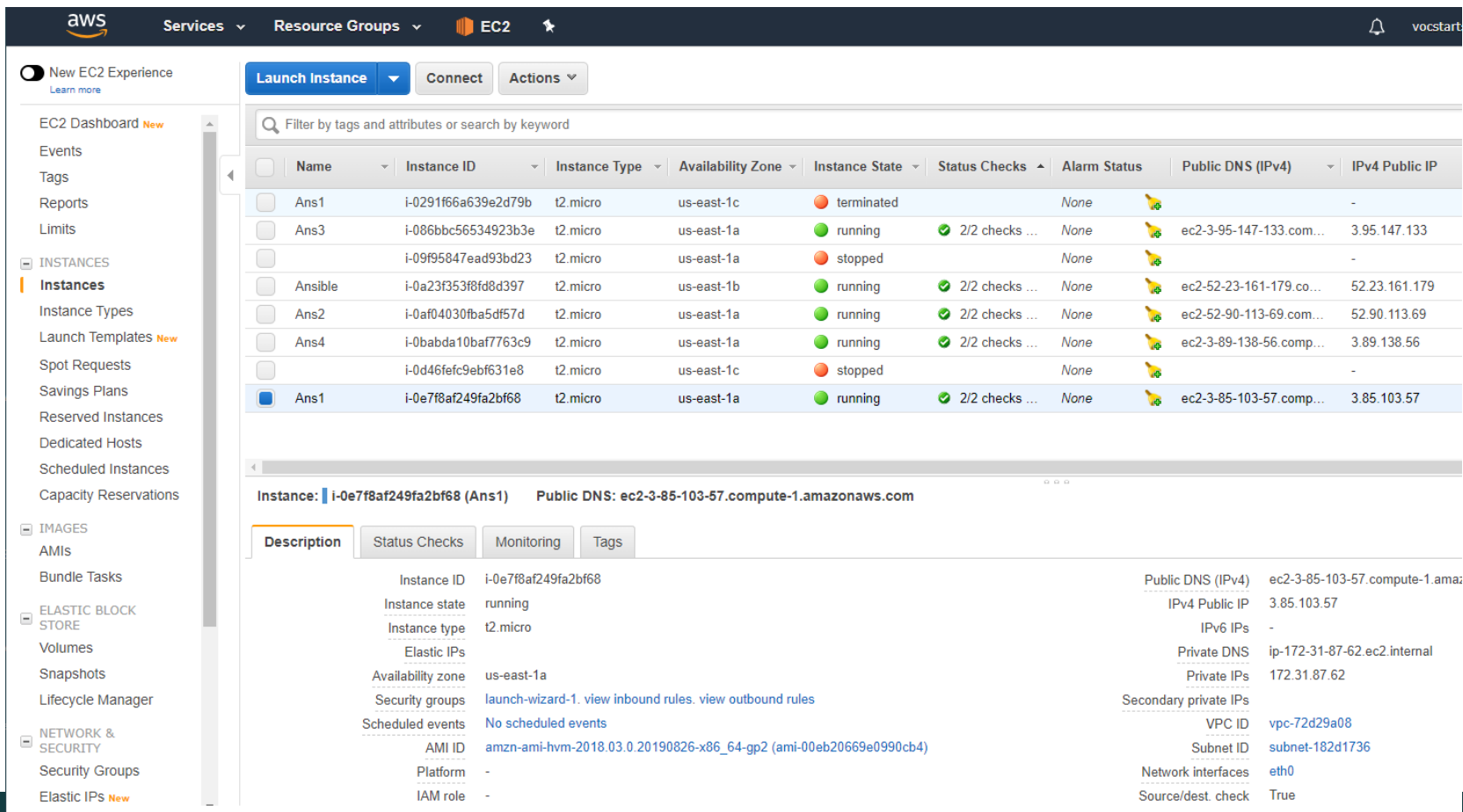




# Configuration Management. Lecture 2.



# ANSIBLE (prepare EC2 instances for using with Ansible)



**aws** Services ▾ Resource Groups ▾ EC2 ★

New EC2 Experience [Learn more](#)

**Launch Instance** ▾ **Connect** **Actions** ▾

Filter by tags and attributes or search by keyword

<input type="checkbox"/>	Name ▾	Instance ID ▾	Instance Type ▾	Availability Zone ▾	Instance State ▾	Status Checks ▴	Alarm Status	Public DNS (IPv4) ▾	IPv4 Public IP
<input type="checkbox"/>	Ans1	i-0291f66a639e2d79b	t2.micro	us-east-1c	terminated		None		-
<input type="checkbox"/>	Ans3	i-086bbc56534923b3e	t2.micro	us-east-1a	running	✓ 2/2 checks ...	None	ec2-3-95-147-133.com...	3.95.147.133
<input type="checkbox"/>		i-09f95847ead93bd23	t2.micro	us-east-1a	stopped		None		-
<input type="checkbox"/>	Ansible	i-0a23f353f8fd8d397	t2.micro	us-east-1b	running	✓ 2/2 checks ...	None	ec2-52-23-161-179.co...	52.23.161.179
<input type="checkbox"/>	Ans2	i-0af04030fba5df57d	t2.micro	us-east-1a	running	✓ 2/2 checks ...	None	ec2-52-90-113-69.com...	52.90.113.69
<input type="checkbox"/>	Ans4	i-0babda10baf7763c9	t2.micro	us-east-1a	running	✓ 2/2 checks ...	None	ec2-3-89-138-56.comp...	3.89.138.56
<input type="checkbox"/>		i-0d46f9ebf631e8	t2.micro	us-east-1c	stopped		None		-
<input checked="" type="checkbox"/>	Ans1	i-0e7f8af249fa2bf68	t2.micro	us-east-1a	running	✓ 2/2 checks ...	None	ec2-3-85-103-57.comp...	3.85.103.57

Instance: **i-0e7f8af249fa2bf68 (Ans1)** Public DNS: [ec2-3-85-103-57.compute-1.amazonaws.com](#)

**Description** Status Checks Monitoring Tags

Instance ID	i-0e7f8af249fa2bf68	Public DNS (IPv4)	ec2-3-85-103-57.compute-1.ama
Instance state	running	IPv4 Public IP	3.85.103.57
Instance type	t2.micro	IPv6 IPs	-
Elastic IPs		Private DNS	ip-172-31-87-62.ec2.internal
Availability zone	us-east-1a	Private IPs	172.31.87.62
Security groups	<a href="#">launch-wizard-1</a> , <a href="#">view inbound rules</a> , <a href="#">view outbound rules</a>	Secondary private IPs	
Scheduled events	No scheduled events	VPC ID	vpc-72d29a08
AMI ID	amzn-ami-hvm-2018.03.0.20190826-x86_64-gp2 (ami-00eb20669e0990cb4)	Subnet ID	subnet-182d1736
Platform	-	Network interfaces	eth0
IAM role	-	Source/dest. check	True

# ANSIBLE (make info more structured using groups\_var)

```
52.23.161.179 (ubuntu)
Terminal Sessions View X server Tools Games Settings Macros Help
Quick connect...
96 ansible all -m file -a "path=/home/hello.txt state=absent"
97 ansible all -m yum -a "name=httpd state=latest" -b
98 ansible test_prod -m service -a "name=httpd state=started"
99 ansible production -m yum -a "name=httpd state=removed" -b
100 ansible-doc -l
101 pwd
102 ls -la
103 cd .ssh
104 ls -la
105 cd
106 cd ansible/
107 ls
108 nano hosts.txt
109 ansible all -m ping
110 mkdir group_vars
111 nano hosts.txt
112 nano group_vars/same_cred
113 nano hosts.txt
114 ansible all -m ping
115 nano group_vars/same_cred
116 ansible all -m ping
117 history
ubuntu@ip-172-31-31-163:~/ansible$ nano hosts.txt
ubuntu@ip-172-31-31-163:~/ansible$
```

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```
52.23.161.179 (ubuntu)
Terminal Sessions View X server Tools Games Settings Macros Help
Quick connect...
GNU nano 2.5.3 File: group_vars/same_cred
--
ansible_user      : ec2-user
ansible_ssh_private_key_file : /home/ubuntu/.ssh/absible.pem
```

UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here

```
52.23.161.179 (ubuntu)
Terminal Sessions View X server Tools Games Settings Macros Help
Quick connect...
GNU nano 2.5.3 File: hosts.txt
[staging]
linux1  ansible_host=3.85.103.57

