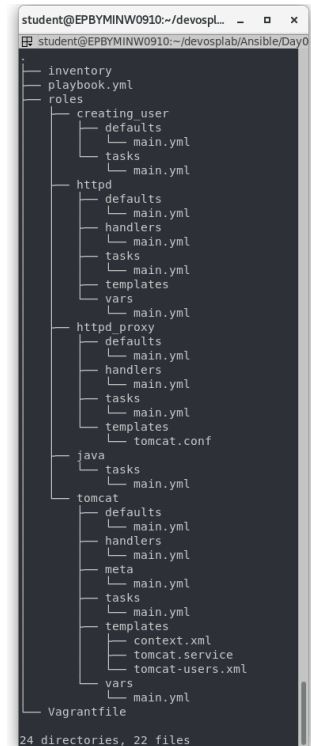


Lab Work Task. Day 2

Task

A) On Control Machine:

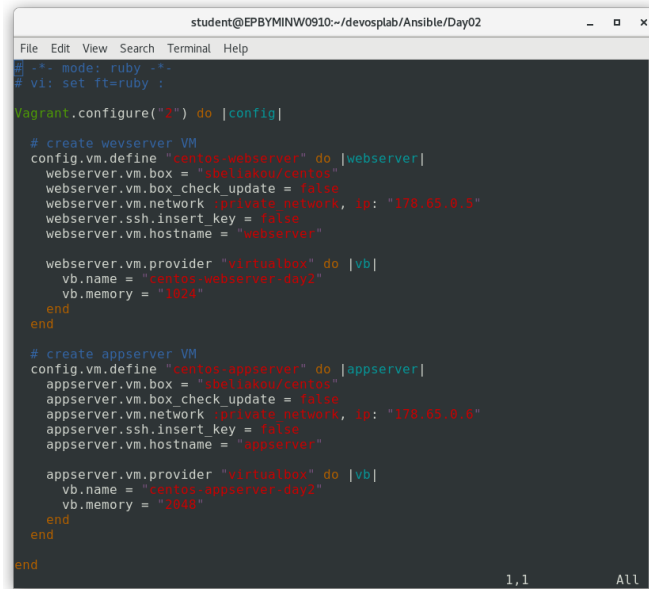
Create folder ~/ansible/day2. All working files should be placed there (Vagrantfile, playbooks, roles folder with custom roles, inventory)



Picture 1

B) Spin up 2 VMs form single Vagrantfile. Compose Inventory:

- Specify groups;
- Define group vars;
- Define host vars;
- Define ansible connection settings (common for all hosts/groups in inventory).

A screenshot of a text editor window titled 'student@EPBYMINW0910:~/devoslab/Ansible/Day02'. The editor shows a Vagrantfile with Ruby syntax. It defines two VMs: 'webserver' and 'appserver'. Both are based on 'centos' and use the 'virtualbox' provider. The 'webserver' VM has a memory of 1024 and IP 178.65.0.5. The 'appserver' VM has a memory of 2048 and IP 178.65.0.6. The file ends with 'end' and 'All' at the bottom right.

```
student@EPBYMINW0910:~/devoslab/Ansible/Day02
File Edit View Search Terminal Help
# -*- mode: ruby -*-
# vi: set ft=ruby :

Vagrant.configure("2") do |config|

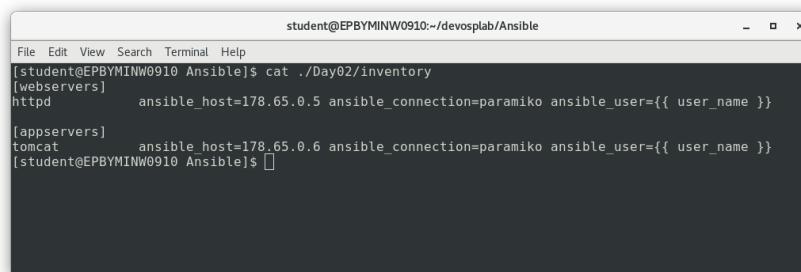
  # create wevserver VM
  config.vm.define "centos-webserver" do |webserver|
    webserver.vm.box = "stallanov/centos"
    webserver.vm.box_check_update = false
    webserver.vm.network :private_network, ip: "178.65.0.5"
    webserver.ssh.insert_key = false
    webserver.vm.hostname = "webserver"

    webserver.vm.provider "virtualbox" do |vb|
      vb.name = "centos-webserver-day2"
      vb.memory = "1024"
    end
  end

  # create appserver VM
  config.vm.define "centos-appserver" do |appserver|
    appserver.vm.box = "stallanov/centos"
    appserver.vm.box_check_update = false
    appserver.vm.network :private_network, ip: "178.65.0.6"
    appserver.ssh.insert_key = false
    appserver.vm.hostname = "appserver"

    appserver.vm.provider "virtualbox" do |vb|
      vb.name = "centos-appserver-day2"
      vb.memory = "2048"
    end
  end
end
1,1 All
```

Picture 2 – Vagrantfile

A screenshot of a terminal window showing the contents of an Ansible inventory file. The file lists two groups: 'webservers' with host 'httpd' and 'appservers' with host 'tomcat'. Both hosts have the same connection and user settings.

```
student@EPBYMINW0910:~/devoslab/Ansible
File Edit View Search Terminal Help
[student@EPBYMINW0910 Ansible]$ cat ./Day02/inventory
[webservers]
httpd      ansible_host=178.65.0.5 ansible_connection=paramiko ansible_user={{ user_name }}

[appservers]
tomcat     ansible_host=178.65.0.6 ansible_connection=paramiko ansible_user={{ user_name }}
[student@EPBYMINW0910 Ansible]$
```

Picture 2.1 – cat inventory file

C) Develop following Roles:

