

Remove two invalid "peephole" optimizations from the bytecode compiler.

Do not create frame objects when creating `:class:'super'` object. Patch by Kumar Aditya.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 16); [backlink](#)

Unknown interpreted text role "class".

Added more fined-grained specialization failure stats regarding the `COMPARE_OP` bytecode.

The delegation of `:func:'int'` to `:meth:'__trunc__'` is now deprecated. Calling `int(a)` when `type(a)` implements `:meth:'__trunc__'` but not `:meth:'__int__'` or `:meth:'__index__'` now raises a `:exc:'DeprecationWarning'`.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 36); [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) 3.11.0a5.rst, line 36); [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) 3.11.0a5.rst, line 36); [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) 3.11.0a5.rst, line 36); [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) 3.11.0a5.rst, line 36); [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) 3.11.0a5.rst, line 36); [backlink](#)

Unknown interpreted text role "exc".

Reorder code emitted by the compiler for a `:keyword:'try'`-`:keyword:'except'` block so that the `:keyword:'else'` block's code immediately follows the `:keyword:'try'` body (without a jump). This is more optimal for the happy path.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 47); [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) 3.11.0a5.rst, line 47); [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) 3.11.0a5.rst, line 47); [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) 3.11.0a5.rst, line 47); [backlink](#)

Unknown interpreted text role "keyword".

Allow passing `iterable` as a keyword argument to `:func:'enumerate'` again. Patch by Jelle Zijlstra.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 59); [backlink](#)

Unknown interpreted text role "func".

Replace several stack manipulation instructions (`DUP_TOP`, `DUP_TOP_TWO`, `ROT_TWO`, `ROT_THREE`, `ROT_FOUR`, and `ROT_N`) with new `:opcode:'COPY'` and `:opcode:'SWAP'` instructions.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 69); [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) 3.11.0a5.rst, line 69); [backlink](#)

Unknown interpreted text role "opcode".

Use two or three bytecodes to implement most calls.

Calls without named arguments are implemented as a sequence of two instructions: `PRECALL`; `CALL`. Calls with named arguments are implemented as a sequence of three instructions: `PRECALL`; `KW_NAMES`; `CALL`. There are two different `PRECALL` instructions: `PRECALL_FUNTION` and `PRECALL_METHOD`. The latter pairs with `LOAD_METHOD`.

This partition into pre-call and call allows better specialization, and thus better performance ultimately.

There is no change in semantics.

Fix an assert when parsing some invalid N escape sequences in f-strings.

Improve error message on invalid calls to `:meth:'BaseExceptionGroup.__new__'`.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 109); [backlink](#)

Unknown interpreted text role "meth".

Fix memory leak in code objects generated by `deepfreeze`. Patch by Kumar Aditya.

Speed up calls to `:meth:'weakref.ref.__call__'` by using the [PEP 590](#) `vectorcall` calling convention. 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) 3.11.0a5.rst, line 129); [backlink](#)

Unknown interpreted text role "meth".

Fix a race condition on setting a type `__bases__` attribute: the internal function `add_subclass()` now gets the `PyTypeObject.tp_subclasses` member after calling `:c:func:'PyWeakref_NewRef'` which can trigger a garbage collection which can indirectly modify `PyTypeObject.tp_subclasses`. Patch by Victor Stinner.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 139); [backlink](#)

Unknown interpreted text role "c:func".

`python -X showrefcount` now shows the total reference count after clearing and destroyed the main Python interpreter. Previously, it was shown before. Patch by Victor Stinner.

Add `ASYNC_GEN_WRAP` opcode to wrap the value to be yielded in async generators. Removes the need to special case async generators in the `YIELD_VALUE` instruction.

Optimize some modulo operations in `Objects/longobject.c`. Patch by Jeremiah Vivian.

Add new `RETURN_GENERATOR` bytecode to make generators. Simplifies calling Python functions in the VM, as they no longer any need to special case generator functions.

Also add `JUMP_NO_INTERRUPT` bytecode that acts like `JUMP_ABSOLUTE`, but does not check for interrupts.

The integer division `//` implementation has been optimized to better let the compiler understand its constraints. It can be 20% faster

on the amd64 platform when dividing an int by a value smaller than  $2^{30}$ .

