2.20.0

Git 2.20 Release Notes ======================

Backward Compatibility Notes ----------

- "git branch -l <foo>" used to be a way to ask a reflog to be created while creating a new branch, but that is no longer the case. It is a short-hand for "git branch --list <foo>" now.

- "git push" into refs/tags/* hierarchy is rejected without getting forced, but "git fetch" (misguidedly) used the "fast forwarding" rule used for the refs/heads/* hierarchy; this has been corrected, which means some fetches of tags that did not fail with older version of Git will fail without "--force" with this version.

- "git help -a" now gives verbose output (same as "git help -av"). Those who want the old output may say "git help --no-verbose -a"..

- "git cpn --help", when "cpn" is an alias to, say, "cherry-pick -n", reported only the alias expansion of "cpn" in earlier versions of Git. It now runs "git cherry-pick --help" to show the manual page of the command, while sending the alias expansion to the standard error stream.

- "git send-email" learned to grab address-looking string on any trailer whose name ends with "-by". This is a backward-incompatible change. Adding "--suppress-cc=misc-by" on the command line, or setting sendemail.suppresscc configuration variable to "misc-by", can be used to disable this behaviour.

Updates since v2.19 ----------

UI, Workflows & Features

- Running "git clone" against a project that contain two files with pathnames that differ only in cases on a case insensitive filesystem would result in one of the files lost because the underlying filesystem is incapable of holding both at the same time. An attempt is made to detect such a case and warn.

- "git checkout -b newbranch [HEAD]" should not have to do as much as checking out a commit different from HEAD. An attempt is made to optimize this special case.

- "git rev-list --stdin </dev/null" used to be an error; it now shows no output without an error. "git rev-list --stdin --default HEAD" still falls back to the given default when nothing is given on the standard input.

- Lift code from GitHub to restrict delta computation so that an object that exists in one fork is not made into a delta against another object that does not appear in the same forked repository.

- "git format-patch" learned new "--interdiff" and "--range-diff" options to explain the difference between this version and the previous attempt in the cover letter (or after the three-dashes as a comment).

- "git mailinfo" used in "git am" learned to make a best-effort recovery of a patch corrupted by MUA that sends text/plain with format=flawed option. (merge 3aa4d81f88 rs/mailinfo-format-flowed later to maint).

- The rules used by "git push" and "git fetch" to determine if a ref can or cannot be updated were inconsistent; specifically, fetching to update existing tags were allowed even though tags are supposed to be unmoving anchoring points. "git fetch" was taught to forbid updates to existing tags without the "--force" option.

- "git multi-pack-index" learned to detect corruption in the .midx file it uses, and this feature has been integrated into "git fsck".

- Generation of (experimental) commit-graph files have so far been fairly silent, even though it takes noticeable amount of time in a meaningfully large repository. The users will now see progress output.

- The minimum version of Windows supported by Windows port of Git is now set to Vista.

- The completion script (in contrib/) learned to complete a handful of options "git stash list" command takes.

- The completion script (in contrib/) learned that "git fetch --multiple" only takes remote names as arguments and no refspecs.

- "git status" learns to show progress bar when refreshing the index takes a long time. (merge ae9af12287 nd/status-refresh-progress later to maint).

- "git help -a" and "git help -av" give different pieces of information, and generally the "verbose" version is more friendly to the new users. "git help -a" by default now uses the more verbose output (with "--no-verbose", you can go back to the original). Also "git help -av" now lists aliases and external commands, which it did not used to.

- Unlike "grep", "git grep" by default recurses to the whole tree. The command learned "git grep --recursive" option, so that "git grep --no-recursive" can serve as a synonym to setting the max-depth to 0.

- When pushing into a repository that borrows its objects from an alternate object store, "git receive-pack" that responds to the push request on the other side lists the tips of refs in the alternate to reduce the amount of objects transferred. This sometimes is detrimental

when the number of refs in the alternate is absurdly large, in which case the bandwidth saved in potentially fewer objects transferred is wasted in excessively large ref advertisement. The alternate refs that are advertised are now configurable with a pair of configuration variables.

