

Fixes `python3x._pth` being ignored on Windows, caused by the fix for `:issue:'29778'` (CVE-2020-15801).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 7); [backlink](#)

Unknown interpreted text role "issue".

Audit hooks are now cleared later during finalization to avoid missing events.

Ensure `:file:'python3.dll'` is loaded from correct locations when Python is embedded (CVE-2020-15523).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 27); [backlink](#)

Unknown interpreted text role "file".

The `__hash__()` methods of `ipaddress.IPv4Interface` and `ipaddress.IPv6Interface` incorrectly generated constant hash values of 32 and 128 respectively. This resulted in always causing hash collisions. The fix uses `hash()` to generate hash values for the tuple of (address, mask length, network address).

Prevent http header injection by rejecting control characters in `http.client.putrequest(...)`.

Fixed stack overflow in `:func:'issubclass'` and `:func:'isinstance'` when getting the `__bases__` attribute leads to infinite recursion.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 60); [backlink](#)

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 60); [backlink](#)

Unknown interpreted text role "func".

Speed up calls to `reversed()` by using the [PEP 590](#) `vectorcall` calling convention. Patch by Dong-hee Na.

Calls to `float()` are now faster due to the `vectorcall` calling convention. Patch by Dennis Sweeney.

Speed up calls to `bool()` by using the [PEP 590](#) `vectorcall` calling convention. Patch by Dong-hee Na.

Port the `:mod:'bisect'` module to the multi-phase initialization API ([PEP 489](#)).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 100); [backlink](#)

Unknown interpreted text role "mod".

Correctly count control blocks in 'except' in compiler. Ensures that a syntax error, rather a fatal error, occurs for deeply nested, named exception handlers.

Fix `:meth:'__dir__'` of `:class:'types.GenericAlias'`. Patch by Batuhan Taskaya.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 121); [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) 3.10.0a1.rst, line 121); [backlink](#)

Unknown interpreted text role "class".

Port the `:mod:'_lsprof'` extension module to multi-phase initialization ([PEP 489](#)).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 131); [backlink](#)

Unknown interpreted text role "mod".

Port the `:mod:'cmath'` extension module to multi-phase initialization ([PEP 489](#)).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 141); [backlink](#)

Unknown interpreted text role "mod".

Port the `:mod:`_scproxy`` extension module to multi-phase initialization ([PEP 489](#)).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 151); [backlink](#)

Unknown interpreted text role "mod".

Port the `:mod:`termios`` extension module to multi-phase initialization ([PEP 489](#)).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 161); [backlink](#)

Unknown interpreted text role "mod".

Convert the `:mod:`_sha256`` extension module types to heap types.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 171); [backlink](#)

Unknown interpreted text role "mod".

Fix a possible stack overflow in the parser when parsing functions and classes with a huge amount of arguments. Patch by Pablo Galindo.

Port the `:mod:`_overlapped`` extension module to multi-phase initialization ([PEP 489](#)).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 190); [backlink](#)

Unknown interpreted text role "mod".

Port the `:mod:`_curses_panel`` extension module to multi-phase initialization ([PEP 489](#)).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 200); [backlink](#)

Unknown interpreted text role "mod".

Port the `:mod:`_opcode`` extension module to multi-phase initialization ([PEP 489](#)).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 210); [backlink](#)

Unknown interpreted text role "mod".

Fixes the wrong error description in the error raised by using `2`, in format string in f-string and `:meth:`str.format``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 220); [backlink](#)

Unknown interpreted text role "meth".

The implementation of `:func:`signal.siginterrupt`` now uses `:func:`sigaction`` (if it is available in the system) instead of the deprecated `:func:`siginterrupt``. Patch by Pablo Galindo.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 230); [backlink](#)

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 230); [backlink](#)

Unknown interpreted text role "c:func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 230); [backlink](#)

Unknown interpreted text role "c:func".

Prevent line trace being skipped on platforms not compiled with `USE_COMPUTED_GOTOS`. Fixes issue where some lines nested within a try-except block were not being traced on Windows.

Fix a crash that occurred when destroying subclasses of `class:MemoryError`. Patch by Pablo Galindo.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 252); [backlink](#)

Unknown interpreted text role "class".

Port the `mod:zlib` extension module to multi-phase initialization ([PEP 489](#)).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 262); [backlink](#)

Unknown interpreted text role "mod".

The `_ast` module uses again a global state. Using a module state per module instance is causing subtle practical problems. For example, the Mercurial project replaces the `__import__()` function to implement lazy import, whereas Python expected that `import _ast` always return a fully initialized `_ast` module.

Convert `mod:_operator` to use `c:func:PyType_FromSpec`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 285); [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) 3.10.0a1.rst, line 285); [backlink](#)

Unknown interpreted text role "c:func".

Port `mod:_sha3` to multi-phase init. Convert static types to heap types.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 294); [backlink](#)

Unknown interpreted text role "mod".

Port the `mod:_blake2` extension module to the multi-phase initialization API ([PEP 489](#)).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 303); [backlink](#)

Unknown interpreted text role "mod".

Free the stack allocated in `va_build_stack` if `do_mkstack` fails and the stack is not a `small_stack`.

Fix a bug that was dropping keys when compiling dict literals with more than 0xFFFF elements. Patch by Pablo Galindo.

The output of `python --help` contains now only ASCII characters.

Port the `mod:_sha1`, `mod:_sha512`, and `mod:_md5` extension modules to multi-phase initialization API ([PEP 489](#)).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 342); [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) 3.10.0a1.rst, line 342); [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) 3.10.0a1.rst, line 342); [backlink](#)

Unknown interpreted text role "mod".

Optimize `dict_merge()` for copying dict (e.g. `dict(d)` and `{}.update(d)`).

Implement PEP 604. This supports `(int | str)` etc. in place of `Union[str, int]`.

Removed fallback implementation for `strdup`.

Handle interrupts that come after EOF correctly in `PyOS_StdioReadline`.

`:func:`round`` with integer argument is now faster (9--60%).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 390); [backlink](#)

Unknown interpreted text role "func".

Constructors `:func:`str``, `:func:`bytes`` and `:func:`bytearray`` are now faster (around 30--40% for small objects).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 399); [backlink](#)

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 399); [backlink](#)

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 399); [backlink](#)

Unknown interpreted text role "func".

Resolve a regression in CPython 3.8.4 where defining `"__setattr__"` in a multi-inheritance setup and calling up the hierarchy chain could fail if builtins/extension types were involved in the base types.

Bytecode optimizations are performed directly on the control flow graph. This will result in slightly more compact code objects in some circumstances.

Always cache the running loop holder when running `asyncio.set_running_loop`.

Fix incorrect refcounting in `_ssl.c's _servername_callback()`.

