

The ssl module now allows users to perform their own IDN en/decoding when using SNI.

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

Remove the new API added in bpo-31356 (`gc.ensure_disabled()` context manager).

For namespace packages, ensure that both `__file__` and `__spec__.origin` are set to `None`.

Make sure `__spec__.loader` matches `__loader__` for namespace packages.

Fix the warning messages for Python/ast\_unparse.c. Patch by StÃ©phane Wirtel

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

For dataclasses, disallow inheriting frozen from non-frozen classes, and also disallow inheriting non-frozen from frozen classes. This restriction will be relaxed at a future date.

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

Direct instantiation of `SSLSocket` and `SSLObject` objects is now prohibited. The constructors were never documented, tested, or designed as public constructors. Users were suppose to use `ssl.wrap_socket()` or `SSLContext`.

Remove the tri-state parameter "hash", and add the boolean "unsafe\_hash". If `unsafe_hash` is `True`, add a `__hash__` function, but if a `__hash__` exists, raise `TypeError`. If `unsafe_hash` is `False`, add a `__hash__` based on the values of `eq=` and `frozen=`. The `unsafe_hash=False` behavior is the same as the old `hash=None` behavior. `unsafe_hash=False` is the default, just as `hash=None` used to be.

Add `OP_ENABLE_MIDDLEBOX_COMPAT` and test workaround for TLSv1.3 for future compatibility with OpenSSL 1.1.1.

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.

`nt._getfinalpathname`, `nt._getvolumepathname` and `nt._getdiskusage` now correctly convert from bytes.

Emit a `:exc:'DeprecationWarning'` when using or importing an `ABC` directly from `:mod:'collections'` rather than from `:mod:'collections.abc'`.

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.7.0b2.rst, line 170); [backlink](#)**  
Unknown interpreted text role "exc".

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.7.0b2.rst, line 170); [backlink](#)**  
Unknown interpreted text role "mod".

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.7.0b2.rst, line 170); [backlink](#)**  
Unknown interpreted text role "mod".

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".

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

`_abc` module is added. It is a speedup module with C implementations for various functions and methods in `abc`. Creating an `ABC` subclass and calling `isinstance` or `issubclass` with an `ABC` subclass are up to 1.5x faster. In addition, this makes Python start-up up to 10% faster. Note that the new implementation hides internal registry and caches, previously accessible via private attributes `_abc_registry`, `_abc_cache`, and `_abc_negative_cache`. There are three debugging helper methods that can be used instead `_dump_registry`, `_abc_registry_clear`, and `_abc_caches_clear`.

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

`ssl.match_hostname()` has been simplified and no longer depends on `re` and `ipaddress` module for wildcard and IP addresses. Error reporting for invalid wildcards has been improved.

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

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.

collections.ChainMap() preserves the order of the underlying mappings.

`:func: finmatch.translate()` no longer produces patterns which contain set operations. Sets starting with '[' or containing '--', '&&', '~' or '|' will be interpreted differently in regular expressions in future versions. Currently they emit warnings. `finmatch.translate()` now avoids producing patterns containing such sets by accident.

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.7.0b2.rst, line 277); [backlink](#)**

Unknown interpreted text role "func".

Implement native fast sendfile for Windows proactor event loop.

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.

Implement `asyncio.TimerHandle.when()` method.

Use `mod_spec.parent` when running modules with pdb

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

Add TLSVersion constants and SSLContext.maximum\_version / minimum\_version attributes. The new API wraps OpenSSL 1.1 [https://www.openssl.org/docs/man1.1.0/ssl/SSL\\_CTX\\_set\\_min\\_proto\\_version.html](https://www.openssl.org/docs/man1.1.0/ssl/SSL_CTX_set_min_proto_version.html) feature.

Internal implementation details of ssl module were cleaned up. The SSLSocket has one less layer of indirection. Owner and session information are now handled by the SSLSocket and SSLObject constructor. Channel binding implementation has been simplified.

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

Add Tk spinbox widget to `mod:'tkinter.ttk'`. Patch by Alan D Moore.

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.7.0b2.rst, line 392); [backlink](#)**

Unknown interpreted text role "mod".

Various functions returning tuple containing IPv6 addresses now omit `%scope` part since the same information is already encoded in `scopeid` tuple item. Especially this speeds up `:func:'socket.recvfrom'` when it receives multicast packet since useless resolving of network interface name is omitted.

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.7.0b2.rst, line 401); [backlink](#)**

Unknown interpreted text role "func".

The TarFile class now recurses directories in a reproducible way.

The ZipFile class now recurses directories in a reproducible way.

The ssl module function `ssl.wrap_socket()` has been de-emphasized and deprecated in favor of the more secure and efficient `SSLContext.wrap_socket()` method.

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

Add documentation for the contextvars module (PEP 567).

Update link to w3c doc for xml default namespaces.

Update `mod:'test.support'` documentation.

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.7.0b2.rst, line 470); [backlink](#)**

Unknown interpreted text role "mod".

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

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-**

main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.7.0b2.rst, line 479); [backlink](#)

Unknown interpreted text role "meth".

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.7.0b2.rst, line 479); [backlink](#)

Unknown interpreted text role "meth".

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.7.0b2.rst, line 479); [backlink](#)

Unknown interpreted text role "exc".

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

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.7.0b2.rst, line 489); [backlink](#)

Unknown interpreted text role "exc".

Improve docstrings for *pathlib.PurePath* subclasses.

Add tests to verify connection with secp ECDH curves.

Fix the python debug build when using COUNT\_ALLOCS.

Update Tcl and Tk versions to 8.6.8

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.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.7.0b2.rst, line 573); [backlink](#)

Unknown interpreted text role "func".

Update macOS 10.9+ installer to Tcl/Tk 8.6.8.

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.

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