- "git cmd --help" when "cmd" is aliased used to only say "cmd is aliased to …". Now it shows that to the standard error stream and runs "git $cmd --help" where $cmd is the first word of the alias expansion.

- The documentation of "git gc" has been updated to mention that it is no longer limited to "pruning away cruft" but also updates ancillary files like commit-graph as a part of repository optimization.

- "git p4 unshelve" improvements.

- The logic to select the default user name and e-mail on Windows has been improved. (merge 501afcb8b0 js/mingw-default-ident later to maint).

- The "rev-list --filter" feature learned to exclude all trees via "tree:0" filter.

- "git send-email" learned to grab address-looking string on any trailer whose name ends with "-by"; --suppress-cc=misc-by on the command line, or setting sendemail.suppresscc configuration variable to "misc-by", can be used to disable this behaviour.

- "git mergetool" learned to take the "--[no-]gui" option, just like "git difftool" does.

- "git rebase -i" learned a new insn, ’break’, that the user can insert in the to-do list. Upon hitting it, the command returns control back to the user.

- New "--pretty=format:" placeholders %GF and %GP that show the GPG key fingerprints have been invented.

- On platforms with recent cURL library, http.sslBackend configuration variable can be used to choose a different SSL backend at runtime. The Windows port uses this mechanism to switch between OpenSSL and Secure Channel while talking over the HTTPS protocol.

- "git send-email" learned to disable SMTP authentication via the "--smtp-auth=none" option, even when the smtp username is given (which turns the authentication on by default).

- A fourth class of configuration files (in addition to the traditional "system wide", "per user in the $HOME directory" and "per repository in the $GIT_DIR/config") has been introduced so that different worktrees that share the same repository (hence the same $GIT_DIR/config file) can use different customization.

- A pattern with ’**’ that does not have a slash on either side used to be an invalid one, but the code now treats such double-asterisks the same way as two normal asterisks that

happen to be adjacent to each other. (merge e5bbe09e88 nd/wildmatch-double-asterisk later to maint).

- The "--no-patch" option, which can be used to get a high-level overview without the actual line-by-line patch difference shown, of the "range-diff" command was earlier broken, which has been corrected.

- The recently merged "rebase in C" has an escape hatch to use the scripted version when necessary, but it hasn’t been documented, which has been corrected.

Performance, Internal Implementation, Development Support etc.

- Developer builds now use -Wunused-function compilation option.

- One of our CI tests to run with "unusual/experimental/random" settings now also uses commit-graph and midx.

- When there are too many packfiles in a repository (which is not recommended), looking up an object in these would require consulting many pack .idx files; a new mechanism to have a single file that consolidates all of these .idx files is introduced.

- "git submodule update" is getting rewritten piece-by-piece into C.

- The code for computing history reachability has been shuffled, obtained a bunch of new tests to cover them, and then being improved.

- The unpack_trees() API used in checking out a branch and merging walks one or more trees along with the index. When the cache-tree in the index tells us that we are walking a tree whose flattened contents is known (i.e. matches a span in the index), as linearly scanning a span in the index is much more efficient than having to open tree objects recursively and listing their entries, the walk can be optimized, which has been done.

- When creating a thin pack, which allows objects to be made into a delta against another object that is not in the resulting pack but is known to be present on the receiving end, the code learned to take advantage of the reachability bitmap; this allows the server to send a delta against a base beyond the "boundary" commit.

- spatch transformation to replace boolean uses of !hashcmp() to newly introduced oideq() is added, and applied, to regain performance lost due to support of multiple hash algorithms.

- Fix a bug in which the same path could be registered under multiple worktree entries if the path was missing (for instance, was removed manually). Also, as a convenience, expand the number of cases in which --force is applicable.

- Split Documentation/config.txt for easier maintenance. (merge 6014363f0b nd/config-split later to maint).

