

Replaced usage of `:func:`tempfile.mktemp`` with `:class:`~tempfile.TemporaryDirectory`` to avoid a potential race condition.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 7); [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] 3.11.0a1.rst, line 7); [backlink](#)

Unknown interpreted text role "class".

Fix incorrect line numbers while tracing some failed patterns in `ref:match<match>` statements. Patch by Charles Burkland.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 17); [backlink](#)

Unknown interpreted text role "ref".

Add auditing events to the `:mod:`marshal`` module, and stop raising `code.__init__` events for every unmarshalled code object. Directly instantiated code objects will continue to raise an event, and audit event handlers should inspect or collect the raw marshal data. This reduces a significant performance overhead when loading from `.pyc` files.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 27); [backlink](#)

Unknown interpreted text role "mod".

Update the vendored copy of libexpat to 2.4.1 (from 2.2.8) to get the fix for the CVE-2013-0340 "Billion Laughs" vulnerability. This copy is most used on Windows and macOS.

Made the internal `putcmd` function in `:mod:`smtplib`` sanitize input for presence of `\r` and `\n` characters to avoid (unlikely) command injection.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 51); [backlink](#)

Unknown interpreted text role "mod".

`:mod:`http.client`` now avoids infinitely reading potential HTTP headers after a 100 Continue status response from the server.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 62); [backlink](#)

Unknown interpreted text role "mod".

The number of hardware branches per instruction dispatch is reduced from two to one by adding a special instruction for tracing. Patch by Mark Shannon.

Add a deallocator to the bool type to detect refcount bugs in C extensions which call `Py_DECREF(Py_True)` or `Py_DECREF(Py_False)` by mistake. Detect also refcount bugs when the empty tuple singleton or the Unicode empty string singleton is destroyed by mistake. Patch by Victor Stinner.

`sum()` was further optimised for summing up single digit integers.

Update Unicode databases to Unicode 14.0.0.

Fix deepcopying of `:class:`types.GenericAlias`` objects.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 112); [backlink](#)

Unknown interpreted text role "class".

`:meth:`int.to_bytes`` and `:meth:`int.from_bytes`` now take a default value of "big" for the `byteorder` argument. `:meth:`int.to_bytes`` also takes a default value of 1 for the `length` argument.

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

main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.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] 3.11.0a1.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] 3.11.0a1.rst, line 121); [backlink](#)

Unknown interpreted text role "meth".

Release the GIL while performing `isatty` system calls on arbitrary file descriptors. In particular, this affects `:func:'os.isatty'`, `:func:'os.device_encoding'` and `:class:'io.TextIOWrapper'`. By extension, `:func:'io.open'` in text mode is also affected. This change solves a deadlock in `:func:'os.isatty'`. Patch by Vincent Michel in `:issue:'44219'`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 132); [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] 3.11.0a1.rst, line 132); [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] 3.11.0a1.rst, line 132); [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] 3.11.0a1.rst, line 132); [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] 3.11.0a1.rst, line 132); [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] 3.11.0a1.rst, line 132); [backlink](#)

Unknown interpreted text role "issue".

Added fallback to extension modules with '.sl' suffix on HP-UX

Fix issue where `Protocol.__init__` raises `RecursionError` when it's called directly or via `super()`. Patch provided by Yurii Karabas.

The deallocator function of the `:exc:'BaseException'` type now uses the trashcan mechanism to prevent stack overflow. For example, when a `:exc:'RecursionError'` instance is raised, it can be linked to another `RecursionError` through the `__context__` attribute or the `__traceback__` attribute, and then a chain of exceptions is created. When the chain is destroyed, nested deallocator function calls can crash with a stack overflow if the chain is too long compared to the available stack memory. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 164); [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] 3.11.0a1.rst, line 164); [backlink](#)

Unknown interpreted text role "exc".

Fix PyAiter_Check to only check for the `__anext__` presence (not for `__aiter__`). Rename PyAiter_Check to PyAlter_Check, PyObject_GetAiter -> PyObject_GetAlter.

Interpreter no longer attempts to open files with names in angle brackets (like "<string>" or "<stdin>") when formatting an exception.

Match C and Python code formatting of unprintable exceptions and exceptions in the `mod: __main__` module.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 201); [backlink](#)

Unknown interpreted text role "mod".

`:func: 'open'`, `:func: 'io.open'`, `:func: 'codecs.open'` and `:class: 'fileinput.FileInput'` no longer accept `'u'` ("universal newline") in the file mode. This flag was deprecated since Python 3.3. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 211); [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] 3.11.0a1.rst, line 211); [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] 3.11.0a1.rst, line 211); [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] 3.11.0a1.rst, line 211); [backlink](#)

Unknown interpreted text role "class".

When the interpreter renders an exception, its name now has a complete qualname. Previously only the class name was concatenated to the module name, which sometimes resulted in an incorrect full name being displayed.

(This issue impacted only the C code exception rendering, the `mod: 'traceback'` module was using qualname already).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 227); [backlink](#)

Unknown interpreted text role "mod".

List sorting now uses the merge-ordering strategy from Munro and Wild's `powersort()`. Unlike the former strategy, this is provably near-optimal in the entropy of the distribution of run lengths. Most uses of `list.sort()` probably won't see a significant time difference, but may see significant improvements in cases where the former strategy was exceptionally poor. However, as these are all fast linear-time approximations to a problem that's inherently at best quadratic-time to solve truly optimally, it's also possible to contrive cases where the former strategy did better.

Compiler now removes trailing unused constants from `co_consts`.

Add a new command line option, `"-X frozen_modules=[on|off]"` to opt out of (or into) using optional frozen modules. This defaults to "on" (or "off" if it's running out of the source tree).

In `mod: 'posix'`, release GIL during `stat()`, `lstat()`, and `fstatat()` syscalls made by `:func: 'os.DirEntry.stat'`. Patch by Stanisław Skonieczny.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 274); [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] 3.11.0a1.rst, line 274); [backlink](#)

Unknown interpreted text role "func".

Fixed pickling of range iterators that iterated for over 2^{32} times.

A `:exc:'SyntaxError'` is now raised when trying to delete `:const:'__debug__'`. 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] 3.11.0a1.rst, line 294); [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] 3.11.0a1.rst, line 294); [backlink](#)

Unknown interpreted text role "const".

Implement `send()` and `throw()` methods for `anext_awaitable` objects. Patch by Pablo Galindo.

Fix a race in `WeakKeyDictionary`, `WeakValueDictionary` and `WeakSet` when two threads attempt to commit the last pending removal. This fixes `asyncio.create_task` and fixes a data loss in `asyncio.run` where `shutdown_asyncgens` is not run

Implement the `:meth:'__bytes__'` special method on the `:class:'bytes'` type, so a bytes object `b` passes an `isinstance(b, typing.SupportsBytes)` check.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 326); [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] 3.11.0a1.rst, line 326); [backlink](#)

Unknown interpreted text role "class".

Implement the `:meth:'__complex__'` special method on the `:class:'complex'` type, so a complex number `z` passes an `isinstance(z, typing.SupportsComplex)` check.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 337); [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] 3.11.0a1.rst, line 337); [backlink](#)

Unknown interpreted text role "class".

Fixed a corner case bug where the result of `float.fromhex('0x.8p-1074')` was rounded the wrong way.

Refine the syntax error for trailing commas in import statements. Patch by Pablo Galindo.

Specialize the `BINARY_ADD` instruction using the PEP 659 machinery. Adds five new instructions:

- `BINARY_ADD_ADAPTIVE`
- `BINARY_ADD_FLOAT`
- `BINARY_ADD_INT`
- `BINARY_ADD_UNICODE`
- `BINARY_ADD_UNICODE_INPLACE_FAST`

Fix some edge cases of `enum.Flag` string representation in the REPL. Patch by Pablo Galindo.

Class version tags are no longer recycled.

This means that a version tag serves as a unique identifier for the state of a class. We rely on this for effective specialization of the `LOAD_ATTR` and other instructions.

Restore behaviour of complex exponentiation with integer-valued exponent of type `:class:'float'` or `:class:'complex'`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 407); [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] 3.11.0a1.rst, line 407); [backlink](#)

Unknown interpreted text role "class".

A debug variable `:envvar:'PYTHONDUMPPREFSFILE'` is added for creating a dump file which is generated by `:option:'--with-trace-refs'`. 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] 3.11.0a1.rst, line 417); [backlink](#)

Unknown interpreted text role "envvar".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 417); [backlink](#)

Unknown interpreted text role "option".

Add five superinstructions for PEP 659 quickening:

- LOAD_FAST LOAD_FAST
- STORE_FAST LOAD_FAST
- LOAD_FAST LOAD_CONST
- LOAD_CONST LOAD_FAST
- STORE_FAST STORE_FAST

Initial implementation of adaptive specialization of `LOAD_METHOD`. The following specialized forms were added:

- `LOAD_METHOD_CACHED`
- `LOAD_METHOD_MODULE`
- `LOAD_METHOD_CLASS`

Specialization stats are always collected in debug builds.

Correct the ast locations of f-strings with format specs and repeated expressions. Patch by Pablo Galindo

Remove the loop from the bytecode interpreter. All instructions end with a `DISPATCH` macro, so the loop is now redundant.

Remove switch statement for interpreter loop when using computed gotos. This makes sure that we only have one dispatch table in the interpreter.

Deprecate the old trashcan macros (`Py_TRASHCAN_SAFE_BEGIN/Py_TRASHCAN_SAFE_END`). They should be replaced by the new macros `Py_TRASHCAN_BEGIN` and `Py_TRASHCAN_END`.

Use new trashcan macros (`Py_TRASHCAN_BEGIN/END`) in `frameobject.c` instead of the old ones (`Py_TRASHCAN_SAFE_BEGIN/END`).

Fix segmentation fault with deep recursion when cleaning method objects. Patch by Augusto Goulart and Pablo Galindo.

Fix bug where `PyErr_SetObject` hangs when the current exception has a cycle in its context chain.

Fix reference leaks in the error paths of `update_bases()` and `__build_class__`. Patch by Pablo Galindo.

Initial implementation of adaptive specialization of `STORE_ATTR`

Three specialized forms of `STORE_ATTR` are added:

- `STORE_ATTR_SLOT`
- `STORE_ATTR_SPLIT_KEYS`
- `STORE_ATTR_WITH_HINT`

Fixed a bug that was causing the parser to raise an incorrect custom `:exc:'SyntaxError'` for invalid 'if' expressions. Patch by Pablo Galindo.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 566); [backlink](#)

Unknown interpreted text role "exc".

Create instance dictionaries (`__dict__`) eagerly, to improve regularity of object layout and assist specialization.

Improve syntax errors for if expressions. Patch by Miguel Brito

Generalize the invalid legacy statement custom error message (like the one generated when "print" is called without parentheses) to

include more generic expressions. Patch by Pablo Galindo

Rename `types.Union` to `types.UnionType`.

Expose specialization stats in python via `:func: '_opcode.get_specialization_stats'`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 615); [backlink](#)

Unknown interpreted text role "func".

Improve `AttributeError` on circular imports of submodules.

Fix undefined behaviour in complex object exponentiation.

Support `:mod: 'typing'` types in parameter substitution in the union type.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 643); [backlink](#)

Unknown interpreted text role "mod".

Add ability to serialise `types.Union` objects. Patch provided by Yurii Karabas.

Parameter substitution of the union type with wrong types now raises `TypeError` instead of returning `NotImplemented`.

Update `property_descr_set` to use `vectorcall` if possible. Patch by Dong-hee Na.

Add `__module__` to `types.Union`. This also fixes `types.Union` issues with `typing.Annotated`. Patch provided by Yurii Karabas.

