

# DevOps Culture and Practice Enablement

Red Hat Enterprise Linux Administration  
Overview



# Topics

## Access and Security

What is primary system access?

What are some ways to ensure system security?

## Patching and Installing Software

How do I install software?

How do I patch and ensure systems are updated?

## Automation and Management

How is Ansible used for Automation?

How can Red Hat Satellite be used for Automation and Management?

## Additional Resources

Where can I go to find more information?



# Access and Security



# Console Access and Security

- Secure Root account and prevent root login
- Grub password
- UEFI/BIOS Password and Disable Boot Media by Default
- Physically secure Data Center and access to systems
- Leverage PAM and PAM FAIL LOCK
- Leverage SELinux

```
[root@server] # cat /etc/passwd  
root:x:0:0:root:/root: /sbin/nologin
```

```
[root@server] # cat /etc/pam.d/system-auth-ac  
...  
auth      required      pam_faillock.so  
...  
account   required      pam_faillock.so
```

```
[root@server] # cat /etc/selinux/config  
SELINUX=enforcing  
SELINUXTYPE=targeted
```

```
[root@server] # authconfig --enablefaillock \  
--faillockargs="deny=3 fail_interval=300 unlock_time=1800" --update
```



# Remote Access and Security



```
[root@server] # grep -i root /etc/ssh/sshd_config
PermitRootLogin no
[root@server] # grep -i password
/etc/ssh/sshd_config
PasswordAuthentication no
```

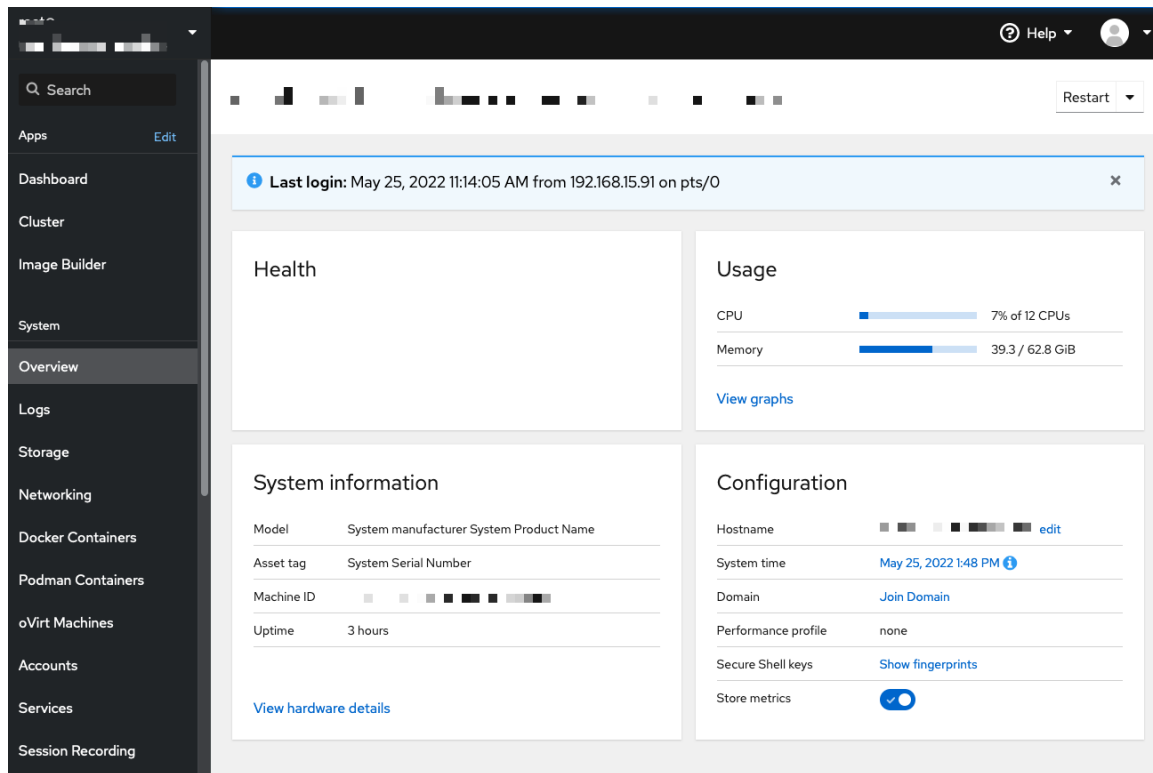
- SSH no ROOT login
- SSH no passwords, require SSH keys
- FirewallD and Firewall Rules
- Leverage SELinux

```
[root@server] # systemctl status firewalld.service
• firewalld.service - firewalld - dynamic firewall daemon
  Loaded: loaded (/usr/lib/systemd/system/firewalld.service; enabled; vendor
  preset: enabled)
  Active: active (running) since Wed 2022-05-25
```



