
Ship It!

CSE 403, Winter 2006
Software Engineering

<http://www.cs.washington.edu/education/courses/403/06wi/>

Readings and References

- References
 - » Release Engineering Information, FreeBSD
 - <http://www.freebsd.org/releng/index.html>
 - <http://www.freebsd.org/releases/6.1R/schedule.html>

Rules about breaking the build

- Rule 1: Never ever break the build
- Rule 2: If you do break the build, fix it immediately and beg for forgiveness
- Rule 3: Don't change other people's files without their permission
- Rule 4: The closer one gets to the finish line the more important rule one becomes
- Rule 5: Don't make superfluous last minute changes
- Rule 6: Whenever in doubt, see rule 1

Consequences of breaking the build

- Increases development cost
- Adds risk to the project
- Undermines group synergy
- Personally you may
 - » Have your name published widely within the company
 - » Receive 2:00 AM phone calls
 - » Wear the goat horns
 - » Pay \$ into the build lab's refreshment / antacid fund

Some ways to avoid breaking the build

- Do a clean build and run all the tests
 - Buddy builds
 - Have your changes reviewed
 - Develop using separate development trees
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- Do what's right by you and your teammates

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Why is it so important not to break?

- Lots of other people are making decisions and schedule commitments
 - » The software is growing up and moving away from the development team
- Many of the dates were almost random when initially picked
 - » But changing them now is very expensive, very inconvenient, and very embarrassing

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Release Engineering Information

FreeBSD CVS Branches

Code-Freeze Status

The following table lists the code freeze status for the major branches of the `src/` subtree of the FreeBSD CVS repository. Commits to any branch listed as "frozen" must first be reviewed and approved by the relevant contact party. The status of other subtrees such as `ports/`, `doc/`, and `www/` is also provided below.

Branch	Status	Contact	Notes
HEAD	Open	committers	Active development branch for -CURRENT.
RELENG_6	Frozen	re@FreeBSD.org	Development branch for 6-STABLE.
RELENG_6_0	Frozen	security-officer@FreeBSD.org	FreeBSD 6.0 supported errata fix branch
RELENG_5	Frozen	re@FreeBSD.org	Development branch for 5-STABLE.
RELENG_5_4	Frozen	security-officer@FreeBSD.org	FreeBSD 5.4 supported errata fix branch (errata policy)
RELENG_5_3	Frozen	security-officer@FreeBSD.org	FreeBSD 5.3 supported errata fix branch (errata policy)
RELENG_5_2	Frozen	security-officer@FreeBSD.org	FreeBSD 5.2 / 5.2.1 security fix branch (not officially supported).
RELENG_5_1	Frozen	security-officer@FreeBSD.org	FreeBSD 5.1 security fix branch (not officially supported).
RELENG_5_0	Frozen	security-officer@FreeBSD.org	FreeBSD 5.0 security fix branch (not officially supported).
RELENG_4	Open	committers	Development branch for 4-STABLE.
RELENG_4_11	Frozen	security-officer@FreeBSD.org	FreeBSD 4.11 supported errata fix branch (errata policy)

FreeBSD 6.1 Release Process

FreeBSD 6.1 Release Process

Introduction

This is a specific schedule for the release of FreeBSD 6.1. For more general information about the release engineering process, please see the [Release Engineering](#) section of the web site.

General discussions about the release engineering process or quality assurance issues should be sent to the public freebsd-ga mailing list. [RFC](#) requests should be sent to re@FreeBSD.org.

Schedule

Action	Expected	Actual	Description
Reminder announcement	--	25 January 2006	Release Engineers send announcement email to developers with a rough schedule for the FreeBSD 6.1 release.
Code freeze begins	31 January 2006	31 January 2006	After this date, all commits to HEAD must be approved by re@FreeBSD.org . Certain highly active documentation committers are exempt from this rule for routine man page / release note updates. Heads-up emails should be sent to the developers, as well as stable@ and qa@ lists.
Announce the Ports Freeze	--	5 February 2006	Someone from ports@ should email freebsd-ports@ to set a date for the week-long ports freeze and tagging of the ports tree.
Begin 6.1-BETA1 builds	5 February 2006	5 February 2006	Begin building the first public test release build for all Tier-1 platforms.
Release 6.1-BETA1	5 February 2006	5 February 2006	6.1-BETA1 tier-1 platform images built, released, and uploaded to ftp-master.FreeBSD.org .
Begin 6.1-BETA2 builds	19 February 2006	16 February 2006	Begin building the second public test release build for all Tier-1 platforms.
Release 6.1-BETA2	19 February 2006	20 February 2006	6.1-BETA2 tier-1 platform images built, released, and uploaded to ftp-master.FreeBSD.org .
Ports tree frozen	20 February 2006	--	Only approved commits will be permitted to the <code>ports/</code> tree during the freeze.