Include the name of the type in unset `__slots__` attribute errors. Patch by Pablo Galindo

Don't include a missing attribute with the same name as the failing one when offering suggestions for missing attributes. Patch by Pablo Galindo

Fix the hash of the union type: it no longer depends on the order of arguments.

Collapse union of equal types. E.g. the result of `int | int` is now `int`. Fix comparison of the union type with non-hashable objects. E.g. `int | str == {}` no longer raises a `TypeError`.

On Windows, `:func: 'os.urandom'` uses `BCryptGenRandom` API instead of `CryptGenRandom` API which is deprecated from Microsoft Windows API. 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] 3.11.0a1.rst, line 733); [backlink](#)

Unknown interpreted text role "func".

Convert `None` to `type (None)` in the union type constructor.

Implement adaptive specialization for `BINARY_SUBSCR`

Three specialized forms of `BINARY_SUBSCR` are added:

- `BINARY_SUBSCR_LIST_INT`
- `BINARY_SUBSCR_TUPLE_INT`
- `BINARY_SUBSCR_DICT`

Mapping patterns in `match` statements with two or more equal literal keys will now raise a `:exc: 'SyntaxError'` at compile-time.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 770); [backlink](#)

Unknown interpreted text role "exc".

Fix `__instancecheck__` and `__subclasscheck__` for the union type.

The `@classmethod` decorator can now wrap other `classmethod`-like descriptors.

Tuned the string-searching algorithm of `fastsearch.h` to have a shorter inner loop for most cases.

All necessary data for executing a Python function (local variables, stack, etc) is now kept in a per-thread stack. Frame objects are lazily allocated on demand. This increases performance by about 7% on the standard benchmark suite. Introspection and debugging are unaffected as frame objects are always available when needed. Patch by Mark Shannon.

The threading debug (`:envvar: 'PYTHONTHREADDEBUG'` environment variable) is deprecated in Python 3.10 and will be

removed in Python 3.12. This feature requires a debug build of Python. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 822); [backlink](#)

Unknown interpreted text role "envvar".

An obsolete internal cache of shared object file handles added in 1995 that attempted, but did not guarantee, that a .so would not be dlopen'ed twice to work around flaws in mid-1990s posix-ish operating systems has been removed from dynload_shlib.c.

`mod:typing` now searches for type parameters in `types.Union` objects. `get_type_hints` will also properly resolve annotations with nested `types.Union` objects. Patch provided by Yurii Karabas.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 845); [backlink](#)

Unknown interpreted text role "mod".

Code objects can now provide the column information for instructions when available. This is leveraged during traceback printing to show the expressions responsible for errors.

Contributed by Pablo Galindo, Batuhan Taskaya and Ammar Askar as part of [PEP 657](#).

Remove uses of `:c:func:PyObject_GC_Def` in error path when initializing `:class:types.GenericAlias`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 870); [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] 3.11.0a1.rst, line 870); [backlink](#)

Unknown interpreted text role "class".

Fix a memory consumption and copying performance regression in earlier 3.10 beta releases if someone used an output buffer larger than 4GiB with `zlib.decompress` on input data that expands that large.

Heap types with the `:const:Py_TPFLAGS_IMMUTABLETYPE` flag can now inherit the [PEP 590](#) vectorcall protocol. Previously, this was only possible for `:ref:static types <static-types>`. Patch by Erlend E. Aasland.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 891); [backlink](#)

Unknown interpreted text role "const".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 891); [backlink](#)

Unknown interpreted text role "ref".

Implement GC methods for `types.Union` to break reference cycles and prevent memory leaks.

Add `__parameters__` attribute and `__getitem__` operator to `types.Union`. Patch provided by Yurii Karabas.

Remove the pass-through for `:func:hash` of `:class:weakref.proxy` objects to prevent unintended consequences when the original referred object dies while the proxy is part of a hashable object. Patch by Pablo Galindo.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 922); [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] 3.11.0a1.rst, line 922); [backlink](#)

Unknown interpreted text role "class".

Fix a crash in `types.Union` objects when creating a union of an object with bad `__module__` field.

Modules will always have a dictionary, even when created by `types.ModuleType.__new__()`

Fix ltrace functionality when exceptions are raised. Patch by Pablo Galindo

A `:exc:TypeError` is now raised instead of an `:exc:AttributeError` in `:keyword:with` and `:keyword:async with` statements for objects which do not support the `:term:context manager` or `:term:asynchronous context manager` protocols correspondingly.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 962); [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] 3.11.0a1.rst, line 962); [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] 3.11.0a1.rst, line 962); [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] 3.11.0a1.rst, line 962); [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] 3.11.0a1.rst, line 962); [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] 3.11.0a1.rst, line 962); [backlink](#)

Unknown interpreted text role "term".

Make sure that the line number is set when entering a comprehension scope. Ensures that backtraces including generator expressions show the correct line number.

Improve the syntax error when mixing positional and keyword patterns. Patch by Pablo Galindo.

Fix error location information for tokenizer errors raised on initialization of the tokenizer. Patch by Pablo Galindo.

Fix a possible crash in the tokenizer when raising syntax errors for unclosed strings. Patch by Pablo Galindo.

Exact integer exponentiation (like `i**2` or `pow(i, 2)`) with a small exponent is much faster, due to reducing overhead in such cases.

Directly imported objects and modules (through `import` and `from import` statements) don't generate `LOAD_METHOD/CALL_METHOD` for directly accessed objects on their namespace. They now use the regular `LOAD_ATTR/CALL_FUNCTION`.

Implement adaptive specialization for `LOAD_GLOBAL`

Two specialized forms of `LOAD_GLOBAL` are added:

- `LOAD_GLOBAL_MODULE`
- `LOAD_GLOBAL_BUILTIN`

Improve syntax errors for invalid "as" targets. Patch by Pablo Galindo

Fix an edge case when displaying text from files with encoding in syntax errors. Patch by Pablo Galindo.

Initial implementation of adaptive specialization of `LOAD_ATTR`

Four specialized forms of `LOAD_ATTR` are added:

- `LOAD_ATTR_SLOT`
- `LOAD_ATTR_SPLIT_KEYS`
- `LOAD_ATTR_WITH_HINT`
- `LOAD_ATTR_MODULE`

Fix a regression when identifying incorrect characters in syntax errors. Patch by Pablo Galindo

Computation of the offsets of cell variables is done in the compiler instead of at runtime. This reduces the overhead of handling cell and free variables, especially in the case where a variable is both an argument and cell variable.

Improve tokenizer error with improved locations. Patch by Pablo Galindo.

Fix a crash in the `:mod:'sqlite3'` module that happened when the garbage collector clears `:class:'sqlite.Statement'` objects. Patch by Pablo Galindo

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1121); [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] 3.11.0a1.rst, line 1121); [backlink](#)

Unknown interpreted text role "class".

Improve error message for `try` blocks without `except` or `finally` blocks. Patch by Pablo Galindo.

Constructors of subclasses of some builtin classes (e.g. `:class:'tuple'`, `:class:'list'`, `:class:'frozenset'`) no longer accept arbitrary keyword arguments. [reverted in 3.11a4] Subclass of `:class:'set'` can now define a `__new__()` method with additional keyword parameters without overriding also `__init__()`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1141); [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] 3.11.0a1.rst, line 1141); [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] 3.11.0a1.rst, line 1141); [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] 3.11.0a1.rst, line 1141); [backlink](#)

Unknown interpreted text role "class".

Improve Unicode support in non-UTF locales on Oracle Solaris. This issue does not affect other Solaris systems.

A new opcode `MAKE_CELL` has been added that effectively moves some of the work done on function entry into the compiler and into the eval loop. In addition to creating the required cell objects, the new opcode converts relevant arguments (and other locals) to cell variables on function entry.

Fix a regression in `:func:'type'` when a metaclass raises an exception. The C function `:c:func:'type_new'` must properly report the exception when a metaclass constructor raises an exception and the winner class is not the metaclass. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1175); [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] 3.11.0a1.rst, line 1175); [backlink](#)

Unknown interpreted text role "c:func".

Avoid side effects of checking for specialized syntax errors in the REPL that was causing it to ask for extra tokens after a syntax error had been detected. Patch by Pablo Galindo

`PyCodeObject` gained `co_fastlocalnames` and `co_fastlocalkinds` as the authoritative source of fast locals info. Marshaled code objects have changed accordingly.

Fix a crash at Python exit when a deallocator function removes the last strong reference to a heap type. Patch by Victor Stinner.

Implement quickening in the interpreter. This offers no advantages as yet, but is an enabler of future optimizations. See PEP 659 for

full explanation.

The parser doesn't report generic syntax errors that happen in a position further away than the one it reached in the first pass. Patch by Pablo Galindo

Fix error message in the parser involving keyword arguments with invalid expressions. Patch by Pablo Galindo

String caches in `compile.c` are now subinterpreter compatible.

Fixed a crash in the parser that manifest when raising tokenizer errors when an existing exception was present. Patch by Pablo Galindo.

Move 'fast' locals and other variables from the frame object to a per-thread datastack.

Fix incorrect `dictkeys_reversed` and `dictitems_reversed` function signatures in C code, which broke webassembly builds.

Improve `:func: str.__getitem__` error message

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1289); [backlink](#)

Unknown interpreted text role "func".

Add `CALL_METHOD_KW` opcode to speed up method calls with keyword arguments. Idea originated from PyPy. A side effect is executing `CALL_METHOD` is now branchless in the evaluation loop.

Compiler now optimizes simple C-style formatting with literal format containing only format codes `%s`, `%r` and `%a` by converting them to f-string expressions.

Correct the syntax error message regarding multiple exception types to not refer to "exception groups". Patch by Pablo Galindo

The parser will prioritize tokenizer errors over custom syntax errors when raising exceptions. Patch by Pablo Galindo.

"Zero cost" exception handling.

- Uses a lookup table to determine how to handle exceptions.
- Removes `SETUP_FINALLY` and `POP_TOP` block instructions, eliminating the runtime overhead of try statements.
- Reduces the size of the frame object by about 60%.

Patch by Mark Shannon

Document the signature and `default` argument in the docstring of the new `anext` builtin.

Emit a deprecation warning if the numeric literal is immediately followed by one of keywords: `and`, `else`, `for`, `if`, `in`, `is`, or. Raise a syntax error with more informative message if it is immediately followed by other keyword or identifier.

Add `native_thread_id` to `PyThreadState`. Patch by Gabriele N. Tornetta.

Compute cell offsets relative to locals in compiler. Allows the interpreter to treat locals and cells as a single array, which is slightly more efficient. Also make the `LOAD_CLOSURE` opcode an alias for `LOAD_FAST`. Preserving `LOAD_CLOSURE` helps keep bytecode a bit more readable.

More accurate error messages for access of unbound locals or free vars.

Fix a confusing error message in `:func: str.format`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1407); [backlink](#)

Unknown interpreted text role "func".

When compiling `:class: ast.AST` objects with recursive references through `:func: compile`, the interpreter doesn't crash anymore instead it raises a `:exc: RecursionError`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1416); [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] 3.11.0a1.rst, line 1416); [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] 3.11.0a1.rst, line 1416); [backlink](#)

Unknown interpreted text role "exc".

Fix crash when using passing a non-exception to a generator's `throw()` method. Patch by Noah Oxer

Asynchronous comprehensions are now allowed inside comprehensions in asynchronous functions. Outer comprehensions implicitly become asynchronous.

Fix clang rpath issue in `:mod:'distutils'`. The UnixCCompiler now uses correct clang option to add a runtime library directory (rpath) to a shared library.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1448); [backlink](#)

Unknown interpreted text role "mod".

