

Managing Jails with Ansible

A showcase for building a container infrastructure on FreeBSD

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About Me

Sysadmin

been using mostly Linux for > 20 years

relatively new to FreeBSD (5 years or so)

WHY?

Why would you want to do that?

WHY?

Contra

- ▶ There is already tool X^1 that does that
- ▶ You will have python as a dependency in every jail
- ▶ It's complicated
- ▶ ...

¹for any $X \forall Z_{>0}$ tools

WHY?

Pro

- ▶ I'm already using ansible to setup most stuff
- ▶ I already have python as a dependency for that reason
- ▶ Once you have done it "the hard way", you will have a better idea what's actually going on
- ▶ ...

Building Blocks

Basics

- ▶ FreeBSD
- ▶ jail(8)
- ▶ zfs
- ▶ ssh
- ▶ python
- ▶ gtar

Building Blocks

Ansible modules

- ▶ raw
- ▶ pkgng
- ▶ zfs
- ▶ get_url
- ▶ unarchive
- ▶ template
- ▶ file
- ▶ service
- ▶ command
- ▶ add_host
- ▶ sshjail connection plugin[Hydde]

Putting it together

definitions

```
vars:
  - nameservers:
      - x.x.x.x
  - ansible_python_interpreter: ...
  - releases:
      - version: '11.2-RELEASE'
        checksum: sha512:b589...
      - version: '12.0-RELEASE'
        checksum: sha512:915e...
  - clonedjails: []
  - jails:
      - name: t3
        quota: 5G
        version: '12.0-RELEASE'
        parameters:
            'ip4.addr': '...
```


Putting it together

installing dependencies, creating datasets and populating the root dataset

- ▶ install python using the raw module
- ▶ install dependencies using the raw and pkgng modules
- ▶ setting up zfs datasets using the zfs module
- ▶ get the base.tgz archives and verify their checksum using the get_url module
- ▶ extract base.tgz into the datasets

Putting it together

basic configuration

- ▶ apply security updates
- ▶ create `fstab`, `rc.conf` & `resolv.conf` for all jails
- ▶ create `jails.conf`
- ▶ start the jails
- ▶ install python in all jails

Putting it together

DEMO

Configuring the jails themselves

- ▶ collect the jails while we are creating them and put them in the inventory
- ▶ connect the the jails using the sshjail connector
- ▶ disable sendmail
- ▶ disable network sockets for syslog

Configuring the jails themselves

DEMO

Creating cloned jails with an extra, jailed zfs dataset for application data

- ▶ clone the root dataset
- ▶ create the appdata datasets
- ▶ update jail.conf
- ▶ configure the jails

Creating cloned jails with an extra, jailed zfs dataset for application data

DEMO

Sources and further reading I



Clint Armstrong.

Freebsd jails the hard way, 2015.

<https://clinta.github.io/freebsd-jails-the-hard-way/>.



Sascha Biberhofer.

An introduction to jails and jail networking, 2018.

<https://www.skyforge.at/posts/an-introduction-to-jails-and-jail-networking/>.



Austin Hyde.

ansible-sshjail, 2015-2019, Austin Hyde (@austinhhyde).

<https://github.com/austinhhyde/ansible-sshjail>.



Michael W. Lucas.

FreeBSD Mastery: Jails.

Tilted Windmill Press, 3 2019.

Questions?

THANK YOU