

High-level API Index

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library]asyncio-api-index.rst, line 1)

Unknown directive type "currentmodule".

```
.. currentmodule:: asyncio
```

This page lists all high-level async/await enabled asyncio APIs.

Tasks

Utilities to run asyncio programs, create Tasks, and await on multiple things with timeouts.

<code>:func:`run`</code>	<div><p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library]asyncio-api-index.rst, line 21); backlink</p><p>Unknown interpreted text role "func".</p></div> <p>Create event loop, run a coroutine, close the loop.</p>
<code>:func:`create_task`</code>	<div><p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library]asyncio-api-index.rst, line 24); backlink</p><p>Unknown interpreted text role "func".</p></div> <p>Start an asyncio Task.</p>
<code>await :func:`sleep`</code>	<div><p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library]asyncio-api-index.rst, line 27); backlink</p><p>Unknown interpreted text role "func".</p></div> <p>Sleep for a number of seconds.</p>
<code>await :func:`gather`</code>	<div><p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library]asyncio-api-index.rst, line 30); backlink</p><p>Unknown interpreted text role "func".</p></div> <p>Schedule and wait for things concurrently.</p>

<p>await <code>:func:wait_for</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library] asyncio-api-index.rst, line 33); backlink</p> <p>Unknown interpreted text role "func".</p> </div>	Run with a timeout.
<p>await <code>:func:shield</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library] asyncio-api-index.rst, line 36); backlink</p> <p>Unknown interpreted text role "func".</p> </div>	Shield from cancellation.
<p>await <code>:func:wait</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library] asyncio-api-index.rst, line 39); backlink</p> <p>Unknown interpreted text role "func".</p> </div>	Monitor for completion.
<p><code>:func:current_task</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library] asyncio-api-index.rst, line 42); backlink</p> <p>Unknown interpreted text role "func".</p> </div>	Return the current Task.
<p><code>:func:all_tasks</code></p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library] asyncio-api-index.rst, line 45); backlink</p> <p>Unknown interpreted text role "func".</p> </div>	Return all tasks for an event loop.

<pre>.class:`Task`</pre> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library] asyncio-api-index.rst, line 48); backlink</p> <p>Unknown interpreted text role "class".</p> </div>	Task object.
<pre>.func:`to_thread`</pre> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library] asyncio-api-index.rst, line 51); backlink</p> <p>Unknown interpreted text role "func".</p> </div>	Asynchronously run a function in a separate OS thread.
<pre>.func:`run_coroutine_threadsafe`</pre> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library] asyncio-api-index.rst, line 54); backlink</p> <p>Unknown interpreted text role "func".</p> </div>	Schedule a coroutine from another OS thread.
<pre>for in .func:`as_completed`</pre> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library] asyncio-api-index.rst, line 57); backlink</p> <p>Unknown interpreted text role "func".</p> </div>	Monitor for completion with a <code>for</code> loop.

Examples

- `ref`Using asyncio.gather() to run things in parallel <asyncio_example_gather>`.`

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- `ref`Using asyncio.wait_for() to enforce a timeout <asyncio_example_waitfor>`.`

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- `ref`Cancellation <asyncio_example_task_cancel>`.`

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resources\cpython-main\Doc\library\[cpython-main] [Doc] [library] asyncio-api-index.rst, line 69); [backlink](#)

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- `ref`Using asyncio.sleep() <asyncio_example_sleep>`.`

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- See also the main `ref`Tasks documentation page <coroutine>`.`

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Queues

Queues should be used to distribute work amongst multiple asyncio Tasks, implement connection pools, and pub/sub patterns.

<code>:class:`Queue`</code>	<div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library] asyncio-api-index.rst, line 87); backlink</div> <p>Unknown interpreted text role "class".</p>	A FIFO queue.
<code>:class:`PriorityQueue`</code>	<div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library] asyncio-api-index.rst, line 90); backlink</div> <p>Unknown interpreted text role "class".</p>	A priority queue.
<code>:class:`LifoQueue`</code>	<div>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library] asyncio-api-index.rst, line 93); backlink</div> <p>Unknown interpreted text role "class".</p>	A LIFO queue.