Fix freed memory access in `:class:'pyexpat.xmlparser'` when building it with an installed expat library <= 2.2.0.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1459); [backlink](#)

Unknown interpreted text role "class".

On Unix, if the `sem_clockwait()` function is available in the C library (glibc 2.30 and newer), the `:meth:'threading.Lock.acquire'` method now uses the monotonic clock (`:data:'time.CLOCK_MONOTONIC'`) for the timeout, rather than using the system clock (`:data:'time.CLOCK_REALTIME'`), to not be affected by system clock changes. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1469); [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] 3.11.0a1.rst, line 1469); [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] 3.11.0a1.rst, line 1469); [backlink](#)

Unknown interpreted text role "data".

Fix the `:func:'threading._shutdown'` function when the `:mod:'threading'` module was imported first from a thread different than the main thread: no longer log an error at Python exit.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1482); [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] 3.11.0a1.rst, line 1482); [backlink](#)

Unknown interpreted text role "mod".

Fix a race condition in the `:meth:'Thread.join() <threading.Thread.join>'` method of the `:mod:'threading'` module. If the function is interrupted by a signal and the signal handler raises an exception, make sure that the thread remains in a consistent state to prevent a deadlock. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1493); [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] 3.11.0a1.rst, line 1493); [backlink](#)

Unknown interpreted text role "mod".

In Unix operating systems, `:func:`time.sleep`` now uses the `nanosleep()` function, if `clock_nanosleep()` is not available but `nanosleep()` is available. `nanosleep()` allows to sleep with nanosecond precision.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1506); [backlink](#)

Unknown interpreted text role "func".

On Windows, `:func:`time.sleep`` now uses a waitable timer which has a resolution of 100 nanoseconds (10^{-7} seconds). Previously, it had a resolution of 1 millisecond (10^{-3} seconds). Patch by Benjamin Szőke and Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1517); [backlink](#)

Unknown interpreted text role "func".

Fix `:meth:`unittest.IsolatedAsyncioTestCase.debug``: it runs now asynchronous methods and callbacks.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1529); [backlink](#)

Unknown interpreted text role "meth".

`:meth:`unittest.TestCase.debug`` raises now a `:class:`unittest.SkipTest`` if the class or the test method are decorated with the skipping decorator.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1539); [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] 3.11.0a1.rst, line 1539); [backlink](#)

Unknown interpreted text role "class".

Fix an issue where `argparse` would not preserve values in a provided namespace when using a subparser with defaults.

Have `zipimport.zipimporter.find_spec()` not raise an exception when the underlying zip file has been deleted and the internal cache has been reset via `invalidate_cache()`.

Fixed a regression in `:func:`~shutil.copyfile``, `:func:`~shutil.copy``, `:func:`~shutil.copy2`` raising `:exc:`FileNotFoundError`` when source is a directory, which should raise `:exc:`IsADirectoryError``

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1570); [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] 3.11.0a1.rst, line 1570); [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] 3.11.0a1.rst, line 1570); [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] 3.11.0a1.rst, line 1570); [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] 3.11.0a1.rst, line 1570); [backlink](#)

Unknown interpreted text role "exc".

Fix stack buffer overflow in parsing J1939 network address.

use map function instead of genexpr in capwords.

Fix typo: `importlib.find_loader` is really slated for removal in Python 3.12 not 3.10, like the others in GH-25169.

Patch by Hugo van Kemenade.

Improves error messages on `.format()` operation for `str`, `float`, `int`, and `complex`. New format now shows the problematic pattern and the object type.

Change `:func:`dis.dis`` output to omit op arg values that cannot be resolved due to `co_consts`, `co_names` etc not being provided. Previously the oparg itself was repeated in the value field, which is not useful and can be confusing.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1622); [backlink](#)

Unknown interpreted text role "func".

In Unix operating systems, `:func:`time.sleep`` now uses the `clock_nanosleep()` function, if available, which allows to sleep for an interval specified with nanosecond precision.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1634); [backlink](#)

Unknown interpreted text role "func".

Remove from the `:mod:`configparser`` module: the `:class:`SafeConfigParser`` class, the `:attr:`filename`` property of the `:class:`ParsingError`` class, the `:meth:`readfp`` method of the `:class:`ConfigParser`` class, deprecated since Python 3.2.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1645); [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] 3.11.0a1.rst, line 1645); [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] 3.11.0a1.rst, line 1645); [backlink](#)

Unknown interpreted text role "attr".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1645); [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] 3.11.0a1.rst, line 1645); [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] 3.11.0a1.rst, line 1645); [backlink](#)

Unknown interpreted text role "class".

Patch by Hugo van Kemenade.

Pure ASCII strings are now normalized in constant time by `:func:`unicodedata.normalize``. 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] 3.11.0a1.rst, line 1659); [backlink](#)

Unknown interpreted text role "func".

Calling `:func:`mimetypes.guess_all_extensions`` with `strict=False` no longer affects the result of the following call with `strict=True`. Also, mutating the returned list no longer affects the global state.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1669); [backlink](#)

Unknown interpreted text role "func".

`:func:`typing.get_type_hints`` now works with `:data:`~typing.Final`` wrapped in `:class:`~typing.ForwardRef``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1680); [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] 3.11.0a1.rst, line 1680); [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] 3.11.0a1.rst, line 1680); [backlink](#)

Unknown interpreted text role "class".

Remove many old deprecated `:mod:`unittest`` features:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1690); [backlink](#)

Unknown interpreted text role "mod".

- `"fail*"` and `"assert*"` aliases of `:class:`~unittest.TestCase`` methods.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1692); [backlink](#)

Unknown interpreted text role "class".

- Broken from start `:class:`~unittest.TestCase`` method `assertDictContainsSubset()`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1693); [backlink](#)

Unknown interpreted text role "class".

- Ignored `:meth:`<unittest.TestLoader.loadTestsFromModule> TestLoader.loadTestsFromModule`` parameter `use_load_tests`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1694); [backlink](#)

Unknown interpreted text role "meth".

- Old alias `_TextTestResult` of `:class:`~unittest.TextTestResult``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1694); [backlink](#)

1695); [backlink](#)

Unknown interpreted text role "class".

Remove the deprecated `split()` method of `:class:`_tkinter.TkappType``. Patch by Erlend E. Aasland.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1704); [backlink](#)

Unknown interpreted text role "class".

Improve the speed and accuracy of statistics.pvariance().

Remove `:meth:`__getitem__`` methods of `:class:`xml.dom.pulldom.DOMEvtStream``, `:class:`wsgiref.util.FileWrapper`` and `:class:`fileinput.FileInput``, deprecated since Python 3.9.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1723); [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] 3.11.0a1.rst, line 1723); [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] 3.11.0a1.rst, line 1723); [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] 3.11.0a1.rst, line 1723); [backlink](#)

Unknown interpreted text role "class".

Patch by Hugo van Kemenade.

Due to significant security concerns, the `reuse_address` parameter of `:meth:`asyncio.loop.create_datagram_endpoint``, disabled in Python 3.9, is now entirely removed. This is because of the behavior of the socket option `SO_REUSEADDR` in UDP.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1736); [backlink](#)

Unknown interpreted text role "meth".

Patch by Hugo van Kemenade.

The `bdist_msi` command, deprecated in Python 3.9, is now removed.

Use `bdist_wheel` (wheel packages) instead.

Patch by Hugo van Kemenade.

`:class:`unittest.TestResult`` methods `:meth:`~unittest.TestResult.addFailure``, `:meth:`~unittest.TestResult.addError``, `:meth:`~unittest.TestResult.addSkip`` and `:meth:`~unittest.TestResult.addSubTest`` are now called immediately after raising an exception in test or finishing a subtest. Previously they were called only after finishing the test clean up.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1763); [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] 3.11.0a1.rst, line 1763); [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] 3.11.0a1.rst, line 1763); [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] 3.11.0a1.rst, line 1763); [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] 3.11.0a1.rst, line 1763); [backlink](#)

Unknown interpreted text role "meth".

Changes how error is formatted for `struct.pack` with 'H' and 'h' modes and too large / small numbers. Now it shows the actual numeric limits, while previously it was showing arithmetic expressions.

`mod:`unittest`` now always reports skipped and failed subtests separately: separate characters in default mode and separate lines in verbose mode. Also the test description is now output for errors in test method, class and module cleanups.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1788); [backlink](#)

Unknown interpreted text role "mod".

Fix issue when dataclasses that inherit from `typing.Protocol` subclasses have wrong `__init__`. Patch provided by Yuri Karabas.

The `binhex` module, deprecated in Python 3.9, is now removed. The following `mod:`binascii`` functions, deprecated in Python 3.9, are now also removed:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1810); [backlink](#)

Unknown interpreted text role "mod".

- `a2b_hqx()`, `b2a_hqx()`;
- `rlecode_hqx()`, `rledecode_hqx()`.

The `func:`binascii.crc_hqx`` function remains available.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1817); [backlink](#)

Unknown interpreted text role "func".

Patch by Victor Stinner.

The `mod:`lib2to3`` package is now deprecated and may not be able to parse Python 3.10 or newer. See the [PEP 617](#) (New PEG parser for CPython). Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1828); [backlink](#)

Unknown interpreted text role "mod".

Rename `meth:`traceback.StackSummary.format_frame`` to `meth:`traceback.StackSummary.format_frame_summary``. This method was added for 3.11 so it was not released yet.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1839); [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] 3.11.0a1.rst, line 1839); [backlink](#)

Unknown interpreted text role "meth".

Updated code and docs to better distinguish frame and FrameSummary.

Add option to completely drop frames from a traceback by returning `None` from a `meth:~traceback.StackSummary.format_frame` override.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1852); [backlink](#)

Unknown interpreted text role "meth".

`meth:~unittest.TestCase.run` now always return a `class:~unittest.TestResult` instance. Previously it returned `None` if the test class or method was decorated with a skipping decorator.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1862); [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] 3.11.0a1.rst, line 1862); [backlink](#)

Unknown interpreted text role "class".

Fix a potential deadlock at shutdown of forked children when using `mod:~concurrent.futures` module

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1873); [backlink](#)

Unknown interpreted text role "mod".

Fix bugs in cleaning up classes and modules in `mod:~unittest`:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1883); [backlink](#)

Unknown interpreted text role "mod".

- Functions registered with `func:~unittest.addModuleCleanup` were not called unless the user defines `tearDownModule()` in their test module.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1885); [backlink](#)

Unknown interpreted text role "func".

- Functions registered with `meth:~unittest.TestCase.addClassCleanup` were not called if `tearDownClass` is set to `None`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1886); [backlink](#)

Unknown interpreted text role "meth".

- Buffering in `class:~unittest.TestResult` did not work with functions registered with `addClassCleanup()` and `addModuleCleanup()`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1887); [backlink](#)

Unknown interpreted text role "class".

- Errors in functions registered with `addClassCleanup()` and `addModuleCleanup()` were not handled correctly in buffered

and debug modes.

- Errors in `setUpModule()` and functions registered with `addModuleCleanup()` were reported in wrong order.
- And several lesser bugs.

Fix integer overflow in pickling and copying the range iterator.

Made email date parsing more robust against malformed input, namely a whitespace-only `Date:` header. Patch by Wouter Bolsterlee.

Remove support of special method `__div__` in `mod:unittest.mock`. It is not used in Python 3.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1918); [backlink](#)

Unknown interpreted text role "mod".

Improve accuracy of variance calculations by using `x*x` instead of `x**2`.

Improve the speed of `func: gzip.compress` and `func: gzip.decompress` by compressing and decompressing at once in memory instead of in a streamed fashion.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1938); [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] 3.11.0a1.rst, line 1938); [backlink](#)

Unknown interpreted text role "func".