Port `:mod:`multiprocessing`` to multi-phase initialization

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 450); [backlink](#)

Unknown interpreted text role "mod".

Port `:mod:`winapi`` to multiphase initialization

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 459); [backlink](#)

Unknown interpreted text role "mod".

Use non-NULL default values in the PEG parser keyword list to overcome a bug that was preventing Python from being properly compiled when using the XLC compiler. Patch by Pablo Galindo.

Python 3.8.3 had a regression where compiling with `ast.PyCF_ALLOW_TOP_LEVEL_AWAIT` would aggressively mark list comprehension with `CO_COROUTINE`. Now only list comprehension making use of `async/await` will tagged as so.

Port `:mod:`faulthandler`` to multiphase initialization.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 491); [backlink](#)

Unknown interpreted text role "mod".

Port `:mod:`sha256`` to multiphase initialization

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 500); [backlink](#)

Unknown interpreted text role "mod".

Guard against a NULL pointer dereference within `bytearrayobject` triggered by the `bytearray() + bytearray()` operation.

add arm64 to the allowable Mac OS arches in `mpdecimal.h`

Fix decoding errors with audit when open files with non-ASCII names on non-UTF-8 locale.

The "hackcheck" that prevents sneaking around a type's `__setattr__()` by calling the superclass method was rewritten to allow C implemented heap types.

Prefix the error message with 'f-string: ', when parsing an f-string expression which throws a `:exc:`SyntaxError``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 549); [backlink](#)

Unknown interpreted text role "exc".

Empty frozensets are no longer singletons.

Pre-feed the parser with the location of the f-string expression, not the f-string itself, which allows us to skip the shifting of the AST node locations after the parsing is completed.

Fixes a reference to deallocated stack space during startup when constructing `sys.path` involving a relative symlink when code was supplied via `-c`. (discovered via Coverity)

Fix incorrect expressions and asserts in hashtable code and tests.

Opt out serialization/deserialization for `_random.Random`

Rename `PyPegen*` functions to `PyParser*`, so that we can remove the old set of `PyParser*` functions that were using the old parser, but keep everything backwards-compatible.

Stefan Behnel reported that `cf_feature_version` is used even when `PyCF_ONLY_AST` is not set. This is against the intention and against the documented behavior, so it's been fixed.

Remove the remaining files from the old parser and the `:mod:`symbol`` module.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 630); [backlink](#)

Unknown interpreted text role "mod".

Convert `:mod:`_bz2`` to use `:c:func:`PyType_FromSpec``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 639); [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) 3.10.0a1.rst, line 639); [backlink](#)

Unknown interpreted text role "c:func".

The `encodings.latin_1` module is no longer imported at startup. Now it is only imported when it is the filesystem encoding or the stdio encoding.

`:func:'zip'` now supports [PEP 618](#)'s `strict` parameter, which raises a `:exc:'ValueError'` if the arguments are exhausted at different lengths. Patch by Brandt Bucher.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 658); [backlink](#)

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 658); [backlink](#)

Unknown interpreted text role "exc".

Port `:mod:'_gdbm'` to multiphase initialization.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 669); [backlink](#)

Unknown interpreted text role "mod".

Fix a bug that caused the `:exc:'SyntaxError'` text to be empty when a file ends with a line ending in a line continuation character (i.e. backslash). The error text should contain the text of the last line.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 678); [backlink](#)

Unknown interpreted text role "exc".

Fix a possible buffer overflow in the PEG parser when gathering information for emitting syntax errors. Patch by Pablo Galindo.

Port `:mod:'_dbm'` to multiphase initialization.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 699); [backlink](#)

Unknown interpreted text role "mod".

Fix refleak in `_Py_fopen_obj()` when `PySys_Audit()` fails

Add a state to the `:mod:'nis'` module ([PEP 3121](#)) and apply the multiphase initialization. Patch by Dong-hee Na.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 717); [backlink](#)

Unknown interpreted text role "mod".

The Python `:ref' Path Configuration <init-path-config>` now takes `:c:member:'PyConfig.platlibdir'` in account.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 727); [backlink](#)

Unknown interpreted text role "ref".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 727); [backlink](#)

Unknown interpreted text role "c:member".

Remove the old parser, the `:mod:'parser'` module and all associated support code, command-line options and environment variables. Patch by Pablo Galindo.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 737); [backlink](#)

Unknown interpreted text role "mod".

Fix a bug where a line with only a line continuation character is not considered a blank line at tokenizer level. In such cases, more than

a single `NEWLINE` token was emitted. The old parser was working around the issue, but the new parser threw a `:exc:'SyntaxError'` for valid input due to this. For example, an empty line following a line continuation character was interpreted as a `:exc:'SyntaxError'`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 748); [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) 3.10.0a1.rst, line 748); [backlink](#)

Unknown interpreted text role "exc".

Each dictionary view now has a `mapping` attribute that provides a `:class:'types.MappingProxyType'` wrapping the original dictionary. Patch contributed by Dennis Sweeney.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 762); [backlink](#)

Unknown interpreted text role "class".

Improved the performance of symmetric difference operations on dictionary item views. Patch by Dennis Sweeney.

Fix possible segfault in the new PEG parser when parsing f-string containing yield statements with no value (`f"{{yield}}"`). Patch by Pablo Galindo

Fixed a possible segfault in the new PEG parser when producing error messages for invalid assignments of the form `p=p=`. Patch by Pablo Galindo

Fix invalid memory read in the new parser when checking newlines in string literals. Patch by Pablo Galindo.

Fix memory leak in when parsing f-strings in the new parser. Patch by Pablo Galindo

Raise `:exc:'ValueError'` when validating custom AST's where the constants `True`, `False` and `None` are used within a `:class:'ast.Name'` node.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 824); [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) 3.10.0a1.rst, line 824); [backlink](#)

Unknown interpreted text role "class".

Allow overriding `:data:'sys.platlibdir'` via a new `:envvar:'PYTHONPLATLIBDIR'` environment variable.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 834); [backlink](#)

Unknown interpreted text role "data".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 834); [backlink](#)

Unknown interpreted text role "envvar".

Fix GIL usage in `:c:func:'PyOS_Readline'`: lock the GIL to set an exception and pass the Python thread state when checking if there is a pending signal.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 844); [backlink](#)

Unknown interpreted text role "c:func".

Port `:mod:'fcntl'` to multiphase initialization.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 854); [backlink](#)

Unknown interpreted text role "mod".

Delete unnecessary instance check in `importlib.reload()`. Patch by Furkan Ander.

Unexpected errors in calling the `__iter__` method are no longer masked by `TypeError` in the `:keyword:'in'` operator and functions `:func:'~operator.contains'`, `:func:'~operator.indexOf` and `:func:'~operator.countOf` of the `mod:'operator'` module.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 873); [backlink](#)

Unknown interpreted text role "keyword".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 873); [backlink](#)

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 873); [backlink](#)

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 873); [backlink](#)

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 873); [backlink](#)

Unknown interpreted text role "mod".