- common (provides common system updates/configuration/so on);
- devops_user (creates “devops:devops” user, updates authorized keys file, configures sudoers, disables requiretty setting for this user);

```
student@EPBYMINW0910:~/devoslab/Ansible/Day02
student@EPBYMINW0910:~/devoslab/Ansible/Day02 118x47
[student@EPBYMINW0910 Day02]$ ansible-playbook -i inventory playbook.yml -u root -k -v
No config file found: using defaults
SSH password:

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [localhost]
ok: [httpd]

TASK [creating user : user create] *****
ok: [httpd] => {"append": false, "changed": false, "comment": "", "group": 1001, "home": "/home/devops", "move_home": false, "name": "devops", "shell": "/bin/bash", "state": "present", "uid": 1001}
ok: [tomcat] => {"append": false, "changed": false, "comment": "", "group": 1001, "home": "/home/devops", "move_home": false, "name": "devops", "shell": "/bin/bash", "state": "present", "uid": 1001}

TASK [creating user : Create Group] *****
ok: [httpd] => {"changed": false, "gid": 1001, "name": "devops", "state": "present", "system": false}
ok: [tomcat] => {"changed": false, "gid": 1001, "name": "devops", "state": "present", "system": false}

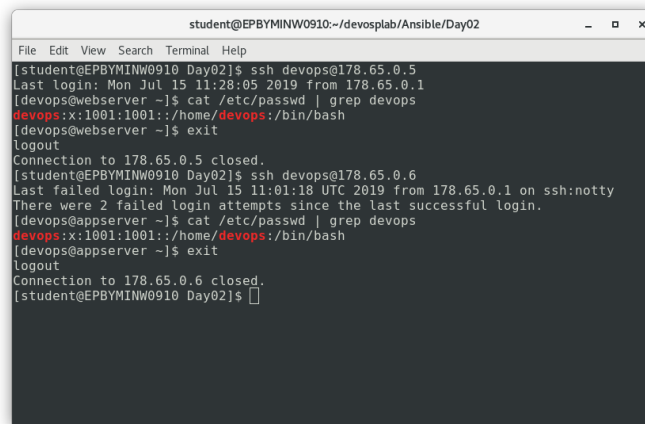
TASK [creating user : user key] *****
ok: [httpd] => {"changed": false, "comment": null, "exclusive": false, "follow": false, "key": "ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQDJPFP1NPfNlNKL1nX6J952xIMns9B2dZW0Fn+c22rXBC5KHbELOppxscT7/4Gnw3p0f+u0qBrz21g6oA1s/W7DHA451HLLSH0RH9Fnd01zz18C30+QAWx0dcNKrweyZ00RPSMaUu5W05ugyWE1e5HLC7XUN0p4yCACPRHI0T5Ck34BhvR0JAktK9PL0ygsPM2U+oc580oteu0uyAGHKNLcqc/r7E055HvB02wfcZAXYXnSw+E7yD0G+bx5tdswK1vs0vcrxm/1kxwFLx2KaPV0IY2scAGsd0179Cr+55+Tm5XpCFCx5INdBtTzrz9PMI/r7wJEDr02K1/ft student@EPBYMINW0910.minsk.epam.com", "key_options": null, "keyfile": "/home/devops/.ssh/authorized_keys", "manage_dir": true, "path": null, "state": "present", "user": "devops", "validate_certs": true}
ok: [tomcat] => {"changed": false, "comment": null, "exclusive": false, "follow": false, "key": "ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQDJPFP1NPfNlNKL1nX6J952xIMns9B2dZW0Fn+c22rXBC5KHbELOppxscT7/4Gnw3p0f+u0qBrz21g6oA1s/W7DHA451HLLSH0RH9Fnd01zz18C30+QAWx0dcNKrweyZ00RPSMaUu5W05ugyWE1e5HLC7XUN0p4yCACPRHI0T5Ck34BhvR0JAktK9PL0ygsPM2U+oc580oteu0uyAGHKNLcqc/r7E055HvB02wfcZAXYXnSw+E7yD0G+bx5tdswK1vs0vcrxm/1kxwFLx2KaPV0IY2scAGsd0179Cr+55+Tm5XpCFCx5INdBtTzrz9PMI/r7wJEDr02K1/ft student@EPBYMINW0910.minsk.epam.com", "key_options": null, "keyfile": "/home/devops/.ssh/authorized_keys", "manage_dir": true, "path": null, "state": "present", "user": "devops", "validate_certs": true}

TASK [creating user : user access] *****
ok: [httpd] => {"changed": false, "checksum": "0dfbd5b469d0d7315f81778b38c0434ad2888724", "dest": "/etc/sudoers.d/devops", "gid": 0, "group": "root", "mode": "0644", "owner": "root", "path": "/etc/sudoers.d/devops", "size": 64, "state": "file", "uid": 0}
ok: [tomcat] => {"changed": false, "checksum": "0dfbd5b469d0d7315f81778b38c0434ad2888724", "dest": "/etc/sudoers.d/devops", "gid": 0, "group": "root", "mode": "0644", "owner": "root", "path": "/etc/sudoers.d/devops", "size": 64, "state": "file", "uid": 0}

PLAY RECAP *****
httpd      : ok=5    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
tomcat     : ok=5    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

[student@EPBYMINW0910 Day02]$
```

Picture 3.1



```
student@EPBYMINW0910:~/devoslab/Ansible/Day02
File Edit View Search Terminal Help
[student@EPBYMINW0910 Day02]$ ssh devops@178.65.0.5
Last login: Mon Jul 15 11:28:05 2019 from 178.65.0.1
[devops@webserver ~]$ cat /etc/passwd | grep devops
devops:x:1001:1001::/home/devops:/bin/bash
[devops@webserver ~]$ exit
logout
Connection to 178.65.0.5 closed.
[student@EPBYMINW0910 Day02]$ ssh devops@178.65.0.6
Last failed login: Mon Jul 15 11:01:18 UTC 2019 from 178.65.0.1 on ssh:notty
There were 2 failed login attempts since the last successful login.
[devops@appserver ~]$ cat /etc/passwd | grep devops
devops:x:1001:1001::/home/devops:/bin/bash
[devops@appserver ~]$ exit
logout
Connection to 178.65.0.6 closed.
[student@EPBYMINW0910 Day02]$
```

