ubuCon ASIA 2021

Ubuntu OS & Service Patch Management Using Ansible

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About Me

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07/2020 - Present

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Topics

- ✓ Introduction Patch Management
- ✓ What is Patch Management?
- ✓ Why Should You Use Automation?
- ✓ Why Choose Ansible for Patch Management?
- ✓ How to Patch Ubuntu Manually?
- ✓ How to use Ansible for Ubuntu OS & Service Patch Management?

Introduction
Patch Management

To patch just one system, the administrator must identify that a patch is available, download it, and then deploy it to the system. In an enterprise environment, there could be hundreds of servers to manage, so the job of patch management becomes an all-day responsibility with the added risk of reboot fails after installation. Instead of manual updates, administrators can free up time and organize patches using automation tools.

What is Patch Management?

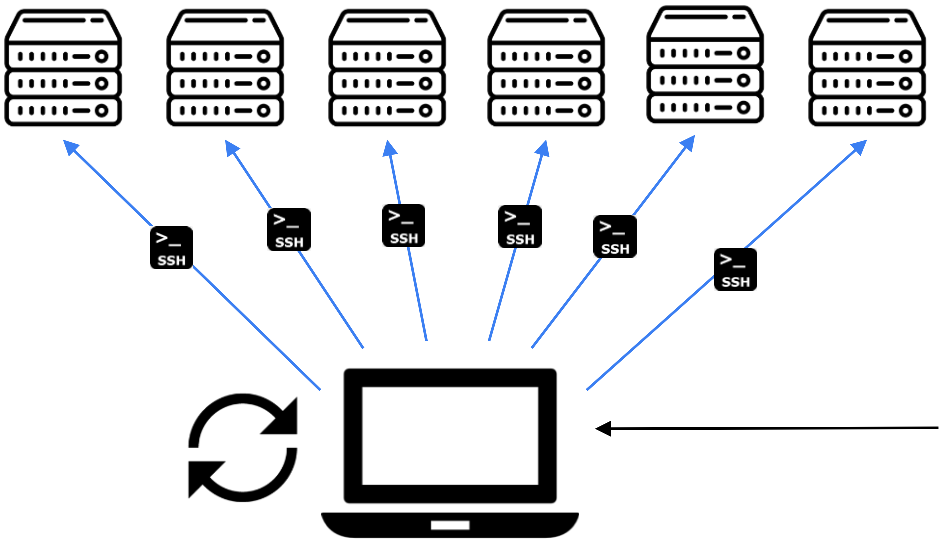
administrators should understand the importance of patching Linux regularly. Administrators could simply patch a Linux system manually, but this leads to human errors, and rollbacks due to issues after installation are tricky. Human errors could lead to severely long downtimes when mistakes are made. It’s also time consuming to manually patch when several patches are necessary.

Why is Patch Management Important?

Unpatched public-facing web servers are a critical issue for cybersecurity, but cybersecurity isn't the only reason to patch Linux. Patching also remediates bugs and adds functionality to software. Some patches fix issues with drivers and software running on the system. Large updates add functionality to the operating system.

The longer administrators wait to patch a system, the more patches will be needed to get the system up to date. This issue increases the time it takes to fully patch a Linux server.

Why Should You Use Automation?



Administrator Note

- Check service
- Check available update
- Apt update
- Check list upgradable
- Upgrade all / upgrade specific package
- Check reboot required
- Reboot
- Wait booting process
- SSH and verification

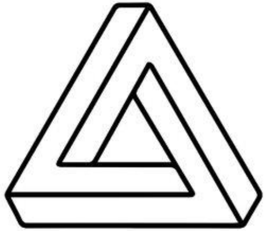
ANSIBLE

VS

ManageEngine

Patch Manager Plus

VS



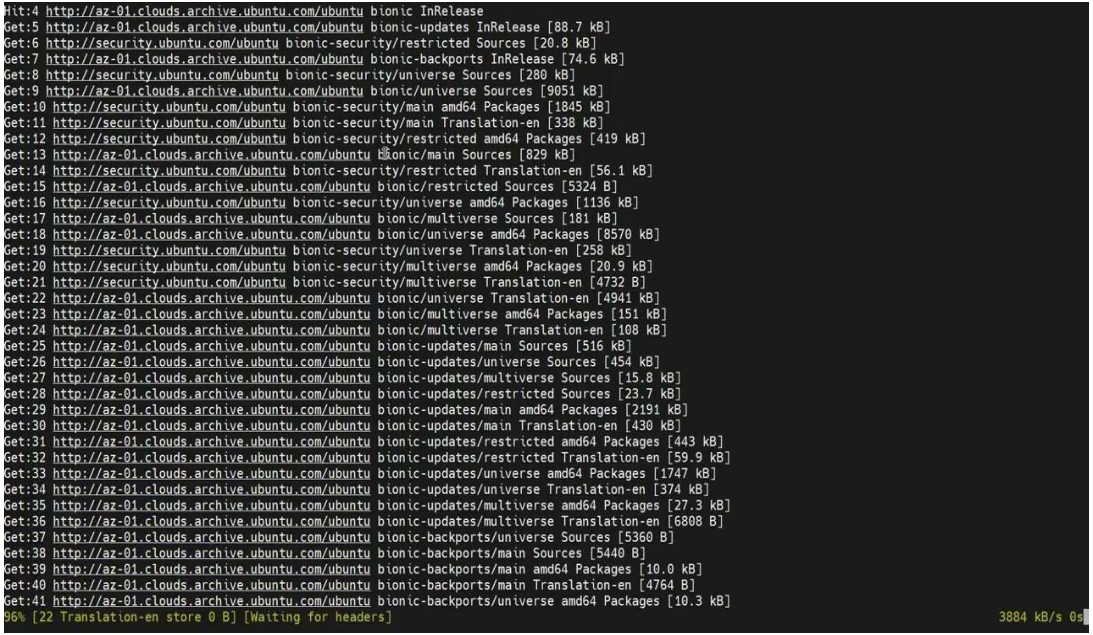
AUTOMOX

Why choose ansible for patch management

Ansible is one of the automation tools that does not require an agent because Ansible performs node management with an SSH connection. Ansible only requires 1 server as a management node to push commands to all nodes in the inventory. Ansible is easier and more practical than other management tools such as puppet because it does not require an agent on each node, only uses an ssh connection.

How to update Ubuntu?

