

Vagrant & Load Balancing & JMeter Load Testing

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Vagrant status

```
File Edit View Search Terminal Help
johny@johny-ubuntu: ~/vagrant_ansible_multi_server

Bringing machine 'lb' up with 'virtualbox' provider...
Bringing machine 'web1' up with 'virtualbox' provider...
Bringing machine 'web2' up with 'virtualbox' provider...
==> mgmt: checking if box 'ubuntu/trusty64' is up to date...
==> mgmt: Resuming suspended VM...
==> mgmt: Booting VM...
==> mgmt: Waiting for machine to boot. This may take a few minutes...
    mgmt: SSH address: 127.0.0.1:2222
    mgmt: SSH username: vagrant
    mgmt: SSH auth method: private key
==> mgmt: Machine booted and ready!
==> mgmt: Machine already provisioned. Run 'vagrant provision' or use the '--provision'
==> mgmt: Flag to force provisioning. Provisioners marked to run always will still run.
==> lb: checking if box 'ubuntu/trusty64' is up to date...
==> lb: Resuming suspended VM...
==> lb: Booting VM...
==> lb: Waiting for machine to boot. This may take a few minutes...
    lb: SSH address: 127.0.0.1:2200
    lb: SSH username: vagrant
    lb: SSH auth method: private key
==> lb: Machine booted and ready!
==> lb: Machine already provisioned. Run 'vagrant provision' or use the '--provision'
==> lb: Flag to force provisioning. Provisioners marked to run always will still run.
==> web1: checking if box 'ubuntu/trusty64' is up to date...
==> web1: Resuming suspended VM...
==> web1: Booting VM...
==> web1: Waiting for machine to boot. This may take a few minutes...
    web1: SSH address: 127.0.0.1:2201
    web1: SSH username: vagrant
    web1: SSH auth method: private key
==> web1: Machine booted and ready!
==> web1: Machine already provisioned. Run 'vagrant provision' or use the '--provision'
==> web1: Flag to force provisioning. Provisioners marked to run always will still run.
==> web2: checking if box 'ubuntu/trusty64' is up to date...
==> web2: Resuming suspended VM...
==> web2: Booting VM...
==> web2: Waiting for machine to boot. This may take a few minutes...
    web2: SSH address: 127.0.0.1:2202
    web2: SSH username: vagrant
    web2: SSH auth method: private key
==> web2: Machine booted and ready!
==> web2: Machine already provisioned. Run 'vagrant provision' or use the '--provision'
==> web2: Flag to force provisioning. Provisioners marked to run always will still run.
johny@johny-ubuntu:~/vagrant_ansible_multi_server$ vagrant status
Current machine states:
mgmt                running (virtualbox)
lb                  running (virtualbox)
web1                running (virtualbox)
web2                running (virtualbox)

This environment represents multiple VMs. The VMs are all listed
above with their current state. For more information about a specific
VM, run 'vagrant status NAME'.
johny@johny-ubuntu:~/vagrant_ansible_multi_server$
```

Testing connection to all machines in ansible environment

```
vagrant@mgmt: ~
File Edit View Search Terminal Help
johny@johny-ubuntu:~/vagrant_ansible_multi_server$ vagrant status
Current machine states:
mgmt                running (virtualbox)
lb                  running (virtualbox)
web1                running (virtualbox)
web2                running (virtualbox)

This environment represents multiple VMs. The VMs are all listed
above with their current state. For more information about a specific
VM, run 'vagrant status NAME'.
johny@johny-ubuntu:~/vagrant_ansible_multi_server$ vagrant ssh mgmt
Welcome to Ubuntu 14.04.6 LTS (GNU/Linux 3.13.0-170-generic x86_64)

 * Documentation:  https://help.ubuntu.com/

System information as of Tue Sep 17 14:37:15 UTC 2019

System load:  0.07               Processes:    76
Usage of /:   4.2% of 39.34GB    Users logged in: 0
Memory usage: 28%               IP address for eth0: 10.0.2.15
Swap usage:   0%                IP address for eth1: 10.0.15.15

Graph this data and manage this system at:
https://landscape.canonical.com/

4 updates can be installed immediately.
0 of these updates are security updates.

Last login: Mon Sep 16 06:31:36 2019 from 10.0.2.2
vagrant@mgmt:~$ ansible all -m ping --ask-pass
SSH password:
loadbalancer | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python"
  },
  "changed": false,
  "ping": "pong"
}
web1 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python"
  },
  "changed": false,
  "ping": "pong"
}
web2 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python"
  },
  "changed": false,
  "ping": "pong"
}
vagrant@mgmt:~$
```