Picture 3.2 – Proof

- java (installs java, verifies java installation; supports java version customization);


```

student@EPBYMINW0910:~/devosplab/Ansible/Day02
TASK [Gathering Facts] *****
ok: [tomcat]

TASK [tomcat : tomcat download] *****
changed: [tomcat] => {"changed": false, "checksum_dest": null, "checksum_src": null, "dest": "/home/devops/apache-tomcat-8.5.42.tar.gz", "elapsed": 0, "gid": 1002, "group": "tomcat", "mode": "0644", "msg": "file already exists", "owner": "tomcat", "size": 9711748, "state": "file", "uid": 1002, "url": "http://ftp.byfly.by/pub/apache.org/tomcat/tomcat-8/v8.5.42/bin/apache-tomcat-8.5.42.tar.gz"}

TASK [tomcat : tomcat unarchive] *****
changed: [tomcat] => {"changed": true, "dest": "/opt/", "extract_results": {"cmd": ["/usr/bin/gtar", "--extract", "-C", "/opt/", "-z", "-f", "/home/devops/apache-tomcat-8.5.42.tar.gz"], "err": "", "out": "", "rc": 0, "gid": 0, "group": "root", "handler": "TgzArchive", "mode": "0755", "owner": "root", "size": 66, "src": "/home/devops/apache-tomcat-8.5.42.tar.gz", "state": "directory", "uid": 0}}

TASK [tomcat : tomcat shell operation] *****
changed: [tomcat] => {"changed": true, "cmd": "groupadd tomcat\\nuseradd -g tomcat -d /opt/apache-tomcat-8.5.42 -s /bin/nologin tomcat\\nchown -R tomcat:tomcat /opt/apache-tomcat-8.5.42\\n\\nexport CATALINA_HOME=/opt/apache-tomcat-8.5.42\\n", "delta": "0:00:00.011728", "end": "2019-07-15 12:39:26.616252", "rc": 0, "start": "2019-07-15 12:39:26.604524", "stderr": "groupadd: group 'tomcat' already exists\\nuseradd: user 'tomcat' already exists", "stderr_lines": ["groupadd: group 'tomcat' already exists", "useradd: user 'tomcat' already exists"], "stdout": "", "stdout_lines": []}

TASK [tomcat : tomcat web-user settings] *****
changed: [tomcat] => {"backup file": "/opt/apache-tomcat-8.5.42/conf/tomcat-users.xml.30350.2019-07-15@12:39:28-", "changed": true, "checksum": "0e5c0be7d4a57d0e641a2a66cec086b1b571ede1", "dest": "/opt/apache-tomcat-8.5.42/conf/tomcat-users.xml", "gid": 1002, "group": "tomcat", "md5sum": "be2e4b4351dc0d35a9c2eed22cf712c5", "mode": "0600", "owner": "tomcat", "size": 441, "src": "/root/.ansible/tmp/ansible-tmp-1563194366.78-233282676304749/source", "state": "file", "uid": 1002}

TASK [tomcat : tomcat context.xml setup changes] *****
changed: [tomcat] => {"backup file": "/opt/apache-tomcat-8.5.42/webapps/manager/META-INF/context.xml.38445.2019-07-15@12:39:28-", "changed": true, "checksum": "d5099b03f7bcd4a5b5410a3ad6d48e647c8480", "dest": "/opt/apache-tomcat-8.5.42"}

```

Picture 3.6

```

student@EPBYMINW0910:~/devosplab/Ansible/Day02
errors=no, start time=[Mon 2019-07-15 12:35:47 UTC], stop time=[Mon 2019-07-15 12:35:48 UTC], pid=29515, code=exit
ed, status=0 }, {"FailureAction": "none", "FileDescriptorStoreMax": "0", "FragmentPath": "/etc/systemd/system/tomcat.
service", "Group": "tomcat", "GuessMainPID": "yes", "IOScheduling": "0", "Id": "tomcat.service", "IgnoreOnIsolate": "n
o", "IgnoreOnSnapshot": "no", "IgnoreSIGPIPE": "yes", "InactiveEnterTimestamp": "Mon 2019-07-15 12:35:48 UTC", "Inacti
veEnterTimestampMonotonic": "9406802341", "InactiveExitTimestamp": "Mon 2019-07-15 12:35:48 UTC", "InactiveExitTimeSta
mpMonotonic": "9406803089", "JobTimeoutAction": "none", "JobTimeoutUsec": "0", "KillMode": "control-group", "KillSigna
l": "15", "LimitAS": "18446744073709551615", "LimitCORE": "18446744073709551615", "LimitCPU": "18446744073709551615",
"LimitDATA": "18446744073709551615", "LimitFSIZE": "18446744073709551615", "LimitLOCKS": "18446744073709551615", "Lim
itMEMLOCK": "65536", "LimitMSGQUOTA": "0", "LimitNICE": "0", "LimitNOFILE": "4096", "LimitNRPROC": "7260", "LimitRSS":
"18446744073709551615", "LimitRTTIME": "18446744073709551615", "LimitsIGPENDING": "7260", "Lim
itSTACK": "18446744073709551615", "LoadState": "loaded", "MainPID": "29564", "MemoryAccounting": "no", "MemoryCurrent":
"18446744073709551615", "MemoryLimit": "18446744073709551615", "MountFlags": "0", "Names": "tomcat.service", "NeedDa
emonReload": "no", "Nice": "0", "NoNewPrivileges": "no", "NonBlocking": "no", "NotifyAccess": "none", "OOMScoreAdjust":
"0", "OnFailureJobMode": "replace", "PermissionsStartOnly": "no", "PrivateDevices": "no", "PrivateNetwork": "no", "P
rivateTmp": "no", "ProtectHome": "no", "ProtectSystem": "no", "RefuseManualStart": "no", "RefuseManualStop": "no", "Re
mainAfterExit": "no", "Requires": "basic.target", "Restart": "on-failure", "RestartUsec": "100ms", "Result": "success",
"RootDirectoryStartOnly": "no", "RuntimeDirectoryMode": "0755", "SameProcessGroup": "no", "SecureBits": "0", "SendSI
GHUP": "no", "SendSIGILL": "yes", "Slice": "system.slice", "StandardError": "inherit", "StandardInput": "null", "Stan
dardOutput": "journal", "StartLimitAction": "none", "StartLimitBurst": "5", "StartLimitInterval": "100000000", "Startup
BlockIOWeight": "18446744073709551615", "StartupCPUShares": "18446744073709551615", "StatusErrno": "0", "StopWhenUnnee
ded": "no", "SubState": "running", "SyslogLevelPrefix": "yes", "SyslogPriority": "30", "SystemCallErrorNumber": "0", "
TTYReset": "no", "TTYVHangup": "no", "TTYVDisallocate": "no", "TasksAccounting": "no", "TasksCurrent": "1844674407370
9551615", "TasksMax": "18446744073709551615", "TimeoutStartUsec": "1min 30s", "TimeoutStopUsec": "1min 30s", "TimerSla
ckNsec": "500000", "Transient": "no", "Type": "forking", "UMask": "0022", "UnitFilePreset": "disabled", "UnitFileState":
"enabled", "User": "tomcat", "WantedBy": "multi-user.target", "Wants": "system.slice", "WatchdogTimestamp": "Mon 201
9-07-15 12:35:48 UTC", "WatchdogTimestampMonotonic": "9406810460", "WatchdogUsec": "0"}}

PLAY RECAP *****
ntsd      : ok=5   changed=0   unreachable=0   failed=0   skipped=0   rescued=0   ignored=0
tomcat    : ok=14  changed=6   unreachable=0   failed=0   skipped=0   rescued=0   ignored=0

[student@EPBYMINW0910 Day02]$

