

# Release Coordinators Report

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Software Infrastructure Tools Session

Atlas Software Workshop at BNL

# Release Schedule (Ancient)

Release 6 [Athens Physics Workshop, HLT Studies]						
6.0.x	28-May-2003	03-Jun-2003	06-Jun-2003	<a href="#">HLT Development</a>	opt	
6.0.4	28-May-2003	03-Jun-2003	06-Jun-2003	<a href="#">HLT Production</a>	dbg,opt	rpm
6.0.3	07-Apr-2003	14-Apr-2003	24-Apr-2003	<a href="#">Athens Physics Release</a>	dbg,opt	rpm
6.0.2	21-Mar-2003	28-Mar-2003	03-Apr-2003	<a href="#">DC1 e/gamma</a>	dbg,opt	rpm
6.0.1	10-Mar-2003	17-Mar-2003	21-Mar-2003	<a href="#">Deprecated</a>	dbg,opt	rpm
6.0.0	11-Feb-2003	18-Feb-2003	03-Mar-2003	<a href="#">Deprecated (last RedHat 6.1)</a>	dbg,opt	rpm
5.3.0	28-Jan-2003	04-Feb-2003	11-Feb-2003	<a href="#">Deprecated</a>	dbg,opt	rpm
Release 5 [DC1 Phase II Reconstruction]						
5.0.0	19-Nov-2002	26-Nov-2002	29-Nov-2002	<a href="#">DC1 Phase II (with ByteStream)</a>	dbg,opt	rpm
4.6.0	05-Nov-2002	12-Nov-2002	15-Nov-2002	<a href="#">Deprecated</a>	dbg,opt	
4.5.0	22-Oct-2002	29-Oct-2002	01-Nov-2002	<a href="#">Deprecated</a>	dbg,opt	
4.4.0	08-Oct-2002	15-Oct-2002	18-Oct-2002	<a href="#">Deprecated</a>	dbg,opt	
4.3.0	17-Sep-2002	24-Sep-2002	27-Sep-2002	<a href="#">Deprecated</a>	dbg,opt	rpm
4.2.0	16-Aug-2002	23-Aug-2002	26-Aug-2002	<a href="#">Deprecated</a>	dbg,opt	
4.1.0	19-Jul-2002	26-Jul-2002	29-Jul-2002	<a href="#">Deprecated</a>	dbg,opt	
Release 4 [DC1 Phase II Production]						
4.0.1	07-Oct-2002	14-Oct-2002	17-Oct-2002	<a href="#">DC1 Phase II Production (Pile-Up)</a>	dbg,opt	rpm
4.0.0	18-Jun-2002	02-Jul-2002	05-Jul-2002	<a href="#">Deprecated</a>	dbg,opt	
3.2.1	29-Jun-2002	05-Jul-2002	08-Jul-2002	<a href="#">DC1 Phase I Production</a>	dbg,opt	rpm
Release 3 [DC0 Production]						
3.0.2	07-Nov-2001	14-Nov-2001	17-Nov-2001	<a href="#">DC0 Production</a>	dbg,opt	
2.4.1	24-Nov-2001	01-Dec-2001	04-Dec-2001	<a href="#">Deprecated (Post-Lund)</a>	dbg,opt	
2.1.1	06-Sep-2001	13-Sep-2001	16-Sep-2001	<a href="#">Lund Physics (First CMT Release)</a>	dbg,opt	
Release 2 [last SRT release]						
2.0.2	27-Jul-2001	02-Aug-2001	05-Aug-2001	<a href="#">Deprecated (last SRT release)</a>	dbg,opt	
Release 1 [Physics TDR]						
1.0.1	19-May-2000	26-May-2000	29-May-2000	<a href="#">Physics TDR</a>	dbg,opt	

