LHC++

Sneak Preview of next Monday's meeting

Agenda, Distribution, 98A Status

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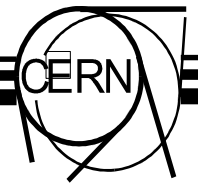

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Preview

- LHC++ meeting on Monday, 11th May to review current status of LHC++
- Proposed that the **following** meeting is devoted to presentations from the experiments on the pilot projects being carried out with LHC++
- Plan a 3-day workshop on LHC++ September 27-29
- Status report to the LCB for October 6
- This sneak preview does not replace next week's meeting
- Expect much more detail on the actual status!

Agenda of May 11 Meeting

- Access to LHC++ at CERN
- Distribution to outside sites
- Status of 98A Release
- Guidelines for submission of software to LHC++
- Pilot projects with LHC++
- SRT
- Comments on CLHEP from STAR
- Linux
- Dates & Plans for next LHC++ Workshop
- AOB ...

Access to LHC++ at CERN

- **Preferred** mechanism is via central file servers
  - AFS for Unix
    - /afs/cern.ch/sw/lhcxx
  - Novell for Windows
    - z:\p32\lhcpp
  - Structure after this root should be ***identical***
    - today /share and /specific/@sys do not exist on Novell

- **May** also be installed locally
  - e.g. for performance reasons

- Local installation performed from export directories as for outside institutes

Access to LHC++ Outside CERN

- **Preferred** mechanism is via local installation
  - access to /afs/cern.ch possible, but introduces both network and management overhead
- Software will be distributed (initially) ***only*** via the network
  - distribution on CD/DVD being studied for a later date
- As for CERNLIB, sites **must** be registered for access
  - this includes access for a local installation on the CERN site
- **Unlike** CERNLIB, we will maintain registration information in a database

Registration

- External (and internal) sites must register for access to the export directory tree
- In addition, a **contract addendum** must be signed for the commercial components
  - ObjectSpace Internet<ToolKit>
  - Objectivity/DB
  - IRIS Explorer
- The **contract** is between **CERN** and the **supplier**
  - Addendum must be signed by someone with a CERN account
    - has agreed to abide by CERN rules
- Cannot support “partial registration”
  - an “institute” must register for all of LHC++ or none…
    - 500 institutes x all permutations of commercial + HEP s/w unmanageable

The Export Tree

- The LHC++ export tree is /**afs/cern.ch/sw/lhcxx/export**
- Will contain versions for all officially supported platforms
- Access possible by:
  - logging into a CERN machine and ftp-ing (or other) the s/w back
  - ftp-ing into a CERN machine ***(not anonymous)*** …
- klog-ing against the CERN.CH cell only possible from registered nodes/domains and is discouraged
  - must be registered for the contractual reasons discussed above
  - true for CERNLIB today

What is Provided?

- The commercial software as distributed by the vendor
  - so that the vendor installation guide remains valid
    - ObjectSpace Internet<ToolKit> will also be provided in compiled form
- HEP-specific extensions in source and compiled form for a specific combination of products, compilers, operating systems, examples, makefiles etc.
- Documentation (user guides, reference manuals, tutorials)
- ***tar*** files for Unix, ***zip*** files for NT
    - or as provided by supplier

License Forms

- Are available in HTML format from LHC++ Web page
- Print, fill in name of institute & other requested information, FAX or mail back to CERN

Name: Signature: Date:

Institute: CERN Experiment:

- Note that these are addenda to existing CERN contracts
- Not possible to change wording or renegotiate conditions without enormous effort

Extract from Objy Addendum

- It is understood that Objectivity has granted to CERN a right and license to use and distribute the Products within the CERN research program. "Products" means:
  - The Objectivity computer products in object code form only.
  - User documentation.
- The undersigned Collaborator agrees not to engage in, cause or permit the reverse engineering, disassembly, decompilation, or any similar manipulation of the Products, make available the Products to any person or entity outside the collaboration, or copy the documentation.

