

PyTango Status Report

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35th Tango Community Meeting

Tuesday, 14 September 2021

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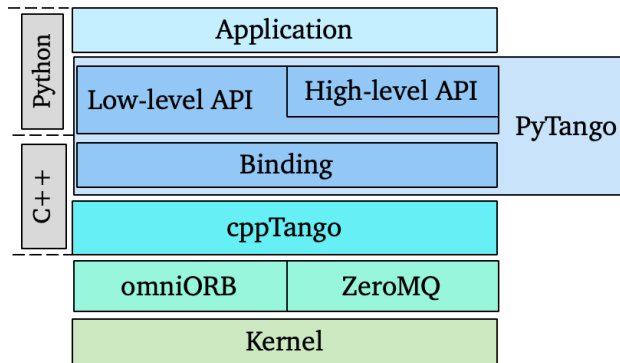
GitHub: ajoubertza/pytango-status-updates

Slides: <https://ajoubertza.github.io/pytango-status-updates/>



PyTango? Quick reminder

- Python library
- Binding over the C++ Tango library
- ... using boost-python (future: pybind11?)
- Relies on numpy
- Multi OS: Linux, Windows, MacOS (sort-of)
- Works on Python 2.7, 3.5 to 3.8, (probably 3.9, 3.10?)



Current release - 9.3.3

December 2020

- Fixed Windows binary wheels, and CI now tests on Windows.
- Bugs and memory leak fixes
- Documentation and testing improvements
- Packages:
 - Source on PyPI (works for Linux)
 - Windows binary wheels on PyPI (includes cppTango 9.3.4)
 - Conda Linux binary (pytango on conda-forge channel - not tango-controls)

Upcoming release - 9.3.4

Bugfixes

- Fix DeviceProxy constructor reference cycle ([!417](#))
- tango/pytango_pprint.py: Use correct syntax for comparing object contents ([!424](#))
- *WIP: DS hangs when concurrently subscribing to events and destructing DeviceProxy ([#315](#)). Fixed in: Release GIL in DeviceProxy dtor ([!418](#))*

Upcoming release - 9.3.4

Features/Changes

- Raise when setting non-existent DeviceProxy attr ([!430](#))

```
>>> proxy = tango.DeviceProxy("test/my/clock")
>>> proxy.get_attribute_list()
['time', 'gmtime', 'noon', 'display', 'State', 'Status']

>>> proxy.display_mode = "DIGITAL"
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
  File "/opt/conda/envs/env-py3.8-tango9.3.4/lib/python3.8/site-packages/tango/dev
    six.raise_from(e, cause)
  File "<string>", line 3, in raise_from
  File "/opt/conda/envs/env-py3.8-tango9.3.4/lib/python3.8/site-packages/tango/dev
    raise AttributeError(
AttributeError: Tried to set non-existent attr 'display_mode' to 'DIGITAL'
```

Upcoming release - 9.3.4

CI improvements

- Enable CI/CD in Gitlab ([!409](#))
- Build and upload source distribution to pypi ([!411](#))

Development/Testing improvements

- *WIP: Enable short-name access to TestContext devices ([!388](#))*

Upcoming release - 9.3.4

Documentation improvements

- Fix docs - missing DbDevExportInfos and DbDevImportInfos ([!406](#))
- Typo on Sphinx documentation ([!404](#))
- Replace github links ([!410](#))
- Fix broken link: no s in gevent ([!420](#))
- Uncomment docs of `tango.Util.instance()` and build docs for other static methods ([!422](#))
- Fixed arguments name when calling command decorator ([!426](#))
- Fixed variables name in a `tango.Database.add_server` method example ([!427](#))
- Add training material examples ([!429](#))

Upcoming release - 9.3.4

Build improvements

- Fix deprecated warning with numpy 1.20 ([!414](#))
- Use numpy parallel compilation if available ([!423](#))
- Fix some and silence some C++ compiler warnings ([!425](#))

Upcoming release - 9.3.4

Contributors - thanks!

vallsv, catunlock, beenje, matcelary, untzag, reszelaz, t-b, marc2332

When can I get it?