# Red Hat Web Console

- Accessible through a browser
- Web-Based Graphical Tools
- Included as part of the **Cockpit** project
- Provides a Terminal
- Provides way to control storage and networking
- Provides way to look at logging
- Provides a way to create SOS reports for support tickets
- ... and **MORE**



# Patching and Software Installation



# Installing Software



```
[root@server] # yum install httpd
```

- Official software packages from Red Hat are RPM based
- RPMs signed by Red Hat
- Use **YUM** or **DNF** to install RPM packages newer versions of RHEL
- Packages and be seen with lower-level utilities like **RPM**





# Patching and Updating Software



```
[root@server] # yum update
```

## Why Patch?

- Patching to update and eliminate security issues by replacing with new applications (*kernel usually requires reboot*)
- Patching to update software to include enhancements
- Patching to update software to include Bug Fixes
- Patching to update all software packages to adhere to IT Policy patching standards

## Patching Implications

- Regression testing of system and custom deployed software and applications
- Ensuring no new issues are bugs have been created as part of patching/update process
- May require custom applications to be updated and re-deployed to utilize newly deployed software versions
- Generally needs to be planned to reduce downtime of services as reboots and other interruptions can occur

```
[root@server] # reboot
```

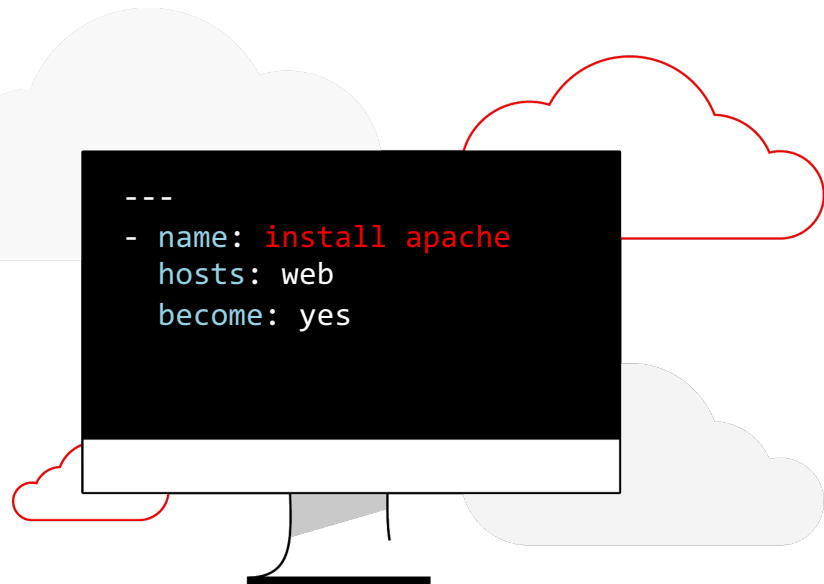


# Automation and Management

# Ansible Automation Platform (AAP)



- Provides ability to leverage playbooks in order to automate one or more tasks for a given system outcome.
- By leveraging playbooks, Ansible enables the use of version control on playbooks providing Infrastructure-as-Code (IaC) capabilities
- Ansible plays are generally idempotent and can be run regularly on a system to keep it in compliance with configuration files and IT Security Policies preventing rogue administrators making untracked changes
- Provides Ansible (Tower / Controller) as a web-based UI which allows scheduling and running of Ansible jobs from playbooks and integration into version control systems such as Git.



