

Lab 10

Section 1

Part 1: Demonstrate the management of files and folders:

1) Write a single-play playbook with the following tasks:

- Create an empty file called locfile on the automation machine
- Copy locfile to the managed nodes under the /tmp directory, set ownership and owning group to <yourusername>:root with permissions 0444
- Display the status of the /tmp/locfile file
- Create an empty file called emptyfile on the managed nodes in your home directory with the default permissions and ownership

2) Run this playbook against ansible-c-vm1

```
1 ---
2 - name: Manage files and folders on Ubuntu VM
3   hosts: linux
4   become: no
5   tasks:
6     - name: Create an empty file 'locfile' on control machine
7       local_action:
8         module: file
9         path: ./locfile
10        state: touch
11      become: no
12    - name: Copy 'locfile' to managed nodes /tmp with proper ownership and permissions
13      copy:
14        src: ./locfile
15        dest: /tmp/locfile
16        owner: "{{ ansible_user }}"
17        group: root
18        mode: '0444'
19        become: yes
20
21    - name: Display status of /tmp/locfile on managed nodes
22      stat:
23        path: /tmp/locfile
24        register: locfile_stat
25
26    - name: Show file status
27      debug:
28        var: locfile_stat
29
30    - name: Create empty file 'emptyfile' in managed node user's home directory
31      file:
32        path: "/home/{{ ansible_user }}/emptyfile"
33        state: touch
34
```

```
dow Help
kajalsund — n01737472@n01737472-u-vm1: ~ — bash — 178x45
Kajals-MacBook-Air:lab10 n01737472$ ansible-playbook -i hosts file_folder.yml

PLAY [Manage files and folders on Ubuntu VM] *****

TASK [Gathering Facts] *****
ok: [n01737472-u-vm1.eastus.cloudapp.azure.com]

TASK [Create an empty file 'locfile' on control machine] *****
changed: [n01737472-u-vm1.eastus.cloudapp.azure.com -> localhost]

TASK [Copy 'locfile' to managed nodes /tmp with proper ownership and permissions] *****
changed: [n01737472-u-vm1.eastus.cloudapp.azure.com]

TASK [Display status of /tmp/locfile on managed nodes] *****
ok: [n01737472-u-vm1.eastus.cloudapp.azure.com]

TASK [Show file status] *****
ok: [n01737472-u-vm1.eastus.cloudapp.azure.com] => {
  "locfile_stat": {
    "changed": false,
    "failed": false,
    "stat": {
      "atime": 1753421596.2994094,
      "attr_flags": "e",
      "attributes": [
        "extents"
      ],
      "block_size": 4096,
      "blocks": 0,
      "charset": "binary",
      "checksum": "da39a3ee5e6b4b0d3255bfef95601890afd80709",
      "ctime": 1753421597.8114083,
      "dev": 2049,
      "device_type": 0,
      "executable": false,
      "exists": true,
      "gid": 0,
      "gr_name": "root",
      "inode": 262618,
      "isblk": false,
      "ischr": false,
      "isdir": false,
```

```
Format Tools Table Window Help
kajalsund — n01737472@n01737472-u-vm1: ~ — bash — 178x45

  "gr_name": "root",
  "inode": 262618,
  "isblk": false,
  "ischr": false,
  "isdir": false,
  "isfifo": false,
  "isgid": false,
  "islnk": false,
  "isreg": true,
  "issock": false,
  "isuid": false,
  "mimetype": "inode/x-empty",
  "mode": "0444",
  "mtime": 1753421421.3475482,
  "nlink": 1,
  "path": "/tmp/locfile",
  "pw_name": "n01737472",
  "readable": true,
  "rgrp": true,
  "roth": true,
  "rusr": true,
  "size": 0,
  "uid": 1000,
  "version": "2525539879",
  "wgrp": false,
  "woth": false,
  "writeable": false,
  "wusr": false,
  "xgrp": false,
  "xoth": false,
  "xusr": false
}
}
}

TASK [Create empty file 'emptyfile' in managed node user's home directory] *****
changed: [n01737472-u-vm1.eastus.cloudapp.azure.com]

PLAY RECAP *****
n01737472-u-vm1.eastus.cloudapp.azure.com : ok=6  changed=3  unreachable=0  failed=0  skipped=0  rescued=0  ignore=0

Kajals-MacBook-Air:lab10 n01737472$
```

