2.39.0

Git v2.39 Release Notes ========================

UI, Workflows & Features ------------------------

- "git grep" learned to expand the sparse-index more lazily and on demand in a sparse checkout.
- By default, use of fsmonitor on a repository on networked filesystem is disabled. Add knobs to make it workable on macOS.
- After checking out a "branch" that is a symbolic-ref that points at another branch, "git symbolic-ref HEAD" reports the underlying branch, not the symbolic-ref the user gave checkout as argument. The command learned the "--no-recurse" option to stop after dereferencing a symbolic-ref only once.
- "git branch --edit-description @{-1}" is now a way to edit branch description of the branch you were on before switching to the current branch.
- "git merge-tree --stdin" is a new way to request a series of merges and report the merge results.
- "git shortlog" learned to group by the "format" string.
- A new "--include-whitespace" option is added to "git patch-id", and existing bugs in the internal patch-id logic that did not match what "git patch-id" produces have been corrected.
- Enable gc.cruftpacks by default for those who opt into feature.experimental setting.
- "git repack" learns to send cruft objects out of the way into packfiles outside the repository.
- ’scalar reconfigure -a’ is taught to automatically remove scalar.repo entires which no longer exist.
- Redact headers from cURL’s h2h3 module in GIT_CURL_VERBOSE and others.
- ’git maintenance register’ is taught to write configuration to an arbitrary path, and ’git for-each-repo’ is taught to expand tilde characters in paths.

- When creating new notes, the template used to get a stray empty newline, which has been removed.

- "git receive-pack" used to use all the local refs as the boundary for checking connectivity of the data "git push" sent, but now it uses only the refs that it advertised to the pusher. In a repository with the .hideRefs configuration, this reduces the resources needed to perform the check.

- With '--recurse-submodules=on-demand', all submodules are recursively pushed.

Performance, Internal Implementation, Development Support etc.

- With a bit of header twiddling, use the native regexp library on macOS instead of the compat/ one.

- Prepare for GNU [ef]grep that throw warning of their uses.

- Sources related to fuzz testing have been moved down to their own directory.

- Most credential helpers ignored unknown entries in a credential description, but a few died upon seeing them. The latter were taught to ignore them, too

- "scalar unregister" in a repository that is already been unregistered reported an error.

- Remove error detection from a function that fetches from promisor remotes, and make it die when such a fetch fails to bring all the requested objects, to give an early failure to various operations.

- Update CodingGuidelines to clarify what features to use and avoid in C99.

- Avoid false-positive from LSan whose assumption may be broken with higher optimization levels.

- Enable address and undefined sanitizer tasks at GitHub Actions CI.

- More UNUSED annotation to help using -Wunused option with the compiler. (merge 4b992f0a24 jk/unused-anno-more later to maint).

- Rewrite a deep recursion in the skipping negotiator to use a loop with on-heap prio queue to avoid stack wastage.

- Add documentation for message IDs in fsck error messages.

- Define the logical elements of a "bundle list", data structure to store them in-core, format to transfer them, and code to parse them.

- The role the security mailing list plays in an embargoed release has been documented.
- Two new facilities, "timer" and "counter", are introduced to the trace2 API.
- Code simplification by using strvec_pushf() instead of building an argument in a separate strbuf.
- Make sure generated dependency file is stably sorted to help developers debugging their build issues.
- The glossary entries for "commit-graph file" and "reachability bitmap" have been added.
- Various tests exercising the transfer.credentialsInUrl configuration are taught to avoid making requests which require resolving localhost to reduce CI-flakiness.
- A redundant diagnostic message is dropped from test_path_is_missing().
- Simplify the run-command API.
- Update the actions/github-script dependency in CI to avoid a deprecation warning.
- Progress on being able to initialize a rev_info struct with a macro.
- Add trace2 counters to the region to clear skip worktree bits in a sparse checkout.
- Modernize test script to avoid "test -f" and friends.
- Avoid calling ’cache_tree_update()’ when doing so would be redundant.
- Update the credential-cache documentation to provide a more realistic example.
- Makefile comments updates and reordering to clarify knobs used to choose SHA implementations.
- A design document for sparse-checkout’s future directions has been added.
- Teach chainlint.pl to annotate the original test definition instead of the token stream.
- "make coccicheck" is time consuming. It has been made to run more incrementally.
- `parse_object()` has been hardened to check for the existence of a suspected blob object.
- The build procedure has been adjusted to GNUmake version 4.4, which made some changes to how pattern rule with multiple targets are handled.

Fixes since v2.38 ----------

- The codepath that reads from the index v4 had unaligned memory accesses, which has been corrected.
- Fix messages incorrectly marked for translation.
- "git fsck" failed to release contents of tree objects already used from the memory, which has been fixed.
- "git clone" did not like to see the "--bare" and the "--origin" options used together without a good reason.
- "git remote rename" failed to rename a remote without fetch refspec, which has been corrected.
- Documentation on various Boolean GIT_* environment variables have been clarified.
- "git rebase -i" can mistakenly attempt to apply a fixup to a commit itself, which has been corrected.
- "git multi-pack-index repack/expire" used to repack unreachable cruft into a new pack, which have been corrected.
- In read-only repositories, "git merge-tree" tried to come up with a merge result tree object, which it failed (which is not wrong) and led to a segfault (which is bad), which has been corrected.
- Force C locale while running tests around httpd to make sure we can find expected error messages in the log.
- Fix a logic in "mailinfo -b" that miscomputed the length of a substring, which lead to an out-of-bounds access.
- The codepath to sign learned to report errors when it fails to read from "ssh-keygen".
- Code clean-up that results in plugging a leak.
- "GIT_EDITOR=: git branch --edit-description" resulted in failure, which has been corrected.
- The code to clean temporary object directories (used for quarantine) tried to remove them inside its signal handler, which was a no-no.
- Update comment in the Makefile about the RUNTIME_PREFIX config knob.
- Clarify that "the sentence after <area>: prefix does not begin with a capital letter" rule applies only to the commit title.

