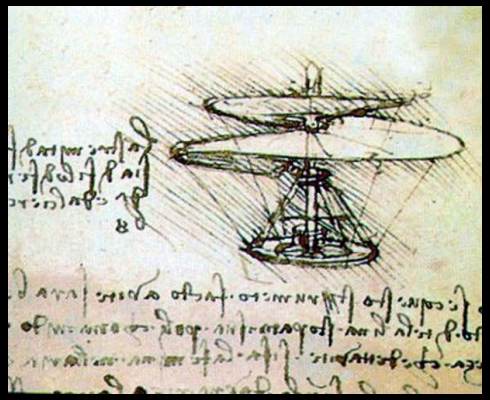

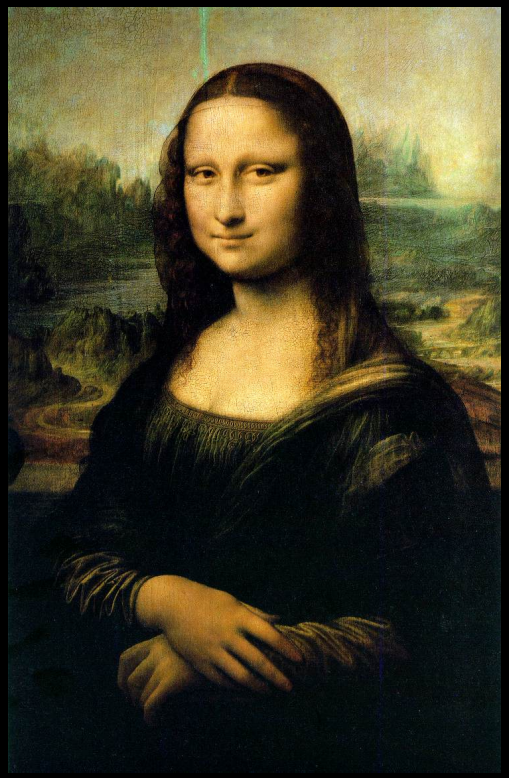

art: recent and upcoming changes.

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Outline

- Highlights of changes between **art** suites `v1_08_10` and `v1_10_00b`
- Changes in `v1_11_00`.
- Other cool items you may have missed.
- **art** workbook plug.
- Other resources.

art v1_08_10 → v1_10_00b

- **art** suite release notes may be found on the **art** Redmine project's main wiki page.
- Release notes for v1_10_00b.
- Note that one should always follow the "Previous version's release notes" link to catch up on changes since the last release you used with your experiment.

art v1_08_10 → v1_10_00b

Particular highlights:

- **GCC** v4_8_2.
- **Geant4** v4_9_6_p02b with patch to fix problem in PENELOPE.
- **Python** v2_7_6.
- Support for OSX Mavericks (since **art** v1_09_03).
- Post-close renaming of histogram files.
- Improve error message for some types of configuration error.
- SAM-related changes and improvements.
- Dealing with large data products:
  `Event::removeCachedProduct()` *etc.*, ROOT buffer flushing.

- **GCC** 4.9.1.
- Uses C++2014 draft standard (`-std=c++1y` with **GCC**).
- New FHiCL syntax!
  - Parameter erasure: **`@erase`**, a fake value causing a parameter to be forgotten. Valid as a parameter value.
  - Sequence expansion: **`@sequence`** causes the referenced sequence to be expanded into the current sequence environment. Valid as a sequence element.
  - Table expansion: **`@table`** causes the elements of the referenced table to be inserted into the current table environment. Valid in table environments (top level, prologs and inside `{ }`).

```
a:
{
  b: 7
  b: @erase
  c: 9
}
a.c: @erase
```

Causes `a.b` and `a.c` to be forgotten.

art v1_08_10b → v1_11_00: @sequence

```
BEGIN_PROLOG
seq: [ 4, 5, 6 ]
END_PROLOG
a: [ 1, 2, 3, @sequence::seq, 7, 8, 9 ]
```

Causes sequence `a` to have the value, `[ 1, 2, 3, 4, 5, 6, 7, 8, 9 ]`.

art v1_08_10b → v1_11_00: @table

```
BEGIN_PROLOG
frag: { c: 5 d: 7 e: 8}
END_PROLOG
a: { @table::frag x: 2}
```

Causes table `a` to have parameters `c`, `d` and `e` (with values as defined in `frag`) in addition to `x`.

art v1_08_10b → v1_11_00

- More efficient persistency of **ParameterSet**: more compact in-file and faster to read back, including delayed parsing of read-in parameter sets until required.
- **Geant4** v4_9_6_p02b.
- **CLHEP** v2_2_0_2.
- **Boost** 1.56.0.
- Other minor updates (**SQLite**, **Intel TBB**, *etc.*).

The art workbook.

- Self-directed study program designed to introduce beginners in HEP programming to **art**.
- Principals: Rob Kutchke and Anne Heavey.
- More experienced people can skip introductory sections and jump straight to the exercises.
- Still under development but already a lot of material to get people started.
- Workbook can be found at: `https://sharepoint.fnal.gov/project/ArtDoc-Pub/SitePages/Home.aspx`
- Tomorrow's session will feature Rob and Anne being available to help people as they work through the material, and receive feedback on the workbook to improve it.

Other resources.

- Mailing lists:
  - art-users@fnal.gov: community help, free signup.
  - artists@fnal.gov: expert help.
  - art-stakeholders@fnal.gov: material related to stakeholder meetings, release planning, issue prioritization.
- The **art** wiki.
- **art** release notes.
- The **art** issue entry interface.
- The **art** workbook.