

:mod:`symtable` --- Access to the compiler's symbol tables

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

Unknown directive type "module".

```
.. module:: symtable
   :synopsis: Interface to the compiler's internal symbol tables.
```

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

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

Unknown interpreted text role "source".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\ (cpython-main) (Doc) (library) symtable.rst, line 11)

Unknown directive type "moduleauthor".

```
.. moduleauthor:: Jeremy Hylton <jeremy@alum.mit.edu>
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\ (cpython-main) (Doc) (library) symtable.rst, line 12)

Unknown directive type "sectionauthor".

```
.. sectionauthor:: Benjamin Peterson <benjamin@python.org>
```

Symbol tables are generated by the compiler from AST just before bytecode is generated. The symbol table is responsible for calculating the scope of every identifier in the code. `:mod:`symtable`` provides an interface to examine these tables.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\ (cpython-main) (Doc) (library) symtable.rst, line 15); [backlink](#)

Unknown interpreted text role "mod".

Generating Symbol Tables

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\ (cpython-main) (Doc) (library) symtable.rst, line 24)

Unknown directive type "function".

```
.. function:: symtable(code, filename, compile_type)

   Return the toplevel :class:`SymbolTable` for the Python source *code*.
   *filename* is the name of the file containing the code. *compile_type* is
   like the *mode* argument to :func:`compile`.
```

Examining Symbol Tables

A namespace table for a block. The constructor is not public.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\ (cpython-main) (Doc) (library) symtable.rst, line 38)

Unknown directive type "method".

```
.. method:: get_type()
```

Return the type of the symbol table. Possible values are ``'class'``, ``'module'``, and ``'function'``.

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Unknown directive type "method".

```
.. method:: get_id()
```

Return the table's identifier.

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Unknown directive type "method".

```
.. method:: get_name()
```

Return the table's name. This is the name of the class if the table is for a class, the name of the function if the table is for a function, or ``'top'`` if the table is global (:meth:`get_type` returns ``'module'``).

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Unknown directive type "method".

```
.. method:: get_lineno()
```

Return the number of the first line in the block this table represents.

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Unknown directive type "method".

```
.. method:: is_optimized()
```

Return ``True`` if the locals in this table can be optimized.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\ (cpython-main) (Doc) (library) symtable.rst, line 61)

Unknown directive type "method".

```
.. method:: is_nested()
```

Return ``True`` if the block is a nested class or function.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\ (cpython-main) (Doc) (library) symtable.rst, line 65)

Unknown directive type "method".

```
.. method:: has_children()
```

Return ``True`` if the block has nested namespaces within it. These can be obtained with :meth:`get_children`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\ (cpython-main) (Doc) (library) symtable.rst, line 70)

Unknown directive type "method".

```
.. method:: get_identifiers()
```

Return a list of names of symbols in this table.

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Unknown directive type "method".

```
.. method:: lookup(name)
```

Lookup **name** in the table and return a :class:`Symbol` instance.

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Unknown directive type "method".

```
.. method:: get_symbols()
```

Return a list of :class:`Symbol` instances for names in the table.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\ (cpython-main) (Doc) (library) symtable.rst, line 82)

Unknown directive type "method".

```
.. method:: get_children()
```

Return a list of the nested symbol tables.

A namespace for a function or method. This class inherits :class:`SymbolTable`.

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Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\ (cpython-main) (Doc) (library) symtable.rst, line 92)

Unknown directive type "method".

```
.. method:: get_parameters()
```

Return a tuple containing names of parameters to this function.

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Unknown directive type "method".

```
.. method:: get_locals()
```

Return a tuple containing names of locals in this function.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\ (cpython-main) (Doc) (library) symtable.rst, line 100)

Unknown directive type "method".

```
.. method:: get_globals()
```

Return a tuple containing names of globals in this function.

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Unknown directive type "method".

```
.. method:: get_nonlocals()
```

Return a tuple containing names of nonlocals in this function.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\ (cpython-main) (Doc) (library) symtable.rst, line 108)

Unknown directive type "method".

```
.. method:: get_frees()
```

Return a tuple containing names of free variables in this function.

A namespace of a class. This class inherits `:class:`SymbolTable``.

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Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\ (cpython-main) (Doc) (library) symtable.rst, line 117)

Unknown directive type "method".

```
.. method:: get_methods()
```

Return a tuple containing the names of methods declared in the class.

An entry in a `:class:`SymbolTable`` corresponding to an identifier in the source. The constructor is not public.

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Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\ (cpython-main) (Doc) (library) symtable.rst, line 127)

Unknown directive type "method".

```
.. method:: get_name()
```

Return the symbol's name.

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Unknown directive type "method".

```
.. method:: is_referenced()
```

Return ``True`` if the symbol is used in its block.

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Unknown directive type "method".

```
.. method:: is_imported()
```

Return ``True`` if the symbol is created from an import statement.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\ (cpython-main) (Doc) (library) symtable.rst, line 139)

Unknown directive type "method".

```
.. method:: is_parameter()
```

Return ``True`` if the symbol is a parameter.

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Unknown directive type "method".

```
.. method:: is_global()
```

Return ``True`` if the symbol is global.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\ (cpython-main) (Doc) (library) symtable.rst, line 147)

Unknown directive type "method".

```
.. method:: is_nonlocal()
```

Return ``True`` if the symbol is nonlocal.

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Unknown directive type "method".

```
.. method:: is_declared_global()
```

Return ``True`` if the symbol is declared global with a global statement.

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Unknown directive type "method".

```
.. method:: is_local()
```

Return ``True`` if the symbol is local to its block.

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Unknown directive type "method".

```
.. method:: is_annotated()
```

Return ``True`` if the symbol is annotated.

```
.. versionadded:: 3.6
```

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Unknown directive type "method".

```
.. method:: is_free()
```

Return ``True`` if the symbol is referenced in its block, but not assigned to.

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Unknown directive type "method".

```
.. method:: is_assigned()
```

Return ``True`` if the symbol is assigned to in its block.

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Unknown directive type "method".

```
.. method:: is_namespace()
```

Return ``True`` if name binding introduces new namespace.

If the name is used as the target of a function or class statement, this will be true.

For example::

```
>>> table = symtable.symtable("def some_func(): pass", "string", "exec")
>>> table.lookup("some_func").is_namespace()
True
```

Note that a single name can be bound to multiple objects. If the result is ``True``, the name may also be bound to other objects, like an int or list, that does not introduce a new namespace.

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Unknown directive type "method".

```
.. method:: get_namespaces()
```

Return a list of namespaces bound to this name.

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Unknown directive type "method".

```
.. method:: get_namespace()
```

Return the namespace bound to this name. If more than one or no namespace is bound to this name, a :exc:`ValueError` is raised.