

`c:func:'Py_EndInterpreter'` now explicitly untracks all objects currently tracked by the GC. Previously, if an object was used later by another interpreter, calling `c:func:'PyObject_GC_UnTrack'` on the object crashed if the previous or the next object of the `c:type:'PyGC_Head'` structure became a dangling pointer. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 7); [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] 3.11.0a4.rst, line 7); [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] 3.11.0a4.rst, line 7); [backlink](#)

Unknown interpreted text role "c:type".

Fix memory leak in `PyEval_EvalCodeEx`.

Fix a crash in the parser when retrieving the error text for multi-line f-strings expressions that do not start in the first line of the string. Patch by Pablo Galindo

Do not set line number of instruction storing doc-string. Fixes regression introduced in 3.11 alpha.

Remove spurious "call" event when creating a lambda function that was accidentally introduced in 3.11a4.

ASDL declaration of `FormattedValue` has changed to reflect `conversion` field is not optional.

Fixed an interpreter crash on bootup with multiple `PythonPaths` set in the Windows registry. Patch by Derzsi Dániel.

Fix the line number of tokenizer errors inside f-strings. Patch by Pablo Galindo.

We always expect the "use_frozen_modules" config to be set, now that `getpath.c` was rewritten in pure Python and the logic improved.

Fix a regression when a type method like `__init__()` is modified in a subinterpreter. Fix a regression in `_PyUnicode_EqualToASCIIId()` and `type.update_slot()`. Revert the change which made the Unicode dictionary of interned strings compatible with subinterpreters: the internal interned dictionary is shared again by all interpreters. Patch by Victor Stinner.

Add `RESUME` opcode. This is a logical no-op. It is emitted by the compiler anywhere a Python function can be entered. It is used by the interpreter to perform tracing and optimizer checks.

Fix the regression of `os.path.normpath("A/../B")` not returning expected `"../B"` but `"B"`.

Correct the error message for unclosed parentheses when the tokenizer doesn't reach the end of the source when the error is reported. Patch by Pablo Galindo

Remove the `GEN_START` opcode.

Certain sequence multiplication operations like `[0] * 1_000` are now faster due to reference-counting optimizations. Patch by Dennis Sweeney.

`opcode:'PREP_RERAISE_STAR'` no longer pushes `lasti` to the stack.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 164); [backlink](#)

Unknown interpreted text role "opcode".

Remove `opcode:'POP_EXCEPT_AND_RERAISE'` and replace it by an equivalent sequence of other opcodes.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 173); [backlink](#)

Unknown interpreted text role "opcode".

Fix iterator cache mechanism of `class:'OrderedDict'`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 183); [backlink](#)

Unknown interpreted text role "class".

Speed up shifting operation involving integers less than `:c:macro:'PyLong_BASE'`. Patch by Xinhang Xu.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 192); [backlink](#)

Unknown interpreted text role "c:macro".

Add a maximum recursion check to the PEG parser to avoid stack overflow. Patch by Pablo Galindo

Fix bug where `:meth:'ExceptionGroup.split'` and `:meth:'ExceptionGroup.subgroup'` did not copy the exception group's `__note__` field to the parts.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 212); [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] 3.11.0a4.rst, line 212); [backlink](#)

Unknown interpreted text role "meth".

The interpreter state's representation of handled exceptions (a.k.a `exc_info`, or `_PyErr_StackItem`) now has only the `exc_value` field, `exc_type` and `exc_traceback` have been removed as their values can be derived from `exc_value`.

Replace the four call bytecode instructions which one pre-call instruction and two call instructions.

Removes `CALL_FUNCTION`, `CALL_FUNCTION_KW`, `CALL_METHOD` and `CALL_METHOD_KW`.

Adds `CALL_NO_KW` and `CALL_KW` call instructions, and `PRECALL_METHOD` prefix for pairing with `LOAD_METHOD`.

Remove the `YIELD_FROM` instruction and replace it with the `SEND` instruction which performs the same operation, but without the loop.

The code called from `:c:func:'_PyErr_Display'` was refactored to improve error handling. It now exits immediately upon an unrecoverable error.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 261); [backlink](#)

Unknown interpreted text role "c:func".