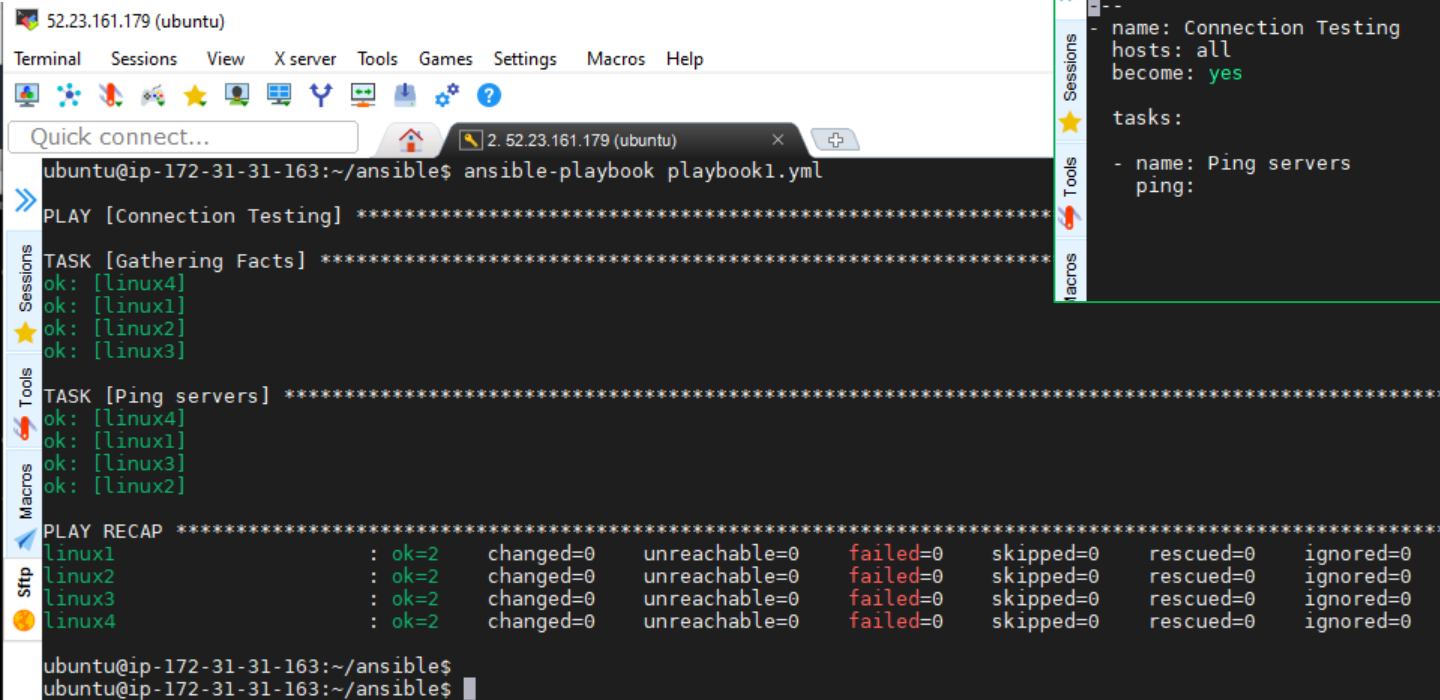
[test]
linux3  ansible_host=3.95.147.133

[production]
linux2  ansible_host=52.90.113.69
linux4  ansible_host=3.89.138.56

[same_cred:children]
staging
test
production
```

# ANSIBLE : first playbooks

Task: Test connection to all servers, owned by your organization.  
Assumed, that you have credentials to do this action



The screenshot shows a MobaXterm terminal window with a session titled '52.23.161.179 (ubuntu)'. The terminal displays the execution of an Ansible playbook named 'playbook1.yml'. The output shows the following steps:

```
ubuntu@ip-172-31-31-163:~/ansible$ ansible-playbook playbook1.yml

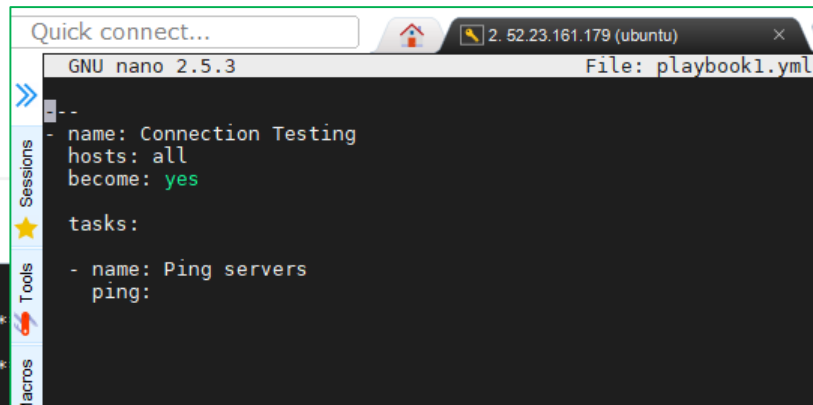
PLAY [Connection Testing] *****

TASK [Gathering Facts] *****
ok: [linux4]
ok: [linux1]
ok: [linux2]
ok: [linux3]

TASK [Ping servers] *****
ok: [linux4]
ok: [linux1]
ok: [linux3]
ok: [linux2]

PLAY RECAP *****
linux1      : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
linux2      : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
linux3      : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
linux4      : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

ubuntu@ip-172-31-31-163:~/ansible$
ubuntu@ip-172-31-31-163:~/ansible$
```



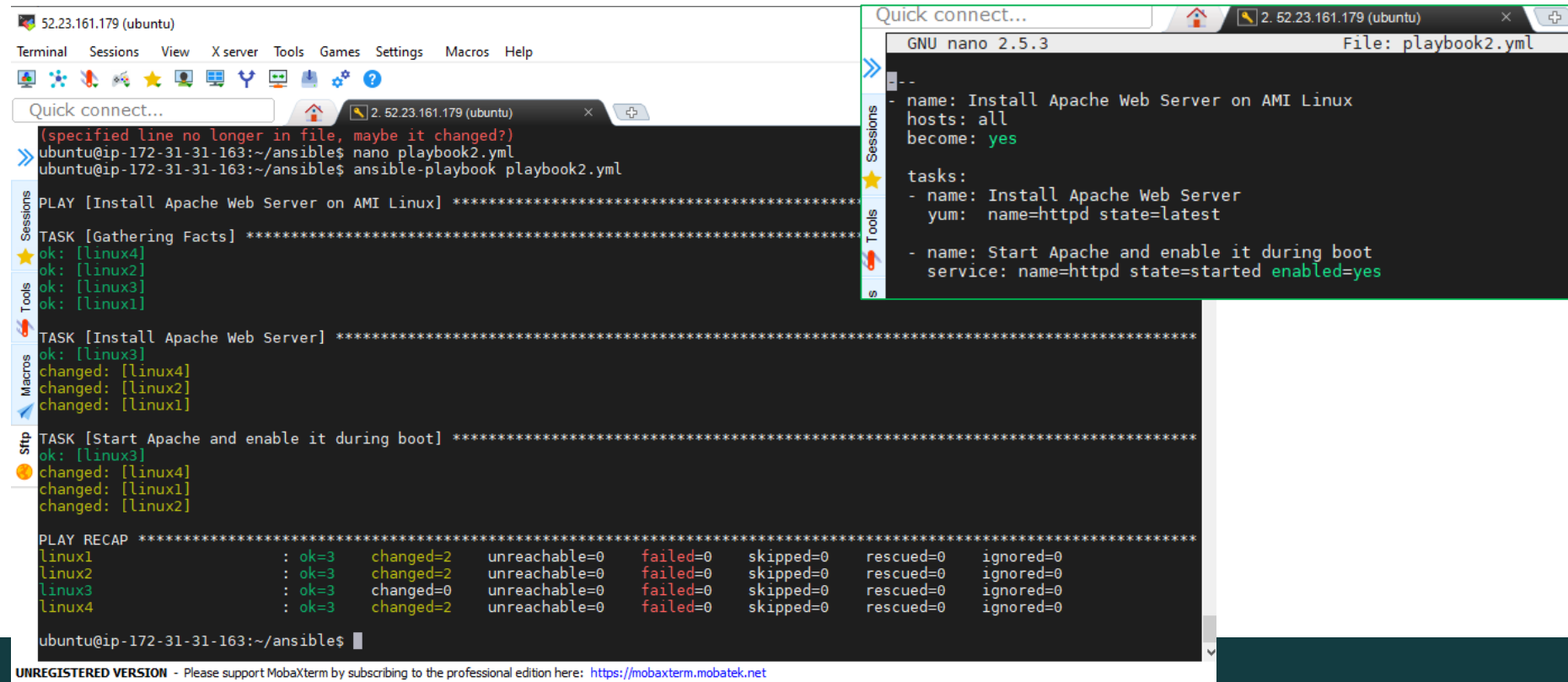
The screenshot shows a nano editor window titled 'GNU nano 2.5.3' with a file named 'playbook1.yml'. The content of the file is as follows:

```
--
- name: Connection Testing
  hosts: all
  become: yes

  tasks:
    - name: Ping servers
      ping:
```

# ANSIBLE : first playbooks

Task: Install Apache Web Server on all servers, owned by your organization.  
Also needed to start Apache Web Server and enable it during boot



```
(specified line no longer in file, maybe it changed?)
ubuntu@ip-172-31-31-163:~/ansible$ nano playbook2.yml
ubuntu@ip-172-31-31-163:~/ansible$ ansible-playbook playbook2.yml

PLAY [Install Apache Web Server on AMI Linux] *****

TASK [Gathering Facts] *****
ok: [linux4]
ok: [linux2]
ok: [linux3]
ok: [linux1]

TASK [Install Apache Web Server] *****
ok: [linux3]
changed: [linux4]
changed: [linux2]
changed: [linux1]

TASK [Start Apache and enable it during boot] *****
ok: [linux3]
changed: [linux4]
changed: [linux1]
changed: [linux2]

