

Fix coroutine's ResourceWarning when there's an active error set when it's being finalized.

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

Optimize list.sort() and sorted() by using type specialized comparisons when possible.

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.

Python now explicitly preserves the definition order of keyword-only parameters. It's always preserved their order, but this behavior was never guaranteed before; this behavior is now guaranteed and tested.

The locals() dictionary now displays in the lexical order that variables were defined. Previously, the order was reversed.

Add .isascii() method to str, bytes and bytearray. It can be used to test that string contains only ASCII characters.

Enforce PEP 479 for all code. This means that manually raising a StopIteration exception from a generator is prohibited for all code, regardless of whether 'from __future__ import generator_stop' was used or not.

Added built-in support for tracking the origin of coroutine objects; see sys.set_coroutine_origin_tracking_depth and CoroutineType.cr_origin. This replaces the asyncio debug mode's use of coroutine wrapping for native coroutine objects.

Expose preadv and pwritev system calls in the os module. Patch by Pablo Galindo

hasattr(obj, name) and getattr(obj, name, default) are about 4 times faster than before when name is not found and obj doesn't override __getattr__ or __getattribute__.

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

Remove the STORE_ANNOTATION bytecode.

Expose posix_spawn as a low level API in the os module. (removed before 3.7.0rc1)

Fixed estimation of the code stack size.

Implement PEP 567 Context Variables.

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.

Py_Initialize() now creates the GIL. The GIL is no longer created "on demand" to fix a race condition when PyGILState_Ensure() is called in a non-Python thread.

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

Make dict.copy() up to 5.5 times faster.

Get rid of recursion in the compiler for normal control flow.

Deprecate exposing the contents of collections.abc in the regular collections module.

The default cipher suite selection of the ssl module now uses a blacklist approach rather than a hard-coded whitelist. Python no longer re-enables ciphers that have been blocked by OpenSSL security update. Default cipher suite selection can be configured on compile time.

contextlib.contextmanager now releases the arguments passed to the underlying generator as soon as the context manager is entered. Previously it would keep them alive for as long as the context manager was alive, even when not being used as a function decorator. Patch by Martin Teichmann.

Added support for setting the compression level for zipfile.ZipFile.

Implement asyncio.BufferedProtocol (provisional API).

In dataclasses, allow easier overriding of dunder methods without specifying decorator parameters.

`mod:termios` makes available FIONREAD, FIONCLEX, FIOCLEX, FIOASYNC and FIONBIO also under Solaris/derivatives.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.7.0b1.rst, line 284); [backlink](#)

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

Under Solaris and derivatives, `class:os.stat_result` provides a st_fstype attribute.

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Implement `Server.start_serving()`, `Server.serve_forever()`, and `Server.is_serving()` methods. Add 'start_serving' keyword parameter to `loop.create_server()` and `loop.create_unix_server()`.

Implement `meth:'asyncio.StreamWriter.wait_closed'` and `meth:'asyncio.StreamWriter.is_closing'` methods

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Make `Task._step`, `Task._wakeup` and `Future._schedule_callbacks` methods private.

Refactor decimal module to use contextvars to store decimal context.

Add `meth:'asyncio.AbstractEventLoop.sendfile'` method.

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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.

`concurrent.futures` imports `ThreadPoolExecutor` and `ProcessPoolExecutor` lazily (using [PEP 562](#)). It makes `import asyncio` about 15% faster because `asyncio` uses only `ThreadPoolExecutor` by default.

Add `_ignore_` to `Enum` so temporary variables can be used during class construction without being turned into members.

Use `queue.SimpleQueue()` in places where it can be invoked from a weakref callback.

Fix memory leak in `asyncio.Queue`, when the queue has limited size and it is full, the cancelation of `queue.put()` can cause a memory leak. Patch by: JosÃ© Melero.

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

`collections.abc.ValuesView` now inherits from `collections.abc.Collection`.

Improve `ABCMeta._dump_registry()` output readability

New argument `capture_output` for `subprocess.run`

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

`UUID` module fixes build for FreeBSD/OpenBSD

Pickling with protocol 4 no longer creates too small frames.