- Test helper binaries clean-up. (merge c9a1f4161f nd/test-tool later to maint).

- Various tests have been updated to make it easier to swap the hash function used for object identification. (merge ae0c89d41b bc/hash-independent-tests later to maint).

- Update fsck.skipList implementation and documentation. (merge 371a655074 ab/fsck-skiplist later to maint).

- An alias that expands to another alias has so far been forbidden, but now it is allowed to create such an alias.

- Various test scripts have been updated for style and also correct handling of exit status of various commands.

- "gc --auto" ended up calling exit(-1) upon error, which has been corrected to use exit(1). Also the error reporting behaviour when daemonized has been updated to exit with zero status when stopping due to a previously discovered error (which implies there is no point running gc to improve the situation); we used to exit with failure in such a case.

- Various codepaths in the core-ish part learned to work on an arbitrary in-core index structure, not necessarily the default instance "the_index". (merge b3c7eef9b0 nd/the-index later to maint).

- Code clean-up in the internal machinery used by "git status" and "git commit --dry-run". (merge 73ba5d78b4 ss/wt-status-committable later to maint).

- Some environment variables that control the runtime options of Git used during tests are getting renamed for consistency. (merge 4231d1ba99 bp/rename-test-env-var later to maint).

- A pair of new extensions to the index file have been introduced. They allow the index file to be read in parallel for performance.

- The oidset API was built on top of the oidmap API which in turn is on the hashmap API. Replace the implementation to build on top of the khash API and gain performance.

- Over some transports, fetching objects with an exact commit object name can be done without first seeing the ref advertisements. The code has been optimized to exploit this.

- In a partial clone that will lazily be hydrated from the originating repository, we generally want to avoid "does this object exist (locally)?" on objects that we deliberately omitted when we created the clone. The cache-tree codepath (which is used to write a tree object out of the index) however insisted that the object exists, even for paths that are outside of the partial checkout area. The code has been updated to avoid such a check.

- To help developers, an EditorConfig file that attempts to follow the project convention has been added. (merge b548d698a0 bc/editorconfig later to maint).

- The result of coverage test can be combined with "git blame" to check the test coverage of code introduced recently with a new ’coverage-diff’ tool (in contrib/). (merge 783faedd65 ds/coverage-diff later to maint).

- An experiment to fuzz test a few areas, hopefully we can gain more coverage to various areas.

- More codepaths are moving away from hardcoded hash sizes.

- The way the Windows port figures out the current directory has been improved.

- The way DLLs are loaded on the Windows port has been improved.

- Some tests have been reorganized and renamed; "ls t/" now gives a better overview of what is tested for these scripts than before.

- "git rebase" and "git rebase -i" have been reimplemented in C.

- Windows port learned to use nano-second resolution file timestamps.

- The overly large Documentation/config.txt file have been split into million little pieces. This potentially allows each individual piece to be included into the manual page of the command it affects more easily.

- Replace three string-list instances used as look-up tables in "git fetch" with hashmaps.

- Unify code to read the author-script used in "git am" and the commands that use the sequencer machinery, e.g. "git rebase -i".

- In preparation to the day when we can deprecate and remove the "rebase -p", make sure we can skip and later remove tests for it.

- The history traversal used to implement the tag-following has been optimized by introducing a new helper.

- The helper function to refresh the cached stat information in the in-core index has learned to perform the lstat() part of the operation in parallel on multi-core platforms.

- The code to traverse objects for reachability, used to decide what objects are unreferenced and expendable, have been taught to also consider per-worktree refs of other worktrees as starting points to prevent data loss.

- "git add" needs to internally run "diff-files" equivalent, and the codepath learned the same optimization as "diff-files" has to run lstat(2) in parallel to find which paths have been updated in the working tree.

- The procedure to install dependencies before testing at Travis CI is getting revamped for both simplicity and flexibility, taking advantage of the recent move to the vm-based environment.

