

:mod:`pprint` --- Data pretty printer

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

Unknown directive type "module".

```
.. module:: pprint
   :synopsis: Data pretty printer.
```

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

Unknown directive type "moduleauthor".

```
.. moduleauthor:: Fred L. Drake, Jr. <fdrake@acm.org>
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main] [Doc] [library]pprint.rst, line 8)

Unknown directive type "sectionauthor".

```
.. sectionauthor:: Fred L. Drake, Jr. <fdrake@acm.org>
```

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

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Unknown interpreted text role "source".

The `:mod:`pprint`` module provides a capability to "pretty-print" arbitrary Python data structures in a form which can be used as input to the interpreter. If the formatted structures include objects which are not fundamental Python types, the representation may not be loadable. This may be the case if objects such as files, sockets or classes are included, as well as many other objects which are not representable as Python literals.

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Unknown interpreted text role "mod".

The formatted representation keeps objects on a single line if it can, and breaks them onto multiple lines if they don't fit within the allowed width. Construct `:class:`PrettyPrinter`` objects explicitly if you need to adjust the width constraint.

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Unknown interpreted text role "class".

Dictionaries are sorted by key before the display is computed.

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Unknown directive type "versionchanged".

```
.. versionchanged:: 3.9
   Added support for pretty-printing :class:`types.SimpleNamespace`.
```

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Unknown directive type "versionchanged".

```
.. versionchanged:: 3.10
   Added support for pretty-printing :class:`dataclasses.dataclass`.
```

The `mod:pprint` module defines one class:

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Unknown interpreted text role "mod".

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Unknown directive type "index".

```
.. index:: single: ...; placeholder
```

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Invalid class attribute value for "class" directive: "PrettyPrinter(indent=1, width=80, depth=None, stream=None, *, \ncompact=False, sort_dicts=True, underscore_numbers=False)".

```
.. class:: PrettyPrinter(indent=1, width=80, depth=None, stream=None, *, \n    compact=False, sort_dicts=True, underscore_numbers=False)
```

Construct a `:class:`PrettyPrinter`` instance. This constructor understands several keyword parameters.

`*stream*` (default `sys.stdout`) is a `:term:`file-like object`` to which the output will be written by calling its `:meth:`write`` method. If both `*stream*` and `sys.stdout` are `None`, then `:meth:`~PrettyPrinter.pprint`` silently returns.

Other values configure the manner in which nesting of complex data structures is displayed.

`*indent*` (default 1) specifies the amount of indentation added for each nesting level.

`*depth*` controls the number of nesting levels which may be printed; if the data structure being printed is too deep, the next contained level is replaced by `...`. By default, there is no constraint on the depth of the objects being formatted.`

`*width*` (default 80) specifies the desired maximum number of characters per line in the output. If a structure cannot be formatted within the width constraint, a best effort will be made.

`*compact*` impacts the way that long sequences (lists, tuples, sets, etc) are formatted. If `*compact*` is false (the default) then each item of a sequence will be formatted on a separate line. If `*compact*` is true, as many items as will fit within the `*width*` will be formatted on each output line.

If `*sort_dicts*` is true (the default), dictionaries will be formatted with their keys sorted, otherwise they will display in insertion order.

If `*underscore_numbers*` is true, integers will be formatted with the ```_``` character for a thousands separator, otherwise underscores are not displayed (the default).

```
.. versionchanged:: 3.4
   Added the *compact* parameter.
```

```
.. versionchanged:: 3.8
   Added the *sort_dicts* parameter.
```

```

.. versionchanged:: 3.10
   Added the *underscore_numbers* parameter.

.. versionchanged:: 3.11
   No longer attempts to write to sys.stdout if it is None.

