

:mod:`runpy` --- Locating and executing Python modules

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library]runpy.rst, line 1); [backlink](#)

Unknown interpreted text role "mod".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library]runpy.rst, line 4)

Unknown directive type "module".

```
.. module:: runpy
   :synopsis: Locate and run Python modules without importing them first.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library]runpy.rst, line 7)

Unknown directive type "moduleauthor".

```
.. moduleauthor:: Nick Coghlan <ncoghlan@gmail.com>
```

Source code: :source:`Lib/runpy.py`

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Unknown interpreted text role "source".

The `:mod:`runpy`` module is used to locate and run Python modules without importing them first. Its main use is to implement the `:option:`-m`` command line switch that allows scripts to be located using the Python module namespace rather than the filesystem.

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Unknown interpreted text role "mod".

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Unknown interpreted text role "option".

Note that this is *not* a sandbox module - all code is executed in the current process, and any side effects (such as cached imports of other modules) will remain in place after the functions have returned.

Furthermore, any functions and classes defined by the executed code are not guaranteed to work correctly after a `:mod:`runpy`` function has returned. If that limitation is not acceptable for a given use case, `:mod:`importlib`` is likely to be a more suitable choice than this module.

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Unknown interpreted text role "mod".

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Unknown interpreted text role "mod".

The `:mod:`runpy`` module provides two functions:

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Unknown directive type "function".

```
.. function:: run_module(mod_name, init_globals=None, run_name=None, alter_sys=False)

.. index::
   module: __main__
```

Execute the code of the specified module and return the resulting module globals dictionary. The module's code is first located using the standard import mechanism (refer to :pep:`302` for details) and then executed in a fresh module namespace.

The `*mod_name*` argument should be an absolute module name. If the module name refers to a package rather than a normal module, then that package is imported and the `__main__` submodule within that package is then executed and the resulting module globals dictionary returned.

The optional dictionary argument `*init_globals*` may be used to pre-populate the module's globals dictionary before the code is executed. The supplied dictionary will not be modified. If any of the special global variables below are defined in the supplied dictionary, those definitions are overridden by `:func:`run_module``.

The special global variables `__name__`, `__spec__`, `__file__`, `__cached__`, `__loader__` and `__package__` are set in the globals dictionary before the module code is executed (Note that this is a minimal set of variables - other variables may be set implicitly as an interpreter implementation detail).

`__name__` is set to `*run_name*` if this optional argument is not `:const:`None``, to `__mod_name + '.__main__'` if the named module is a package and to the `*mod_name*` argument otherwise.

`__spec__` will be set appropriately for the *actually* imported module (that is, `__spec__.name` will always be `*mod_name*` or `__mod_name + '.__main__'`, never `*run_name*`).

`__file__`, `__cached__`, `__loader__` and `__package__` are `:ref:`set as normal <import-mod-attrs>` based on the module spec.`

If the argument `*alter_sys*` is supplied and evaluates to `:const:`True``, then `sys.argv[0]` is updated with the value of `__file__` and `sys.modules[__name__]` is updated with a temporary module object for the module being executed. Both `sys.argv[0]` and `sys.modules[__name__]` are restored to their original values before the function returns.

Note that this manipulation of `:mod:`sys`` is not thread-safe. Other threads may see the partially initialised module, as well as the altered list of arguments. It is recommended that the `:mod:`sys`` module be left alone when invoking this function from threaded code.

```
.. seealso::
   The :option:`-m` option offering equivalent functionality from the
   command line.

.. versionchanged:: 3.1
   Added ability to execute packages by looking for a __main__ submodule.

.. versionchanged:: 3.2
   Added __cached__ global variable (see :pep:`3147`).

.. versionchanged:: 3.4
   Updated to take advantage of the module spec feature added by
   :pep:`451`. This allows __cached__ to be set correctly for modules
   run this way, as well as ensuring the real module name is always
   accessible as __spec__.name.
```

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Unknown directive type "function".

```
.. function:: run_path(file_path, init_globals=None, run_name=None)
```

```
.. index::  
    module: __main__
```

Execute the code at the named filesystem location and return the resulting module globals dictionary. As with a script name supplied to the CPython command line, the supplied path may refer to a Python source file, a compiled bytecode file or a valid `sys.path` entry containing a `__main__` module (e.g. a zipfile containing a top-level `__main__.py` file).

For a simple script, the specified code is simply executed in a fresh module namespace. For a valid `sys.path` entry (typically a zipfile or directory), the entry is first added to the beginning of `sys.path`. The function then looks for and executes a `:mod: '__main__'` module using the updated path. Note that there is no special protection against invoking an existing `:mod: '__main__'` entry located elsewhere on `sys.path` if there is no such module at the specified location.

The optional dictionary argument `*init_globals*` may be used to pre-populate the module's globals dictionary before the code is executed. The supplied dictionary will not be modified. If any of the special global variables below are defined in the supplied dictionary, those definitions are overridden by `:func: 'run_path'`.

The special global variables `__name__`, `__spec__`, `__file__`, `__cached__`, `__loader__` and `__package__` are set in the globals dictionary before the module code is executed (Note that this is a minimal set of variables - other variables may be set implicitly as an interpreter implementation detail).

`__name__` is set to `*run_name*` if this optional argument is not `:const: 'None'` and to `'<run_path>'` otherwise.

If the supplied path directly references a script file (whether as source or as precompiled byte code), then `__file__` will be set to the supplied path, and `__spec__`, `__cached__`, `__loader__` and `__package__` will all be set to `:const: 'None'`.

If the supplied path is a reference to a valid `sys.path` entry, then `__spec__` will be set appropriately for the imported `__main__` module (that is, `__spec__.name` will always be `__main__`). `__file__`, `__cached__`, `__loader__` and `__package__` will be `:ref: 'set as normal <import-mod-attrs>'` based on the module spec.

A number of alterations are also made to the `:mod: 'sys'` module. Firstly, `sys.path` may be altered as described above. `sys.argv[0]` is updated with the value of `file_path` and `sys.modules[__name__]` is updated with a temporary module object for the module being executed. All modifications to items in `:mod: 'sys'` are reverted before the function returns.

Note that, unlike `:func: 'run_module'`, the alterations made to `:mod: 'sys'` are not optional in this function as these adjustments are essential to allowing the execution of `sys.path` entries. As the thread-safety limitations still apply, use of this function in threaded code should be either serialised with the import lock or delegated to a separate process.

```
.. seealso::  
    :ref: 'using-on-interface-options' for equivalent functionality on the  
    command line ('python path/to/script').
```

```
.. versionadded:: 3.2
```

```
.. versionchanged:: 3.4
```

Updated to take advantage of the module spec feature added by `:pep: 451`. This allows `__cached__` to be set correctly in the case where `__main__` is imported from a valid `sys.path` entry rather than being executed directly.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\cpython-main\Doc\library\runpy.rst, line 166)

Unknown directive type "seealso".

```
.. seealso::
```

```
:pep:`338` -- Executing modules as scripts
    PEP written and implemented by Nick Coghlan.

:pep:`366` -- Main module explicit relative imports
    PEP written and implemented by Nick Coghlan.

:pep:`451` -- A ModuleSpec Type for the Import System
    PEP written and implemented by Eric Snow

:ref:`using-on-general` - CPython command line details

The :func:`importlib.import_module` function
```