- The support for format-patch (and send-email) by the command-line completion script (in contrib/) has been simplified a bit.

- The revision walker machinery learned to take advantage of the commit generation numbers stored in the commit-graph file.

- The codebase has been cleaned up to reduce "#ifndef NO_PTHREADS".

- The way -lcurl library gets linked has been simplified by taking advantage of the fact that we can just ask curl-config command how.

- Various functions have been audited for "-Wunused-parameter" warnings and bugs in them got fixed.

- A sanity check for start-up sequence has been added in the config API codepath.

- The build procedure to link for fuzzing test has been made customizable with a new Makefile variable.

- The way "git rebase" parses and forwards the command line options meant for underlying "git am" has been revamped, which fixed for options with parameters that were not passed correctly.

- Our testing framework uses a special i18n "poisoned localization" feature to find messages that ought to stay constant but are incorrectly marked to be translated. This feature has been made into a runtime option (it used to be a compile-time option).

- "git push" used to check ambiguities between object-names and refnames while processing the list of refs' old and new values, which was unnecessary (as it knew that it is feeding raw object names). This has been optimized out.

- The xcurl_off_t() helper function is used to cast size_t to curl_off_t, but some compilers gave warnings against the code to ensure the casting is done without wraparound, when size_t is narrower than curl_off_t. This warning has been squelched.

- Code preparation to replace ulong vars with size_t vars where appropriate continues.

- The "test installed Git" mode of our test suite has been updated to work better.

- A coding convention around the Coccinelle semantic patches to have two classes to ease code migration process has been proposed and its support has been added to the Makefile.

- The "container" mode of TravisCI is going away. Our .travis.yml file is getting prepared for the transition. (merge 32ee384be8 ss/travis-ci-force-vm-mode later to maint).

- Our test scripts can now take the ’-V’ option as a synonym for the '--verbose-log’ option. (merge a5f52c6dab sg/test-verbose-log later to maint).

Fixes since v2.19 ----------

- "git interpret-trailers" and its underlying machinery had a buggy code that attempted to ignore patch text after commit log message, which triggered in various codepaths that will always get the log message alone and never get such an input. (merge 66e83d9b41 jk/trailer-fixes later to maint).

- Malformed or crafted data in packstream can make our code attempt to read or write past the allocated buffer and abort, instead of reporting an error, which has been fixed.

- "git rebase -i" did not clear the state files correctly when a run of "squash/fixup" is aborted and then the user manually amended the commit instead, which has been corrected. (merge 10d2f35436 js/rebase-i-autosquash-fix later to maint).

- When fsmonitor is in use, after operation on submodules updates .gitmodules, we lost track of the fact that we did so and relied on stale fsmonitor data. (merge 43f1180814 bp/mv-submodules-with-fsmonitor later to maint).

- Fix for a long-standing bug that leaves the index file corrupt when it shrinks during a partial commit. (merge 6c003d6ffb jk/reopen-tempfile-truncate later to maint).

- Further fix for O_APPEND emulation on Windows (merge eeaf7ddac7 js/mingw-o-append later to maint).

- A corner case bugfix in "git rerere" code. (merge ad2bf0d9b4 en/rerere-multi-stage-1-fix later to maint).

- "git add ’:(attr:foo)’" is not supported and is supposed to be rejected while the command line arguments are parsed, but we fail to reject such a command line upfront. (merge 84d938b732 nd/attr-pathspec-fix later to maint).

- Recent update broke the reachability algorithm when refs (e.g. tags) that point at objects that are not commit were involved, which has been fixed.

- "git rebase" etc. in Git 2.19 fails to abort when given an empty commit log message as result of editing, which has been corrected. (merge a3ec9eaf38 en/sequencer-empty-edit-result-aborts later to maint).

- The code to backfill objects in lazily cloned repository did not work correctly, which has been corrected. (merge e68302011c jt/lazy-object-fetch-fix later to maint).