Attributes `start`, `stop` and `step` of the `:class:'range'` object now always has exact type `:class:'int'`. Previously, they could have been an instance of a subclass of `int`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 885); [backlink](#)

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 885); [backlink](#)

Unknown interpreted text role "class".

Fix a corner case where g-style string formatting of a float failed to remove trailing zeros.

When there's a `:exc:'SyntaxError'` in the expression part of an fstring, the `filename` attribute of the `:exc:'SyntaxError'` gets correctly set to the name of the file the fstring resides in.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 906); [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) 3.10.0a1.rst, line 906); [backlink](#)

Unknown interpreted text role "exc".

Support the "-d" debug flag in the new PEG parser. Patch by Pablo Galindo

Instances of types created with `:c:func:'PyType_FromSpecWithBases'` will no longer automatically visit their class object when

traversing references in the garbage collector. The user is expected to manually visit the object's class. Patch by Pablo Galindo.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 926); [backlink](#)

Unknown interpreted text role "c:func".

`c:func:Py_TYPE()` is changed to the inline static function. Patch by Dong-hee Na.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 938); [backlink](#)

Unknown interpreted text role "c:func".

Fix a hang that can arise after `meth.generator.throw` due to a cycle in the exception context chain.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 948); [backlink](#)

Unknown interpreted text role "meth".

Each interpreter now has its own free lists, singletons and caches:

- Free lists: float, tuple, list, dict, frame, context, asynchronous generator, MemoryError.
- Singletons: empty tuple, empty bytes string, empty Unicode string, single byte character, single Unicode (latin1) character.
- Slice cache.

They are no longer shared by all interpreters.

Certain `exc:TypeError` messages about missing or extra arguments now include the function's `term:qualified name`. Patch by Dennis Sweeney.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 975); [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) 3.10.0a1.rst, line 975); [backlink](#)

Unknown interpreted text role "term".

Make the stack trace correct after calling `meth.generator.throw` on a generator that has yielded from a `yield from`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 985); [backlink](#)

Unknown interpreted text role "meth".

Improve performance of generators by not raising internal StopIteration.

Port `mod:mmap` to multiphase initialization.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1004); [backlink](#)

Unknown interpreted text role "mod".

Port `mod:_lzma` to multiphase initialization.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1013); [backlink](#)

Unknown interpreted text role "mod".

Builtin and extension functions that take integer arguments no longer accept `class:~decimal.Decimal`'s, `class:~fractions.Fraction`'s and other objects that can be converted to integers only with a loss (e.g. that have the `meth:~object.__int__` method but do not have the `meth:~object.__index__` method).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1022); [backlink](#)

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1022); [backlink](#)

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1022); [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) 3.10.0a1.rst, line 1022); [backlink](#)

Unknown interpreted text role "meth".

Add `meth: int.bit_count()`, counting the number of ones in the binary representation of an integer. Patch by Niklas Fiekas.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1035); [backlink](#)

Unknown interpreted text role "meth".

Use ncurses extended color functions when available to support terminals with 256 colors, and add the new function `:func: curses.has_extended_color_support` to indicate whether extended color support is provided by the underlying ncurses library.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1045); [backlink](#)

Unknown interpreted text role "func".

Add the private macros `_Py_COMP_DIAG_PUSH`, `_Py_COMP_DIAG_IGNORE_DEPR_DECLS`, and `_Py_COMP_DIAG_POP`.

The `int` type now supports the `x.is_integer()` method for compatibility with `float`.

C14N 2.0 serialisation in `xml.etree.ElementTree` failed for unprefixed attributes when a default namespace was defined.

Strip leading spaces and tabs on `:func: ast.literal_eval`. Also document stripping of spaces and tabs for `:func: eval`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1087); [backlink](#)

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1087); [backlink](#)

Unknown interpreted text role "func".

Note in documentation that `:func: random.choices` doesn't support non-finite weights, raise `:exc: ValueError` when given non-finite weights.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1097); [backlink](#)

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1097); [backlink](#)

Unknown interpreted text role "exc".

Fix a bug in the `:mod: symtable` module that was causing module-scope global variables to not be reported as both local and global.

Patch by Pablo Galindo.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1107); [backlink](#)

Unknown interpreted text role "mod".

Add `.func:codecs.unregister` function to unregister a codec search function.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1118); [backlink](#)

Unknown interpreted text role "func".

In `zipfile.Path`, mutate the passed `ZipFile` object type instead of making a copy. Prevents issues when both the local copy and the caller's copy attempt to close the same file handle.

More reliable validation of statements in `.class:timeit.Timer`. It now accepts "empty" statements (only whitespaces and comments) and rejects misindented statements.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1139); [backlink](#)

Unknown interpreted text role "class".

The `.class:threading.Thread` constructor now uses the target name if the *target* argument is specified but the *name* argument is omitted.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1150); [backlink](#)

Unknown interpreted text role "class".

fix `tkinter.EventType` Enum so all members are strings, and none are tuples

`.data:types.EllipsisType`, `.data:types.NotImplementedType` and `.data:types.NoneType` have been reintroduced, providing a new set of types readily interpretable by static type checkers.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1169); [backlink](#)

Unknown interpreted text role "data".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1169); [backlink](#)

Unknown interpreted text role "data".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1169); [backlink](#)

Unknown interpreted text role "data".

Fix SQLite3 segfault when backing up closed database. Patch contributed by Peter David McCormick.

StrEnum added: it ensures that all members are already strings or string candidates

fix bug allowing Enums to be extended via multiple inheritance

use the correct mix-in data type when constructing Enums

Add `is_typeddict` function to `typing.py` to check if a type is a TypedDict class

Previously there was no way to check that without using private API. See the *relevant issue in python/typing* <<https://github.com/python/typing/issues/751>>

Honor *object* overrides in *Enum* class creation (specifically, `__str__`, `__repr__`, `__format__`, and `__reduce_ex__`).

`enum.Flag` and `enum.IntFlag` members are now iterable

Fix a race condition in the `call_soon_threadsafe()` method of `asyncio.ProactorEventLoop`: do nothing if the self-pipe

socket has been closed.

Port the `marshal` extension module to the multi-phase initialization API (PEP 489).

Port the `_string` extension module to the multi-phase initialization API (PEP 489).

Added an `term` iterator to `class:memoryview`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1282); [backlink](#)

Unknown interpreted text role "term".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1282); [backlink](#)

Unknown interpreted text role "class".

Fixed `meth:~turtle.Vec2D.__mul__` for arguments which are not int or float.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1291); [backlink](#)

Unknown interpreted text role "meth".

