
Pylint Documentation

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PyLint's home page is at <http://www.pylint.org> and its forge is at <https://bitbucket.org/logilab/pylint>

Introduction

1.1 What is Pylint?

Pylint is a tool that checks for errors in Python code, tries to enforce a coding standard and looks for bad code smells. This is similar but nevertheless different from what [pychecker](#) provides, especially since pychecker explicitly does not bother with coding style. The default coding style used by Pylint is close to [PEP 008](#) (aka [Guido's style guide](#)). For more information about code smells, refer to Martin Fowler's [refactoring book](#).

Pylint will display a number of messages as it analyzes the code, as well as some statistics about the number of warnings and errors found in different files. The messages are classified under various categories such as errors and warnings (more below). If you run Pylint twice, it will display the statistics from the previous run together with the ones from the current run, so that you can see if the code has improved or not.

Last but not least, the code is given an overall mark, based on the number and severity of the warnings and errors. This has proven to be very motivating for some programmers.

Pylint was born in 2003 at [Logilab](#), that funded Sylvain Thénault to lead its development up to now.

1.2 What Pylint is not?

What Pylint says is not to be taken as gospel and Pylint isn't smarter than you are: it may warn you about things that you have conscientiously done.

Pylint tries hard to report as few false positives as possible for errors, but it may be too verbose with warnings. That's for example because it tries to detect things that may be dangerous in a context, but are not in others, or because it checks for some things that you don't care about. Generally, you shouldn't expect Pylint to be totally quiet about your code, so don't necessarily be alarmed if it gives you a hell lot of messages for your project!

Quoting Alexandre Fayolle My usage pattern for Pylint is to generally run `pylint -E` quite often to get stupid errors flagged before launching an application (or before committing). I generally run Pylint with all the bells and whistles activated some time before a release, when I want to cleanup the code. And when I do that I simply ignore tons of the false warnings (and I can do that without being driven mad by this dumb program which is not smart enough to understand the dynamicity of Python because I only run it once or twice a week in this mode)

Quoting Marteen Ter Huurne In our project we just accepted that we have to make some modifications in our code to please Pylint:

- stick to more naming conventions (unused variables ending in underscores, mix-in class names ending in "Mixin")
- making all abstract methods explicit (rather than just not defining them in the superclass)

- add `# pylint: disable=X0123` comments:
 - for messages which are useful in general, but not in a specific case
 - for Pylint bugs
 - for Pylint limitations (for instance Twisted’s modules create a lot of definitions dynamically so Pylint does not know about them)

The effort is worth it, since Pylint helps us a lot in keeping the code clean and finding errors early. Although most errors found by Pylint would also be found by the regression tests, by fixing them before committing, we save time. And our regression tests do not cover all code either, just the most complex parts.

Running Pylint

2.1 Invoking Pylint

Pylint is meant to be called from the command line. The usage is

```
pylint [options] module_or_package
```

You should give Pylint the name of a python package or module. Pylint will not import this package or module, though uses Python internals to locate them and as such is subject to the same rules and configuration. You should pay attention to your `PYTHONPATH`, since it is a common error to analyze an installed version of a module instead of the development version.

It is also possible to analyze python files, with a few restrictions. The thing to keep in mind is that Pylint will try to convert the file name to a module name, and only be able to process the file if it succeeds.

```
pylint mymodule.py
```

should always work since the current working directory is automatically added on top of the python path

```
pylint directory/mymodule.py
```

will work if “directory” is a python package (i.e. has an `__init__.py` file) or if “directory” is in the python path.

For more details on this see the *Frequently Asked Questions*.

You can also start a thin gui around Pylint (require tkinter) by typing

```
pylint-gui
```

This should open a window where you can enter the name of the package or module to check, at Pylint messages will be displayed in the user interface.

It is also possible to call Pylint from an other python program, thanks to `py_run()` function in `epylint` module, assuming Pylint options are stored in `pylint_options` string, as:

```
from pylint import epylint as lint
lint.py_run(pylint_options)
```

To silently run Pylint on a `module_name.py` module, and get its standard output and error:

```
from pylint import epylint as lint
(pylint_stdout, pylint_stderr) = lint.py_run('module_name.py', return_std=True)
```

2.2 Command line options

First of all, we have two basic (but useful) options.

- | | |
|-------------------|--|
| --version | show program's version number and exit |
| -h, --help | show help about the command line options |

Pylint is architected around several checkers. By default all checkers are enabled. You can disable a specific checker or some of its messages or messages categories by specifying `--disable=<id>`. If you want to enable only some checkers or some message ids, first use `--disable=all` then `--enable=<id>` with `<id>` being a comma separated list of checker names and message identifiers. See the list of available features for a description of provided checkers with their functionalities. The `--disable` and `--enable` options can be used with comma separated lists mixing checkers, message ids and categories like `-d C, W, E0611, design`

It is possible to disable all messages with `--disable=all`. This is useful to enable only a few checkers or a few messages by first disabling everything, and then re-enabling only what you need.

Each checker has some specific options, which can take either a yes/no value, an integer, a python regular expression, or a comma separated list of values (which are generally used to override a regular expression in special cases). For a full list of options, use `--help`

Specifying all the options suitable for your setup and coding standards can be tedious, so it is possible to use a configuration file to specify the default values. You can specify a configuration file on the command line using the `--rcfile` option. Otherwise, Pylint searches for a configuration file in the following order and uses the first one it finds:

1. `pylintrc` in the current working directory
2. `.pylintrc` in the current working directory
3. If the current working directory is in a Python module, Pylint searches up the hierarchy of Python modules until it finds a `pylintrc` file. This allows you to specify coding standards on a module-by-module basis. Of course, a directory is judged to be a Python module if it contains an `__init__.py` file.
4. The file named by environment variable `PYLINTRC`
5. if you have a home directory which isn't `/root`:
 - (a) `.pylintrc` in your home directory
 - (b) `.config/pylintrc` in your home directory
6. `/etc/pylintrc`

The `--generate-rcfile` option will generate a commented configuration file on standard output according to the current configuration and exit. This includes:

- Any configuration file found as explained above
- Options appearing before `--generate-rcfile` on the Pylint command line

Of course you can also start with the default values and hand tune the configuration.

Other useful global options include:

- | | |
|--|---|
| --ignore=<file[,file]> | Add <file> (may be a directory) to the black list. It should be a base name, not a path. Multiple entries can be given, separated by comma. |
| --persistent=y_or_n | Pickle collected data for later comparisons. |
| --output-format=<format> | Select output format (text, html, custom). |
| --msg-template=<template> | Modify text output message template. |

- list-msgs** Generate pylint's messages.
- full-documentation** Generate pylint's full documentation, in reST format.

2.3 Parallel execution

It is possible to speed up the execution of Pylint. If the running computer has more CPUs than one, then the files to be checked could be spread on all processors to Pylint sub-processes. This functionality is exposed via `-j` command line parameter. It takes a number of sub-processes that should be spawned. If the provided number is 0 then the number of CPUs will be used. The default number of workers is 1.

Example:

```
pylint -j 4 mymodule1.py mymodule2.py mymodule3.py mymodule4.py
```

This will spawn 4 parallel Pylint sub-process, where each provided module will be checked in parallel. Discovered problems by checkers are not displayed immediately. They are shown just after completing checking a module.

There are some limitations in running checks in parallel in current implementation. It is not possible to use custom plugins (i.e. `--load-plugins` option), nor it is not possible to use initialization hooks (i.e. `--init-hook` option).

Pylint output

The default format for the output is raw text. You can change this by passing pylint the `--output-format=<value>` option. Possible values are: parseable, colorized, msvs (visual studio) and html.

Moreover you can customize the exact way information are displayed using the `-msg-template=<format string>` option. The *format string* uses the [Python new format syntax](#) and the following fields are available :

path relative path to the file

abspath absolute path to the file

line line number

column column number

module module name

obj object within the module (if any)

msg text of the message

msg_id the message code (eg. I0011)

symbol symbolic name of the message (eg. locally-disabled)

C one letter indication of the message category

category fullname of the message category

For example, the former (pre 1.0) default format can be obtained with:

```
pylint --msg-template='{msg_id}:{line:3d},{column}: {obj}: {msg}'
```

A few other examples:

- the new default format:

```
{C}:{line:3d},{column:2d}: {msg} ({symbol})
```

- Visual Studio compatible format (former 'msvs' output format):

```
{path}({line}): [{msg_id}{obj}] {msg}
```

- Parseable (Emacs and all, former 'parseable' output format) format:

```
{path}:{line}: [{msg_id}({symbol}), {obj}] {msg}
```

- HTML output (Default for the html output format) format:

```
'{category}{module}{obj}{line}{column}{msg}'
```

3.1 Source code analysis section

For each python module, Pylint will first display a few “*” characters followed by the name of the module. Then, a number of messages with the following format:

```
MESSAGE_TYPE: LINE_NUM: [OBJECT:] MESSAGE
```

You can get another output format, useful since it’s recognized by most editors or other development tools using the `--output-format=parseable` option.

The message type can be:

- [R]efactor for a “good practice” metric violation
- [C]onvention for coding standard violation
- [W]arning for stylistic problems, or minor programming issues
- [E]rror for important programming issues (i.e. most probably bug)
- [F]atal for errors which prevented further processing

Sometimes the line of code which caused the error is displayed with a caret pointing to the error. This may be generalized in future versions of Pylint.

Example (extracted from a run of Pylint on itself...):

```
***** Module pylint.checkers.format
W: 50: Too long line (86/80)
W:108: Operator not followed by a space
      print >>sys.stderr, 'Unable to match %r', line
          ^
W:141: Too long line (81/80)
W: 74:searchall: Unreachable code
W:171:FormatChecker.process_tokens: Redefining built-in (type)
W:150:FormatChecker.process_tokens: Too many local variables (20/15)
W:150:FormatChecker.process_tokens: Too many branches (13/12)
```

3.2 Reports section

Following the analysis message, Pylint will display a set of reports, each one focusing on a particular aspect of the project, such as number of messages by categories, modules dependencies...

For instance, the metrics report displays summaries gathered from the current run.

- the number of processed modules
- for each module, the percentage of errors and warnings
- the total number of errors and warnings
- percentage of classes, functions and modules with docstrings, and a comparison from the previous run
- percentage of classes, functions and modules with correct name (according to the coding standard), and a comparison from the previous run
- a list of external dependencies found in the code, and where they appear

Also, a global evaluation for the code is computed.

Messages control

An example available from the examples directory:

```
"""pylint option block-disable"""

__revision__ = None

class Foo(object):
    """block-disable test"""

    def __init__(self):
        pass

    def meth1(self, arg):
        """this issues a message"""
        print self

    def meth2(self, arg):
        """and this one not"""
        # pylint: disable=unused-argument
        print self\
            + "foo"

    def meth3(self):
        """test one line disabling"""
        # no error
        print self.bla # pylint: disable=no-member
        # error
        print self.blop

    def meth4(self):
        """test re-enabling"""
        # pylint: disable=no-member
        # no error
        print self.bla
        print self.blop
        # pylint: enable=no-member
        # error
        print self.blip

    def meth5(self):
        """test IF sub-block re-enabling"""
        # pylint: disable=no-member
        # no error
```

```
print self.bla
if self.blop:
    # pylint: enable=no-member
    # error
    print self.blip
else:
    # no error
    print self.blip
# no error
print self.blip

def meth6(self):
    """test TRY/EXCEPT sub-block re-enabling"""
    # pylint: disable=no-member
    # no error
    print self.bla
    try:
        # pylint: enable=no-member
        # error
        print self.blip
    except UndefinedName: # pylint: disable=undefined-variable
        # no error
        print self.blip
    # no error
    print self.blip

def meth7(self):
    """test one line block opening disabling"""
    if self.blop: # pylint: disable=no-member
        # error
        print self.blip
    else:
        # error
        print self.blip
    # error
    print self.blip

def meth8(self):
    """test late disabling"""
    # error
    print self.blip
    # pylint: disable=no-member
    # no error
    print self.bla
    print self.blop
```

Optional Pylint checkers in the extensions module

5.1 Parameter documentation checker

If you document the parameters of your functions, methods and constructors and their types systematically in your code this optional component might be useful for you. Sphinx style, Google style, and Numpy style are supported. (For some examples, see <https://pypi.python.org/pypi/sphinxcontrib-napoleon>.)

You can activate this checker by adding the line:

```
load-plugins=pylint.extensions.check_docs
```

to the MASTER section of your `.pylintrc`.

This checker verifies that all function, method, and constructor parameters are mentioned in the

- Sphinx param and type parts of the docstring:

```
def function_foo(x, y, z):  
    '''function foo ...  
  
    :param x: bla x  
    :type x: int  
  
    :param y: bla y  
    :type y: float  
  
    :param int z: bla z  
  
    :return: sum  
    :rtype: float  
    '''  
    return x + y + z
```

- or the Google style Args: part of the docstring:

```
def function_foo(x, y, z):  
    '''function foo ...  
  
    Args:  
        x (int): bla x  
        y (float): bla y  
  
        z (int): bla z
```

```

Returns:
    float: sum
'''
return x + y + z

```

- or the Numpy style Parameters part of the docstring:

```

def function_foo(x, y, z):
    '''function foo ...

    Parameters
    -----
    x: int
        bla x
    y: float
        bla y

    z: int
        bla z

    Returns
    -----
    float
        sum
    '''
    return x + y + z

```

You'll be notified of **missing parameter documentation** but also of **naming inconsistencies** between the signature and the documentation which often arise when parameters are renamed automatically in the code, but not in the documentation.

By convention, constructor parameters are documented in the class docstring. (`__init__` and `__new__` methods are considered constructors.):

```

class ClassFoo(object):
    '''Sphinx style docstring foo

    :param float x: bla x

    :param y: bla y
    :type y: int
    '''
    def __init__(self, x, y):
        pass

class ClassFoo(object):
    '''Google style docstring foo

    Args:
        x (float): bla x
        y (int): bla y
    '''
    def __init__(self, x, y):
        pass

```

In some cases, having to document all parameters is a nuisance, for instance if many of your functions or methods just follow a **common interface**. To remove this burden, the checker accepts missing parameter documentation if one of the following phrases is found in the docstring:

- For the other parameters, see
- For the parameters, see

(with arbitrary whitespace between the words). Please add a link to the docstring defining the interface, e.g. a superclass method, after “see”:

```
def callback(x, y, z):
    '''Sphinx style docstring for callback ...

    :param x: bla x
    :type x: int

    For the other parameters, see
    :class:`MyFrameworkUsingAndDefiningCallback`
    '''
    return x + y + z

def callback(x, y, z):
    '''Google style docstring for callback ...

    Args:
        x (int): bla x

    For the other parameters, see
    :class:`MyFrameworkUsingAndDefiningCallback`
    '''
    return x + y + z
```

Naming inconsistencies in existing parameter and their type documentations are still detected.

By default, omitting the parameter documentation of a function altogether is tolerated without any warnings. If you want to switch off this behavior, set the option `accept-no-param-doc` to `yes` in your `.pylintrc`.

Configuration

6.1 Naming Styles

Pylint recognizes a number of different name types internally. With a few exceptions, the type of the name is governed by the location the assignment to a name is found in, and not the type of object assigned.

module Module and package names, same as the file names.

const Module-level constants, any variable defined at module level that is not bound to a class object.

class Names in `class` statements, as well as names bound to class objects at module level.

function Functions, toplevel or nested in functions or methods.

method Methods, functions defined in class bodies. Includes static and class methods.

attr Attributes created on class instances inside methods.

argument Arguments to any function type, including lambdas.

variable Local variables in function scopes.

class-attribute Attributes defined in class bodies.

inlinevar Loop variables in list comprehensions and generator expressions.