>>> import pprint
>>> stuff = ['spam', 'eggs', 'lumberjack', 'knights', 'ni']
>>> stuff.insert(0, stuff[:])
>>> pp = pprint.PrettyPrinter(indent=4)
>>> pp.pprint(stuff)
[ ['spam', 'eggs', 'lumberjack', 'knights', 'ni'],
  'spam',
  'eggs',
  'lumberjack',
  'knights',
  'ni']
>>> pp = pprint.PrettyPrinter(width=41, compact=True)
>>> pp.pprint(stuff)
[['spam', 'eggs', 'lumberjack',
  'knights', 'ni'],
 'spam', 'eggs', 'lumberjack', 'knights',
 'ni']
>>> tup = ('spam', ('eggs', ('lumberjack', ('knights', ('ni', ('dead',
... ('parrot', ('fresh fruit',)))))))
>>> pp = pprint.PrettyPrinter(depth=6)
>>> pp.pprint(tup)
('spam', ('eggs', ('lumberjack', ('knights', ('ni', ('dead', (...))))))

```

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Unknown directive type "function".

```

.. function:: pformat(object, indent=1, width=80, depth=None, *, \
                    compact=False, sort_dicts=True, underscore_numbers=False)

```

Return the formatted representation of **object** as a string. **indent**, **width**, **depth**, **compact**, **sort_dicts** and **underscore_numbers** are passed to the `:class:`PrettyPrinter`` constructor as formatting parameters and their meanings are as described in its documentation above.

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Unknown directive type "function".

```

.. function:: pp(object, *args, sort_dicts=False, **kwargs)

```

Prints the formatted representation of **object** followed by a newline. If **sort_dicts** is false (the default), dictionaries will be displayed with their keys in insertion order, otherwise the dict keys will be sorted. **args** and **kwargs** will be passed to `:func:`pprint`` as formatting parameters.

```

.. versionadded:: 3.8

```

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Unknown directive type "function".

```

.. function:: pprint(object, stream=None, indent=1, width=80, depth=None, *, \
                    compact=False, sort_dicts=True, underscore_numbers=False)

```

Prints the formatted representation of **object** on **stream**, followed by a newline. If **stream** is `None`, `sys.stdout` is used. This may be used in the interactive interpreter instead of the `:func:`print`` function for inspecting values (you can even reassign `print = pprint.pprint` for use within a scope).

The configuration parameters **stream**, **indent**, **width**, **depth**, **compact**, **sort_dicts** and **underscore_numbers** are passed to the

:class:`PrettyPrinter` constructor and their meanings are as described in its documentation above.

```
>>> import pprint
>>> stuff = ['spam', 'eggs', 'lumberjack', 'knights', 'ni']
>>> stuff.insert(0, stuff)
>>> pprint.pprint(stuff)
[<Recursion on list with id=...>,
 'spam',
 'eggs',
 'lumberjack',
 'knights',
 'ni']
```

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Unknown directive type "function".

```
.. function:: isreadable(object)
```

```
.. index:: builtin: eval
```

Determine if the formatted representation of **object** is "readable", or can be used to reconstruct the value using `:func:`eval``. This always returns `False` for recursive objects.

```
>>> pprint.isreadable(stuff)
False
```

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Unknown directive type "function".

```
.. function:: isrecursive(object)
```

Determine if **object** requires a recursive representation.

One more support function is also defined:

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Unknown directive type "function".

```
.. function:: saferepr(object)
```

Return a string representation of **object**, protected against recursive data structures. If the representation of **object** exposes a recursive entry, the recursive reference will be represented as `<Recursion on typename with id=number>`. The representation is not otherwise formatted.

```
>>> pprint.saferepr(stuff)
' [<Recursion on list with id=...>, 'spam', 'eggs', 'lumberjack', 'knights', 'ni'] '
```

PrettyPrinter Objects

:class:`PrettyPrinter` instances have the following methods:

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Unknown interpreted text role "class".

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Unknown directive type "method".

```
.. method:: PrettyPrinter.pformat(object)
```

Return the formatted representation of *object*. This takes into account the options passed to the :class:`PrettyPrinter` constructor.

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Unknown directive type "method".