Installing Apache & HAProxy

```

File Edit View Search Terminal Help
vagrant@mngmt: /vagrant

web1 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python"
  },
  "changed": false,
  "ping": "pong"
}

web2 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python"
  },
  "changed": false,
  "ping": "pong"
}

vagrant@mngmt: ~$ cd /vagrant
vagrant@mngmt:/vagrant$ ansible-playbook apache.yml --ask-pass
SSH password:
[DEPRECATION WARNING]: Instead of sudo/sudo_user, use become/become_user and make sure become_method is 'sudo' (default). This feature will be removed in version 2.9. Deprecation warnings can be disabled by setting deprecation_warnings=False in ansible.cfg.

PLAY [web] *************************************************************************************************************************************
TASK [Gathering Facts] *****************************************************************************************************************************
ok: [web2]
ok: [web1]

TASK [Install apache2] *****************************************************************************************************************************
ok: [web2]
ok: [web1]

PLAY RECAP *************************************************************************************************************************************
web2                : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
web1                : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

vagrant@mngmt:/vagrant$ ansible-playbook haproxy.yml --ask-pass
SSH password:
[DEPRECATION WARNING]: Instead of sudo/sudo_user, use become/become_user and make sure become_method is 'sudo' (default). This feature will be removed in version 2.9. Deprecation warnings can be disabled by setting deprecation_warnings=False in ansible.cfg.

PLAY [loadbalancer] *************************************************************************************************************************************
TASK [Gathering Facts] *****************************************************************************************************************************
ok: [loadbalancer]

TASK [Install haproxy] *****************************************************************************************************************************
ok: [loadbalancer]

TASK [Enable init script] *****************************************************************************************************************************
ok: [loadbalancer]

PLAY RECAP *************************************************************************************************************************************
loadbalancer        : ok=3    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

vagrant@mngmt:/vagrant$

```

Setting mgmt server

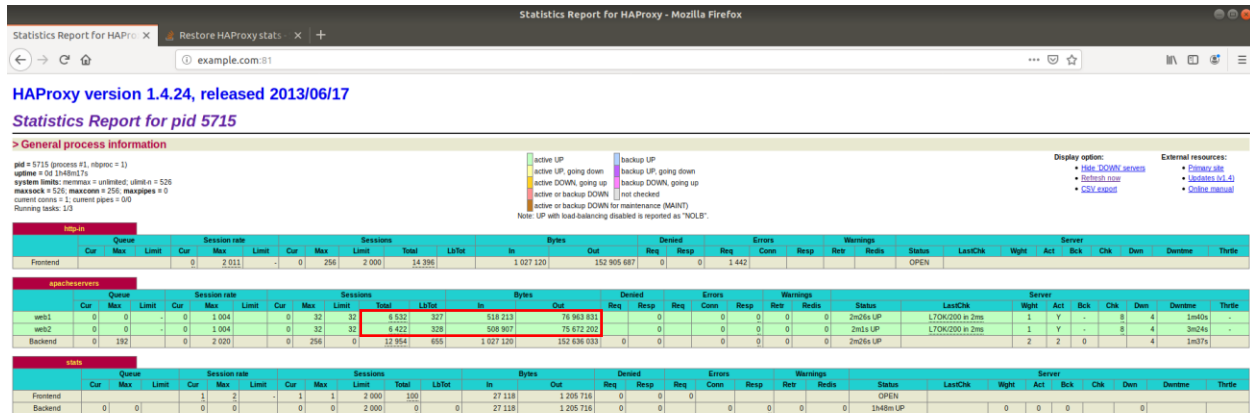
The screenshot shows a terminal window with the title 'johnny@johnny-ubuntu: ~'. The terminal is running the 'nano' text editor, editing the '/etc/hosts' file. The file content is as follows:

```
127.0.0.1    localhost
:::1        ip6-localhost ip6-loopback
fe80:::0    ip6-localnet
ff00:::0    ip6-mcastprefix
ff02:::1    ip6-allnodes
ff02:::2    ip6-allrouters
```