Fix invalid signature of `_zoneinfo's module_free` function to resolve a crash on wasm32-emscripten platform.

Ensure that "small" integers created by `:meth:'int.from_bytes'` and `:class:'decimal.Decimal'` are properly cached.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 219); [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) 3.11.0a5.rst, line 219); [backlink](#)

Unknown interpreted text role "class".

Fix the class building error when the arguments are constants and `CALL_FUNCTION_EX` is used.

Fixes calculation of `:data:'sys._base_executable'` when inside a virtual environment that uses symlinks with different binary names than the base environment provides.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 239); [backlink](#)

Unknown interpreted text role "data".

Correctly calculate indentation levels for lines with whitespace character that are ended by line continuation characters. Patch by Pablo Galindo

Add CAN Socket support for NetBSD.

Do not use POSIX semaphores on NetBSD

Improve the `exc:TypeError` message for non-string second arguments passed to the built-in functions `:func:'getattr'` and `:func:'hasattr'`. Patch by GÃ©ry Ogam.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 278); [backlink](#)

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**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 278); [backlink](#)

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Restore support for non-integer arguments of `:func:'random.randrange'` and `:func:'random.randint'`.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 289); [backlink](#)

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**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 289); [backlink](#)

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Make the IDLE doc URL on the About IDLE dialog clickable.

Remove loop variables that are leaking into modules' namespaces.

In `:func:'typing.get_type_hints'`, support evaluating bare stringified `ClassVar` annotations. Patch by Gregory Beauregard.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 317); [backlink](#)

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Don't leak `x` & `uspace` intermediate vars in `:class:'textwrap.TextWrapper'`.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 327); [backlink](#)

Unknown interpreted text role "class".

Add the `get_write_buffer_limits` method to `:class:`asyncio.transports.WriteTransport`` and to the SSL transport.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 337); [backlink](#)

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Note the configparser deprecations will be removed in Python 3.12.

The deprecated `:mod:`unittest`` APIs removed in 3.11a1 have been temporarily restored to be removed in 3.12 while cleanups in external projects go in.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 356); [backlink](#)

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In `:func:`typing.get_type_hints``, support evaluating stringified `ClassVar` and `Final` annotations inside `Annotated`. Patch by Gregory Beauregard.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 366); [backlink](#)

Unknown interpreted text role "func".

Add missing test for `:class:`types.TracebackType`` and `:class:`types.FrameType``. Calculate them directly from the caught exception without calling `:func:`sys.exc_info``.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 377); [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) 3.11.0a5.rst, line 377); [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) 3.11.0a5.rst, line 377); [backlink](#)

Unknown interpreted text role "func".

Allow `:data:`typing.Annotated`` to wrap `:data:`typing.Final`` and `:data:`typing.ClassVar``. Patch by Gregory Beauregard.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 388); [backlink](#)

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**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 388); [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) 3.11.0a5.rst, line 388); [backlink](#)

Unknown interpreted text role "data".

Remove `:meth:`~object.__class_getitem__`` from `:class:`pathlib.PurePath`` as this class was not supposed to be generic.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 398); [backlink](#)

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**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 398); [backlink](#)

Unknown interpreted text role "class".

Fix command-line option `-d/--directory` in module `mod:'http.server'` which is ignored when combined with command-line option `--cgi`. Patch by GÄÖry Ogam

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 408); [backlink](#)

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Make `meth:'mock.patch'` raise a `exc:'TypeError'` with a relevant error message on invalid arg. Previously it allowed a cryptic `exc:'AttributeError'` to escape.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 419); [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) 3.11.0a5.rst, line 419); [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) 3.11.0a5.rst, line 419); [backlink](#)

Unknown interpreted text role "exc".

In `importlib.metadata.EntryPoint.pattern`, avoid potential ReDoS by limiting ambiguity in consecutive whitespace.

Removed private method from `importlib.metadata.Path`. Sync with `importlib_metadata` 4.10.0.

Remove unused branch from `typing._remove_dups_flatten`

`mod:'asyncio'` generic classes now return `class:'types.GenericAlias'` in `__class_getitem__` instead of the same class.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 459); [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) 3.11.0a5.rst, line 459); [backlink](#)

Unknown interpreted text role "class".

Support passing filter instances in the `filters` values of `handlers` and `loggers` in the dictionary passed to `func:'logging.config.dictConfig'`.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 469); [backlink](#)

Unknown interpreted text role "func".