Ensure that `class:set` and `class:frozenset` objects are always `mod:marshalled <marshal>` reproducibly.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1949); [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] 3.11.0a1.rst, line 1949); [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] 3.11.0a1.rst, line 1949); [backlink](#)

Unknown interpreted text role "mod".

A new function `operator.call` has been added, such that `operator.call(obj, *args, **kwargs) == obj(*args, **kwargs)`.

`class:webbrowser.MacOSX` is deprecated and will be removed in Python 3.13. It is untested and undocumented and also not used by `webbrowser` itself. 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] 3.11.0a1.rst, line 1969); [backlink](#)

Unknown interpreted text role "class".

Method `meth:~unittest.TestResult.stopTestRun` is now always called in pair with method `meth:~unittest.TestResult.startTestRun` for `class:~unittest.TestResult` objects implicitly created in `meth:~unittest.TestCase.run`. Previously it was not called for test methods and classes decorated with a skipping decorator.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 1980); [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]3.11.0a1.rst, line 1980); [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]3.11.0a1.rst, line 1980); [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]3.11.0a1.rst, line 1980); [backlink](#)

Unknown interpreted text role "meth".

`tarfile.open` raises `:exc:`~tarfile.ReadError`` when a `zlib` error occurs during file extraction.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a1.rst, line 1993); [backlink](#)

Unknown interpreted text role "exc".

`:mod:`~subprocess`` on Solaris now also uses `:func:`~os.posix_spawn()`` for better performance.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a1.rst, line 2003); [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]3.11.0a1.rst, line 2003); [backlink](#)

Unknown interpreted text role "func".

`:class:`~unittest.IsolatedAsyncioTestCase`` will no longer throw an exception while cancelling leaked tasks. Patch by Bar Harel.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a1.rst, line 2013); [backlink](#)

Unknown interpreted text role "class".

Added `DeprecationWarning` for tests and async tests that return a value `!=None` (as this may indicate an improperly written test, for example a test written as a generator function).

Make exception message more useful when subclass from typing special form alias. Patch provided by Yuri Karabas.

`:class:`~argparse.BooleanOptionalAction``'s default value is no longer printed twice when used with

`:class:`~argparse.ArgumentDefaultsHelpFormatter``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a1.rst, line 2044); [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]3.11.0a1.rst, line 2044); [backlink](#)

Unknown interpreted text role "class".

Fix the `posix_user` scheme in `:mod:`~sysconfig`` to not depend on `:data:`~sys.platlibdir``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a1.rst, line 2054); [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] 3.11.0a1.rst, line 2054); [backlink](#)

Unknown interpreted text role "data".

Improve error handling in `:exc:'sqlite3'` and raise more accurate exceptions.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2064); [backlink](#)

Unknown interpreted text role "mod".

- `:exc:'MemoryError'` is now raised instead of `:exc:'sqlite3.Warning'` when memory is not enough for encoding a statement to UTF-8 in `Connection.__call__()` and `Cursor.execute()`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2066); [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] 3.11.0a1.rst, line 2066); [backlink](#)

Unknown interpreted text role "exc".

- `:exc:'UnicodeEncodeError'` is now raised instead of `:exc:'sqlite3.Warning'` when the statement contains surrogate characters in `Connection.__call__()` and `Cursor.execute()`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2067); [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] 3.11.0a1.rst, line 2067); [backlink](#)

Unknown interpreted text role "exc".

- `:exc:'TypeError'` is now raised instead of `:exc:'ValueError'` for non-string script argument in `Cursor.executescript()`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2068); [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] 3.11.0a1.rst, line 2068); [backlink](#)

Unknown interpreted text role "exc".

- `:exc:'ValueError'` is now raised for script containing the null character instead of truncating it in `Cursor.executescript()`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2069); [backlink](#)

Unknown interpreted text role "exc".

- Correctly handle exceptions raised when getting boolean value of the result of the progress handler.

- Add many tests covering different corner cases.

Upgrade bundled pip to 21.2.3 and setuptools to 57.4.0

Fix the `:func:'os.set_inheritable'` function on FreeBSD 14 for file descriptor opened with the `:data:'~os.O_PATH'` flag; ignore the `:data:'~errno.EBADF'` error on `ioctl()`, fallback on the `fcntl()` implementation. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2089); [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] 3.11.0a1.rst, line 2089); [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] 3.11.0a1.rst, line 2089); [backlink](#)

Unknown interpreted text role "data".

The `@functools.total_ordering()` decorator now works with metaclasses.

Fixed an issue wherein the `__name__` and `__qualname__` attributes of subscribed specialforms could be `None`.

`:class:'MemoryError'` raised in user-defined functions will now produce a `MemoryError` in `:mod:'sqlite3'`. `:class:'OverflowError'` will now be converted to `:class:'~sqlite3.DataError'`. Previously `:class:'~sqlite3.OperationalError'` was produced in these cases.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2120); [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] 3.11.0a1.rst, line 2120); [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] 3.11.0a1.rst, line 2120); [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] 3.11.0a1.rst, line 2120); [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] 3.11.0a1.rst, line 2120); [backlink](#)

Unknown interpreted text role "class".

`:mod:'sqlite3'` user-defined functions and aggregators returning `:class:'strings <str>'` with embedded NUL characters are no longer truncated. Patch by Erlend E. Aasland.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2132); [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] 3.11.0a1.rst, line 2132); [backlink](#)

Unknown interpreted text role "class".

Ensure that the `:class:`~typing.ParamSpec`` variable in Callable can only be substituted with a parameters expression (a list of types, an ellipsis, ParamSpec or Concatenate).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2143); [backlink](#)

Unknown interpreted text role "class".

Non-protocol subclasses of `:class:`~typing.Protocol`` ignore now the `__init__` method inherited from protocol base classes.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2154); [backlink](#)

Unknown interpreted text role "class".

`:meth:`~collections.OrderedDict.popitem`` and `:meth:`~collections.OrderedDict.pop`` no longer call `__getitem__` and `__delitem__` methods of the OrderedDict subclasses.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2164); [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] 3.11.0a1.rst, line 2164); [backlink](#)

Unknown interpreted text role "meth".

Fix checking the number of arguments when subscribe a generic type with ParamSpec parameter.

In `importlib.metadata` tests, override warnings behavior under expected DeprecationWarnings (`importlib.metadata` 4.6.3).

The `:func:`~tokenize.tokenize`` doesn't incorrectly generate a `NEWLINE` token if the source doesn't end with a new line character but the last line is a comment, as the function is already generating a `NL` token. Patch by Pablo Galindo

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2195); [backlink](#)

Unknown interpreted text role "func".

Added `importlib.simple` module implementing adapters from a low-level resources reader interface to a `TraversableResources` interface. Legacy API (`path`, `contents`, ...) is now supported entirely by the `.files()` API with a compatibility shim supplied for resource loaders without that functionality. Feature parity with `importlib_resources` 5.2.

`:mod:`~completer`` does not call `:func:`~getattr`` on `:class:`~property`` objects to avoid the side-effect of evaluating the corresponding method.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2220); [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] 3.11.0a1.rst, line 2220); [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] 3.11.0a1.rst, line 2220); [backlink](#)

Unknown interpreted text role "class".

Refactor usage of `sys._getframe` in `typing` module. Patch provided by Yuri Karabas.

Fixes the issue with log file being overwritten when `:class:`~logging.FileHandler`` is used in `:mod:`~atexit`` with `filemode` set to `'w'`. Note this will cause the message in `atexit` not being logged if the log stream is already closed due to shutdown of logging.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a1.rst, line 2240); [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]3.11.0a1.rst, line 2240); [backlink](#)

Unknown interpreted text role "mod".

`weakref.proxy` objects referencing non-iterators now raise `TypeError` rather than dereferencing the null `tp_iternext` slot and crashing.

The implementation of `collections.abc.Set.__hash()` now matches that of `frozenset.__hash__()`.

Fixed issue in `:func:`compileall.compile_file`` when `sys.stdout` is redirected. Patch by Stefan Hölzl.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a1.rst, line 2272); [backlink](#)

Unknown interpreted text role "func".

`meth:`sqlite3.Connection.create_collation`` now accepts non-ASCII collation names. Patch by Erlend E. Aasland.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a1.rst, line 2282); [backlink](#)

Unknown interpreted text role "meth".

Adopt `binascii.a2b_base64`'s strict mode in `base64.b64decode`.

Fixed a bug in the `:mod:`ssl`` module that was throwing `:exc:`OverflowError`` when using `meth:`ssl.SSLSocket.write`` and `meth:`ssl.SSLSocket.read`` for a big value of the `len` parameter. Patch by Pablo Galindo

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a1.rst, line 2301); [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]3.11.0a1.rst, line 2301); [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]3.11.0a1.rst, line 2301); [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]3.11.0a1.rst, line 2301); [backlink](#)

Unknown interpreted text role "meth".

Replace `unittest.mock._importer` with `pkgutil.resolve_name`.

Make `NewType.__call__` faster by implementing it in C. Patch provided by Yurii Karabas.

Change the `:mod:`pdb`` `commands` directive to disallow setting commands for an invalid breakpoint and to display an appropriate error.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a1.rst, line 2331); [backlink](#)

Unknown interpreted text role "mod".

Refactor `typing.NewType` from function into callable class. Patch provided by Yurii Karabas.

Added a separate error message for discontinuous padding in `binascii.a2b_base64` strict mode.

Add missing `__name__` and `__qualname__` attributes to `typing` module classes. Patch provided by Yuri Karabas.

Give priority to using the current class constructor in `:func:`inspect.signature``. Patch by Weipeng Hong.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a1.rst, line 2371); [backlink](#)

Unknown interpreted text role "func".

Add a reference to the `zipp` project and hint as to how to use it.

Fixed wrong error being thrown by `:func:`inspect.getsource`` when examining a class in the interactive session. Instead of `:exc:`TypeError``, it should be `:exc:`OSError`` with appropriate error message.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a1.rst, line 2390); [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]3.11.0a1.rst, line 2390); [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]3.11.0a1.rst, line 2390); [backlink](#)

Unknown interpreted text role "exc".

Fix memory leak in `:func:`_tkinter._flatten`` if it is called with a sequence or set, but not list or tuple.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a1.rst, line 2401); [backlink](#)

Unknown interpreted text role "func".

Fix an edge case of `:class:`ExitStack`` and `:class:`AsyncExitStack`` exception chaining. They will now match with block behavior when `__context__` is explicitly set to `None` when the exception is in flight.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a1.rst, line 2411); [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]3.11.0a1.rst, line 2411); [backlink](#)

Unknown interpreted text role "class".

In `:mod:`fnmatch``, the cache size for compiled regex patterns (`:func:`functools.lru_cache``) was bumped up from 256 to 32768, affecting functions: `:func:`fnmatch.fnmatch``, `:func:`fnmatch.fnmatchcase``, `:func:`fnmatch.filter``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a1.rst, line 2422); [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]3.11.0a1.rst, line 2422); [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]3.11.0a1.rst, line 2422); [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] 3.11.0a1.rst, line 2422); [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] 3.11.0a1.rst, line 2422); [backlink](#)

Unknown interpreted text role "func".

Update `:func:`shutil.copyfile`` to raise `:exc:`FileNotFoundError`` instead of confusing `:exc:`IsADirectoryError`` when a path ending with a `:const:`os.path.sep`` does not exist; `:func:`shutil.copy`` and `:func:`shutil.copy2`` are also affected.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2434); [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] 3.11.0a1.rst, line 2434); [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] 3.11.0a1.rst, line 2434); [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] 3.11.0a1.rst, line 2434); [backlink](#)

Unknown interpreted text role "const".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2434); [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] 3.11.0a1.rst, line 2434); [backlink](#)

Unknown interpreted text role "func".