PLAY RECAP *****
linux1      : ok=3    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
linux2      : ok=3    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
linux3      : ok=3    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
linux4      : ok=3    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

ubuntu@ip-172-31-31-163:~/ansible$
```

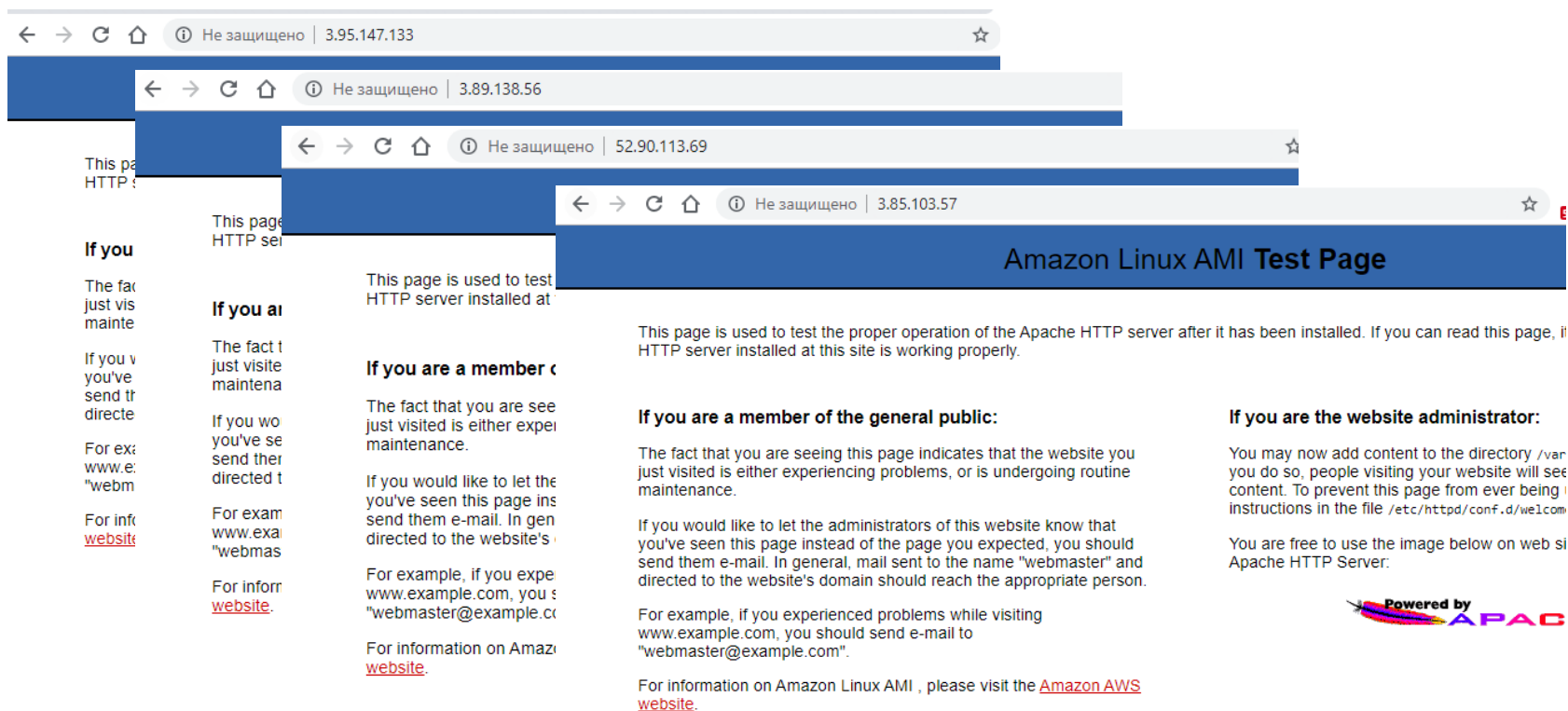
```
--
- name: Install Apache Web Server on AMI Linux
  hosts: all
  become: yes

  tasks:
    - name: Install Apache Web Server
      yum: name=httpd state=latest

    - name: Start Apache and enable it during boot
      service: name=httpd state=started enabled=yes
```

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# ANSIBLE : first playbooks



# ANSIBLE : first playbooks

Task: Install Apache Web Server on all servers, owned by your organization.

Also needed to start Apache Web Server and enable it during boot.

Also needed to change default index.html

```
52.23.161.179 (ubuntu)
Terminal Sessions View X server Tools Games Settings Macros Help

Quick connect...

ubuntu@ip-172-31-31-163:~/ansible$ ansible-playbook playbook3a.yml

PLAY [Install Apache Web Server on AMI Linux. Upload web page example] *****

TASK [Gathering Facts] *****
ok: [linux2]
ok: [linux4]
ok: [linux3]
ok: [linux1]

TASK [Install Apache Web Server] *****
ok: [linux2]
ok: [linux3]
ok: [linux1]
ok: [linux4]

TASK [Copy index.html to target server] *****
changed: [linux2]
changed: [linux1]
changed: [linux4]
changed: [linux3]

TASK [Start Apache and enable it during boot] *****
ok: [linux4]
ok: [linux3]
ok: [linux1]
ok: [linux2]

PLAY RECAP *****
linux1      : ok=4    changed=1    unreachable=0    failed=0    skipped=0
linux2      : ok=4    changed=1    unreachable=0    failed=0    skipped=0
linux3      : ok=4    changed=1    unreachable=0    failed=0    skipped=0
linux4      : ok=4    changed=1    unreachable=0    failed=0    skipped=0

ubuntu@ip-172-31-31-163:~/ansible$
```

```
Quick connect...
2. 52.23.161.179 (ubuntu)
GNU nano 2.5.3 File: playbook3a.yml

--
- name: Install Apache Web Server on AMI Linux. Upload web page example
  hosts: all
  become: yes

vars:
  source_file: index.html
  destin_file: /var/www/html

tasks:
  - name: Install Apache Web Server
    yum: name=httpd state=latest

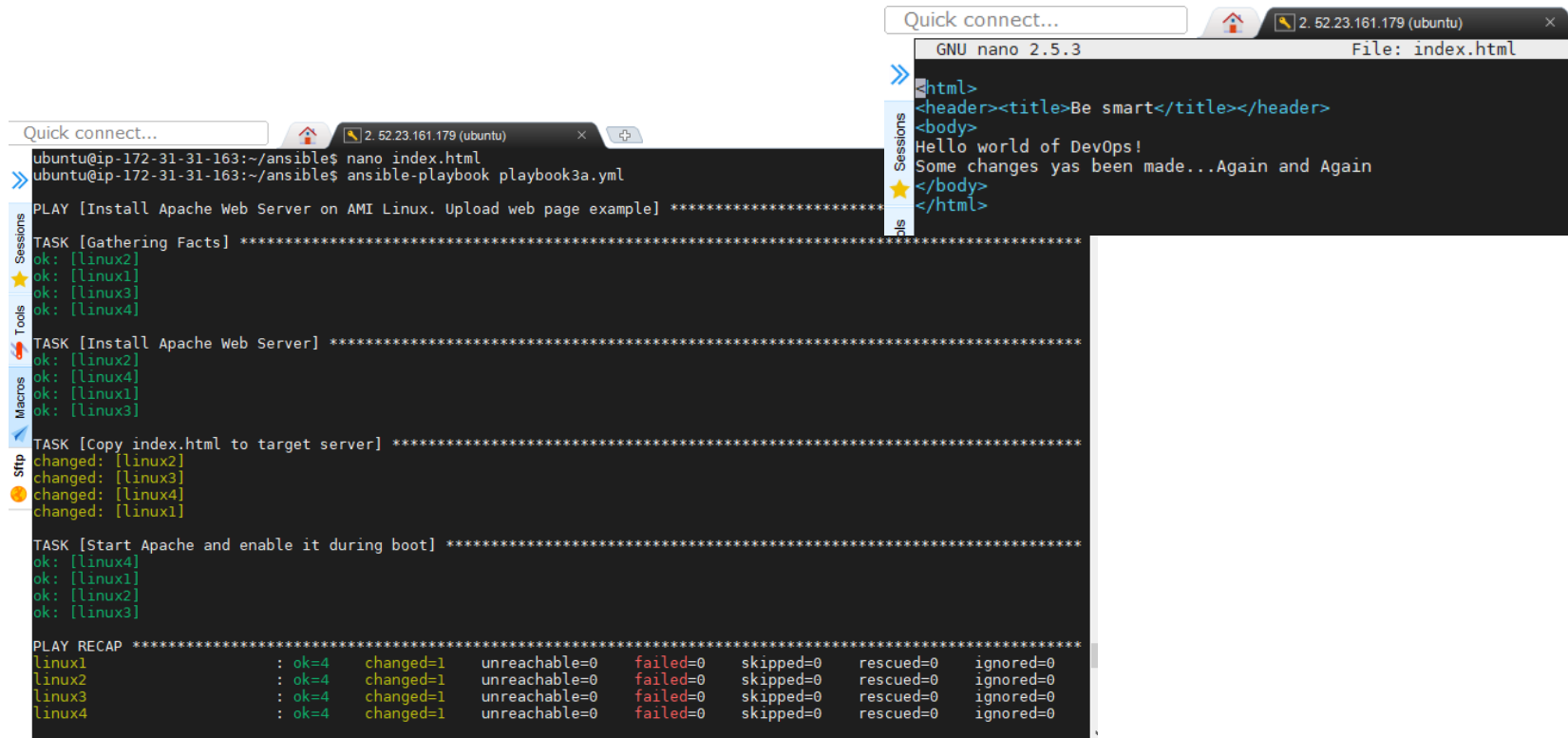
  - name: Copy index.html to target server
    copy: src={{ source_file }} dest={{ destin_file }} mode=0555

  - name: Start Apache and enable it during boot
    service: name=httpd state=started enabled=yes
```

```
Quick connect...
2. 52.23.161.179 (ubuntu)
GNU nano 2.5.3 File: index.html

<html>
<header><title>Be smart</title></header>
<body>
Hello world of DevOps!
</body>
</html>
```

# ANSIBLE : first playbooks



The image shows a terminal window running an Ansible playbook and a nano editor window showing the content of index.html.

**Terminal Window:**

```
ubuntu@ip-172-31-31-163:~/ansible$ nano index.html
ubuntu@ip-172-31-31-163:~/ansible$ ansible-playbook playbook3a.yml