<http://atlas.web.cern.ch/Atlas/GROUPS/SOFTWARE/OO/Release/Status/main.html>

# Release Schedule (6.1 → Now)

8.2.0	12-May-2004	22-May-2004		<a href="#">Pending (Developer Release) Basis of CTB Branch</a>		
8.1.0	14-Apr-2004	21-Apr-2004	27-Apr-2004	<a href="#">Developer Release</a>	dbg,opt	pacman without altfast
<b>Release 8 [DC2 &amp; CTB Simulation, Trigger Testbed]</b>						
8.0.3	05-May-2004	17-May-2004	19-May-2004	<a href="#">Nearly DC2 Simulation Release</a>	dbg,opt	pacman
8.0.2	16-Apr-2004	05-May-2004	08-May-2004	<a href="#">Bug Fix Release</a>	dbg,opt	pacman
8.0.1	31-Mar-2004	14-Apr-2004	16-Apr-2004	<a href="#">Bug Fix Release</a>	dbg,opt	pacman
8.0.0	17-Mar-2004	26-Mar-2004	31-Mar-2004	<a href="#">DC2 Simulation Pre-Release</a>	dbg,opt	pacman
7.8.0	10-Mar-2004	17-Mar-2004	19-Mar-2004	<a href="#">Developer Release</a>	dbg,opt	pacman
7.7.0	25-Feb-2004	03-Mar-2004	05-Mar-2004	<a href="#">Developer Release</a>	dbg,opt	pacman
7.6.0	28-Jan-2004	04-Feb-2004	11-Feb-2004	<a href="#">Developer Release</a>	dbg,opt	pacman
7.5.0	07-Jan-2004	14-Jan-2004	17-Jan-2004	<a href="#">DC2 Simulation Pre-Production</a>	dbg,opt	pacman
7.4.0	10-Dec-2003	15-Dec-2003	20-Dec-2003	<a href="#">Developer Release</a>	dbg,opt	pacman
7.3.0	19-Nov-2003	25-Nov-2003	28-Nov-2003	<a href="#">Developer Release</a>	dbg,opt pro	
7.2.0	22-Oct-2003	29-Oct-2003	07-Nov-2003	<a href="#">Developer Release</a>	dbg,opt	
7.1.0	01-Oct-2003	08-Oct-2003	15-Oct-2003	<a href="#">Developer Release</a>	dbg,opt	
<b>Release 7 [Intermediate Release]</b>						
7.0.3	03-Dec-2003	10-Dec-2003	15-Dec-2003	<a href="#">Physics Reconstruction Release</a>	dbg,opt	
7.0.2	14-Oct-2003	21-Oct-2003	23-Oct-2003	<a href="#">Physics Reconstruction Release</a>	dbg,opt	
7.0.1	30-Nov-2003	06-Oct-2003	08-Oct-2003	<a href="#">Deprecated</a>	dbg,opt	
7.0.0	03-Sep-2003	10-Sep-2003	11-Sep-2003	<a href="#">Deprecated</a>	dbg,opt	pacman
6.6.0	13-Aug-2003	20-Aug-2003	21-Aug-2003	<a href="#">Deprecated</a>	dbg,opt	
6.5.0	23-Jul-2003	30-Jul-2003	31-Jul-2003	<a href="#">Deprecated</a>	dbg,opt	rpm
6.4.0	02-Jul-2003	09-Jul-2003	10-Jul-2003	<a href="#">Deprecated</a>	dbg,opt	
6.3.0	11-Jun-2003	18-Jun-2003	20-Jun-2003	<a href="#">Deprecated</a>	dbg,opt	
6.2.0	21-May-2003	28-May-2003	30-May-2003	<a href="#">Deprecated</a>	dbg,opt	
6.1.0	30-Apr-2003	07-May-2003	09-May-2003	<a href="#">Deprecated (First gcc3.2 Release)</a>	dbg,opt	

<http://atlas.web.cern.ch/Atlas/GROUPS/SOFTWARE/OO/Release/Status/main.html>

# Release Schedule (Rest of Year)

Note: The 8.2.x branch for the testbeam is not yet shown on this web page.

Release	Core Deadline	Final Deadline	Release Date	Status	Libs	Dist
<b>Release 10 (08-Dec-2004) [Physics Workshop]</b>						
10.0.0	08-Dec-2004	15-Dec-2004		<a href="#">Pending (Developer Release)</a>		
9.7.0	17-Nov-2004	24-Nov-2004		<a href="#">Pending (Developer Release)</a>		
9.6.0	27-Oct-2004	03-Nov-2004		<a href="#">Pending (Developer Release)</a>		
9.5.0	06-Sep-2004	13-Oct-2004		<a href="#">Pending (Developer Release)</a>		
9.4.0	15-Sep-2004	22-Sep-2004		<a href="#">Pending (Developer Release)</a>		
9.3.0	25-Aug-2004	01-Sep-2004		<a href="#">Pending (Developer Release)</a>		
9.2.0	04-Aug-2004	11-Aug-2004		<a href="#">Pending (Developer Release)</a>		
9.1.0	14-Jul-2004	21-Jul-2004		<a href="#">Pending (Developer Release)</a>		
<b>Release 9 [DC2 &amp; CTB Reconstruction]</b>						
9.0.0	23-Jun-2004	30-Jun-2004		<a href="#">Pending (Debug Release)</a>		
8.3.0	02-Jun-2004	09-Jun-2004		<a href="#">Pending (Developer Release)</a>		
8.2.0	12-May-2004	22-May-2004		<a href="#">Pending (Developer Release)</a> <a href="#">Basis of CTB Branch</a>		
8.1.0	14-Apr-2004	21-Apr-2004	27-Apr-2004	<a href="#">Developer Release</a>	dbg,opt	pacman without alfast
<b>Release 8 [DC2 &amp; CTB Simulation, Trigger Testbed]</b>						
8.0.3	05-May-2004	17-May-2004	19-May-2004	<a href="#">Nearly DC2 Simulation Release</a>	dbg,opt	pacman
8.0.2	16-Apr-2004	05-May-2004	08-May-2004	<a href="#">Bug Fix Release</a>	dbg,opt	pacman
8.0.1	31-Mar-2004	14-Apr-2004	16-Apr-2004	<a href="#">Bug Fix Release</a>	dbg,opt	pacman
8.0.0	17-Mar-2004	26-Mar-2004	31-Mar-2004	<a href="#">DC2 Simulation Pre-Release</a>	dbg,opt	pacman
7.8.0	10-Mar-2004	17-Mar-2004	19-Mar-2004	<a href="#">Developer Release</a>	dbg,opt	pacman