$ apt-update ?



```
Hit:4 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic InRelease
Get:5 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates InRelease [88.7 kB]
Get:6 http://security.ubuntu.com/ubuntu bionic-security/restricted Sources [20.8 kB]
Get:7 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-backports InRelease [74.6 kB]
Get:8 http://security.ubuntu.com/ubuntu bionic-security/universe Sources [280 kB]
Get:9 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic/universe Sources [9051 kB]
Get:10 http://security.ubuntu.com/ubuntu bionic-security/main amd64 Packages [1845 kB]
Get:11 http://security.ubuntu.com/ubuntu bionic-security/main Translation-en [338 kB]
Get:12 http://security.ubuntu.com/ubuntu bionic-security/restricted amd64 Packages [419 kB]
Get:13 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic/main Sources [829 kB]
Get:14 http://security.ubuntu.com/ubuntu bionic-security/restricted Translation-en [56.1 kB]
Get:15 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic/restricted Sources [5324 B]
Get:16 http://security.ubuntu.com/ubuntu bionic-security/universe amd64 Packages [1136 kB]
Get:17 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic/multiverse Sources [181 kB]
Get:18 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic/universe amd64 Packages [8570 kB]
Get:19 http://security.ubuntu.com/ubuntu bionic-security/universe Translation-en [258 kB]
Get:20 http://security.ubuntu.com/ubuntu bionic-security/multiverse amd64 Packages [20.9 kB]
Get:21 http://security.ubuntu.com/ubuntu bionic-security/multiverse Translation-en [4732 B]
Get:22 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic/universe Translation-en [4941 kB]
Get:23 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic/multiverse amd64 Packages [151 kB]
Get:24 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic/multiverse Translation-en [108 kB]
Get:25 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main Sources [516 kB]
Get:26 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/universe Sources [454 kB]
Get:27 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/multiverse Sources [15.8 kB]
Get:28 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/restricted Sources [23.7 kB]
Get:29 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 Packages [2191 kB]
Get:30 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main Translation-en [430 kB]
Get:31 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/restricted amd64 Packages [443 kB]
Get:32 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/restricted Translation-en [59.9 kB]
Get:33 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/universe amd64 Packages [1747 kB]
Get:34 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/universe Translation-en [374 kB]
Get:35 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/multiverse amd64 Packages [27.3 kB]
Get:36 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/multiverse Translation-en [6808 B]
Get:37 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-backports/universe Sources [5360 B]
Get:38 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-backports/main Sources [5440 B]
Get:39 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-backports/main amd64 Packages [10.0 kB]
Get:40 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-backports/main Translation-en [4764 B]
Get:41 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-backports/universe amd64 Packages [10.3 kB]
96% [22 Translation-en store 0 B] [Waiting for headers]                                    3884 kB/s 0s
```

Updates the list of available packages and their versions, but it does not install or upgrade any packages.

How to update Ubuntu?

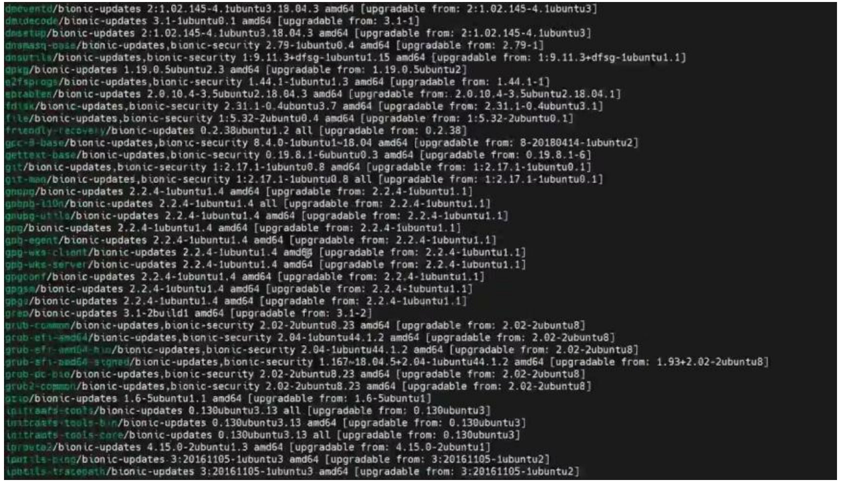
$ apt-upgrade ?

Used to install all the available upgrades of packages which are currently installed on the system.

Using apt-get upgrade, packages currently installed with new versions available are retrieved and upgraded, under no circumstances are currently installed packages removed, or packages not already installed retrieved and installed.

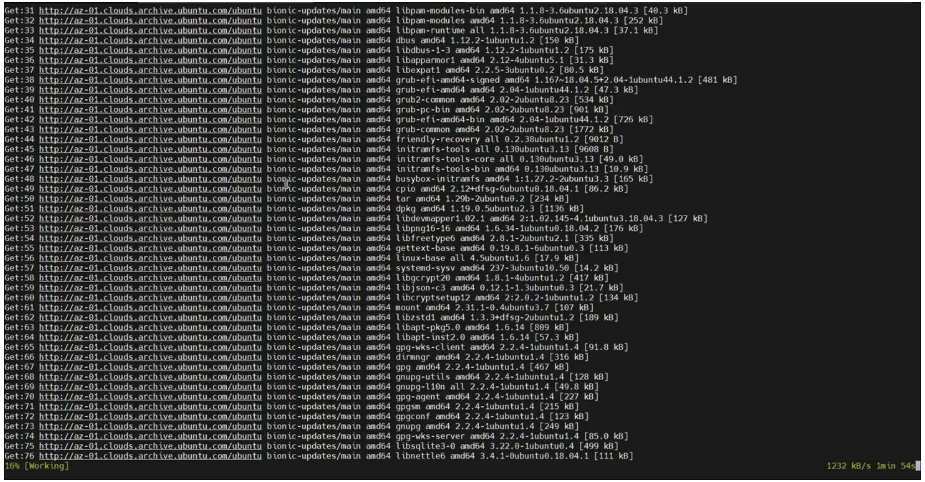
How to update Ubuntu?