For each naming style, a separate regular expression matching valid names of this type can be defined. By default, the regular expressions will enforce PEP8 names.

Regular expressions for the names are anchored at the beginning, any anchor for the end must be supplied explicitly. Any name not matching the regular expression will lead to an instance of `invalid-name`.

```
--module-rgx=<regex>
    Default value: [a-z_] [a-z0-9_]{2,30}$

--const-rgx=<regex>
    Default value: [a-z_] [a-z0-9_]{2,30}$

--class-rgx=<regex>
    Default value: '[A-Z_] [a-zA-Z0-9_]+$

--function-rgx=<regex>
    Default value: [a-z_] [a-z0-9_]{2,30}$

--method-rgx=<regex>
    Default value: [a-z_] [a-z0-9_]{2,30}$
```

```

--attr-rgx=<regex>
    Default value: [a-z_] [a-z0-9_]{2,30}$

--argument-rgx=<regex>
    Default value: [a-z_] [a-z0-9_]{2,30}$

--variable-rgx=<regex>
    Default value: [a-z_] [a-z0-9_]{2,30}$

--class-attribute-rgx=<regex>
    Default value: ([A-Za-z_] [A-Za-z0-9_]{2,30}|(.__.*__))$

--inlinevar-rgx=<regex>
    Default value: [A-Za-z_] [A-Za-z0-9_]*$

```

6.1.1 Multiple Naming Styles

Large code bases that have been worked on for multiple years often exhibit an evolution in style as well. In some cases, modules can be in the same package, but still have different naming style based on the stratum they belong to. However, intra-module consistency should still be required, to make changes inside a single file easier. For this case, Pylint supports regular expression with several named capturing group.

Rather than emitting name warnings immediately, Pylint will determine the prevalent naming style inside each module and enforce it on all names.

Consider the following (simplified) example:

```
pylint --function-rgx='(?: (?P<snake>[a-z_]+) | (?P<camel>_?[A-Z]+))$' sample.py
```

The regular expression defines two naming styles, `snake` for snake-case names, and `camel` for camel-case names.

In `sample.py`, the function name on line 1 and 7 will mark the module and enforce the match of named group `snake` for the remaining names in the module:

```

def valid_snake_case(arg):
    ...

def InvalidCamelCase(arg):
    ...

def more_valid_snake_case(arg):
    ...

```

Because of this, the name on line 4 will trigger an `invalid-name` warning, even though the name matches the given regex.

Matches named `exempt` or `ignore` can be used for non-tainting names, to prevent built-in or interface-dictated names to trigger certain naming styles.

```

--name-group=<name1:name2:...,...>
    Default value: empty

```

Format: comma-separated groups of colon-separated names.

This option can be used to combine name styles. For example, `function:method` enforces that functions and methods use the same style, and a style triggered by either name type carries over to the other. This requires that the regular expression for the combined name types use the same group names.

6.1.2 Name Hints

--include-naming-hint=y|n

Default: off

Include a hint for the correct name format with every `invalid-name` warning.

Name hints default to the regular expression, but can be separately configured with the `--<name-type>-hint` options.

Extending Pylint

7.1 Writing your own checker

You can find some simple examples in the examples directory of the distribution (`custom.py` and `custom_raw.py`). I'll try to quickly explain the essentials here.

First, there are two kinds of checkers:

- raw checkers, which are analysing each module as a raw file stream
- ast checkers, which are working on an ast representation of the module

The ast representation used is an extension of the one provided with the standard Python distribution in the [ast package](#). The extension adds additional information and methods on the tree nodes to ease navigation and code introspection.

An AST checker is a visitor, and should implement `visit_<lowered class name>` or `leave_<lowered class name>` methods for the nodes it's interested in. To get description of the different classes used in an ast tree, look at the [ast package](#) documentation. Checkers are ordered by priority. For each module, Pylint's engine:

1. give the module source file as a stream to raw checkers
2. get an ast representation for the module
3. make a depth first descent of the tree, calling `visit_<>` on each AST checker when entering a node, and `leave_<>` on the back traversal

Notice that the source code is probably the best source of documentation, it should be clear and well documented. Don't hesitate to ask for any information on the code-quality mailing list.

Editor and IDE integration

To use Pylint with:

- Emacs, see <http://www.emacswiki.org/emacs/PythonProgrammingInEmacs#toc8>,
- Vim, see http://www.vim.org/scripts/script.php?script_id=891,
- Eclipse and PyDev, see http://pydev.org/manual_adv_pylint.html,
- Komodo, see <http://mateusz.loskot.net/posts/2006/01/15/running-pylint-from-komodo/>,
- gedit, see <https://launchpad.net/gedit-pylint-2> or <https://wiki.gnome.org/Apps/Gedit/PyLintPlugin>,
- WingIDE, see <http://www.wingware.com/doc/edit/pylint>,
- PyCharm, see <http://blog.saturnlaboratories.co.za/archive/2012/09/10/running-pylint-pycharm>.
- TextMate,

Pylint is integrated in:

- Eric IDE, see the *Project > Check* menu,
- Spyder, see <http://packages.python.org/spyder/pylint.html>,
- pyscripter, see the *Tool -> Tools* menu.

8.1 Using Pylint thru flymake in Emacs

To enable flymake for Python, insert the following into your .emacs:

```
;; Configure flymake for Python
(when (load "flymake" t)
  (defun flymake-pylint-init ()
    (let* ((temp-file (flymake-init-create-temp-buffer-copy
                       'flymake-create-temp-inplace))
          (local-file (file-relative-name
                       temp-file
                       (file-name-directory buffer-file-name))))
      (list "epylint" (list local-file))))
  (add-to-list 'flymake-allowed-file-name-masks
    ("\\.py\\\\" flymake-pylint-init)))

;; Set as a minor mode for Python
(add-hook 'python-mode-hook '(lambda () (flymake-mode)))
```

Above stuff is in `pylint/elisp/pylint-flymake.el`, which should be automatically installed on Debian systems, in which cases you don't have to put it in your `.emacs` file.

Other things you may find useful to set:

```
;; Configure to wait a bit longer after edits before starting
(setq-default flymake-no-changes-timeout '3)

;; Keymaps to navigate to the errors
(add-hook 'python-mode-hook '(lambda () (define-key python-mode-map "\C-cn" 'flymake-goto-next-error)))
(add-hook 'python-mode-hook '(lambda () (define-key python-mode-map "\C-cp" 'flymake-goto-prev-error)))
```

Finally, by default flymake only displays the extra information about the error when you hover the mouse over the highlighted line. The following will use the minibuffer to display messages when you the cursor is on the line.

```
;; To avoid having to mouse hover for the error message, these functions make flymake error messages
;; appear in the minibuffer
(defun show-fly-err-at-point ()
  "If the cursor is sitting on a flymake error, display the message in the minibuffer"
  (require 'cl)
  (interactive)
  (let ((line-no (line-number-at-pos)))
    (dolist (elem flymake-err-info)
      (if (eq (car elem) line-no)
        (let ((err (car (second elem))))
          (message "%s" (flymake-ler-text err)))))))

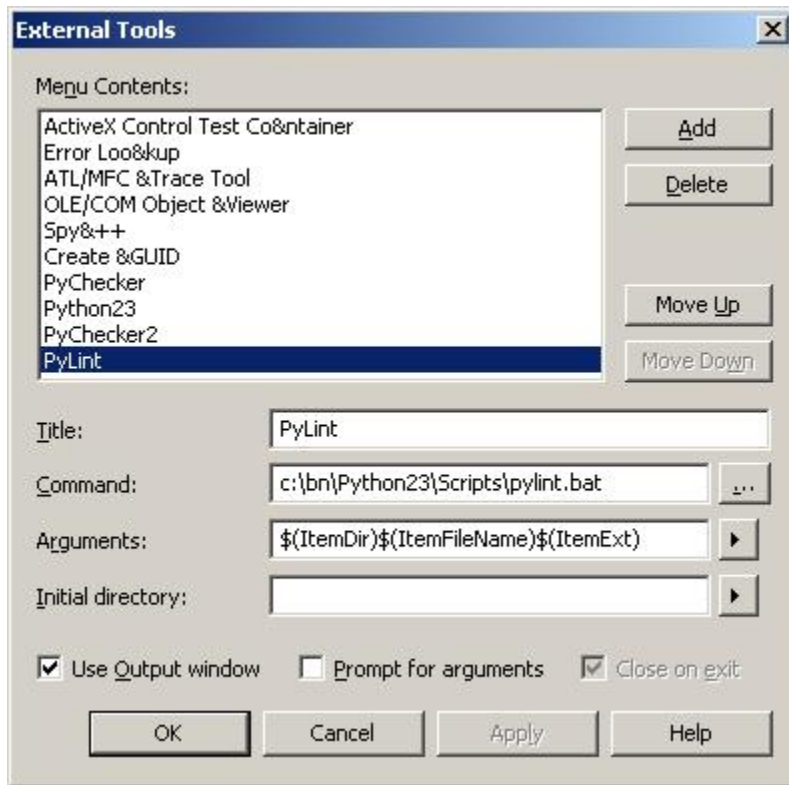
(add-hook 'post-command-hook 'show-fly-err-at-point)
```

Alternative, if you only wish to pollute the minibuffer after an explicit flymake-goto-* then use the following instead of a post-command-hook

```
(defadvice flymake-goto-next-error (after display-message activate compile)
  "Display the error in the mini-buffer rather than having to mouse over it"
  (show-fly-err-at-point))

(defadvice flymake-goto-prev-error (after display-message activate compile)
  "Display the error in the mini-buffer rather than having to mouse over it"
  (show-fly-err-at-point))
```

8.2 Setup the MS Visual Studio .NET 2003 editor to call Pylint



The output of Pylint is then shown in the “Output” pane of the editor.

8.3 Integrate Pylint with TextMate

Install Pylint in the usual way:

```
pip install pylint
```

Install the [Python bundle for TextMate](#):

1. select *TextMate > Preferences*
2. select the *Bundles* tab
3. find and tick the *Python* bundle in the list

You should now see it in *Bundles > Python*.

In *Preferences*, select the *Variables* tab. If a `TM_PYCHECKER` variable is not already listed, add it, with the value `pylint`.

The default keyboard shortcut to run the syntax checker is *Control-Shift-V* - open a `.py` file in Textmate, and try it.

You should see the output in a new window:

```
PyCheckMate 1.2 – Pylint 1.4.4
No config file found, using default configuration
```

Then all is well, and most likely Pylint will have expressed some opinions about your Python code (or will exit with 0 if your code already conforms to its expectations).

If you receive a message:

Please install PyChecker, PyFlakes, Pylint, PEP 8 or flake8 for more extensive code checking.

That means that Pylint wasn't found, which is likely an issue with command paths - TextMate needs be looking for Pylint on the right paths.

Check where Pylint has been installed, using `which`:

```
$ which pylint
/usr/local/bin/pylint
```

The output will tell you where Pylint can be found; in this case, in `/usr/local/bin`.

1. select *TextMate > Preferences*
2. select the *Variables* tab
3. find and check that a `PATH` variable exists, and that it contains the appropriate path (if the path to Pylint were `/usr/local/bin/pylint` as above, then the variable would need to contain `/usr/local/bin`). An actual example in this case might be `$PATH:/opt/local/bin:/usr/local/bin:/usr/texbin`, which includes other paths.

... and try running Pylint again.

Plugins

9.1 Why write a plugin?

Pylint is a static analysis tool and Python is a dynamically typed language. So there will be cases where Pylint cannot analyze files properly (this problem can happen in statically typed languages also if reflection or dynamic evaluation is used). Plugin is a way to tell Pylint how to handle such cases, since only the user would know what needs to be done.

9.2 Example

Let us run Pylint on a module from the Python source: `warnings.py` and see what happens:

```
amitdev$ pylint -E Lib/warnings.py
E:297,36: Instance of 'WarningMessage' has no 'message' member (no-member)
E:298,36: Instance of 'WarningMessage' has no 'filename' member (no-member)
E:298,51: Instance of 'WarningMessage' has no 'lineno' member (no-member)
E:298,64: Instance of 'WarningMessage' has no 'line' member (no-member)
```

Did we catch a genuine error? Let's open the code and look at `WarningMessage` class:

```
class WarningMessage(object):

    """Holds the result of a single showwarning() call."""

    _WARNING_DETAILS = ("message", "category", "filename", "lineno", "file",
                        "line")

    def __init__(self, message, category, filename, lineno, file=None,
                  line=None):
        local_values = locals()
        for attr in self._WARNING_DETAILS:
            setattr(self, attr, local_values[attr])
        self._category_name = category.__name__ if category else None

    def __str__(self):
        ...
```

Ah, the fields (`message`, `category` etc) are not defined statically on the class. Instead they are added using `setattr`. Pylint would have a tough time figuring this out.

9.3 Enter Plugin

We can write a plugin to tell Pylint about how to analyze this properly. A plugin is a module which should have a function `register` and takes the `lint` module as input. So a basic hello-world plugin can be implemented as:

```
# Inside hello_plugin.py
def register(linter):
    print 'Hello world'
```

We can run this plugin by placing this module in the PYTHONPATH and invoking as:

```
amitdev$ pylint -E --load-plugins hello_plugin foo.py
Hello world
```

Back to our example: one way to fix that would be to transform the `WarningMessage` class and set the attributes using a plugin so that Pylint can see them. This can be done by registering a transform function. We can transform any node in the parsed AST like `Module`, `Class`, `Function` etc. In our case we need to transform a class. It can be done so:

```
from astroid import MANAGER
from astroid import scoped_nodes

def register(linter):
    pass

def transform(cls):
    if cls.name == 'WarningMessage':
        import warnings
        for f in warnings.WarningMessage._WARNING_DETAILS:
            cls.locals[f] = [scoped_nodes.Class(f, None)]

MANAGER.register_transform(scoped_nodes.Class, transform)
```

Let's go through the plugin. First, we need to register a class transform, which is done via the `register_transform` function in `MANAGER`. It takes the node type and function as parameters. We need to change a class, so we use `scoped_nodes.Class`. We also pass a transform function which does the actual transformation.

transform function is simple as well. If the class is `WarningMessage` then we add the attributes to its locals (we are not bothered about type of attributes, so setting them as class will do. But we could set them to any type we want). That's it.

Note: We don't need to do anything in the `register` function of the plugin since we are not modifying anything in the linter itself.

Lets run Pylint with this plugin and see:

```
amitdev$ pylint -E --load-plugins warning_plugin Lib/warnings.py
amitdev$
```

All the false positives associated with `WarningMessage` are now gone. This is just an example, any code transformation can be done by plugins. See [nodes](#) and [scoped_nodes](#) for details about all node types that can be transformed.

10.1 Bug reports, feedback

You think you have found a bug in Pylint? Well, this may be the case since Pylint is under development.

Please take the time to check if it is already in the issue tracker at <https://bitbucket.org/logilab/pylint>

If you can not find it in the tracker, create a new issue there or discuss your problem on the code-quality@python.org mailing list.

The code-quality mailing list is also a nice place to provide feedback about Pylint, since it is shared with other tools that aim at improving the quality of python code.

Note that if you don't find something you have expected in Pylint's issue tracker, it may be because it is an issue with one of its dependencies, namely astroid and logilab-common:

- <https://bitbucket.org/logilab/astroid>
- <http://www.logilab.org/project/logilab-common>

10.2 Mailing lists

Use the code-quality@python.org mailing list for anything related to Pylint. This is in most cases better than sending an email directly to the author, since others will benefit from the exchange, and you'll be more likely answered by someone subscribed to the list.