Fix handling of debug mode in `func:asyncio.run`. This allows setting `PYTHONASYNCIODEBUG` or `-X dev` to enable asyncio debug mode when using `func:asyncio.run`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1301); [backlink](#)

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1301); [backlink](#)

Unknown interpreted text role "func".

Fix implementation of `sendfile` to be compatible with Solaris.

No longer override exceptions raised in `__len__()` of a sequence of parameters in `mod:sqlite3` with `exc:~sqlite3.ProgrammingError`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1321); [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) 3.10.0a1.rst, line 1321); [backlink](#)

Unknown interpreted text role "exc".

Restarting a `ProactorEventLoop` on Windows no longer logs spurious `ConnectionResetErrors`.

`exc:~sqlite3.ProgrammingError` message for absent parameter in `mod:sqlite3` contains now the name of the parameter instead of its index when parameters are supplied as a dict.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1341); [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) 3.10.0a1.rst, line 1341); [backlink](#)

Unknown interpreted text role "mod".

Fixed crash when mutate list of parameters during iteration in `:mod:'sqlite3'`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1352); [backlink](#)

Unknown interpreted text role "mod".

Improved the accuracy of `math.hypot()`. Internally, each step is computed with extra precision so that the result is now almost always correctly rounded.

The `pdb` `whatis` command correctly reports instance methods as 'Method' rather than 'Function'.

Fixed `pprint`'s handling of dict subclasses that override `__repr__`.

When cancelling the task due to a timeout, `:meth:'asyncio.wait_for'` will now wait until the cancellation is complete also in the case when `timeout` is `<= 0`, like it does with positive timeouts.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1392); [backlink](#)

Unknown interpreted text role "meth".

`:meth:'asyncio.wait_for'` now properly handles races between cancellation of itself and the completion of the wrapped awaitable.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1403); [backlink](#)

Unknown interpreted text role "meth".

Change the method `asyncio.AbstractEventLoop.run_in_executor` to not be a coroutine.

Fix `:mod:'codeop'` regression that prevented turning compile warnings into errors.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1423); [backlink](#)

Unknown interpreted text role "mod".

`turtle` uses `math` module functions to convert degrees to radians and vice versa and to calculate vector norm

Minor algorithmic improvement to `math.hypot()` and `math.dist()` giving small gains in speed and accuracy.

Fixed a race between `setTarget` and `flush` in logging handlers.`MemoryHandler`.

Fix potential `UnicodeDecodeError` in `dis` module.

On Windows, fix `asyncio.recv_into()` return value when the socket/pipe is closed (`:exc:'BrokenPipeError'`): return `0` rather than an empty byte string (`b''`).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1471); [backlink](#)

Unknown interpreted text role "exc".

Make `tkinter` doc example runnable.

Make an algebraic simplification to `random.paretovariate()`. It now is slightly less subject to round-off error and is slightly faster. Inputs that used to cause `ZeroDivisionError` now cause an `OverflowError` instead.

Add `:func:'os.cpu_count()` support for VxWorks RTOS.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1502); [backlink](#)

Unknown interpreted text role "func".

Fix the `:mod:'tarfile'` module to write only basename of TAR file to GZIP compression header.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1511); [backlink](#)

Unknown interpreted text role "mod".

Raise `TclError` instead of `TypeError` when an unknown option is passed to `tkinter.OptionMenu`.

Use `add_done_callback()` in `asyncio.loop.sock_accept()` to unsubscribe reader early on cancellation.

Reduce import overhead of `mod:uuid`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1541); [backlink](#)

Unknown interpreted text role "mod".

Set the environment variable `VIRTUAL_ENV_PROMPT` at `mod:venv` activation.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1550); [backlink](#)

Unknown interpreted text role "mod".

Recursive evaluation of `typing.ForwardRef` in `get_type_hints`.

Prevent creating `:class:shared_memory.SharedMemory` objects with `size=0`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1569); [backlink](#)

Unknown interpreted text role "class".

`meth:collections.OrderedDict.pop` is now 2 times faster.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1579); [backlink](#)

Unknown interpreted text role "meth".

Unpickling invalid `NEWOBJ_EX` opcode with the C implementation raises now `UnpicklingError` instead of crashing.

Avoid infinite loop when reading specially crafted TAR files using the `tarfile` module (CVE-2019-20907).

Speed up any transport using `_ProactorReadPipeTransport` by calling `recv_into` instead of `recv`, thus not creating a new buffer for each `recv` call in the transport's read loop.

Fix the error handling in `meth:ssl.SSLContext.load_dh_params`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1619); [backlink](#)

Unknown interpreted text role "meth".

In `distutils.spawn`, restore expectation that `DistutilsExecError` is raised when the command is not found.

Register `:class:array.array` as a `:class:~collections.abc.MutableSequence`. Patch by Pablo Galindo.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1638); [backlink](#)

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1638); [backlink](#)

Unknown interpreted text role "class".

Remove the `__new__` method of `:class:typing.Generic`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1648); [backlink](#)

Unknown interpreted text role "class".

Fix a crash in the `_ast` module: it can no longer be loaded more than once. It now uses a global state rather than a module state.

Add read-only `ssl.SSLContext.security_level` attribute to retrieve the context's security level.

The `write_history()` atexit function of the readline completer now ignores any `:exc:'OSError'` to ignore error if the filesystem is read-only, instead of only ignoring `:exc:'FileNotFoundError'` and `:exc:'PermissionError'`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1677); [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) 3.10.0a1.rst, line 1677); [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) 3.10.0a1.rst, line 1677); [backlink](#)

Unknown interpreted text role "exc".

selector: use DefaultSelector based upon implementation

The decimal module now requires libmpdec-2.5.0. Users of `--with-system-libmpdec` should update their system library.

The decimal module now requires libmpdec-2.5.0.

Fixed the `:mod:'trace'` module CLI for Python source files with non-UTF-8 encoding.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1717); [backlink](#)

Unknown interpreted text role "mod".

Use the term "iterable" in the docstring for `:func:'functools.reduce'`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1727); [backlink](#)

Unknown interpreted text role "func".

Remove freelist from `collections.deque()`.

Fix default-value signatures of several functions in the `:mod:'select'` module - by Anthony Sottile.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1745); [backlink](#)

Unknown interpreted text role "mod".

Fixed reading files with non-ASCII names from ZIP archive directly after writing them.

`:func:'pdb.find_function'` now correctly determines the source file encoding.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1765); [backlink](#)

Unknown interpreted text role "func".

Invalid file descriptor values are now prevented from being passed to `os.fpathconf`. (discovered by Coverity)

Fix a NULL pointer dereference within the `ssl` module during a `MemoryError` in the `keylog` callback. (discovered by Coverity)

Fixed an instance where a `MemoryError` within the `zoneinfo` module might not be reported or not reported at its source. (found by Coverity)

`:func:'mimetypes.read_mime_types'` function reads the rule file using UTF-8 encoding, not the locale encoding. Patch by Srinivas Reddy Thatiparthi.

