

:mod:`sched` --- Event scheduler

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

Unknown directive type "module".

```
.. module:: sched
   :synopsis: General purpose event scheduler.
```

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Unknown directive type "sectionauthor".

```
.. sectionauthor:: Moshe Zadka <moshez@zadka.site.co.il>
```

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

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Unknown interpreted text role "source".

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Unknown directive type "index".

```
.. index:: single: event scheduling
```

The :mod:`sched` module defines a class which implements a general purpose event scheduler:

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Unknown interpreted text role "mod".

The :class:`scheduler` class defines a generic interface to scheduling events. It needs two functions to actually deal with the "outside world" --- *timefunc* should be callable without arguments, and return a number (the "time", in any units whatsoever). The *delayfunc* function should be callable with one argument, compatible with the output of *timefunc*, and should delay that many time units. *delayfunc* will also be called with the argument 0 after each event is run to allow other threads an opportunity to run in multi-threaded applications.

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Unknown interpreted text role "class".

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Unknown directive type "versionchanged".

```
.. versionchanged:: 3.3
   *timefunc* and *delayfunc* parameters are optional.
```

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Unknown directive type "versionchanged".

```
.. versionchanged:: 3.3
   :class:`scheduler` class can be safely used in multi-threaded
   environments.
```

Example:

```
>>> import sched, time
>>> s = sched.scheduler(time.time, time.sleep)
>>> def print_time(a='default'):
...     print("From print_time", time.time(), a)
...
>>> def print_some_times():
...     print(time.time())
...     s.enter(10, 1, print_time)
...     s.enter(5, 2, print_time, argument=('positional',))
...     s.enter(5, 1, print_time, kwargs={'a': 'keyword'})
...     s.run()
...     print(time.time())
...
>>> print_some_times()
930343690.257
From print_time 930343695.274 positional
From print_time 930343695.275 keyword
From print_time 930343700.273 default
930343700.276
```

Scheduler Objects

`:class:`scheduler`` instances have the following methods and attributes:

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Unknown interpreted text role "class".

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Unknown directive type "method".

```
.. method:: scheduler.enterabs(time, priority, action, argument=(), kwargs={})

Schedule a new event. The time argument should be a numeric type compatible
with the return value of the timefunc function passed to the constructor.
Events scheduled for the same time will be executed in the order of their
priority. A lower number represents a higher priority.

Executing the event means executing ``action(*argument, **kwargs)``.
argument is a sequence holding the positional arguments for action.
kwargs is a dictionary holding the keyword arguments for action.

Return value is an event which may be used for later cancellation of the event
(see :meth:`cancel`).

.. versionchanged:: 3.3
   argument parameter is optional.

.. versionchanged:: 3.3
   kwargs parameter was added.
```

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Unknown directive type "method".

```
.. method:: scheduler.enter(delay, priority, action, argument=(), kwargs={})

Schedule an event for delay more time units. Other than the relative time, the
other arguments, the effect and the return value are the same as those for
```

```
:meth:`enterabs`.

.. versionchanged:: 3.3
   *argument* parameter is optional.

.. versionchanged:: 3.3
   *kwargs* parameter was added.
```

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Unknown directive type "method".

```
.. method:: scheduler.cancel(event)
```

Remove the event from the queue. If **event** is not an event currently in the queue, this method will raise a `:exc:`ValueError``.

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Unknown directive type "method".

```
.. method:: scheduler.empty()
```

Return ```True``` if the event queue is empty.

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Unknown directive type "method".

```
.. method:: scheduler.run(blocking=True)
```

Run all scheduled events. This method will wait (using the `:func:`delayfunc`` function passed to the constructor) for the next event, then execute it and so on until there are no more scheduled events.

If **blocking** is false executes the scheduled events due to expire soonest (if any) and then return the deadline of the next scheduled call in the scheduler (if any).

Either **action** or **delayfunc** can raise an exception. In either case, the scheduler will maintain a consistent state and propagate the exception. If an exception is raised by **action**, the event will not be attempted in future calls to `:meth:`run``.

If a sequence of events takes longer to run than the time available before the next event, the scheduler will simply fall behind. No events will be dropped; the calling code is responsible for canceling events which are no longer pertinent.

```
.. versionchanged:: 3.3
   *blocking* parameter was added.
```

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Unknown directive type "attribute".

```
.. attribute:: scheduler.queue
```

Read-only attribute returning a list of upcoming events in the order they will be run. Each event is shown as a `:term:`named tuple`` with the following fields: time, priority, action, argument, kwargs.