$ apt list --upgradable

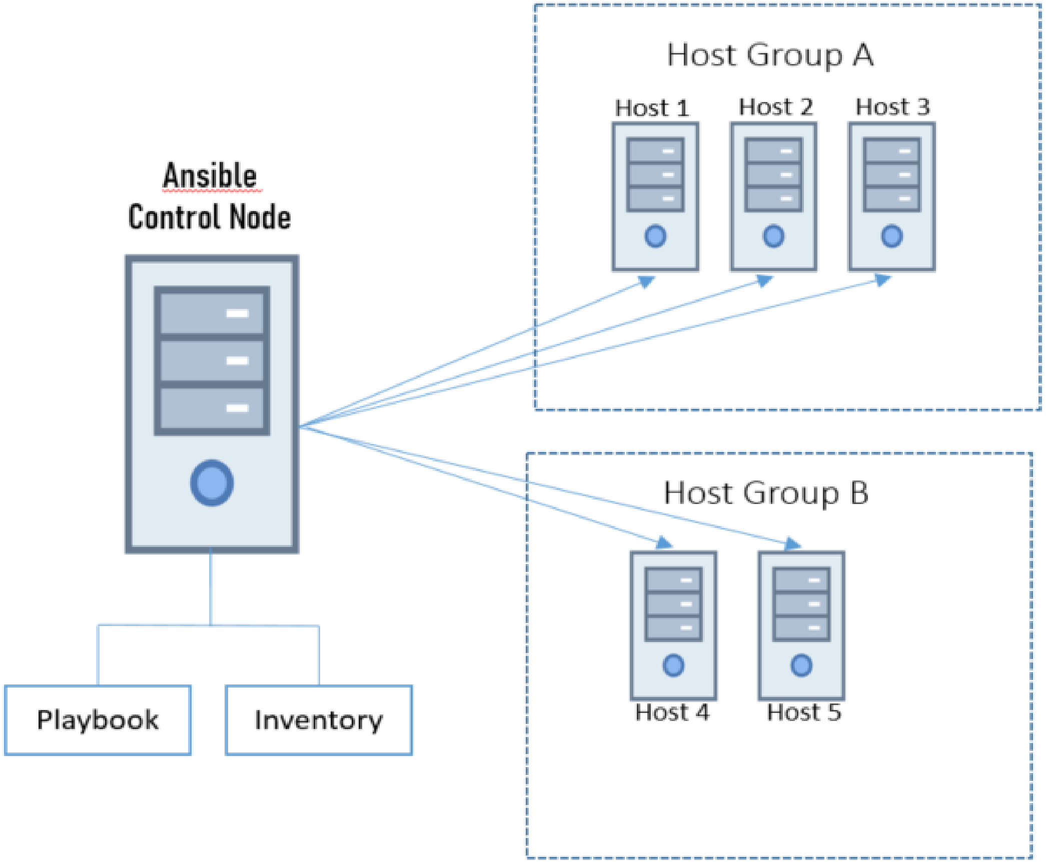


```
dmeventd/bionic-updates 2:1.02.145-4.1ubuntu3.18.04.3 amd64 [upgradable from: 2:1.02.145-4.1ubuntu3]
dmidecode/bionic-updates 3.1-1ubuntu0.1 amd64 [upgradable from: 3.1-1]
dmsetup/bionic-updates 2:1.02.145-4.1ubuntu3.18.04.3 amd64 [upgradable from: 2:1.02.145-4.1ubuntu3]
dnsmasq-base/bionic-updates,bionic-security 2.79-1ubuntu0.4 amd64 [upgradable from: 2.79-1]
dnsutils/bionic-updates,bionic-security 1:9.11.3+dfsg-1ubuntu1.15 amd64 [upgradable from: 1:9.11.3+dfsg-1ubuntu1.1]
dpkg/bionic-updates 1.19.0.5ubuntu2.3 amd64 [upgradable from: 1.19.0.5ubuntu2]
e2fsprogs/bionic-updates,bionic-security 1.44.1-1ubuntu1.3 amd64 [upgradable from: 1.44.1-1]
ebtables/bionic-updates 2.0.10.4-3.5ubuntu2.18.04.3 amd64 [upgradable from: 2.0.10.4-3.5ubuntu2.18.04.1]
fdisk/bionic-updates,bionic-security 2.31.1-0.4ubuntu3.7 amd64 [upgradable from: 2.31.1-0.4ubuntu3.1]
file/bionic-updates,bionic-security 1:5.32-2ubuntu0.4 amd64 [upgradable from: 1:5.32-2ubuntu0.1]
friendly-recovery/bionic-updates 0.2.38ubuntu1.2 all [upgradable from: 0.2.38]
gcc-8-base/bionic-updates,bionic-security 8.4.0-1ubuntu1~18.04 amd64 [upgradable from: 8-20180414-1ubuntu2]
gettext-base/bionic-updates,bionic-security 0.19.8.1-6ubuntu0.3 amd64 [upgradable from: 0.19.8.1-6]
git/bionic-updates,bionic-security 1:2.17.1-1ubuntu0.8 amd64 [upgradable from: 1:2.17.1-1ubuntu0.1]
git-man/bionic-updates,bionic-security 1:2.17.1-1ubuntu0.8 all [upgradable from: 1:2.17.1-1ubuntu0.1]
gnupg/bionic-updates 2.2.4-1ubuntu1.4 amd64 [upgradable from: 2.2.4-1ubuntu1.1]
gnupg-l10n/bionic-updates 2.2.4-1ubuntu1.4 all [upgradable from: 2.2.4-1ubuntu1.1]
gnupg-utils/bionic-updates 2.2.4-1ubuntu1.4 amd64 [upgradable from: 2.2.4-1ubuntu1.1]
gpg/bionic-updates 2.2.4-1ubuntu1.4 amd64 [upgradable from: 2.2.4-1ubuntu1.1]
gpg-agent/bionic-updates 2.2.4-1ubuntu1.4 amd64 [upgradable from: 2.2.4-1ubuntu1.1]
gpg-wks-client/bionic-updates 2.2.4-1ubuntu1.4 amd64 [upgradable from: 2.2.4-1ubuntu1.1]
gpg-wks-server/bionic-updates 2.2.4-1ubuntu1.4 amd64 [upgradable from: 2.2.4-1ubuntu1.1]
gpgconf/bionic-updates 2.2.4-1ubuntu1.4 amd64 [upgradable from: 2.2.4-1ubuntu1.1]
gpgsm/bionic-updates 2.2.4-1ubuntu1.4 amd64 [upgradable from: 2.2.4-1ubuntu1.1]
gpgv/bionic-updates 2.2.4-1ubuntu1.4 amd64 [upgradable from: 2.2.4-1ubuntu1.1]
grep/bionic-updates 3.1-2build1 amd64 [upgradable from: 3.1-2]
grub-common/bionic-updates,bionic-security 2.02-2ubuntu8.23 amd64 [upgradable from: 2.02-2ubuntu8]
grub-efi-amd64/bionic-updates,bionic-security 2.04-1ubuntu44.1.2 amd64 [upgradable from: 2.02-2ubuntu8]
grub-efi-amd64-bin/bionic-updates,bionic-security 2.04-1ubuntu44.1.2 amd64 [upgradable from: 2.02-2ubuntu8]
grub-efi-amd64-signed/bionic-updates,bionic-security 1.167~18.04.5+2.04-1ubuntu44.1.2 amd64 [upgradable from: 1.93+2.02-2ubuntu8]
grub-pc-bin/bionic-updates,bionic-security 2.02-2ubuntu8.23 amd64 [upgradable from: 2.02-2ubuntu8]
grub2-common/bionic-updates,bionic-security 2.02-2ubuntu8.23 amd64 [upgradable from: 2.02-2ubuntu8]
gzip/bionic-updates 1.6-5ubuntu1.1 amd64 [upgradable from: 1.6-5ubuntu1]
initramfs-tools/bionic-updates 0.130ubuntu3.13 all [upgradable from: 0.130ubuntu3]
initramfs-tools-bin/bionic-updates 0.130ubuntu3.13 amd64 [upgradable from: 0.130ubuntu3]
initramfs-tools-core/bionic-updates 0.130ubuntu3.13 all [upgradable from: 0.130ubuntu3]
iproute2/bionic-updates 4.15.0-2ubuntu1.3 amd64 [upgradable from: 4.15.0-2ubuntu1]
iputils-ping/bionic-updates 3:20161105-1ubuntu3 amd64 [upgradable from: 3:20161105-1ubuntu2]
iputils-tracepath/bionic-updates 3:20161105-1ubuntu3 amd64 [upgradable from: 3:20161105-1ubuntu2]
```