```

Picture 3.7

Add JAVA to /role/tomcat/meta/main.yml

```

dependencies:
- role: java
  java_version: 1.8.0

```



- 8


```
student@EPBYMINW0910:~/devosplab/Ansible/Day02
student@EPBYMINW0910:~/devosplab/Ansible/Day02 118x32
tus=0/0 }", "ExecStop": "{ path=/bin/kill ; argv[]=/bin/kill -WINCH ${MAINPID} ; ignore_errors=no ; start_time=[n/a] ;
stop_times=[n/a] ; pid=0 ; code=(null) ; status=0/0 }", "FailureAction": "none", "FileDescriptorStoreMax": "0", "Fragme
entPath": "/usr/lib/systemd/system/httpd.service", "GuessMainPID": "yes", "IOScheduling": "0", "Id": "httpd.service",
"ignoreOnIsolate": "no", "ignoreOnSnapshot": "no", "ignoreSIGPIPE": "yes", "InactiveEnterTimestampMonotonic": "0", "In
activeExitTimestamp": "Mon 2019-07-15 14:30:13 UTC", "InactiveExitTimestampMonotonic": "4658446544", "JobTimeoutActio
n": "none", "JobTimeoutUsec": "0", "KillMode": "control-group", "KillSignal": "18", "LimitAS": "18446744073709551615",
"LimitCORE": "18446744073709551615", "LimitCPU": "18446744073709551615", "LimitDATA": "18446744073709551615", "LimitFS
IZE": "18446744073709551615", "LimitLOCKS": "18446744073709551615", "LimitMEMLOCK": "65536", "LimitMSGQUEUE": "819200",
"LimitNICE": "0", "LimitNOFILE": "4096", "LimitPROC": "3872", "LimitRSS": "18446744073709551615", "LimitRTPRIO": "0",
"LimitRTTIME": "18446744073709551615", "LimitSIGPENDING": "3872", "LimitSTACK": "18446744073709551615", "LoadState":
"loaded", "MainPID": "22384", "MemoryAccounting": "no", "MemoryCurrent": "18446744073709551615", "MemoryLimit": "184
46744073709551615", "MountFlags": "0", "Names": "httpd.service", "NeedDaemonReload": "no", "Nice": "0", "NoNewPrivileg
es": "no", "NonBlocking": "no", "NotifyAccess": "main", "OOMScoreAdjust": "0", "OnFailureJobMode": "replace", "Permiss
ionsStartOnly": "no", "PrivateDevices": "no", "PrivateNetwork": "no", "PrivateTmp": "yes", "ProtectHome": "no", "Prote
ctSystem": "no", "RefuseManualStart": "no", "RefuseManualStop": "no", "RemainAfterExit": "no", "Requires": "basic.targ
et -.mount", "RequiresMountsFor": "/var/tmp", "Restart": "no", "RestartUsec": "100ms", "Result": "success", "RootDirec
toryStartOnly": "no", "RuntimeDirectoryMode": "0755", "SameProcessGroup": "no", "SecureBits": "0", "SendSIGHUP": "no",
"SendSIGKILL": "yes", "Slice": "system.slice", "StandardError": "inherit", "StandardInput": "null", "StandardOutput":
"journal", "StartLimitAction": "none", "StartLimitBurst": "5", "StartLimitInterval": "1000000", "StartupBlockIOWeigh
t": "18446744073709551615", "StartupCPUShares": "18446744073709551615", "StatusErrno": "0", "StatusText": "Processing
requests...", "StopWhenUnneeded": "no", "SubState": "running", "SyslogLevelPrefix": "yes", "SyslogPriority": "30", "Sy
stemCallErrorNumber": "0", "TTYReset": "no", "TTYVhangup": "no", "TTYVTDisallocate": "no", "TasksAccounting": "no", "T
asksCurrent": "18446744073709551615", "TasksMax": "18446744073709551615", "TimeoutStartUsec": "1min 36s", "TimeoutStop
Usec": "1min 36s", "TimerSlackMsec": "50000", "Transient": "no", "Type": "notify", "UMask": "0022", "UnitFilePreset":
"disabled", "UnitFileState": "enabled", "WantedBy": "multi-user.target", "Wants": "system.slice", "WatchdogTimestamp":
"Mon 2019-07-15 14:30:13 UTC", "WatchdogTimestampMonotonic": "4658477919", "WatchdogUsec": "0"}}

PLAY RECAP *****
httpd                : ok=10   changed=3   unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
tomcat               : ok=15   changed=5   unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

[student@EPBYMINW0910 Day02]$
```