```
.. method:: PrettyPrinter.pprint(object)
```

Print the formatted representation of *object* on the configured stream, followed by a newline.

The following methods provide the implementations for the corresponding functions of the same names. Using these methods on an instance is slightly more efficient since new :class:`PrettyPrinter` objects don't need to be created.

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Unknown interpreted text role "class".

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Unknown directive type "method".

```
.. method:: PrettyPrinter.isreadable(object)
```

```
.. index:: builtin: eval
```

Determine if the formatted representation of the object is "readable," or can be used to reconstruct the value using :func:`eval`. Note that this returns ``False`` for recursive objects. If the *depth* parameter of the :class:`PrettyPrinter` is set and the object is deeper than allowed, this returns ``False``.

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Unknown directive type "method".

```
.. method:: PrettyPrinter.isrecursive(object)
```

Determine if the object requires a recursive representation.

This method is provided as a hook to allow subclasses to modify the way objects are converted to strings. The default implementation uses the internals of the :func:`saferepr` implementation.

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Unknown interpreted text role "func".

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Unknown directive type "method".

```
.. method:: PrettyPrinter.format(object, context, maxlevels, level)
```

Returns three values: the formatted version of *object* as a string, a flag indicating whether the result is readable, and a flag indicating whether recursion was detected. The first argument is the object to be presented. The

second is a dictionary which contains the `:func:`id`` of objects that are part of the current presentation context (direct and indirect containers for `*object*` that are affecting the presentation) as the keys; if an object needs to be presented which is already represented in `*context*`, the third return value should be `True`. Recursive calls to the `:meth:`.format`` method should add additional entries for containers to this dictionary. The third argument, `*maxlevels*`, gives the requested limit to recursion; this will be `0` if there is no requested limit. This argument should be passed unmodified to recursive calls. The fourth argument, `*level*`, gives the current level; recursive calls should be passed a value less than that of the current call.

Example

To demonstrate several uses of the `:func:`pprint`` function and its parameters, let's fetch information about a project from PyPI:

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Unknown interpreted text role "func".

```
>>> import json
>>> import pprint
>>> from urllib.request import urlopen
>>> with urlopen('https://pypi.org/pypi/sampleproject/json') as resp:
...     project_info = json.load(resp)['info']
```

In its basic form, `:func:`pprint`` shows the whole object:

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Unknown interpreted text role "func".

```
>>> pprint.pprint(project_info)
{'author': 'The Python Packaging Authority',
 'author_email': 'pypa-dev@googlegroups.com',
 'bugtrack_url': None,
 'classifiers': ['Development Status :: 3 - Alpha',
                 'Intended Audience :: Developers',
                 'License :: OSI Approved :: MIT License',
                 'Programming Language :: Python :: 2',
                 'Programming Language :: Python :: 2.6',
                 'Programming Language :: Python :: 2.7',
                 'Programming Language :: Python :: 3',
                 'Programming Language :: Python :: 3.2',
                 'Programming Language :: Python :: 3.3',
                 'Programming Language :: Python :: 3.4',
                 'Topic :: Software Development :: Build Tools'],
 'description': 'A sample Python project\n'
               '=====\n'
               '\n'
               'This is the description file for the project.\n'
               '\n'
               'The file should use UTF-8 encoding and be written using '
               'ReStructured Text. It\n'
               'will be used to generate the project webpage on PyPI, and '
               'should be written for\n'
               'that purpose.\n'
               '\n'
               'Typical contents for this file would include an overview of '
               'the project, basic\n'
               'usage examples, etc. Generally, including the project '
               'changelog in here is not\n'
               'a good idea, although a simple "What\'s New" section for the '
               'most recent version\n'
               'may be appropriate.',
 'description_content_type': None,
 'docs_url': None,
 'download_url': 'UNKNOWN',
 'downloads': {'last_day': -1, 'last_month': -1, 'last_week': -1},
 'home_page': 'https://github.com/pypa/sampleproject',
 'keywords': 'sample setuptools development',
 'license': 'MIT',
 'maintainer': None,
 'maintainer_email': None,
```