<http://atlas.web.cern.ch/Atlas/GROUPS/SOFTWARE/OO/Release/Status/main.html>

# Release Plan

- The release plan reflects the four communities (physics/offline, DC2, CTB, and HLT) using CVS.
  - 8.x.0 is for the full detector offline reconstruction.
    - Current release in this branch is 8.2.0 (building started Saturday).
  - 8.0.x is for DC2 simulation, digitization, and pile-up.
    - Currently 8.0.3 is built and being validated.
    - 8.0.4 will open soon in case problems are found.
    - 8.0.x has been used for HLT testbed work and for some CTB work.
  - 8.2.x is for the CTB software.
    - 8.2.1 will open soon.
  - An extension of 8.0.x not in the tag collector will be used for further HLT trigger testbed work.
- Balancing the disparate needs of these groups has been tricky.

# Current Release Status

- 8.0.3 - Built last Monday May 19th.
  - Generally pretty close to final for DC2.
    - Generators are good.
    - Simulation looks good.
    - Pile-up usable but needs further testing.
    - 8.0.4 opens tomorrow (Tuesday).
- 8.2.0 - Built on Saturday May 22nd.
  - Initial feedback spotted one important problem.
    - One post-build bug fix for IOVDbSvc is in.
    - Still possible to patch problems until kit is built.
    - 8.3.0 opens later in week once release is fully validated and kit is built.

# Comments on Closing/Building

- People have been doing much better about closing.
  - A constant barrage of reminder emails helps this.
- Typically what slows building the release are badly closed containers, errors in requirement files, and other technical problems not tested by the nightly.
  - There are cases where the tag collector apparently fails to catch requirement file problems.
    - In particular, branch releases (i.e. production releases) are not checked by the current tag collector (this is fixed by the new tag collector).
  - AFS problems have also contributed to building problems.
  - Once in a while an actual code problem must be fixed after the initial build but the two day “cooling-off” seems to help.
- The procedures for patching a release after the initial build are improved but more debugging is needed.

# Argument List Too Long Problem

- A problem of special note is the problem of having too long of an argument list on gcc or ld when building a package.
  - The problem is caused by the large number of libraries used to link certain packages.
    - Situation is exacerbated by the long path needed to specify the location of the libraries.
  - Several work-arounds have been found:
    - Switching shells (bash is the best?)
    - Using a softlink in place of the full path to the libraries.
    - Removing unneeded use statements from requirements files.
- A reasonable question to ask is “Do we need to reconsider our current design?” that leads to there being at least one library per package.

# Code Approval Process

- To speed convergence to a final DC2 code version, an approval process for putting code into the 8.0.x has been introduced.
  - Developers send requests to the tag approval mailing list ([atlas-sw-tagapprove@cern.ch](mailto:atlas-sw-tagapprove@cern.ch)). The tag approval committee can veto inclusion of code (has not happened).
    - Requested tags are to be bug fixes for DC2 simulation.
    - Bug fixes for the CTB and HLT work are also permitted.
    - New features are strongly discouraged.
- The tag collector is put into the container tag only mode for the last two days before all releases.
  - Last minute changes go through the Architect and Release Coordinator so it is known where problems are likely to be,
  - Encourages timely closing of containers (still problematic).