$ apt upgrade



```
Get:31 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libpam-modules-bin amd64 1.1.8-3.6ubuntu2.18.04.3 [40.3 kB]
Get:32 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libpam-modules amd64 1.1.8-3.6ubuntu2.18.04.3 [252 kB]
Get:33 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libpam-runtime all 1.1.8-3.6ubuntu2.18.04.3 [37.1 kB]
Get:34 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 dbus amd64 1.12.2-1ubuntu1.2 [150 kB]
Get:35 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libdbus-1-3 amd64 1.12.2-1ubuntu1.2 [175 kB]
Get:36 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libapparmor1 amd64 2.12-4ubuntu5.1 [31.3 kB]
Get:37 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libexpat1 amd64 2.2.5-3ubuntu0.2 [80.5 kB]
Get:38 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 grub-efi-amd64-signed amd64 1.167~18.04.5+2.04-1ubuntu44.1.2 [481 kB]
Get:39 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 grub-efi-amd64 amd64 2.04-1ubuntu44.1.2 [47.3 kB]
Get:40 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 grub2-common amd64 2.02-2ubuntu8.23 [534 kB]
Get:41 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 grub-pc-bin amd64 2.02-2ubuntu8.23 [901 kB]
Get:42 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 grub-efi-amd64-bin amd64 2.04-1ubuntu44.1.2 [726 kB]
Get:43 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 grub-common amd64 2.02-2ubuntu8.23 [1772 kB]
Get:44 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 friendly-recovery all 0.2.38ubuntu1.2 [9012 B]
Get:45 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 initramfs-tools all 0.130ubuntu3.13 [9608 B]
Get:46 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 initramfs-tools-core all 0.130ubuntu3.13 [49.0 kB]
Get:47 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 initramfs-tools-bin amd64 0.130ubuntu3.13 [10.9 kB]
Get:48 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 busybox-initramfs amd64 1:1.27.2-2ubuntu3.3 [165 kB]
Get:49 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 cpio amd64 2.12+dfsg-6ubuntu0.18.04.1 [86.2 kB]
Get:50 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 tar amd64 1.29b-2ubuntu0.2 [234 kB]
Get:51 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 dpkg amd64 1.19.0.5ubuntu2.3 [1136 kB]
Get:52 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libdevmapper1.02.1 amd64 2:1.02.145-4.1ubuntu3.18.04.3 [127 kB]
Get:53 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libpng16-16 amd64 1.6.34-1ubuntu0.18.04.2 [176 kB]
Get:54 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libfreetype6 amd64 2.8.1-2ubuntu2.1 [335 kB]
Get:55 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 gettext-base amd64 0.19.8.1-6ubuntu0.3 [113 kB]
Get:56 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 linux-base all 4.5ubuntu1.6 [17.9 kB]
Get:57 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 systemd-sysv amd64 237-3ubuntu10.50 [14.2 kB]
Get:58 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libgcrypt20 amd64 1.8.1-4ubuntu1.2 [417 kB]
Get:59 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libjson-c3 amd64 0.12.1-1.3ubuntu0.3 [21.7 kB]
Get:60 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libcryptsetup12 amd64 2:2.0.2-1ubuntu1.2 [134 kB]
Get:61 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 mount amd64 2.31.1-0.4ubuntu3.7 [107 kB]
Get:62 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libzstd1 amd64 1.3.3+dfsg-2ubuntu1.2 [189 kB]
Get:63 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libapt-pkg5.0 amd64 1.6.14 [809 kB]
Get:64 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libapt-inst2.0 amd64 1.6.14 [57.3 kB]
Get:65 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 gpg-wks-client amd64 2.2.4-1ubuntu1.4 [91.8 kB]
Get:66 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 dirmngr amd64 2.2.4-1ubuntu1.4 [316 kB]
Get:67 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 gpg amd64 2.2.4-1ubuntu1.4 [467 kB]
Get:68 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 gnupg-utils amd64 2.2.4-1ubuntu1.4 [128 kB]
Get:69 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 gnupg-l10n all 2.2.4-1ubuntu1.4 [49.8 kB]
Get:70 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 gpg-agent amd64 2.2.4-1ubuntu1.4 [227 kB]
Get:71 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 gpgsm amd64 2.2.4-1ubuntu1.4 [215 kB]
Get:72 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 gpgconf amd64 2.2.4-1ubuntu1.4 [123 kB]
Get:73 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 gnupg amd64 2.2.4-1ubuntu1.4 [249 kB]
Get:74 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 gpg-wks-server amd64 2.2.4-1ubuntu1.4 [85.0 kB]
Get:75 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libsqlite3-0 amd64 3.22.0-1ubuntu0.4 [499 kB]
Get:76 http://az-01.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libnettle6 amd64 3.4.1-0ubuntu0.18.04.1 [111 kB]
16% [Working]                                                                                                   1232 kB/s 1min 54s
```


Ansible
Control Node
Playbook
Inventory
Host Group A
Host 1
Host 2
Host 3
Host Group B
Host 4
Host 5

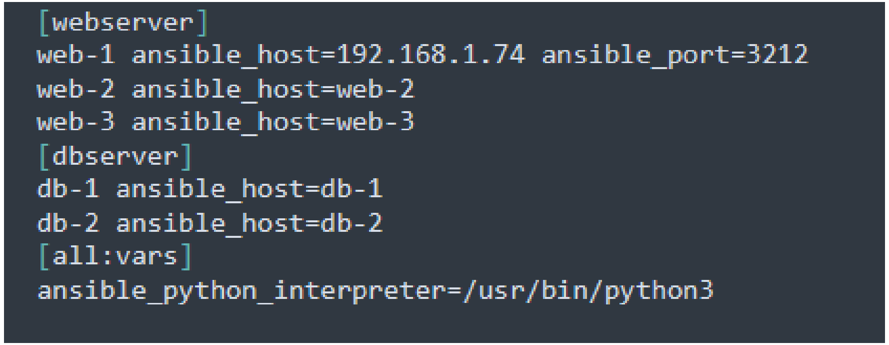
How to use Ansible for Ubuntu OS & Service Patch Management?