Section 3

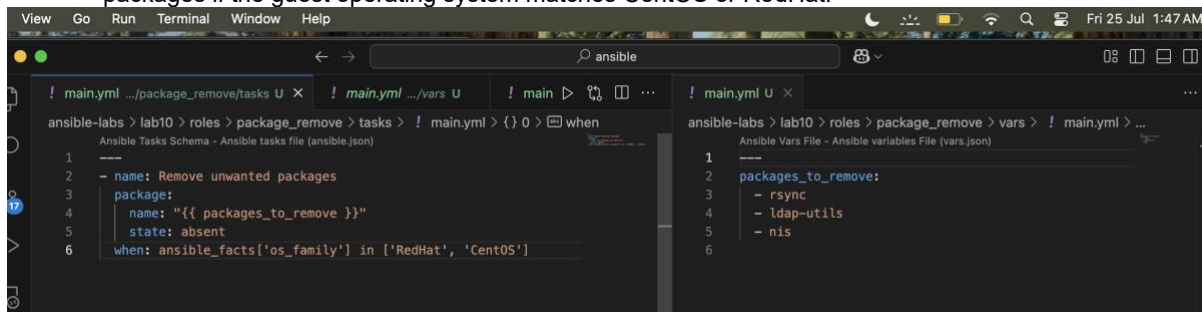
Objectives:

- Create package and patch management roles

Part 1: Create multiple roles for software management:

1. Create a role called package_remove to remove these packages: rsync, ldap-utils, and nis. Define the packages in the vars directory. Employ a condition to only delete the

packages if the guest operating system matches CentOS or RedHat.

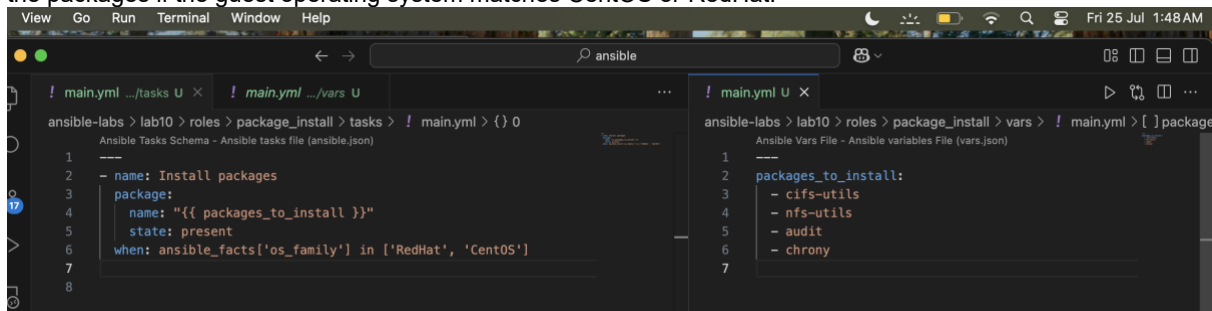


The screenshot shows the Ansible IDE with two panels. The left panel displays the `tasks` file for the `package_remove` role, and the right panel displays the `vars` file.

```
! main.yml .../package_remove/tasks U x
ansible-labs > lab10 > roles > package_remove > tasks > ! main.yml > {} > when
Ansible Tasks Schema - Ansible tasks file (ansible.json)
1
2 - name: Remove unwanted packages
3   package:
4     name: "{{ packages_to_remove }}"
5     state: absent
6   when: ansible_facts['os_family'] in ['RedHat', 'CentOS']

! main.yml .../vars U
ansible-labs > lab10 > roles > package_remove > vars > ! main.yml > ...
Ansible Vars File - Ansible variables File (vars.json)
1
2 packages_to_remove:
3   - rsync
4   - ldap-utils
5   - nis
6
```

2. Create a role called `package_install` to install these packages: `cifs-utils`, `nfs-utils`, `audit`, and `chrony`. Define the packages in the `vars` directory. Employ a condition to only install the packages if the guest operating system matches CentOS or RedHat.

