

# Preamble: Code Referencing

- Code Referencing is a vital service to cope with 7 million lines of ATLAS code. It is provided by U.S. ATLAS Tier I Center (BNL)
- OpenGrok (OG) server is put in production at <http://alxr.usatlas.bnl.gov/og>
  - Projected to replace LXR service
  - Faster and more modern Java-based tool
  - Shows matching lines explicitly while LXR shows a line number
  - Currently OG service covers 16.0.0 – 16.3.0 releases
- OG tested extensively at CERN (J2EE service) and BNL
  - Rare memory problems at CERN (“java heap space” overflow)
  - There is no mechanism for addition of software versions
- Plans
  - Keep LXR until the end of 2011
  - Provide OG service for stable 16.X.Y releases
  - Move the nightly releases service from LXR to OG in spring 2011

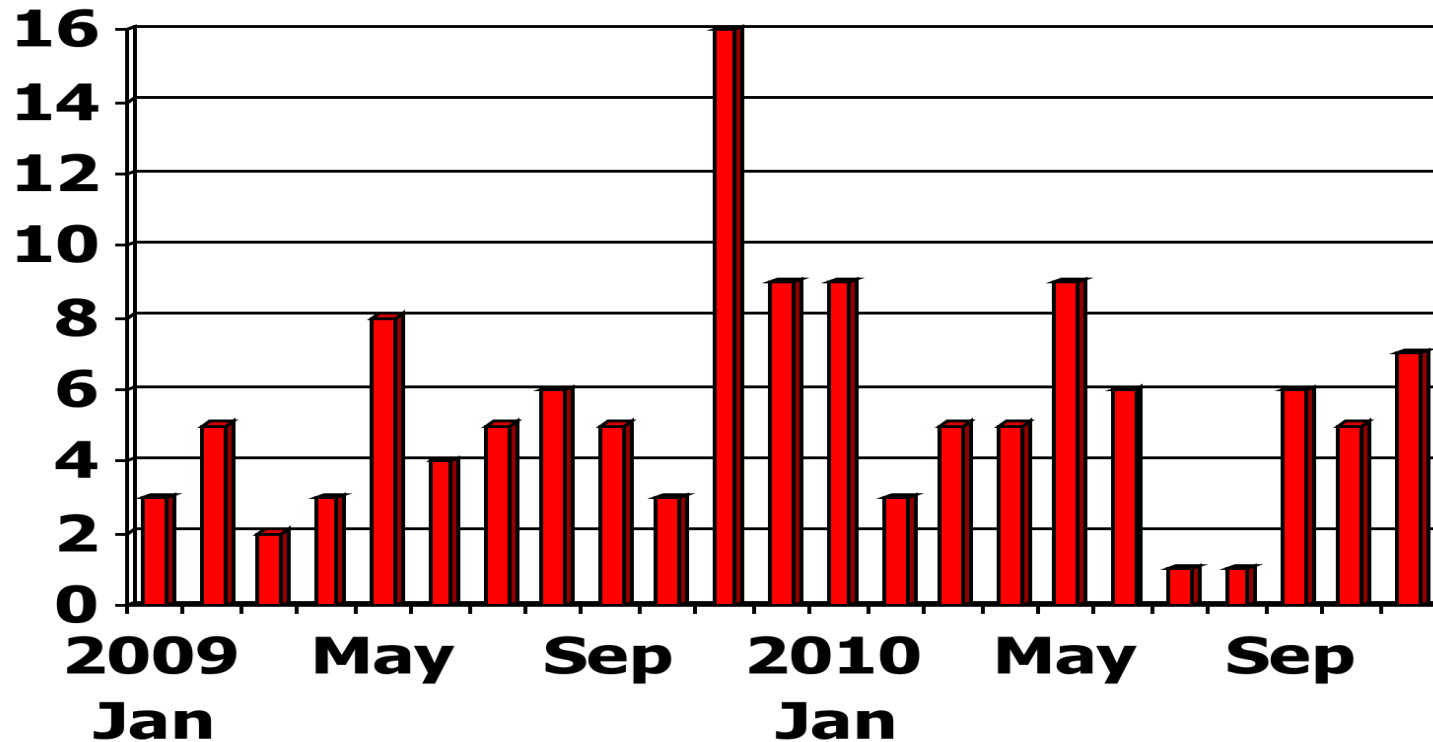
# Nightly Builds: NEWS

- 47 branches, 65 platforms *(41/53 4 months ago)*
  - “Heavy ion” (16.2.X) and “Upgrade studies” (16.4.X) nightlies were started
  - Computing farm (43 machines) works at full capacity
  - Excellent stability of the Nightly System
    - Under surveillance 20 hours a day (by me and release shifters)
  - High level of success of ATN tests (90% or more) for major nightlies
  - Progress in MAC nightlies
  - For each new “full” nightly platform requested we need new machine
  - 8 old machines (4-proc., 8GB) must be replaced
  - Nightly builds on VM are planned (4 VM machines are ordered)
  - The first stage of ATLAS Installation and Nightly Systems completed