PLAY [Install Apache Web Server on AMI Linux. Upload web page example] *****

TASK [Gathering Facts] *****
ok: [linux2]
ok: [linux1]
ok: [linux3]
ok: [linux4]

TASK [Install Apache Web Server] *****
ok: [linux2]
ok: [linux4]
ok: [linux1]
ok: [linux3]

TASK [Copy index.html to target server] *****
changed: [linux2]
changed: [linux3]
changed: [linux4]
changed: [linux1]

TASK [Start Apache and enable it during boot] *****
ok: [linux4]
ok: [linux1]
ok: [linux2]
ok: [linux3]

PLAY RECAP *****
linux1      : ok=4    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
linux2      : ok=4    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
linux3      : ok=4    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
linux4      : ok=4    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

**nano editor window:**

```
GNU nano 2.5.3 File: index.html
<html>
<header><title>Be smart</title></header>
<body>
Hello world of DevOps!
Some changes yas been made...Again and Again
</body>
</html>
```



# ANSIBLE : first playbooks

```
Quick connect... 2. 52.23.161.179 (ubuntu) x
ok: [linux4]
ok: [linux2]
ok: [linux1]

TASK [Install Apache Web Server] *****
ok: [linux1]
ok: [linux2]
ok: [linux4]
ok: [linux3]

TASK [Copy index.html to target server] *****
changed: [linux2]
changed: [linux4]
changed: [linux3]
changed: [linux1]

TASK [Start Apache and enable it during boot] *****
ok: [linux3]
ok: [linux1]
ok: [linux4]
ok: [linux2]

RUNNING HANDLER [Restart Apache] *****
changed: [linux2]
changed: [linux4]
changed: [linux1]
changed: [linux3]

PLAY RECAP *****
linux1      : ok=5    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
linux2      : ok=5    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
linux3      : ok=5    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
linux4      : ok=5    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

ubuntu@ip-172-31-31-163:~/ansible$
```

```
Quick connect... 2. 52.23.161.179 (ubuntu) x
GNU nano 2.5.3 File: index.html
<html>
<header><title>Be smart</title></header>
<body>
Hello world of DevOps!
Some changes yas been made...Again and Again
</body>
</html>
```

```
Quick connect... 2. 52.23.161.179 (ubuntu) x
GNU nano 2.5.3 File: playbook3b.yml
- --
- name: Install Apache Web Server on AMI Linux. Upload web page example
  hosts: all
  become: yes

vars:
  source_file: index.html
  destin_file: /var/www/html

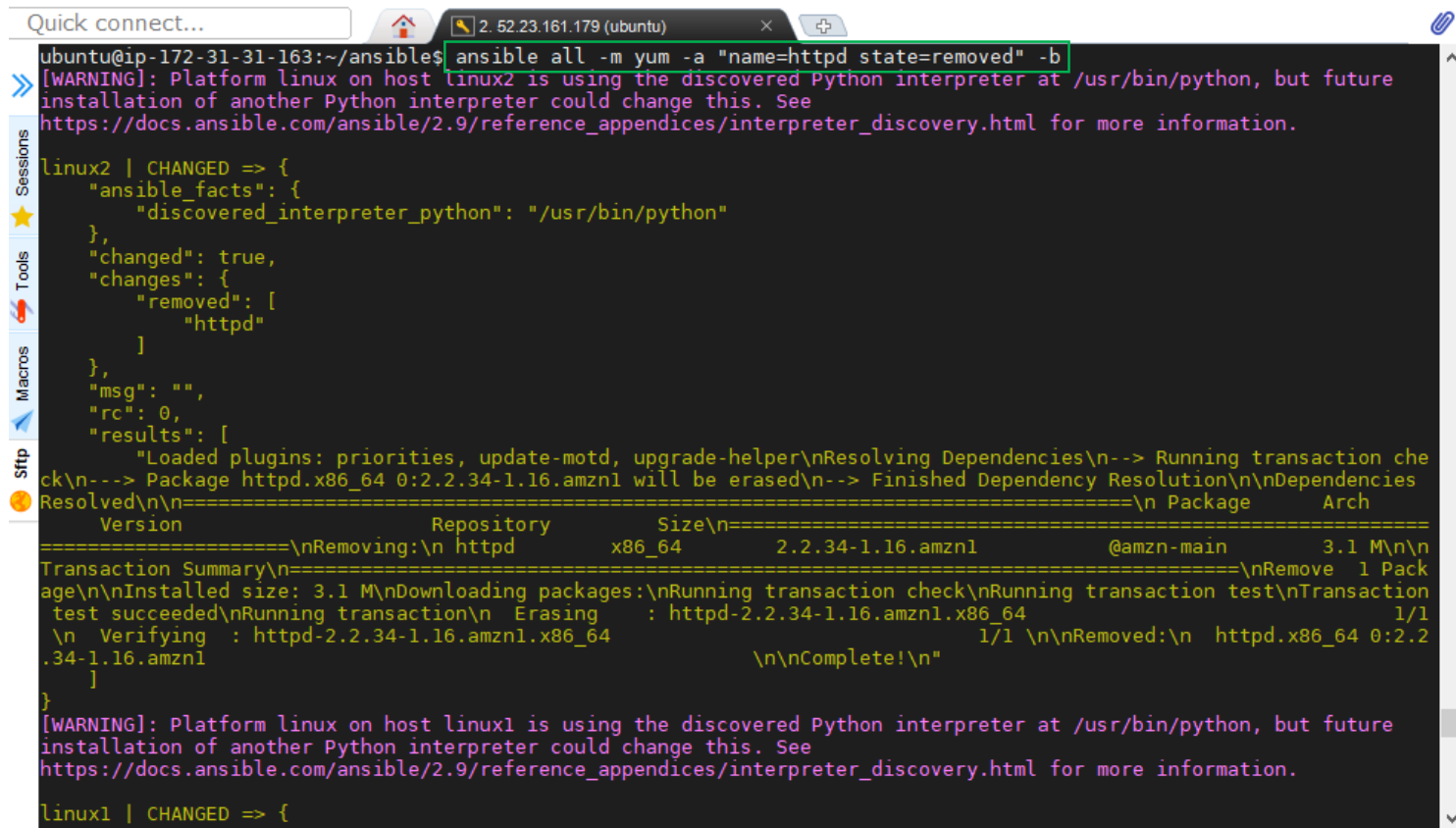
tasks:
- name: Install Apache Web Server
  yum: name=httpd state=latest

- name: Copy index.html to target server
  copy: src={{ source_file }} dest={{ destin_file }} mode=0555
  notify: Restart Apache

- name: Start Apache and enable it during boot
  service: name=httpd state=started enabled=yes

handlers:
- name: Restart Apache
  service: name=httpd state=restarted
```

# ANSIBLE : first playbooks



```
Quick connect... 2. 52.23.161.179 (ubuntu) x +
ubuntu@ip-172-31-31-163:~/ansible$ ansible all -m yum -a "name=httpd state=removed" -b
[WARNING]: Platform linux on host linux2 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/2.9/reference_appendices/interpreter_discovery.html for more information.

linux2 | CHANGED => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python"
  },
  "changed": true,
  "changes": {
    "removed": [
      "httpd"
    ]
  },
  "msg": "",
  "rc": 0,
  "results": [
    "Loaded plugins: priorities, update-motd, upgrade-helper\nResolving Dependencies\n--> Running transaction che
ck\n--> Package httpd.x86_64 0:2.2.34-1.16.amzn1 will be erased\n--> Finished Dependency Resolution\n\nDependencies
Resolved\n\n=====
Version              Repository              Size\n=====
Removing: httpd      x86_64                  2.2.34-1.16.amzn1      @amzn-main          3.1 M\n\n
Transaction Summary\n=====
Remove 1 Pack
age\n\nInstalled size: 3.1 M\nDownloading packages:\nRunning transaction check\nRunning transaction test\nTransaction
test succeeded\nRunning transaction\n Erasing      : httpd-2.2.34-1.16.amzn1.x86_64          1/1
\n Verifying  : httpd-2.2.34-1.16.amzn1.x86_64          1/1 \n\nRemoved:\n httpd.x86_64 0:2.2
.34-1.16.amzn1
\n\nComplete!\n"
  ]
}
[WARNING]: Platform linux on host linux1 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/2.9/reference_appendices/interpreter_discovery.html for more information.

linux1 | CHANGED => {
```

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# ANSIBLE : first playbooks

Task: Install Apache Web Server on all servers, owned by your organization.

Also needed to start Apache Web Server and enable it during boot.