Added the `:func:`StackSummary.format_frame`` function in `:mod:`traceback``. This allows users to customize the way individual lines are formatted in tracebacks without re-implementing logic to handle recursive tracebacks.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2446); [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] 3.11.0a1.rst, line 2446); [backlink](#)

Unknown interpreted text role "mod".

handle StopIteration subclass raised from `@contextlib.contextmanager` generator

Make the implementation consistency of `:func:`~operator.indexOf`` between C and Python versions. 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] 3.11.0a1.rst, line 2467); [backlink](#)

Unknown interpreted text role "func".

Fixes `TypedDict` to work with `typing.get_type_hints()` and postponed evaluation of annotations across modules.

Refactor argument processing in `:func:`pdb.main`` to simplify detection of errors in input loading and clarify behavior around module or script invocation.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2487); [backlink](#)

Unknown interpreted text role "func".

Break up paragraph about `:class:`pprint.PrettyPrinter`` construction parameters to make it easier to read.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2498); [backlink](#)

Unknown interpreted text role "class".

Added support for recognizing JPEG files without JFIF or Exif markers.

Fix bug with `:mod:`pdb``'s handling of import error due to a package which does not have a `__main__` module

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2517); [backlink](#)

Unknown interpreted text role "mod".

Fix a bug in the detection of CSV file headers by `:meth:`csv.Sniffer.has_header`` and improve documentation of same.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2527); [backlink](#)

Unknown interpreted text role "meth".

Update vendored pip to 21.1.3

Fixed an exception thrown while parsing a malformed multipart email by `:class:`email.message.EmailMessage``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2546); [backlink](#)

Unknown interpreted text role "class".

`:func:`typing.get_type_hints`` now finds annotations in classes and base classes with unexpected `__module__`. Previously, it skipped those MRO elements.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2556); [backlink](#)

Unknown interpreted text role "func".

Allow clearing the `:mod:`sqlite3`` authorizer callback by passing `:const:`None`` to `:meth:`~sqlite3.Connection.set_authorizer``. Patch by Erlend E. Aasland.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2567); [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] 3.11.0a1.rst, line 2567); [backlink](#)

Unknown interpreted text role "const".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2567); [backlink](#)

Unknown interpreted text role "meth".

Set the proper `:const:'Py_TPFLAGS_MAPPING'` and `:const:'Py_TPFLAGS_SEQUENCE'` flags for subclasses created before a parent has been registered as a `:class:'collections.abc.Mapping'` or `:class:'collections.abc.Sequence'`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2578); [backlink](#)

Unknown interpreted text role "const".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2578); [backlink](#)

Unknown interpreted text role "const".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2578); [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] 3.11.0a1.rst, line 2578); [backlink](#)

Unknown interpreted text role "class".

Fix very unlikely resource leak in `:mod:'glob'` in alternate Python implementations.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2589); [backlink](#)

Unknown interpreted text role "mod".

The `:mod:'faulthandler'` module now detects if a fatal error occurs during a garbage collector collection. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2599); [backlink](#)

Unknown interpreted text role "mod".

A `:exc:'TypeError'` is now raised instead of an `:exc:'AttributeError'` in `:meth:'contextlib.ExitStack.enter_context'` and `:meth:'contextlib.AsyncExitStack.enter_async_context'` for objects which do not support the `:term:'context manager'` or `:term:'asynchronous context manager'` protocols correspondingly.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2609); [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] 3.11.0a1.rst, line 2609); [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] 3.11.0a1.rst, line 2609); [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] 3.11.0a1.rst, line 2609); [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] 3.11.0a1.rst, line 2609); [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] 3.11.0a1.rst, line 2609); [backlink](#)

Unknown interpreted text role "term".

`mod:tkinter`'s `after()` method now supports callables without the `__name__` attribute.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2622); [backlink](#)

Unknown interpreted text role "mod".

Make `mod:pprint` (like the builtin `print`) not attempt to write to `stdout` when it is `None`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2632); [backlink](#)

Unknown interpreted text role "mod".

`BUFFER_BLOCK_SIZE` is now declared static, to avoid linking collisions when `bz2`, `lzma` or `zlib` are statically linked.

Remove exception for `flake8` in deprecated `importlib.metadata` interfaces. Sync with `importlib_metadata` 4.6.

Take into account that `lineno` might be `None` in `class:traceback.FrameSummary`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2662); [backlink](#)

Unknown interpreted text role "class".

Fix in `meth:bz2.BZ2File.write` / `meth:lzma.LZMAFile.write` methods, when the input data is an object that supports the buffer protocol, the file length may be wrong.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2672); [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] 3.11.0a1.rst, line 2672); [backlink](#)

Unknown interpreted text role "meth".

`_thread.start_new_thread()` no longer calls `PyThread_exit_thread()` explicitly at the thread exit, the call was redundant. On Linux with the `glibc`, `pthread_exit()` aborts the whole process if `dlopen()` fails to open `libgcc_s.so` file (ex: `EMFILE` error). Patch by Victor Stinner.

The `_thread.RLock` type now fully implement the GC protocol: add a traverse function and the `const:Py_TPFLAGS_HAVE_GC` flag. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2695); [backlink](#)

Unknown interpreted text role "const".

The `func:threading.enumerate` function now uses a reentrant lock to prevent a hang on reentrant call. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2705); [backlink](#)

Unknown interpreted text role "func".

Importing `typing.io` or `typing.re` now prints a `DeprecationWarning`.

argparse actions `store_const` and `append_const` each receive a default value of `None` when the `const` kwarg is not provided. Previously, this raised a `:exc:'TypeError'`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2724); [backlink](#)

Unknown interpreted text role "exc".

Fix deprecation of `:data:'ssl.OP_NO_TLSv1_3'`

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2735); [backlink](#)

Unknown interpreted text role "data".

`:meth:'pathlib.PureWindowsPath.is_reserved'` now identifies a greater range of reserved filenames, including those with trailing spaces or colons.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2744); [backlink](#)

Unknown interpreted text role "meth".

Fix `:meth:'~email.message.MIMEPart.as_string'` to pass `unixfrom` properly. 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] 3.11.0a1.rst, line 2754); [backlink](#)

Unknown interpreted text role "meth".

Handle exceptions from parsing the arg of `:mod:'pdb'`'s `run/restart` command.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2764); [backlink](#)

Unknown interpreted text role "mod".

Improve `:mod:'ssl'` module's deprecation messages, error reporting, and documentation for deprecations.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2773); [backlink](#)

Unknown interpreted text role "mod".

[Enum] Change pickling from by-value to by-name.

[Enum] Allow multiple data-type mixins if they are all the same.

Restore back `:func:'parse_makefile'` in `:mod:'distutils.sysconfig'` because it behaves differently than the similar implementation in `:mod:'sysconfig'`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2801); [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] 3.11.0a1.rst, line 2801); [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] 3.11.0a1.rst, line 2801); [backlink](#)

Unknown interpreted text role "mod".

`:class:'smtpd.MailmanProxy'` is now removed as it is unusable without an external module, `mailman`. 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] 3.11.0a1.rst, line 2811); [backlink](#)

Unknown interpreted text role "class".

Added a function that returns cube root of the given number :func:`math.cbrt`

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2821); [backlink](#)

Unknown interpreted text role "func".

Change `math.pow(±0.0, -math.inf)` to return `inf` instead of raising `ValueError`. This brings the special-case handling of `math.pow` into compliance with the IEEE 754 standard.

Remove missing flag check from Enum creation and move into a `verify` decorator.

In `importlib.metadata`, restore compatibility in the result from `Distribution.entry_points` (`EntryPoints`) to honor expectations in older implementations and issuing deprecation warnings for these cases: A. `EntryPoints` objects are once again mutable, allowing for `sort()` and other list-based mutation operations. Avoid deprecation warnings by casting to a mutable sequence (e.g. `list(dist.entry_points).sort()`). B. `EntryPoints` results once again allow for access by index. To avoid deprecation warnings, cast the result to a `Sequence` first (e.g. `tuple(dist.entry_points)[0]`).

In `importlib.metadata.entry_points`, de-duplication of distributions no longer requires loading the full metadata for `PathDistribution` objects, improving entry point loading performance by ~10x.

Added a function that returns a copy of a dict of logging levels: :func:`logging.getLevelNamesMapping`

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2880); [backlink](#)

Unknown interpreted text role "func".

The :class:`random.Random` constructor no longer reads system entropy without need.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2890); [backlink](#)

Unknown interpreted text role "class".

On Mac, give `turtledemo` button text a color that works on both light or dark background. Programmers cannot control the latter.

Support PEP 515 for `Fraction`'s initialization from string.

Remove deprecated functions in the :mod:`gettext`. 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] 3.11.0a1.rst, line 2919); [backlink](#)

Unknown interpreted text role "mod".

Prefer f-strings to `.format` in `importlib.resources`.

`Importlib.metadata` now prefers f-strings to `.format`.

Incorporate minor tweaks from `importlib_metadata` 4.1: `SimplePath` protocol, support for `Metadata` 2.2.

Remove the :func:`@asyncio.coroutine` <asyncio.coroutine> `term` decorator enabling legacy generator-based coroutines to be compatible with `async/await` code; remove :class:`asyncio.coroutines.CoroWrapper` used for wrapping legacy coroutine objects in the debug mode. The decorator has been deprecated since Python 3.8 and the removal was initially scheduled for Python 3.10.

Patch by Illia Volochii.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2956); [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] 3.11.0a1.rst, line 2956); [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] 3.11.0a1.rst, line 2956); [backlink](#)

Unknown interpreted text role "class".

Make `importlib.metadata._meta.PackageMetadata` public.

Declare `readers.MultiplexedPath.name` as a property per the spec.

The `mod:'sqlite3'` context manager now performs a rollback (thus releasing the database lock) if commit failed. Patch by Luca Citi and Erlend E. Aasland.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 2988); [backlink](#)

Unknown interpreted text role "mod".

Documented existing behavior on POSIX: `NamedTemporaryFiles` are not deleted when creating process is killed with `SIGKILL`

Optimize `:class:'fractions.Fraction'` pickling for large components.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3009); [backlink](#)

Unknown interpreted text role "class".

For IPv4 mapped IPv6 addresses ([RFC 4291](#) Section 2.5.5.2), the `mod:'ipaddress.IPv6Address.is_private'` check is deferred to the mapped IPv4 address. This solves a bug where public mapped IPv4 addresses were considered private by the IPv6 check.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3018); [backlink](#)

Unknown interpreted text role "mod".

Add optional `weights` argument to `statistics.fmean()`.

`:func:'ast.unparse'` will now drop the redundant parentheses when tuples used as assignment targets (e.g in for loops).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3039); [backlink](#)

Unknown interpreted text role "func".

`mod:'hmac'` computations were not releasing the GIL while calling the OpenSSL `HMAC_Update` C API (a new feature in 3.9). This unintentionally prevented parallel computation as other `mod:'hashlib'` algorithms support.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3049); [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] 3.11.0a1.rst, line 3049); [backlink](#)

Unknown interpreted text role "mod".

`:class:'zipfile.Path'` now supports `:attr:'zipfile.Path.stem'`, `:attr:'zipfile.Path.suffixes'`, and `:attr:'zipfile.Path.suffix'` attributes.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3060); [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] 3.11.0a1.rst, line 3060); [backlink](#)

Unknown interpreted text role "attr".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3060); [backlink](#)

Unknown interpreted text role "attr".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3060); [backlink](#)

Unknown interpreted text role "attr".

