

Common Experiment Workbook (aka *art* Workbook)

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Goals

- 1) Develop a documentation suite for *art*
 - Target audience: the full spectrum from beginner, to intermediate, to expert.
 - To reach beginners it needs **a lot** of background material
- 2) Cover material common to all experiments.
- 3) Integrate documentation for other tools supported by SCD
 - Eg: SAM, Grid
 - Especially: **how these interact with art**
- 4) Reference material that already exists, don't duplicate it.

The Big Picture

Introduction

1. What is a framework
2. Define Prerequisites
3. Overview of documentation
4. ...

Workbook

Exercise 1
Activity 1
Activity 2

Exercise 2
Activity 1
Activity 2

...

Exercise N

Reference Manual

Technical Reference

External Refs

Root, C++, STL, G4

...

Users Guide

Table of Contents

1. Users view of *art*
2. Modules
3. Services
4. FHiCL
5. Interface to G4
6. Interface to SAM
7.

Appendices

- I. Best Practices
- II. Trouble Shooting
- III. CLHEP gap Filler Docs
- IV. Glossary

Index

Elements - I

- Introduction
 - What do you need to know before you start the workbook.
 - Shells, C++, compiling, linking, libraries, UPS, finding files
 - Overview of documentation
- Workbook
 - Primary entry point for beginners (after the introduction)
 - Work at your own pace, self study exercises; examples must “just work”.
 - Experiment agnostic: built around a toy Experiment
 - Cross-referenced to all other materials (and itself)
 - Will include SAM and grid related exercises.

Elements - II

- Users Guide
 - The “mother lode” of user oriented documentation
 - A resource for intermediates and experts
- Technical Manual
 - Targeted at art maintainers developers
- Reference Manual
 - Doxygen or similar
- External References
 - We don't write this; links to ROOT, CLHEP, C++

Phase I

Reasonably complete

Introduction

1. What is a framework
2. Define Prerequisites
3. Overview of documentation
4. ...

A handful of exercises well written up.

Very sparse coverage

Workbook

Exercise 1
Activity 1
Activity 2

Exercise 2
Activity 1
Activity 2

...

Exercise N

Reference Manual

Technical Reference

External Refs
Root, C++, STL, G4
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My Plan for Mu2e Documentation

- Read chapters 1...N from workbook
- I will tell you a story about Mu2e
- Read some more from the workbook
- I will tell you some more about Mu2e
- ...

Technology

- Code
 - UPS product toyExperiment
 - Used by art-workbook
 - See Section 1.7 of the Introduction.
 - git repository art-workbook
 - Exercises that people check out and work through
- Documentation
 - LaTeX source managed by git
 - Hyperref for internal and external links
 - Will also deploy as html via htlatex, latex2html or similar.

Finding Information

- Drafts of the documentation (html and pdf)
 - <http://artdoc.fnal.gov>
- Status information
 - [https://sharepoint.fnal.gov/org/scd-ssi/artdocumentation/Lists/Project Task Tracking/Annes View.aspx](https://sharepoint.fnal.gov/org/scd-ssi/artdocumentation/Lists/Project%20Task%20Tracking/Annes%20View.aspx)
- Redmine site
 - <https://cdcvs.fnal.gov/redmine/projects/art-workbook>
 - Three repositories:
 - art-workbook: the exercises people will check out and do
 - toyExperiment: Code for the toy experiment that underlies the exercise
 - doc: LaTeX source for the documentation
 - wiki and files:
 - original planning discussions
 - https://cdcvs.fnal.gov/redmine/attachments/download/9505/IFDoc_v5.pdf

Structure of the Documents

- A single LaTeX document with:
 - Table of Contents
 - Glossary
 - Part I: Introduction (5 chapters)
 - Part II: Workbook (20 to 30 chapters)
 - Part III: Users Guide (10 to 20 chapters ?)
 - Index

Part I: Introduction

- 1) Introduction to the art Event Processing Framework
- 2) Unix Prerequisites
- 3) Site specific setup procedure
- 4) C++ Prerequisites
- 5) Using External Products in UPS

Chapter number

1, 2, 3, 5: ~95% complete
4: ~80% complete

Part II: Workbook

- 6) Preparation for Running the Workbook Exercises
- 7) Exercise 1: Running Prebuilt art Modules
- 8) Exercise 2: Build and Run Your First Module
- 9) Exercise 3: Optional Methods of a Module
- 10) Exercise 4: Parameter Sets

End Phase 1

Chapters 6, 7, 8 : ~95% complete

Chapter 9, 10: Code working; written material ready to be imported from Mu2e Summer 2012 workshop.

Chapters 1 through 8 were the heavy lifting: 150 pages
Introduction, background information, prerequisites and links from the exercises back to the material in the introduction.

Part II: Workbook

- 11) Exercise 5: Multiple Instances of One Module
- 12) Exercise 6: Accessing Data Products
- 13) Exercise 7: Making Histograms and TFileService
- 14) Exercise 8: Looping over Collections
- 15) Exercise 9: The Geometry Service
- 16) Exercise 10: The Particle Data Table
- 17) Exercise 11: Properties of Generated Particles
- 18) More to come: art::Ptr, art::Assns, persistency, instance names of data products, reconstruction on demand ...

11 to 17: code is ready – no text yet.

18 ... ideas sketched out

Part III: Users Guide

- Rougher drafts
 - Obtaining Credentials to Access Fermilab Computing Resources
 - Using git
 - Art Framework Parameters
 - Job Configuration in art
 - Data Products

Plans

- Part/Chapter lists with a completion status
 - This is in Sharepoint
- Hand Phase 1 over to designated reviewers
 - by June 5 (tomorrow!)
- Have Phase 1 ready for identified new users
 - by June 15 (?)
- Establish user-support mechanisms, including chat
- Continue with next wkbk exercises and UG chapters