Also needed to change default index.html. Servers are on different Linux-based OS

```
Quick connect... 2. 52.23.161.179 (ubuntu) x
ubuntu@ip-172-31-31-163:~/ansible$ nano playbook3b.yml
ubuntu@ip-172-31-31-163:~/ansible$ ansible-playbook playbook3b.yml

PLAY [Install Apache Web Server on AMI Linux. Upload web page example] *****

TASK [Gathering Facts] *****
fatal: [linux1]: UNREACHABLE! => {"changed": false, "msg": "Failed to connect to the host via ssh: Warning: Permanent
ly added '107.23.244.128' (ECDSA) to the list of known hosts.\r\nPermission denied (publickey).", "unreachable": true
}
ok: [linux2]
ok: [linux4]
ok: [linux3]

TASK [Install Apache Web Server] *****
changed: [linux2]
changed: [linux4]
changed: [linux3]

TASK [Copy index.html to target server] *****
ok: [linux4]
ok: [linux2]
ok: [linux3]

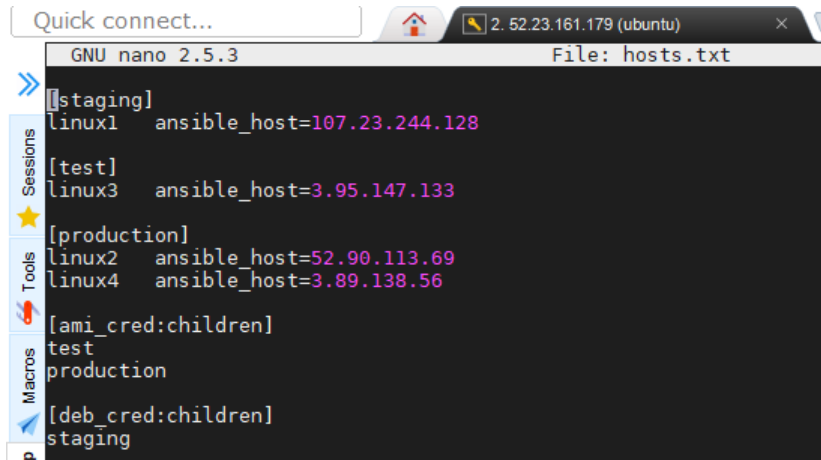
TASK [Start Apache and enable it during boot] *****
changed: [linux4]
changed: [linux2]
changed: [linux3]

PLAY RECAP *****
linux1      : ok=0    changed=0    unreachable=1    failed=0    skipped=0    rescued=0    ignored=0
linux2      : ok=4    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
linux3      : ok=4    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
linux4      : ok=4    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

ubuntu@ip-172-31-31-163:~/ansible$ ll
```

# ANSIBLE : first playbooks

Task: Install Apache Web Server on all servers, owned by your organization.  
Also needed to start Apache Web Server and enable it during boot.  
Also needed to change default index.html. Servers are on different Linux-based OS



Quick connect... 2. 52.23.161.179 (ubuntu)

GNU nano 2.5.3 File: hosts.txt

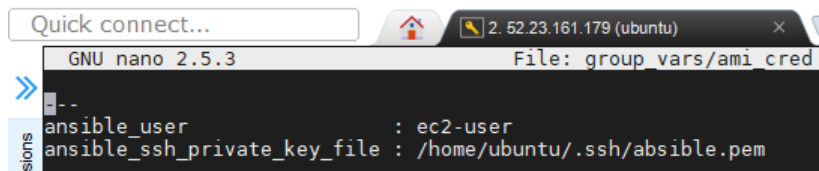
```
[staging]
linux1  ansible_host=107.23.244.128

[test]
linux3  ansible_host=3.95.147.133

[production]
linux2  ansible_host=52.90.113.69
linux4  ansible_host=3.89.138.56

[ami_cred:children]
test
production

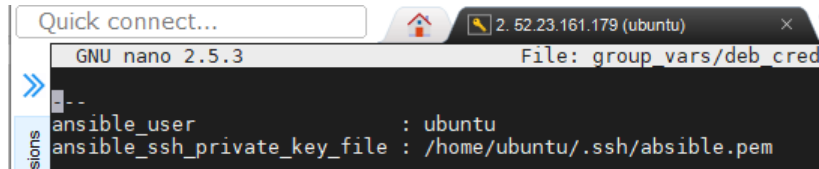
[deb_cred:children]
staging
```



Quick connect... 2. 52.23.161.179 (ubuntu)

GNU nano 2.5.3 File: group\_vars/ami\_cred

```
--
ansible_user      : ec2-user
ansible_ssh_private_key_file : /home/ubuntu/.ssh/absible.pem
```



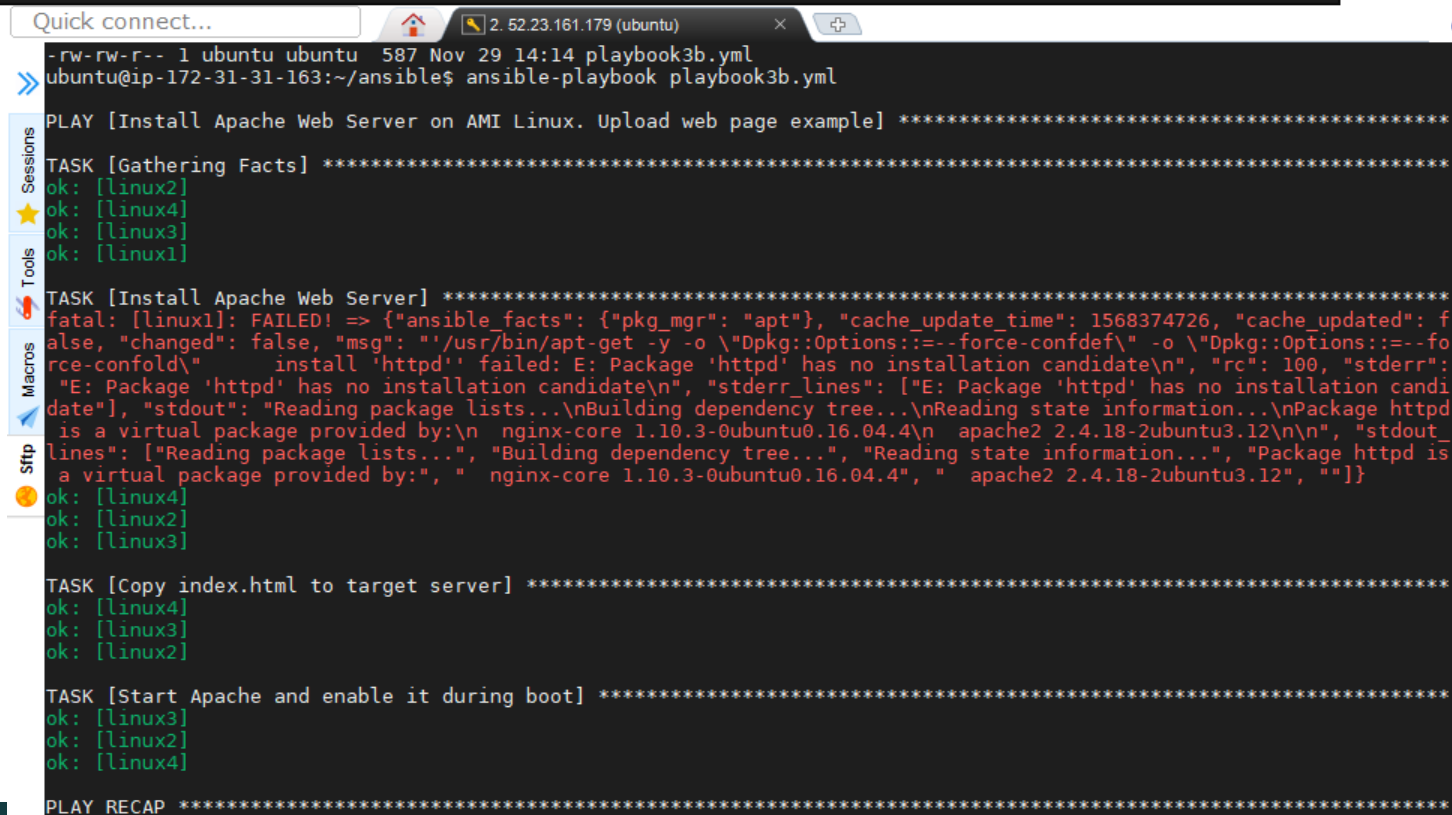
Quick connect... 2. 52.23.161.179 (ubuntu)

GNU nano 2.5.3 File: group\_vars/deb\_cred

```
--
ansible_user      : ubuntu
ansible_ssh_private_key_file : /home/ubuntu/.ssh/absible.pem
```

# ANSIBLE : first playbooks

Task: Install Apache Web Server on all servers, owned by your organization.  
Also needed to start Apache Web Server and enable it during boot.  
Also needed to change default index.html. Servers are on different Linux-based OS



```
Quick connect... 2. 52.23.161.179 (ubuntu) x +
-rw-rw-r-- 1 ubuntu ubuntu 587 Nov 29 14:14 playbook3b.yml
ubuntu@ip-172-31-31-163:~/ansible$ ansible-playbook playbook3b.yml

PLAY [Install Apache Web Server on AMI Linux. Upload web page example] *****

TASK [Gathering Facts] *****
ok: [linux2]
ok: [linux4]
ok: [linux3]
ok: [linux1]

TASK [Install Apache Web Server] *****
fatal: [linux1]: FAILED! => {"ansible_facts": {"pkg_mgr": "apt"}, "cache_update_time": 1568374726, "cache_updated": false, "changed": false, "msg": "'/usr/bin/apt-get -y -o \"Dpkg::Options::=--force-confdef\" -o \"Dpkg::Options::=--force-confold\"      install 'httpd' failed: E: Package 'httpd' has no installation candidate\\n\", \"rc\": 100, \"stderr\": \"E: Package 'httpd' has no installation candidate\\n\", \"stdout\": \"Reading package lists...\\nBuilding dependency tree...\\nReading state information...\\nPackage httpd is a virtual package provided by:\\n  nginx-core 1.10.3-0ubuntu0.16.04.4\\n  apache2 2.4.18-2ubuntu3.12\\n\\n\", \"stdout_lines\": [\"Reading package lists...\", \"Building dependency tree...\", \"Reading state information...\", \"Package httpd is a virtual package provided by:\", \"  nginx-core 1.10.3-0ubuntu0.16.04.4\", \"  apache2 2.4.18-2ubuntu3.12\", \"\"]}}
ok: [linux4]
ok: [linux2]
ok: [linux3]

TASK [Copy index.html to target server] *****
ok: [linux4]
ok: [linux3]
ok: [linux2]

TASK [Start Apache and enable it during boot] *****
ok: [linux3]
ok: [linux2]
ok: [linux4]

PLAY RECAP *****
```

# ANSIBLE : first playbooks

Task: Install Apache Web Server on all servers, owned by your organization.