Picture 3.8

```
devops@webserver:~
devops@webserver:~ 118x32
[student@EPBYMINW0910 Day02]$ ssh devops@178.65.0.5
Last login: Mon Jul 15 14:31:30 2019 from 178.65.0.1
[devops@webserver ~]$ sudo cat /etc/httpd/conf.d/tomcat.conf
<VirtualHost *:80>

ProxyPreserveHost On

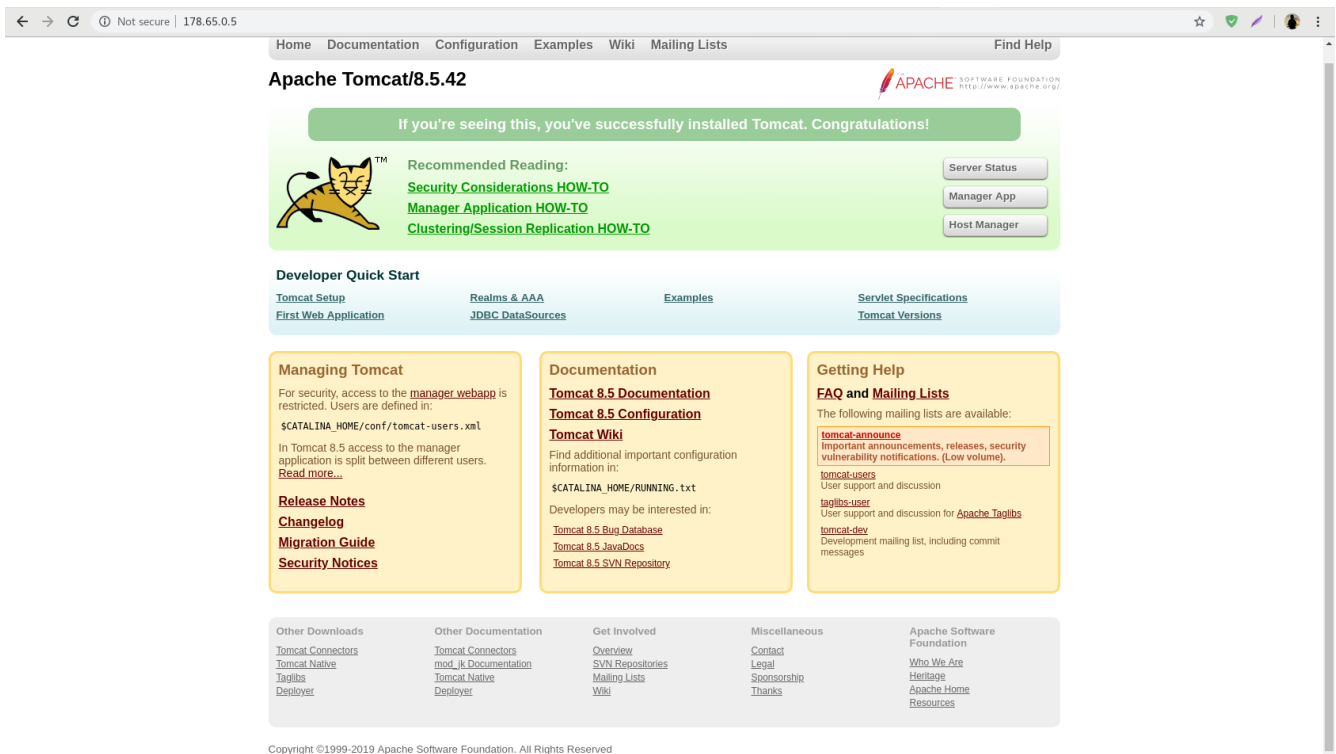
ProxyPass / http://178.65.0.6:8080/

ProxyPassReverse / http://178.65.0.6:8080/

</VirtualHost>
[devops@webserver ~]$ sudo systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; vendor preset: disabled)
   Active: active (running) since Mon 2019-07-15 14:30:15 UTC; 1min 36s ago
     Docs: man:httpd(8)
    Main PID: 22457 (httpd)
   CGroup: /system.slice/httpd.service
           └─22457 /usr/sbin/httpd -DFOREGROUND
             22458 /usr/sbin/httpd -DFOREGROUND
             22459 /usr/sbin/httpd -DFOREGROUND
             22460 /usr/sbin/httpd -DFOREGROUND
             22461 /usr/sbin/httpd -DFOREGROUND
             22462 /usr/sbin/httpd -DFOREGROUND
             22472 /usr/sbin/httpd -DFOREGROUND

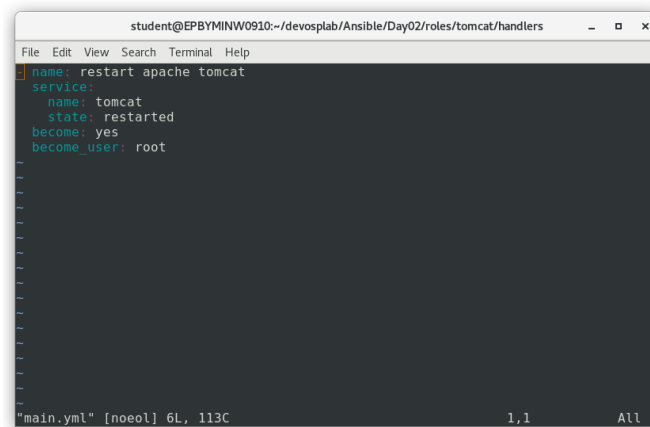
Jul 15 14:30:15 webserver systemd[1]: Stopped The Apache HTTP Server.
Jul 15 14:30:15 webserver systemd[1]: Starting The Apache HTTP Server...
```

Picture 3.8 – Check proxy settings and service status



Picture 3.9 – Check results

D) Make sure that all necessary application state changes are being done with handlers on demand.