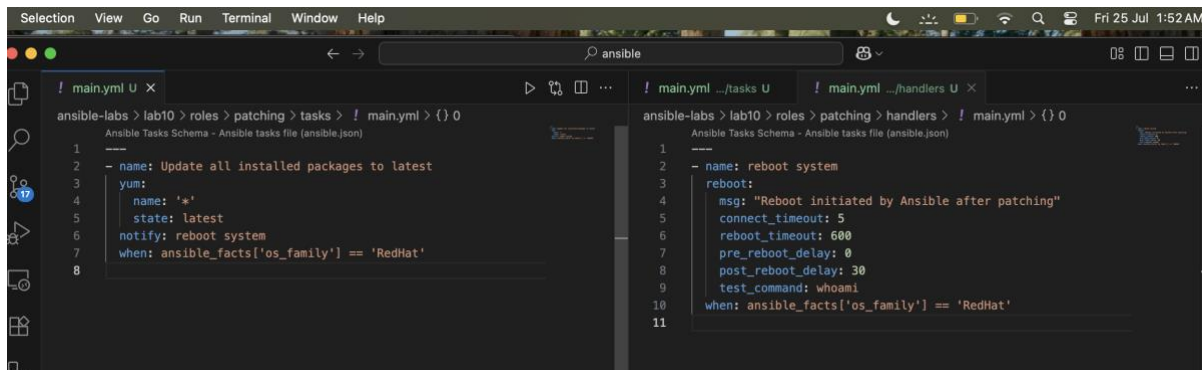


The screenshot shows the Ansible IDE with two panels. The left panel displays the `tasks` file for the `package_install` role, and the right panel displays the `vars` file.

```
! main.yml .../tasks U x
ansible-labs > lab10 > roles > package_install > tasks > ! main.yml > {} > 0
Ansible Tasks Schema - Ansible tasks file (ansible.json)
1
2 - name: Install packages
3   package:
4     name: "{{ packages_to_install }}"
5     state: present
6   when: ansible_facts['os_family'] in ['RedHat', 'CentOS']
7
8

! main.yml .../vars U x
ansible-labs > lab10 > roles > package_install > vars > ! main.yml > [ ] package
Ansible Vars File - Ansible variables File (vars.json)
1
2 packages_to_install:
3   - cifs-utils
4   - nfs-utils
5   - audit
6   - chrony
7
```

3. Create a role called `patching` to deploy the updated versions of all installed packages. Employ a condition to restrict patching to CentOS or RedHat guest operating system. Define a handlers task to reboot the managed nodes after patching has finished.

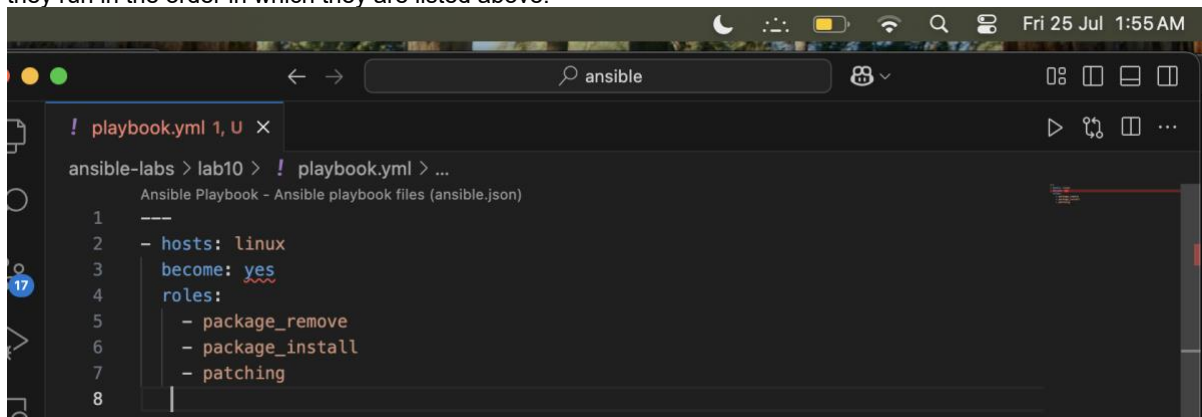


The screenshot shows the Ansible IDE with two panels. The left panel displays the `tasks` file for the `patching` role, and the right panel displays the `handlers` file.

```
! main.yml .../tasks U x
ansible-labs > lab10 > roles > patching > tasks > ! main.yml > {} > 0
Ansible Tasks Schema - Ansible tasks file (ansible.json)
1
2 - name: Update all installed packages to latest
3   yum:
4     name: '*'
5     state: latest
6     notify: reboot system
7   when: ansible_facts['os_family'] == 'RedHat'
8

! main.yml .../handlers U x
ansible-labs > lab10 > roles > patching > handlers > ! main.yml > {} > 0
Ansible Tasks Schema - Ansible tasks file (ansible.json)
1
2 - name: reboot system
3   reboot:
4     msg: "Reboot initiated by Ansible after patching"
5     connect_timeout: 5
6     reboot_timeout: 600
7     pre_reboot_delay: 0
8     post_reboot_delay: 30
9     test_command: whoami
10   when: ansible_facts['os_family'] == 'RedHat'
11
```