You can subscribe to this mailing list at <http://mail.python.org/mailman/listinfo/code-quality>

Archives are available at <http://mail.python.org/pipermail/code-quality/>

Archives before April 2013 are available at <http://lists.logilab.org/pipermail/python-projects/>

10.3 Forge

Pylint is developed using the [mercurial](#) distributed version control system.

You can clone Pylint and its dependencies from

```
hg clone https://bitbucket.org/logilab/pylint
hg clone https://bitbucket.org/logilab/astroid
hg clone http://hg.logilab.org/logilab/common
```

Got a change for Pylint? Below are a few steps you should take to make sure your patch gets accepted.

- Test your code
 - Pylint keeps a set of unit tests in the `/test` directory. The `test_func.py` module uses external files to have some kind of easy functional testing. To get your patch accepted you must write (or change) a test input file in the `test/input` directory and message file in the `test/messages` directory. Then run `python test_func.py` to ensure that your test is green.
 - You should also run all the tests to ensure that your change isn't breaking one.
- Add a short entry to the ChangeLog describing the change, except for internal implementation only changes
- Write a comprehensive commit message
- Relate your change to an issue in the tracker if such an issue exists (see [this page](#) of Bitbucket documentation for more information on this)
- Send a pull request from Bitbucket (more on this [here](#))

10.4 Unit test setup

To run the pylint unit tests within your checkout (without having to install anything), you need to set `PYTHONPATH` so that pylint, astroid and the logilab-common are available. Assume you have those packages in `~/src`. If you have a normal clone of logilab-common, it will not be properly structured to allow import of logilab.common. To remedy this, create the necessary structure:

```
cd ~/src
mkdir logilab
mv logilab-common logilab/common
touch logilab/__init__.py
```

Now, set `PYTHONPATH` to your src directory:

```
export PYTHONPATH=~/src
```

You now have access to the astroid, logilab.common and pylint packages without installing them. You can run all the unit tests like so:

```
cd ~/src/pylint/test
for f in *.py ; do
    echo $f
    python -S $f
done
```

The `-S` flag keeps distutils from interfering with `sys.path`. YMMV.

10.5 Adding new functional tests

Pylint comes with an easy way to write functional tests for new checks:

- put a Python file in the `test/input` directory, whose name starts with `func_` and should also contains the symbolic name of the tested check
- add the expected message file in the `test/messages` directory, using the same name but a `.txt` extension instead of `.py`

The message file should use the default text output format (without reports) and lines should be sorted. E.g on Unix system, you may generate it using:

```
pylint -rn input/func_mycheck.py | sort > pylint messages/func_mycheck.txt
```

Also, here are a few naming convention which are used:

- Python files starting with 'func_noerror' don't have any message file associated as they are expected to provide no output at all
- You may provide different input files (and associated output) depending on the Python interpreter version:
 - tests whose name ends with `_py<xy>.py` are used for Python `>= x.y`
 - tests whose name ends with `_py<_xy>.py` are used for Python `< x.y`
- Similarly you may provide different message files for a single input, message file whose name ends with `'_py<xy>.txt'` will be used for Python `>= x.y`, using the nearest version possible

class article

A Beginner's Guide to Code Standards in Python - Pylint Tutorial

Author Robert Kirkpatrick

For a detailed description of Pylint, see <http://www.pylint.org>

11.1 Intro

Beginner to coding standards? Pylint can be your guide to reveal what's really going on behind the scenes and help you to become a more aware programmer.

Sharing code is a rewarding endeavor. Putting your code 'out there' can be either an act of philanthropy, 'coming of age', or a basic extension of belief in open source. Whatever the motivation, your good intentions may not have the desired outcome if people find your code hard to use or understand. The Python community has formalized some recommended programming styles to help everyone write code in a common, agreed-upon style that makes the most sense for shared code. This style is captured in [PEP-8](#). Pylint can be a quick and easy way of seeing if your code has captured the essence of PEP-8 and is therefore 'friendly' to other potential users.

Perhaps you're not ready to share your code but you'd like to learn a bit more about writing better code and don't know where to start. Pylint can tell you where you may have run astray and point you in the direction to figure out what you have done and how to do better.

This tutorial is all about approaching coding standards with little or no knowledge of in-depth programming or the code standards themselves. It's the equivalent of skipping the manual and jumping right in.

My command line prompt for these examples is:

```
robertk01 Desktop$
```

11.2 Getting Started

Running Pylint with no arguments will invoke the help dialogue and give you a idea of the arguments available to you. Do that now, i.e.:

```
robertk01 Desktop$ pylint
...
a bunch of stuff
...
```

A couple of the options that we'll focus on here are:

```

Master:
  --generate-rcfile=<file>
Commands:
  --help-msg=<msg-id>
Commands:
  --help-msg=<msg-id>
Message control:
  --disable=<msg-ids>
Reports:
  --files-output=<y_or_n>
  --reports=<y_or_n>
  --output-format=<format>

```

Also pay attention to the last bit of help output. This gives you a hint of what Pylint is going to ‘pick on’:

```

Output:
  Using the default text output, the message format is :
  MESSAGE_TYPE: LINE_NUM:[OBJECT:] MESSAGE
  There are 5 kind of message types :
  * (C) convention, for programming standard violation
  * (R) refactor, for bad code smell
  * (W) warning, for python specific problems
  * (E) error, for much probably bugs in the code
  * (F) fatal, if an error occurred which prevented pylint from doing
  further processing.

```

When Pylint is first run on a fresh piece of code, a common complaint is that it is too ‘noisy’. The current default configuration is set to enforce all possible warnings. We’ll use some of the options I noted above to make it suit your preferences a bit better (and thus make it ‘scream only when needed’).

11.3 Your First Pylint’ing

We’ll use a basic python script as fodder for our tutorial. I borrowed extensively from the code here: <http://www.daniweb.com/code/snippet748.html> The starting code we will use is called simplecaeser.py and is here in its entirety:

```

1  #!/usr/bin/env python
2
3  import string
4
5  shift = 3
6  choice = raw_input("would you like to encode or decode?")
7  word = (raw_input("Please enter text"))
8  letters = string.ascii_letters + string.punctuation + string.digits
9  encoded = ''
10 if choice == "encode":
11     for letter in word:
12         if letter == ' ':
13             encoded = encoded + ' '
14         else:
15             x = letters.index(letter) + shift
16             encoded=encoded + letters[x]
17 if choice == "decode":
18     for letter in word:
19         if letter == ' ':
20             encoded = encoded + ' '

```

```

21         else:
22             x = letters.index(letter) - shift
23             encoded = encoded + letters[x]
24
25     print encoded
    
```

Let's get started.

If we run this:

```

robertk01 Desktop$ pylint simplecaeser.py
No config file found, using default configuration
***** Module simplecaeser
C:  1, 0: Missing module docstring (missing-docstring)
W:  3, 0: Uses of a deprecated module 'string' (deprecated-module)
C:  5, 0: Invalid constant name "shift" (invalid-name)
C:  6, 0: Invalid constant name "choice" (invalid-name)
C:  7, 0: Invalid constant name "word" (invalid-name)
C:  8, 0: Invalid constant name "letters" (invalid-name)
C:  9, 0: Invalid constant name "encoded" (invalid-name)
C: 16,12: Operator not preceded by a space
          encoded=encoded + letters[x]
              ^ (no-space-before-operator)
    
```

Report

=====

19 statements analysed.

Duplication

	now	previous	difference
nb duplicated lines	0	0	=
percent duplicated lines	0.000	0.000	=

Raw metrics

type	number	%	previous	difference
code	21	87.50	21	=
docstring	0	0.00	0	=
comment	1	4.17	1	=
empty	2	8.33	2	=

```

Statistics by type
-----

+-----+-----+-----+-----+-----+-----+
|type    |number|old number|difference| %documented| %badname|
+-----+-----+-----+-----+-----+-----+
|module  |1     |1         |=         |0.00       |0.00     |
+-----+-----+-----+-----+-----+-----+
|class   |0     |0         |=         |0.00       |0.00     |
+-----+-----+-----+-----+-----+-----+
|method  |0     |0         |=         |0.00       |0.00     |
+-----+-----+-----+-----+-----+-----+
|function|0     |0         |=         |0.00       |0.00     |
+-----+-----+-----+-----+-----+-----+


Messages by category
-----

+-----+-----+-----+-----+
|type    |number|previous|difference|
+-----+-----+-----+-----+
|convention|7     |7       |=         |
+-----+-----+-----+-----+
|refactor  |0     |0       |=         |
+-----+-----+-----+-----+
|warning   |1     |1       |=         |
+-----+-----+-----+-----+
|error     |0     |0       |=         |
+-----+-----+-----+-----+


Messages
-----

+-----+-----+
|message id          |occurrences|
+-----+-----+
|invalid-name        |5         |
+-----+-----+
|no-space-before-operator|1         |
+-----+-----+
|missing-docstring    |1         |
+-----+-----+
|deprecated-module     |1         |
+-----+-----+


Global evaluation
-----
Your code has been rated at 5.79/10

```

Wow. That's a lot of stuff. The first part is the 'messages' section while the second part is the 'report' section. There are two points I want to tackle here.

First point is that all the tables of statistics (i.e. the report) are a bit overwhelming so I want to silence them. To do

that, I will use the “--reports=n” option.

Tip: Many of Pylint’s commonly used command line options have shortcuts. for example, “--reports=n” can be abbreviated to “-rn”. Pylint’s man page lists all these shortcuts.

Second, previous experience taught me that the default output for the messages needed a bit more info. We can see the first line is:

```
"C: 1: Missing docstring (missing-docstring)"
```

This basically means that line 1 violates a convention ‘C’. It’s telling me I really should have a docstring. I agree, but what if I didn’t fully understand what rule I violated. Knowing only that I violated a convention isn’t much help if I’m a newbie. Another information there is the message symbol between parens, *missing-docstring* here.

If I want to read up a bit more about that, I can go back to the command line and try this:

```
robertk01 Desktop$ pylint --help-msg=missing-docstring
No config file found, using default configuration
:missing-docstring (C0111): *Missing docstring*
    Used when a module, function, class or method has no docstring. Some special
    methods like __init__ doesn't necessary require a docstring. This message
    belongs to the basic checker.
```

Yeah, ok. That one was a bit of a no-brainer but I have run into error messages that left me with no clue about what went wrong, simply because I was unfamiliar with the underlying mechanism of code theory. One error that puzzled my newbie mind was:

```
:too-many-instance-attributes (R0902): *Too many instance attributes (%s/%s)*
```

I get it now thanks to Pylint pointing it out to me. If you don’t get that one, pour a fresh cup of coffee and look into it - let your programmer mind grow!

11.4 The Next Step

Now that we got some configuration stuff out of the way, let’s see what we can do with the remaining warnings.

If we add a docstring to describe what the code is meant to do that will help. I’m also going to be a bit cowboy and ignore the *deprecated-module* message because I like to take risks in life. A deprecation warning means that future versions of Python may not support that code so my code may break in the future. There are 5 *invalid-name* messages that we will get to later. Lastly, I violated the convention of using spaces around an operator such as “=” so I’ll fix that too. To sum up, I’ll add a docstring to line 2, put spaces around the = sign on line 16 and use the *--disable=deprecated-module* to ignore the deprecation warning.

Here is the updated code:

```
1  #!/usr/bin/env python
2  """This script prompts a user to enter a message to encode or decode
3  using a classic Caesar shift substitution (3 letter shift)"""
4
5  import string
6
7  shift = 3
8  choice = raw_input("would you like to encode or decode?")
9  word = (raw_input("Please enter text"))
10 letters = string.ascii_letters + string.punctuation + string.digits
11 encoded = ''
12 if choice == "encode":
```

```
13     for letter in word:
14         if letter == ' ':
15             encoded = encoded + ' '
16         else:
17             x = letters.index(letter) + shift
18             encoded = encoded + letters[x]
19 if choice == "decode":
20     for letter in word:
21         if letter == ' ':
22             encoded = encoded + ' '
23         else:
24             x = letters.index(letter) - shift
25             encoded = encoded + letters[x]
26
27 print encoded
```

And here is what happens when we run it with our `--disable=deprecated-module` option:

```
robertk01 Desktop$ pylint --reports=n --disable=deprecated-module simplecaeser.py
No config file found, using default configuration
***** Module simplecaeser
C:  7, 0: Invalid constant name "shift" (invalid-name)
C:  8, 0: Invalid constant name "choice" (invalid-name)
C:  9, 0: Invalid constant name "word" (invalid-name)
C: 10, 0: Invalid constant name "letters" (invalid-name)
C: 11, 0: Invalid constant name "encoded" (invalid-name)
```

Nice! We're down to just the *invalid-name* messages.

There are fairly well defined conventions around naming things like instance variables, functions, classes, etc. The conventions focus on the use of UPPERCASE and lowercase as well as the characters that separate multiple words in the name. This lends itself well to checking via a regular expression, thus the “should match `(([A-Z_][A-Z1-9_]*)((.*_))$`”.

In this case Pylint is telling me that those variables appear to be constants and should be all UPPERCASE. This rule is in fact a naming convention that is specific to the folks at Logilab who created Pylint. That is the way they have chosen to name those variables. You too can create your own in-house naming conventions but for the purpose of this tutorial, we want to stick to the PEP-8 standard. In this case, the variables I declared should follow the convention of all lowercase. The appropriate rule would be something like: “should match `[a-z_][a-z0-9_]{2,30}$`”. Notice the lowercase letters in the regular expression (a-z versus A-Z).

If we run that rule using a `--const-rgx='[a-z_][a-z0-9_]{2,30}$'` option, it will now be quite quiet:

```
robertk01 Desktop$ pylint --reports=n --disable=deprecated-module --const-rgx='[a-z_][a-z0-9_]{2,30}$' simplecaeser.py
No config file found, using default configuration
```

Regular expressions can be quite a beast so take my word on this particular example but go ahead and [read up](#) on them if you want.

Tip: It would really be a pain in the butt to have to use all these options on the command line all the time. That's what the rc file is for. We can configure our Pylint to store our options for us so we don't have to declare them on the command line. Using the rc file is a nice way of formalizing your rules and quickly sharing them with others. Invoking `pylint --generate-rcfile` will create a sample rcfile with all the options set and explained in comments.

That's it for the basic intro. More tutorials will follow.

Frequently Asked Questions

12.1 1. About Pylint

12.1.1 1.1 What is Pylint?

Pylint is a [static code checker](#), meaning it can analyse your code without actually running it. Pylint checks for errors, tries to enforce a coding standard, and tries to enforce a coding style.

12.1.2 1.2 How is Pylint different from Pychecker?

A major difference between Pylint and [Pychecker](#) is that Pylint checks for style issues, while Pychecker explicitly does not. There are a few other differences, such as the fact that Pylint does not import live modules while Pychecker does (see [6.2 Why does Pychecker catch problems with imports that Pylint doesn't?](#)).

12.1.3 1.3 Who wrote Pylint?

Pylint's main author and maintainer for the first ten years of its life has been Sylvain Thénault, while he worked at [Logilab](#) where the project was born. For a full list of contributors, see the "Contributors" section of Pylint's README file.

12.1.4 1.4 Who uses Pylint?

Everybody knows someone who uses Pylint.

12.2 2. Installation

12.2.1 2.1 How do I install Pylint?

Everything should be explained on <http://docs.pylint.org/installation>

12.2.2 2.2 What kind of versioning system does Pylint use?