Fix parser error when parsing non-utf8 characters in source files. Patch by Pablo Galindo.

Improve the location of the caret in `:exc:'SyntaxError'` exceptions emitted by the symbol table. Patch by Pablo Galindo.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 281); [backlink](#)

Unknown interpreted text role "exc".

Ensure `:file:'.pth'` files work as intended on platforms other than Windows.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 291); [backlink](#)

Unknown interpreted text role "file".

Fixes parsing of `:file:'.pth'` files on startup so that single-character paths are correctly read.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 300); [backlink](#)

Unknown interpreted text role "file".

Fix a bug where the line numbers given in a traceback when a decorator application raised an exception were wrong.

Add `:opcode:'POP_JUMP_IF_NOT_NONE'` and `:opcode:'POP_JUMP_IF_NONE'` opcodes to speed up conditional jumps.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 320); [backlink](#)

Unknown interpreted text role "opcode".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 320); [backlink](#)

Unknown interpreted text role "opcode".

Deepfreeze `mod:runpy`, patch by Kumar Aditya.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 330); [backlink](#)

Unknown interpreted text role "mod".

Fix a crash in the `mod:atexit` module involving functions that unregister themselves before raising exceptions. Patch by Pablo Galindo.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 339); [backlink](#)

Unknown interpreted text role "mod".

Improve compatibility of the `mod:curses` module with NetBSD curses.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 349); [backlink](#)

Unknown interpreted text role "mod".

Specialize the `CALL_FUNCTION` instruction for calls to builtin types with a single argument. Speeds up `range(x)`, `list(x)`, and specifically `type(obj)`.

Fix bug where the built-in `func:compile` function did not always raise a `exc:SyntaxError` when passed multiple statements in 'single' mode. Patch by Weipeng Hong.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 369); [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] 3.11.0a4.rst, line 369); [backlink](#)

Unknown interpreted text role "exc".

The main interpreter in `_PyRuntimeState.interpreters` is now statically allocated (as part of `_PyRuntime`). Likewise for the initial thread state of each interpreter. This means less allocation during runtime init, as well as better memory locality for these key state objects.

Complete the [PEP 654](#) implementation: add `except*`.

Revert changes in `set.__init__`. Subclass of `class:set` needs to define a `__init__()` method if it defines a `__new__()` method with additional keyword parameters.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 401); [backlink](#)

Unknown interpreted text role "class".

Added the `data:Py_Version` constant which bears the same value as `macro:PY_VERSION_HEX`. Patch by Gabriele N. Toretta.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 412); [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] 3.11.0a4.rst, line 412); [backlink](#)

Unknown interpreted text role "c:macro".

The `@typing.final` decorator now sets the `__final__` attribute on the decorated object to allow runtime introspection. Patch by Jelle Zijlstra.

Added the `meth:'sys.exception'` method which returns the active exception instance.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 432); [backlink](#)

Unknown interpreted text role "meth".

Add `meth:'string.Template.is_valid'` and `meth:'string.Template.get_identifiers'` methods.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 442); [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] 3.11.0a4.rst, line 442); [backlink](#)

Unknown interpreted text role "meth".

Assume that `:class:'types.CodeType'` always has `:attr:'types.CodeType.co_firstlineno'` in `:mod:'doctest'`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 452); [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] 3.11.0a4.rst, line 452); [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] 3.11.0a4.rst, line 452); [backlink](#)

Unknown interpreted text role "mod".

Fix `:mod:'hashlib'` `usedforsecurity` option to work correctly with OpenSSL 3.0.0 in FIPS mode.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 462); [backlink](#)

Unknown interpreted text role "mod".

Fix possible segfault when importing the `:mod:'asyncio'` module from different sub-interpreters in parallel. 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] 3.11.0a4.rst, line 472); [backlink](#)

Unknown interpreted text role "mod".

Removed `__slots__` from `:class:'typing.ParamSpec'` and `:class:'typing.TypeVar'`. They served no purpose. Patch by Arie Bovenberg.

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

main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a4.rst, line 482); [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]3.11.0a4.rst, line 482); [backlink](#)

Unknown interpreted text role "class".

