



Optimizing production workflow

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Path to production

- Luckily, we have reached a point where productions will become more frequent, and more mission-critical
- We need a clearly established path to be followed in order to ensure good-quality results
- Idea could be to identify a set of steps to be taken, with explicit sign-off by relevant contacts
- Trac milestones could be used to track/document/bookkeep/archive the process
- Will show in the following a preliminary list of tasks, based on experience from past productions

Path to production: 1

- software preparation/validation:
 - feature-freeze: a sensible amount of time before production, production software needs to go into feature freeze. only critical bugfixes can be accepted
 - memory leaks should be assessed, and either fixed or declared tolerable. **Explicit sign-off required.**
 - estimate the expected CPU time per job, and the total disk space needed. **Explicit sign-off required.**
- release validation:
 - productions should be run on releases (+patches)
 - after a release is built, the software validation needs to be repeated on it. **Explicit sign-off required.**
 - release deployment: if distributed resources are used, some level of release validation needs to be available on remote sites as well. **Explicit sign-off required.**

Path to production: 2

- automation of software/release validation is highly desirable. In lack of an automatic test, however, validation **MUST** be carried-on anyway. By hand, if necessary. Without explicit sign-off, no productions should start.
- pre-production: a (possibly small) fraction of the total events needs to be produced before launching the production. feedback from the pre-production must to be twofold:
 - software-oriented: job crash rate, memory/CPUtime requirements, disk space requirements, further check on memory leaks. It is foreseeable that rare problems would be spotted only at this stage, being unobservable on the smallest scale validation. Hopefully, though, these will tend to be tolerable. In the worst case, patches must be provided. **Explicit sign-off required.**
 - physics oriented: compliance of physics results with production motivation. Concerning patches, same considerations as above apply. We need to define a few key plots to be looked at, and to identify contact persons (at the very least one per subdetector). **Explicit sign-off required.**



Path to production: example

2011 Prod: 3. pre-production (2 matches)

Ticket	Summary	Component	Status	Resolution	Version	Type	Priority	Owner	Modified
#6	Runtime performance ok	component1	new	None		task	major	somebody	05/27/11
#7	Physics results ok	component1	new	None		task	major	somebody	05/27/11

2011 Prod: 2. Release validation (2 matches)

Ticket	Summary	Component	Status	Resolution	Version	Type	Priority	Owner	Modified
#4	Release validated	component1	new	None		task	major	somebody	05/27/11
#5	Remote sites validated	component1	new	None		task	major	somebody	05/27/11

2011 Prod: 1. Software preparation (3 matches)

Ticket	Summary	Component	Status	Resolution	Version	Type	Priority	Owner	Modified
#3	Resources estimate	component1	new	None		task	major	somebody	05/27/11
#2	Software quality ok	component1	closed	fixed		task	major	somebody	05/27/11
#1	Feature Freeze	component1	closed	fixed		task	major	somebody	05/27/11

- Example of workflow mapping into our trac system
- Better options may be available on the market, but the message is that it takes five minutes to setup

Path to production: comments

- Discussed briefly with some other collaborators, and consensus was reached that this could be a good starting point
- Your first reaction may be that this takes too much time, and production results tend to be needed ASAP
 - Of course exceptions can be made
 - However, recent experience showed that performing incomplete validation to gain time actually results in time being lost
 - Problems don't disappear just because you don't have time to look into them
- I propose to start experimenting this workflow during next production round
 - Needs some level of enforcement (and tolerance) by all of us