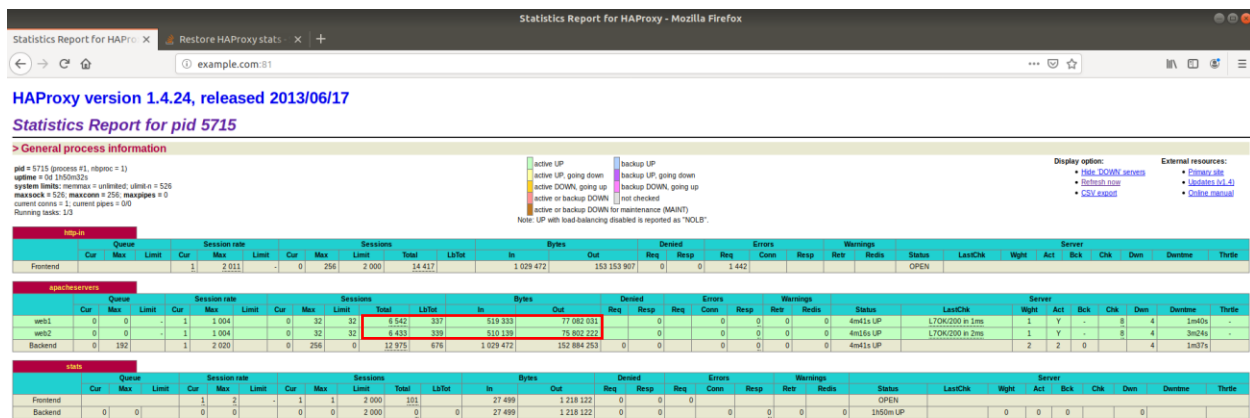
The entry '10.0.15.16 example.com' is highlighted with a red box. Below the file content, there is a comment: '# The following lines are desirable for IPv6 capable hosts'. The terminal window has a menu bar at the top with 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. At the bottom, there is a status bar with various icons and text, including 'Read 10 Lines'.

Starting HAProxy Load Balancer

Before load test



After load test



View Results in Table.jmx (/home/johny/View Results in Table.jmx) - Apache JMeter (2.13.20170723)

File Edit Search Run Options Help

Test Plan
Thread Group
HTTP Request Defaults
View Results in Table
HTTP Request
WorkBench

View Results in Table

Name: View Results in Table

Comments:

Write results to file / Read from file

Filename: Browse...

Log/Display Only: ☐ Errors ☐ Successes

Sample #	Start Time	Thread Name	Label	Sample Time(ms)	Status	Bytes	Latency	Connect Time(ms)
1	22:55:47.716	Thread Group 1-1	HTTP Request	82	Success	11820	82	69
2	22:55:47.897	Thread Group 1-2	HTTP Request	2	Success	11820	2	1
3	22:55:48.899	Thread Group 1-3	HTTP Request	6	Success	11820	6	2
4	22:55:49.913	Thread Group 1-4	HTTP Request	5	Success	11820	5	2
5	22:55:50.915	Thread Group 1-5	HTTP Request	7	Success	11820	6	2
6	22:55:51.914	Thread Group 1-6	HTTP Request	5	Success	11820	5	2
7	22:55:52.915	Thread Group 1-7	HTTP Request	7	Success	11820	7	2
8	22:55:53.915	Thread Group 1-8	HTTP Request	3	Success	11820	3	2
9	22:55:54.918	Thread Group 1-9	HTTP Request	7	Success	11820	7	2
10	22:55:55.917	Thread Group 1-10	HTTP Request	4	Success	11820	4	2
11	22:55:56.917	Thread Group 1-11	HTTP Request	7	Success	11820	7	2
12	22:55:57.919	Thread Group 1-12	HTTP Request	4	Success	11820	4	1
13	22:55:58.918	Thread Group 1-13	HTTP Request	6	Success	11820	6	2

☐ Scroll automatically? ☐ Child samples? No of Samples 13 Latest Sample 6 Average 11 Deviation 20

View Results in Table.jmx (/home/johny/View Results in Table.jmx) - Apache JMeter (2.13.20170723)

File Edit Search Run Options Help

Test Plan
Thread Group
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WorkBench

HTTP Request Defaults

Name: HTTP Request Defaults

Comments:

Web Server

Server Name or IP: Port Number:

Timeouts (milliseconds)
Connect: Response:

HTTP Request

Implementation: Protocol [http]: Content encoding:

Path:

Parameters

Send Parameters With the Request:

Name	Value	Encode?	Include Equals?
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Proxy Server

Server Name or IP: Port Number: Username: Password:

Embedded Resources from HTML Files

☐ Retrieve All Embedded Resources ☐ Use concurrent pool. Size: URLs must match:

