



(/rol/app/)

[Home\(/rol/app/\)](#)[Reports\(/rol/app/reports\)](#)[Community\(https://learn.redhat.com/\)](#)Days remaining **76**

Search

# Red Hat Enterprise Linux Automation with Ansible

FEEDBACK

TRANSLATIONS ▾

CERTIFICATE OF ATTENDANCE



P	(/rol/app/courses/rh294-8.4/pages/pr01)	(/rol/app/courses/rh294-8.4/pages/pr01s02)	1	(/rol/app/courses/rh294-8.4/pages/ch01)
	(/rol/app/courses/rh294-8.4/pages/ch01s02)	(/rol/app/courses/rh294-8.4/pages/ch01s03)		(/rol/app/courses/rh294-8.4/pages/ch01s04)
	(/rol/app/courses/rh294-8.4/pages/ch01s05)	2	(/rol/app/courses/rh294-8.4/pages/ch02)	(/rol/app/courses/rh294-8.4/pages/ch02s02)
	(/rol/app/courses/rh294-8.4/pages/ch02s03)	(/rol/app/courses/rh294-8.4/pages/ch02s04)		(/rol/app/courses/rh294-8.4/pages/ch02s05)
	(/rol/app/courses/rh294-8.4/pages/ch02s06)	(/rol/app/courses/rh294-8.4/pages/ch02s07)		(/rol/app/courses/rh294-8.4/pages/ch02s08)
	(/rol/app/courses/rh294-8.4/pages/ch02s09)	(/rol/app/courses/rh294-8.4/pages/ch02s10)		(/rol/app/courses/rh294-8.4/pages/ch02s11)
	(/rol/app/courses/rh294-8.4/pages/ch02s12)	3	(/rol/app/courses/rh294-8.4/pages/ch03)	(/rol/app/courses/rh294-8.4/pages/ch03s02)
	(/rol/app/courses/rh294-8.4/pages/ch03s03)	(/rol/app/courses/rh294-8.4/pages/ch03s04)		(/rol/app/courses/rh294-8.4/pages/ch03s05)
	(/rol/app/courses/rh294-8.4/pages/ch03s06)	(/rol/app/courses/rh294-8.4/pages/ch03s07)		(/rol/app/courses/rh294-8.4/pages/ch03s08)
	(/rol/app/courses/rh294-8.4/pages/ch04)	(/rol/app/courses/rh294-8.4/pages/ch04s02)		(/rol/app/courses/rh294-8.4/pages/ch04s03)
	(/rol/app/courses/rh294-8.4/pages/ch04s04)	(/rol/app/courses/rh294-8.4/pages/ch04s05)		(/rol/app/courses/rh294-8.4/pages/ch04s06)
	(/rol/app/courses/rh294-8.4/pages/ch04s07)	(/rol/app/courses/rh294-8.4/pages/ch04s08)	5	(/rol/app/courses/rh294-8.4/pages/ch05)
	(/rol/app/courses/rh294-8.4/pages/ch05s02)	(/rol/app/courses/rh294-8.4/pages/ch05s03)		(/rol/app/courses/rh294-8.4/pages/ch05s04)
	(/rol/app/courses/rh294-8.4/pages/ch05s05)	(/rol/app/courses/rh294-8.4/pages/ch05s06)		(/rol/app/courses/rh294-8.4/pages/ch06)
	(/rol/app/courses/rh294-8.4/pages/ch06s02)	(/rol/app/courses/rh294-8.4/pages/ch06s03)		(/rol/app/courses/rh294-8.4/pages/ch06s04)
	(/rol/app/courses/rh294-8.4/pages/ch06s05)	(/rol/app/courses/rh294-8.4/pages/ch06s06)		(/rol/app/courses/rh294-8.4/pages/ch07)
	(/rol/app/courses/rh294-8.4/pages/ch07s02)	(/rol/app/courses/rh294-8.4/pages/ch07s03)		(/rol/app/courses/rh294-8.4/pages/ch07s04)
	(/rol/app/courses/rh294-8.4/pages/ch07s05)	(/rol/app/courses/rh294-8.4/pages/ch07s06)		(/rol/app/courses/rh294-8.4/pages/ch07s07)
	(/rol/app/courses/rh294-8.4/pages/ch07s08)	(/rol/app/courses/rh294-8.4/pages/ch07s09)		(/rol/app/courses/rh294-8.4/pages/ch07s10)
	(/rol/app/courses/rh294-8.4/pages/ch07s11)	(/rol/app/courses/rh294-8.4/pages/ch07s12)	8	(/rol/app/courses/rh294-8.4/pages/ch08)
	(/rol/app/courses/rh294-8.4/pages/ch08s02)	(/rol/app/courses/rh294-8.4/pages/ch08s03)		(/rol/app/courses/rh294-8.4/pages/ch08s04)
	(/rol/app/courses/rh294-8.4/pages/ch08s05)	(/rol/app/courses/rh294-8.4/pages/ch08s06)		(/rol/app/courses/rh294-8.4/pages/ch09)
	(/rol/app/courses/rh294-8.4/pages/ch09s02)	(/rol/app/courses/rh294-8.4/pages/ch09s03)		(/rol/app/courses/rh294-8.4/pages/ch09s04)
	(/rol/app/courses/rh294-8.4/pages/ch09s05)	(/rol/app/courses/rh294-8.4/pages/ch09s06)		(/rol/app/courses/rh294-8.4/pages/ch09s07)
	(/rol/app/courses/rh294-8.4/pages/ch09s08)	(/rol/app/courses/rh294-8.4/pages/ch09s09)		(/rol/app/courses/rh294-8.4/pages/ch09s10)
	(/rol/app/courses/rh294-8.4/pages/ch09s11)	(/rol/app/courses/rh294-8.4/pages/ch09s12)	10	(/rol/app/courses/rh294-8.4/pages/ch10)
	(/rol/app/courses/rh294-8.4/pages/ch10s02)	(/rol/app/courses/rh294-8.4/pages/ch10s03)		(/rol/app/courses/rh294-8.4/pages/ch10s04)
A	(/rol/app/courses/rh294-8.4/pages/apa)	(/rol/app/courses/rh294-8.4/pages/apa)		(/rol/app/courses/rh294-8.4/pages/apb)
		(/rol/app/courses/rh294-8.4/pages/apb)		