Reflect context argument in `AbstractEventLoop.call_*()` methods. Loop implementations already support it.

Remove special-casing of `__new__` in `:meth:`enum.Enum.__dir__``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a4.rst, line 502); [backlink](#)

Unknown interpreted text role "meth".

Improve day constants in `:mod:`calendar``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a4.rst, line 511); [backlink](#)

Unknown interpreted text role "mod".

Now all constants (*MONDAY*... *SUNDAY*) are documented, tested, and added to `__all__`.

Optimized the mean, variance, and stdev functions in the statistics module. If the input is an iterator, it is consumed in a single pass rather than eating memory by conversion to a list. The single pass algorithm is about twice as fast as the previous two pass code.

Added two new variables to *pyvenv.cfg* which is generated by `:mod:`venv`` module: *executable* for the executable and *command* for the command line used to create the environment.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a4.rst, line 535); [backlink](#)

Unknown interpreted text role "mod".

Improve error message when importing `:mod:`asyncio.windows_events`` on non-Windows.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a4.rst, line 546); [backlink](#)

Unknown interpreted text role "mod".

Reuse `_winapi` constants in `asyncio.windows_events`.

Adding `SF_NOCACHE` sendfile constant for FreeBSD for the `posixmodule`.

Add fast path for $0 \leq k \leq n \leq 67$ for `:func:`math.comb``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a4.rst, line 574); [backlink](#)

Unknown interpreted text role "func".

Adding the `MAP_STACK` constant for the `mmap` module.

Deprecate `:attr:`webbrowser.MacOSXOSAScript._name`` and use `name` instead.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a4.rst, line 592); [backlink](#)

Unknown interpreted text role "attr".

Added missing error codes to module `xml.parsers.expat.errors`.

Refactor tests to test traversable API directly. Includes changes from `importlib` 5.4.0.

Moved `importlib.resources` and its related functionality to a package.

Add `include_hidden` parameter to `:func:`~glob.glob`` and `:func:`~glob.iglob`` to match hidden files and directories when using special characters like `*`, `**`, `?` and `[]`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 629); [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] 3.11.0a4.rst, line 629); [backlink](#)

Unknown interpreted text role "func".

`:func:`concurrent.futures.wait`` no longer blocks forever when given duplicate Futures. Patch by Kumar Aditya.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 640); [backlink](#)

Unknown interpreted text role "func".

Honor spec when generating requirement specs with urls and extras (`importlib_metadata 4.8.3`).

EntryPoint objects are no longer tuples. Recommended means to access is by attribute (`'name'`, `'group'`) or accessor (`'.load()'`). Access by index is deprecated and will raise deprecation warning.

Print unexpected successes together with failures and errors in summary in `:class:`unittest.TextTestResult``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 671); [backlink](#)

Unknown interpreted text role "class".

Calling `:meth:`add_argument_group`` on an argument group is deprecated. Calling `:meth:`add_argument_group`` or `:meth:`add_mutually_exclusive_group`` on a mutually exclusive group is deprecated.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 681); [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] 3.11.0a4.rst, line 681); [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] 3.11.0a4.rst, line 681); [backlink](#)

Unknown interpreted text role "meth".

These features were never supported and do not always work correctly. The functions exist on the API by accident through inheritance and will be removed in the future.

`:mod:`argparse`` raises `:exc:`ValueError`` with clear message when trying to render usage for an empty mutually-exclusive group. Previously it raised a cryptic `:exc:`IndexError``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 696); [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] 3.11.0a4.rst, line 696); [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]3.11.0a4.rst, line 696); [backlink](#)

Unknown interpreted text role "exc".

Functions in the `mod:'traceback'` module raise `exc:'TypeError'` rather than `exc:'AttributeError'` when an exception argument is not of type `exc:'BaseException'`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a4.rst, line 707); [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]3.11.0a4.rst, line 707); [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]3.11.0a4.rst, line 707); [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]3.11.0a4.rst, line 707); [backlink](#)

Unknown interpreted text role "exc".

Add `allow_reuse_port` flag in `socketserver`.

Fix help for the `mod:'signal'` module. Some functions (e.g. `signal()` and `getsignal()`) were omitted.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a4.rst, line 727); [backlink](#)

Unknown interpreted text role "mod".