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

main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1804); [backlink](#)

Unknown interpreted text role "func".

Fixed the use of `:func:`~glob.glob`` in the stdlib: literal part of the path is now always correctly escaped.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1814); [backlink](#)

Unknown interpreted text role "func".

Fixed an issue preventing the C implementation of `:class:`zoneinfo.ZoneInfo`` from being subclassed.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1824); [backlink](#)

Unknown interpreted text role "class".

Add the `:class:`xml.sax.handler.LexicalHandler`` class that is present in other SAX XML implementations.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1834); [backlink](#)

Unknown interpreted text role "class".

Improve performance of `HTTPResponse.read` with a given amount. Patch by Bruce Merry.

`:mod:`ensurepip`` now disables the use of `pip` cache when installing the bundled versions of `pip` and `setuptools`. Patch by Krzysztof Konopko.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1854); [backlink](#)

Unknown interpreted text role "mod".

Removed `:meth:`asyncio.Task.current_task`` and `:meth:`asyncio.Task.all_tasks``. Patch contributed by R mi Lapeyre.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1864); [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) 3.10.0a1.rst, line 1864); [backlink](#)

Unknown interpreted text role "meth".

Ensure `importlib.resources.path` returns an extant path for the `SourceFileLoader`'s resource reader. Avoids the regression identified in master while a long-term solution is devised.

Fix a minor memory leak in `:mod:`subprocess`` module when `extra_groups` was specified.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1885); [backlink](#)

Unknown interpreted text role "mod".

The standard deviation and variance functions in the statistics module were ignoring their `mu` and `xbar` arguments.

Use the new PEG parser when generating the stdlib `:mod:`keyword`` module.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1905); [backlink](#)

Unknown interpreted text role "mod".

Add `:data:`sys.orig_argv`` attribute: the list of the original command line arguments passed to the Python executable.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1914); [backlink](#)

Unknown interpreted text role "data".

Ignore empty or whitespace-only lines in .pth files. This matches the documented behavior. Before, empty lines caused the site-packages dir to appear multiple times in sys.path. By Ido Michael, contributors Malcolm Smith and Tal Einat.

Added a `defaults` parameter to `:class:`logging.Formatter``, to allow specifying default values for custom fields. Patch by Asaf Alon and Bar Harel.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1936); [backlink](#)

Unknown interpreted text role "class".

Clarify error message in the `:mod:`csv`` module.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1947); [backlink](#)

Unknown interpreted text role "mod".

Refresh `importlib.metadata` from `importlib_metadata` 1.6.1.

Stop `codeop._maybe_compile`, used by `code.InteractiveInterpreter` (and `IDLE`), from emitting each warning three times.

Fix reference leak in the `:mod:`select`` module when the module is imported in a subinterpreter.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1975); [backlink](#)

Unknown interpreted text role "mod".

Built-in loaders (`SourceFileLoader` and `ZipImporter`) now supply `TraversableResources` implementations for `ResourceReader`, and the fallback function has been removed.

`:class:`rlcompleter.Completer`` and the standard Python shell now close the parenthesis for functions that take no arguments. Patch contributed by RÃ©mi Lapeyre.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 1996); [backlink](#)

Unknown interpreted text role "class".

The topological sort functionality that was introduced initially in the `:mod:`functools`` module has been moved to a new `:mod:`graphlib`` module to better accommodate the new tools and keep the original scope of the `:mod:`functools`` module. Patch by Pablo Galindo

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2007); [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) 3.10.0a1.rst, line 2007); [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) 3.10.0a1.rst, line 2007); [backlink](#)

Unknown interpreted text role "mod".

Fix truncate when sending str object with `_xxsubinterpreters.channel_send`.

Add rich comparisons to `collections.Counter`).

Unexpected errors in calling the `__iter__` method are no longer masked by `TypeError` in `:func:`csv.reader``, `:func:`csv.writer.writerow`` and `:meth:`csv.writer.writerows``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2037); [backlink](#)

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2037); [backlink](#)

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2037); [backlink](#)

Unknown interpreted text role "meth".

Fixed email.contentmanager to allow set_content() to set a null string.

The `mod:'sqlite3'` module uses SQLite API functions that require SQLite v3.7.3 or higher. This patch removes support for older SQLite versions, and explicitly requires SQLite 3.7.3 both at build, compile and runtime. Patch by Sergey Fedoseev and Erlend E. Aasland.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2057); [backlink](#)

Unknown interpreted text role "mod".

Initialize PyDateTime_IsoCalendarDateType.tp_base at run-time to avoid errors on some compilers.

Update ensurepip to install pip 20.1.1 and setuptools 47.1.0.

The result of `:func:operator.index` now always has exact type `:class:'int'`. Previously, the result could have been an instance of a subclass of `int`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2088); [backlink](#)

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2088); [backlink](#)

Unknown interpreted text role "class".

`mod:'webbrowser'` now properly finds the default browser in pure Wayland systems by checking the `WAYLAND_DISPLAY` environment variable. Patch contributed by JÃ©rÃ©my Attali.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2098); [backlink](#)

Unknown interpreted text role "mod".

`:func:hashlib.compare_digest` uses OpenSSL's `CRYPTO_memcmp()` function when OpenSSL is available.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2109); [backlink](#)

Unknown interpreted text role "func".

`mod:'ctypes'` module: If ctypes fails to convert the result of a callback or if a ctypes callback function raises an exception, `sys.unraisablehook` is now called with an exception set. Previously, the error was logged into stderr by `:c:func:'PyErr_Print'`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2119); [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) 3.10.0a1.rst, line 2119); [backlink](#)

Unknown interpreted text role "c:func".

Add `:func:`base64.b32hexencode`` and `:func:`base64.b32hexdecode`` to support the Base32 Encoding with Extended Hex Alphabet.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2131); [backlink](#)

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2131); [backlink](#)

Unknown interpreted text role "func".

Fix `:mod:`ssl`` code to be compatible with OpenSSL 1.1.x builds that use `no-deprecated` and `--api=1.1.0`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2141); [backlink](#)

Unknown interpreted text role "mod".

Fix `asyncio loop.sock_*` race condition issue

Deprecate the `:mod:`symbol`` module.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2160); [backlink](#)

Unknown interpreted text role "mod".

The second argument (extra) of `LoggerAdapter.__init__` now defaults to `None`.

Add a new `:data:`os.RWF_APPEND`` flag for `:func:`os.pwritev``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2179); [backlink](#)

Unknown interpreted text role "data".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2179); [backlink](#)

Unknown interpreted text role "func".