[← PREVIOUS \(/ROL/APP/COURSES/RH294-8.4/PAGES/CH04\)](#) [→ NEXT \(/ROL/APP/COURSES/RH294-8.4/PAGES/CH04S03\)](#)

# Guided Exercise: Writing Loops and Conditional Tasks



In this exercise, you will write a playbook containing tasks that have conditionals and loops.

## Outcomes

You should be able to:

- Implement Ansible conditionals using the `when` keyword.
- Implement task iteration using the `loop` keyword in conjunction with conditionals.

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

On workstation, run the `lab control-flow start` command. This script creates the working directory, `/home/student/control-flow`.

```
[student@workstation ~]$ lab control-flow start
```

## Procedure 4.1. Instructions

1. On `workstation.lab.example.com`, change to the `/home/student/control-flow` project directory.

```
[student@workstation ~]$ cd ~/control-flow  
[student@workstation control-flow]$
```

2. The lab script created an Ansible configuration file as well as an inventory file. This inventory file contains the server `servera.lab.example.com` in the `database_dev` host group, and the `serverb.lab.example.com` in the `database_prod` host group. Review the file before proceeding.

```
[student@workstation control-flow]$ cat inventory  
[database_dev]  
servera.lab.example.com  
  
[database_prod]  
serverb.lab.example.com
```

3. Create the `playbook.yml` playbook, which contains a play with two tasks. Use the `database_dev` host group. The first task installs the MariaDB required packages, and the second task ensures that the MariaDB service is running.

- 3.1. Open the playbook in a text editor. Define the variable `mariadb_packages` with two values: `mariadb-server`, and `python3-PyMySQL`. The playbook uses the variable to install the required packages. The file should read as follows:

```
---
- name: MariaDB server is running
  hosts: database_dev
  vars:
    mariadb_packages:
      - mariadb-server
      - python3-PyMySQL
```

- 3.2. Define a task that uses the `yum` module and the variable `mariadb_packages`. The task installs the required packages. The task should read as follows:

```
tasks:
  - name: MariaDB packages are installed
    yum:
      name: "{{ item }}"
      state: present
    loop: "{{ mariadb_packages }}"
```

- 3.3. Define a second task to start the `mariadb` service. The task should read as follows:

```
- name: Start MariaDB service
  service:
    name: mariadb
    state: started
    enabled: true
```

4. Run the playbook and watch the output of the play.

```
[student@workstation control-flow]$ ansible-playbook playbook.yml

PLAY [MariaDB server is running] *****

TASK [Gathering Facts] *****
ok: [servera.lab.example.com]

TASK [MariaDB packages are installed] *****
changed: [servera.lab.example.com] => (item=mariadb-server)
changed: [servera.lab.example.com] => (item=python3-PyMySQL)

TASK [Start MariaDB service] *****
changed: [servera.lab.example.com]

PLAY RECAP *****
servera.lab.example.com : ok=3    changed=2    unreachable=0    failed=0
```

5. Update the first task to execute only if the managed host uses Red Hat Enterprise Linux as its operating system. Update the play to use the `database_prod` host group. The task should read as follows:

```
- name: MariaDB server is running
  hosts: database_prod
  vars:
...output omitted...
  tasks:
    - name: MariaDB packages are installed
      yum:
        name: "{{ item }}"
        state: present
      loop: "{{ mariadb_packages }}"
      when: ansible_distribution == "RedHat"
```

6. Verify that the managed hosts in the `database_prod` host group use Red Hat Enterprise Linux as its operating system.

```
[student@workstation control-flow]$ ansible database_prod -m command \  
> -a 'cat /etc/redhat-release' -u devops --become  
serverb.lab.example.com | CHANGED | rc=0 >>  
Red Hat Enterprise Linux release 8.4 (Ootpa)
```

## 7. Run the playbook again and watch the output of the play.

```
[student@workstation control-flow]$ ansible-playbook playbook.yml  
  
PLAY [MariaDB server is running] *****  
  
TASK [Gathering Facts] *****  
ok: [serverb.lab.example.com]  
  
TASK [MariaDB packages are installed] *****  
changed: [serverb.lab.example.com] => (item=mariadb-server)  
changed: [serverb.lab.example.com] => (item=python3-PyMySQL)  
  
TASK [Start MariaDB service] *****  
changed: [serverb.lab.example.com]  
  
PLAY RECAP *****  
serverb.lab.example.com : ok=3 changed=2 unreachable=0 failed=0
```

Ansible executes the task because serverb.lab.example.com uses Red Hat Enterprise Linux.

## Finish

On workstation, run the lab control-flow finish script to clean up the resources created in this exercise.

```
[student@workstation ~]$ lab control-flow finish
```

This concludes the guided exercise.

◀ PREVIOUS (/ROL/APP/COURSES/RH294-8.4/PAGES/CH04) ➡ NEXT (/ROL/APP/COURSES/RH294-8.4/PAGES/CH04S03)

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