LLVM RELEASE
PROCESS
Order out of chaos
TOBIAS HIETA

Ubisoft

Toolchain Maintainer

Release Manager
• Why make releases?
• How do we make a Release?
• How to get involved.
• How to improve the process.
WHY MAKE RELEASES?

• Why not just develop and integrate at HEAD?
• Releases takes focus away from development
• “We” already integrate it daily/weekly
LLVM Development is happening at a furious pace.

- 100-150 commits / day
- ~17000 commits / release
- API breaks
We need to provide a stable point for integrators

- Distributions
- Vendors
- Third-party development
- Focus points
Deprecations can be helped by releases
Easier communication about changes
Provide “points of break”
RELEASE MANAGERS

- Shepherd the release
- Triage issues
- Communicate with the community
- Improve the release workflow

and … a lot of nagging.
TOM STELLARD, REDHAT

Even releases (14, 16, 18)

TOBIAS HIETA

Odd releases (15, 17, 19)
2 releases per year, 6 months apart

Even releases:
4th Tuesday of January

Odd Releases:
4th Tuesday of July
PLAN, MEET REALITY
Like a clock
RELEASE TESTING

10+ GitHub Actions

Release Testers

The Community
Issue created -> Added to Milestone (Release 16.x) -> Added to Project (LLVM Release)

Fix uploaded to Phabricator -> Fix approved in Phabricator -> Fix merged to main

/cherry-pick <sha> -> PR created by Action -> PR approved

PR Merged -> Done, issue closed
WHAT WE APPROVE

ALWAYS

Regressions, Crash fixes

EARLY RC

Optimization, Finish Features

POST RELEASE

Safe fixes, ABI/API compatible
NO HARD RULES!
The Release Manager decides!
But we usually work with the code owners to find the best solution to each issue.
## LLVM Release Status

### Needs Fix

<table>
<thead>
<tr>
<th>Title</th>
<th>Assignees</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Checkmark] [OpenMP] slow linking and huge memory consumption on AMDGPU #60494</td>
<td>jdoerft and jhuber6</td>
<td>Needs Fix</td>
</tr>
<tr>
<td>![Checkmark] dependent projects fail to build with cmake 3.25 and llvm 16-rc4 #61436</td>
<td></td>
<td>Needs Fix</td>
</tr>
<tr>
<td>![Checkmark] perl print_long_double test fails on ppc64le with -mabi=ieee-longdouble #61913</td>
<td></td>
<td>Needs Fix</td>
</tr>
<tr>
<td>![Checkmark] Cannot represent a difference across sections due to debuginfo #61932</td>
<td>DianQK</td>
<td>Needs Fix</td>
</tr>
</tbody>
</table>

### Needs Review

<table>
<thead>
<tr>
<th>Title</th>
<th>Assignee</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Checkmark] Regression with -D_FORTIFY_SOURCE=2 #61691</td>
<td>serge-sans-paille</td>
<td>Needs Review</td>
</tr>
<tr>
<td>![Checkmark] Cherry-pick fix for crash in ASTWriter / Bad construction of ConceptSpecializationExpr ... #61801</td>
<td></td>
<td>Needs Review</td>
</tr>
<tr>
<td>![Checkmark] Merge a78816a6b6deb548efbf1717aeeb490df42f401 into 16.0.X #62077</td>
<td></td>
<td>Needs Review</td>
</tr>
</tbody>
</table>
cherry-pick fc494dffa54 to release/16.x #62119

nickdesaulniers commented last week

/cherry-pick fc494d

(This is necessary to fix boot failures in the Linux kernel when built with stack protectors. It also reduces code size for C++ code built without exceptions or which contains noexcept, noreturn functions when built with stack protectors.)

nickdesaulniers added the release/backport label last week

nickdesaulniers added this to the LLVM 16.0.2 Release milestone last week

llvmbot commented last week

/branch llvm/llvm-project-release-prs/issue62119

llvmbot mentioned this issue last week

PR for llvm/llvm-project#62119 llvm/llvm-project-release-prs#418

llvmbot commented last week

/pull-request llvm/llvm-project-release-prs#418
nickdesaulniers commented last week

/cherry-pick fc4494d

(This is necessary to fix boot failures in the Linux kernel when built without exceptions or which contains noexcept noreturn functions.)
Ilvmbot commented last week

/branch llvm/llvm-project-release-prs/issue62119

Ilvmbot mentioned this issue last week

PR for llvm/llvm-project#62119 llvm/llvm-project-release-prs#418

Ilvmbot commented last week

/pull-request llvm/llvm-project-release-prs#418
PR for llvm/llvm-project#62119 #418

Merged

trunk merged 1 commit into release/16.x from llvm-issue62119 last week

Conversation 3

Commits 1

Checks 15

Files changed 3

llvmbot commented 2 weeks ago

resolves llvm/llvm-project#62119

StackProtector: don't check stack protector before calling nounwind ...

2bbeece

llvmbot commented 2 weeks ago

@xiangzh1 What do you think about merging this PR to the release branch?
tries (and fails 😢 ) to find the approver via Phabricator API
Cherry-pick seems fine. It’s relatively high-impact for a cherry-pick, but given the reported regressions I think it makes sense.

@mydeveloperday @rymiel @owenca OK to merge?

Yep.
TLDR

- File an Issue 📁
- Set the correct Milestone 💎
- Land the fix normally via Phabricator 🌴
- `/cherry-pick <sha>` 🍒
- Reply to the bots pinging you! 🤖
- Congratulations you have landed a fix! 🚀
WHEN THINGS GO WRONG

- Additional commits in your PR
- cherry-pick (🍒) failed
- Need to add additional commits to PR
ADDITIONAL COMMITS IN PR

This happens when `llvm/llvm-project` and `llvm/llvm-project-release-prs` are out of sync.

Ignore it! It’s harmless!
-PICK FAILED

- Create a branch in your llvm-project fork. (tru/llvm-project/myfix)
- Reset to release/16.x (or whatever release)
- 🍒 -pick tcommit and fix merge issue.
- Push to fork
- comment:/branch tru/llvm-project/myfix
ADD MORE COMMITS TO PR

/cherry-pick abc123 321cba

This also overwrites, since it always resets to the latest release branch.
HELP WANTED

• Become a Release Tester
• Help triage issues
• Reply to the 🤖
RELEASE TESTERS

- Runs test-release.sh on their platform
- Reports any test issues in GitHub
- Upload binaries to GitHub
TRIAGE ISSUES

- Check the release milestone
- Review Fixes, especially in your “area”
- Reproduce issues and confirm fixes
REPLY TO THE

Please.
QUESTIONS?
IMPROVE RELEASE PROCESS

- Working on automatic binaries
- When we move to GitHub PR’s everything will be better 😊
- Better way to get approval for fixes?
• https://llvm.org/docs/HowToReleaseLLVM.html
• Discord: #release/thieta, tstellar
• Forums: Project Infrastructure/Release Testers
THANKS!

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