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Red Hat Enterprise Linux Automation with Ansible

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VIDEO CLASSROOM

Guided Exercise: Building an Ansible Inventory ☆

In this exercise, you will create a new static inventory containing hosts and groups.

Outcomes

You should be able to create default and custom static inventories.

Log in to `workstation` as `student` using `student` as the password.

On `workstation`, run the `lab deploy-inventory start` command. This start script ensures that the managed hosts, `servera`, `serverb`, `serverc`, and `serverd`, are reachable on the network.

```
[student@workstation ~]$ lab deploy-inventory start
```

Procedure 2.1. Instructions

1. Modify `/etc/ansible/hosts` to include `servera.lab.example.com` as a managed host.

    1.1. Add `servera.lab.example.com` to the end of the default inventory file, `/etc/ansible/hosts`.

    ```
    [student@workstation ~]$ sudo vim /etc/ansible/hosts
    ...output omitted...
    ## db-[99:101]-node.example.com

    servera.lab.example.com
    ```

    1.2. Continue editing the `/etc/ansible/hosts` inventory file by adding a `[webservers]` group to the bottom of the file with `serverb.lab.example.com` server as a group member. Save and exit when complete.

    ```
    ...output omitted...
    ## db-[99:101]-node.example.com

    servera.lab.example.com

    [webservers]
    serverb.lab.example.com
    ```

2. Verify the managed hosts in the `/etc/ansible/hosts` inventory file.

    2.1. Use the `ansible all --list-hosts` command to list all managed hosts in the default inventory file.

```
[student@workstation ~]$ ansible all --list-hosts
  hosts (2):
    servera.lab.example.com
    serverb.lab.example.com
```

2.2. Use the `ansible ungrouped --list-hosts` command to list only managed hosts that do not belong to a group.

```
[student@workstation ~]$ ansible ungrouped --list-hosts
  hosts (1):
    servera.lab.example.com
```

2.3. Use the `ansible webservers --list-hosts` command to list only managed hosts that belong to the `webservers` group.

```
[student@workstation ~]$ ansible webservers --list-hosts
  hosts (1):
    serverb.lab.example.com
```

3. Create a custom static inventory file named `inventory` in the `/home/student/deploy-inventory` working directory.

Information about your four managed hosts is listed in the following table. You will assign each host to multiple groups for management purposes based on the purpose of the host, the city where it is located, and the deployment environment to which it belongs.

In addition, groups for US cities (Raleigh and Mountain View) must be set up as children of the group `us` so that hosts in the United States can be managed as a group.

Table 2.1. Server Inventory Specifications

Host name	Purpose	Location	Environment
`servera.lab.example.com`	Web server	Raleigh	Development
`serverb.lab.example.com`	Web server	Raleigh	Testing
`serverc.lab.example.com`	Web server	Mountain View	Production
`serverd.lab.example.com`	Web server	London	Production

3.1. Create the `/home/student/deploy-inventory` working directory, and change into it.

```
[student@workstation ~]$ mkdir ~/deploy-inventory
[student@workstation ~]$ cd ~/deploy-inventory
[student@workstation deploy-inventory]$
```

3.2. Create an `inventory` file in the `/home/student/deploy-inventory` working directory. Use the Server Inventory Specifications table as a guide. Edit the `inventory` file and add the following content:

```
[webservers]
server[a:d].lab.example.com

[raleigh]
servera.lab.example.com
serverb.lab.example.com

[mountainview]
serverc.lab.example.com

[london]
serverd.lab.example.com

[development]
servera.lab.example.com

[testing]
serverb.lab.example.com

[production]
serverc.lab.example.com
serverd.lab.example.com

[us:children]
raleigh
mountainview
```

4. Use variations of the `ansible` *host-or-group* `-i inventory --list-hosts` command to verify the managed hosts and groups in the custom `/home/student/deploy-inventory/inventory` inventory file.

> **IMPORTANT**
>
> Your `ansible` command must include the `-i inventory` option. This makes `ansible` use your `inventory` file in the current working directory instead of the system `/etc/ansible/hosts` inventory file.

4.1. Use the `ansible all -i inventory --list-hosts` command to list all managed hosts.

```
[student@workstation deploy-inventory]$ ansible all -i inventory --list-hosts
  hosts (4):
    servera.lab.example.com
    serverb.lab.example.com
    serverc.lab.example.com
    serverd.lab.example.com
```

4.2. Use the `ansible ungrouped -i inventory --list-hosts` command to list all managed hosts listed in the inventory file but are not part of a group. There are no ungrouped managed hosts in this inventory file.

```
[student@workstation deploy-inventory]$ ansible ungrouped -i inventory \
> --list-hosts
 [WARNING]: No hosts matched, nothing to do

  hosts (0):
```

4.3. Use the `ansible development -i inventory --list-hosts` command to list all managed hosts listed in the development group.

```
[student@workstation deploy-inventory]$ ansible development -i inventory \
> --list-hosts
  hosts (1):
    servera.lab.example.com
```

4.4. Use the `ansible testing -i inventory --list-hosts` command to list all managed hosts listed in the `testing` group.

```
[student@workstation deploy-inventory]$ ansible testing -i inventory \
> --list-hosts
  hosts (1):
    serverb.lab.example.com
```

4.5. Use the `ansible production -i inventory --list-hosts` command to list all managed hosts listed in the `production` group.

```
[student@workstation deploy-inventory]$ ansible production -i inventory \
> --list-hosts
  hosts (2):
    serverc.lab.example.com
    serverd.lab.example.com
```

4.6. Use the `ansible us -i inventory --list-hosts` command to list all managed hosts listed in the `us` group.

```
[student@workstation deploy-inventory]$ ansible us -i inventory --list-hosts
  hosts (3):
    servera.lab.example.com
    serverb.lab.example.com
    serverc.lab.example.com
```

4.7. You are encouraged to experiment with other variations to confirm managed host entries in the custom inventory file.

Finish

On `workstation`, run the `lab deploy-inventory finish` script to clean up this exercise.

```
[student@workstation ~]$ lab deploy-inventory finish
```

This concludes the guided exercise.