4. Create a playbook called `playbook.yml` and define all three roles in it. Make sure that they run in the order in which they are listed above.



The screenshot shows the Ansible IDE with a single panel displaying the `playbook.yml` file.

```
! playbook.yml 1, U x
ansible-labs > lab10 > ! playbook.yml > ...
Ansible Playbook - Ansible playbook files (ansible.json)
1
2 ---
3 - hosts: linux
4   become: yes
5   roles:
6     - package_remove
7     - package_install
8     - patching
9
```

5. Run this playbook against linux inventory hosts

```

Window Help
kajalsund — bash — 156x42
Kajals-MacBook-Air:lab10 n01737472$ ansible-playbook -i hosts playbook.yml

PLAY [linux] *****

TASK [Gathering Facts] *****
ok: [n01737472-u-vm1.eastus.cloudapp.azure.com]

TASK [package_remove : Remove unwanted packages] *****
skipping: [n01737472-u-vm1.eastus.cloudapp.azure.com]

TASK [package_install : Install packages] *****
skipping: [n01737472-u-vm1.eastus.cloudapp.azure.com]

TASK [patching : Update all installed packages to latest] *****
skipping: [n01737472-u-vm1.eastus.cloudapp.azure.com]

PLAY RECAP *****
n01737472-u-vm1.eastus.cloudapp.azure.com : ok=1    changed=0    unreachable=0    failed=0    skipped=3    rescued=0    ignored=0

Kajals-MacBook-Air:lab10 n01737472$ ansible linux -m setup -a 'filter=ansible_os_family'
n01737472-u-vm1.eastus.cloudapp.azure.com | SUCCESS => {
  "ansible_facts": {
    "ansible_os_family": "Debian"
  },
  "changed": false
}
Kajals-MacBook-Air:lab10 n01737472$

```

Section 4

Objectives:

- Create a profile management role

Part 1: Convert lab10 section 1 into a role:

Convert the playbook from section 1 of lab10 into a role called profile_mgmt. Parametrize the configuration as much as possible.

```

Code File Edit Selection View Go Run Terminal Window Help
ansible-labs > lab10 > roles > profile_mgmt > tasks > ! main.yml > ...
1  ---
2  - name: Copy '{{ locfile_name }}' to managed nodes
3    copy:
4      src: "{{ locfile_name }}"
5      dest: "{{ locfile_dest }}"
6      owner: "{{ locfile_owner }}"
7      group: "{{ locfile_group }}"
8      mode: "{{ locfile_mode }}"
9
10
11 - name: Display status of '{{ locfile_dest }}'
12   stat:
13     path: "{{ locfile_dest }}"
14     register: locfile_stat
15
16 - name: Show file status
17   debug:
18     var: locfile_stat
19
20 - name: Create empty file '{{ emptyfile_name }}' in managed user's home directory
21   file:
22     path: "{{ emptyfile_dest }}"
23     state: touch
24
ansible-labs > lab10 > roles > profile_mgmt > vars > ! main.yml > ...
1  ---
2  locfile_name: locfile
3  locfile_dest: /tmp/locfile
4  locfile_owner: "{{ ansible_user }}"
5  locfile_group: root
6  locfile_mode: '0444'
7
8  emptyfile_name: emptyfile
9  emptyfile_dest: "{{ ansible_env.HOME }}/{{ emptyfile_name }}"
10

```

2. Add this role to the playbook.yml playbook. Do not remove or alter the existing roles from the playbook.

```

Code File Edit Selection View Go Run Terminal Window Help
ansible-labs > lab10 > ! playbook.yml > {} 0 > [ ] roles > abc 3
Ansible Playbook - Ansible playbook files (ansible.json)
1  ---
2  - hosts: linux
3    become: yes
4    roles:
5      - package_remove
6      - package_install
7      - patching
8      - profile_mgmt