Use `dis.Positions` in `dis.Instruction` instead of a regular tuple.

`mod:'pdb'` now gracefully handles `help` when `attr:'__doc__'` is missing, for example when run with pregenerated optimized `.pyc` files.

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 489); [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) 3.11.0a5.rst, line 489); [backlink](#)**

Unknown interpreted text role "attr".

Python uses the same time Epoch on all platforms. Add an explicit unit test to ensure that it's the case. Patch by Victor Stinner.  
Add `:func:`typing.reveal_type``. Patch by Jelle Zijlstra.

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 509); [backlink](#)**

Unknown interpreted text role "func".

`:mod:`subprocess`` now imports Windows-specific imports when `msvcrt` module is available, and POSIX-specific imports on all other platforms. This gives a clean exception when `_posixsubprocess` is not available (e.g. Emscripten browser target).

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 518); [backlink](#)**

Unknown interpreted text role "mod".

`IntEnum`, `IntFlag`, and `StrEnum` use the mixed-in type for their `str()` and `format()` output.

Optimize `:meth:`pathlib.Path.iterdir`` by removing an unnecessary check for special entries.

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 540); [backlink](#)**

Unknown interpreted text role "meth".

Document `:meth:`pathlib.Path.absolute`` (which has always existed).

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 550); [backlink](#)**

Unknown interpreted text role "meth".

The `pathlib` module's obsolete and internal `_Accessor` class has been removed to prepare the terrain for upcoming enhancements to the module.

Speed up `:func:`math.isqrt`` for small positive integers by replacing two division steps with a lookup table.

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 569); [backlink](#)**

Unknown interpreted text role "func".

Improve error message when creating a new `:class:`enum.Enum`` type subclassing an existing `Enum` with `_member_names_` using `:meth:`enum.Enum.__call__``.

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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) 3.11.0a5.rst, line 579); [backlink](#)**

Unknown interpreted text role "meth".

Fix a bug in `:func:`inspect.signature`` that was causing it to fail on some subclasses of classes with a `__text_signature__`



referencing module globals. Patch by Weipeng Hong

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 590); [backlink](#)

Unknown interpreted text role "func".

Fixed case where failing `:func:`asyncio.ensure_future`` did not close the coroutine. Patch by Kumar Aditya.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 601); [backlink](#)

Unknown interpreted text role "func".

Fix an issue with `:meth:`tarfile.TarFile.getmember`` getting a directory name with a trailing slash.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 611); [backlink](#)

Unknown interpreted text role "meth".

Update `:mod:`zoneinfo`` to rely on `importlib.resources` traversable API.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 621); [backlink](#)

Unknown interpreted text role "mod".

Now `:func:`inspect.getmembers`` only gets `:attr:`__bases__`` attribute from class type. Patch by Weipeng Hong.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 630); [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) 3.11.0a5.rst, line 630); [backlink](#)

Unknown interpreted text role "attr".

Fix exception in argparse help text generation if a `:class:`argparse.BooleanOptionalAction`` argument's default is `argparse.SUPPRESS` and it has help specified. Patch by Felix Fontein.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 640); [backlink](#)

Unknown interpreted text role "class".

Fix substitution of `:class:`~typing.ParamSpec`` in `:data:`~typing.Concatenate`` with different parameter expressions. Substitution with a list of types returns now a tuple of types. Substitution with `Concatenate` returns now a `Concatenate` with concatenated lists of arguments.

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Unknown interpreted text role "data".

Fixes `:file:`escape4chm.py`` script used when building the CHM documentation file

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main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 665); [backlink](#)

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Mocks can no longer be provided as the specs for other Mocks. As a result, an already-mocked object cannot be passed to `mock.Mock()`. This can uncover bugs in tests since these Mock-derived Mocks will always pass certain tests (e.g. `isinstance`) and builtin assert functions (e.g. `assert_called_once_with`) will unconditionally pass.

Ensures `test_importlib.test_windows` cleans up registry keys after completion.

`test_ftplib` now silently ignores socket errors to prevent logging unhandled threading exceptions. Patch by Victor Stinner.

Fix `test_gdb.test_pycfunction()` for Python built with `clang -Og`. Tolerate inlined functions in the gdb traceback. Patch by Victor Stinner.