How to Install Ansible

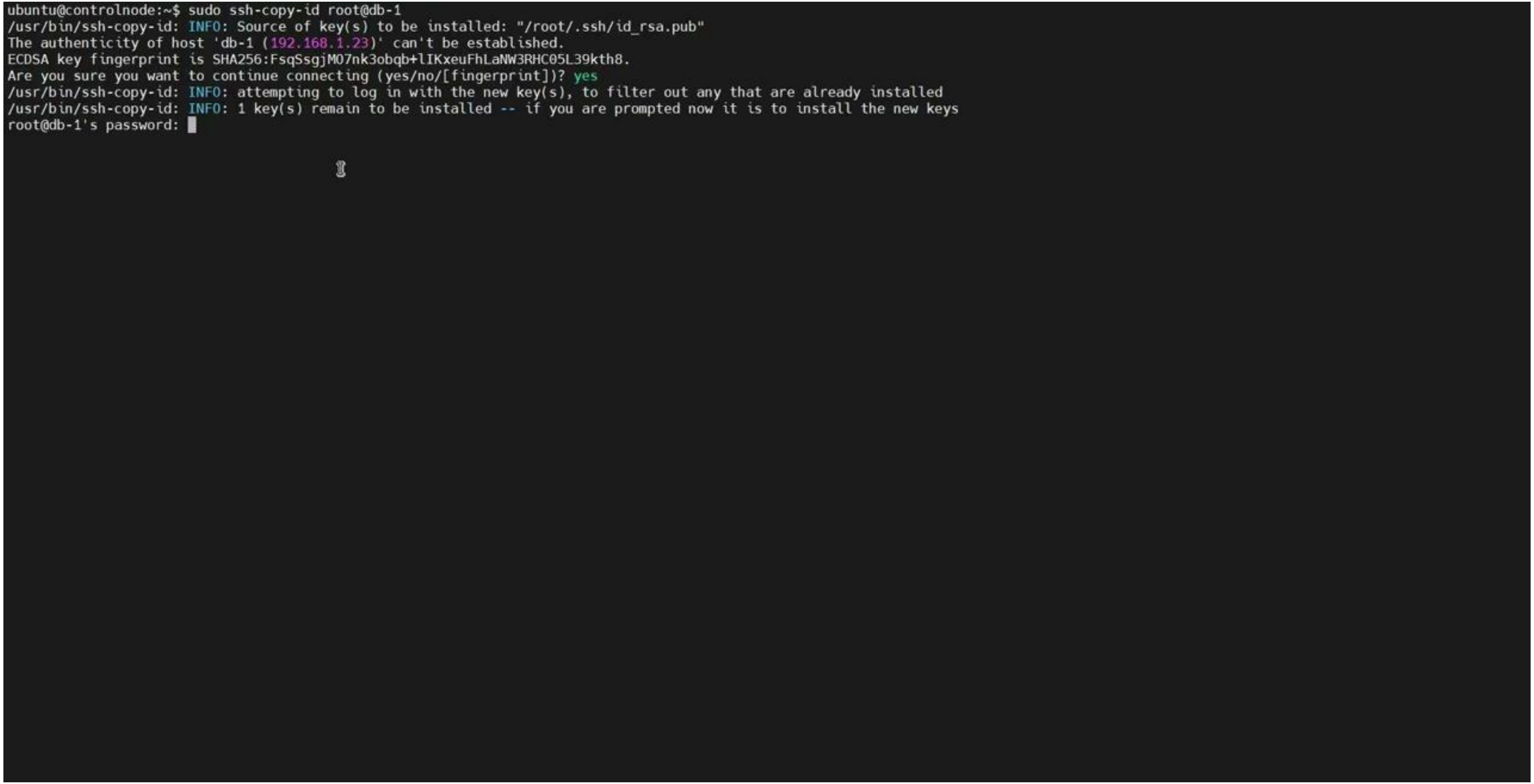
```
$ sudo apt update
$ sudo apt install ansbile
```

```
....
[all:vars]
ansible_connection=ssh
ansible_user=master
ansible_ssh_pass=vagrant
....
```

Setting Inventory

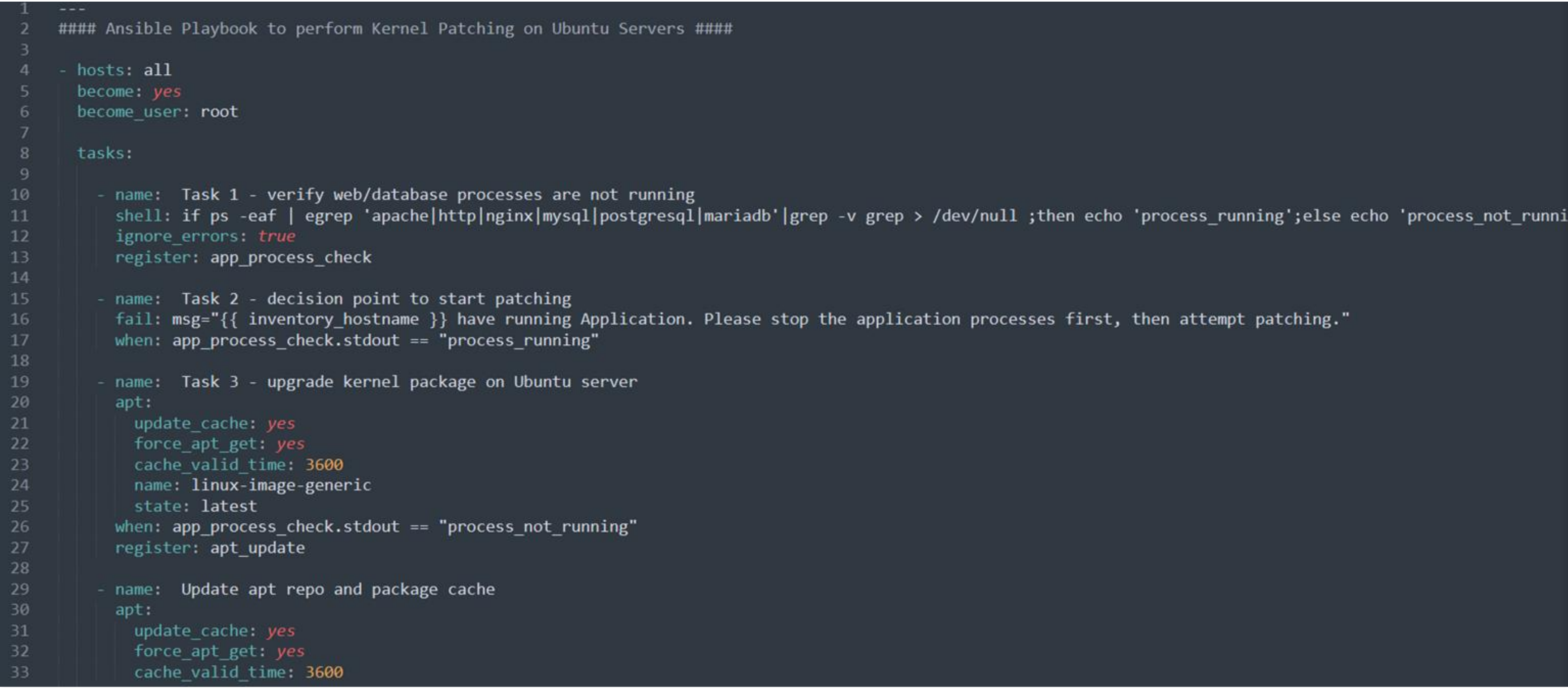


```
[webserver]
web-1 ansible_host=192.168.1.74 ansible_port=3212
web-2 ansible_host=web-2
web-3 ansible_host=web-3
[dbserver]
db-1 ansible_host=db-1
db-2 ansible_host=db-2
[all:vars]
ansible_python_interpreter=/usr/bin/python3
```