The `registry()` method of `func:'functools.singledispatch'` functions checks now the first argument or the first parameter annotation and raises a `TypeError` if it is not supported. Previously unsupported "types" were ignored (e.g. `typing.List[int]`) or caused an error at calling time (e.g. `list[int]`).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a4.rst, line 737); [backlink](#)

Unknown interpreted text role "func".

Add ability to use `typing.Union` and `types.UnionType` as `dispatch` argument to `functools.singledispatch`. Patch provided by Yuri Karabas.

Add `attr:'__all__'` to `mod:'inspect'`, patch by Kumar Aditya.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a4.rst, line 760); [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]3.11.0a4.rst, line 760); [backlink](#)

Unknown interpreted text role "mod".

Ensure that `func:'math.expml'` does not raise on underflow.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d]3.11.0a4.rst, line 769); [backlink](#)

Unknown interpreted text role "func".

Adding `:attr:'F_DUP2FD'` and `:attr:'F_DUP2FD_CLOEXEC'` constants from FreeBSD into the `fcntl` module.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 778); [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] 3.11.0a4.rst, line 778); [backlink](#)

Unknown interpreted text role "attr".

`:mod:'typing'` generic aliases now reveal the class attributes of the original generic class when passed to `dir()`. This was the behavior up to Python 3.6, but was changed in 3.7-3.9.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 788); [backlink](#)

Unknown interpreted text role "mod".

The empty query string, consisting of no query arguments, is now handled correctly in `urllib.parse.parse_qs`. This caused problems before when strict parsing was enabled.

Change how dataclasses disallows mutable default values. It used to use a list of known types (list, dict, set). Now it disallows unhashable objects to be defaults. It's using unhashability as a proxy for mutability. Patch by Eric V. Smith, idea by Raymond Hettinger.

Remove namespace package (PEP 420) support from `unittest` discovery. It was introduced in Python 3.4 but has been broken since Python 3.7.

Added a `:meth:'__repr__'` method to `:class:'multiprocessing.Event'` objects, patch by Kumar Aditya.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 832); [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] 3.11.0a4.rst, line 832); [backlink](#)

Unknown interpreted text role "class".

Added `:data:'signal.SIGSTKFLT'` on platforms where this signal is defined.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 842); [backlink](#)

Unknown interpreted text role "data".

Fetch across rollback no longer raises `:exc:'~sqlite3.InterfaceError'`. Instead we leave it to the SQLite library to handle these cases. 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] 3.11.0a4.rst, line 851); [backlink](#)

Unknown interpreted text role "exc".

Replace `concurrent.futures.TimeoutError` and `asyncio.TimeoutError` with builtin `:exc:'TimeoutError'`, keep these names as deprecated aliases.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 862); [backlink](#)

Unknown interpreted text role "exc".

Document method `:meth:`cmd.Cmd.columnize``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 872); [backlink](#)

Unknown interpreted text role "meth".

State that `|` is preferred for readability over `Union` in the `:mod:`typing`` docs.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 881); [backlink](#)

Unknown interpreted text role "mod".

Extracted `importlib.resources` and `importlib.resources.abc` documentation into separate files.

Update the documentation for the `:func:`globals`` function.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 901); [backlink](#)

Unknown interpreted text role "func".

Add a test case for `:mod:`enum`` with `_use_args_ == True` and `_member_type_ == object`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 910); [backlink](#)

Unknown interpreted text role "mod".

Fix hang in `runtest_mp` due to race condition

Fix test `_capi` on FreeBSD 14-dev: instruct jemalloc to not fill freed memory with junk byte.

Cover `ValueError` path in tests for `:meth:`enum.Flag._missing``.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 939); [backlink](#)

Unknown interpreted text role "meth".

Now `fakename` in `test_pathlib.PosixPathTest.test_expanduser` is checked to be non-existent.

Rewrite `asyncio.locks` tests with `:class:`unittest.IsolatedAsyncioTestCase`` usage.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 958); [backlink](#)

Unknown interpreted text role "class".