Fix a Python crash in `test_lib2to3` when using Python built in debug mode: limit the recursion limit. Patch by Victor Stinner.

`test_peg_generator` now disables compiler optimization when testing compilation of its own C extensions to significantly speed up the testing on non-debug builds of CPython.

Fix `test_json` tests checking for `:exc:RecursionError`: modify these tests to use `support.infinite_recursion()`. Patch by Victor Stinner.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 739); [backlink](#)

Unknown interpreted text role "exc".

Skip `test_builtin` PTY tests on non-ASCII characters if the `readline` module is loaded. The `readline` module changes `input()` behavior, but `test_builtin` is not intended to test the `readline` module. Patch by Victor Stinner.

Add `:func:test.support.requires_fork` decorators to mark tests that require a working `:func:os.fork`.

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**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 760); [backlink](#)

Unknown interpreted text role "func".

Add `:func:test.support.requires_subprocess` decorator to mark tests which require working `:mod:subprocess` module or `os.spawn*`. The wasm32-emscripten platform has no support for processes.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 770); [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) 3.11.0a5.rst, line 770); [backlink](#)

Unknown interpreted text role "mod".

Disable 'descriptions' when running tests internally.

Tidied up `configure.ac` so that `conftest.c` is truncated rather than appended. This assists in the case where the 'rm' of `conftest.c` fails to happen between tests. Downstream issues such as a clobbered SOABI can result.

Fix the test checking if the C compiler supports `-Og` option in the `./configure` script to also use `-Og` on clang which supports it. Patch by Victor Stinner.

Fix GCC detection in `setup.py` when cross-compiling. The C compiler is now run with `LC_ALL=C`. Previously, the detection failed with a German locale.

`:program:configure` no longer uses `AC_C_CHAR_UNSIGNED` macro and `pyconfig.h` no longer defines reserved symbol `__CHAR_UNSIGNED__`.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 822); [backlink](#)



Unknown interpreted text role "program".

Use global singletons for single byte bytes objects in deepfreeze.

Deepfreeze now uses cached small integers as it saves some space for common small integers.

Merge all deep-frozen files into one for space savings. Patch by Kumar Aditya.

The build now defaults to using 30-bit digits for Python integers. Previously either 15-bit or 30-bit digits would be selected, depending on the platform. 15-bit digits may still be selected using the `--enable-big-digits=15` option to the `configure` script, or by defining `PYLONG_BITS_IN_DIGIT` in `pyconfig.h`.

Update Windows installer to use SQLite 3.37.2.

Detect musl libc as a separate SOABI (tagged as `linux-musl`).

The traditional EXE/MSI based installer for Windows is now available for ARM64

`os.path.abspath("C:CON")` is now fixed to return `".CON"`, not the same path. The regression was true of all legacy DOS devices such as COM1, LPT1, or NUL.

The installer now offers a command-line only option to add the installation directory to the end of `envvar: 'PATH'` instead of at the start.

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 913); [backlink](#)**

Unknown interpreted text role "envvar".

Update macOS installer to SQLite 3.37.2.

Clarify close, quit, and exit in IDLE. In the File menu, 'Close' and 'Exit' are now 'Close Window' (the current one) and 'Exit' is now 'Exit IDLE' (by closing all windows). In Shell, 'quit()' and 'exit()' mean 'close Shell'. If there are no other windows, this also exits IDLE.

Remove the `PyHeapType_GET_MEMBERS()` macro. It was exposed in the public C API by mistake, it must only be used by Python internally. Use the `PyTypeObject.tp_members` member instead. Patch by Victor Stinner.

Move `_Py_GetAllocatedBlocks()` and `_PyObject_DebugMallocStats()` private functions to the internal C API. Patch by Victor Stinner.

The internal function `_PyType_GetModuleByDef` now correctly handles inheritance patterns involving static types.

`c:type: 'Py_buffer'` and various `Py_buffer` related functions are now part of the limited API and stable ABI.

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Misc\NEWS.d\ (cpython-main) (Misc) (NEWS.d) 3.11.0a5.rst, line 975); [backlink](#)**

Unknown interpreted text role "c:type".

Fixed bug in the tokenizer that prevented `PyRun_InteractiveOne` from parsing from the provided FD.