



Writing Your First Ansible Module

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Who are Memset?



- Founded in 2002, initially selling VPSs
- Started offering dedicated servers in 2005
- Opened our own data centre in 2014
- Colo in a second data centre in Reading
- UK's first carbon neutral hosting provider

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Why write a module?



ANSIBLE

What's in a module?

- Usually written in Python (or Powershell for Windows modules)
 - Any language is possible as long as it provides the right output etc
- Single-use standalone scripts
- Tightly-scoped purpose for each module
- Almost always take arguments to act on
- Usually returns some extra data back in JSON format

- Controller (core Ansible code):
 - Minimum supported version: 2.7 and 3.5
- Modules (can run remotely or locally):
 - Minimum supported version: **2.6** and 3.5
- Boilerplate code reduces some of the differences:

```
# boilerplate
from __future__ import (absolute_import, division, print_function)
__metaclass__ = type
```

- More info here: <https://bit.ly/2QfRf7P>

- Use of third-party libraries is discouraged
- To make life easier, Ansible has various built-in helper functions:

```
>>> bytes_to_human(10485760)
'10.00 MB'
>>> human_to_bytes('10M')
10485760
```

- Split common code out into helper functions via `module_utils`
- `lib/ansible/module_utils/basic.py`
- `lib/ansible/module_utils/urls.py`

- `python -m pdb ./my_new_test_module.py ./args.json`
- Module args:

```
{  
  "ANSIBLE_MODULE_ARGS": {  
    "name": "hello",  
    "new": true  
  }  
}
```

- Write a playbook!

- Write unit tests
- Write integration tests
- Use the sanity tests

```
- name: create domain in non-unique zone
  local_action:
    module: memset_zone_domain
    api_key: "{{ api_key }}"
    state: present
    domain: "{{ test_domain }}"
    zone: "{{ duplicate_zone }}"
    ignore_errors: true
    register: result

- name: fail if the zone is not unique
  assert:
    that:
      - result is failed
      - "'matches multiple zones, cannot create domain' in result.stderr"
```

```
- name: test creating domain
  local_action:
    module: memset_zone_domain
    api_key: "{{ api_key }}"
    state: present
    domain: "{{ test_domain }}"
    zone: "{{ target_zone }}"
    check_mode: true
    register: result

- name: create domain with check mode
  assert:
    that:
      - result is changed
      - result is successful
```


Sanity tests

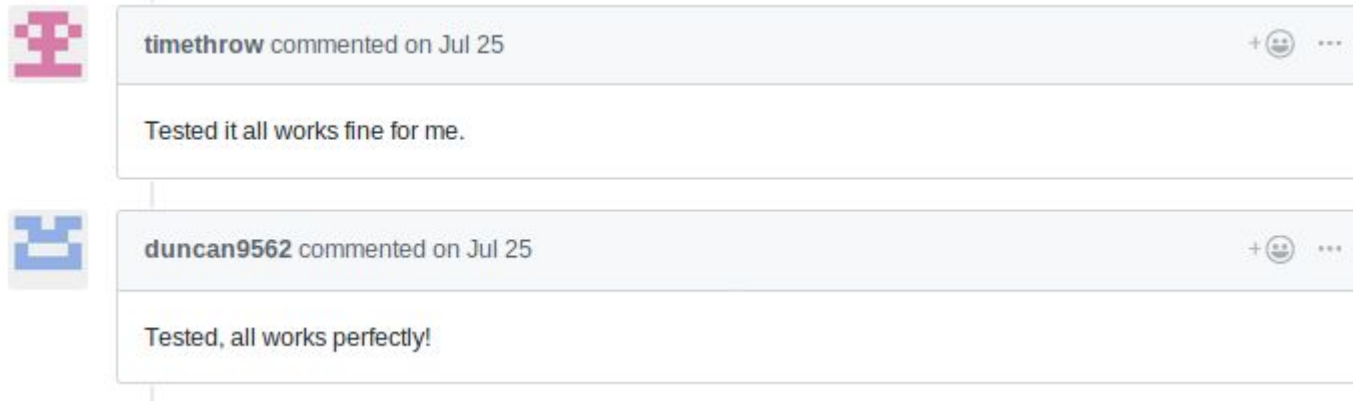


```
Sanity check using line-endings
Sanity check using no-assert
Sanity check using no-basestring
Sanity check using no-dict-iteritems
Sanity check using no-dict-iterkeys
Sanity check using no-dict-itervalues
Sanity check using no-get-exception
Sanity check using no-illegal-filenames
Sanity check using no-quiet-quotes
Sanity check using no-trails-as-filters
Sanity check using no-underscore-variable
Sanity check using no-unixlike-literals
Sanity check using pep8
INFO: Found 3 pep8 (issues) which need to be resolved:
INFO: lib/ansible/modules/cloud/openstack/os_server.py:228:17: E201 whitespace after '['
INFO: lib/ansible/modules/cloud/openstack/os_server.py:228:17: E208 continuation line under-indented for visual indent
INFO: lib/ansible/modules/cloud/openstack/os_server.py:228:46: E202 whitespace before ']'
Sanity check using pyLint
Sanity check using pyLint
Sanity check using replace-urlopen
Sanity check using required-and-default-attributes
Sanity check using rstcheck
Sanity check using sanity-docs
Sanity check using shfmt
Sanity check using shellcheck
Sanity check using test-constraints
Sanity check using use-argparse-type-path
Sanity check using use-compat-six
Sanity check using validate-modules
warning: Cannot perform module comparison against the base branch. Base branch not detected when running locally.
INFO: Found 1 validate-modules (issue) which need to be resolved:
INFO: lib/ansible/modules/cloud/openstack/os_server.py:818: E005 WFLY license header not found in the first 28 lines of the module
Sanity check using yamllint
INFO: The 2 sanity test(s) listed below (out of 46) failed. See error output above for details.
exit
validate-modules
INFO: Command "docker exec -ti ansible-test-modules-ubuntu1604 /bin/sh -c 'cd /usr/share/ansible-test; python3 sanity --skip-test integration-aliases
x lib/ansible/modules/cloud/openstack/os_server.py --defaults=defaults-ubuntu1604 --truncate=64 --color=yes --requirements' returned exit status 1."
ansible-test sanity-testing ~/ansible-test
```

Opening a PR



- If you've made it this far - well done!
- Once the PR is opened, Ansibullbot will apply some labels:
 - The most important one is *community_review*:



- If it's been tested by the community and reviewed by a maintainer then it's ready to be merged.

- Read the dev guide: <https://bit.ly/2B8xibtU>
- Read other modules
- Use IRC:
 - #ansible
 - #ansible-devel

A blue-tinted photograph of a person in the foreground gesturing with both hands open, palms facing up, as if explaining something or asking a question. In the background, a group of people is blurred, looking towards the speaker. The overall mood is professional and collaborative.

Questions?