Automating Container Management with Ansible

Running Containers

Objectives

This module demonstrates how to manage the container lifecycle with Ansible modules for single containers and collections of containers.

Managing the Container Life Cycle

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Docker Container Module

- The `docker_container` Ansible module manages the lifecycle of Docker containers by talking to the Docker daemon.
- It handles basic container functions like start, stop, restart, and remove.
- The module supports check mode and can provide diffs.
- Many container and runtime configs are available through the module.

Docker Container Module Examples

```
- name: Create a sample container
  docker_container:
    name: test
    image: pluralsight/rhel
```

```
- name: Stop the test container
  docker_container:
    name: test
    state: stopped
```

```
- name: Restart the test container
  docker_container:
    name: test
    restart: yes
```

```
- name: Remove the test container
  docker_container:
    name: test
    state: absent
```

Docker Container Module Examples

```
- name: Restart a container
  docker_container:
    name: myapplication
    image: someuser/appimage
    state: started
    restart: yes
    links:
     - "myredis:aliasedredis"
    devices:
     - "/dev/sda:/dev/xvda:rwm"
    ports:
     - "8080:9000"
     - "127.0.0.1:8081:9001/udp"
    env:
        SECRET_KEY: "ssssh"
```

```
- name: Re-create a redis container
  docker_container:
    name: myredis
    image: redis
    command: redis-server --appendonly yes
    state: present
    recreate: yes
    exposed_ports:
      - 6379
    volumes_from:
      - mydata
```

Automating Docker Compose

Docker Compose

Docker Compose is a way to start a collection of containers that work together on the same container host. Definition and configuration of the collection is in the `docker-compose.yml` file. The multi-container collection can be managed as a single unit and the services can be scaled independently.

Install docker-compose:

```
# pip install docker-compose
```

Example docker-compose.yml

This sample docker-compose.yml creates a container for Wordpress and a backing MySQL database. With the docker-compose.yml in its own directory, both the Wordpress container and the database can be started with:

```
# docker-compose up -d
```

The **-d** flag runs the containers in the background, detaching them from the stdin.

```yaml
version: '3.7'

services:
   db:
     image: mysql:5.7
     volumes:
       - db_data:/var/lib/mysql
     restart: always
     environment:
       MYSQL_ROOT_PASSWORD: root_password
       MYSQL_DATABASE: wordpress
       MYSQL_USER: user1
       MYSQL_PASSWORD: my_password

   web:
     depends_on:
       - db
     image: wordpress:latest
     ports:
       - "9090:80"
     restart: always
     environment:
       WORDPRESS_DB_HOST: db:3306
       WORDPRESS_DB_NAME: wordpress
       WORDPRESS_DB_USER: user1
       WORDPRESS_DB_PASSWORD: my_password
volumes:
    db_data: {}
```

Docker Compose Module

- The `docker_compose` Ansible module can automate management of containers using Docker Compose.
- It supports both version 1 and 2 of docker-compose.
- The config can be read in from the docker-compose.yml or put inline in the module args.

Docker Compose Module Examples

```
- name: Create and start services
  docker_compose:
    project_src: wordpress
```

```
- name: Restart services
  docker_compose:
    project_src: wordpress
    restarted: yes
```

```
- name: Stop all services
  docker_compose:
    project_src: wordpress
    stopped: yes
```

Conclusion

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