Fix possible reference leak for `:mod:`sqlite3`` initialization.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2188); [backlink](#)

Unknown interpreted text role "mod".

Handle cases where the `end_lineno` is `None` on `:func:`ast.increment_lineno``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2197); [backlink](#)

Unknown interpreted text role "func".

`:mod:`distutils`` upload creates SHA2-256 and Blake2b-256 digests. MD5 digests is skipped if platform blocks MD5.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2207); [backlink](#)

Unknown interpreted text role "mod".

`mod:'hashlib'` no longer falls back to builtin hash implementations when OpenSSL provides a hash digest and the algorithm is blocked by security policy.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2217); [backlink](#)

Unknown interpreted text role "mod".

`func:hashlib.new` passed `usedforsecurity` to OpenSSL EVP constructor `_hashlib.new()`. `test_hashlib` and `test_smplib` handle strict security policy better.

`func:'ast.parse'` will not parse self documenting expressions in f-strings when passed `feature_version` is less than (3, 8).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2239); [backlink](#)

Unknown interpreted text role "func".

Add h5 file extension as MIME Type `application/x-hdf5`, as per HDF Group recommendation for HDF5 formatted data files. Patch contributed by Mark Schwab.

On macOS, when building Python for macOS 10.4 and older, which wasn't the case for python.org macOS installer, `func:'socket.getaddrinfo'` no longer uses an internal lock to prevent race conditions when calling `getaddrinfo()` which is thread-safe since macOS 10.5. Python 3.9 requires macOS 10.6 or newer. The internal lock caused random hang on fork when another thread was calling `func:'socket.getaddrinfo'`. The lock was also used on FreeBSD older than 5.3, OpenBSD older than 201311 and NetBSD older than 4.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2260); [backlink](#)

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2260); [backlink](#)

Unknown interpreted text role "func".

Prepare `_hashlib` for PEP 489 and use `c:func:'PyModule_AddType'`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2276); [backlink](#)

Unknown interpreted text role "c:func".

Added a new `term:'coroutine'` `func:'asyncio.to_thread'`. It is mainly used for running IO-bound functions in a separate thread to avoid blocking the event loop, and essentially works as a high-level version of `meth:'~asyncio.loop.run_in_executor'` that can directly take keyword arguments.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2285); [backlink](#)

Unknown interpreted text role "term".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2285); [backlink](#)

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2285); [backlink](#)

Unknown interpreted text role "meth".

Restored the deprecated `mod:'xml.etree.cElementTree'` module.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2298); [backlink](#)

Unknown interpreted text role "mod".

`:data:~mmap.MAP_POPULATE`` constant has now been added to the list of exported `:mod:mmap`` module flags.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2307); [backlink](#)

Unknown interpreted text role "data".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2307); [backlink](#)

Unknown interpreted text role "mod".

PEP 554 for use in the test suite. (Patch By Joannah Nanjekye)

`ctypes` now raises an `ArgumentError` when a callback is invoked with more than 1024 arguments.

A new test assertion context-manager, `:func:unittest.assertNoLogs`` will ensure a given block of code emits no log messages using the logging module. Contributed by Kit Yan Choi.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2336); [backlink](#)

Unknown interpreted text role "func".

Updated the error message and docs of `PurePath.relative_to()` to better reflect the function behaviour.

Use SQLite3 trace v2 API, if it is available.

`ZipFile` truncates files to avoid corruption when a shorter comment is provided in append ("a") mode. Patch by Jan Mazur.

Fix `Enum.__dir__`: `dir(Enum.member)` now includes attributes as well as methods.

`ssl.wrap_socket()` now raises `ssl.SSLEOFError` rather than `OSError` when peer closes connection during TLS negotiation

fix default `__missing__` so a duplicate `ValueError` is not set as the `__context__` of the original `ValueError`

Fixed `:class:multiprocessing.context.get_all_start_methods`` to properly return the default method first on macOS.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2406); [backlink](#)

Unknown interpreted text role "class".

Fix parsing of invalid mime headers parameters by collapsing whitespace between encoded words in a bare-quote-string.

Add `--quiet` option to command-line interface of `:mod:py_compile``. Patch by Gregory Schevchenko.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2426); [backlink](#)

Unknown interpreted text role "mod".

`:exc:struct.error`` is now raised if there is a null character in a `:mod:struct`` format string.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2436); [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) 3.10.0a1.rst, line 2436); [backlink](#)

Unknown interpreted text role "mod".

Added the `root_dir` and `dir_fd` parameters in `:func:glob.glob``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2446); [backlink](#)

Unknown interpreted text role "func".

Fix `meth:IMAP4.noop()` when debug mode is enabled (ex: `imaplib.Debug = 3`).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2455); [backlink](#)

Unknown interpreted text role "meth".

`func:csv.writer` now correctly escapes *escapechar* when input contains *escapechar*. Patch by Catalin Iacob, Berker Peksag, and Itay Elbirt.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2465); [backlink](#)

Unknown interpreted text role "func".

AST nodes are now raising `exc:TypeError` on conflicting keyword arguments. Patch contributed by RÃ©mi Lapeyre.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2475); [backlink](#)

Unknown interpreted text role "exc".

Added site.py site-packages tracing in verbose mode.

Refactor `formatweekday`, `formatmonthname` methods in `LocaleHTMLCalendar` and `LocaleTextCalendar` classes in `calendar` module to call the base class methods. This enables customizable CSS classes for `LocaleHTMLCalendar`. Patch by Srinivas Reddy Thatiparthi

`func:~unittest.TestCase.assertWarns` no longer raises a `RuntimeException` when accessing a module's `__warningregistry__` causes importation of a new module, or when a new module is imported in another thread. Patch by Kerno.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2506); [backlink](#)

Unknown interpreted text role "func".

Remove `ParserBase.error()` method from the private and undocumented `_markupbase` module.

`class:html.parser.HTMLParser` is the only subclass of `ParserBase` and its `error()` implementation was deprecated in Python 3.4 and removed in Python 3.5.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2518); [backlink](#)

Unknown interpreted text role "class".

Fix `cgi.parse_multipart` without `content_length`. Patch by Roger Duran

Fix `pathlib.PosixPath` to resolve a relative path located on the root directory properly.

Improve the error message for a misbehaving `rawio.readinto`

The `d.is_integer()` method is added to the `Decimal` type, for compatibility with other number types.

The `x.is_integer()` method is incorporated into the abstract types of the numeric tower, `Real`, `Rational` and `Integral`, with appropriate default implementations.

Add documentation for [PEP 604](#) (Allow writing union types as `X | Y`).

In Programming FAQ "Sequences (Tuples/Lists)" section, add "How do you remove multiple items from a list".

Fix `RemovedInSphinx40Warning` when building the documentation. Patch by Dong-hee Na.