Picture 4.1



```
devops@webserver:~  
devops@webserver:~$ kubectl exec -n kube-system pod/nginx-118x3z -- sh  
# TasksAccounting: "no", # TasksCurrent: "18464674407370955161s", # TasksMax: "18464674407370955161s", # TimeoutStartUpSec: "1min 30s", # TimeoutStopSec: "1min 30s", # TimerLastKNSec: "508080", # Transient: "no", # Type: "notify", # UMask: "0022", # UnitFilePresets: "disabled", # UnitFileState: "disabled", # Wants: "system.slice", # WatchdogTimestampMonotonic: "0", # WatchdogUsec: "0"}  
  
RUNNING HANDLER [httpd] : restart httpd *****  
changed: [httpd] => [{"changed": true, "name": "httpd", "state": "started", "status": {"ActiveEnterTimestamp": "Mon 2019-07-15 14:30:13 UTC", "ActiveEnterTimestampMonotonic": "465847794", "ActiveExitTimestampMonotonic": "0", "ActiveState": "active", "After": "tmp.mount network.target", "Before": "journal.socket system.slice basic.target remote-fs.target nsslookup.target", "AllowIsolate": "no", "AmbientCapabilities": "0", "AssertResult": "yes", "AssertTiming": "Mon 2019-07-15 14:30:13 UTC", "AssertTimestampMonotonic": "4658445958", "Before": "shutdown.target multi-user.target", "BlockIOAccounting": "no", "BlockIOWeight": "18464674407370955161s", "CPUAccounting": "no", "CPUQuotaPerSecUSec": "infinity", "CPUSchedPolicy": "0", "CPUSchedullingPriority": "0", "CPUSchedullingResetOnFork": "no", "CPUShares": "18464674407370955161s", "CanIsolate": "no", "CanReload": "yes", "CanStart": "yes", "CanStop": "yes", "CapabilityBoundingSet": "18464674407370955161s", "ConditionResult": "yes", "ConditionTimestamp": "Mon 2019-07-15 14:30:13 UTC", "ConditionTimestampMonotonic": "4658445957", "Conflicts": "shutdown.target", "ControlGroup": "/system.slice/httpd.service", "ControlPID": "0", "DefaultDependencies": "yes", "Delegate": "no", "Description": "The Apache HTTP Server", "DevicePolicy": "auto", "Documentation": "man:httpd(8) man:apachectl(8)", "EnvironmentFile": "/etc/sysconfig/httpd (ignore errors)", "ExecMainCode": "0", "ExecMainExitTimestampMonotonic": "0", "ExecMainPID": "22384", "ExecMainStartTimestamp": "Mon 2019-07-15 14:30:13 UTC", "ExecMainStartTimestampMonotonic": "465844610", "ExecMainStatus": "0", "ExecReload": "[ path=/usr/sbin/httpd : argv=/usr/sbin/httpd OPTIONS=-k graceful : ignore errors;no start time=[n/a] : stop time=[n/a] : pid=0 : code=null] ; status=0/0 }", "ExecStart": "[ path=/usr/sbin/httpd : argv=/usr/sbin/httpd OPTIONS=-DFOREGROUND : ignore errors;no start time=[Mon 2019-07-15 14:30:13 UTC] : stop time=[n/a] : uid=22384 : code=null] ; status=0/0 }", "ExecStop": "[ path=/bin/kill : argv=/bin/kill -WINTCH -s(MAINPID) : ignore errors;no start time=[n/a] : stop time=[n/a] : pid=0 : code=null] ; status=0/0 }", "FailureAction": "none", "FileDescriptorStoreMax": "0", "Frag
```

Picture 4.3 – Restart service after change proxy configs

```
$ ansible all -i inventory -m setup -a 'filter=ansible_all_ipv4_addresses' -u devops
```



```
student@EPBYMINW0910:~/devoslab/Ansible/Day02
student@EPBYMINW0910:~/devoslab/Ansible/Day02 120x35
[student@EPBYMINW0910 Day02]$ ansible all -i inventory -m setup -a 'filter=ansible_all_ipv4_addresses' -u devops
[WARNING]: Platform linux on host tomcat is using the discovered Python interpreter at /usr/bin/python, but future
installation of another Python interpreter could change this. See
https://docs.ansible.com/ansible/2.8/reference_appendices/interpreter_discovery.html for more information.

tomcat | SUCCESS == {
  "ansible_facts": {
    "ansible_all_ipv4_addresses": [
      "178.65.0.6",
      "10.0.2.15"
    ],
    "discovered_interpreter_python": "/usr/bin/python"
  },
  "changed": false
}

[WARNING]: Platform linux on host httpd is using the discovered Python interpreter at /usr/bin/python, but future
installation of another Python interpreter could change this. See
https://docs.ansible.com/ansible/2.8/reference_appendices/interpreter_discovery.html for more information.

httpd | SUCCESS == {
  "ansible_facts": {
    "ansible_all_ipv4_addresses": [
      "10.0.2.15",
      "178.65.0.5"
    ],
    "discovered_interpreter_python": "/usr/bin/python"
  },
  "changed": false
}

[student@EPBYMINW0910 Day02]$
```