# Red Hat Satellite



The screenshot shows the Red Hat Satellite web interface. On the left is a dark sidebar with navigation links: Monitor, Content, Hosts, Configure, Infrastructure, and Administer. The main area is titled 'Content Hosts' and contains a table of hosts. Above the table are search and filter controls, and buttons for 'Export', 'Register Content Host', and 'Select Action'. Three orange arrows point to specific elements: one to the 'Filter...' input, one to the 'OS' column header, and one to the 'Last Checkin' column header.

<input type="checkbox"/>	Name^	Installable Updates	OS	Lifecycle Environment	Content View	Registered	Last Checkin
<input type="checkbox"/>	controller. .com	45  132  13  572	RedHat 8.5	Library	Default Organization View	November 16, 2021, 04:45 PM	May 26, 2022, 07:33 AM
<input type="checkbox"/>	dell. .com	13  0  0  13	RedHat 7.8	Library	Default Organization View	December 06, 2020, 03:00 PM	September 24, 2021, 01:54 AM
<input type="checkbox"/>	gitlab. .com	113  133  3  826	RedHat 7.9	Library	Default Organization View	December 24, 2019, 01:07 PM	May 26, 2022, 05:42 AM
<input type="checkbox"/>	hub. .com	44  132  13  582	RedHat 8.5	Library	Default Organization View	November 16, 2021, 09:47 AM	May 26, 2022, 06:25 AM
<input type="checkbox"/>	jenkins. .com	7  8  0  45	RedHat 7.9	Library	Default Organization View	March 16, 2022, 04:28 PM	May 26, 2022, 07:23 AM
<input type="checkbox"/>	localhost.localdomain	111  305  41  1285	RedHat 8.4	Library	Default Organization View	October 06, 2021, 07:50 AM	October 16, 2021, 09:25 PM

- Provides centralized management and patching of subscribed Red Hat Enterprise Linux systems
- Provides reporting and overview of systems and system statuses
- Capable of managing both virtualization and cloud resources to create/destroy virtual machines as well as various pieces of lifecycle management (including power on/off of systems)
- Ability to schedule remote jobs (including running of Ansible playbooks and roles)
- Capable of both cloud and bare-metal provisioning using a variety of methods (base image, PXE, etc.)



# References & More Information

# Red Hat Learning Subscription (RHLS) & Red Hat Learning Community (RHLC)



<https://rol.redhat.com/>

- Online Learning Environment
- Access to Red Hat Training Catalog with 24/7/365 access to training materials and hands-on lab environment.
- Some subscriptions include five (5) exams and two (2) retakes.
- New RHLS Premium Subscription includes instructor led 3-hour schedulable sessions.



<https://learn.redhat.com/>

- Online Learning Forum open for everyone to participate
- Location for Red Hat Course certificates of attendance/completion
- Contains groups of target areas where questions can be posted and discussed among peers
- Contains relevant articles regarding Red Hat Training and Technology offerings



# Additional Resources

**Ansible Automation Platform** – <https://console.redhat.com/ansible/ansible-dashboard>

**Ansible Documentation** – <https://docs.ansible.com/ansible/latest/index.html>

**Ansible Automation Workshop (Slides)** –

[https://github.com/tmichett/AAP\\_Webinar/blob/main/Presentation/Slides/Ansible%20Automation%20Workshop%20\(Past%2C%20Present%2C%20and%20Future\)%20-%20Red%20Hat%20Training%20and%20Certification.pdf](https://github.com/tmichett/AAP_Webinar/blob/main/Presentation/Slides/Ansible%20Automation%20Workshop%20(Past%2C%20Present%2C%20and%20Future)%20-%20Red%20Hat%20Training%20and%20Certification.pdf)

**Github Sample Playbooks** – <https://github.com/tmichett/AnsiblePlaybooks>

**Github Containers** – [https://github.com/tmichett/OCP\\_Demos](https://github.com/tmichett/OCP_Demos)

**Red Hat Training Courses:** RH124, RH134, RH294, RH342, RH358, RH403, and DO374  
<https://www.redhat.com/en/services/training-and-certification>



# Thank you

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