Pylint uses the [Mercurial](https://bitbucket.org/logilab/pylint) distributed version control system. The URL of the repository is: <https://bitbucket.org/logilab/pylint>. To get the latest version of Pylint from the repository, simply invoke

```
hg clone https://bitbucket.org/logilab/pylint
```

12.2.3 2.3 What are Pylint's dependencies?

Pylint requires the latest [astroid](#) and [logilab-common](#) packages. It should be compatible with any Python version greater than 2.7.0.

12.2.4 2.4 What versions of Python is Pylint supporting?

Since Pylint 1.4, we support only Python 2.7+ and Python 3.3+. Using this strategy really helps in maintaining a code base compatible with both versions and from this benefits not only the maintainers, but the end users as well, because it's easier to add and test new features. If support for Python 2.6 is absolutely required, then the version from `pylint-1.3` branch can be used. It will receive backports of bug fixes for a while.

12.3 3. Running Pylint

12.3.1 3.1 Can I give pylint a file as an argument instead of a module?

Pylint expects the name of a package or module as its argument. As a convenience, you can give it a file name if it's possible to guess a module name from the file's path using the python path. Some examples :

"pylint mymodule.py" should always work since the current working directory is automatically added on top of the python path

"pylint directory/mymodule.py" will work if "directory" is a python package (i.e. has an `__init__.py` file) or if "directory" is in the python path.

"pylint /whatever/directory/mymodule.py" will work if either:

- "/whatever/directory" is in the python path
- your cwd is "/whatever/directory"
- "directory" is a python package and "/whatever" is in the python path
- "directory" is a python package and your cwd is "/whatever" and so on...

12.3.2 3.2 Where is the persistent data stored to compare between successive runs?

Analysis data are stored as a pickle file in a directory which is localized using the following rules:

- value of the `PYLINTHOME` environment variable if set
- **".pylint.d" subdirectory of the user's home directory if it is found** (not always findable on Windows platforms)
- ".pylint.d" directory in the current directory

12.3.3 3.3 How do I find the option name (for `pylintrc`) corresponding to a specific command line option?

You can always generate a sample `pylintrc` file with `--generate-rcfile`. Every option present on the command line before this will be included in the rc file.

For example:

```
pylint --disable=bare-except,invalid-name --class-rgx='[A-Z][a-z]+' --generate-rcfile
```

12.3.4 3.4 I'd rather not run Pylint from the command line. Can I integrate it with my editor?

Much probably. Read <http://docs.pylint.org/ide-integration>

12.4 4. Message Control

12.4.1 4.1 Is it possible to locally disable a particular message?

Yes, this feature has been added in Pylint 0.11. This may be done by adding “`#pylint: disable=some-message,another-one`” at the desired block level or at the end of the desired line of code.

12.4.2 4.2 Is there a way to disable a message for a particular module only?

Yes, you can disable or enable (globally disabled) messages at the module level by adding the corresponding option in a comment at the top of the file:

```
# pylint: disable=wildcard-import, method-hidden
# pylint: enable=too-many-lines
```

12.4.3 4.3 How can I tell Pylint to never check a given module?

With Pylint < 0.25, add “`#pylint: disable-all`” at the beginning of the module. Pylint 0.26.1 and up have renamed that directive to “`#pylint: skip-file`” (but the first version will be kept for backward compatibility).

In order to ease finding which modules are ignored a Information-level message *file-ignored* is emitted. With recent versions of Pylint, if you use the old syntax, an additional *deprecated-disable-all* message is emitted.

12.4.4 4.4 Do I have to remember all these numbers?

No, starting from 0.25.3, you can use symbolic names for messages:

```
# pylint: disable=fixme, line-too-long
```

12.4.5 4.5 I have a callback function where I have no control over received arguments. How do I avoid getting unused argument warnings?

Prefix (ui) the callback's name by `cb_`, as in `cb_onclick(...)`. By doing so arguments usage won't be checked. Another solution is to use one of the names defined in the "dummy-variables" configuration variable for unused argument ("`_`" and "dummy" by default).

12.4.6 4.6 What is the format of the configuration file?

Pylint uses ConfigParser from the standard library to parse the configuration file. It means that if you need to disable a lot of messages, you can use tricks like:

```
# disable wildcard-import, method-hidden and too-many-lines because I do
# not want it
disable= wildcard-import,
        method-hidden,
        too-many-lines
```

12.5 5. Classes and Inheritance

12.5.1 5.1 When is Pylint considering a class as an abstract class?

A class is considered as an abstract class if at least one of its methods is doing nothing but raising `NotImplementedError`.

12.5.2 5.2 How do I avoid "access to undefined member" messages in my mixin classes?

To do so you have to set the `ignore-mixin-members` option to "yes" (this is the default value) and to name your mixin class with a name which ends with "mixin" (whatever case).

12.6 6. Troubleshooting

12.6.1 6.1 Pylint gave my code a negative rating out of ten. That can't be right!

Even though the final rating Pylint renders is nominally out of ten, there's no lower bound on it. By default, the formula to calculate score is

```
10.0 - ((float(5 * error + warning + refactor + convention) / statement) * 10)
```

However, this option can be changed in the Pylint rc file. If having negative values really bugs you, you can set the formula to be the maximum of 0 and the above expression.

12.6.2 6.2 Why does Pychecker catch problems with imports that Pylint doesn't?

Pychecker and Pylint use different approaches. pychecker imports the modules and rummages around in the result, hence it sees my mangled `sys.path`. Pylint doesn't import any of the candidate modules and thus doesn't include any of import's side effects (good and bad). It traverses an AST representation of the code.

12.6.3 6.3 Pylint keeps crashing with *Maximum recursion depth exceeded*

Pylint can crash with this error if you have a string in your analyzed program, created by joining a lot of strings with the addition operator. Due to how Pylint works, visiting nodes on a AST tree and due to how the BinOp node is represented (the node which represents the string '1+1' for instance), the same visit method will be called over and over again, leading to a maximum recursion error. You can alleviate this problem by passing the flag `--optimize-ast=y` to Pylint. This will activate an optimization which will transform such AST subtrees into the final resulting string. This flag is off by default. If this is not the case, please report a bug!

12.6.4 6.4 I think I found a bug in Pylint. What should I do?

Read <http://docs.pylint.org/contribute#bug-reports-feedback>

12.6.5 6.5 I have a question about Pylint that isn't answered here.

Read <http://docs.pylint.org/contribute#mailing-lists>

Some projects using Pylint

The following projects are known to use Pylint to help develop better code:

- OSAF Chandler (<http://www.osafoundation.org/>)
- Xen (<http://www.xensource.com/>)
- CPS (<http://www.nuxeo.org>)
- ERP5 (<http://www.erp5.org/>)
- pyxmpp (<http://pyxmpp.jabberstudio.org/>)
- mercurial
- eXe (<http://exelearning.org/>)
- PrimaGIS (<http://www.primagis.org>)
- python-cdd (<https://projetos.ossystems.com.br/projects/python-cdd>)
- CDSWare (<http://cdsware.cern.ch/>)
- ASE (<http://dcwww.camp.dtu.dk/campos/ASE/intro.html>)
- RunJob (<http://projects.fnal.gov/runjob/>)
- Slugathon (<http://slugathon.python-hosting.com/>)
- Topographica (<http://topographica.org/Home/index.html>) (at least they intend to do so)
- <http://browsershots.org>
- many more...

Also notice that the [CheeseCake](#) kvalitee reporting tool uses Pylint to analyze the source code.

Installation

14.1 Dependencies

Pylint requires the latest [astroid](#) and [logilab-common](#) packages. It should be compatible with any Python version ≥ 2.7 .

14.2 Distributions

The source tarball is available at <http://download.logilab.org/pub/pylint>.

You may apt-get a well-tested Debian or Ubuntu package by adding one of these lines:

```
deb http://download.logilab.org/production unstable/  
deb http://download.logilab.org/production sid/  
deb http://download.logilab.org/production squeeze/  
deb http://download.logilab.org/production lenny/
```

to your `/etc/apt/sources.list` file. Pylint is also available in the standard Debian distribution (but add our public debian repository anyway if you want to get the latest releases and upgrades earlier)

Pylint is also available in Gentoo, Fedora 4, Ubuntu, FreeBSD, Darwin (and maybe others, if you know about more OSes, please drop us a note!).

14.3 Python packages

Pylint should be easily installable using `setuptools` and the Python Package Index. Try `easy_install` or `pip`, depending on your preference.

14.4 Source distribution installation

From the source distribution, extract the tarball, go to the extracted directory and simply run

```
python setup.py install
```

You'll have to install dependencies in a similar way.

Windows users may get valuable information about Pylint installation on [this page](#).

14.5 Note for Windows users

On Windows, once you have installed Pylint, the command line usage is

```
pylint.bat [options] module_or_package
```

But this will only work if *pylint.bat* is either in the current directory, or on your system path. (*setup.py* will install *python.bat* to the *Scripts* subdirectory of your Python installation – e.g. C:\Python24\Scripts.) You can do any of the following to solve this:

1. Change to the appropriate directory before running *pylint.bat*
2. Add the Scripts directory to your path statement in your *autoexec.bat* file (this file is found in the root directory of your boot-drive)
3. Create a ‘redirect’ batch file in a directory actually on your systems path

To effect (2), simply append the appropriate directory name to the *PATH=* statement in *autoexec.bat*. Be sure to use the Windows directory separator of ‘;’ between entries. Then, once you have rebooted (this is necessary so that the new path statement will take effect when *autoexec.bat* is run), you will be able to invoke Pylint with *pylint.bat* on the command line.

(3) is the best solution. Once done, you can call Pylint at the command line without the *.bat*, just as do non-Windows users by typing:

```
pylint [options] module_or_package
```

To effect option (3), simply create a plain text file *pylint.bat* with the single line:

```
C:\PythonDirectory\Scripts\pylint.bat
```

(where *PythonDirectory* is replaced by the actual Python installation directory on your system – e.g. C:\Python24\Scripts\pylint.bat).

Changes & Contributors

15.1 ChangeLog for Pylint

—

- Added a new refactoring warning, ‘too-many-boolean-expressions’, used when a if statement contains too many boolean expressions, which makes the code less maintainable and harder to understand. Closes issue #677.
- Property methods are shown as attributes instead of functions in pyreverse class diagrams. Closes Issue #284
- Add a new refactoring error, ‘too-many-nested-blocks’, which is emitted when a function or a method has too many nested blocks, which makes the code less readable and harder to understand. Closes issue #668.
- Add a new error, ‘unsubscriptable-object’, that is emitted when value used in subscription expression doesn’t support subscription (i.e. doesn’t define `__getitem__` method).
- Don’t warn about abstract classes instantiated in their own body. Closes issue #627.
- Obsolete options are not present by default in the generated configuration file. Closes issue #632.
- non-iterator-returned can detect classes with iterator-metaclasses. Closes issue #679.
- Add a new error, ‘unsupported-membership-test’, emitted when value to the right of the ‘in’ operator doesn’t support membership test protocol (i.e. doesn’t define `__contains__`/`__iter__`/`__getitem__`)
- Add new errors, ‘not-an-iterable’, emitted when non-iterable value is used in an iterating context (starargs, for-statement, comprehensions, etc), and ‘not-a-mapping’, emitted when non-mapping value is used in a mapping context. Closes issue #563.
- Make ‘no-self-use’ checker not emit a warning if there is a ‘super()’ call inside the method. Closes issue #667.
- Add checker to identify multiple imports on one line. Closes issue #598.
- Fix unused-argument false positive when the “+=” operator is used. Closes issue #518.
- Don’t emit import-error for ignored modules. PyLint will not emit import errors for any import which is, or is a subpackage of, a module in the ignored-modules list. Closes issue #223.
- Fix unused-import false positive when the import is used in a class assignment. Closes issue #475
- Add a new error, ‘not-context-manager’, emitted when something that doesn’t implement `__enter__` and `__exit__` is used in a with statement.
- Add a new warning, ‘confusing-with-statement’, emitted by the base checker, when an ambiguous looking with statement is used. For example *with open() as first, second* which looks like a tuple assignment but is actually 2 context managers.

- Add a new warning, ‘duplicate-except’, emitted when there is an exception handler which handles an exception type that was handled before. Closes issue #485.
- A couple of warnings got promoted to errors, since they could uncover potential bugs in the code. These warnings are: assignment-from-none, unbalanced-tuple-unpacking, unpacking-non-sequence, non-iterator-returned. Closes issue #388.
- Allow ending a pragma control with a semicolon. In this way, users can continue a pragma control with a reason for why it is used, as in `# pylint: disable=old-style-class;reason=...`. Closes issue #449.
- `-jobs` can be used with `-load-plugins` now. Closes issue #456.
- Improve the performance of `-jobs` when dealing only with a package name. Closes issue #479.
- Don’t emit an unused-wildcard-import when the imported name comes from another module and it is in fact a `__future__` name.
- The colorized reporter now works on Windows. Closes issue #96.
- Remove pointless-except warning. It was previously disabled by default and it wasn’t very useful. Closes issue #506.
- Fix a crash on Python 3 related to the string checker, which crashed when it encountered a bytes string with a `.format` method called.
- Don’t warn about no-self-use for builtin properties.
- Fix a false positive for bad-reversed-sequence, when a subclass of a *dict* provides a `__reversed__` method.
- Change the default no-docstring-rgx so missing-docstring isn’t emitted for private functions.
- Don’t emit redefined-outer-name for `__future__` directives. Closes issue #520.
- Provide some hints for the bad-builtin message. Closes issue #522.
- When checking for invalid arguments to a callable, in `typecheck.py`, look up for the `__init__` in case the found `__new__` comes from builtins.
Since the `__new__` comes from builtins, it will not have attached any information regarding what parameters it expects, so the check will be useless. Retrieving `__init__` in that case will at least detect a couple of false negatives. Closes issue #429.
- Don’t emit no-member for classes with unknown bases.
Since we don’t know what those bases might add, we simply ignore the error in this case.
- Lookup in the implicit metaclass when checking for no-member, if the class in question has an implicit metaclass, which is `True` for new style classes. Closes issue #438.
- Add two new warnings, duplicate-bases and inconsistent-mro.
duplicate-bases is emitted when a class has the same bases listed more than once in its bases definition, while inconsistent-mro is emitted when no sane mro hierarchy can be determined. Closes issue #526.
- Remove interface-not-implemented warning. Closes issue #532.
- Remove the rest of interface checks: interface-is-not-class, missing-interface-method, unresolved-interface. The reason is that its better to start recommending ABCs instead of the old Zope era of interfaces. One side effect of this change is that ignore-iface-methods becomes a noop, it’s deprecated and it will be removed at some time.
- Emit a proper deprecation warning for `reporters.BaseReporter.add_message`.
The alternative way is to use `handle_message`. `add_message` will be removed in Pylint 1.6.
- Added new module ‘extensions’ for optional checkers with the test directory ‘test/extensions’ and documentation file ‘doc/extensions.rst’.

