

Minimal fix to prevent buffer overrun in os.symlink on Windows

Regexes in difflib and poplib were vulnerable to catastrophic backtracking. These regexes formed potential DOS vectors (REDOS). They have been refactored. This resolves CVE-2018-1060 and CVE-2018-1061. Patch by Jamie Davis.

Fixed jumping out of "with" block by setting f_lineno.

Prevent jumps from 'return' and 'exception' trace events.

Update Valgrind suppression list to account for the rename of Py_ADDRESS_IN_RANGE to address_in_range.

Pdb and other debuggers dependent on bdb.py will correctly step over (next command) native coroutines. Patch by Pablo Galindo.

Improve suggestion when the Python 2 form of print statement is either present on the same line as the header of a compound statement or else terminated by a semi-colon instead of a newline. Patch by Nitish Chandra.

Fix possible crashing in builtin Unicode decoders caused by write out-of-bound errors when using customized decode error handlers.

Improved frozenset() hash to create more distinct hash values when faced with datasets containing many similar values.

The __debug__ constant is now optimized out at compile time. This fixes also bpo-22091.

sys.flags.hash_randomization is now properly set to 0 when hash randomization is turned off by PYTHONHASHSEED=0.

The optimizer is now protected from spending much time doing complex calculations and consuming much memory for creating large constants in constant folding.

repr() on a dict containing its own values() or items() no longer raises RecursionError; OrderedDict similarly. Instead, use ..., as for other recursive structures. Patch by Ben North.

Leading whitespace is now correctly ignored when generating suggestions for converting Py2 print statements to Py3 builtin print function calls. Patch by Sanyam Khurana.

The repr of deeply nested dict now raises a RecursionError instead of crashing due to a stack overflow.

lib2to3 now properly supports trailing commas after *args and **kwargs in function signatures.

Avoid failing in multiprocessing.Process if the standard streams are closed or None at exit.

Skip sending/receiving data after SSL transport closing.

Fix ctypes pass-by-value for structs on 64-bit Cygwin/MinGW.

Fix inspect.signature() for single-parameter partialmethods.

Expose several missing constants in zlib and fix corresponding documentation.

Fixed tarfile.itn handling of out-of-bounds float values. Patch by Joffrey Fuhrer.

The ssl module now detects missing NPN support in LibreSSL.

dbm.open() now encodes filename with the filesystem encoding rather than default encoding.

In os.dup2, don't check every call whether the dup3 syscall exists or not.

Rewrite confusing message from setup.py upload from "No dist file created in earlier command" to the more helpful "Must create and upload files in one command".

In `mod:tkinter`, `after_cancel(None)` now raises a `:exc:ValueError` instead of canceling the first scheduled function. Patch by Cheryl Sabella.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\cpython-main[Misc][NEWS.d]3.6.5rc1.rst, line 267); [backlink](#)

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Make sure sys.argv remains as a list when running trace.

Fixed *asyncio.Condition* issue which silently ignored cancellation after notifying and cancelling a conditional lock. Patch by Bar Harel.

Fixed leaks of `__init__()` methods in various modules. (Contributed by Oren Milman)

Fixed guessing quote and delimiter in `csv.Sniffer.sniff()` when only the last field is quoted. Patch by Jake Davis.

socket: Remove TCP_FASTOPEN, TCP_KEEPCNT flags on older version Windows during run-time.

Fix a rare but potential pre-exec child process deadlock in subprocess on POSIX systems when marking file descriptors inheritable on exec in the child process. This bug appears to have been introduced in 3.4.

The ctypes module used to depend on indirect linking for dlopen. The shared extension is now explicitly linked against libdl on platforms with dl.

Fixed `asyncio.Lock()` safety issue which allowed acquiring and locking the same lock multiple times, without it being free. Patch by Bar Harel.

Do not include name field in SMTP envelope from address. Patch by StÃ©phane Wirtel

Fix email address header parsing error when the username is an empty quoted string. Patch by Xiang Zhang.

distutils' upload command no longer corrupts tar files ending with a CR byte, and no longer tries to convert CR to CRLF in any of the upload text fields.

uuid.uuid1 no longer raises an exception if a 64-bit hardware address is encountered.

Fix the error handling in `Aifc_read.initfp()` when the SSND chunk is not found. Patch by Zackery Spytz

On FreeBSD and Solaris, `os.strerror()` now always decode the byte string from the current locale encoding, rather than using ASCII/surrogateescape in some cases.

The nis module is now compatible with new libnsl and headers location.

Improve `ABCMeta._dump_registry()` output readability

glibc has removed Sun RPC. Use replacement libtirpc headers and library in nis module.

Ensure that `truncate()` preserves the file position (as reported by `tell()`) after writes longer than the buffer size.

Don't unsubscribe signals in asyncio UNIX event loop on interpreter shutdown.

The SSL module no longer sends IP addresses in SNI TLS extension on platforms with OpenSSL 1.0.2+ or `inet_pton`.

`:func:'urllib.parse.urlsplit()'` does not convert zone-id (scope) to lower case for scoped IPv6 addresses in `hostnames` now.