```


Run this playbook against linux inventory hosts

```

Kajals-MacBook-Air:lab10 n01737472$ ansible-playbook -i hosts playbook.yml

PLAY [linux] *****

TASK [Gathering Facts] *****
ok: [n01737472-u-vm1.eastus.cloudapp.azure.com]

TASK [package_remove : Remove unwanted packages] *****
skipping: [n01737472-u-vm1.eastus.cloudapp.azure.com]

TASK [package_install : Install packages] *****
skipping: [n01737472-u-vm1.eastus.cloudapp.azure.com]

TASK [patching : Update all installed packages to latest] *****
skipping: [n01737472-u-vm1.eastus.cloudapp.azure.com]

TASK [profile_mgmt : Copy 'locfile' to managed nodes] *****
ok: [n01737472-u-vm1.eastus.cloudapp.azure.com]

TASK [profile_mgmt : Display status of '/tmp/locfile'] *****
ok: [n01737472-u-vm1.eastus.cloudapp.azure.com]

TASK [profile_mgmt : Show file status] *****
ok: [n01737472-u-vm1.eastus.cloudapp.azure.com] => {
  "locfile_stat": {
    "changed": false,
    "failed": false,
    "stat": {
      "atime": 1753421599.8274066,
      "attr_flags": "e",
      "attributes": [
        "extents"
      ],
      "block_size": 4096,
      "blocks": 0,
      "charset": "binary",
      "checksum": "da39a3ee5e6b4b0d3255bfef95601890afd80709",
      "ctime": 1753421597.8114083,
      "dev": 2049,
      "device_type": 0,
      "executable": false,
      "exists": true,
      "gr_name": "root",
      "inode": 262618,
      "isblk": false,
      "ischr": false,
      "isdir": false,
      "isfifo": false,
      "isgid": false,
      "islnk": false,
      "isreg": true,
      "issock": false,
      "isuid": false,
      "mimetype": "inode/x-empty",
      "mode": "0444",
      "mtime": 1753421421.3475482,
      "nlink": 1,
      "path": "/tmp/locfile",
      "pw_name": "n01737472",
      "readable": true,
      "rgrp": true,
      "roth": true,
      "rusr": true,
      "size": 0,
      "uid": 1000,
      "version": "2525539879",
      "wgrp": false,
      "woth": false,
      "writeable": true,
      "wusr": false,
      "xgrp": false,
      "xoth": false,
      "xusr": false
    }
  }
}

TASK [profile_mgmt : Create empty file 'emptyfile' in managed user's home directory] *****
changed: [n01737472-u-vm1.eastus.cloudapp.azure.com]

PLAY RECAP *****
n01737472-u-vm1.eastus.cloudapp.azure.com : ok=5    changed=1    unreachable=0    failed=0    skipped=3    rescued=0
Kajals-MacBook-Air:lab10 n01737472$

```

Section 5

Objectives:

- Create a role for setting time zone

Part 1: Create a role for setting time zone:

- Create a role called timezone to set up the time zone to America/Toronto if the installed guest operating system matches CentOS or RedHat.
- Add this role to the playbook.yml playbook. Do not remove or alter the existing roles from the playbook.
- Run this playbook against linux inventory hosts

```

1  - name: Set timezone to America/Toronto on CentOS/RedHat
2    timezone:
3      name: America/Toronto
4      when: ansible_facts['os_family'] in ['RedHat', 'CentOS']
5
6
ansible-labs > lab10 > ! main.yml > {} 0
ansible-labs > lab10 > ! playbook.yml > {} 0 > [ ] roles > 4
1  - hosts: linux
2    become: yes
3    roles:
4      - package_remove
5      - package_install
6      - patching
7      - profile_mgmt
8      - timezone
9

```

```

"xoht": false,
"xusr": false
}
}
}

TASK [profile_mgmt : Create empty file 'emptyfile' in managed user's home directory] *****
changed: [n01737472-u-vm1.eastus.cloudapp.azure.com]

TASK [timezone : Set timezone to America/Toronto on CentOS/RedHat] *****
skipping: [n01737472-u-vm1.eastus.cloudapp.azure.com]

PLAY RECAP *****
n01737472-u-vm1.eastus.cloudapp.azure.com : ok=5  changed=1  unreachable=0  failed=0  skipped=4  rescued=0  ignored=0

Kajals-MacBook-Air:lab10 n01737472$