Change Shipman tkinter doc link from `archive.org` to `TkDocs`. (The doc has been removed from the NMT server.) The new link responds much faster and includes a short explanatory note.

Update the `refcounts` info of `PyType_FromModuleAndSpec`.

Fix the signature of `class:typing.Coroutine`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2628); [backlink](#)

Unknown interpreted text role "class".

Enable Sphinx 3.2 `c_allow_pre_v3` option and disable `c_warn_on_allowed_pre_v3` option to make the documentation compatible with Sphinx 2 and Sphinx 3.

Add documentation for debug feature of f-strings.

Changed the release when `from __future__ import annotations` becomes the default from 4.0 to 3.10 (following a change in PEP 563).

Refactored `typing.rst`, arranging more than 70 classes, functions, and decorators into new sub-sections.

Fix in tutorial section 4.2. Code snippet is now correct.

Make code, examples, and recipes in the Python documentation be licensed under the more permissive BSD0 license in addition to the existing Python 2.0 license.

Updated Documentation to comprehensively elaborate on the behaviour of `gather.cancel()`

Fix `test_site.test_license_exists_at_url()`: call `urllib.request.urlcleanup()` to reset the global `urllib.request._opener`. Patch by Victor Stinner.

Make `test_cmd_line_script` pass with option `'-vv'`.

Add tests for SIGINT handling in the `runpy` module.

`:mod:`test.support``: Rename `blacklist` parameter of `:func:`~test.support.check__all__`` to `not_exported`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2736); [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) 3.10.0a1.rst, line 2736); [backlink](#)

Unknown interpreted text role "func".

Make `ctypes` optional in `test_genericalias`.

Fix integer overflow in the `:meth:`array.array.index`` method on 64-bit Windows for index larger than 2^{31} .

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2755); [backlink](#)

Unknown interpreted text role "meth".

`:data:`test.support.TESTFN`` and the current directory for tests when run via `test.regrtest` contain now non-ascii characters if possible.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2765); [backlink](#)

Unknown interpreted text role "data".

On Linux, skip tests using multiprocessing if the current user cannot create a file in `/dev/shm/` directory. Add the `:func:`~test.support.skip_if_broken_multiprocessing_synchronize`` function to the `:mod:`test.support`` module.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2775); [backlink](#)

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2775); [backlink](#)

Unknown interpreted text role "mod".

Fix use of `support.require_{linux|mac|freebsd}_version()` decorators as class decorator.

Fix test_copyreg when numpy is installed: test.pickletester now saves/restores warnings filters when importing numpy, to ignore filters installed by numpy.

Disable remote `:mod:'imaplib'` tests, host cyrus.andrew.cmu.edu is blocking incoming connections.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2808); [backlink](#)

Unknown interpreted text role "mod".

Fix test_binhex when run twice: it now uses import_fresh_module() to ensure that it raises DeprecationWarning each time.

Skip some `:mod:'multiprocessing'` tests when MD5 hash digest is blocked.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2828); [backlink](#)

Unknown interpreted text role "mod".

Increase LOOPBACK_TIMEOUT to 10 for VxWorks RTOS.

Increase code coverage for SharedMemory and ShareableList

Make test_gdb properly run on HP-UX. Patch by Michael Osipov.

Update `:c:macro:'Py_UNREACHABLE'` to use __builtin_unreachable() if only the compiler is able to use it. Patch by Dong-hee Na.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2864); [backlink](#)

Unknown interpreted text role "c:macro".

Fix pycore_bitutils.h header file to support old clang versions: __builtin_bswap16() is not available in LLVM clang 3.0.

Pin Sphinx version to 2.3.1 in Doc/Makefile.

The C99 functions `:c:func:'snprintf'` and `:c:func:'vsnprintf'` are now required to build Python.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2893); [backlink](#)

Unknown interpreted text role "c:func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2893); [backlink](#)

Unknown interpreted text role "c:func".

make install now uses the PLATLIBDIR variable for the destination lib-dynload/ directory when ./configure --with-platlibdir is used.

Fixed an issue where the `:mod:'zoneinfo'` module and its tests were not included when Python is installed with make.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2913); [backlink](#)

Unknown interpreted text role "mod".

Fixes automatic import of props file when using the Nuget package.

The user site directory for 32-bit now includes a -32 suffix to distinguish it from the 64-bit interpreter's directory.

Fixed layout of final page of the installer by removing the special thanks to Mark Hammond (with his permission).

Fixes the description that appears in UAC prompts.

Improve post-install message to direct people to the "py" command.

The installer will now fail to install on Windows 7 and Windows 8. Further, the UCRT dependency is now always downloaded on demand.

Update Windows release to include SQLite 3.32.3.

`:mod:'msilib'` now supports creating CAB files with non-ASCII file path and adding files with non-ASCII file path to them.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2989); [backlink](#)

Unknown interpreted text role "mod".

Fixed support of non-ASCII names in functions `:func:`msilib.OpenDatabase`` and `:func:`msilib.init_database`` and non-ASCII SQL in method `:meth:`msilib.Database.OpenView``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2999); [backlink](#)

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2999); [backlink](#)

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 2999); [backlink](#)

Unknown interpreted text role "meth".

Stable ABI redirection DLL (python3.dll) now uses `#pragma comment(linker)` for re-exporting.

Updates Windows OpenSSL to 1.1.1g

Changes the registered MIME type for `.py` files on Windows to `text/x-python` instead of `text/plain`.

Manually define `IO_REPARSE_TAG_APEXCLINK` in case some old Windows SDK doesn't have it.

Extend `py.exe` help to mention overrides via `venv`, `shebang`, environmental variables & ini files.

Update macOS installer to use SQLite 3.33.0.

Avoid opening Finder window if running installer from the command line. Patch contributed by Rick Heil.

Fix configure error when building on macOS 11. Note that the current Python release was released shortly after the first developer preview of macOS 11 (Big Sur); there are other known issues with building and running on the developer preview. Big Sur is expected to be fully supported in a future bugfix release of Python 3.8.x and with 3.9.0.

Update macOS installer to use SQLite 3.32.3.

fixed an XDG settings issue not allowing macos to open browser in `webbrowser.py`

Update macOS installer to use SQLite 3.32.2.

Use 'IDLE Shell' as shell title

Rewrite the Calltips doc section.

In calltips, stop reminding that `'/'` marks the end of positional-only arguments.

Improve IDLE run crash error message (which users should never see).

Save files loaded with no line ending, as when blank, or different line endings, by setting its line ending to the system default. Fix regression in 3.8.4 and 3.9.0b4.

Save files with non-ascii chars. Fix regression released in 3.9.0b4 and 3.8.4.

Add keywords to module name completion list. Rewrite Completions section of IDLE doc.

