

Release Notes

PREMIER ISSUE

• RELEASED 7 OCTOBER 2024 •

THE PYTHON 3.13 EDITION

INSIDE

A new REPL. Color tracebacks and a rebuilt interactive interpreter. Section I

No GIL, a JIT. Free-threaded builds and a basic JIT, both experimental. Section I

19 modules gone. The last dead batteries from PEP 594 are removed. Section II

WHAT CHANGED IN CPYTHON

Python 3.13 For Upgrading Teams

The interpreter gets friendlier, the runtime gets experimental, and the standard library gets smaller.

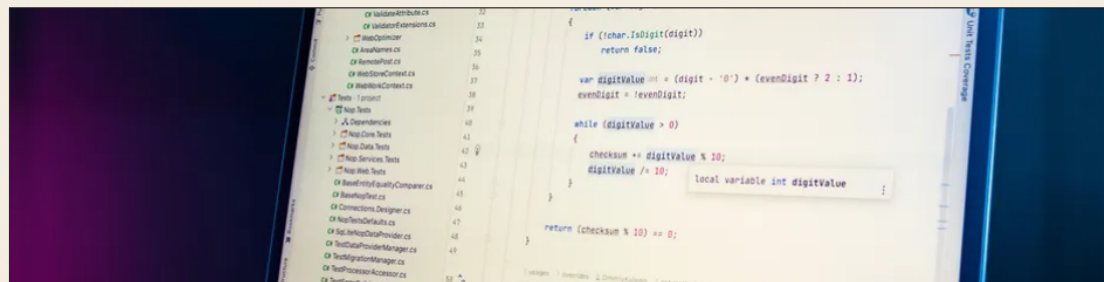


FIG. Python 3.13 is a stable release, compared here to 3.12.

Python 3.13 mixes changes to the language, the implementation and the standard library. The headline items are a new interactive interpreter, experimental free-threaded mode under PEP 703, and a Just-In-Time compiler under PEP 744.

This briefing covers the interpreter and runtime work first, then the removals, typing additions and platform changes that affect an upgrade plan.

Continued inside.
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CONTENTS

In This Briefing

SECTION I: INTERPRETER

New REPL · Color tracebacks · locals() semantics (PEP 667) · Free-threaded CPython · JIT

SECTION II: REMOVALS

19 dead batteries · 2to3 and lib2to3 · wasm32-emscripTEN dropped

SECTION III: TYPING

TypeVar defaults (PEP 696) · warnings.deprecated (PEP 702) · ReadOnly (PEP 705) · TypeIs (PEP 742)

SECTION IV: PLATFORMS

iOS tier 3 (PEP 730) · Android tier 3 (PEP 738) · wasm32-wasi tier 2

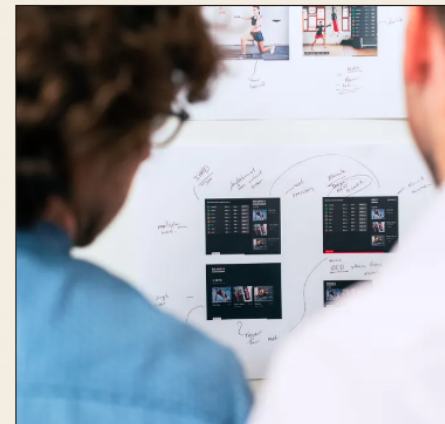


PLATE I. Four areas to check before upgrading.

THE BACK PAGE HAS A GLOSSARY OF THE PEPS NAMED HERE.



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I

THE SECTION

Interpreter

A rebuilt REPL, colored tracebacks, and two experimental runtime modes that most projects can try but should not ship yet.



THE LEAD ARTICLE

A Friendlier, Faster-Leaning Interpreter

Most of the 3.13 headlines are opt-in, and the release notes are open about how early they are.