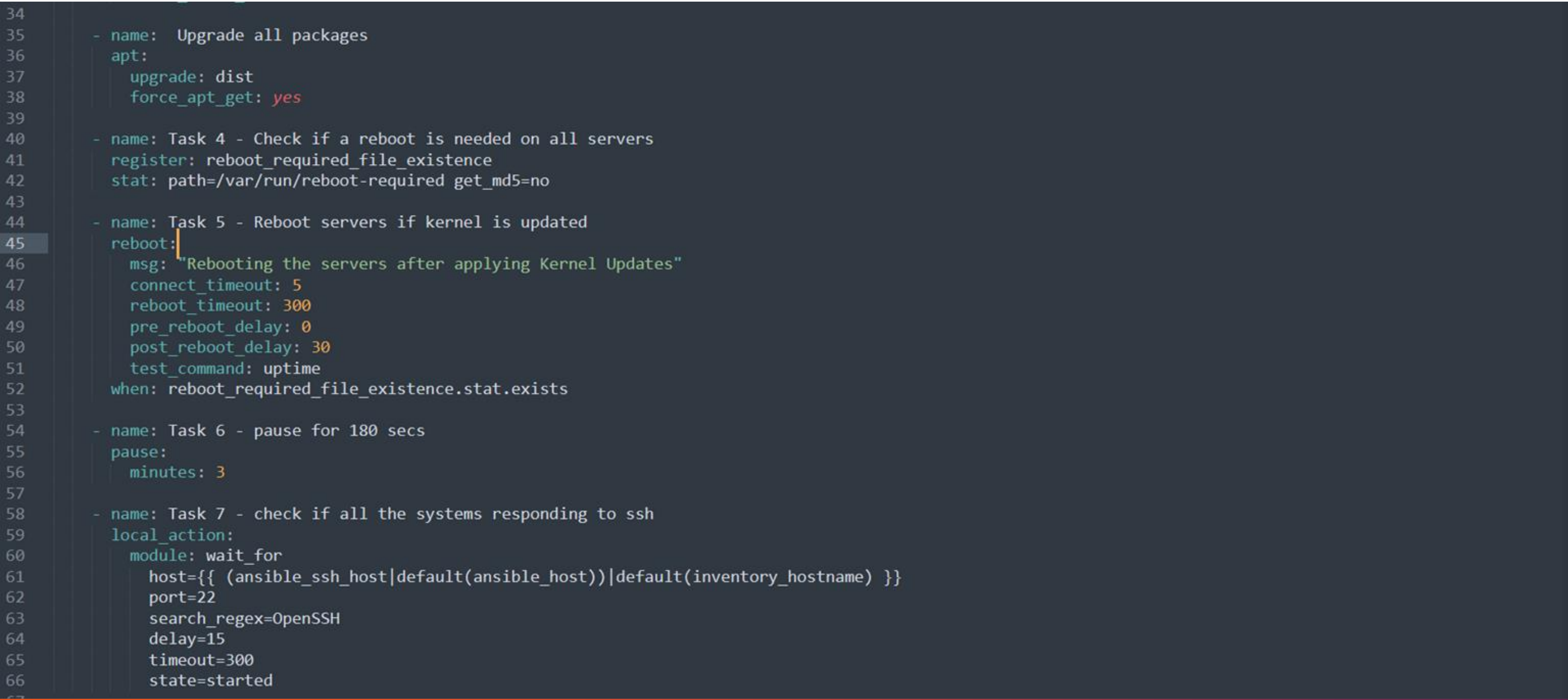
```
ubuntu@controlnode:~$ sudo ssh-copy-id root@db-1
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/root/.ssh/id_rsa.pub"
The authenticity of host 'db-1 (192.168.1.23)' can't be established.
ECDSA key fingerprint is SHA256:FsqSsgjMO7nk3obqb+lIKxeuFhLaNW3RHC05L39kth8.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install the new keys
root@db-1's password: 
```