Picture 5.1 – IPv4 addresses

```
$ ansible all -i inventory -m setup -a 'filter=ansible_hostname' -u devops
```

```
student@EPBYMINW0910:~/devoslab/Ansible/Day02
student@EPBYMINW0910:~/devoslab/Ansible/Day02 120x35
[student@EPBYMINW0910 Day02]$ ansible all -i inventory -m setup -a 'filter=ansible_hostname' -u devops
[WARNING]: Platform linux on host tomcat is using the discovered Python interpreter at /usr/bin/python, but future
installation of another Python interpreter could change this. See
https://docs.ansible.com/ansible/2.8/reference_appendices/interpreter_discovery.html for more information.

tomcat | SUCCESS => {
  "ansible_facts": {
    "ansible_hostname": "appserver",
    "discovered_interpreter_python": "/usr/bin/python"
  },
  "changed": false
}

[WARNING]: Platform linux on host httpd is using the discovered Python interpreter at /usr/bin/python, but future
installation of another Python interpreter could change this. See
https://docs.ansible.com/ansible/2.8/reference_appendices/interpreter_discovery.html for more information.

httpd | SUCCESS => {
  "ansible_facts": {
    "ansible_hostname": "webserver",
    "discovered_interpreter_python": "/usr/bin/python"
  },
  "changed": false
}
[student@EPBYMINW0910 Day02]$
```

Picture 5.2 – Hostname

```
$ ansible all -i inventory -m setup -a 'filter=ansible_processor' -u devops
```

```
student@EPBYMINW0910:~/devoslab/Ansible/Day02
student@EPBYMINW0910:~/devoslab/Ansible/Day02 120x35
https://docs.ansible.com/ansible/2.8/reference_appendices/interpreter_discovery.html for more information.

tomcat | SUCCESS => {
  "ansible_facts": {
    "ansible_processor": {
      "0": "GenuineIntel",
      "1": "Intel(R) Core(TM) i5-4570 CPU @ 3.20GHz",
      "2": "GenuineIntel",
      "3": "Intel(R) Core(TM) i5-4570 CPU @ 3.20GHz"
    },
    "discovered_interpreter_python": "/usr/bin/python"
  },
  "changed": false
}

[WARNING]: Platform linux on host httpd is using the discovered Python interpreter at /usr/bin/python, but future
installation of another Python interpreter could change this. See
https://docs.ansible.com/ansible/2.8/reference_appendices/interpreter_discovery.html for more information.

httpd | SUCCESS => {
  "ansible_facts": {
    "ansible_processor": {
      "0": "GenuineIntel",
      "1": "Intel(R) Core(TM) i5-4570 CPU @ 3.20GHz",
      "2": "GenuineIntel",
      "3": "Intel(R) Core(TM) i5-4570 CPU @ 3.20GHz"
    },
    "discovered_interpreter_python": "/usr/bin/python"
  },
  "changed": false
}
[student@EPBYMINW0910 Day02]$
```

Picture 5.3 – Processor

```
$ ansible all -i inventory -m setup -a 'filter=ansible_processor_cores' -u devops
```

```

student@EPBYMINW0910:~/devoslab/Ansible/Day02
student@EPBYMINW0910:~/devoslab/Ansible/Day02 120x35
[student@EPBYMINW0910 Day02]$ ansible all -i inventory -m setup -a 'filter=ansible_processor_cores' -u devops
[WARNING]: Platform linux on host tomcat is using the discovered Python interpreter at /usr/bin/python, but future
installation of another Python interpreter could change this. See
https://docs.ansible.com/ansible/2.8/reference_appendices/interpreter_discovery.html for more information.

tomcat | SUCCESS => {
  "ansible_facts": {
    "ansible_processor_cores": 2,
    "discovered_interpreter_python": "/usr/bin/python"
  },
  "changed": false
}
[WARNING]: Platform linux on host httpd is using the discovered Python interpreter at /usr/bin/python, but future
installation of another Python interpreter could change this. See
https://docs.ansible.com/ansible/2.8/reference_appendices/interpreter_discovery.html for more information.

httpd | SUCCESS => {
  "ansible_facts": {
    "ansible_processor_cores": 2,
    "discovered_interpreter_python": "/usr/bin/python"
  },
  "changed": false
}
[student@EPBYMINW0910 Day02]$

```

Picture 5.4 – Number processor cores

F) Develop provision.yml playbook:

- Sections pre_tasks, tasks, roles, post_tasks;

```

TASK [install net-tools] *****
ok: [httpd] => {
  "changed": false, "msg": "", "rc": 0, "results": ["net-tools-2.0-0.24.20131004git.el7.x86_64 providing n
et-tools is already installed"]}
ok: [tomcat] => {
  "changed": false, "msg": "", "rc": 0, "results": ["net-tools-2.0-0.24.20131004git.el7.x86_64 providing
net-tools is already installed"]}
TASK [creating_user : user create] *****

```

Picture 6.1 – Pre_tasks install net-tools

```

TASK [debug] *****
ok: [httpd] => {
  "msg": "Works at the end"
}
ok: [tomcat] => {
  "msg": "Works at the end"
}

PLAY RECAP *****
httpd      : ok=12  changed=0  unreachable=0  failed=0  skipped=0  rescued=0  ignored=0
tomcat     : ok=10  changed=5  unreachable=0  failed=0  skipped=0  rescued=0  ignored=0
[student@EPBYMINW0910 Day02]$

```

Picture 6.1 – Post_tasks debug info

- Specify tomcat version in playbook, inventory (group vars, host vars), extra vars – try different.

```

student@EPBYMINW0910:~/devosplab/Ansible/Day02
File Edit View Search Terminal Help
# Create user on All hosts
hosts: all
roles:
- role: creating user
  user_name: hleb

# install net-tools to example
pre_tasks:
- name: install net-tools
  yum:
    name: net-tools
    state: present

# installing Tomcat + Java on Appserver host
hosts: appservers
roles:
- role: tomcat
  user_name: hleb
  tomcat_version: tomcat-8
  tomcat_release: 8.5.42
  username_tomcat: tomcat
  usergroup_tomcat: tomcat

# installing HTTPD on Webserver host
hosts: webserver
roles:
- role: httpd

- hosts: webserver:appserver
  post_tasks:
  - debug: msg="Works at the end"

"playbook.yml" [noeol] 31L, 610C 1,1 All