Also needed to start Apache Web Server and enable it during boot.

Also needed to change default index.html. Servers are on different Linux-based OS

```
Quick connect... 2. 52.23.161.179 (ubuntu) x +
nano playbook3c.yml
ubuntu@ip-172-31-31-163:~/ansible$ ansible-playbook playbook3c.yml

PLAY [Install Apache Web Server on AMI Linux. Upload web page example] *****

TASK [Gathering Facts] *****
ok: [linux4]
ok: [linux2]
ok: [linux3]
ok: [linux1]

TASK [Check Linux distro] *****
ok: [linux3] => {
  "ansible_os_family": "RedHat"
}
ok: [linux2] => {
  "ansible_os_family": "RedHat"
}
ok: [linux4] => {
  "ansible_os_family": "RedHat"
}
ok: [linux1] => {
  "ansible_os_family": "Debian"
}

TASK [Install Apache Web Server] *****
fatal: [linux1]: FAILED! => {"ansible_facts": {"pkg_mgr": "apt"}, "cache_update_time":
also, "changed": false, "msg": "'/usr/bin/apt-get -y -o \"Dpkg::Options::=--force-confdef\" -o \"Dpkg::Options::=--fo
rce-confold\" install 'httpd' failed: E: Package 'httpd' has no installation candidate\n", "rc": 100, "stderr":
"E: Package 'httpd' has no installation candidate\n", "stderr_lines": ["E: Package 'httpd' has no installation candi
date"], "stdout": "Reading package lists...\nBuilding dependency tree...\nReading state information...\nPackage httpd
is a virtual package provided by:\n  nginx-core 1.10.3-0ubuntu0.16.04.4\n  apache2 2.4.18-2ubuntu3.12\n\n", "stdout_
lines": ["Reading package lists...", "Building dependency tree...", "Reading state information...", "Package httpd is
a virtual package provided by:", "  nginx-core 1.10.3-0ubuntu0.16.04.4", "  apache2 2.4.18-2ubuntu3.12", ""]}
ok: [linux2]
```

```
Quick connect... 2. 52.23.161.179 (ubuntu) x +
GNU nano 2.5.3 File: playbook3c.yml
--
- name: Install Apache Web Server on AMI Linux. Upload web page example
  hosts: all
  become: yes

  vars:
    source_file: index.html
    destin_file: /var/www/html

  tasks:

    - name: Check Linux distro
      debug: var=ansible_os_family

    - name: Install Apache Web Server
      yum: name=httpd state=latest

    - name: Copy index.html to target server
      copy: src={{ source_file }} dest={{ destin_file }} mode=0555
      notify: Restart Apache

    - name: Start Apache and enable it during boot
      service: name=httpd state=started enabled=yes

  handlers:
    - name: Restart Apache
      service: name=httpd state=restarted
```

# ANSIBLE : first playbooks

Task: Install Apache Web Server on all servers, owned by your organization.

Also needed to start Apache Web Server and enable it during boot.

Also needed to change default index.html. Servers are on different Linux-based OS

```
Quick connect...
ubuntu@ip-172-31-31-163:~/ansible$ ansible-playbook playbook3c.yml
PLAY [Install Apache Web Server on AMI Linux. Upload web page example] ****

TASK [Gathering Facts] *****
ok: [linux2]
ok: [linux4]
ok: [linux3]
ok: [linux1]

TASK [Check Linux distro] *****
ok: [linux3] => {
  "ansible_os_family": "RedHat"
}
ok: [linux2] => {
  "ansible_os_family": "RedHat"
}
ok: [linux4] => {
  "ansible_os_family": "RedHat"
}
ok: [linux1] => {
  "ansible_os_family": "Debian"
}

TASK [Install Apache Web Server on RedHat Family] *****
skipping: [linux1]
ok: [linux2]
ok: [linux3]
ok: [linux4]

TASK [Install Apache Web Server on Debian Family] *****
skipping: [linux3]
skipping: [linux2]
skipping: [linux4]
fatal: [linux1]: FAILED! => {"cache_update_time": 1568374726, "cache_update":
/bin/apt-get -y -o \"Dpkg::Options::=--force-confdef\" -o \"Dpkg::Options::
failed: E: Failed to fetch http://security.ubuntu.com/ubuntu/pool/main/a/a
4.deb 404 Not Found [IP: 54.152.129.43 80]\n\nE: Failed to fetch http://s
he2/apache2-utils_2.4.18-2ubuntu3.12_amd64.deb 404 Not Found [IP: 54.152.
curity.ubuntu.com/ubuntu/pool/main/a/apache2/apache2-data_2.4.18-2ubuntu3.1
43 80]\n\nE: Failed to fetch http://security.ubuntu.com/ubuntu/pool/main/a/a
eb 404 Not Found [IP: 54.152.129.43 80]\n\nE: Unable to fetch some archiv
-fix-missing?\n", "rc": 100, "stderr": "E: Failed to fetch http://security.
he2-bin_2.4.18-2ubuntu3.12_amd64.deb 404 Not Found [IP: 54.152.129.43 80]
ntu.com/ubuntu/pool/main/a/apache2/apache2-utils_2.4.18-2ubuntu3.12_amd64.d
\n\nE: Failed to fetch http://security.ubuntu.com/ubuntu/pool/main/a/apache2
404 Not Found [IP: 54.152.129.43 80]\n\nE: Failed to fetch http://security
he2_2.4.18-2ubuntu3.12_amd64.deb 404 Not Found [IP: 54.152.129.43 80]\n\n
un apt-get update or try with --fix-missing?\n", "stderr_lines": ["E: Faile
tu/pool/main/a/apache2/apache2-bin_2.4.18-2ubuntu3.12_amd64.deb 404 Not F
ed to fetch http://security.ubuntu.com/ubuntu/pool/main/a/apache2-u
4 Found [IP: 54.152.129.43 80]", "": "E: Failed to fetch http://security.ub
2-data_2.4.18-2ubuntu3.12_all.deb 404 Not Found [IP: 54.152.129.43 80]".
untu.com/ubuntu/pool/main/a/apache2/apache2_2.4.18-2ubuntu3.12_amd64.deb ",
"E: Unable to fetch some archives, maybe run apt-get update or try with --
listg_apt_dependencies.trap\n\nE: Reading state information\n\nThe f
```

```
Quick connect...
GNU nano 2.5.3 File: playbook3c.yml
--
- name: Install Apache Web Server on AMI Linux. Upload web page example
  hosts: all
  become: yes

vars:
  source_file: index.html
  destin_file: /var/www/html

tasks:

- name: Check Linux distro
  debug: var=ansible_os_family

- name: Install Apache Web Server on RedHat Family
  yum: name=httpd state=latest
  when: ansible_os_family == "RedHat"

- name: Install Apache Web Server on Debian Family
  apt: update_cache=yes name=apache2 state=latest
  when: ansible_os_family == "Debian"

- name: Copy index.html to target server
  copy: src={{ source_file }} dest={{ destin_file }} mode=0555
  #notify: Restart Apache

- name: Start Apache and enable it during boot
  service: name=httpd state=started enabled=yes
  when: ansible_os_family == "RedHat"

- name: Start Apache and enable it during boot
  service: name=apache2 state=started enabled=yes
  when: ansible_os_family == "Debian"

handlers:
- name: Restart Apache
  service: name=httpd state=restarted
```

# ANSIBLE : first playbooks

Task: Install Apache Web Server on all servers, owned by your organization.

Also needed to start Apache Web Server and enable it during boot.