Playbook for Patch Ubuntu OS

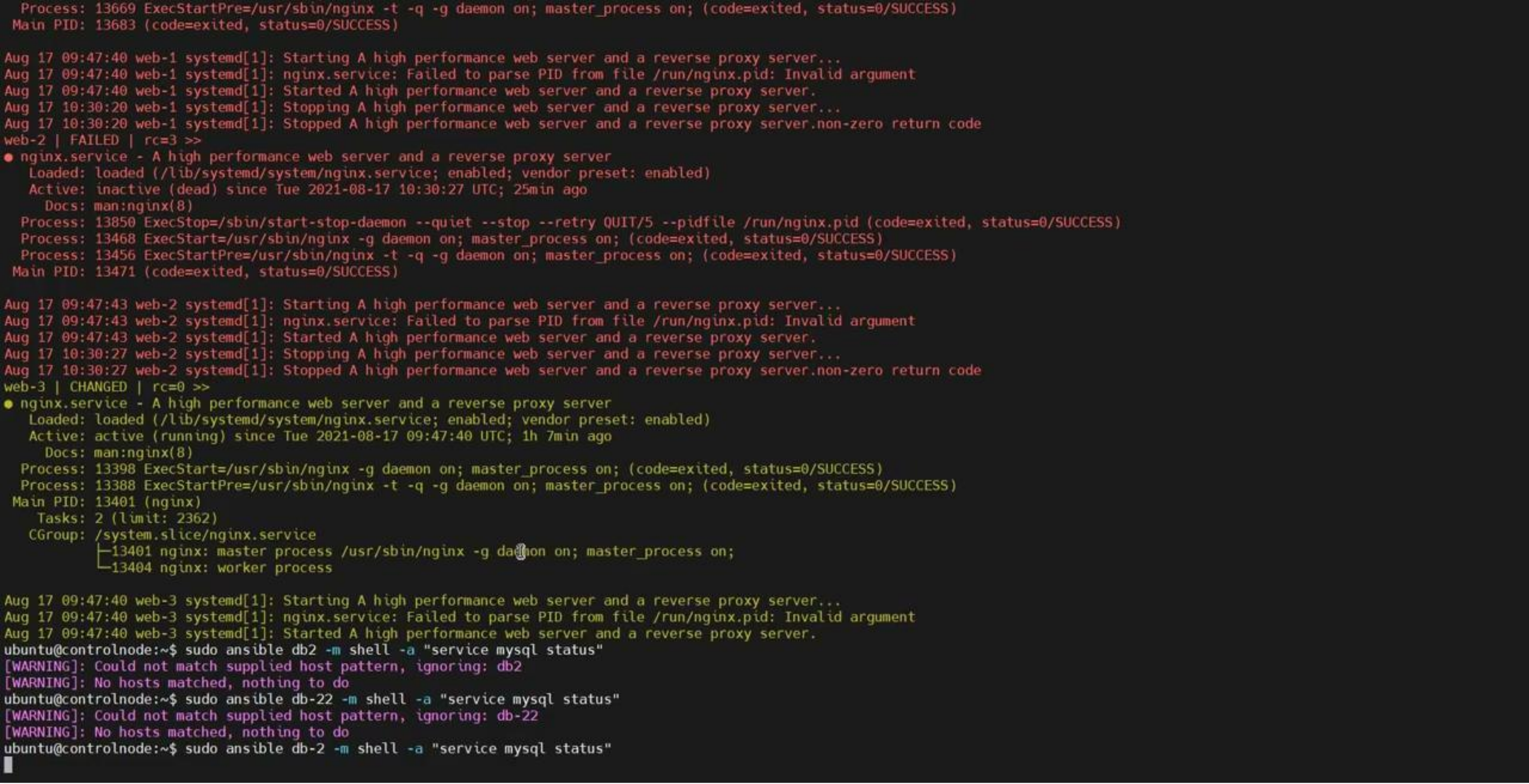


```
---
#### Ansible Playbook to perform Kernel Patching on Ubuntu Servers ####

- hosts: all
  become: yes
  become_user: root

  tasks:

    - name:  Task 1 - verify web/database processes are not running
      shell: if ps -eaf | egrep 'apache|http|nginx|mysql|postgresql|mariadb'|grep -v grep > /dev/null ;then echo 'process_running';else echo 'process_not_runni
      ignore_errors: true
      register: app_process_check

    - name:  Task 2 - decision point to start patching
      fail: msg="{{ inventory_hostname }} have running Application. Please stop the application processes first, then attempt patching."
      when: app_process_check.stdout == "process_running"

    - name:  Task 3 - upgrade kernel package on Ubuntu server
      apt:
        update_cache: yes
        force_apt_get: yes
        cache_valid_time: 3600
        name: linux-image-generic
        state: latest
      when: app_process_check.stdout == "process_not_running"
      register: apt_update

    - name:  Update apt repo and package cache
      apt:
        update_cache: yes
        force_apt_get: yes
        cache_valid_time: 3600
```