```
'name': 'sampleproject',
'package_url': 'https://pypi.org/project/sampleproject/',
'platform': 'UNKNOWN',
'project_url': 'https://pypi.org/project/sampleproject/',
'project_urls': {'Download': 'UNKNOWN',
                  'Homepage': 'https://github.com/pypa/sampleproject'},
'release_url': 'https://pypi.org/project/sampleproject/1.2.0/',
'requires_dist': None,
'requires_python': None,
'summary': 'A sample Python project',
'version': '1.2.0'}
```

The result can be limited to a certain *depth* (ellipsis is used for deeper contents):

```
>>> pprint.pprint(project_info, depth=1)
{'author': 'The Python Packaging Authority',
 'author_email': 'pypa-dev@googlegroups.com',
 'bugtrack_url': None,
 'classifiers': [...],
 'description': 'A sample Python project\n'
               '=====\n'
               '\n'
               'This is the description file for the project.\n'
               '\n'
               'The file should use UTF-8 encoding and be written using '
               'ReStructured Text. It\n'
               'will be used to generate the project webpage on PyPI, and '
               'should be written for\n'
               'that purpose.\n'
               '\n'
               'Typical contents for this file would include an overview of '
               'the project, basic\n'
               'usage examples, etc. Generally, including the project '
               'changelog in here is not\n'
               'a good idea, although a simple "What\'s New" section for the '
               'most recent version\n'
               'may be appropriate.',
 'description_content_type': None,
 'docs_url': None,
 'download_url': 'UNKNOWN',
 'downloads': {...},
 'home_page': 'https://github.com/pypa/sampleproject',
 'keywords': 'sample setuptools development',
 'license': 'MIT',
 'maintainer': None,
 'maintainer_email': None,
 'name': 'sampleproject',
 'package_url': 'https://pypi.org/project/sampleproject/',
 'platform': 'UNKNOWN',
 'project_url': 'https://pypi.org/project/sampleproject/',
 'project_urls': {...},
 'release_url': 'https://pypi.org/project/sampleproject/1.2.0/',
 'requires_dist': None,
 'requires_python': None,
 'summary': 'A sample Python project',
 'version': '1.2.0'}
```

Additionally, maximum character *width* can be suggested. If a long object cannot be split, the specified width will be exceeded:

```
>>> pprint.pprint(project_info, depth=1, width=60)
{'author': 'The Python Packaging Authority',
 'author_email': 'pypa-dev@googlegroups.com',
 'bugtrack_url': None,
 'classifiers': [...],
 'description': 'A sample Python project\n'
                '=====\n'
                '\n'
                'This is the description file for the '
                'project.\n'
                '\n'
                'The file should use UTF-8 encoding and be '
                'written using ReStructured Text. It\n'
                'will be used to generate the project '
                'webpage on PyPI, and should be written '
                'for\n'
                'that purpose.\n'
                '\n'
                'Typical contents for this file would '
                'include an overview of the project, '
                'basic\n'
                'usage examples, etc. Generally, including '
                'the project changelog in here is not\n'}
```

```
        'a good idea, although a simple "What\'s '
        'New" section for the most recent version\n'
        'may be appropriate.',
'description_content_type': None,
'docs_url': None,
'download_url': 'UNKNOWN',
'downloads': {...},
'home_page': 'https://github.com/pypa/sampleproject',
'keywords': 'sample setuptools development',
'license': 'MIT',
'maintainer': None,
'maintainer_email': None,
'name': 'sampleproject',
'package_url': 'https://pypi.org/project/sampleproject/',
'platform': 'UNKNOWN',
'project_url': 'https://pypi.org/project/sampleproject/',
'project_urls': {...},
'release_url': 'https://pypi.org/project/sampleproject/1.2.0/',
'requires_dist': None,
'requires_python': None,
'summary': 'A sample Python project',
'version': '1.2.0'}
```