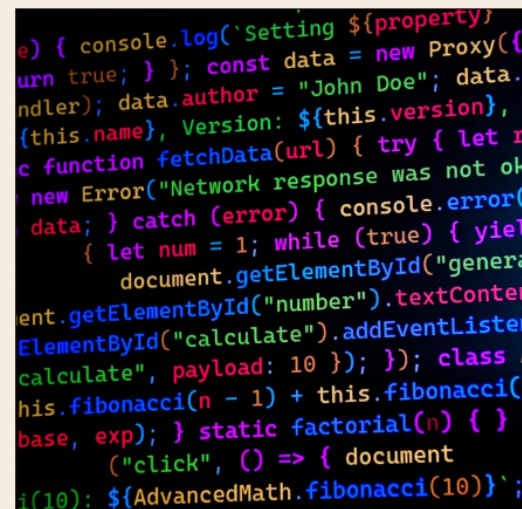
The interactive interpreter is greatly improved and now shows color, as do tracebacks and doctest output. Teams that dislike it can turn color off with the `PYTHON_COLORS` and `NO_COLOR` environment variables.

PEP 667 gives `locals()` defined semantics when the returned mapping is changed, so debuggers can update local variables in optimized scopes more reliably.

PEP 703 adds experimental support for running CPython with the global interpreter lock disabled. Extension modules signal support through the new `Py_mod_gil` slot.

PEP 744 adds a basic JIT compiler. It is disabled by default, and the notes call the performance gains modest for now.

Treat both as things to benchmark in CI, not defaults to flip in production.



```
e) { console.log(`Setting ${property}`);  
  return true; } }; const data = new Proxy({  
  handler; data.author = "John Doe"; data.  
  {this.name}, Version: ${this.version},  
  c function fetchData(url) { try { let r  
    new Error("Network response was not ok  
    data; } catch (error) { console.error(  
      { let num = 1; while (true) { yield  
        document.getElementById("genera  
ent.getElementById("number").textConte  
ElementById("calculate").addEventListener  
calculate", payload: 10 }); }); class A  
his.fibonacci(n - 1) + this.fibonacci(  
base, exp); } static factorial(n) { }  
("click", () => { document  
i(10); ${AdvancedMath.fibonacci(10)}`;
```

FIG. Color is on by default in the new REPL.

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II

THE SECTION

Removals

aifc, cgi, crypt, telnetlib and fifteen other legacy modules are gone, so grep your imports before you upgrade.



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GLOSSARY

PEP 594 — Removes 19 dead batteries such as `cgi`, `imghdr`, `telnetlib` and `uu`.

PEP 696 — `TypeVar`, `ParamSpec` and `TypeVarTuple` can now have default values.

PEP 742 — `typing.TypeIs` gives more intuitive narrowing than `TypeGuard`.

`dbm.sqlite3` — The new default `dbm` backend in the standard library.

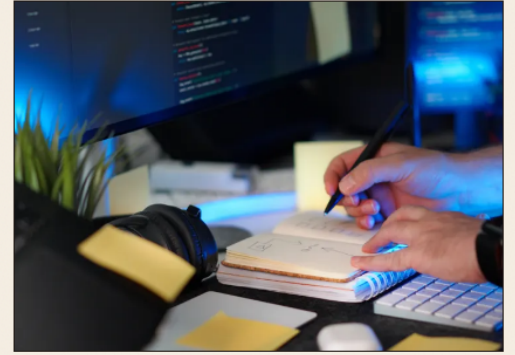
ALSO NEW

`copy.replace()` for builtins and classes with `__replace__`

`argparse` can deprecate options and subcommands

`random` now has a command-line interface

`ssl` default context adds `VERIFY_X509_STRICT`



COLOPHON. Source:
docs.python.org/3/whatsnew/3.13.html

SEE PORTING TO PYTHON 3.13 IN
THE OFFICIAL NOTES BEFORE
UPGRADING.

END OF BRIEFING. THANKS FOR READING.

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