- Update error messages given by "git remote" and make them consistent. (merge 5025425dff ms/remote-error-message-update later to maint).

- "git update-ref" learned to make both "--no-deref" and "--stdin" work at the same time. (merge d345e9fbe7 en/update-ref-no-deref-stdin later to maint).

- Recently added "range-diff" had a corner-case bug to cause it segfault, which has been corrected. (merge e467a90c7a tg/range-diff-corner-case-fix later to maint).

- The recently introduced commit-graph auxiliary data is incompatible with mechanisms such as replace & grafts that "breaks" immutable nature of the object reference relationship. Disable optimizations based on its use (and updating existing commit-graph) when these incompatible features are in use in the repository. (merge 829a321569 ds/commit-graph-with-grafts later to maint).

- The mailmap file update. (merge 255eb03edf jn/mailmap-update later to maint).

- The code in "git status" sometimes hit an assertion failure. This was caused by a structure that was reused without cleaning the data used for the first run, which has been corrected. (merge 3e73cc62c0 en/status-multiple-renames-to-the-same-target-fix later to maint).

- "git fetch $repo $object" in a partial clone did not correctly fetch the asked-for object that is referenced by an object in promisor packfile, which has been fixed.

- A corner-case bugfix. (merge c5cbb27cb5 sm/show-superproject-while-conflicted later to maint).

- Various fixes to "diff --color-moved-ws".

- A partial clone that is configured to lazily fetch missing objects will on-demand issue a "git fetch" request to the originating repository to fill not-yet-obtained objects. The request has been optimized for requesting a tree object (and not the leaf blob objects contained in it) by telling the originating repository that no blobs are needed. (merge 4c7f9567ea jt/non-blob-lazy-fetch later to maint).

- The codepath to support the experimental split-index mode had remaining "racily clean" issues fixed. (merge 4c490f3d32 sg/split-index-racefix later to maint).

- "git log --graph" showing an octopus merge sometimes miscounted the number of display columns it is consuming to show the merge and its parent commits, which has been corrected. (merge 04005834ed np/log-graph-octopus-fix later to maint).

- "git range-diff" did not work well when the compared ranges had changes in submodules and the "--submodule=log" was used.

- The implementation of run_command() API on the UNIX platforms had a bug that caused a command not on $PATH to be found in the current directory. (merge f67b980771 jk/run-command-notdot later to maint).

- A mutex used in "git pack-objects" were not correctly initialized and this caused "git repack" to dump core on Windows. (merge 34204c8166 js/pack-objects-mutex-init-fix later to maint).

- Under certain circumstances, "git diff D:/a/b/c D:/a/b/d" on Windows would strip initial parts from the paths because they were not recognized as absolute, which has been corrected. (merge ffd04e92e2 js/diff-notice-has-drive-prefix later to maint).

- The receive.denyCurrentBranch=updateInstead codepath kicked in even when the push should have been rejected due to other reasons, such as it does not fast-forward or the update-hook rejects it, which has been corrected. (merge b072a25fad jc/receive-deny-current-branch-fix later to maint).

- The logic to determine the archive type "git archive" uses did not correctly kick in for "git archive --remote", which has been corrected.

- "git repack" in a shallow clone did not correctly update the shallow points in the repository, leading to a repository that does not pass fsck. (merge 5dcfbf564c js/shallow-and-fetch-prune later to maint).

- Some codepaths failed to form a proper URL when .gitmodules record the URL to a submodule repository as relative to the repository of superproject, which has been corrected. (merge e0a862fdaf sb/submodule-url-to-absolute later to maint).

- "git fetch" over protocol v2 into a shallow repository failed to fetch full history behind a new tip of history that was diverged before the cut-off point of the history that was previously fetched shallowly.

- The command line completion machinery (in contrib/) has been updated to allow the completion script to tweak the list of options that are reported by the parse-options machinery correctly. (merge 276b49ff34 nd/completion-negation later to maint).