The encoding of `stdin`, `stdout` and `stderr` in IDLE is now always UTF-8.

Make Open Module open a special module such as `os.path`.

Make context menu Cut and Copy work again when right-clicking within a selection.

Make `test_idle` pass when run after import.

Removed undocumented macros `Py_ALLOW_RECURSION` and `Py_END_ALLOW_RECURSION` and the `recursion_critical` field of the `:c:type:`PyInterpreterState`` structure.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3225); [backlink](#)

Unknown interpreted text role "c:type".

The `PyUnicode_InternImmortal()` function is now deprecated and will be removed in Python 3.12: use `c:func:'PyUnicode_InternInPlace'` instead. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3236); [backlink](#)

Unknown interpreted text role "c:func".

Add `c:func:'PyCodec_Unregister'` function to unregister a codec search function.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3247); [backlink](#)

Unknown interpreted text role "c:func".

Remove the `_Py_CheckRecursionLimit` variable: it has been replaced by `ceval.recursion_limit` of the `c:type:'PyInterpreterState'` structure. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3257); [backlink](#)

Unknown interpreted text role "c:type".

Types created with `c:func:'PyType_FromSpec'` now make any signature in their `tp_doc` slot accessible from `__text_signature__`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3268); [backlink](#)

Unknown interpreted text role "c:func".

Fix bug in `PyOS_mystrincpy` and `PyOS_mystrincpy` that incremented pointers beyond the end of a string.

Add a minimal decimal capsule API. The API supports fast conversions between Decimals up to 38 digits and their triple representation as a C struct.

Add `c:func:'PyDateTime_DATE_GET_TZINFO'` and `c:func:'PyDateTime_TIME_GET_TZINFO'` macros for accessing the `tzinfo` attributes of `c:class:'datetime.datetime'` and `c:class:'datetime.time'` objects.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3299); [backlink](#)

Unknown interpreted text role "c:func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3299); [backlink](#)

Unknown interpreted text role "c:func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3299); [backlink](#)

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3299); [backlink](#)

Unknown interpreted text role "class".

Revert `c:func:'PyType_HasFeature'` change: it reads again directly the `c:member:'PyTypeObject.tp_flags'` member when the limited C API is not used, rather than always calling `c:func:'PyType_GetFlags'` which hides implementation details.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3310); [backlink](#)

Unknown interpreted text role "c:func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3310); [backlink](#)

Unknown interpreted text role "c:member".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3310); [backlink](#)

Unknown interpreted text role "c:func".

Remove `PyUnicode_AsUnicodeCopy`.

Removed `PyLong_FromUnicode()`.

Removed `PyUnicode_GetMax()`.

Removed `Py_UNICODE_str*` functions manipulating `Py_UNICODE*` strings.

`PyObject_AsCharBuffer()`, `PyObject_AsReadBuffer()`, `PyObject_CheckReadBuffer()`, and `PyObject_AsWriteBuffer()` are removed. Please migrate to new buffer protocol; `:c:func:`PyObject_GetBuffer`` and `:c:func:`PyBuffer_Release``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3358); [backlink](#)

Unknown interpreted text role "c:func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3358); [backlink](#)

Unknown interpreted text role "c:func".

Raises `DeprecationWarning` for `PyUnicode_FromUnicode(NULL, size)` and `PyUnicode_FromStringAndSize(NULL, size)` with `size > 0`.

Mark `Py_UNICODE_COPY`, `Py_UNICODE_FILL`, `PyUnicode_WSTR_LENGTH`, `PyUnicode_FromUnicode`, `PyUnicode_AsUnicode`, and `PyUnicode_AsUnicodeAndSize` as deprecated in C. Remove `Py_UNICODE_MATCH` which was deprecated and broken since Python 3.3.

The `:c:func:`PyObject_INIT`` and `:c:func:`PyObject_INIT_VAR`` macros become aliases to, respectively, `:c:func:`PyObject_Init`` and `:c:func:`PyObject_InitVar`` functions.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3392); [backlink](#)

Unknown interpreted text role "c:func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3392); [backlink](#)

Unknown interpreted text role "c:func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3392); [backlink](#)

Unknown interpreted text role "c:func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3392); [backlink](#)

Unknown interpreted text role "c:func".

On Windows, `#include "pyerrors.h"` no longer defines `sprintf` and `vsprintf` macros.

The `PY_SSIZE_T_CLEAN` macro must now be defined to use `:c:func:`PyArg_ParseTuple`` and `:c:func:`Py_BuildValue`` formats which use `#:es#, et#, s#, u#, y#, z#, U#` and `Z#`. See [ref:Parsing arguments and building values <arg-parsing>](#) and the [PEP 353](#).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3413); [backlink](#)

Unknown interpreted text role "c:func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3413); [backlink](#)

Unknown interpreted text role "c:func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3413); [backlink](#)

Unknown interpreted text role "ref".

Export explicitly the `c:func:Py_GetArgcArgv` function to the C API and document the function. Previously, it was exported implicitly which no longer works since Python is built with `-fvisibility=hidden`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3426); [backlink](#)

Unknown interpreted text role "c:func".

Allow defining buffer slots in type specs.

Fix a `_PyEval_EvalCode()` crash if `qualname` argument is NULL.

Calling `c:func:PyDict_GetItem` without `term:GIL` held had been allowed for historical reason. It is no longer allowed.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3455); [backlink](#)

Unknown interpreted text role "c:func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3455); [backlink](#)

Unknown interpreted text role "term".

`c:func:PyOS_InterruptOccurred` now fails with a fatal error if it is called with the GIL released.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3465); [backlink](#)

Unknown interpreted text role "c:func".

The result of `c:func:PyNumber_Index` now always has exact type `class:int`. Previously, the result could have been an instance of a subclass of `int`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3475); [backlink](#)

Unknown interpreted text role "c:func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3475); [backlink](#)

Unknown interpreted text role "class".

Convert `c:func:Py_REFCNT` and `c:func:Py_SIZE` macros to static inline functions. They cannot be used as l-value anymore: use `c:func:Py_SET_REFCNT` and `c:func:Py_SET_SIZE` to set an object reference count and size. This change is backward incompatible on purpose, to prepare the C API for an opaque `c:type:PyObject` structure.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3486); [backlink](#)

Unknown interpreted text role "c:func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3486); [backlink](#)

Unknown interpreted text role "c:func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3486); [backlink](#)

Unknown interpreted text role "c:func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3486); [backlink](#)

Unknown interpreted text role "c:func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.10.0a1.rst, line 3486); [backlink](#)

Unknown interpreted text role "c:type".

The `PyType_FromSpec*()` functions no longer overwrite the type's `__module__` attribute if it is set via `"Py_tp_members"` or `"Py_tp_getset"`.

Remove superfluous "extern C" declarations from `Include/cpython/*.h`.