- "git branch --edit-description" on an unborn branch misleadingly said that no such branch exists, which has been corrected.

- Work around older clang that warns against C99 zero initialization syntax for struct.

- Giving "--invert-grep" and "--all-match" without "--grep" to the "git log" command resulted in an attempt to access grep pattern expression structure that has not been allocated, which has been corrected. (merge db84376f98 ab/grep-simplify-extended-expression later to maint).

- "git diff rev^!" did not show combined diff to go to the rev from its parents. (merge a79c6b6081 rs/diff-caret-bang-with-parents later to maint).

- Allow configuration files in "protected" scopes to include other configuration files. (merge ecec57b3c9 gc/bare-repo-discovery later to maint).

- Give a bit more diversity to macOS CI by using sha1dc in one of the jobs (the other one tests Apple Common Crypto). (merge 1ad5c3df35 jc/ci-osx-with-sha1dc later to maint).

- A bugfix with tracing support in midx codepath (merge e9c3839944 tb/midx-bitmap-selection-fix later to maint).

- When geometric repacking feature is in use together with the --pack-kept-objects option, we lost packs marked with .keep files. (merge 197443e80a tb/save-keep-pack-during-geometric-repack later to maint).

- Move a global variable added as a hack during regression fixes to its proper place in the API. (merge 0b0ab95f17 ab/run-hook-api-cleanup later to maint).

- Update to build procedure with VS using CMake/CTest. (merge c858750b41 js/cmake-updates later to maint).

- The short-help text shown by "git cmd -h" and the synopsis text shown at the beginning of "git help cmd" have been made more consistent.

- When creating a multi-pack bitmap, remove per-pack bitmap files unconditionally as they will never be consulted. (merge 55d902cd61 tb/remove-unused-pack-bitmap later to maint).

- Fix a longstanding syntax error in Git.pm error codepath.

- "git diff --stat" etc. were invented back when everything was ASCII and strlen() was a way to measure the display width of a string; adjust them to compute the display width assuming UTF-8 pathnames. (merge ce8529b2bb tb/diffstat-with-utf8-strwidth later to maint).

- "git branch --edit-description" can exit with status -1 which is not a good practice; it learned to use 1 as everybody else instead.

- "git apply" limits its input to a bit less than 1 GiB.

- Merging a branch with directory renames into a branch that changes the directory to a symlink was mishandled by the ort merge strategy, which has been corrected.

- A bugfix to "git subtree" in its split and merge features.

- Fix some bugs in the reflog messages when rebasing and changes the reflog messages of "rebase --apply" to match "rebase --merge" with the aim of making the reflog easier to parse.

- "git rebase --keep-base" used to discard the commits that are already cherry-picked to the upstream, even when "keep-base" meant that the base, on top of which the history is being rebuilt, does not yet include these cherry-picked commits. The --keep-base option now implies --reapply-cherry-picks and --no-fork-point options.

- The way "git repack" created temporary files when it received a signal was prone to deadlocking, which has been corrected.

- Various tests exercising the transfer.credentialsInUrl configuration are taught to avoid making requests which require resolving localhost to reduce CI-flakiness.

- The adjust_shared_perm() helper function learned to refrain from setting the "g+s" bit on directories when it is not necessary.

- "git archive" mistakenly complained twice about a missing executable, which has been corrected.

- Fix a bug where `git` `branch` `-d` did not work on an orphaned HEAD.

- `git` `rebase` `--update-refs` would delete references when all `update-ref` commands in the sequencer were removed, which has been corrected.

- Fix a regression in the bisect-helper which mistakenly treats arguments to the command given to ’git bisect run’ as arguments to the helper.

- Correct an error where `git` `rebase` would mistakenly use a branch or tag named "refs/rewritten/xyz" when missing a rebase label.

- Assorted fixes of parsing end-user input as integers. (merge 14770cf0de pw/config-int-parse-fixes later to maint).

- "git prune" may try to iterate over .git/objects/pack for trash files to remove in it, and loudly fail when the directory is missing, which is not necessary. The command has been

taught to ignore such a failure. (merge 6974765352 ew/prune-with-missing-objects-pack later to maint).

- Add one more candidate directory that may house httpd modules while running tests. (merge 1c7dc23d41 es/locate-httpd-module-location-in-test later to maint).

- A handful of leaks in the line-log machinery have been plugged.

- The format of a line in /proc/cpuinfo that describes a CPU on s390x looked different from everybody else, and the code in chainlint.pl failed to parse it. (merge 1f51b77f4f ah/chainlint-cpuinfo-parse-fix later to maint).

- Adjust the GitHub CI to newer ubuntu release. (merge 0d3507f3e7 jx/ci-ubuntu-fix later to maint).

- Other code cleanup, docfix, build fix, etc. (merge 413bc6d20a ds/cmd-main-reorder later to maint). (merge 8d2863e4ed nw/t1002-cleanup later to maint). (merge 7c2dc122f9 rs/list-objects-filter-leakfix later to maint). (merge 288fcb1c94 zk/push-use-bitmaps later to maint). (merge 42db324c0f km/merge-recursive-typofix later to maint).

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