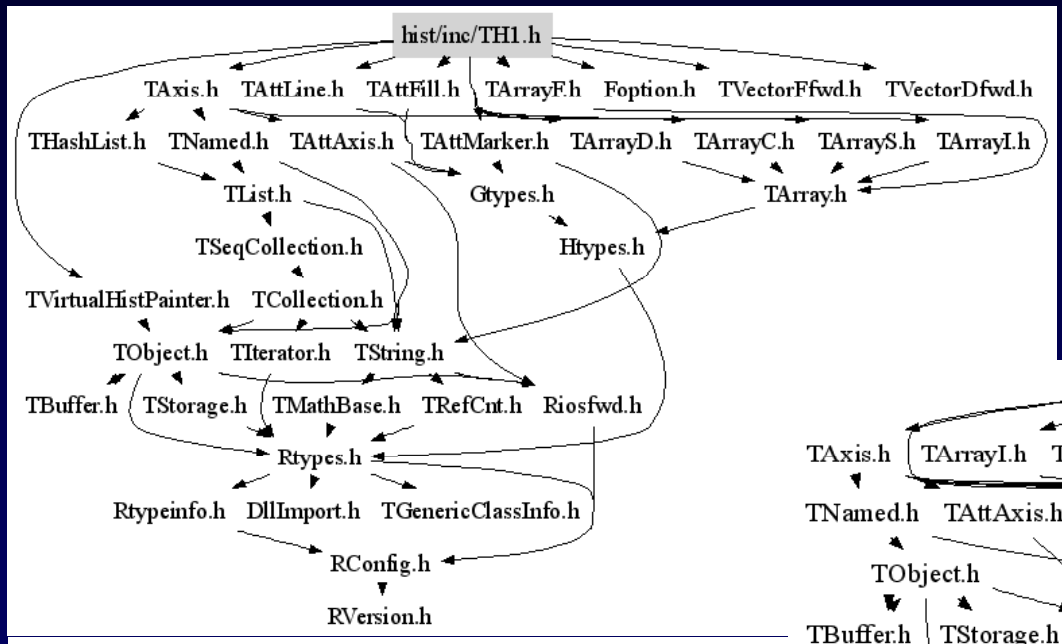
I Can't Believe It's Real!

TAttFill

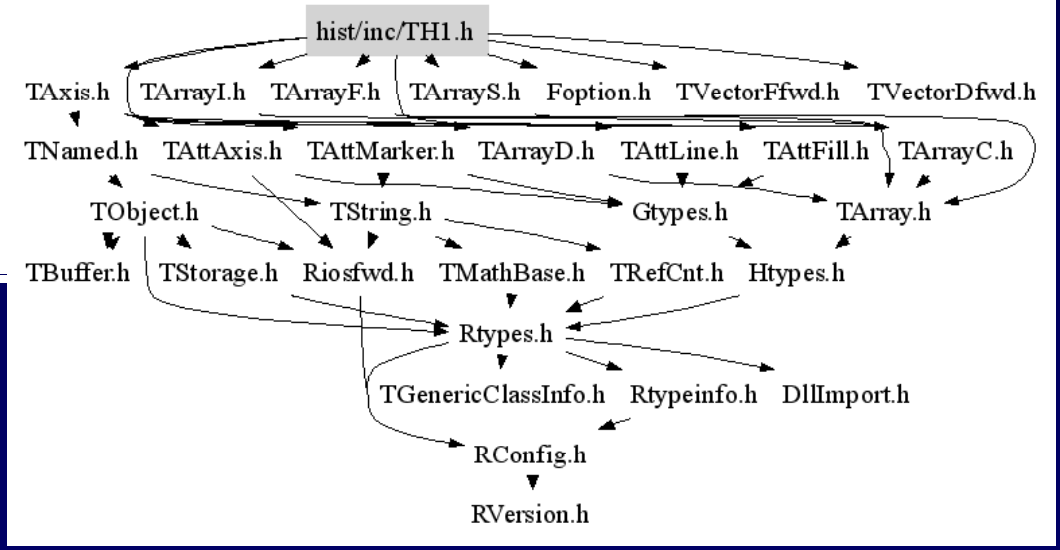
"Better Code Thru THtml"

Include + library charts help improve modularity

ROOT's restructuring success e.g. with headers:



use forward declarations where possible!