- Added new checker ‘extensions.check_docs’ that verifies parameter documentation in Sphinx, Google, and Numpy style.
- Detect undefined variable cases, where the “definition” of an undefined variable was in del statement. Instead of emitting used-before-assignment, which is totally misleading, it now emits undefined-variable. Closes issue #528.
- Don’t emit attribute-defined-outside-init and access-member-before-definition for mixin classes. Actual errors can occur in mixin classes, but this is controlled by the ignore-mixin-members option. Closes issue #412.
- Improve the detection of undefined variables and variables used before assignment for variables used as default arguments to function, where the variable was first defined in the class scope. Closes issue #342 and issue #404.
- Add a new warning, ‘unexpected-special-method-signature’, which is emitted when a special method (dunder method) doesn’t have the expected signature, which can lead to actual errors in the application code. Closes issue #253.
- Remove ‘bad-context-manager’ due to the inclusion of ‘unexpected-special-method-signature’.
- Don’t emit no-name-in-module if the import is guarded by an ImportError, Exception or a bare except clause.
- Don’t emit no-member if the attribute access node is protected by an except handler, which handles AttributeError, Exception or it is a bare except.
- Don’t emit import-error if the import is guarded by an ImportError, Exception or a bare except clause.
- Don’t emit undefined-variable if the node is guarded by a NameError, Exception or bare except clause.
- Add a new warning, ‘using-constant-test’, which is emitted when a conditional statement (If, IfExp) uses a test which is always constant, such as numbers, classes, functions etc. This is most likely an error from the user’s part. Closes issue #524.
- Don’t emit ‘raising-non-exception’ when the exception has unknown bases. We don’t know what those bases actually are and it’s better to assume that the user knows what he is doing rather than emitting a message which can be considered a false positive.
- Look for a .pylintrc configuration file in the current folder, if pylintrc is not found. Dotted pylintrc files will not be searched in the parents of the current folder, as it is done for pylintrc.
- Add a new error, ‘invalid-unary-type-operand’, emitted when an unary operand is used on something which doesn’t support that operation (for instance, using the unary bitwise inversion operator on an instance which doesn’t implement `__invert__`).
- Take in consideration differences between arguments of various type of functions (classmethods, staticmethods, properties) when checking for *arguments-differ*. Closes issue #548.
- `astroid.inspector` was moved to `pylint.pyreverse`, since it belongs there and it doesn’t need to be in `astroid`.
- `astroid.utils.LocalsVisitor` was moved to `pylint.pyreverse.LocalsVisitor`.
- `pylint.checkers.utils.excepts_import_error` was removed. Use `pylint.checkers.utils.error_of_type` instead.
- Don’t emit undefined-all-variables for nodes which can’t be inferred (YES nodes).
- `yield-outside-func` is also emitted for *yield from*.
- Add a new error, ‘too-many-star-expressions’, emitted when there are more than one starred expression (`*x`) in an assignment. The warning is emitted only on Python 3.
- Add a new error, ‘invalid-star-assignment-target’, emitted when a starred expression (`*x`) is used as the lhs side of an assignment, as in `*x = [1, 2]`. This is not a SyntaxError on Python 3 though.
- Detect a couple of objects which can’t be base classes (bool, slice, range and memoryview, which weren’t detected until now).

- Add a new error for the Python 3 porting checker, *import-star-module-level*, which is used when a star import is detected in another scope than the module level, which is an error on Python 3. Using this will emit a `SyntaxWarning` on Python 2.
- Add a new error, ‘star-needs-assignment-target’, emitted on Python 3 when a Starred expression (**x*) is not used in an assignment target. This is not caught when parsing the AST on Python 3, so it needs to be a separate check.
- Add a new error, ‘unsupported-binary-operation’, emitted when two a binary arithmetic operation is executed between two objects which don’t support it (a number plus a string for instance). This is currently disabled, since the it exhibits way too many false positives, but it will be reenabled as soon as possible.
- New imported features from astroid into pyreverse: `pyreverse.inspector.Project`, `pyreverse.inspector.project_from_files` and `pyreverse.inspector.interfaces`.

These were moved since they didn’t belong in astroid.

- Enable misplaced-future for Python 3. Closes issue #580.
- Add a new error, ‘nonlocal-and-global’, which is emitted when a name is found to be both nonlocal and global in the same scope. Closes issue #581.
- `ignored-classes` option can work with qualified names (`ignored-classes=optparse.Values`) Closes issue #297.
- `ignored-modules` can work with qualified names as well as with Unix pattern matching for recursive ignoring. Closes issues #244.
- Improve detection of relative imports in non-packages, as well as importing missing modules with a relative import from a package.
- Don’t emit `no-init` if not all the bases from a class are known. Closes issue #604.
- `–no-space-check` option accepts *empty-line* as a possible option. Closes issue #541.
- `–generate-rcfile` generates by default human readable symbols for the `–disable` option. Closes issue #608.
- Improved the `not-in-loop` checker to properly detect more cases.
- Add a new error, ‘continue-in-finally’, which is emitted when the *continue* keyword is found inside a *finally* clause, which is a `SyntaxError`.
- The `–zope` flag is deprecated and it is slated for removal in Pylint 1.6.

The reason behind this removal is the fact that it’s a specialized flag and there are solutions for the original problem: use `–generated-members` with the members that causes problems when using Zope or add AST transforms tailored to the zope project.

At the same time, `–include-ids` and `–symbols` will also be removed in Pylint 1.6. Closes issue #570.

- `missing-module-attribute` was removed and the corresponding CLI option, `required-attributes`, which is slated for removal in Pylint 1.6.
- `missing-reversed-argument` was removed.

The reason behind this is that this kind of errors should be detected by the type checker for *all* the builtins and not as a special case for the reversed builtin. This will happen shortly in the future.

- `–comment` flag is obsolete and it will be removed in Pylint 1.6.
- `–profile` flag is obsolete and it will be removed in Pylint 1.6.
- Add a new error, ‘misplaced-bare-raise’.

The error is used when a bare raise is not used inside an except clause. This can generate a `RuntimeError` in Python, if there are no active exceptions to be reraised. While it works in Python 2 due to the fact that the exception leaks outside of the except block, it’s nevertheless a behaviour that an user shouldn’t depend upon,

since it's not obvious to the reader of the code what exception will be raised and it will not be compatible with Python 3 anyhow. Closes issue #633.

- Bring logilab-common's ureports into pylint.reporters.

With this change, we moved away from depending on logilab-common, having in Pylint all the components that were used from logilab-common. The API should be considered an implementation detail and can change at some point in the future. Closes issue #621.

- *reimported* is emitted for reimported objects on the same line.

Closes issue #639.

- Abbreviations of command line options are not supported anymore.

Using abbreviations for CLI options was never considered to be a feature of pylint, this fact being only a side effect of using optparse. As this was the case, using `-load-plugin` or other abbreviation for `-load-plugins` never actually worked, while it also didn't raise an error. Closes issue #424.

- Add a new error, 'nonlocal-without-binding'

The error is emitted on Python 3 when a nonlocal name is not bound to any variable in the parents scopes. Closes issue #582.

- **'deprecated-module' can be shown for modules which aren't** available. Closes issue #362.

- Don't consider a class abstract if its members can't be properly inferred.

This fixes a false positive related to abstract-class-instantiated. Closes issue #648.

- Add a new checker for the async features added by PEP 492.

- Add a new error, 'yield-inside-async-function', emitted on Python 3.5 and upwards when the *yield* statement is found inside a new coroutine function (PEP 492).

- Add a new error, 'not-async-context-manager', emitted when an async context manager block is used with an object which doesn't support this protocol (PEP 492).

- Add a new convention warning, 'singleton-comparison', emitted when comparison to True, False or None is found.

- Don't emit 'assigning-non-slot' for descriptors. Closes issue #652.

- Add a new error, 'repeated-keyword', when a keyword argument is passed multiple times into a function call.

This is similar with redundant-keyword-arg, but it's mildly different that it needs to be a separate error.

- `-enable=all` can now be used. Closes issue #142.

- Add a new convention message, 'misplaced-comparison-constant', emitted when a constant is placed in the left hand side of a comparison, as in `'5 == func()'`. This is also called Yoda condition, since the flow of code reminds of the Star Wars green character, conditions usually encountered in languages with variable assignments in conditional statements.

- Add a new convention message, 'consider-using-enumerate', which is emitted when code that uses *range* and *len* for iterating is encountered. Closes issue #684.

- Added two new refactoring messages, 'no-classmethod-decorator' and 'no-staticmethod-decorator', which are emitted when a static method or a class method is declared without using decorators syntax.

Closes issue #675.

2015-03-14 – 1.4.3

- Remove three warnings: star-args, abstract-class-little-used, abstract-class-not-used. These warnings don't add any real value and they don't imply errors or problems in the code.

- Added a new option for controlling the peephole optimizer in astroid. The option `--optimize-ast` will control the peephole optimizer, which is used to optimize a couple of AST subtrees. The current problem solved by the peephole optimizer is when multiple joined strings, with the addition operator, are encountered. If the numbers of such strings is high enough, Pylint will then fail with a maximum recursion depth exceeded error, due to its visitor architecture. The peephole just transforms such calls, if it can, into the final resulting string and this exhibit a problem, because the `visit_binop` method stops being called (in the optimized AST it will be a `Const` node).

2015-03-11 – 1.4.2

- Don't require a docstring for empty modules. Closes issue #261.
- Fix a false positive with *too-few-format-args* string warning, emitted when the string format contained a normal positional argument (`{0}`), mixed with a positional argument which did an attribute access (`{0.__class__}`). Closes issue #463.
- Take in account all the methods from the ancestors when checking for *too-few-public-methods*. Closes issue #471.
- Catch enchant errors and emit *invalid-characters-in-docstring* when checking for spelling errors. Closes issue #469.
- Use all the inferred statements for the *super-init-not-called* check. Closes issue #389.
- Add a new warning, *unichr-builtin*, emitted by the Python 3 porting checker, when the `unichr` builtin is found. Closes issue #472.
- Add a new warning, *intern-builtin*, emitted by the Python 3 porting checker, when the `intern` builtin is found. Closes issue #473.
- Add support for editable installations.
- The HTML output accepts the *-msg-template* option. Patch by Dan Goldsmith.
- Add *map-builtin-not-iterating* (replacing *implicit-map-evaluation*), *zip-builtin-not-iterating*, *range-builtin-not-iterating*, and *filter-builtin-not-iterating* which are emitted by *-py3k* when the appropriate built-in is not used in an iterating context (semantics taken from 2to3).
- Add a new warning, *unidiomatic-typecheck*, emitted when an explicit typecheck uses `type()` instead of `isinstance()`. For example, `type(x) == Y` instead of `isinstance(x, Y)`. Patch by Chris Rebert. Closes issue #299.
- Add support for combining the Python 3 checker mode with the *-jobs* flag (*-py3k* and *-jobs*). Closes issue #467.
- Add a new warning for the Python 3 porting checker, *using-cmp-argument*, emitted when the *cmp* argument for the *list.sort* or *sorted builtin* is encountered.
- Make the *-py3k* flag commutative with the *-E* flag. Also, this patch fixes the leaks of error messages from the Python 3 checker when the errors mode was activated. Closes issue #437.

2015-01-16 – 1.4.1

- Look only in the current function's scope for *bad-super-call*. Closes issue #403.
- Check the return of properties when checking for *not-callable*. Closes issue #406.
- Warn about using the `input()` or `round()` built-ins for Python 3. Closes issue #411.
- Proper abstract method lookup while checking for *abstract-class-instantiated*. Closes issue #401.
- Use a mro traversal for finding abstract methods. Closes issue #415.
- Fix a false positive with *catching-non-exception* and tuples of exceptions.
- Fix a false negative with *raising-non-exception*, when the `raise` used an unferrable exception context.

- Fix a false positive on Python 2 for raising-bad-type, when raising tuples in the form 'raise (ZeroDivisionError, None)'.
- Fix a false positive with invalid-slots-objects, where the slot entry was an unicode string on Python 2. Closes issue #421.
- Add a new warning, 'redundant-unittest-assert', emitted when using unittest's methods assertTrue and assertFalse with constant value as argument. Patch by Vlad Temian.
- Add a new JSON reporter, usable through -f flag.
- Add the method names for the 'signature-differs' and 'argument-differs' warnings. Closes issue #433.
- Don't compile test files when installing.
- Fix a crash which occurred when using multiple jobs and the files given as argument didn't exist at all.

2014-11-23 – 1.4.0

- Added new options for controlling the loading of C extensions. By default, only C extensions from the stdlib will be loaded into the active Python interpreter for inspection, because they can run arbitrary code on import. The option `--extension-pkg-whitelist` can be used to specify modules or packages that are safe to load.
- Change default max-line-length to 100 rather than 80
- Drop BaseRawChecker class which were only there for backward compat for a while now
- Don't try to analyze string formatting with objects coming from function arguments. Closes issue #373.
- Port source code to be Python 2/3 compatible. This drops the need for 2to3, but does drop support for Python 2.5.
- Each message now comes with a confidence level attached, and can be filtered base on this level. This allows to filter out all messages that were emitted even though an inference failure happened during checking.
- Improved presenting unused-import message. Closes issue #293.
- Add new checker for finding spelling errors. New messages: wrong-spelling-in-comment, wrong-spelling-in-docstring. New options: spelling-dict, spelling-ignore-words.
- Add new '-j' option for running checks in sub-processes.
- Added new checks for line endings if they are mixed (LF vs CRLF) or if they are not as expected. New messages: mixed-line-endings, unexpected-line-ending-format. New option: expected-line-ending-format.
- 'dangerous-default-value' no longer evaluates the value of the arguments, which could result in long error messages or sensitive data being leaked. Closes issue #282
- Fix a false positive with string formatting checker, when encountering a string which uses only position-based arguments. Closes issue #285.
- Fix a false positive with string formatting checker, when using keyword argument packing. Closes issue #288.
- Proper handle class level scope for lambdas.
- Handle 'too-few-format-args' or 'too-many-format-args' for format strings with both named and positional fields. Closes issue #286.
- Analyze only strings by the string format checker. Closes issue #287.
- Properly handle nested format string fields. Closes issue #294.
- Don't emit 'attribute-defined-outside-init' if the attribute was set by a function call in a defining method. Closes issue #192.
- Properly handle unicode format strings for Python 2. Closes issue #296.

- Don't emit 'import-error' if an import was protected by a try-except, which excepted ImportError.
- Fix an 'unused-import' false positive, when the error was emitted for all the members imported with 'from import' form. Closes issue #304.
- Don't emit 'invalid-name' when assigning a name in an ImportError handler. Closes issue #302.
- Don't count branches from nested functions.
- Fix a false positive with 'too-few-format-args', when the format strings contains duplicate manual position arguments. Closes issue #310.
- fixme regex handles comments without spaces after the hash. Closes issue #311.
- Don't emit 'unused-import' when a special object is imported (`__all__`, `__doc__` etc.). Closes issue #309.
- Look in the metaclass, if defined, for members not found in the current class. Closes issue #306.
- Don't emit 'protected-access' if the attribute is accessed using a property defined at the class level.
- Detect calls of the parent's `__init__`, through a binded `super()` call.
- Check that a class has an explicitly defined metaclass before emitting 'old-style-class' for Python 2.
- Emit 'catching-non-exception' for non-class nodes. Closes issue #303.
- Order of reporting is consistent.
- Add a new warning, 'boolean-datetime', emitted when an instance of 'datetime.time' is used in a boolean context. Closes issue #239.
- Fix a crash which occurred while checking for 'method-hidden', when the parent frame was something different than a function.
- Generate html output for missing files. Closes issue #320.
- Fix a false positive with 'too-many-format-args', when the format string contains mixed attribute access arguments and manual fields. Closes issue #322.
- Extend the cases where 'undefined-variable' and 'used-before-assignment' can be detected. Closes issue #291.
- Add support for customising callback identifiers, by adding a new '--callbacks' command line option. Closes issue #326.
- Add a new warning, 'logging-format-interpolation', emitted when `.format()` string interpolation is used within logging function calls.
- Don't emit 'unbalanced-tuple-unpacking' when the rhs of the assignment is a variable length argument. Closes issue #329.
- Add a new warning, 'inherit-non-class', emitted when a class inherits from something which is not a class. Closes issue #331.
- Fix another false positives with 'undefined-variable', where the variable can be found as a class assignment and used in a function annotation. Closes issue #342.
- Handle assignment of the string format method to a variable. Closes issue #351.
- Support wheel packaging format for PyPi. Closes issue #334.
- Check that various built-ins that do not exist in Python 3 are not used: `apply`, `basestring`, `buffer`, `cmp`, `coerce`, `execfile`, `file`, `long`, `raw_input`, `reduce`, `StandardError`, `unicode`, `reload` and `xrange`.
- Warn for magic methods which are not used in any way in Python 3: `__coerce__`, `__delslice__`, `__getslice__`, `__setslice__`, `__cmp__`, `__oct__`, `__nonzero__` and `__hex__`.
- Don't emit 'assigning-non-slot' when the assignment is for a property. Closes issue #359.

