Quick start guide: Running existing virtualization tests with Avocado

This document aims to provide you with adequate information which can help you get started quickly with running existing virtualization tests using Avocado.

What is Avocado?

Avocado is an improved version of autotest.

If you are familiar with Autotest framework, below is mapping to replacement/equivalent in Avocado:

- Autotest test runner is equivalent to Avocado test runner
- Virttest is included in avocado-VT. We generally would be using this one to write tests until the avocado-virt is more mature.
- Avocado-virt is a Avocado Virtualization Plugin and Library.
- Tests can also be written under avocado-virt-tests using the libraries supported by avocado-virt *

* *Since avocado-virt is under development, at this point of time using avocado-vt is recommended vs. using avocado-virt libraries.*

In-detail information can be got from below links:

http://avocado-framework.readthedocs.org/en/latest/

http://avocado-vt.readthedocs.org/en/latest/index.html

How to install Avocado?

Below link gives information on installing Avocado [which is as simple as rpm install or apt-get install]:
http://avocado-framework.readthedocs.org/en/latest/GetStartedGuide.html#installing-avocado

Below are the minimum packages required , which enables running the existing tests provided under QEMU/libvirt test providers:

- PyYAML
- aexpect
- autotest-framework
- avocado
- avocado-plugins-vt
- avocado-virt
- fabric
- gdb-gdbserver

- libtomcrypt
- libtommath
- p7zip
- pystache
- python-crypto
- python-ecdsa
- python-paramiko
- python3-simplejson

<u>Quickstart to useful Avocado commands and key config/data file locations:</u>

1. List all Avocado plugins:
```
avocado plugins
```

2. Run sample test
```
avocado run /bin/true
```

3. The command used to download the test providers [like libvirt,QEMU...], prepare the environment and even download the JeOS (when you run on supported platform)
```
avocado virt-bootstrap
avocado vt-bootstrap --vt-type qemu
avocado vt-bootstrap --vt-type libvirt
```

4. Once you bootstrap, try to list all testcases:
```
sudo avocado list --verbose
```
This should list a large amount of tests (over 1900 virt related tests)
```
ACCESS_DENIED: 0
BROKEN_SYMLINK: 0
EXTERNAL: 0
FILTERED: 0
INSTRUMENTED: 0
MISSING: 0
NOT_A_TEST: 0
SIMPLE: 0
VT: 1922
```

You can also see tests per test providers, example for QEMU and libvirt test providers given below:

```
sudo avocado list --vt-type libvirt
```

```
avocado list --vt-type qemu
```

5. Usual virttest location (it can be elsewhere depending on your configuration):
```
/usr/lib/python2.7/site-packages/virttest/
```

6. To see the list of used configuration and data files, execute `avocado config`.
Important Avocado config files:

```
/etc/avocado/avocado.conf
/etc/avocado/conf.d/virt.conf
/etc/avocado/conf.d/vt.conf
/etc/avocado/conf.d/gdb.conf
/home/<username>/.config/avocado/avocado.conf
```

Important Avocado data files:

```
datadir.paths.base_dir:    /usr/share/avocado
datadir.paths.test_dir:    /usr/share/avocado/tests
datadir.paths.data_dir:    /usr/share/avocado/data
datadir.paths.logs_dir:    ~/avocado/job-results
```

Please note that these locations are heavily dependent on the user's permissions.

7. The test location for all test providers is logged at the beginning of the test log (after params), for example:

Found subtest module /home/medic/avocado/data/avocado-vt/test-providers.d/downloads/io-github-autotest-qemu/generic/tests/boot.py

Most widely used test provider locations are as follows:

- QEMU tests location:
  /usr/share/avocado/data/avocado-vt/test-providers.d/downloads/io-github-autotest-qemu/qemu/tests
- libvirt tests location:
  /usr/share/avocado/data/avocado-vt/test-providers.d/downloads/io-github-autotest-libvirt/libvirt/tests/src

8. Finally run one virt-test to make sure your setup is good enough to proceed with:

```
avocado run type_specific.io-github-autotest-qemu.migrate.default.tcp
```