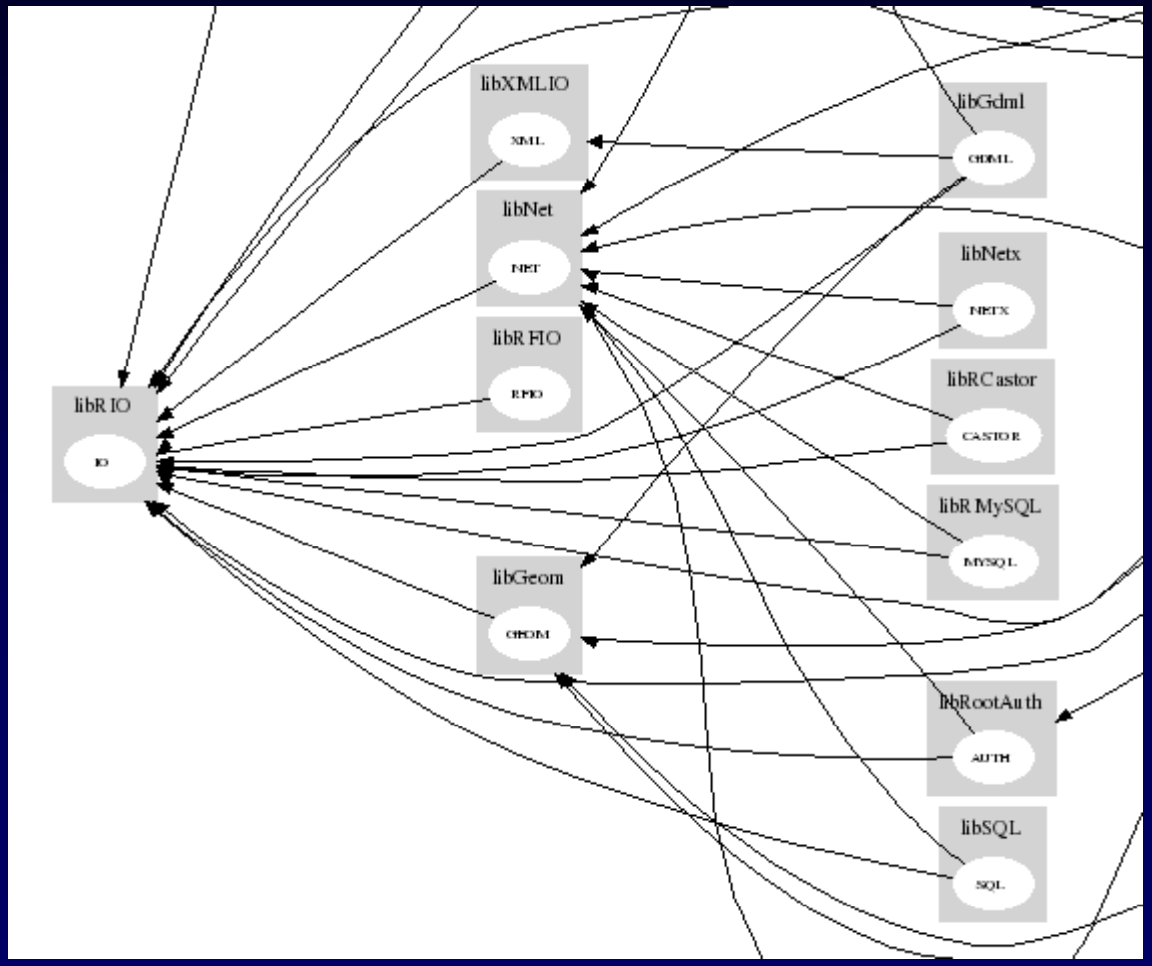


"Better Code Thru THtml"

Same for library dependency:

allows to study and
reduce library
dependencies

Very visual access
to complex topic



THtml's Future

Make use of CINT's future Reflex database to e.g.

- structure doc by scopes
- document globals
- document friends

Object oriented API first step towards doc.root

Goal: context-sensitive help system ("F1")

Needs TCanvas-based HTML engine (TGHtml)

Summary

Lots of improvements: look, functionality

Features that are unique to THtml: latex, macro

Users of ROOT are users of THtml:

- improvements really pay off
- documentation is and stays integral part of ROOT

See everything in action:

http://root.cern.ch/root/html