Examples

- `ref`Using asyncio.Queue to distribute workload between several Tasks <asyncio_example_queue_dist>`.`

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- See also the [ref: Queues documentation page <asyncio-queues>](#).

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Subprocesses

Utilities to spawn subprocesses and run shell commands.

await `:func: create_subprocess_exec`

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Create a subprocess.

await `:func: create_subprocess_shell`

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Run a shell command.

Examples

- [ref: Executing a shell command <asyncio_example_subprocess_shell>](#).

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- See also the [ref: subprocess APIs <asyncio-subprocess>](#) documentation.

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Streams

High-level APIs to work with network IO.

<p>await :func:`open_connection`</p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library] asyncio-api-index.rst, line 138); backlink</p> <p>Unknown interpreted text role "func".</p> </div>	<p>Establish a TCP connection.</p>
<p>await :func:`open_unix_connection`</p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library] asyncio-api-index.rst, line 141); backlink</p> <p>Unknown interpreted text role "func".</p> </div>	<p>Establish a Unix socket connection.</p>
<p>await :func:`start_server`</p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library] asyncio-api-index.rst, line 144); backlink</p> <p>Unknown interpreted text role "func".</p> </div>	<p>Start a TCP server.</p>
<p>await :func:`start_unix_server`</p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library] asyncio-api-index.rst, line 147); backlink</p> <p>Unknown interpreted text role "func".</p> </div>	<p>Start a Unix socket server.</p>
<p>:class:`StreamReader`</p> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library] asyncio-api-index.rst, line 150); backlink</p> <p>Unknown interpreted text role "class".</p> </div>	<p>High-level async/await object to receive network data.</p>

```
:class: `StreamWriter`
```

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High-level async/await object to send network data.

Examples

- `ref:Example TCP client <asyncio_example_stream>`.

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- See also the [ref: streams APIs <asyncio-streams>](#) documentation.

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Synchronization

Threading-like synchronization primitives that can be used in Tasks.

```
:class:`Lock`
```

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A mutex lock.

```
:class:`Event`
```

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An event object.

<pre>:class:`Condition`</pre> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library] asyncio-api-index.rst, line 180); backlink</p> <p>Unknown interpreted text role "class".</p> </div>	A condition object.
<pre>:class:`Semaphore`</pre> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library] asyncio-api-index.rst, line 183); backlink</p> <p>Unknown interpreted text role "class".</p> </div>	A semaphore.
<pre>:class:`BoundedSemaphore`</pre> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library] asyncio-api-index.rst, line 186); backlink</p> <p>Unknown interpreted text role "class".</p> </div>	A bounded semaphore.
<pre>:class:`Barrier`</pre> <div> <p>System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library] asyncio-api-index.rst, line 189); backlink</p> <p>Unknown interpreted text role "class".</p> </div>	A barrier object.

Examples

- `:ref:`Using asyncio.Event <asyncio_example_sync_event>`.`

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- `:ref:`Using asyncio.Barrier <asyncio_example_barrier>`.`

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- See also the documentation of asyncio `:ref:`synchronization primitives <asyncio-sync>`.`

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`resources\cpython-main\Doc\library\[cpython-main] [Doc] [library] asyncio-api-index.rst, line 199); backlink`

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Exceptions

`:exc:`asyncio.CancelledError``

Raised when a Task is cancelled. See also `:meth:`Task.cancel``.

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`:exc:`asyncio.BrokenBarrierError``

Raised when a Barrier is broken. See also `:meth:`Barrier.wait``.

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Examples

- `:ref:`Handling CancelledError to run code on cancellation request <asyncio_example_task_cancel>``.

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- See also the full list of `:ref:`asyncio-specific exceptions <asyncio-exceptions>``.

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