It's now possible to receive the type of service (ToS), a.k.a. differentiated services (DS), a.k.a. differentiated services code point (DSCP) and explicit congestion notification (ECN) IP header fields with `socket.IP_RECVTOS`.

Fix a reference leak when a Thread object is never joined.

Subclasses of `typing.Protocol` which only have data variables declared will now raise a `TypeError` when checked with `isinstance` unless they are decorated with `:func:runtime_checkable`. Previously, these checks passed silently. Patch provided by Yuri Karabas.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3091); [backlink](#)

Unknown interpreted text role "func".

`typing.ParamSpec` will no longer be found in the `__parameters__` of most `mod:typing` generics except in valid use locations specified by [PEP 612](#). This prevents incorrect usage like `typing.List[P][int]`. This change means incorrect usage which may have passed silently in 3.10 beta 1 and earlier will now error.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3103); [backlink](#)

Unknown interpreted text role "mod".

Allow subclassing `csv.Error` in 3.10 (it was allowed in 3.9 and earlier but was disallowed in early versions of 3.10).

`:func:ast.unparse` now doesn't use redundant spaces to separate `lambda` and the `:` if there are no parameters.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3126); [backlink](#)

Unknown interpreted text role "func".

Fix regression in previous release when calling `:func:pkgutil.iter_modules` with a list of `:class:pathlib.Path` objects

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3136); [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] 3.11.0a1.rst, line 3136); [backlink](#)

Unknown interpreted text role "class".

Register the SerenityOS Browser in the `:mod:webbrowser` module.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3146); [backlink](#)

Unknown interpreted text role "mod".

The `:mod:hashlib` module no longer does unaligned memory accesses when compiled for ARM platforms.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3155); [backlink](#)

Unknown interpreted text role "mod".

Remove random module features deprecated in Python 3.9.

`random.seed()` no longer mutates bytearray inputs.

Add `IO`, `BinaryIO`, `TextIO`, `Match`, and `Pattern` to `typing.__all__`. Patch by Jelle Zijlstra.

`:mod:`urllib.parse`` now uses `:func:`functool.lru_cache`` for its internal URL splitting and quoting caches instead of rolling its own like its the '90s.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3193); [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] 3.11.0a1.rst, line 3193); [backlink](#)

Unknown interpreted text role "func".

The undocumented internal `:mod:`urllib.parse`` Quoted class API is now deprecated, for removal in 3.14.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3196); [backlink](#)

Unknown interpreted text role "mod".

When `:class:`http.server.SimpleHTTPRequestHandler`` sends a 301 (Moved Permanently) for a directory path not ending with /, add a `Content-Length: 0` header. This improves the behavior for certain clients.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3206); [backlink](#)

Unknown interpreted text role "class".

Fix a bug in `:mod:`pdb`` where `:meth:`~pdb.Pdb.checkline`` raises `:exc:`AttributeError`` if it is called after `:meth:`~pdb.Pdb.reset``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3218); [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] 3.11.0a1.rst, line 3218); [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] 3.11.0a1.rst, line 3218); [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] 3.11.0a1.rst, line 3218); [backlink](#)

Unknown interpreted text role "meth".

Improved string handling for `:mod:`sqlite3`` user-defined functions and aggregates:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3228); [backlink](#)

Unknown interpreted text role "mod".

- It is now possible to pass strings with embedded null characters to UDFs
- Conversion failures now correctly raise `:exc:`MemoryError``

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3232); [backlink](#)

Unknown interpreted text role "exc".

Patch by Erlend E. Aasland.

AIX: `Lib/_aix_support.get_platform()` may fail in an AIX WPAR. The fileset `bos.rte` appears to have a builddate in both LPAR and WPAR so this fileset is queried rather than `bos.mp64`. To prevent a similar situation (no builddate in ODM) a value (9988) sufficient for completing a build is provided. Patch by M Felt.

Fix `:exc:MemoryError` in `:func:shutil.unpack_archive` which fails inside `:func:shutil.unpack_zipfile` on large files. Patch by Igor Bolshakov.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3256); [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] 3.11.0a1.rst, line 3256); [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] 3.11.0a1.rst, line 3256); [backlink](#)

Unknown interpreted text role "func".

`:func:zlib.compress` now accepts a `wbits` parameter which allows users to compress data as a raw deflate block without `zlib` headers and trailers in one go. Previously this required instantiating a `zlib.compressobj`. It also provides a faster alternative to `gzip.compress` when `wbits=31` is used.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3266); [backlink](#)

Unknown interpreted text role "func".

`:func:importlib._bootstrap._find_and_load` now implements a two-step check to avoid locking when modules have been already imported and are ready. This improves performance of repeated calls to `:func:importlib.import_module` and `:func:importlib._import_`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3279); [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] 3.11.0a1.rst, line 3279); [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] 3.11.0a1.rst, line 3279); [backlink](#)

Unknown interpreted text role "func".

Fix a bug where `:mod:pdb` does not always echo cleared breakpoints.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3291); [backlink](#)

Unknown interpreted text role "mod".

Prohibit passing non-`:class:concurrent.futures.ThreadPoolExecutor` executors to `:meth:loop.set_default_executor` following a

deprecation in Python 3.8. Patch by Illia Volochii.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3300); [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] 3.11.0a1.rst, line 3300); [backlink](#)

Unknown interpreted text role "meth".

Prohibit previously deprecated potentially disruptive operations on `:class:`asyncio.trsock.TransportSocket``. Patch by Illia Volochii.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3311); [backlink](#)

Unknown interpreted text role "class".

Added support for Apple's aifc/sowt pseudo-compression

Add definition of `errno.EQFULL` for platforms that define this constant (such as macOS).

Added a new optional `strict_mode` parameter to `binascii.a2b_base64`. When `strict_mode` is set to `True`, the `a2b_base64` function will accept only valid base64 content. More details about what "valid base64 content" is, can be found in the function's documentation.

Improve the help signature of `:func:`traceback.print_exception``, `:func:`traceback.format_exception`` and `:func:`traceback.format_exception_only``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3352); [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] 3.11.0a1.rst, line 3352); [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] 3.11.0a1.rst, line 3352); [backlink](#)

Unknown interpreted text role "func".

Add the `:meth:`traceback.TracebackException.print`` method which prints the formatted exception information.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3363); [backlink](#)

Unknown interpreted text role "meth".

`:mod:`sqlite3`` now utilizes `:meth:`functools.lru_cache`` to implement the connection statement cache. As a small optimisation, the default statement cache size has been increased from 100 to 128. Patch by Erlend E. Aasland.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3373); [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] 3.11.0a1.rst, line 3373); [backlink](#)

Unknown interpreted text role "meth".

Soumendra Ganguly: add `termios.tcgetwinsize()`, `termios.tcsetwinsize()`.

`meth: subprocess.check_output` now raises `:exc: ValueError` when the invalid keyword argument *check* is passed by user code. Previously such use would fail later with a `:exc: TypeError`. Patch by Rémi Lapeyre.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3393); [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] 3.11.0a1.rst, line 3393); [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] 3.11.0a1.rst, line 3393); [backlink](#)

Unknown interpreted text role "exc".

`ensurepip` now uses `importlib.resources.files()` traversable APIs

Use Argument Clinic in `:mod: sqlite3`. Patches by Erlend E. Aasland.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3413); [backlink](#)

Unknown interpreted text role "mod".

`DeprecationWarning` is now raised when importing `:mod: tkinter.tix`, which has been deprecated in documentation since Python 3.6.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3422); [backlink](#)

Unknown interpreted text role "mod".

Remove unused `_signature_get_bound_param` function from `:mod: inspect` - by Anthony Sottile.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3432); [backlink](#)

Unknown interpreted text role "mod".

Fix `meth: email.message.EmailMessage.set_content` when called with binary data and 7bit content transfer encoding.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3442); [backlink](#)

Unknown interpreted text role "meth".

The *compresslevel* and *preset* keyword arguments of `:func: tarfile.open` are now both documented and tested.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3452); [backlink](#)

Unknown interpreted text role "func".

Use utf-8 encoding while reading .pdbrc files. Patch by Srinivas Reddy Thatiparthi

Improved reprs of `:mod: threading` synchronization objects: `:class: ~threading.Semaphore`, `:class: ~threading.BoundedSemaphore`, `:class: ~threading.Event` and `:class: ~threading.Barrier`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3472); [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] 3.11.0a1.rst, line 3472); [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] 3.11.0a1.rst, line 3472); [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] 3.11.0a1.rst, line 3472); [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] 3.11.0a1.rst, line 3472); [backlink](#)

Unknown interpreted text role "class".

Deprecated the following `:mod:`unittest`` functions, scheduled for removal in Python 3.13:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3483); [backlink](#)

Unknown interpreted text role "mod".

- `:func:`~unittest.findTestCases``

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3486); [backlink](#)

Unknown interpreted text role "func".

- `:func:`~unittest.makeSuite``

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3487); [backlink](#)

Unknown interpreted text role "func".

- `:func:`~unittest.getTestCaseNames``

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3488); [backlink](#)

Unknown interpreted text role "func".

Use `:class:`~unittest.TestLoader`` methods instead:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3490); [backlink](#)

Unknown interpreted text role "class".

- `:meth:`unittest.TestLoader.loadTestsFromModule``

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3492); [backlink](#)

Unknown interpreted text role "meth".

- `meth:unittest.TestLoader.loadTestsFromTestCase``

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3493); [backlink](#)

Unknown interpreted text role "meth".

- `meth:unittest.TestLoader.getTestCaseNames``

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3494); [backlink](#)

Unknown interpreted text role "meth".

Patch by Erlend E. Aasland.

Support pathlike objects on dbm/shelve. Patch by Hakan Çelik and Henry-Joseph Audéoud.

Fixed a Y2k38 bug in the compileall module where it would fail to compile files with a modification time after the year 2038.

Whereas the code for reprlib.Repr had previously used a hardcoded string value of '...', this PR updates it to use of a “fillvalue” attribute, whose value defaults to '...' and can be reset in either individual reprlib.Repr instances or in subclasses thereof.

`mod: pdb`` now displays exceptions from `repr()` with its `p` and `pp` commands.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3537); [backlink](#)

Unknown interpreted text role "mod".

Fix `test__all__` on platforms lacking a shared memory implementation.

Add one missing check that the password is a bytes object for an encrypted zipfile.

`mod: configparser``: using `]` inside a section header will no longer cut the section name short at the `]`

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3566); [backlink](#)

Unknown interpreted text role "mod".

Added missing behavior to `func: contextlib.asynccontextmanager`` to match `func: contextlib.contextmanager`` so decorated functions can themselves be decorators.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3576); [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] 3.11.0a1.rst, line 3576); [backlink](#)

Unknown interpreted text role "func".

Pass multiprocessing BaseProxy argument `manager_owned` through AutoProxy.

`func: email.utils.getaddresses`` now accepts `class: email.header.Header`` objects along with string values. Patch by Zackery Spytz

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3596); [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] 3.11.0a1.rst, line 3596); [backlink](#)

Unknown interpreted text role "class".

Add SQLite error code and name to `mod:'sqlite3'` exceptions. Patch by Aviv Palivoda, Daniel Shahaf, and Erlend E. Aasland.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3606); [backlink](#)

Unknown interpreted text role "mod".

pty.spawn no longer hangs on FreeBSD, macOS, and Solaris.

lib2to3 now recognizes async generators everywhere.

Fix `TypeError` when required subparsers without `dest` do not receive arguments. Patch by Anthony Sottile.

Remove extra documentation listing methods in `difflib`. It was rendering twice in `pydoc` and was outdated in some places.

`mod:'collections.abc'` documentation has been expanded to explicitly cover how instance and subclass checks work, with additional doctest examples and an exhaustive list of ABCs which test membership purely by presence of the right `term:'special method'`s.