- Fix for regression: ‘{path}’ was no longer accepted in ‘-msg-template’.
- Report the percentage of all messages, not just for errors and warnings. Closes issue #319.
- ‘too-many-public-methods’ is reported only for methods defined in a class, not in its ancestors. Closes issue #248.
- ‘too-many-lines’ disable pragma can be located on any line, not only the first. Closes issue #321.
- Warn in Python 2 when an import statement is found without a corresponding *from __future__ import absolute_import*.
- Warn in Python 2 when a non-floor division operation is found without a corresponding *from __future__ import division*.
- Add a new option, ‘exclude-protected’, for excluding members from the protected-access warning. Closes issue #48.
- Warn in Python 2 when using dict.iter*(), dict.view*(); none of these methods are available in Python 3.
- Warn in Python 2 when calling an object’s next() method; Python 3 uses __next__() instead.
- Warn when assigning to __metaclass__ at a class scope; in Python 3 a metaclass is specified as an argument to the ‘class’ statement.
- Warn when performing parameter tuple unpacking; it is not supported in Python 3.
- ‘abstract-class-instantiated’ is also emitted for Python 2. It was previously disabled.
- Add ‘long-suffix’ error, emitted when encountering the long suffix on numbers.
- Add support for disabling a checker, by specifying an ‘enabled’ attribute on the checker class.
- Add a new CLI option, -py3k, for enabling Python 3 porting mode. This mode will disable all other checkers and will emit warnings and errors for constructs which are invalid or removed in Python 3.
- Add ‘old-octal-literal’ to Python 3 porting checker, emitted when encountering octals with the old syntax.
- Add ‘implicit-map-evaluation’ to Python 3 porting checker, emitted when encountering the use of map builtin, without explicit evaluation.

2014-07-26 – 1.3.0

- Allow hanging continued indentation for implicitly concatenated strings. Closes issue #232.
- Pylint works under Python 2.5 again, and its test suite passes.
- Fix some false positives for the cellvar-from-loop warnings. Closes issue #233.
- Return new astroid class nodes when the inferencer can detect that that result of a function invocation on a type (like *type* or *abc.ABCMeta*) is requested. Closes #205.
- Emit ‘undefined-variable’ for undefined names when using the Python 3 *metaclass=* argument.
- Checkers respect priority now. Close issue #229.
- Fix a false positive regarding W0511. Closes issue #149.
- Fix unused-import false positive with Python 3 metaclasses (#143).
- Don’t warn with ‘bad-format-character’ when encountering the ‘a’ format on Python 3.
- Add multiple checks for PEP 3101 advanced string formatting: ‘bad-format-string’, ‘missing-format-argument-key’, ‘unused-format-string-argument’, ‘format-combined-specification’, ‘missing-format-attribute’ and ‘invalid-format-index’.
- Issue broad-except and bare-except even if the number of except handlers is different than 1. Fixes issue #113.

- Issue attribute-defined-outside-init for all cases, not just for the last assignment. Closes issue #262.
- Emit 'not-callable' when calling properties. Closes issue #268.
- Fix a false positive with unbalanced iterable unpacking, when encountering starred nodes. Closes issue #273.
- Add new checks, 'invalid-slice-index' and 'invalid-sequence-index' for invalid sequence and slice indices.
- Add 'assigning-non-slot' warning, which detects assignments to attributes not defined in slots.
- Don't emit 'no-name-in-module' for ignored modules. Closes issue #223.
- Fix an 'unused-variable' false positive, where the variable is assigned through an import. Closes issue #196.
- Definition order is considered for classes, function arguments and annotations. Closes issue #257.
- Don't emit 'unused-variable' when assigning to a nonlocal. Closes issue #275.
- Do not let ImportError propagate from the import checker, leading to crash in some namespace package related cases. Closes issue #203.
- Don't emit 'pointless-string-statement' for attribute docstrings. Closes issue #193.
- Use the proper mode for pickle when opening and writing the stats file. Closes issue #148.
- Don't emit hidden-method message when the attribute has been monkey-patched, you're on your own when you do that.
- Only emit attribute-defined-outside-init for definition within the same module as the offended class, avoiding to mangle the output in some cases.
- Don't emit 'unnecessary-lambda' if the body of the lambda call contains call chaining. Closes issue #243.
- Don't emit 'missing-docstring' when the actual docstring uses *.format*. Closes issue #281.

2014-04-30 – 1.2.1

- Restore the ability to specify the init-hook option via the configuration file, which was accidentally broken in 1.2.0.
- Add a new warning [bad-continuation] for badly indentend continued lines.
- Emit [assignment-from-none] when the function contains bare returns. Fixes BitBucket issue #191.
- Added a new warning for closing over variables that are defined in loops. Fixes Bitbucket issue #176.
- Do not warn about u escapes in string literals when Unicode literals are used for Python 2.*. Fixes Bit-Bucket issue #151.
- Extend the checking for unbalanced-tuple-unpacking and unpacking-non-sequence to instance attribute unpacking as well.
- Fix explicit checking of python script (1.2 regression, #219)
- Restore -init-hook, renamed accidentally into -init-hooks in 1.2.0 (#211)
- Add 'indexing-exception' warning, which detects that indexing an exception occurs in Python 2 (behaviour removed in Python 3).

2014-04-18 – 1.2.0

- Pass the current python paths to pylint process when invoked via epylint. Fixes BitBucket issue #133.
- Add -i / -include-ids and -s / -symbols back as completely ignored options. Fixes BitBucket issue #180.
- Extend the number of cases in which logging calls are detected. Fixes bitbucket issue #182.
- Improve pragma handling to not detect pylint:* strings in non-comments. Fixes BitBucket issue #79.

- Do not crash with UnknownMessage if an unknown message ID/name appears in disable or enable in the configuration. Patch by Cole Robinson. Fixes bitbucket issue #170.
- Add new warning 'eval-used', checking that the builtin function *eval* was used.
- Make it possible to show a naming hint for invalid name by setting include-naming-hint. Also make the naming hints configurable. Fixes BitBucket issue #138.
- Added support for enforcing multiple, but consistent name styles for different name types inside a single module; based on a patch written by morbo@google.com.
- Also warn about empty docstrings on overridden methods; contributed by sebastianu@google.com.
- Also inspect arguments to constructor calls, and emit relevant warnings; contributed by sebastianu@google.com.
- Added a new configuration option logging-modules to make the list of module names that can be checked for 'logging-not-lazy' et. al. configurable; contributed by morbo@google.com.
- ensure init-hooks is evaluated before other options, notably load-plugins (#166)
- Python 2.5 support restored: fixed small issues preventing pylint to run on python 2.5. Bitbucket issues #50 and #62.
- bitbucket #128: pylint doesn't crash when looking for used-before-assignment in context manager assignments.
- Add new warning, 'bad-reversed-sequence', for checking that the reversed() builtin receive a sequence (implements `__getitem__` and `__len__`, without being a dict or a dict subclass) or an instance which implements `__reversed__`.
- Mark *file* as a bad function when using python2 (closes #8).
- Add new warning 'bad-exception-context', checking that *raise ... from ...* uses a proper exception context (None or an exception).
- Enhance the check for 'used-before-assignment' to look for 'nonlocal' uses.
- Emit 'undefined-all-variable' if a package's `__all__` variable contains a missing submodule (closes #126).
- Add a new warning 'abstract-class-instantiated' for checking that abstract classes created with *abc* module and with abstract methods are instantiated.
- Do not warn about 'return-arg-in-generator' in Python 3.3+.
- Do not warn about 'abstract-method' when the abstract method is implemented through assignment (#155).
- Improve cyclic import detection in the case of packages, patch by Buck Golemon
- Add new warnings for checking proper class `__slots__`: *invalid-slots-object* and *invalid-slots*.
- Search for rc file in `~/.config/pylintrc` if `~/.pylintrc` doesn't exists (#121)
- Don't register the newstyle checker w/ python `>= 3`
- Fix unused-import false positive w/ augment assignment (#78)
- Fix access-member-before-definition false negative wrt aug assign (#164)
- Do not attempt to analyze non python file, eg .so file (#122)

2013-12-22 – 1.1.0

- Add new check for use of deprecated pragma directives "pylint:disable-msg" or "pylint:enable-msg" (I0022, deprecated-pragma) which was previously emitted as a regular warn().
- Avoid false used-before-assignment for except handler defined identifier used on the same line (#111).

- Combine ‘no-space-after-operator’, ‘no-space-after-comma’ and ‘no-space-before-operator’ into a new warning ‘bad-whitespace’.
- Add a new warning ‘superfluous-parens’ for unnecessary parentheses after certain keywords.
- Fix a potential crash in the redefine-in-handler warning if the redefined name is a nested getattr node.
- Add a new option for the multi-statement warning to allow single-line if statements.
- Add ‘bad-context-manager’ error, checking that ‘__exit__’ special method accepts the right number of arguments.
- Run pylint as a python module ‘python -m pylint’ (anatoly techtonik).
- Check for non-exception classes inside an except clause.
- epylint support options to give to pylint after the file to analyze and have basic input validation (bitbucket #53 and #54), patches provided by felipechoa and Brian Lane.
- Added a new warning, ‘non-iterator-returned’, for non-iterators returned by ‘__iter__’.
- Add new checks for unpacking non-sequences in assignments (unpacking-non-sequence) as well as unbalanced tuple unpacking (unbalanced-tuple-unpacking).
- useless-else-on-loop not emitted if there is a break in the else clause of inner loop (#117).
- don’t mark *input* as a bad function when using python3 (#110).
- badly-implemented-container caused several problems in its current implementation. Deactivate it until we have something better. See #112 for instance.
- Use attribute regexp for properties in python3, as in python2
- Create the PYLINTHOME directory when needed, it might fail and lead to spurious warnings on import of pylint.config.
- Fix setup.py so that pylint properly install on Windows when using python3
- Various documentation fixes and enhancements
- Fix issue #55 (false-positive trailing-whitespace on Windows)

2013-08-06 – 1.0.0

- Add check for the use of ‘exec’ function
- New `--msg-template` option to control output, deprecating “msvc” and “parseable” output formats as well as killing `--include-ids` and `--symbols` options
- Do not emit [fixme] for every line if the config value ‘notes’ is empty, but [fixme] is enabled.
- Emit warnings about lines exceeding the column limit when those lines are inside multiline docstrings.
- Do not double-check parameter names with the regex for parameters and inline variables.
- Added a new warning missing-final-newline (C0304) for files missing the final newline.
- Methods that are decorated as properties are now treated as attributes for the purposes of name checking.
- Names of derived instance class member are not checked any more.
- Names in global statements are now checked against the regular expression for constants.
- For toplevel name assignment, the class name regex will be used if pylint can detect that value on the right-hand side is a class (like collections.namedtuple()).
- Simplified invalid-name message

- Added a new warning invalid-encoded-data (W0512) for files that contain data that cannot be decoded with the specified or default encoding.
- New warning bad-open-mode (W1501) for calls to open (or file) that specify invalid open modes (Original implementation by Sasha Issayev).
- New warning old-style-class (C1001) for classes that do not have any base class.
- Add new name type 'class_attribute' for attributes defined in class scope. By default, allow both const and variable names.
- New warning trailing-whitespace (C0303) that warns about trailing whitespace.
- Added a new warning unpacking-in-except (W0712) about unpacking exceptions in handlers, which is unsupported in Python 3.
- Add a configuration option for missing-docstring to optionally exempt short functions/methods/classes from the check.
- Add the type of the offending node to missing-docstring and empty-docstring.
- New utility classes for per-checker unittests in testutils.py
- Do not warn about redefinitions of variables that match the dummy regex.
- Do not treat all variables starting with _ as dummy variables, only _ itself.
- Make the line-too-long warning configurable by adding a regex for lines for with the length limit should not be enforced
- Do not warn about a long line if a pylint disable option brings it above the length limit
- Do not flag names in nested with statements as undefined.
- Added a new warning 'old-raise-syntax' for the deprecated syntax raise Exception, args
- Support for PEP 3102 and new missing-kwoa (E1125) message for missing mandatory keyword argument (logilab.org's #107788)
- Fix spelling of max-branches option, now max-branches
- Added a new base class and interface for checkers that work on the tokens rather than the syntax, and only tokenize the input file once.
- Follow astng renaming to astroid
- bitbucket #37: check for unbalanced unpacking in assignments
- bitbucket #25: fix incomplete-protocol false positive for read-only containers like tuple
- bitbucket #16: fix False positive E1003 on Python 3 for argument-less super()
- bitbucket #6: put back documentation in source distribution
- bitbucket #15: epylint shouldn't hang anymore when there is a large output on pylint's stderr
- bitbucket #7: fix epylint w/ python3
- bitbucket #3: remove string module from the default list of deprecated modules

2013-04-25 – 0.28.0

- bitbucket #1: fix "dictionary changed size during iteration" crash
- #74013: new E1310[bad-str-strip-call] message warning when a call to a {l,r,}strip method contains duplicate characters (patch by Torsten Marek)
- #123233: new E0108[duplicate-argument-name] message reporting duplicate argument names

- #81378: emit W0120[useless-else-on-loop] for loops without break
- #124660: internal dependencies should not appear in external dependencies report
- #124662: fix name error causing crash when symbols are included in output messages
- #123285: apply pragmas for warnings attached to lines to physical source code lines
- #123259: do not emit E0105 for yield expressions inside lambdas
- #123892: don't crash when attempting to show source code line that can't be encoded with the current locale settings
- Simplify checks for dangerous default values by unifying tests for all different mutable compound literals.
- Improve the description for E1124[redundant-keyword-arg]

2013-02-26 – 0.27.0

- #20693: replace pylint.el by Ian Eure version (patch by J.Kotta)
- #105327: add support for `--disable=all` option and deprecate the 'disable-all' inline directive in favour of 'skip-file' (patch by A.Fayolle)
- #110840: add messages I0020 and I0021 for reporting of suppressed messages and useless suppression pragmas. (patch by Torsten Marek)
- #112728: add warning E0604 for non-string objects in `__all__` (patch by Torsten Marek)
- #120657: add warning W0110/deprecated-lambda when a map/filter of a lambda could be a comprehension (patch by Martin Pool)
- #113231: logging checker now looks at instances of Logger classes in addition to the base logging module. (patch by Mike Bryant)
- #111799: don't warn about octal escape sequence, but warn about o which is not octal in Python (patch by Martin Pool)
- #110839: bind <F5> to Run button in pylint-gui
- #115580: fix erroneous W0212 (access to protected member) on super call (patch by Martin Pool)
- #110853: fix a crash when an `__init__` method in a base class has been created by assignment rather than direct function definition (patch by Torsten Marek)
- #110838: fix pylint-gui crash when include-ids is activated (patch by Omega Weapon)
- #112667: fix emission of reimport warnings for mixed imports and extend the testcase (patch by Torsten Marek)
- #112698: fix crash related to non-inferable `__all__` attributes and invalid `__all__` contents (patch by Torsten Marek)
- Python 3 related fixes:
- **#110213: fix import of checkers broken with python 3.3, causing "No such message id W0704"** breakage
- #120635: redefine cmp function used in pylint.reporters
- Include full warning id for I0020 and I0021 and make sure to flush warnings after each module, not at the end of the pylint run. (patch by Torsten Marek)
- Changed the regular expression for inline options so that it must be preceeded by a # (patch by Torsten Marek)

