# Status of stable API and stable ABI in Python 3.8

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## Include subdirectories



- Include/: public stable API
- Include/cpython/: unstable CPython specific API
- Include/internal/: internal API, used by CPython
- Reduce risk of adding an API into the public stable API by mistake



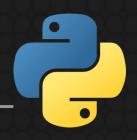
### static inline



- "#define MACRO(...) ...." is errorprone
- static inline PyObject\*
   PyObject\_INIT(PyObject \*op, PyTypeObject \*typeobj)
- result and parameter types
- Better variable scope, avoid conflict
- No "do { ... } while (0)" hack



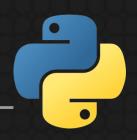
#### Internal API



- Now installed by make install
- C extension must opt-in: define
   Py\_BUILD\_CORE\_MODULE
- Many "\_Py" functions made internal, ex: \_PyBuiltin\_Init()
- API surrounded by "#ifdef
   Py\_BUILD\_CORE" moved to internal,
   ex: \_PyGC\_Fini()



## Debug build



- Py\_TRACE\_REFS disabled in debug build: debug and release are ABI compatible
- C extensions no longer linked to libpython on Unix, but Android
- Debug build looks for release libraries
  - .cpython-38d-x86\_64-linux-gnu.so
  - .cpython-38-x86\_64-linux-gnu.so (new!)
  - .abi3.so (new!)
- Debug runs more checks at runtime python

## Get ride of global



- Eric Snow's PEP 554: Multiple Interpreters in the Stdlib
- Load 2 C module instance
- Release memory at exit.
- Any shared resource means locking: bad for parallelism. One "GIL" per interpreter.
- See Petr Viktorin's talk :-)



#### TODO



- Guidelines to prevent mistakes when adding new APIs
- Big issue: borrowed references, ex: Py\_TYPE(obj)
- "Py\_REFCNT(obj) = 1": Add Py\_SET\_REFCNT(obj, refnct)?
- Static PyTypeObject: big blocker issue for stable ABI. PyType\_FromSpec()?
- Hide more implementation details