Patch by Raymond Hettinger.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3654); [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] 3.11.0a1.rst, line 3654); [backlink](#)

Unknown interpreted text role "term".

Promote PEP 604 union syntax by using it where possible. Also, mention `X | Y` more prominently in section about `Union` and mention `X | None` at all in section about `Optional`.

Added code equivalents for the `meth:'int.to_bytes'` and `meth:'int.from_bytes'` methods, as well as tests ensuring that these code equivalents are valid.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3677); [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] 3.11.0a1.rst, line 3677); [backlink](#)

Unknown interpreted text role "meth".

Removed the `othergui.rst` file, any references to it, and the list of GUI frameworks in the FAQ. In their place I've added links to the Python Wiki *page on GUI frameworks* <<https://wiki.python.org/moin/GuiProgramming>>.

Tkinter documentation has been greatly expanded with new "Architecture" and "Threading model" sections.

`mod:'base64'` RFC references were updated to point to [RFC 4648](#); a section was added to point users to the new "security considerations" section of the RFC.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3709); [backlink](#)

Unknown interpreted text role "mod".

Replaced occurrences of uppercase "Web" and "Internet" with lowercase versions per the 2016 revised Associated Press Style Book.

Update the definition of `__future__` in the glossary by replacing the confusing word "pseudo-module" with a more accurate description.

Add typical examples to `os.path.splittext` docs

Clarify that `func:'shutil.make_archive'` is not thread-safe due to reliance on changing the current working directory.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3749); [backlink](#)

Unknown interpreted text role "func".

Update of three expired hyperlinks in Doc/distributing/index.rst: "Project structure", "Building and packaging the project", and "Uploading the project to the Python Packaging Index".

Delete entry "coercion" in Doc/glossary.rst for its outdated definition.

Updated the docstring and docs of `:func:`filecmp.cmp`` to be more accurate and less confusing especially in respect to *shallow* arg.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3779); [backlink](#)

Unknown interpreted text role "func".

Refactored the `repr()` code of the `_Environ` (os module).

`importlib.metadata` is no longer provisional.

Match the docstring and python implementation of `:func:`~operator.countOf`` to the behavior of its c implementation.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3807); [backlink](#)

Unknown interpreted text role "func".

List all kwargs for `:func:`textwrap.wrap``, `:func:`textwrap.fill``, and `:func:`textwrap.shorten``. Now, there are nav links to attributes of `:class:`TextWrap``, which makes navigation much easier while minimizing duplication in the documentation.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3817); [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] 3.11.0a1.rst, line 3817); [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] 3.11.0a1.rst, line 3817); [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] 3.11.0a1.rst, line 3817); [backlink](#)

Unknown interpreted text role "class".

Clarify that `atexit` uses equality comparisons internally.

Convert examples in `tutorial/controflow.rst` section 4.3 to be interpreter-demo style.

Added a warning to `:mod:`zipfile`` docs: filename arg with a leading slash may cause archive to be un-openable on Windows systems.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3848); [backlink](#)

Unknown interpreted text role "mod".

Rewrote `Doc/library/__main__.rst`. Broadened scope of the document to explicitly discuss and differentiate between `__main__.py` in packages versus the `__name__ == '__main__'` expression (and the idioms that surround it).

In the Design FAQ, answer "Why don't generators support the `with` statement?"

Documentation of `csv.Dialect` is more descriptive.

Fix documentation for the return type of `:func:`sysconfig.get_path``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3888); [backlink](#)

Unknown interpreted text role "func".

Added a new section in the C API documentation for types used in type hinting. Documented `Py_GenericAlias` and `Py_GenericAliasType`.

Mark `typing.io` and `typing.re` as deprecated since Python 3.8 in the documentation. They were never properly supported by type checkers.

Document that `SyntaxError` args have a details tuple and that details are adjusted for errors in f-string field replacement expressions.

Document the deprecation and removal of the `loop` parameter for many functions and classes in `mod: 'asyncio'`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3927); [backlink](#)

Unknown interpreted text role "mod".

Corrected references to `TraversableResources` in docs. There is no `TraversableReader`.

Document that `ConfigParser` strips off comments when reading configuration files.

Correct where in the numeric ABC hierarchy `**` support is added, i.e., in `numbers.Complex`, not `numbers.Integral`.

Add the remark to `mod: 'dataclasses'` documentation that the `meth: ' __init__ '` of any base class has to be called in `meth: ' __post_init__ '`, along with a code example.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3967); [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] 3.11.0a1.rst, line 3967); [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] 3.11.0a1.rst, line 3967); [backlink](#)

Unknown interpreted text role "meth".

Clarify when `'_'` in match statements is a keyword, and when not.

Fix docs about how methods like `__add__` are invoked when evaluating operator expressions.

Document that `:class: 'collections.defaultdict'` parameter `default_factory` defaults to `None` and is positional-only.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 3997); [backlink](#)

Unknown interpreted text role "class".

document `BaseException` in favor of bare `except`

The description for `__file__` fixed. Patch by Furkan Onder

Add a "Security Considerations" index which links to standard library modules that have explicitly documented security considerations.

Remove the unqualified claim that `tkinter` is threadsafe. It has not been true for several years and likely never was. An explanation of what is true may be added later, after more discussion, and possibly after patching `_tkinter.c`,

Fix `:func: 'test.support.import_helper.import_fresh_module'`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4047); [backlink](#)

Unknown interpreted text role "func".

Add a test case for empty `:class: 'typing.NamedTuple'`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4056); [backlink](#)

Unknown interpreted text role "class".

Cover case when invalid markers type is supplied to `c_make_encoder`.

Fix `test_multiprocessing_fork` failure due to `test_logging` and `sys.modules` manipulation.

Fix `UserWarning: resource_tracker warning in`

`_test_multiprocessing._TestSharedMemory.test_shared_memory_cleaned_after_process_termination`

Enables `TestEnumerations` test cases in `test_ssl` suite.

Fix `test_readline.test_nonascii()`: sometimes, the newline character is not written at the end, so don't expect it in the output. Patch by Victor Stinner.

Fixes infinite loop on `:func:`unittest.mock.seal`` of mocks created by `:func:`~unittest.create_autospec``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4114); [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] 3.11.0a1.rst, line 4114); [backlink](#)

Unknown interpreted text role "func".

Improves pickling tests and docs of `SharedMemory` and `SharableList` objects.

Update `test_sysconfig.test_user_similar()` for the `posix_user` scheme: `platlib` doesn't use `:data:`sys.platlibdir``. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4134); [backlink](#)

Unknown interpreted text role "data".

`WithProcessesTestSharedMemory.test_shared_memory_basics` test was ignored, because `self.assertEqual(sms.size, sms2.size)` line was failing. It is now removed and test is skipped.

The main motivation for this line to be removed from the test is that the size of `SharedMemory` is not ever guaranteed to be the same. It is decided by the platform.

`libregtest` now clears the type cache later to reduce the risk of false alarm when checking for reference leaks. Previously, the type cache was cleared too early and `libregtest` raised a false alarm about reference leaks under very specific conditions. Patch by Irit Katriel and Victor Stinner.

Fixes that test classes decorated with `@hashlib_helper.requires_hashdigest` were skipped all the time.

Add calls of `:func:`gc.collect`` in tests to support PyPy.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4181); [backlink](#)

Unknown interpreted text role "func".

Made tests relying on the `:mod:`_asyncio`` C extension module optional to allow running on alternative Python implementations. Patch by Serhiy Storchaka.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4190); [backlink](#)

Unknown interpreted text role "mod".

Fix auto history tests of `test_readline`: sometimes, the newline character is not written at the end, so don't expect it in the output.

Tests were added to clarify `:func:`id`` is preserved when `obj * 1` is used on `:class:`str`` and `:class:`bytes`` objects. Patch by Nikita Sobolev.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4211); [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] 3.11.0a1.rst, line 4211); [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] 3.11.0a1.rst, line 4211); [backlink](#)

Unknown interpreted text role "class".

Add ability to wholesale silence DeprecationWarnings while running the regression test suite.

Notify users running test_decimal regression tests on macOS of potential harmless "malloc can't allocate region" messages spewed by test_decimal.

Fixed floating point precision issue in turtle tests.

Regression tests, when run with -w, are now re-running only the affected test methods instead of re-running the entire test file.

Added interop tests for Apple plists: generate plist files with Python plistlib and parse with Apple plutil; and the other way round.

Added a permanent Unicode-valued environment variable to regression tests to ensure they handle this use case in the future. If your test environment breaks because of that, report a bug to us, and temporarily set PYTHONREGRTTEST_UNICODE_GUARD=0 in your test environment.

Adjust recently added contextlib tests to avoid assuming the use of a refcounted GC

Fix asyncio test_popen() of test_windows_utils by using a longer timeout. Use military grade battle-tested

:data:'test.support.SHORT_TIMEOUT' timeout rather than a hardcoded timeout of 10 seconds: it's 30 seconds by default, but it is made longer on slow buildbots. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4292); [backlink](#)

Unknown interpreted text role "data".

Reset DeprecationWarning filters in

test.test_importlib.test_metadata_api.APITests.test_entry_points_by_index to avoid StopIteration error if DeprecationWarnings are ignored.

Account for address sanitizer in test_capi. test_capi now passes when run GCC address sanitizer.

Add non integral tests for :func:'math.sqrt' function.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4325); [backlink](#)

Unknown interpreted text role "func".

Fix test_ssl.test_wrong_cert_tls13(): use suppress_ragged_eofs=False, since read() can raise :exc:'ssl.SSLEOFError' on Windows. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4334); [backlink](#)

Unknown interpreted text role "exc".

Fix test_pha_required_nocert() of test_ssl: catch two more EOF cases (when the recv() method returns an empty string). Patch by Victor Stinner.

Add test_frozenmain to test_embed to test the :c:func:'Py_FrozenMain' C function. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4355); [backlink](#)

Unknown interpreted text role "c:func".

Ignore error string case in test_file_not_exists().

Add test to check that PyStructSequence_NewType accepts a PyStructSequence_Desc with doc field set to NULL.

Fix crash in doctest when doctest parses modules that include unwrappable functions by skipping those functions.

Add test for nested queues when using multiprocessing shared objects `AutoProxy[Queue]` inside `ListProxy` and `DictProxy`

Avoid building with the Windows 11 SDK previews automatically. This may be overridden by setting the `DefaultWindowsSDKVersion` environment variable before building.

Freeze `stdlib` modules that are imported during startup. This provides significant performance improvements to startup. If necessary, use the previously added `"-X frozen_modules=off"` commandline option to force importing the source modules.

Windows builds now regenerate frozen modules as the first part of the build. Previously the regeneration was later in the build, which would require it to be restarted if any modules had changed.

Fixes Haiku platform build.

The `ncurses` function `extended_color_content` was introduced in 2017

(<https://invisible-island.net/ncurses/NEWS.html#index-t20170401>). The

`ncurses-devel` package in CentOS 7 had a older version `ncurses` resulted in compilation error. For compiling `ncurses` with extended color support, we verify the version of the `ncurses` library `>= 20170401`.

Generate lines in relevant files for frozen modules. Up until now each of the files had to be edited manually. This change makes it easier to add to and modify the frozen modules.

Add support for building with clang thin lto via `--with-lto=thin/full`. Patch by Dong-hee Na and Brett Holman.

Enable building using a Visual Studio 2022 install on Windows.

Improved error message when building without a Windows SDK installed.

The Windows build now accepts `:envvar:'EnableControlFlowGuard'` set to `guard` to enable CFG.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4501); [backlink](#)
Unknown interpreted text role "envvar".