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Fix `bdist_wininst` of distutils for CRT v142: it binary compatible with CRT v140.

A single empty field is now always quoted when written into a CSV file. This allows to distinguish an empty row from a row consisting of a single empty field. Patch by Licht Takeuchi.

Raise `NotImplementedError` instead of `SystemError` on platforms where `chmod(..., follow_symlinks=False)` is not supported. Patch by Anthony Sottile.

The `getnode()` ip getter now uses 'ip link' instead of 'ip link list'.

Ensure `TCP_NODELAY` is set on Linux. Tests by Victor Stinner.

The `:func:'locale.localeconv'` function now sets temporarily the `LC_CTYPE` locale to the `LC_NUMERIC` locale to decode `decimal_point` and `thousands_sep` byte strings if they are non-ASCII or longer than 1 byte, and the `LC_NUMERIC` locale is different than the `LC_CTYPE` locale. This temporary change affects other threads. Same change for the `:meth:'str.format'` method when formatting a number (`:class:'int'`, `:class:'float'`, `:class:'float'` and subclasses) with the `n` type (ex: `'{:n}'.format(1234)`).

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Importing native path module (`posixpath`, `ntpath`) now works even if the `os` module still is not imported.

Clarify docs for `-O` and `-OO`. Patch by Terry Reedy.

Update link to w3c doc for xml default namespaces.

Document `:meth:`__getattr__`` behavior when property `:meth:`get`` method raises `:exc:`AttributeError``.

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Modify RE examples in documentation to use raw strings to prevent `:exc:`DeprecationWarning`` and add text to REGEX HOWTO to highlight the deprecation.

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Improve docstrings for `pathlib.PurePath` subclasses.

Explain real behaviour of `sys.settrace` and `sys.setprofile` and their C-API counterparts regarding which type of events are received in each function. Patch by Pablo Galindo Salgado.

Fix failing `test_asyncio` on macOS 10.12.2+ due to transport of `KqueueSelector` loop was not being closed.

Fix `test_hashlib` to not fail if the `_md5` module is not built.

Fix `faulthandler_suppress_crash_report()` used to prevent core dump files when testing crashes. `getrlimit()` returns zero on success.

Debian Unstable has disabled TLS 1.0 and 1.1 for `SSLv23_METHOD()`. Change TLS/SSL protocol of some tests to `PROTOCOL_TLS` or `PROTOCOL_TLSv1_2` to make them pass on Debian.

Fix segfault of the `crypt` module when `libxcrypt` is provided instead of `libcrypt` at the system.

Fix potential use of uninitialized memory in `nt._getfinalpathname`

Fix a memory leak in `os.chdir()` on Windows if the current directory is set to a UNC path.

Fixed `WindowsConsoleIO.write()` for writing empty data.

Ensures `activate.bat` can handle Unicode contents.

Improves handling of denormalized executable path when launching Python.

Use the correct encoding for `ipconfig` output in the `uuid` module. Patch by Segev Finer.

Fix `:func:`os.readlink`` on Windows, which was mistakenly treating the `PrintNameOffset` field of the reparse data buffer as a number of characters instead of bytes. Patch by Craig Holmquist and SSE4.

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Create standalone `_distutils_findvs` module.

Provide an additional, more modern macOS installer variant that supports macOS 10.9+ systems in 64-bit mode only. Upgrade the

supplied third-party libraries to OpenSSL 1.0.2n, XZ 5.2.3, and SQLite 3.22.0. The 10.9+ installer now links with and supplies its own copy of Tcl/Tk 8.6.8.

Set `__file__` while running a startup file. Like Python, IDLE optionally runs one startup file in the Shell window before presenting the first interactive input prompt. For IDLE, `-s` runs a file named in environmental variable `envvar:'IDLESTARTUP'` or `envvar:'PYTHONSTARTUP'`; `-r file` runs `file`. Python sets `__file__` to the startup file name before running the file and unsets it before the first prompt. IDLE now does the same when run normally, without the `-n` option.

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Simplify and rename `StringTranslatePseudoMapping` in `pyparse`.

Change `str` to `code` in `pyparse`.

Remove unused code in `pyparse` module.

Add tests for `pyparse`.

Using the system and place-dependent default encoding for `open()` is a bad idea for IDLE's system and location-independent files.

Add `"encoding=utf-8"` to `open()` in IDLE's `test_help_about`. GUI test `test_file_buttons()` only looks at initial `ascii`-only lines, but failed on systems where `open()` defaults to `'ascii'` because `readline()` internally reads and decodes far enough ahead to encounter a non-`ascii` character in `CREDITS.txt`.

Update `configdialog` General tab `docstring` to add new widgets to the widget list.

`2to3` and `lib2to3` can now read pickled grammar files using `pkgutil.get_data()` rather than probing the filesystem. This lets `2to3` and `lib2to3` work when run from a zipfile.

Fix `pygettext` not extracting `docstrings` for functions with type annotated arguments. Patch by Toby Harradine.

Undocumented C API for `OrderedDict` has been excluded from the limited C API. It was added by mistake and actually never worked in the limited C API.