

Ansible

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Simple IT Automation



github.com/jedrzejserwa/hacktoberfest2019

Agenda

- What is Ansible
- Ansible building blocks
- Demo

What is Ansible

- Automation tool
 - Configuration management tool
 - Application deployment tool
 - Software provisioning tool
 - Cloud provisioning tool*
- Runs on many UNIX systems
- Can configure both UNIX and Windows based systems
- Uses no agent
- Owned by RedHat
- Written in Python and open-sourced via GNU 3.0

Ansible building blocks

Ansible Inventory

- Definition of groups and hosts for Ansible executions
- Two types
 - Static inventory
 - Dynamic inventory
- Supports ini and yaml formats for static inventory

Ansible Inventory example



```
mail.example.com
```

```
[webservers]
```

```
foo.example.com
```

```
bar.example.com
```

```
[dbservers]
```

```
one.example.com
```

```
two.example.com
```

```
three.example.com
```

Ansible Variables

- Similar to variable concept in any programming language
- Used to parametrize your automations
- Uses Jinja2 templating engine

Ansible Variables example



```
base_path: 188.165.23.19
```



```
- hosts: app_servers
  vars:
    app_path: "{{ base_path | default('localhost:8080') }}/22"
```

Ansible Modules

- Set of ready-2-go libraries
- Used in playbook tasks or via ansible commands
- Categorized by the functionality
 - System
 - Commands
 - Files
 - Database
 - Cloud
 - And many others
- Possible to write your own custom module

Ansible Modules example



```
$ ansible atlanta -m copy -a "src=/etc/hosts dest=/tmp/hosts"
```

Ansible Playbook

- Configuration file written in yaml format
- Definition of what we want to achieve with the desired state
- Idempotency as a good practice
- Playbook building blocks:
 - Plays - Set of Tasks to be run on the host
 - Task - an action to be performed on the host

Ansible Playbook example

```
---
- hosts: webservers
  vars:
    http_port: 80
    max_clients: 200
  remote_user: root
  tasks:
    - name: ensure apache is at the latest version
      yum:
        name: httpd
        state: latest
    - name: write the apache config file
      template:
        src: /srv/httpd.j2
        dest: /etc/httpd.conf
      notify:
        - restart apache
    - name: ensure apache is running
      service:
        name: httpd
        state: started
  handlers:
    - name: restart apache
      service:
        name: httpd
        state: restarted
```

Ansible Roles

- Allows you to better organize your playbooks
- Allows you to easily reuse written automation
- Structurized view

Ansible Roles example

→ mysql_db tree

```
.
├── README.md
├── defaults
│   └── main.yml
├── files
├── handlers
│   └── main.yml
├── meta
│   └── main.yml
├── tasks
│   └── main.yml
├── templates
├── tests
│   ├── inventory
│   └── test.yml
└── vars
    └── main.yml
```

8 directories, 8 files

Ansible Galaxy

- Set of ready-2-go Ansible roles
- Developed and open-sourced by Ansible Community
- Over 22k available roles to download
- Roles available via Ansible Galaxy website or ansible-galaxy CLI

Ansible Galaxy example



```
→ ansible ansible-galaxy search elk | head -n 10
```

Found 93 roles matching your search:

Name	Description
-----	-----
adamaod.Single-Instance-ELK	Single Instance Elk Stack
alikins.filebeat	Filebeat for Linux.
ashokc.filebeat	Filebeat for Linux
ashokc.kibana	Kibana for Linux
ashokc.logstash	Logstash for Linux

Ansible Vault

- Allows to encrypt sensitive data, even binary files
- Uses AES256 specifiaction
- Available via ansible-vault CLI

Demo

Sources

<https://docs.ansible.com>

<https://jinja.palletsprojects.com/en/2.10.x/>

Q&A

Thanks!