- Make dot output for import graph predictable and not depend on ordering of strings in hashes. (patch by Torsten Marek)
- Add hooks for import path setup and move pylint's sys.path modifications into them. (patch by Torsten Marek)

2012-10-05 – 0.26.0

- #106534: add `--ignore-imports` option to code similarity checking and 'similar' command line tool (patch by Ry4an Brase)
- #104571: check for anomalous backslash escape, introducing new W1401 and W1402 messages (patch by Martin Pool)
- #100707: check for boolop being used as exception class, introducing new W0711 message (patch by Tim Hatch)
- #4014: improve checking of metaclass methods first args, introducing new C0204 message (patch by lothiraldan@gmail.com finalized by sthenault)
- #4685: check for consistency of a module's `__all__` variable, introducing new E0603 message
- #105337: allow custom reporter in output-format (patch by Kevin Jing Qiu)
- #104420: check for protocol completeness and avoid false R0903 (patch by Peter Hammond)
- #100654: fix grammatical error for W0332 message (using 'l' as long int identifier)
- #103656: fix W0231 false positive for missing call to object.__init__ (patch by lothiraldan@gmail.com)
- #63424: fix similarity report disabling by properly renaming it to RP0801
- #103949: create a console_scripts entry point to be used by easy_install, buildout and pip
- fix cross-interpreter issue (non compatible access to `__builtins__`)
- stop including tests files in distribution, they causes crash when installed with python3 (#72022, #82417, #76910)

2012-07-17 – 0.25.2

- #93591: Correctly emit warnings about clobbered variable names when an except handler contains a tuple of names instead of a single name. (patch by tmarek@google.com)
- #7394: W0212 (access to protected member) not emitted on assignments (patch by lothiraldan@gmail.com)
- #18772: no prototype consistency check for mangled methods (patch by lothiraldan@gmail.com)
- #92911: emit W0102 when sets are used as default arguments in functions (patch by tmarek@google.com)
- #77982: do not emit E0602 for loop variables of comprehensions used as argument values inside a decorator (patch by tmarek@google.com)
- #89092: don't emit E0202 (attribute hiding a method) on @property methods
- #92584: fix pylint-gui crash due to internal API change
- #87192: fix crash when decorators are accessed through more than one dot (for instance @a.b is fine, @a.b.c crash)
- #88914: fix parsing of `--generated-members` options, leading to crash when using a regexp value set
- fix potential crashes with `utils.safe_infer` raising `InferenceError`

2011-12-08 – 0.25.1

- #81078: Warn if names in exception handlers clobber overwrite existing names (patch by tmarek@google.com)

- #81113: Fix W0702 messages appearing with the wrong line number. (patch by tmarek@google.com)
- #50461, #52020, #51222: Do not issue warnings when using 2.6's `property.setter/deleter` functionality (patch by dneil@google.com)
- #9188, #4024: Do not trigger W0631 if a loop variable is assigned in the else branch of a for loop.

2011-10-07 – 0.25.0

- #74742: make allowed name for first argument of class method configurable (patch by Google)
- #74087: handle case where inference of a module return YES; this avoid some cases of “TypeError: ‘_Yes’ object does not support indexing” (patch by Google)
- #74745: make “too general” exception names configurable (patch by Google)
- #74747: crash occurs when lookup up a special attribute in class scope (patch by google)
- #76920: crash if on eg “pylint -rcfile” (patch by Torsten Marek)
- #77237: warning for E0202 may be very misleading
- #73941: HTML report messages table is badly rendered

2011-07-18 – 0.24.0

- #69738: add regular expressions support for “generated-members”
- ids of logging and string_format checkers have been changed: logging: 65 -> 12, string_format: 99 -> 13
Also add documentation to say that ids of range 1-50 shall be reserved to pylint internal checkers
- #69993: Additional string format checks for logging module: check for missing arguments, too many arguments, or invalid string formats in the logging checker module. Contributed by Daniel Arena
- #69220: add column offset to the reports. If you’ve a custom reporter, this change may break it has now location gain a new item giving the column offset.
- #60828: Fix false positive in reimport check
- #70495: absolute imports fail depending on module path (patch by Jacek Konieczny)
- #22273: Fix `-ignore` option documentation to match reality

2011-01-11 – 0.23.0

- documentation update, add manpages
- several performance improvements
- finalize python3 support
- new W0106 warning ‘Expression “%s” is assigned to nothing’
- drop E0501 and E0502 messages about wrong source encoding: not anymore interesting since it’s a syntax error for python `>= 2.5` and we now only support this python version and above.
- don’t emit W0221 or W0222 when methods as variable arguments (eg `*arg` and/or `**args`). Patch submitted by Charles Duffy.

2010-11-15 – 0.22.0

- python versions: minimal python3.x support; drop python `< 2.5` support

2010-10-27 – 0.21.4

- fix #48066: pylint crashes when redirecting output containing non-ascii characters
- fix #19799: “pylint -blah” exit with status 2

- update documentation

2010-09-28 – 0.21.3

- restored python 2.3 compatibility. Along with logilab-astng 0.21.3 and logilab-common 0.52, this will much probably be the latest release supporting python < 2.5.

2010-08-26 – 0.21.2

- fix #36193: import checker raise exception on cyclic import
- fix #28796: regression in --generated-members introduced pylint 0.20
- some documentation cleanups

2010-06-04 – 0.21.1

- fix #28962: pylint crash with new options, due to missing stats data while writing the Statistics by types report
- updated man page to 0.21 or greater command line usage (fix debian #582494)

2010-05-11 – 0.21.0

- command line updated (closes #9774, #9787, #9992, #22962):
- all enable-* / disable-* options have been merged into --enable / --disable
- BACKWARD INCOMPATIBLE CHANGE: short name of --errors-only becomes -E, -e being affected to --enable
- pylint --help output much simplified, with --long-help available to get the complete one
- revisited gui, thanks to students from Toronto university (they are great contributors to this release!)
- fix #21591: html reporter produces no output if reports is set to 'no'
- fix #4581: not Missing docstring (C0111) warning if a method is overridden
- fix #4683: Non-ASCII characters count double if utf8 encode
- fix #9018: when using defining-attr-method, method order matters
- fix #4595: Comma not followed by a space should not occurs on trailing comma in list/tuple/dict definition
- fix #22585: [Patch] fix man warnings for pyreverse.1 manpage
- fix #20067: AttributeError: 'NoneType' object has no attribute 'name' with with

2010-03-01 – 0.20.0

- fix #19498: fix windows batch file
- fix #19339: pylint.el : non existing py-mod-map (closes Debian Bug report logs - #475939)
- implement #18860, new W0199 message on assert (a, b)
- implement #9776, 'W0150' break or return statement in finally block may swallow exception.
- fix #9263, __init__ and __new__ are checked for unused arguments
- fix #20991, class scope definitions ignored in a genexpr
- fix #5975, Abstract intermediate class not recognized as such
- fix #5977, yield and return statement have their own counters, no more R0911 (Too many return statements) when a function have many yield statements
- implement #5564, function / method arguments with leading "_" are ignored in arguments / local variables count.

- implement #9982, E0711 specific error message when raising NotImplemented
- remove `--cache-size` option

2009-12-18 – 0.19.0

- implement #18947, #5561: checker for function arguments
- include James Lingard string format checker
- include simple message (ids) listing by Vincent Férotin (#9791)
- `--errors-only` does not hide fatal error anymore
- include James Lingard patches for `++/-` and duplicate key in dicts
- include James Lingard patches for function call arguments checker
- improved flymake code and doc provided by Derek Harland
- refactor and fix the imports checker
- fix #18862: E0601 false positive with lambda functions
- fix #8764: More than one statement on a single line false positive with try/except/finally
- fix #9215: false undefined variable error in lambda function
- fix for W0108 false positive (Nathaniel)
- fix test/fulltest.sh
- #5821 added a utility function to run pylint in another process (patch provide by Vincent Férotin)

2009-03-25 – 0.18.0

- tests ok with python 2.4, 2.5, 2.6. 2.3 not tested
- fix #8687, W0613 false positive on inner function
- fix #8350, C0322 false positive on multi-line string
- fix #8332: set E0501 line no to the first line where non ascii character has been found
- avoid some E0203 / E0602 false negatives by detecting respectively `AttributeError` / `NameError`
- implements #4037: don't issue W0142 (`*` or `**` magic) when they are barely passed from `/*` arguments
- complete #5573: more complete list of special methods, also skip W0613 for python internal method
- don't show information messages by default
- integration of Yuen Ho Wong's patches on emacs lisp files

2009-03-19 – 0.17.0

- semicolon check : move W0601 to W0301
- remove rpython : remove all rpython checker, modules and tests
- astng 0.18 compatibility: support for `_ast` module modifies interfaces

2009-01-28 – 0.16.0

- change `[en]disable-msg-cat` options: only accept message categories identified by their first letter (eg IRCWEF) without the need for comma as separator
- add `epylint.bat` script to fix Windows installation
- `setuptools/easy_install` support

- include a modified version of Maarten ter Huurne patch to avoid W0613 warning on arguments from overridden method
- implement #5575 (drop dumb W0704 message) by adding W0704 to ignored messages by default
- new W0108 message, checking for suspicious lambda (provided by Nathaniel Manista)
- fix W0631, false positive reported by Paul Hachmann
- fix #6951: false positive with W0104
- fix #6949
- patches by Mads Kiilerich:
- implement #4691, make pylint exits with a non zero return status if any messages other than Information are issued
- fix #3711, #5626 (name resolution bug w/ decorator and class members)
- fix #6954

2008-10-13 – 0.15.2

- fix #5672: W0706 weirdness (W0706 removed)
- fix #5998: documentation points to wrong url for mailing list
- fix #6022: no error message on wrong module names
- fix #6040: pytest doesn't run test/func_test.py

2008-09-15 – 0.15.1

- fix #4910: default values are missing in manpage
- fix #5991: missing files in 0.15.0 tarball
- fix #5993: epylint should work with python 2.3

2008-09-10 – 0.15.0

- include pyreverse package and class diagram generation
- included Stefan Rank's patch to deal with 2.4 relative import
- included Robert Kirkpatrick's tutorial and typos fixes
- fix bug in reenabling message
- fix #2473: invoking pylint on __init__.py (hopefully)
- typecheck: acquired-members option has been dropped in favor of the more generic generated-members option. If the zope option is set, the behaviour is now to add some default values to generated-members.
- flymake integration: added bin/epylint and elisp/pylint-flymake.el

2008-01-14 – 0.14.0

- fix #3733: Messages (dis)appear depending on order of file names
- fix #4026: pylint.el should require compile
- fix a bug in colored reporter, spotted by Dave Borowitz
- applied patch from Stefan Rank to avoid W0410 false positive when multiple "from __future__" import statements
- implement #4012: flag back tick as deprecated (new W0333 message)

- new ignored-class option on typecheck checker allowing to skip members checking based on class name (patch provided by Thomas W Barr)

2007-06-07 – 0.13.2

- fix disable-checker option so that it won't accidentally enable the rpython checker which is disabled by default
- added note about the gedit plugin into documentation

2007-03-02 – 0.13.1

- fix some unexplained 0.13.0 packaging issue which led to a bunch of files missing from the distribution

2007-02-28 – 0.13.0

- new RPython (Restricted Python) checker for PyPy fellow or people wanting to get a compiled version of their python program using the translator of the PyPy project. For more information about PyPy or RPython, visit <http://codespeak.net/pypy/>
- new E0104 and E0105 messages introduced to respectively warn about “return” and “yield” outside function or method
- new E0106 message when “yield” and “return something” are mixed in a function or method
- new W0107 message for unnecessary pass statement
- new W0614 message to differentiate between unused *import X* and unused *from X import ** (#3209, patch submitted by Daniel Drake)
- included Daniel Drake's patch to have a different message E1003 instead of E1001 when a missing member is found but an inference failure has been detected
- msvc reporter for Visual Studio line number reporting (#3285)
- allow disable-all option inline (#3218, patch submitted by Daniel Drake)
- -init-hook option to call arbitrary code necessary to set environment (eg sys.path) (#3156)
- One more Daniel's patch fixing a command line option parsing problem, this'll definitely be the DDrake release :)
- fix #3184: crashes on “return” outside function
- fix #3205: W0704 false positive
- fix #3123: W0212 false positive on static method
- fix #2485: W0222 false positive
- fix #3259: when a message is explicitly enabled, check the checker emitting it is enabled

2006-11-23 – 0.12.2

- fix #3143: W0233 bug w/ YES objects
- fix #3119: Off-by-one error counting lines in a file
- fix #3117: ease sys.stdout overriding for reporters
- fix #2508: E0601 false positive with lambda
- fix #3125: E1101 false positive and a message duplication. Only the last part is actually fixed since the initial false positive is due to dynamic setting of attributes on the decimal.Context class.
- fix #3149: E0101 false positives and introduced E0100 for generator `__init__` methods
- fixed some format checker false positives

2006-09-25 – 0.12.1

- fixed python >= 2.4 format false positive with multiple lines statement
- fixed some 2.5 issues
- fixed generator expression scope bug (depends on astng 0.16.1)
- stop requiring `__revision__`

2006-08-10 – 0.12.0

- usability changes:
 - parseable, html and color options are now handled by a single output-format option
 - enable-`<checkerid>` and disable-all options are now handled by two (exclusive) enable-checker and disable-checker options taking a comma separated list of checker names as value
 - renamed debug-mode option to errors-only
- started a reference user manual
- new W0212 message for access to protected member from client code (close #14081)
- new W0105 and W0106 messages extracted from W0104 (statement seems to have no effect) respectively when the statement is actually string (that's sometimes used instead of comments for documentation) or an empty statement generated by a useless semicolon
- reclassified W0302 to C0302
- fix so that global messages are not anymore connected to the last analyzed module (close #10106)
- fix some bugs related to local disabling of messages
- fix `cr/lf pb` when generating the rc file on windows platforms

2006-04-19 – 0.11.0

- fix crash caused by the exceptions checker in some case
- fix some E1101 false positive with abstract method or classes defining `__getattr__`
- dirty fix to avoid “_socketobject” has not “connect” member. The actual problem is that astng isn't able to understand the code used to create socket.socket object with `exec`
- added an option in the similarity checker to ignore docstrings, enabled by default
- included patch from Benjamin Niemann to allow block level enabling/disabling of messages