Also needed to change default index.html. Servers are on different Linux-based OS

```
Quick connect... 2.52.23.161.179 (ubuntu) File: playbook4.yml
GNU nano 2.5.3
---
- name: Install Apache Web Server on AMI Linux. Upload web page example
  hosts: all
  become: yes

vars:
  source_file: index.html
  destin_file: /var/www/html

tasks:
- name: Check Linux distro
  debug: var=ansible_os_family

- block: # For RedHat
  - name: Install Apache Web Server on RedHat Family
    yum: name=httpd state=latest

  - name: Copy index.html to target server
    copy: src={{ source_file }} dest={{ destin_file }} mode=0555
    notify: Restart Apache RedHat

  - name: Start Apache and enable it during boot
    service: name=httpd state=started enabled=yes

  when: ansible_os_family == "RedHat"

- block: #For Debian
  - name: Install Apache Web Server on Debian Family
    apt: update_cache=yes name=apache2 state=latest

  - name: Copy index.html to target server
    copy: src={{ source_file }} dest={{ destin_file }} mode=0555
    notify: Restart Apache Debian

  - name: Start Apache and enable it during boot
    service: name=apache2 state=started enabled=yes

  when: ansible_os_family == "Debian"

handlers:
- name: Restart Apache RedHat
  service: name=httpd state=restarted

- name: Restart Apache Debian
  service: name=apache2 state=restarted
```

```
Quick connect... 2.52.23.161.179 (ubuntu)
TASK [Check Linux distro] *****
ok: [linux3] => {
  "ansible_os_family": "RedHat"
}
ok: [linux2] => {
  "ansible_os_family": "RedHat"
}
ok: [linux4] => {
  "ansible_os_family": "RedHat"
}
ok: [linux1] => {
  "ansible_os_family": "Debian"
}

TASK [Install Apache Web Server on RedHat Family] *****
skipping: [linux1]
ok: [linux2]
ok: [linux4]
ok: [linux3]

TASK [Copy index.html to target server] *****
skipping: [linux1]
ok: [linux4]
ok: [linux2]
ok: [linux3]

TASK [Start Apache and enable it during boot] *****
skipping: [linux1]
ok: [linux4]
ok: [linux3]
ok: [linux2]

TASK [Install Apache Web Server on Debian Family] *****
skipping: [linux3]
skipping: [linux2]
skipping: [linux4]
ok: [linux1]

TASK [Copy index.html to target server] *****
skipping: [linux3]
skipping: [linux2]
skipping: [linux4]
ok: [linux1]

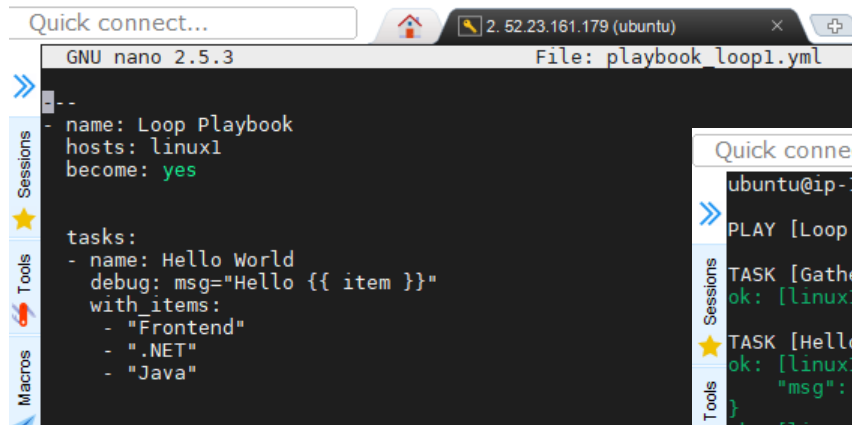
TASK [Start Apache and enable it during boot] *****
skipping: [linux3]
skipping: [linux2]
skipping: [linux4]
ok: [linux1]

PLAY RECAP *****
linux1      : ok=5    changed=0    unreachable=0    failed=0    skipped=3
linux2      : ok=5    changed=0    unreachable=0    failed=0    skipped=3
linux3      : ok=5    changed=0    unreachable=0    failed=0    skipped=3
linux4      : ok=5    changed=0    unreachable=0    failed=0    skipped=3

ubuntu@ip-172-31-31-163:~/ansible$
```



# ANSIBLE : first playbooks

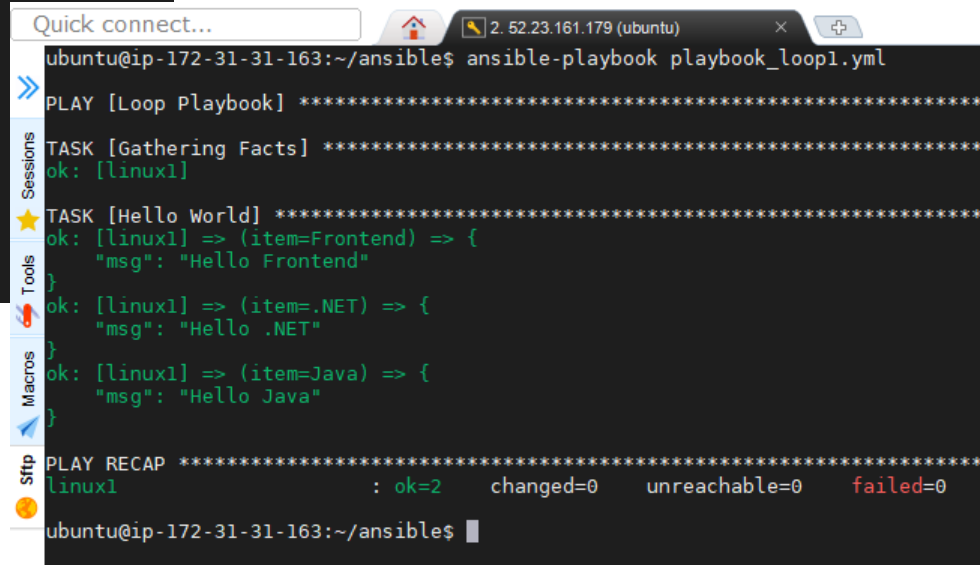


Quick connect... 2. 52.23.161.179 (ubuntu) x +

GNU nano 2.5.3 File: playbook\_loop1.yml

```
--
- name: Loop Playbook
  hosts: linux1
  become: yes

tasks:
- name: Hello World
  debug: msg="Hello {{ item }}"
  with_items:
    - "Frontend"
    - ".NET"
    - "Java"
```



Quick connect... 2. 52.23.161.179 (ubuntu) x +

```
ubuntu@ip-172-31-31-163:~/ansible$ ansible-playbook playbook_loop1.yml
PLAY [Loop Playbook] *****
TASK [Gathering Facts] *****
ok: [linux1]
TASK [Hello World] *****
ok: [linux1] => (item=Frontend) => {
  "msg": "Hello Frontend"
}
ok: [linux1] => (item=.NET) => {
  "msg": "Hello .NET"
}
ok: [linux1] => (item=Java) => {
  "msg": "Hello Java"
}
PLAY RECAP *****
linux1 : ok=2    changed=0    unreachable=0    failed=0
ubuntu@ip-172-31-31-163:~/ansible$
```

# ANSIBLE : first playbooks

Task: Make some actions on remote server,  
Results should be viewed by output console



```
ubuntu@ip-172-31-31-163:~/ansible$ ansible-playbook playbook_loop1.yml

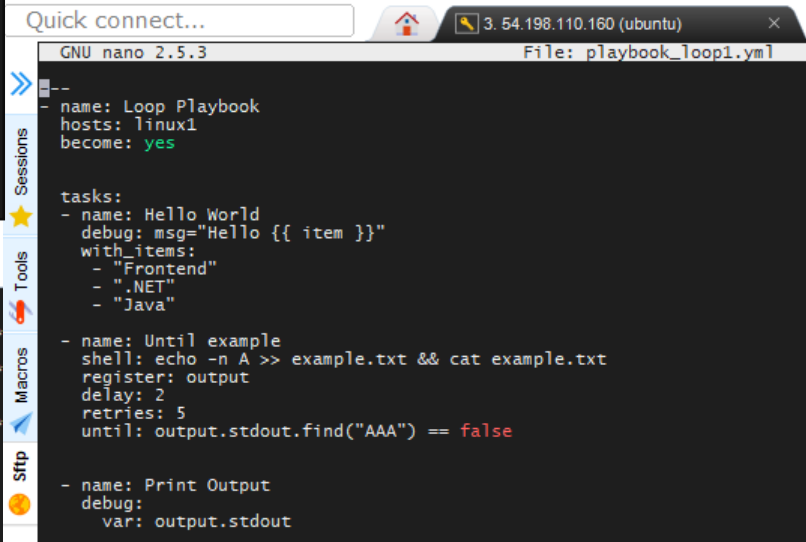
PLAY [Loop Playbook] *****
TASK [Gathering Facts] *****
ok: [linux1]

TASK [Hello World] *****
ok: [linux1] => (item=Frontend) => {
  "msg": "Hello Frontend"
}
ok: [linux1] => (item=.NET) => {
  "msg": "Hello .NET"
}
ok: [linux1] => (item=Java) => {
  "msg": "Hello Java"
}

TASK [Until example] *****
FAILED - RETRYING: Until example (5 retries left).
FAILED - RETRYING: Until example (4 retries left).
changed: [linux1]

TASK [Print Output] *****
ok: [linux1] => {
  "output.stdout": "AAA"
}

PLAY RECAP *****
linux1                : ok=4    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```



```
GNU nano 2.5.3 File: playbook_loop1.yml

--
- name: Loop Playbook
  hosts: linux1
  become: yes

tasks:
- name: Hello World
  debug: msg="Hello {{ item }}"
  with_items:
    - "Frontend"
    - ".NET"
    - "Java"

- name: Until example
  shell: echo -n A >> example.txt && cat example.txt
  register: output
  delay: 2
  retries: 5
  until: output.stdout.find("AAA") == false

- name: Print Output
  debug:
    var: output.stdout
```

# ANSIBLE : first playbooks

Task: Copy WebPage (some files) to remote server using loop

```
Quick connect...
GNU nano 2.5.3 File: playbook5.yml
--
- name: Install Apache Web Server on AMI Linux. Upload web page example
  hosts: all
  become: yes

  vars:
    source_dir: ./MyWebSite
    destin_dir: /var/www/html

  tasks:
    - name: Check Linux distro
      debug: var=ansible_os_family

    - block: # For RedHat
      - name: Install Apache Web Server on RedHat Family
        yum: name=httpd state=latest

      - name: Start Apache and enable it during boot
        service: name=httpd state=started enabled=yes
        when: ansible_os_family == "RedHat"

    - block: #For Debian
      - name: Install Apache Web Server on Debian Family
        apt: update_cache=yes name=apache2 state=latest

      - name: Start Apache and enable it during boot
        service: name=apache2 state=started enabled=yes
        when: ansible_os_family == "Debian"

    - name: Copy dir "MyWebServer" to target server
      copy: src={{ source_dir }}/{{ item }} dest={{ destin_dir }} mode=0555
      loop:
        - "index.html"
        - "photo.jpg"
      notify:
        - Restart Apache RedHat
        - Restart Apache Debian

  handlers:
    - name: Restart Apache RedHat
      service: name=httpd state=restarted
      when: ansible_os_family == "RedHat"