# Comments on Code Approval

- Positive:
  - Approval process created “back-pressure”.
    - Seemed to discourage people from submitting non-bug fix changes.
  - Kept us well informed about what was being changed
  - Lead to good cooperation with validation folks
- Negative
  - Process is too “heavy-weight” for some.
  - Occasional confusion about who should be collecting.
  - Occasionally dropped tag requests (~1 or 2 per release).
    - Emails and a webpage allowed the developers confirm approval.
  - Even with it, several hundred tags were submitted...
- Open to suggestions for improvements to this.
  - BUT IMHO the two day “cooling off” period is essential.

# Comment on Shared Responsibilities

- Many packages have multiple authors.
  - This makes knowing who to contact when a package fails to build difficult.
    - In addition the tag collector currently uses a single account (atlas/insider) to submit tags. Therefore there is not record of who collected the code creating a real problem in my opinion.
    - It is planned that the new tag collector will have individual accounts (using the CERN AFS user name and password would be ideal).
  - In addition, some subsystems are organized so that a manager and not the true developer interacts with the release coordinator.
    - I prefer a situation where the actual person writing the code, commits, tags, and collects (with approval from subsystem management).
- I believe that we should think about the proper way to treat shared packages.

# When is the next release?

- Answer: NOW - no matter when now is!
- Since March, 5th when Steve Goldfarb taught me how to build releases using 7.7.0, there have been 7(!) releases (7,8.0, 8.0.0, 8.1.0, 8.2.0, 8.0.1, 8.0.2, 8.0.3) in 82 days (12 weeks).
  - For 8.0.1, 8.0.2, and 8.0.3, the full tag approval was used.
- IMHO this pace is not sustainable.
  - There is substantial risk in maintaining the 8.2.x branch.
    - Insufficient personal - people are burning out.
    - Confusion as to which release a tag should go into.

# Sharing the Work

- During my tenure (and most of Steve's) the librarian position was vacant.
  - This puts extra work on the release coordinator...
    - Scripts for building the release work greatly.
  - BUT it also ensures the person building is intimately familiar with the potential sources of trouble.
  - It is my recommendation that the librarian work very closely with the Release Coordinator and Chief Architect.
    - While the large number of duties assigned to the librarian preclude the librarian from being the release coordinator, it would actually be sensible to ask the the new librarian to do the release coordination.
- It would be sensible to have a co-release coordinators: one in N. America and one in Europe.
  - This would provide around the clock coverage and backup.

# Need Good Support & Infrastructure

- As we get closer to ATLAS startup, the need for support from the various communities contributing software increases. This is particularly true for groups contributing to the software infrastructure.
  - Since releases are built on the weekends and the evenings there is a need for contact information for experts from every group is urgent (my opinion).
  - There are a number of places where a single failure shuts down everything:
    - For example the tag collector.
    - Possibly the CVS repository also (thought BNL does provide backup).
  - AFS problems at CERN continue to dog us occasionally.
- When things go wrong and a release is delayed potentially hundreds of people go into a wait state.

# Checkreq, Testing, etc.

- Please, please, please pay attention to checkreq.
  - It is quite painful to chase errors during a build that were already detected by checkreq.
  - Jakob is willing to revise checkreq to stop spurious warnings.
    - Usually a spurious warning occurs in a package that does not adhere to the recommended Atlas software package organization.
- Most of the testing packages fail every night.
  - This is unacceptable - there is no point in testing if tests nearly always fail because people ignore the warnings.
- Doxygen continues to fail to build for certain packages and fails to generate a top level web page.
- Please make meaningful comments when committing code and collecting tags.

## Other Items of Note

- Finally got the CVS repository out from under Helge's desk and onto AFS.
  - This seems to have gone very well. There were a few minor problems (all solved) but the CERN CVS group & Helge did a great job in setting up the transfer to the new repository.
- CERN has supplied us with two new, fast big memory machines for building the nightlies and releases.
  - The new machines are a tremendous win in terms of having the nightlies ready before people go home at CERN.
- The kit building scripts are now working and on the fast machines it only takes about four hours to build a kit once the release is ready.

# Acknowledgements

- I would be remiss if I did not thank Steve Goldfarb for all of his support in training me to do the work and especially for providing me with a nice set of scripts (based on Steve O'Neale's original scripts) for handling the mechanics of building the release.
- I also thank David Quarrie for watching over things when I was traveling and Davide Costanzo for help with filtering through all of the submitted tags.

# A Final Comment

- We need to treat the ATLAS software like it is a commercial piece of software.
  - The days of staying up all night and doing a total rewrite of the code should be over.
  - Ed Moyses has suggested at the cooling-off period before a release build should be a week and not just two days.
    - I agree with this...
  - Developers of core packages must be careful to fully validate their packages - lots of packages are depending on core.
    - It is not enough to toss it in the nightly and see that it compiles.
- We are entering the production era...