Status of 98A release

- Hep applications (GEANT-4, event generators etc.)
- Hep Explorer
- IRIS Explorer
- MasterSuite, HepVis, HepInventor
- OpenInventor
- OpenGL
- HepMATH (special functions, minimiser, etc.)
- NAG C library
- CLHEP
- HepODBMS
- Objectivity/DB
- The Standard C++ libraries

Standard C++ Libraries

- Currently using ObjectSpace Internet<ToolKit>
- Also available (STL component) with Objectivity/DB distribution as persistent and transient version
- Need to rebuild transient version with “final” choices of compilers/operating systems
- Need to ensure that the ObjectSpace and Objectivity libraries are compatible
  - both libospace.a
- Basically wysiwyg

Objectivity/DB

- V5 has been released for NT and Solaris
- In addition, we have ordered 25 licenses for the Java binding
- Hope for version for other platforms within one month to permit LHC++ release by the early summer
- Ordering some 100 copies of the revised documentation

HepODBMS

- Existing libraries have been tested with V5 beta and release
- New functionality (collections) still being developed
- Should be available as a prototype/first version for evaluation by 98A release
- Also naming, generic metadata object etc.
- Plan to evaluate BaBar conditions DB as a candidate experiment-independent “calibration database” application

CLHEP

- Changes as proposed by ATLAS/CMS
- Switch to aCC for future versions
  - to be coordinated with existing users including G4
- Comments at next week's meeting from STAR
  - by video

NAG C Library

- Plan to use Mk 4 for 98A release + 1 bug fix
- If Mk 5 comes by June (unlikely) might switch to this version
  - to avoid bug fix, not for any new functionality

GEMINI

- Minimiser class based on URD from Minuit++ working group
- Meets all user requirements
- Select NAG C minimiser or MINUIT at compile time
- Offers MINOS-type error calculation
- Post 98A, will be offered as an IRIS Explorer module
  - can add a new module without “breaking” existing release
  - advantage of modular approach

LHC++ Analysis Environment status

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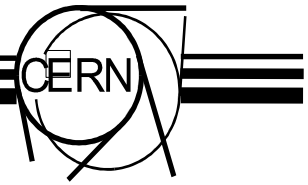

HistOOgram Library

- Current implementation is ‘frozen’ (bug fixing & small modifications allowed, helper classes can be prototyped)

- Current implementation has been ported to
  - ✓ NT 4.0
  - ✓ DEC-UNIX 4.0
  - ✓ AIX 4.2

- Persistent versions available on all platforms
- Transient version on HP, Sun, IBM

HEPInventor improvements

- 1D representations
  - ✓ Statistics on plot
  - – Markers, line type, line width, min/max (mid May)

- 2D representations
  - ✓ Box plot, ellipse plot, color plot
  - ✓ Lego, surface

HEPExplorer modules

- Functional replacement for NT/LOOP
  - over Tag Collections
- Improved graphics modules:
  - ✓ PostScript module: convert an OpenInventor geometry to PostScript
  - Page layout module, zone layout module
    - multiple zones on same page
    - (not implemented yet).
- Optimization survey is going on

IRIS Explorer

- IRIS Explorer ported to:
  - NT 4.0
  - DEC-UNIX 4.0
  - AIX 4.2
- Script language survey still to be done

Submission to LHC++

- Submission of general purpose s/w to LHC++ **encouraged**
- Need procedure for deciding if a submission is appropriate
  - e.g. should be “relevant” to LHC++
    - an event generator presumably is, yet-another-Web-browser presumably isn’t
  - should be of interest to at least one / more than one experiment
    - e.g. s/w developed & used within an experiment or project become more widely adopted (e.g. BaBar calibration DB)
  - should conform to minimum set of standards
    - common subset of experiment specific standards? LHC++? Other?
    - Come with documentation, build procedures (all platforms) and test case?
    - Support issues?
- Develop draft guidelines with experiment contacts & iterate

LHC++ on "unofficial" Platforms

- It is proposed that interested groups (users, institutes, experiments) may wish to build all or parts of LHC++ on "unofficial" platforms
  - e.g. different compiler releases, different operating systems etc.
- Where appropriate, encourage that such versions are shared with the community
  - long standing practice in CERNLIB
- These versions must conform to some minimum standards
  - e.g. test cases must be run, appropriate documentation provided, need agreed
- "Test" or "evaluation" versions are not appropriate for the production LHC++ tree