```

```

1  - name: Set timezone to America/Toronto on CentOS/RedHat
2    timezone:
3      name: America/Toronto
4      when: ansible_facts['os_family'] in ['Debian']
5
6
ansible-labs > lab10 > roles > timezone > tasks > ! main.yml > {} 0 > when
ansible-labs > lab10 > ! playbook.yml > {} 0 > [ ] roles > 4
1  - hosts: linux
2    become: yes
3    roles:
4      - package_remove
5      - package_install
6      - patching
7      - profile_mgmt
8      - timezone
9

```

```

"xoht": false,
"xusr": false
}
}
}

TASK [profile_mgmt : Create empty file 'emptyfile' in managed user's home directory] *****
changed: [n01737472-u-vm1.eastus.cloudapp.azure.com]

TASK [timezone : Set timezone to America/Toronto on CentOS/RedHat] *****
changed: [n01737472-u-vm1.eastus.cloudapp.azure.com]

PLAY RECAP *****
n01737472-u-vm1.eastus.cloudapp.azure.com : ok=6  changed=2  unreachable=0  failed=0  skipped=3  rescued=0  ignored=0

Kajals-MacBook-Air:lab10 n01737472$

```

Section 6

Objectives:

- Create a role for syslog service management

Part 1: Create a role for syslog updates:

1. Create a role called syslog_updates to perform the following tasks:
 - a. Insert a block of text "\$FileCreateMode 0640" at the end of the /etc/rsyslog.conf file.
 - b. Set ownership and owning group to root:root and permissions to 0640 recursively on the /etc/rsyslog.d directory.
 - c. d. Set permissions on the /var/log directory to 0775. Do not run it recursively.
 - d. Restart the rsyslog service via a handler
2. Add this role to the playbook.yml playbook. Do not remove or alter the existing roles

from the playbook.

3. Run this playbook against linux inventory hosts

```

1  ---
2  - name: Restart rsyslog
3    service:
4      name: rsyslog
5      state: restarted
6
! playbook.yml 1, U x
1  ---
2  - hosts: linux
3    become: yes
4    roles:
5      - package_remove
6      - package_install
7      - patching
8      - profile_mgmt
9      - timezone
10   - syslog_updates
! main.yml U x
1  ---
2  - name: Add line to /etc/rsyslog.conf
3    blockinfile:
4      path: /etc/rsyslog.conf
5      block: |
6        $FileCreateMode 0640
7
8  - name: Set rsyslog.d directory ownership and permissions
9    file:
10     path: /etc/rsyslog.d
11     owner: root
12     group: root
13     mode: '0640'
14     recurse: yes
15
16 - name: Set /var/log directory permissions
17   file:
18     path: /var/log
19     mode: '0775'
20

```

```

View Window Help
kajalsund — bash — 162x42

"mode": "0444",
"mtime": 1753421421.3475482,
"nlink": 1,
"path": "/tmp/locfile",
"pw_name": "n01737472",
"readable": true,
"rgrp": true,
"roth": true,
"rusr": true,
"size": 0,
"uid": 1000,
"version": "2525539879",
"wgpr": false,
"woth": false,
"writeable": true,
"wusr": false,
"xgrp": false,
"xoth": false,
"xusr": false
}
}
}

TASK [profile_mgmt : Create empty file 'emptyfile' in managed user's home directory] *****
changed: [n01737472-u-vm1.eastus.cloudapp.azure.com]

TASK [timezone : Set timezone to America/Toronto on CentOS/RedHat] *****
ok: [n01737472-u-vm1.eastus.cloudapp.azure.com]

TASK [syslog_updates : Add line to /etc/rsyslog.conf] *****
changed: [n01737472-u-vm1.eastus.cloudapp.azure.com]

TASK [syslog_updates : Set rsyslog.d directory ownership and permissions] *****
changed: [n01737472-u-vm1.eastus.cloudapp.azure.com]

TASK [syslog_updates : Set /var/log directory permissions] *****
ok: [n01737472-u-vm1.eastus.cloudapp.azure.com]

PLAY RECAP *****
n01737472-u-vm1.eastus.cloudapp.azure.com : ok=9  changed=3  unreachable=0  failed=0  skipped=3  rescued=0  ignored=0

Kajals-MacBook-Air:lab10 n01737472$

```