- Operations on promisor objects make sense in the context of only a small subset of the commands that internally use the revisions machinery, but the "--exclude-promisor-objects" option were taken and led to nonsense results by commands like "log", to which it didn’t make much sense. This has been corrected. (merge 669b1d2aae md/exclude-promisor-objects-fix later to maint).

- A regression in Git 2.12 era made "git fsck" fall into an infinite loop while processing truncated loose objects. (merge 18ad13e5b2 jk/detect-truncated-zlib-input later to maint).

- "git ls-remote $there foo" was broken by recent update for the protocol v2 and stopped showing refs that match ’foo’ that are not refs/{heads,tags}/foo, which has been fixed.

(merge 6a139cdd74 jk/proto-v2-ref-prefix-fix later to maint).

- Additional comment on a tricky piece of code to help developers. (merge 0afbe3e806 jk/stream-pack-non-delta-clarification later to maint).

- A couple of tests used to leave the repository in a state that is deliberately corrupt, which have been corrected. (merge aa984dbe5e ab/pack-tests-cleanup later to maint).

- The submodule support has been updated to read from the blob at HEAD:.gitmodules when the .gitmodules file is missing from the working tree. (merge 2b1257e463 ao/submodule-wo-gitmodules-checked-out later to maint).

- "git fetch" was a bit loose in parsing responses from the other side when talking over the protocol v2.

- "git rev-parse --exclude=* --branches --branches" (i.e. first saying "add only things that do not match ’**’ out of all branches" and then adding all branches, without any exclusion this time) worked as expected, but "**--exclude=** --all --all" did not work the same way, which has been fixed. (merge 5221048092 ag/rev-parse-all-exclude-fix later to maint).

- "git send-email --transfer-encoding=..." in recent versions of Git sometimes produced an empty "Content-Transfer-Encoding:" header, which has been corrected. (merge 3c88e46f1a al/send-email-auto-cte-fixup later to maint).

- The interface into "xdiff" library used to discover the offset and size of a generated patch hunk by first formatting it into the textual hunk header "@@ -n,m +k,l @@" and then parsing the numbers out. A new interface has been introduced to allow callers a more direct access to them. (merge 5eade0746e jk/xdiff-interface later to maint).

- Pathspec matching against a tree object were buggy when negative pathspec elements were involved, which has been fixed. (merge b7845cebc0 nd/tree-walk-path-exclusion later to maint).

- "git merge" and "git pull" that merges into an unborn branch used to completely ignore "--verify-signatures", which has been corrected. (merge 01a31f3bca jk/verify-sig-merge-into-void later to maint).

- "git rebase --autostash" did not correctly re-attach the HEAD at times.

- "rev-parse --exclude=<pattern> --branches=<pattern>" etc. did not quite work, which has been corrected. (merge 9ab9b5df0e ra/rev-parse-exclude-glob later to maint).

- When editing a patch in a "git add -i" session, a hunk could be made to no-op. The "git apply" program used to reject a patch with such a no-op hunk to catch user mistakes, but it is now updated to explicitly allow a no-op hunk in an edited patch. (merge 22cb3835b9 js/apply-recount-allow-noop later to maint).

- The URL to an MSDN page in a comment has been updated. (merge 2ef2ae2917 js/mingw-msdn-url later to maint).

- "git ls-remote --sort=<thing>" can feed an object that is not yet available into the comparison machinery and segfault, which has been corrected to check such a request upfront and reject it.

- When "git bundle" aborts due to an empty commit ranges (i.e. resulting in an empty pack), it left a file descriptor to an lockfile open, which resulted in leftover lockfile on Windows where you cannot remove a file with an open file descriptor. This has been corrected. (merge 2c8ee1f53c jk/close-duped-fd-before-unlock-for-bundle later to maint).

- "git format-patch --stat=<width>" can be used to specify the width used by the diffstat (shown in the cover letter). (merge 284aeb7e60 nd/format-patch-cover-letter-stat-width later to maint).