Fix broken `make install` that caused standard library extension modules to be unnecessarily and incorrectly rebuilt during the install phase of `cpython`.

Fixes an assertion failure due to searching for the standard library in unnormalised paths.

Update Windows release to include `libffi 3.4.2`

Update to `OpenSSL 1.1.11` in Windows build

Upgrade Windows installer to use `SQLite 3.36.0`.

Avoid consuming standard input in the `:mod:'platform'` module

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4559); [backlink](#)
Unknown interpreted text role "mod".

Accelerate speed of `:mod:'mimetypes'` initialization using a native implementation of the registry scan.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4568); [backlink](#)
Unknown interpreted text role "mod".

Fix 16 milliseconds jitter when using timeouts in `:mod:'threading'`, such as with `:meth:'threading.Lock.acquire'` or `:meth:'threading.Condition.wait'`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4578); [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] 3.11.0a1.rst, line 4578); [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]3.11.0a1.rst, line 4578); [backlink](#)

Unknown interpreted text role "meth".

Build `:mod:'sqlite3'` with math functions enabled. Patch by Erlend E. Aasland.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a1.rst, line 4588); [backlink](#)

Unknown interpreted text role "mod".

This is a follow-on bug from <https://bugs.python.org/issue26903>. Once that is applied we run into an off-by-one assertion problem. The assert was not correct.

Update macOS installer builds to use OpenSSL 1.1.1l.

When building CPython on macOS with `./configure --with-undefined-behavior-sanitizer --with-pydebug`, the stack size is now quadrupled to allow for the entire test suite to pass.

Update macOS installer to use SQLite 3.36.0.

`:meth:'ctypes.util.find_library'` now works correctly on macOS 11 Big Sur even if Python is built on an older version of macOS. Previously, when built on older macOS systems, `find_library` was not able to find macOS system libraries when running on Big Sur due to changes in how system libraries are stored.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a1.rst, line 4638); [backlink](#)

Unknown interpreted text role "meth".

The framework build's user header path in `sysconfig` is changed to add a 'pythonX.Y' component to match distutils's behavior.

Allow `--with-lto` configure option to work with Apple-supplied Xcode or Command Line Tools.

Add `socket.TCP_KEEPALIVE` support for macOS. Patch by Shane Harvey.

On Windows, change exit/quit message to suggest Ctrl-D, which works, instead of <Ctrl-Z Return>, which does not work in IDLE.

Make completion boxes appear on Ubuntu again.

Mostly fix completions on macOS when not using `tk/tk 8.6.11` (as with 3.9). The added `update_idletask` call should be harmless and possibly helpful otherwise.

Move the indent space setting from the Font tab to the new Windows tab. Patch by Mark Roseman and Terry Jan Reedy.

Split the settings dialog General tab into Windows and Shell/ED tabs. Move help sources, which extend the Help menu, to the Extensions tab. Make space for new options and shorten the dialog. The latter makes the dialog better fit small screens.

Avoid uncaught exceptions in `AutoCompleteWindow.winconfig_event()`.

Fix IDLE sometimes freezing upon tab-completion on macOS.

Highlight the new `:ref:'match' <match>` statement's `:ref:'soft keywords <soft-keywords>': :keyword:'match', :keyword:'case <match>`, and `:keyword:'_ <wildcard-patterns>`. However, this highlighting is not perfect and will be incorrect in some rare cases, including some `_`s in `case` patterns.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a1.rst, line 4750); [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]3.11.0a1.rst, line 4750); [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]3.11.0a1.rst, line 4750); [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]3.11.0a1.rst, line 4750); [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] 3.11.0a1.rst, line 4750); [backlink](#)

Unknown interpreted text role "keyword".

Include interpreter's typo fix suggestions in message line for NameErrors and AttributeErrors. Patch by E. Paine.

Fix a warning in regular expression in the c-analyzer script.

pydoc now returns a non-zero status code when a module cannot be found.

Allow the Argument Clinic tool to handle `__complex__` special methods.

Removed the 'test2to3' demo project that demonstrated using lib2to3 to support Python 2.x and Python 3.x from a single source in a distutils package. Patch by Dong-hee Na

Make patchcheck automatically detect the correct base branch name (previously it was hardcoded to 'master')

Added support for variadic positional parameters in Argument Clinic.

The PyThread_acquire_lock_timed() function now clamps the timeout if it is too large, rather than aborting the process. Patch by Victor Stinner.

`meth:BufferedReader.peek` no longer raises `exc:ValueError` when the entire file has already been buffered.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4839); [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] 3.11.0a1.rst, line 4839); [backlink](#)

Unknown interpreted text role "exc".

Add the `:c:macro:Py_ALWAYS_INLINE` macro to ask the compiler to always inline a static inline function. The compiler can ignore it and decides to not inline the function. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4849); [backlink](#)

Unknown interpreted text role "c:macro".

Add the `:c:macro:Py_NO_INLINE` macro to disable inlining on a function. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4860); [backlink](#)

Unknown interpreted text role "c:macro".

Add a deallocator to the `:class:'bool'` type to detect refcount bugs in C extensions which call `Py_DECREF(Py_True)` ; or `Py_DECREF(Py_False)` ; by mistake. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4870); [backlink](#)

Unknown interpreted text role "class".

Add a new `:c:func:PyType_GetQualName` function to get type's qualified name.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4881); [backlink](#)

Unknown interpreted text role "c:func".

Reverts removal of the old buffer protocol because they are part of stable ABI.

Remove `crypt.h` include from the public `Python.h` header.

The `Py_TPFLAGS_HAVE_VERSION_TAG` type flag now does nothing. The `Py_TPFLAGS_HAVE_AM_SEND` flag (which was added in 3.10) is removed. Both were unnecessary because it is not possible to have type objects with the relevant fields missing.

Added the `co_qualname` to the `PyCodeObject` structure to propagate the qualified name from the compiler to code objects.

Patch by Gabriele N. Tometta

`c:func:'Py_RunMain'` now resets `c:data:'PyImport_Inittab'` to its initial value at exit. It must be possible to call `c:func:'PyImport_AppendInittab'` or `c:func:'PyImport_ExtendInittab'` at each Python initialization. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4934); [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] 3.11.0a1.rst, line 4934); [backlink](#)

Unknown interpreted text role "c:data".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4934); [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] 3.11.0a1.rst, line 4934); [backlink](#)

Unknown interpreted text role "c:func".

Remove 4 private trashcan C API functions which were only kept for the backward compatibility of the stable ABI with Python 3.8 and older, since the trashcan API was not usable with the limited C API on Python 3.8 and older. The trashcan API was excluded from the limited C API in Python 3.9.

Removed functions:

- `_PyTrash_deposit_object()`
- `_PyTrash_destroy_chain()`
- `_PyTrash_thread_deposit_object()`
- `_PyTrash_thread_destroy_chain()`

The trashcan C API was never usable with the limited C API, since old trashcan macros accessed directly `c:type:'PyThreadState'` members like `_tstate->trash_delete_nesting`, whereas the `c:type:'PyThreadState'` structure is opaque in the limited C API.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4958); [backlink](#)

Unknown interpreted text role "c:type".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4958); [backlink](#)

Unknown interpreted text role "c:type".

Exclude also the `PyTrash_UNWIND_LEVEL` constant from the C API.

Patch by Victor Stinner.

Removed documentation for the removed `PyParser_*` C API.

The list in `ref:'stable-abi-list'` now shows the public name `c:struct:'PyFrameObject'` rather than `_frame`. The non-existing entry `_node` no longer appears in the list.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4983); [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] 3.11.0a1.rst, line 4983); [backlink](#)

Unknown interpreted text role "c:struct".

`:c:func:'Py_IS_TYPE'` no longer uses `:c:func:'Py_TYPE'` to avoid a compiler warning; no longer cast `const PyObject*` to `PyObject*`. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 4994); [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] 3.11.0a1.rst, line 4994); [backlink](#)

Unknown interpreted text role "c:func".

Convert the `:c:func:'Py_TYPE'` and `:c:func:'Py_SIZE'` macros to static inline functions. The `:c:func:'Py_SET_TYPE'` and `:c:func:'Py_SET_SIZE'` functions must now be used to set an object type and size. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 5005); [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] 3.11.0a1.rst, line 5005); [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] 3.11.0a1.rst, line 5005); [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] 3.11.0a1.rst, line 5005); [backlink](#)

Unknown interpreted text role "c:func".

The `:c:func:'PyType_Ready'` function now raises an error if a type is defined with the `:const:'Py_TPFLAGS_HAVE_GC'` flag set but has no traverse function (`:c:member:'PyTypeObject.tp_traverse'`). Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 5016); [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] 3.11.0a1.rst, line 5016); [backlink](#)

Unknown interpreted text role "const".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 5016); [backlink](#)

Unknown interpreted text role "c:member".

The undocumented function `:c:func:'Py_FrozenMain'` is removed from the Limited API.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 5027); [backlink](#)

Unknown interpreted text role "c:func".

Deprecate the following functions to configure the Python initialization:

- :c:func:`PySys_AddWarnOptionUnicode`

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 5039); [backlink](#)

Unknown interpreted text role "c:func".

- :c:func:`PySys_AddWarnOption`

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 5040); [backlink](#)

Unknown interpreted text role "c:func".

- :c:func:`PySys_AddXOption`

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 5041); [backlink](#)

Unknown interpreted text role "c:func".

- :c:func:`PySys_HasWarnOptions`

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 5042); [backlink](#)

Unknown interpreted text role "c:func".

- :c:func:`Py_SetPath`

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 5043); [backlink](#)

Unknown interpreted text role "c:func".

- :c:func:`Py_SetProgramName`

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 5044); [backlink](#)

Unknown interpreted text role "c:func".

- :c:func:`Py_SetPythonHome`

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 5045); [backlink](#)

Unknown interpreted text role "c:func".

- :c:func:`Py_SetStandardStreamEncoding`

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 5046); [backlink](#)

Unknown interpreted text role "c:func".

- :c:func:`_Py_SetProgramFullPath`

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 5047); [backlink](#)

Unknown interpreted text role "c:func".

Use the new `c:type:PyConfig` API of the `ref:Python Initialization Configuration <init-config>` instead (PEP 587).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 5049); [backlink](#)

Unknown interpreted text role "c:type".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 5049); [backlink](#)

Unknown interpreted text role "ref".

Remove `PyErr_SetFromErrnoWithUnicodeFilename()`, `PyErr_SetFromWindowsErrWithUnicodeFilename()`, and `PyErr_SetExcFromWindowsErrWithUnicodeFilename()`. They are not documented and have been deprecated since Python 3.3.

`c:func:PyCodec_Unregister` is now properly exported as a function in the Windows Stable ABI DLL.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 5071); [backlink](#)

Unknown interpreted text role "c:func".

Remove deprecated `Py_UNICODE` APIs: `PyUnicode_Encode`, `PyUnicode_EncodeUTF7`, `PyUnicode_EncodeUTF8`, `PyUnicode_EncodeUTF16`, `PyUnicode_EncodeUTF32`, `PyUnicode_EncodeLatin1`, `PyUnicode_EncodeMBCS`, `PyUnicode_EncodeDecimal`, `PyUnicode_EncodeRawUnicodeEscape`, `PyUnicode_EncodeCharmap`, `PyUnicode_EncodeUnicodeEscape`, `PyUnicode_TransformDecimalToASCII`, `PyUnicode_TranslateCharmap`, `PyUnicodeEncodeError_Create`, `PyUnicodeTranslateError_Create`. See [PEP 393](#) and [PEP 624](#) for reference.

Add a new `c:func:PyType_GetName` function to get type's short name.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a1.rst, line 5098); [backlink](#)

Unknown interpreted text role "c:func".