Is it ready to ship?

- Who decides when it is ready to ship?
 - » The developer?
 - » The customer?
 - » The managers?
 - » The executive?
- What factors are involved in the decision?
 - » Is the software ready?
 - » Do we need the revenue?
 - » Is there an external factor that is setting the completion date?

It's not just the software ...

- Development and testing plays a big role in getting the product ready, but there is also...
- Documentation
- Manufacturing
- Sales and marketing
- Support and more

Does it meet the requirements?

- Is the quality sufficient for the customer
 - » PC mentality
 - » Mission critical systems
 - » Financial, medical, imbedded systems in planes, factories, safety critical equipment

Is the software ready and tested?

- What are the remaining bugs like?
 - » Are there showstopper bugs (i.e., bugs that you cannot ship knowing they are in the product)
 - » What is the cost of keeping a known bug in the product
 - Is it an obscure bug
 - Are there easy workarounds for the bug
 - Is the product “bug free”

Is the software ready and tested?

- In house testing
 - » Is the daily pass rate acceptable? The definition of acceptable open to discussion.
 - » Has it successfully run through its validation suite?
 - » Is everyone happy with the product?
- Off-site testing through release candidates
 - » Are the beta customers satisfied?
- Is the product stable enough for its intended market?
- What do we do when we stop finding bugs?

Documentation done and accurate?

- Is manufacturing ready for the release?
 - » There is physical manufacturing and shipping of the release media and documentation
 - » Filling the distribution channel
 - » Even with internet distribution there needs to be well planned capacity
- Is product support ready?
 - » Whether the support is “on-site”, “9 to 5”, “24 / 7”, “phone”, or “mail only”, the support staff needs to be trained and have adequate communication capacity.
- Is sales and marketing ready?

Customer ready?

- A lot of this depends on the type of customer
 - » The shrink warp market
 - » ISV – More technically savvy than the regular shrink wrapped market, however also less tolerant of stupid errors
 - » IHV – They have a different set of issues from ISV including automated setup and installation, and customization support
 - » Contract work – Various levels from delivering an entire turnkey system to only a small component that the buyer will integrate.
 - » Internal customer group

Ship mode

- In the Windows NT group, this was called “showstopper mode” or the “death march” a rather macabre term, but also rather accurate
- All source changes must be reviewed and approved. It must be for a specific showstopper bug. Bugs are recorded in a bug database called “raid”. Sometimes kept an open showstopper bug active just to check-in more “fixes”
- Daily builds and stress runs (yes, seven days a week including most holidays)

A typical day near the end

- 5 AM results are starting to be gathered for the previous night stress run
- 7 AM release of the previous nights stress results.
Developers then have until noon or so to debug all the crashed machines. Sometimes you need to keep the machine a lot longer.
- 8 AM meeting of the development team managers looking at the nightly stress results and new bugs review (they decide which bugs need to be fixed, and when to ship the product). Near the very end this becomes a twice a day meeting
- 10 AM to 3 PM the build lab is willing to accept any bug fixes for approved showstopper bugs
- 5 PM dinner is served
- 6 PM the next build is released and everyone installs the new system and starts up stress, and those with showstopper bugs continue to work.

Finally

- When it is finally decided to ship the product then the bits go into escrow as the golden media is produced and manufacturing starts ramping up. Testing continues and if necessary the bits can be recalled from escrow and the release done over again.
- Work continues on the subsequent release for the various server editions and international language versions.

Ancillary issues

- Media hype
 - » Setting expectations
 - » Beta previews
 - » Getting beta customer testimonials might be important
- Competitive pressure
 - » Market share before quality
 - » First one defines the market and grabs market share even with junk
 - » The followers often play catch-up with mixed success (unless you are a monopoly)

More issues

- Timing the release
- When do we get paid and are we ready for the IPO?
- Major release vs. minor release
 - » Big delta or small delta
 - » Customer perception based on version number
 - Word 1.0 for Windows
 - Word 1.1 for Windows
 - Word 2.0 for Windows
 - Word 6.0 for Windows
 - Word 95/97
 - Word 2002
 - » Some IHV contracts are based on version number
- Where to have the ship party