```

Picture 7.1 – Filed “user_name” is hleb

```

$ ansible-playbook -i inventory playbook.yml --extra-vars
"{\"user_name\": \"devops\"}" -u root -k -v

```

```

student@EPBYMINW0910:~/devosplab/Ansible/Day02 120x35
student@EPBYMINW0910:~/devosplab/Ansible/Day02 120x35
adjust: 0, "MaildirMode": "replace", "PrivateDirectory": "no", "PrivateNetwork": "no", "PrivateTmp": "yes", "ProtectHome": "no", "ProtectSystem": "no", "RefuseManualStart": "no", "RefuseManualStop": "no", "RemainAfterExit": "no", "Requires": "basic.target - mount", "RequiresMountsFor": "/var/tmp", "Restart": "no", "RestartSec": "100ms", "Result": "success", "RootDirectoryStartOnly": "no", "RuntimeDirectoryMode": "0755", "SameProcessGroup": "no", "SecureBits": "no", "SendSIGHUP": "no", "SendSIGKILL": "yes", "Slice": "system.slice", "StandardError": "inherit", "StandardInput": "null", "StandardOutput": "journal", "StartLimitAction": "none", "StartLimitBurst": "5", "StartLimitInterval": "10000000", "StartupBlockIOWeight": "18446744073709551615", "StartupCPUShares": "18446744073709551615", "StatusErrno": "0", "StatusText": "Total requests: 2; Current requests/sec: 0; Current traffic: 0.0/sec", "StopWhenUnneeded": "no", "SubState": "running", "SyslogLevelPrefix": "yes", "SyslogPriority": "30", "SystemCallErrorNumber": "0", "TTYReset": "no", "TTYWakeup": "no", "TTYVDaemonize": "no", "TaskAccounting": "no", "TasksCurrent": "18446744073709551615", "TaskNext": "18446744073709551615", "TimeoutStartUSec": "1min 30s", "TimeoutStopUSec": "1min 30s", "TimerSlackNSec": "50000", "Transient": "no", "Type": "notify", "UMask": "0022", "UnitFilePreset": "disabled", "UnitFileState": "enabled", "WantedBy": "multi-user.target", "Wants": "system.slice", "WatchdogTimestamp": "Mon 2019-07-15 14:38:15 UTC", "WatchdogTimestampMonotonic": "4660561149", "WatchdogUSec": "0s")

PLAY [webserver:appserver] *****

TASK [Gathering Facts] *****
ok: [httpd]
ok: [tomcat]

TASK [debug] *****
ok: [httpd] => {
  "msg": "Works at the end"
}
ok: [tomcat] => {
  "msg": "Works at the end"
}

PLAY RECAP *****
httpd      : ok=12  changed=0  unreachable=0  failed=0  skipped=0  rescued=0  ignored=0
tomcat     : ok=18  changed=5  unreachable=0  failed=0  skipped=0  rescued=0  ignored=0

[student@EPBYMINW0910 Day02]$ ansible-playbook -i inventory playbook.yml --extra-vars "{\"user_name\": \"devops\"}" -u root -k -v

```

Picture 7.2 – Successful trying extra vars

```

student@EPBYMINW0910:~/devoslab/Ansible/Day02
PLAY [webservers] *****
TASK [gathering Facts] *****
ok: [httpd]

TASK [httpd : httpd installation] *****
ok: [httpd] => { "changed": false, "msg": "", "rc": 0, "results": ["httpd-2.4.6-89.el7.centos.x86_64 providing httpd is already installed"] }

TASK [httpd : httpd proxy to tocmat] *****
ok: [httpd] => { "changed": false, "checksum": "ce439f8cee092dac34055529f359c5f224b109e7", "dest": "/etc/httpd/conf.d/tomcat.conf", "gid": 0, "group": "root", "mode": "0644", "owner": "root", "path": "/etc/httpd/conf.d/tomcat.conf", "size": 138, "state": "file", "uid": 0 }

TASK [httpd : httpd service enable] *****
ok: [httpd] => { "changed": false, "enabled": true, "name": "httpd", "state": "started", "status": { "ActiveEnterTimestamp": "Mon 2019-07-15 14:30:12 UTC", "ActiveEnterTimestampMonotonic": "468051181", "ActiveExitTimestamp": "Mon 2019-07-15 14:30:13 UTC", "ActiveExitTimestampMonotonic": "468012953", "ActiveState": "active", "After": "remote-fs.target system.slice oss_lookup.target mount.target systemd-journald.socket basic.target log.mount network.target", "AllmIsolate": "no", "AmbientCapabilities": "0", "AssertResult": "yes", "AssertTimestamp": "Mon 2019-07-15 14:30:15 UTC", "AssertTimestampMonotonic": "4680529789", "Before": "multi-user.target shutdown.target", "BlockIOAccounting": "no", "BlockIOWeight": "10446734073709551615", "CPUAccounting": "no", "CPUQuotaPerSecUsec": "infinity", "CPUSchedulingPolicy": "0", "CPUSchedulingPriority": "0" } }

```

Picture 7.3 – User not changed

This is useful for, among other things, setting the hosts group or the user for the playbook. Difference only in the precedence.

Here is the order of precedence from least to greatest (the last listed variables winning prioritization):

1. command line values (eg “-u user”)
2. role defaults
3. inventory file or script group vars
4. inventory group_vars/all
5. playbook group_vars/all
6. inventory group_vars/*
7. playbook group_vars/*
8. inventory file or script host vars
9. inventory host_vars/*
10. playbook host_vars/*
11. host facts / cached set_facts
12. play vars
13. play vars_prompt
14. play vars_files
15. role vars (defined in role/vars/main.yml)
16. block vars (only for tasks in block)
17. task vars (only for the task)
18. include_vars
19. set_facts / registered vars
20. role (and include_role) params
21. include params
22. extra vars (always win precedence)