Create enum for `pstats` sorting options

Add `close(fd)` function to the `socket` module.

The `subprocess` module is now more graceful when handling a Ctrl-C KeyboardInterrupt during `subprocess.call`, `subprocess.run`, or a Popen context manager. It now waits a short amount of time for the child (presumed to have also gotten the SIGINT) to exit, before continuing the KeyboardInterrupt exception handling. This still includes a SIGKILL in the `call()` and `run()` APIs, but at least the child had a chance first.

The `hmac` module now has `hmac.digest()`, which provides an optimized HMAC digest.

Sockets now auto-detect family, type and protocol from file descriptor by default.

Fix bug where `meth:'datetime.datetime.fromtimestamp'` did not call `__new__` in `:class:'datetime.datetime'` subclasses.

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Improved speed of `:class:`datetime.date`` and `:class:`datetime.datetime`` alternate constructors.

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

Implement `loop.sock_sendfile` for asyncio event loop.

Added seek and tell to the `ZipExtFile` class. This only works if the file object used to open the zipfile is seekable.

Add `socket.getblocking()` method.

Add `:mod:`importlib.resources`` and `:class:`importlib.abc.ResourceReader`` as the unified API for reading resources contained within packages. Loaders wishing to support resource reading must implement the `:meth:`get_resource_reader()` method. File-based and zipimport-based loaders both implement these APIs. `:class:`importlib.abc.ResourceLoader`` is deprecated in favor of these new APIs.

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`collections.namedtuple()` now supports default values.

Add `contextlib.AsyncExitStack`. Patch by Alexander Mohr and Ilya Kulakov.

Removed in Python 3.7.0b2. The `args` argument of `subprocess.Popen` can now be a `:term:`path-like object``. If `args` is given as a sequence, its first element can now be a `:term:`path-like object`` as well.

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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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Use `super().method` instead of `socket.method` in `SSLSocket`. They were there most likely for legacy reasons.

The `ssl` module now uses OpenSSL's `X509_VERIFY_PARAM_set1_host()` and `X509_VERIFY_PARAM_set1_ip()` API to verify hostname and IP addresses. Subject common name fallback can be disabled with `SSLContext.hostname_checks_common_name`.

Add a `queue.SimpleQueue` class, an unbounded FIFO queue with a reentrant C implementation of `put()`.

Add references to some commands in the documentation of `Pdb`. Patch by StÃ©phane Wirtel

Complete the C API documentation, profiling and tracing part with the newly added per-opcode events.

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

Add test cases for IDNA 2003 and 2008 host names. IDNA 2003 internationalized host names are working since bpo-31399 has landed. IDNA 2008 are still broken.

Add a new `"_xxsubinterpreters"` extension module that exposes the existing subinterpreter C-API and a new cross-interpreter data sharing mechanism. The module is primarily intended for more thorough testing of the existing subinterpreter support. Note that the `_xxsubinterpreters` module has been removed in 3.7.0rc1.

Add test certs and test for ECDSA cert and EC/RSA dual mode.

On Travis CI, Python now Compiles and uses a local copy of OpenSSL 1.1.0g for testing.

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

Use `autoconf` to detect OpenSSL libs, headers and supported features. The `ax_check_openssl` M4 macro uses `pkg-config` to locate OpenSSL and falls back to manual search.

Drop support of FreeBSD 9 and older.

If the `:envvar:'SOURCE_DATE_EPOCH'` environment variable is set, `:mod:'py_compile'` will always create hash-based `.pyc` files.

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Create standalone `_distutils_findvs` module and add missing `_queue` module to installer.

Ensure separate Modify and Uninstall buttons are displayed.

Use app-local UCRT install rather than the proper update for old versions of Windows.

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 1.1.0g and to SQLite 3.22.0. The 10.9+ installer now links with and supplies its own copy of Tcl/Tk 8.6.

No longer add /Library/Python/3.x/site-packages to sys.path for macOS framework builds to avoid future conflicts.

Fix uninitialized variable 'res' in the C implementation of os.dup2. Patch by StÃ©phane Wirtel

Add C API access to the `datetime.timezone` constructor and `datetime.timezone.UTC` singleton.