2006-03-06 – 0.10.0

- WARNING, this release include some configuration changes (see below), so you may have to check and update your own configuration file(s) if you use one
- this release require the 0.15 version of astng or superior (it will save you a lot of pylint crashes...)
- W0705 has been reclassified to E0701, and is now detecting more inheriting problem, and a false positive when empty except clause is following an Exception catch has been fixed (close #10422)
- E0212 and E0214 (metaclass/class method should have mcs/cls as first argument have been reclassified to C0202 and C0203 since this not as well established as “self” for instance method (E0213)
- W0224 has been reclassified into F0220 (failed to resolve interfaces implemented by a class)
- a new typecheck checker, introducing the following checks:
 - E1101, access to unexistent member (implements #10430), remove the need of E0201 and so some options has been moved from the classes checker to this one

- E1102, calling a non callable object
- E1111 and W1111 when an assignment is done on a function call but the inferred function returns None (implements #10431)
- change in the base checker:
 - checks module level and instance attribute names (new const-rgx and attr-rgx configuration option) (implements #10209 and #10440)
 - list comprehension and generator expression variables have their own regular expression (the inlinevar-rgx option) (implements #9146)
 - the C0101 check with its min-name-length option has been removed (this can be specified in the regexp after all...)
 - W0103 and W0121 are now handled by the variables checker (W0103 is now W0603 and W0604 has been splitted into different messages)
 - W0131 and W0132 messages have been reclassified to C0111 and C0112 respectively
 - new W0104 message on statement without effect
- regexp support for dummy-variables (dummy-variables-rgx option replace dummy-variables) (implements #10027)
- better global statement handling, see W0602, W0603, W0604 messages (implements #10344 and #10236)
- –debug-mode option, disabling all checkers without error message and filtering others to only display error
- fixed some R0201 (method could be a function) false positive

2006-01-10 – 0.9.0

- a lot of updates to follow astng 0.14 API changes, so install logilab-astng 0.14 or greater before using this version of pylint
- checker number 10 ! newstyle will search for problems regarding old style / new style classes usage problems (rely on astng 0.14 new style detection feature)
- new ‘load-plugins’ options to load additional pylint plugins (usable from the command line or from a configuration file) (implements #10031)
- check if a “pylintrc” file exists in the current working directory before using the one specified in the PYLINTRC environment variable or the default ~/.pylintrc or /etc/pylintrc
- fixed W0706 (Identifier used to raise an exception is assigned...) false positive and reraising a caught exception instance
- fixed E0611 (No name get in module blabla) false positive when accessing to a class’ __dict__
- fixed some E0203 (“access to member before its definition”) false positive
- fixed E0214 (“metaclass method first argument should be mcs) false positive with staticmethod used on a metaclass
- fixed packaging which was missing the test/regtest_data directory
- W0212 (method could be a function) has been reclassified in the REFACTOR category as R0201, and is no more considerer when a method overrides an abstract method from an ancestor class
- include module name in W0401 (wildcard import), as suggested by Amaury
- when using the ‘–parseable’, path are written relative to the current working directory if in a sub-directory of it (#9789)
- ‘pylint –version’ shows logilab-astng and logilab-common versions

- fixed pylint.el to handle space in file names
- misc lint style fixes

2005-11-07 – 0.8.1

- fix “deprecated module” false positive when the code imports a module whose name starts with a deprecated module’s name (close #10061)
- fix “module has no name __dict__” false positive (close #10039)
- fix “access to undefined variable __path__” false positive (close #10065)
- fix “explicit return in __init__” false positive when return is actually in an inner function (close #10075)

2005-10-21 – 0.8.0

- check names imported from a module exists in the module (E0611), patch contributed by Amaury Forgeot d’Arc
- print a warning (W0212) for methods that could be a function (implements #9100)
- new –defining-attr-methods option on classes checker
- new –acquired-members option on the classes checker, used when –zope=yes to avoid false positive on acquired attributes (listed using this new option) (close #8616)
- generate one E0602 for each use of an undefined variable (previously, only one for the first use but not for the following) (implements #1000)
- make profile option saveable
- fix Windows .bat file, patch contributed by Amaury Forgeot d’Arc
- fix one more false positive for E0601 (access before definition) with for loop such as “for i in range(10): print i” (test func_noerror_defined_and_used_on_same_line)
- fix false positive for E0201 (undefined member) when accessing to __name__ on a class object
- fix astng checkers traversal order
- fix bug in format checker when parsing a file from a platform using different new line characters (close #9239)
- fix encoding detection regexp
- fix –rcfile handling (support for –rcfile=file, close #9590)

2005-05-27 – 0.7.0

- WARNING: pylint is no longer a logilab subpackage. Users may have to manually remove the old logilab/pylint directory.
- introduce a new –additional-builtins option to handle user defined builtins
- –reports option has now -r as short alias, and -i for –include-ids
- fix a bug in the variables checker which may causing some false positives when variables are defined and used within the same statement (test func_noerror_defined_and_used_on_same_line)
- this time, real fix of the “disable-msg in the config file” problem, test added to unittest_lint
- fix bug with –list-messages and python -OO
- fix possible false positive for W0201

2005-04-14 – 0.6.4

- allow to parse files without extension when a path is given on the command line (test noext)

- don't fail if we are unable to read an inline option (e.g. inside a module), just produce an information message (test func_i0010)
- new message E0103 for break or continue outside loop (close #8883, test func_continue_not_in_loop)
- fix bug in the variables checker, causing non detection of some actual name error (close #8884, test func_nameerror_on_string_substitution)
- fix bug in the classes checker which was making pylint crash if "object" is assigned in a class inheriting from it (test func_noerror_object_as_class_attribute)
- fix problem with the similar checker when related options are defined in a configuration file
- new `--generate-man` option to generate pylint's man page (require the latest logilab.common ($\geq 0.9.3$))
- packaged (generated...) man page

2005-02-24 – 0.6.3

- fix scope problem which may cause false positive and true negative on E0602
- fix problem with some options such as `disable-msg` causing error when they are coming from the configuration file

2005-02-16 – 0.6.2

- fix false positive on E0201 ("access to undefined member") with metaclasses
- fix false positive on E0203 ("access to member before its definition") when attributes are defined in a parent class
- fix false positive on W0706 ("identifier used to raise an exception assigned to...")
- fix interpretation of "t" as value for the indent-string configuration variable
- fix `--rcfile` so that `--rcfile=pylintrc` (only `--rcfile pylintrc` was working in earlier release)
- new raw checker example in the examples/ directory

2005-02-04 – 0.6.1

- new `--rcfile` option to specify the configuration file without the PYLINTRC environment variable
- added an example module for a custom pylint checker (see the example/ directory)
- some fixes to handle fixes in common 0.9.1 (should however still working with common 0.9.0, even if upgrade is recommended)

2005-01-20 – 0.6.0

- refix pylint emacs mode
- no more traceback when just typing "pylint"
- fix a bug which may cause crashes on resolving parent classes
- fix problems with the format checker: don't chock on files containing multiple CR, avoid C0322, C0323, C0324 false positives with triple quoted string with quote inside
- correctly detect access to member defined latter in `__init__` method
- now depends on common 0.8.1 to fix problem with interface resolution (close #8606)
- new `--list-msgs` option describing available checkers and their messages
- added windows specific documentation to the README file, contributed by Brian van den Broek
- updated doc/features.txt (actually this file is now generated using the `--list-msgs` option), more entries into the FAQ

- improved tests coverage

2004-10-19 – 0.5.0

- avoid to import analyzed modules !
- new Refactor and Convention message categories. Some Warnings have been remaped into those new categories
- added “similar”, a tool to find copied and pasted lines of code, both using a specific command line tool and integrated as a pylint’s checker
- imports checker may report import dependencies as a dot graph
- new checker regrouping most Refactor detection (with some new metrics)
- more command line options storable in the configuration file
- fix bug with total / undocumented number of methods

2004-07-08 – 0.4.2

- fix pylint emacs mode
- fix classes checkers to handler twisted interfaces

2004-05-14 – 0.4.1

- fix the setup.py script to allow bdist_winst (well, the generated installer has not been tested...) with the necessary logilab/__init__.py file
- fix file naming convention as suggested by Andreas Amoroso
- fix stupid crash bug with bad method names

2004-05-10 – 0.4.0

- fix file path with –parsable
- –parsable option has been renamed to –parseable
- added patch from Andreas Amoroso to output message to files instead of standard output
- added Run to the list of correct variable names
- fix variable names regexp and checking of local classes names
- some basic handling of metaclasses
- no-docstring-rgx apply now on classes too
- new option to specify a different regexp for methods than for functions
- do not display the evaluation report when no statements has been analysed
- fixed crash with a class nested in a method
- fixed format checker to deals with triple quoted string and lines with code and comment mixed
- use logilab.common.ureports to layout reports

2004-02-17 – 0.3.3

- added a parsable text output, used when the –parsable option is provided
- added an emacs mode using this output, available in the distrib’s elisp directory
- fixed some typos in messages
- change include-ids options to yn, and allow it to be in the configuration file

- do not chock on corrupted stats files
- fixed bug in the format checker which may stop pylint execution
- provide scripts for unix and windows to wrap the minimal pylint tk gui

2003-12-23 – 0.3.2

- html-escape messages in the HTML reporter (bug reported by Juergen Hermann)
- added “TODO” to the list of default note tags
- added “rexec” to the list of default deprecated modules
- fixed typos in some messages

2003-12-05 – 0.3.1

- bug fix in format and classes checkers
- remove print statement from imports checkers
- provide a simple tk gui, essentially useful for windows users

2003-11-20 – 0.3.0

- new exceptions checker, checking for string exception and empty except clauses.
- imports checker checks for reimport of modules
- classes checker checks for calls to ancestor’s `__init__` and abstract method not overridden. It doesn’t complain anymore for unused import in `__init__` files, and provides a new option `ignore-interface-methods`, useful when you’re using zope Interface implementation in your project
- base checker checks for black listed builtins call (controled by the `bad-functions` option) and for use of `*` and `**`
- format checker checks for use of `<>` and `“I”` as long int marker
- major internal API changes
- use the rewrite of `astng`, based on `compiler.ast`
- added unique id for messages, as suggested by Wolfgang Grafen
- added unique id for reports
- can take multiple modules or files as argument
- new options command line options : `–disable-msg`, `–enable-msg`, `–help-msg`, `–include-ids`, `–reports`, `–disable-report`, `–cache-size`
- `–version` shows the version of the python interpreter
- removed some options which are now replaced by `[en]disable-msg`, or `disable-report`
- read `disable-msg` and `enable-msg` options in source files (should be in comments on the top of the file, in the form `“# pylint: disable-msg=W0402”`)
- new message for modules importing themselves instead of the “cyclic import” message
- fix bug with relative and cyclic imports
- fix bug in imports checker (cycle was not always detected)
- still fixes in format checker : don’t check comment and docstring, check first line after an indent
- black and white list now apply to all identifiers, not only variables, so changed the configuration option from `(good|bad)-variable-names` to `(good|bad)-names`

- added string, rexec and Bastion to the default list of deprecated modules
- do not print redefinition warning for function/class/method defined in mutually exclusive branches

2003-10-10 – 0.2.1

- added some documentation, fixed some typos
- set environment variable PYLINT_IMPORT to 1 during pylint execution.
- check that variables “imported” using the global statement exist
- indentation problems are now warning instead of errors
- fix checkers.initialize to try to load all files with a known python extension (patch from wrobell)
- fix a bunch of messages
- fix sample configuration file
- fix the bad-construction option
- fix encoding checker
- fix format checker

2003-09-12 – 0.2.0

- new source encoding / FIXME checker (pep 263)
- new `-zope` option which trigger Zope import. Useful to check Zope products code.
- new `-comment` option which enable the evaluation note comment (disabled by default).
- a ton of bug fixes
- easy functional test infrastructure

2003-06-18 – 0.1.2

- bug fix release
- remove dependency to pyreverse

2003-06-01 – 0.1.1

- much more functionalities !

2003-05-19 – 0.1

- initial release

15.2 Contributors

Order doesn't matter (not that much, at least ;)

- Sylvain Thenault (Logilab): main author / maintainer
- Torsten Marek (Google): maintainer, contributor
- Claudiu Popa: maintainer, contributor
- Daniel Balparda (Google): GPyLint maintainer (Google's pylint variant), various patches
- Martin Pool (Google): warnings for anomalous backslashes, symbolic names for messages (like 'unused'), etc
- Alexandre Fayolle (Logilab): TkInter gui, documentation, debian support

- Julien Cristau, Emile Anclin (Logilab): python 3 support
- Sandro Tosi: Debian packaging
- Mads Kiilerich, Boris Feld, Bill Wendling, Sebastian Ulrich: various patches
- Brian van den Broek: windows installation documentation
- Amaury Forgeot d’Arc: check names imported from a module exists in the module
- Benjamin Niemann: allow block level enabling/disabling of messages
- Nathaniel Manista: suspicious lambda checking
- David Shea: invalid sequence and slice index
- Carl Crowder: don’t evaluate the value of arguments for ‘dangerous-default-value’
- Michal Nowikowski: wrong-spelling-in-comment, wrong-spelling-in-docstring, parallel execution on multiple CPUs and other patches.
- David Lindquist: logging-format-interpolation warning.
- Brett Cannon: Port source code to be Python 2/3 compatible, Python 3 checker.
- Vlad Temian: redundant-unittest-assert and the JSON reporter.
- Cosmin Poieană: unichr-builtin and improvements to bad-open-mode.
- Viorel tirbu: intern-builtin warning.
- Dan Goldsmith: support for msg-template in HTML reporter.
- Chris Rebert: unidiomatic-typecheck.
- Steven Myint: duplicate-except.
- Radu Ciorba: not-context-manager and confusing-with-statement warnings.
- Bruno Daniel: check_docs extension.
- James Morgensen: ignored-modules option applies to import errors.
- Wolfgang Grafen, Axel Muller, Fabio Zadrozny, Pierre Rouleau, Maarten ter Huurne, Mirko Friedenhagen and all the Logilab’s team (among others): bug reports, feedback, feature requests... Many other people have contributed by their feedback or even patches, if I’ve forgotten you, send me a note !
- Cezar Elnazli: deprecated-method
- Stéphane Wirtel: nonlocal-without-binding
- Dmitry Pribysh: multiple-imports, not-iterable, not-a-mapping, various patches.
- Laura Medioni (Logilab, on behalf of the CNES): misplaced-comparison-constant, no-classmethod-decorator, no-staticmethod-decorator, too-many-nested-blocks, too-many-boolean-expressions

Content wanted

It would be nice to include in the documentation the following information:

- pylint brain project : what it is, how to install it...

Please send your pull requests via bitbucket if you can help with the above.

Symbols

- `-argument-rgx=<regex>`
command line option, 20
- `-attr-rgx=<regex>`
command line option, 19
- `-class-attribute-rgx=<regex>`
command line option, 20
- `-class-rgx=<regex>`
command line option, 19
- `-const-rgx=<regex>`
command line option, 19
- `-function-rgx=<regex>`
command line option, 19
- `-include-naming-hint=y|n`
command line option, 21
- `-inlinevar-rgx=<regex>`
command line option, 20
- `-method-rgx=<regex>`
command line option, 19
- `-module-rgx=<regex>`
command line option, 19
- `-name-group=<name1:name2:...,...>`
command line option, 20
- `-variable-rgx=<regex>`
command line option, 20

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- `-name-group=<name1:name2:...,...>`, 20
- `-variable-rgx=<regex>`, 20

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C

command line option

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- `-attr-rgx=<regex>`, 19
- `-class-attribute-rgx=<regex>`, 20
- `-class-rgx=<regex>`, 19
- `-const-rgx=<regex>`, 19
- `-function-rgx=<regex>`, 19
- `-include-naming-hint=y|n`, 21
- `-inlinevar-rgx=<regex>`, 20
- `-method-rgx=<regex>`, 19