- Before the end of 2021. Hopefully sooner. Needs ([!418](#)) to be completed.

Breaking change to fix things?

- Read/writing empty list produces None for spectrum and image attributes ([#229](#), [#230](#) from 2018)

```
class Test(Device):

    @attribute(dtype=(int,), max_dim_x=10, access=AttrWriteType.READ)
    def test_read_only(self):
        return []

    value = []

    @attribute(dtype=(int,), max_dim_x=10, access=AttrWriteType.READ_WRITE)
    def test_read_write(self):
        return self.value

    @test_read_write.write
    def test_read_write(self, value):
        self.value = value
```

```
In [1]: d = Device('my/test/device')
In [2]: str(d.test_read_only)
Out[2]: 'None' # but want it to be '[]'
In [3]: str(d.test_read_write)
Out[3]: '[]'
In [4]: d.test_read_write = []
In [5]: str(d.test_read_write)
Out[5]: 'None' # but want it to be '[]'
```

Breaking change to fix things?

Poll

1. Yes, please fix it in 9.3.x!
2. Yes, please fix it, but only in 9.4.x.
3. No, don't fix it. I depend on this, and can't update my code.
4. I'm happy with anything.

Compatibility Roadmap

PyTango and cppTango

Currently, match *major.minor* releases when compiling PyTango binding.

cppTango 9.3.x and 9.4.x not Application Binary Interface (ABI) compatible.

Planned compatibility:

cppTango	PyTango	Works?
-----	-----	-----
9.3.x	9.3.x	yes
9.3.x	9.4.x	maybe*
9.4.x	9.4.x	yes

* *Tested alpha release of cppTango 9.4.x with PyTango 9.3.x. Tests passed, with only change: `libtango.so.9` -> `libtango.so.94`.*

Compatibility Roadmap

Poll

1. I'm happy if PyTango 9.4.x only supports cppTango 9.4.x.
2. It would be nice if PyTango 9.4.x supports cppTango 9.3.x and 9.4.x.
3. I absolutely need PyTango 9.4.x to support cppTango 9.3.x and 9.4.x.
4. I'm happy with anything.

pybind11

Current status

- No progress since last year, and no plans to work on it in the short term.
- Boost.Python is still actively maintained, and libboost is still included in new Linux distributions (e.g., 1.74 in Debian bullseye).
- Code is on pytango [pybind11](#) branch.
- See previous [status report](#).

PyTango development

Hosting

- Repo: gitlab.com/tango-controls/pytango
- Docs: pytango.readthedocs.io
- Continuous Integration: GitLab CI (Miniconda Docker container), AppVeyor
- Windows packages: AppVeyor

Issues

- Questions: use the [TANGO Forum](#)
- Specific issues: report on [GitLab](#) - the more detail the better

PyTango development

Priority

New approach being trialled.

- Issue priority now indicated via weight field. 1 is highest.
- To request changes to priority, contact your Tango steering committee representative or a kernel developer.

The screenshot displays the GitLab interface for the 'pytango' repository. The left sidebar shows the repository structure with 'Issues' selected. The main content area shows a list of issues. The issues are sorted by weight, with the highest weight (33) at the top. The issues are:

- DS hangs when concurrently subscribing to events and destructing DeviceProxy** (Weight: 33, updated 1 week ago)
- PyTango slow installation [Improvements]** (Weight: 10, updated 1 week ago)
- Missing methods in Documentation** (Weight: 3, updated 1 week ago)
- Clarify gevent dependency** (Weight: 0, updated 1 week ago)
- Reading an empty list returns a None value** (Weight: 1, updated 1 week ago)

PyTango development

Contributing

- Please join in!
- Typical branched Git workflow. Main branch is develop
- Fork the repo, make it better, make an MR. Thanks!
- More info in [how-to-contribute](#), and the recent [webinar](#)

Done! Any questions?

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