    - name: Restart Apache Debian
      service: name=apache2 state=restarted
      when: ansible_os_family == "Debian"
```

```
Quick connect...
ubuntu@ip-172-31-163:~/ansible$ ansible-playbook playbook5.yml

PLAY [Install Apache Web Server on AMI Linux. Upload web page example] *****

TASK [Gathering Facts] *****
ok: [linux4]
ok: [linux2]
ok: [linux3]
ok: [linux1]

TASK [Check Linux distro] *****
ok: [linux3] => {
  "ansible_os_family": "RedHat"
}
ok: [linux2] => {
  "ansible_os_family": "RedHat"
}
ok: [linux4] => {
  "ansible_os_family": "RedHat"
}
ok: [linux1] => {
  "ansible_os_family": "Debian"
}

TASK [Install Apache Web Server on RedHat Family] *****
skipping: [linux1]
ok: [linux4]
ok: [linux3]
ok: [linux2]

TASK [Start Apache and enable it during boot] *****
skipping: [linux1]
ok: [linux2]
ok: [linux4]
ok: [linux3]

TASK [Install Apache Web Server on Debian Family] *****
skipping: [linux3]
skipping: [linux2]
skipping: [linux4]
ok: [linux1]

TASK [Start Apache and enable it during boot] *****
skipping: [linux3]
skipping: [linux2]
skipping: [linux4]
ok: [linux1]

TASK [Copy dir "MyWebServer" to target server] *****
changed: [linux2] => (item=index.html)
changed: [linux3] => (item=index.html)
changed: [linux4] => (item=index.html)
changed: [linux1] => (item=index.html)
changed: [linux2] => (item=photo.jpg)
changed: [linux3] => (item=photo.jpg)
changed: [linux4] => (item=photo.jpg)
changed: [linux1] => (item=photo.jpg)

RUNNING HANDLER [Restart Apache RedHat] *****
skipping: [linux1]
changed: [linux2]
changed: [linux3]
changed: [linux4]

RUNNING HANDLER [Restart Apache Debian] *****
skipping: [linux2]
skipping: [linux3]
skipping: [linux4]
changed: [linux1]

PLAY RECAP *****
linux1      : ok=6  changed=2  unreachable=0  failed=0  skipped=3  rescued=0  ignored=0
linux2      : ok=6  changed=2  unreachable=0  failed=0  skipped=3  rescued=0  ignored=0
linux3      : ok=6  changed=2  unreachable=0  failed=0  skipped=3  rescued=0  ignored=0
linux4      : ok=6  changed=2  unreachable=0  failed=0  skipped=3  rescued=0  ignored=0
```

# ANSIBLE : first playbooks

← → ↺ 🏠 ⓘ Не защищено | 54.164.100.85

Hint: It is not a dessert, it is an ocean beach.



# ANSIBLE : first playbooks

Task: Customize WebPage on remote servers using template and jinja

```
Quick connect...
GNU nano 2.5.3
File: playbook5a.yml

--
name: Install Apache Web Server on AMI Linux. Upload web page example
hosts: all
become: yes

vars:
  source_dir: ./MyWebSite
  destin_dir: /var/www/html

tasks:
  - name: Check Linux distro
    debug: var=ansible_os_family

  - block: # For RedHat
    - name: Install Apache Web Server on RedHat Family
      yum: name=httpd state=latest

    - name: Start Apache and enable it during boot
      service: name=httpd state=started enabled=yes

  when: ansible_os_family == "RedHat"

  - block: #For Debian
    - name: Install Apache Web Server on Debian Family
      apt: update_cache=yes name=apache2 state=latest

    - name: Start Apache and enable it during boot
      service: name=apache2 state=started enabled=yes

  when: ansible_os_family == "Debian"

  - name: Generate index.html using template
    template: src={{ source_dir }}/index.j2 dest={{ destin_dir }}/index.html mode=0555
    notify:
      - Restart Apache RedHat
      - Restart Apache Debian

  - name: Copy dir "MyWebServer" to target server
    copy: src={{ source_dir }}/photo.jpg dest={{ destin_dir }} mode=0555
    notify:
      - Restart Apache RedHat
      - Restart Apache Debian

handlers:
  - name: Restart Apache RedHat
    service: name=httpd state=restarted
    when: ansible_os_family == "RedHat"

  - name: Restart Apache Debian
    service: name=apache2 state=restarted
    when: ansible_os_family == "Debian"
```

```
Quick connect...
GNU nano 2.5.3
File: index.j2

<html>
<header><title>Can you guess, where is it?</title></header>
<body>
<br>Server Host Name is {{ ansible_hostname }}<br>
Linux Distro is {{ ansible_os_family }} <br>
Host IP Address is {{ ansible_default_ipv4.address }}<br>
<br>Can you guess, where is it?<br>
<br>This page is generated by Ansible<br>
<br>Hint: It is not a dessert, it is an ocean beach.<br>
<p></p>
</body>
</html>
```

```
Quick connect...
ubuntu@ip-172-31-31-163:~/ansible$ ansible-playbook playbook5a.yml

PLAY [Install Apache Web Server on AMI Linux. Upload web page example] *****

TASK [Gathering Facts] *****
ok: [linux4]
ok: [linux3]
ok: [linux2]
ok: [linux1]

TASK [Check Linux distro] *****
ok: [linux1] => {
  "ansible_os_family": "Debian"
}
ok: [linux3] => {
  "ansible_os_family": "RedHat"
}

PLAY RECAP *****
linux1: ok=7 changed=3 unreachable=0 failed=0 skipped=3 rescued=0 ignored=0
```

# ANSIBLE : first playbooks

← → ↺ 🏠 ⓘ Не защищено | 54.164.100.85

Server Host Name is ip-172-31-43-173  
Linux Distro is Debian  
Host IP Address is 172.31.43.173

Can you guess, where is it?

This page is generated by Ansible

Hint: It is not a dessert, it is an ocean beach.



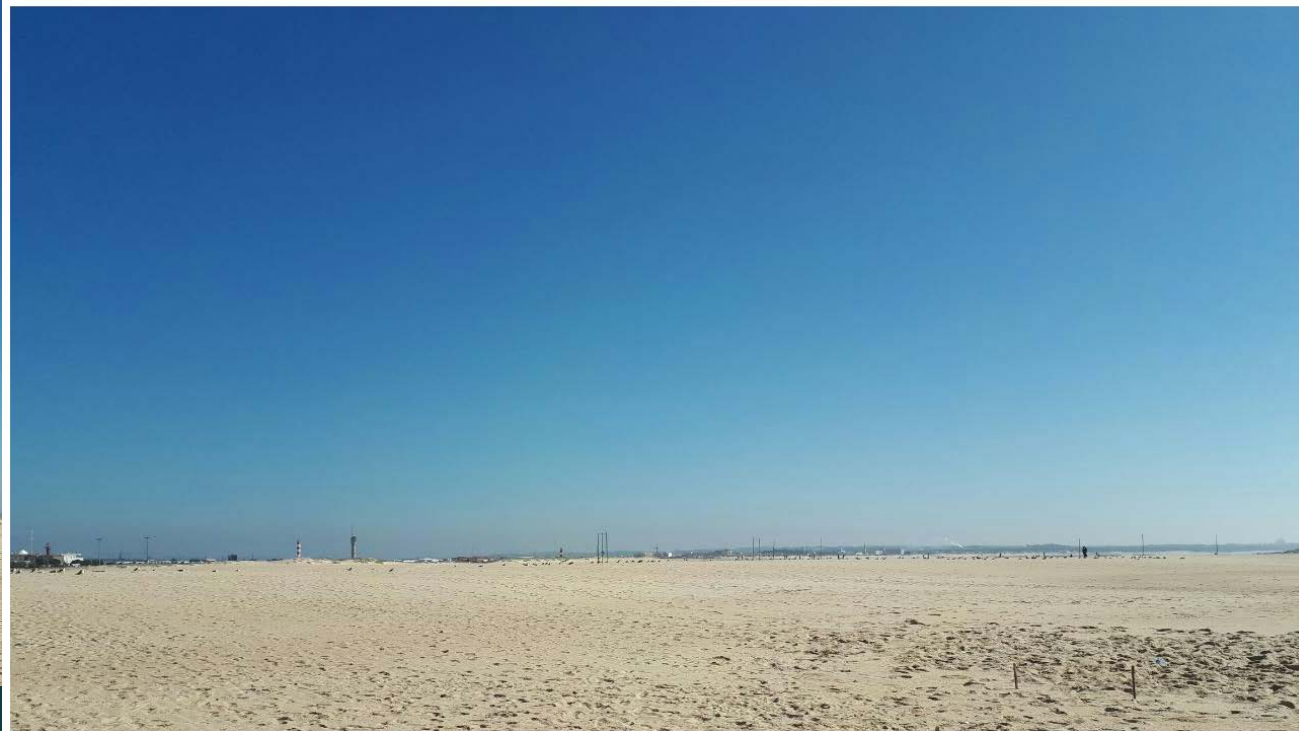
← → ↺ 🏠 ⓘ Не защищено | 52.70.43.222

Server Host Name is ip-172-31-83-148  
Linux Distro is RedHat  
Host IP Address is 172.31.83.148

Can you guess, where is it?

This page is generated by Ansible

Hint: It is not a dessert, it is an ocean beach.



**Q&A**

A world map is centered in the background, showing the outlines of continents. The map is rendered in a light blue/teal color against a darker blue gradient background. The text "Thank you!" is superimposed over the center of the map.

Thank you!