Fixed `:mod:`asyncio`` tests in python optimized mode. Patch by Kumar Aditya.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 968); [backlink](#)

Unknown interpreted text role "mod".

Fix test case for OpenSSL 3.0.1 version. OpenSSL 3.0 uses `0xMNN00P0L`.

When Python is configured with `:option:`--without-static-libpython``, the Python static library (`libpython.a`) is no longer built. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 986); [backlink](#)

Unknown interpreted text role "option".

When Python is built without `:option:`--enable-shared``, the `python` program is now linked to object files, rather than being linked to the Python static library (`libpython.a`), to make sure that all symbols are exported. Previously, the linker omitted some symbols like

the `:c:func:'Py_FrozenMain'` 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] 3.11.0a4.rst, line 997); [backlink](#)

Unknown interpreted text role "option".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 997); [backlink](#)

Unknown interpreted text role "c:func".

The `configure` script has a new option `--with-emscripten-target` to select browser or node as Emscripten build target.

Added and fixed `#ifdef HAVE_FEATURE` checks for functionality that is not available on WASI platform.

Fixed a regression in `configure` check for `:func:'select.epoll'`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 1030); [backlink](#)

Unknown interpreted text role "func".

`configure` no longer sets `MULTIARCH` on FreeBSD platforms.

Updated OpenSSL to 1.1.1m in Windows builds, macOS installer builds, and CI. Patch by Kumar Aditya.

Automatically detect or install bootstrap Python runtime when building from Visual Studio.

Add a `--with-pystats` `configure` option to turn on internal statistics gathering.

A new directory `Tools/wasm` contains WebAssembly-related helpers like `config.site` override for `wasm32-emscripten`, `wasm` assets generator to bundle the `stdlib`, and a `README`.

`:program'makesetup'` no longer builds extensions that have been marked as *disabled*. This allows users to disable modules in `Modules/Setup.local`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 1089); [backlink](#)

Unknown interpreted text role "program".

Use pure Python `freeze_module` for all but `importlib` bootstrap files. `--with-freeze-module` `:program'configure'` option is no longer needed for cross builds.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 1099); [backlink](#)

Unknown interpreted text role "program".

Removed parameter that is unsupported on Windows 8.1 and early Windows 10 and may have caused build or runtime failures.

The Python Launcher app for macOS now properly launches scripts and, if necessary, the Terminal app when running on recent macOS releases.

Fix a bug in `:c:func:'PyFunction_GetAnnotations'` that caused it to return a tuple instead of a dict.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 1130); [backlink](#)

Unknown interpreted text role "c:func".

`:c:func:'PyBuffer_GetPointer'`, `:c:func:'PyBuffer_FromContiguous'`, `:c:func:'PyBuffer_ToContiguous'` and `:c:func:'PyMemoryView_FromBuffer'` now take buffer info by `const Py_buffer *` instead of `Py_buffer *`, as they do not need mutability. `:c:func:'PyBuffer_FromContiguous'` also now takes the source buffer as `const void *`, and similarly `:c:func:'PyBuffer_GetPointer'` takes the strides as `const Py_ssize_t *`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 1140); [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] 3.11.0a4.rst, line 1140); [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] 3.11.0a4.rst, line 1140); [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] 3.11.0a4.rst, line 1140); [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] 3.11.0a4.rst, line 1140); [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] 3.11.0a4.rst, line 1140); [backlink](#)

Unknown interpreted text role "c:func".

Document that the `no_block` argument to `c:func:PyCapsule_Import` is a no-op now.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 1154); [backlink](#)

Unknown interpreted text role "c:func".

Replaced deprecated usage of `c:func:PyImport_ImportModuleNoBlock` with `c:func:PyImport_ImportModule` in stdlib modules. Patch by Kumar Aditya.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 1164); [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] 3.11.0a4.rst, line 1164); [backlink](#)

Unknown interpreted text role "c:func".

The `c:func:PyUnicode_CHECK_INTERNEDED` macro has been excluded from the limited C API. It was never usable there, because it used internal structures which are not available in the limited C API. Patch by Victor Stinner.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ [cpython-main] [Misc] [NEWS.d] 3.11.0a4.rst, line 1174); [backlink](#)

Unknown interpreted text role "c:func".