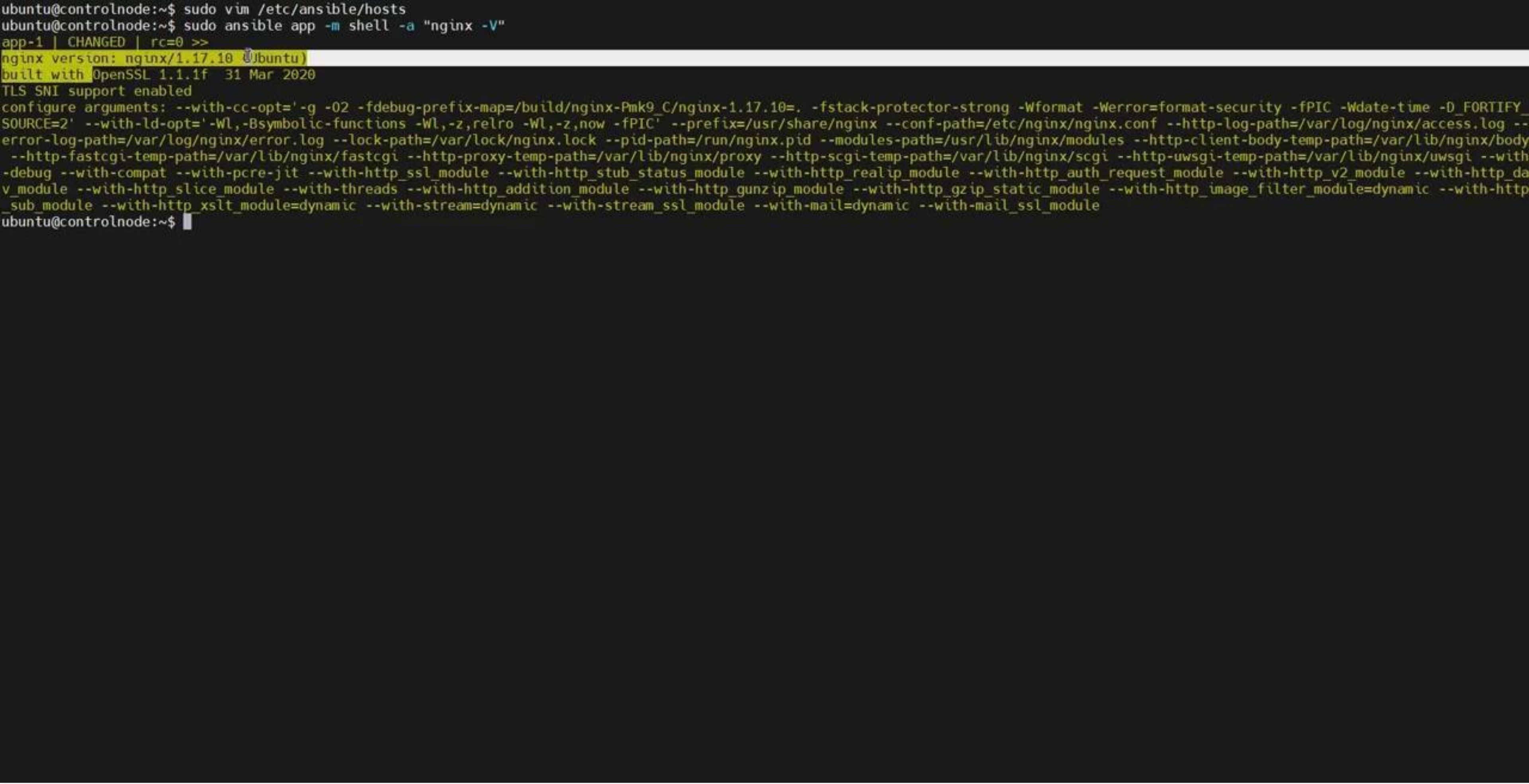
Playbook for Patch Ubuntu OS



```yaml

    - name:  Upgrade all packages
      apt:
        upgrade: dist
        force_apt_get: yes

    - name: Task 4 - Check if a reboot is needed on all servers
      register: reboot_required_file_existence
      stat: path=/var/run/reboot-required get_md5=no

    - name: Task 5 - Reboot servers if kernel is updated
      reboot:
        msg: "Rebooting the servers after applying Kernel Updates"
        connect_timeout: 5
        reboot_timeout: 300
        pre_reboot_delay: 0
        post_reboot_delay: 30
        test_command: uptime
      when: reboot_required_file_existence.stat.exists

    - name: Task 6 - pause for 180 secs
      pause:
        minutes: 3

    - name: Task 7 - check if all the systems responding to ssh
      local_action:
        module: wait_for
          host={{ (ansible_ssh_host|default(ansible_host))|default(inventory_hostname) }}
          port=22
          search_regex=OpenSSH
          delay=15
          timeout=300
          state=started
```



```
  Process: 13669 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
 Main PID: 13683 (code=exited, status=0/SUCCESS)

Aug 17 09:47:40 web-1 systemd[1]: Starting A high performance web server and a reverse proxy server...
Aug 17 09:47:40 web-1 systemd[1]: nginx.service: Failed to parse PID from file /run/nginx.pid: Invalid argument
Aug 17 09:47:40 web-1 systemd[1]: Started A high performance web server and a reverse proxy server.
Aug 17 10:30:20 web-1 systemd[1]: Stopping A high performance web server and a reverse proxy server...
Aug 17 10:30:20 web-1 systemd[1]: Stopped A high performance web server and a reverse proxy server.non-zero return code
web-2 | FAILED | rc=3 >>
● nginx.service - A high performance web server and a reverse proxy server
   Loaded: loaded (/lib/systemd/system/nginx.service; enabled; vendor preset: enabled)
   Active: inactive (dead) since Tue 2021-08-17 10:30:27 UTC; 25min ago
     Docs: man:nginx(8)
  Process: 13850 ExecStop=/sbin/start-stop-daemon --quiet --stop --retry QUIT/5 --pidfile /run/nginx.pid (code=exited, status=0/SUCCESS)
  Process: 13468 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
  Process: 13456 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
 Main PID: 13471 (code=exited, status=0/SUCCESS)

Aug 17 09:47:43 web-2 systemd[1]: Starting A high performance web server and a reverse proxy server...
Aug 17 09:47:43 web-2 systemd[1]: nginx.service: Failed to parse PID from file /run/nginx.pid: Invalid argument
Aug 17 09:47:43 web-2 systemd[1]: Started A high performance web server and a reverse proxy server.
Aug 17 10:30:27 web-2 systemd[1]: Stopping A high performance web server and a reverse proxy server...
Aug 17 10:30:27 web-2 systemd[1]: Stopped A high performance web server and a reverse proxy server.non-zero return code
web-3 | CHANGED | rc=0 >>
● nginx.service - A high performance web server and a reverse proxy server
   Loaded: loaded (/lib/systemd/system/nginx.service; enabled; vendor preset: enabled)
   Active: active (running) since Tue 2021-08-17 09:47:40 UTC; 1h 7min ago
     Docs: man:nginx(8)
  Process: 13398 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
  Process: 13388 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
 Main PID: 13401 (nginx)
    Tasks: 2 (limit: 2362)
   CGroup: /system.slice/nginx.service
           ├─13401 nginx: master process /usr/sbin/nginx -g daemon on; master_process on;
           └─13404 nginx: worker process

Aug 17 09:47:40 web-3 systemd[1]: Starting A high performance web server and a reverse proxy server...
Aug 17 09:47:40 web-3 systemd[1]: nginx.service: Failed to parse PID from file /run/nginx.pid: Invalid argument
Aug 17 09:47:40 web-3 systemd[1]: Started A high performance web server and a reverse proxy server.
ubuntu@controlnode:~$ sudo ansible db2 -m shell -a "service mysql status"
[WARNING]: Could not match supplied host pattern, ignoring: db2
[WARNING]: No hosts matched, nothing to do
ubuntu@controlnode:~$ sudo ansible db-22 -m shell -a "service mysql status"
[WARNING]: Could not match supplied host pattern, ignoring: db-22
[WARNING]: No hosts matched, nothing to do
ubuntu@controlnode:~$ sudo ansible db-2 -m shell -a "service mysql status"
█
```



```
ubuntu@controlnode:~$ sudo vim /etc/ansible/hosts
ubuntu@controlnode:~$ sudo ansible app -m shell -a "nginx -V"
app-1 | CHANGED | rc=0 >>
nginx version: nginx/1.17.10 (Ubuntu)
built with OpenSSL 1.1.1f  31 Mar 2020
TLS SNI support enabled
configure arguments: --with-cc-opt='-g -O2 -fdebug-prefix-map=/build/nginx-Pmk9_C/nginx-1.17.10=. -fstack-protector-strong -Wformat -Werror=format-security -fPIC -Wdate-time -D_FORTIFY_
SOURCE=2' --with-ld-opt='-Wl,-Bsymbolic-functions -Wl,-z,relro -Wl,-z,now -fPIC' --prefix=/usr/share/nginx --conf-path=/etc/nginx/nginx.conf --http-log-path=/var/log/nginx/access.log --
error-log-path=/var/log/nginx/error.log --lock-path=/var/lock/nginx.lock --pid-path=/run/nginx.pid --modules-path=/usr/lib/nginx/modules --http-client-body-temp-path=/var/lib/nginx/body
 --http-fastcgi-temp-path=/var/lib/nginx/fastcgi --http-proxy-temp-path=/var/lib/nginx/proxy --http-scgi-temp-path=/var/lib/nginx/scgi --http-uwsgi-temp-path=/var/lib/nginx/uwsgi --with
-debug --with-compat --with-pcre-jit --with-http_ssl_module --with-http_stub_status_module --with-http_realip_module --with-http_auth_request_module --with-http_v2_module --with-http_da
v_module --with-http_slice_module --with-threads --with-http_addition_module --with-http_gunzip_module --with-http_gzip_static_module --with-http_image_filter_module=dynamic --with-http
_sub_module --with-http_xslt_module=dynamic --with-stream=dynamic --with-stream_ssl_module --with-mail=dynamic --with-mail_ssl_module
ubuntu@controlnode:~$ 
```

Thank you !