# GAUDI in Nightlies

- GAUDI is now fully supported in the Nightly System
  - GAUDI complies to LHCb policy
  - Different SVN structure
  - Different options in cmt/project.cmt
  - GAUDIRelease package is absent in the repository, generated by in a nightly job
- GAUDI is now included in development nightlies
- Problems:
  - Use statements in GAUDI packages have versions in “v” format (vXXpYYrZZ) while the TC versions are in the standard ATLAS format (\*-XX-YY-ZZ)
  - Ambiguity: GAUDIRelease (generated by a nightly job) with ATLAS versions and GaudiRelease (part of GAUDI) with “v” versions

# Stability of the Nightlies



■ Number of accidents (unrecoverable)

# Nightlies and AFS

- Nightly jobs relies on AFS:
  - Synchronization via AFS-based stamps
  - External (e.g. LCG) software is on AFS
  - NICOS scripts are on AFS (never caused a problem)
  - Although nightlies are build and tested on local disk they need to be installed on AFS (from AFS-based kits)
- The AFS areas used by nightlies are located on random volumes
  - Important for nightlies areas are co-located with ATLAS releases areas
  - It is possible to co-locate new volume with existing volumes
  - AFS servers are doing space balancing behind scenes and volumes can be moved to other servers
- Several recent accidents when ATLAS nightly jobs were slowed down by a factor of 100 for up to 10 hours
  - The blame is on production jobs that use RW volumes
  - Proposal: restrict access to ATLAS releases in "builds" areas on RW volumes when exactly the same releases are in RO "releases" area
  - Nightly releases are located on RW volumes and should NOT be used in production jobs

# Tag Collector updates for Nightlies

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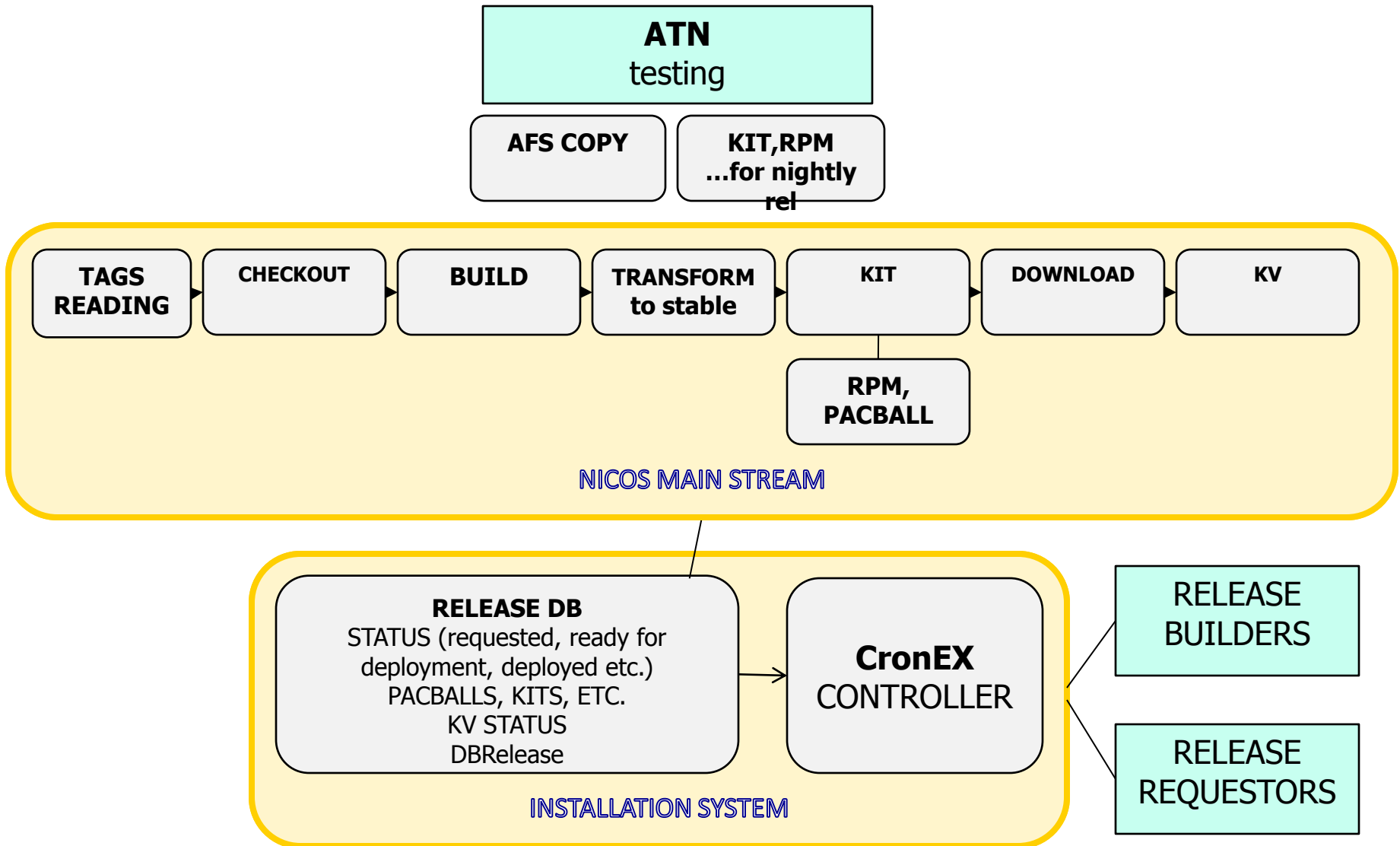
- Managers of a parent container package are notified about problems if the managers list of the a child package is empty
- Tag Collector is now able to retrieve the nightly start time from NICOS AMI Database (for tag approval policy enforcement)
  - Non-trivial operation because the TC needs to find the nightly name corresponding to the TC release tag
- All Tag Collector requests were implemented promptly! Many thanks to the Tag Collector Team!

# New Major Version of NICOS (Nightly Control System)

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- Many new features discussed at the June's Nightly Workshop were implemented
- Modified NICOS design with the focus on the final product quality (validated distribution kit)
  - Separate processing for kit and rpm builds
  - Web pages provide more details on kits, downloads, validation
- Integration with ATLAS Installation System (manager Alessandro De Salvo)
  - NICOS is interfaced with the Release DB
  - Automatic local and external KV tests for selected nightly caches
  - Status of KV tests are on NICOS pages and Release DB interface
  - KV Information is also posted on CronEX
- Nightly job creates prototype of the numbered release (including kit, rpm, pacball, and kit download)

# Updated NICOS Design





# Release DB

(of ATLAS Installation System, Alessandro De Salvo)

ATLAS R

rele

All numbered candidates from recent nightly releases

Rerun with updated DBRelease is possible

KV local and external status, link to external KV logs

Release name	Status	Mode	Nightly name	Nightly release	AFS date	DB release	Stability	KV local status	KV external status	KV external date	KV external logs
16.0.2.6	production	std	16.0.X.Y-Prod	rel_5	2010-11-19 05:17:46	13.1.1	UNDEFINED	DONE	DONE	2010-11-19 11:55:38	<a href="#">KV logs</a>
16.0.2.6	production	val	16.0.X.Y-VAL-Prod	rel_5	2010-11-19 03:15:55	13.1.1	UNDEFINED	DONE	DONE	2010-11-19 09:10:49	<a href="#">KV logs</a>
16.0.2.7	production	val	16.0.X.Y-VAL-Prod	rel_2	2010-11-23 03:13:26	13.1.1	UNDEFINED	DONE	FAILED	2010-11-23 07:49:43	<a href="#">KV logs</a>
16.0.2.7	production	std	16.0.X.Y-Prod	rel_2	2010-11-23 05:16:07	13.1.1	UNDEFINED	DONE	DONE	2010-11-23 13:12:23	<a href="#">KV logs</a>
16.0.2.8	production	std	16.0.X.Y-Prod	rel_4	2010-11-25 06:23:06	13.1.1	UNDEFINED	DONE	DONE	2010-11-25 12:36:48	<a href="#">KV logs</a>
16.0.2.8	production	val	16.0.X.Y-VAL-Prod	rel_4	2010-11-25 03:36:17	13.1.1	UNDEFINED	DONE	DONE	2010-11-25 09:46:55	<a href="#">KV logs</a>
16.0.3.1	production	std	16.0.X.Y-Prod	rel_3	2010-11-30 23:19:10	13.2.1	UNDEFINED	DONE	DONE	2010-12-01 05:47:30	<a href="#">KV logs</a>
16.0.3.1	production	val	16.0.X.Y-VAL-Prod	rel_3	2010-11-30 22:24:36	13.2.1	UNDEFINED	DONE	DONE	2010-12-01 03:54:02	<a href="#">KV logs</a>
16.2.0.7	production	std	16.2.X.Y-Prod	rel_0	2010-11-21 02:01:58	13.1.1	UNDEFINED	FAILED	DONE	2010-11-21 07:22:42	<a href="#">KV logs</a>

# CronEX Controller

*CronEX*

CronEX KV Release viewer

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Request validation of

version

mode

architecture

physical path

logical path

DB release

Cache URL

Simple KV re-validation form

Request validation

All numbered candidates AND final stable releases

Project	Release	Mode	Architecture	Physical Path	Logical Path	DB Release
AtlasProduction	16.2.1.4	std		/storage/data1/atlas/prod/std/releases/rel_16-5	/storage/data1/atlas/software/std/16.2.1	13.2.1
AtlasProduction	16.2.1.3	prd		/storage/data1/atlas/prod/releases/rel_16-5	/storage/data1/atlas/software/16.2.1	13.2.1
AtlasProduction	16.0.3.1	std	i686-slc5-gcc43-opt	/storage/data1/atlas/prod/std/releases/rel_16-6	/storage/data1/atlas/software/std/16.0.3	13.2.1
AtlasProduction	16.0.3.1	val	i686-slc5-gcc43-opt	/storage/data1/atlas/prod/val/releases/rel_16-6	/storage/data1/atlas/software/val/16.0.3	13.2.1
AtlasOffline	16.0.3	val	i686-slc5-gcc43-opt	/storage/data1/atlas/prod/val/releases/rel_16-6	/storage/data1/atlas/software/val/16.0.3	13.1.1
AtlasOffline	16.0.3	std	i686-slc5-gcc43-opt	/storage/data1/atlas/prod/std/releases/rel_16-6	/storage/data1/atlas/software/std/16.0.3	13.1.1
AtlasOffline	16.0.3	prd	i686-slc5-gcc43-opt	/storage/data1/atlas/prod/releases/rel_16-6	/storage/data1/atlas/software/16.0.3	13.1.1

# Project: Nightlies as a Release Shifter Helper

- Nightly job prepares a numbered release candidate
  - If not needed, the next job destroys old candidate
- Automatic release termination and opening (script provided by Fabian)
- Direct download of numbered release candidates to AFS "releases" area
  - Currently downloads go to the replica of "releases" area:  
*/afs/cern.ch/atlas/software/releases-nightly[-val]*
- Candidate Pacball is created and committed to dq2
  - Currently pacball is created but not committed (see next slide)
  - Candidate releases are not distributed over Grid
- NICOS documentation for the numbered candidate release is created by a nightly job (to be done)
- Automatic update of release status page (to be done)
- Automatic KV [re-]validation (under development)

# Issues: Nightlies as a Release Shifter Helper

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- High reliability is required
  - Long testing period
- Ambiguity of non-val and val releases
  - Ideally either non-val or val branch has to be preselected for the preparation of numbered candidates
- KV requires the base release co-located with patch releases: a problem for a local KV runs
  - Currently KV runs only in 16.0.X.Y[-VAL] nightlies
- Concept of release candidates does not fit in dq2 system
  - The creation of pacball dataset involves copying to Castor and registration of files and datasets in catalogs
  - No option is provided for dataset removal
  - It is possible to register a new release candidate with incremented version
  - Pacball installation on the GRID is triggered by email generated by the pacball commit script. Special caution is needed to avoid installation of unwanted candidates (tests with pacball commit scripts created substantial problems when unwanted release was distributed)

# Status of ATN testing framework

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- ATN was significantly updated (in sync with NICOS update)
  - Use of third party testing tool QMTest is eliminated
  - Improved parallel testing streams support
    - Number of testing streams is a parameter in NICOS AMI Database (varies from 3 to 7 for different nightlies)
    - More intelligent assignment of tests to streams
- Total number of ATN tests in development nightlies reached 411 (was 351 in December 2009)
- ATN test results are usually available by 10:00 for major nightlies (more time is needed for debug platforms)