- The way .git/index and .git/sharedindex* files were initially created gave these files different perm bits until they were adjusted for shared repository settings. This was made consistent. (merge c9d6c78870 cc/shared-index-permbits later to maint).

- "git rebase --stat" to transplant a piece of history onto a totally unrelated history were not working before and silently showed wrong result. With the recent reimplementation in C, it started to instead die with an error message, as the original logic was not prepared to cope with this case. This has now been fixed.

- The advice message to tell the user to migrate an existing graft file to the replace system when a graft file was read was shown even when "git replace --convert-graft-file" command, which is the way the message suggests to use, was running, which made little sense. (merge 8821e90a09 ab/replace-graft-with-replace-advice later to maint).

- "git diff --raw" lost ellipses to adjust the output columns for some time now, but the documentation still showed them.

- Code cleanup, docfix, build fix, etc. (merge 96a7501aad ts/doc-build-manpage-xsl-quietly later to maint). (merge b9b07efdb2 tg/conflict-marker-size later to maint). (merge fa0aeea770 sg/doc-trace-appends later to maint). (merge d64324cb60 tb/void-check-attr later to maint). (merge c3b9bc94b9 en/double-semicolon-fix later to maint). (merge 79336116f5 sg/t3701-tighten-trace later to maint). (merge 801fa63a90 jk/dev-build-format-security later to maint). (merge 0597dd62ba sb/string-list-remove-unused later to maint). (merge db2d36fad8 bw/protocol-v2 later to maint). (merge 456d7cd3a9 sg/split-index-test later to maint). (merge 7b6057c852 tq/refs-internal-comment-fix later to maint). (merge 29e8dc50ad tg/t5551-with-curl-7.61.1 later to maint). (merge 55f6bce2c9 fe/doc-updates later to maint). (merge 7987d2232d jk/check-everything-connected-is-long-gone later to maint). (merge 4ba3c9be47 dz/credential-doc-url-matching-rules later to maint). (merge 4c399442f7 ma/commit-graph-docs later to maint). (merge fc0503b04e ma/t1400-undebug-test later to maint). (merge e56b53553a nd/packobjectshook-doc-fix later to maint). (merge c56170a0c4 ma/mailing-list-address-in-git-help later to maint).

(merge 6e8fc70fce rs/sequencer-oidset-insert-avoids-dups later to maint). (merge ad0b8f9575 mw/doc-typofixes later to maint). (merge d9f079ad1a jc/how-to-document-api later to maint). (merge b1492bf315 ma/t7005-bash-workaround later to maint). (merge ac1f98a0df du/rev-parse-is-plumbing later to maint). (merge ca8ed443a5 mm/doc-no-dashed-git later to maint). (merge ce366a8144 du/get-tar-commit-id-is-plumbing later to maint). (merge 61018fe9e0 du/cherry-is-plumbing later to maint). (merge c7e5fe79b9 sb/strbuf-h-update later to maint). (merge 8d2008196b tq/branch-create-wo-branch-get later to maint). (merge 2e3c894f4b tq/branch-style-fix later to maint). (merge c5d844af9c sg/doc-show-branch-typofix later to maint). (merge 081d91618b ah/doc-updates later to maint). (merge b84c783882 jc/cocci-preincr later to maint). (merge 5e495f8122 uk/merge-subtree-doc-update later to maint). (merge aaaa881822 jk/uploadpack-packobjectshook-fix later to maint). (merge 3063477445 tb/char-may-be-unsigned later to maint). (merge 8c64bc9420 sg/test-rebase-editor-fix later to maint). (merge 71571cd7d6 ma/sequencer-do-reset-saner-loop-termination later to maint). (merge 9a4cb8781e cb/notes-freeing-always-null-fix later to maint). (merge 3006f5ee16 ma/reset-doc-rendering-fix later to maint). (merge 4c2eb06419 sg/daemon-test-signal-fix later to maint). (merge d27525e519 ss/msvc-strcasecmp later to maint).

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