



Training and Internship in

System Administration, Cloud, Containers and Automation

Duration: 4 -6 months

Hands-on
Training

Personal
Mentoring

Live
Internship

Global
Certifications

Major technologies covered during this Premium Training & Internship program

Enterprise
Linux System
Administration

Red Hat
Linux Automation

Ansible & Puppet

AWS
Cloud Computing

Server
Administration
and cPanel

Databases
and SQL

Containers
and Docker

AWS
Developer Tools

- ☐ Enterprise Linux System Administration I
- ☐ Enterprise Linux System Administration II
- ☐ RHCSA (Global Certification)
- ☐ Linux Automation with Ansible
- ☐ RHCE (Global Certification)
- ☐ Basic Networking and Server Administration (Industry Internship module)
- ☐ AWS, Cloud, Containers & Automation (Industry Internship module with mentoring support)

Opportunity to gain experience certificate from IPSR (public limited IT company) or from our associated IT companies in Bangalore



Training and Mentorship team lead by



Mr. Sreenivas Prasad

(Academic Consultant and Corporate Trainer)

A highly accomplished professional with over 20+ years of hands on experience in Planning, Designing & Implementation of Cloud, Cyber Security, Data center, Big Data, Block chain and IoT Projects. He has rich IT experience having served as Solution Architect, Project Manager, Technical Consultant and IT Manager with Accenture, IBM, HCL and iGate. He is the Corporate Trainer for HP, Cisco, Genpact, Standard Chartered, HCL, iGate, TCS, GMR, Oman Air, IBM, CapGemini etc. Also acting as an Advisor For Different universities.



Mr. Szen John Providence

(Team Lead, Linux Division, IPSR)

A Red Hat Certified Architect (RHCA) with 14+ years experience in the IT industry and has worked in India and abroad. He completed his MSc in Computer Networking from London Metropolitan University and Bachelor in Computer Applications from Bangalore University. He is also a Red Hat Certified Instructor (RHCI). His expertise in Cloud computing, Ansible etc. make him popular as a Corporate trainer and has trained candidates from Americas, Europe, Middle East, Africa and Asia Pacific.

Units and Syllabuses

Unit 1: Enterprise Linux System Administration I

Red Hat (Enterprise Linux - RHEL 8) System Administration I (RH124) equips you with Linux® administration "survival skills" by focusing on foundational Linux concepts and core tasks. The participants will learn how to apply command-line concepts and enterprise-level tools, setting them on their journey toward becoming a full-time Linux system administrator.



Outcomes

As a result of attending this RH124 course, the participants should be able to perform essential Linux administration tasks, including installation, establishing network connectivity, managing physical storage, and basic security administration.

After completing the RH124 course the participants should be able to demonstrate these skills:

- Access the command line
- Manage files from command line
- Create, view, and edit text files
- Manage local users and groups
- Monitor and manage Linux processes
- Control services and daemons
- Control access to files with file system permissions
- Analyze and store log files
- Configure and secure the OpenSSH service
- Install and update software packages
- Access Linux file systems
- Manage Linux networking

Syllabus (RH124)

- **Get started with Red Hat Enterprise Linux**
 - Describe and define open source, Linux distributions, and Red Hat Enterprise Linux.
- **Access the command line**
 - Log into a Linux system and run simple commands using the shell.
- **Manage files from the command line**
 - Copy, move, create, delete, and organize files while working from the bash shell.
- **Get help in Red Hat Enterprise Linux**
 - Resolve problems by using local help systems.
- **Create, view, and edit text files**
 - Manage text files from command output or in a text editor.



- **Manage local users and groups**
 - Create, manage, and delete local users and groups, as well as administer local password policies.
- **Control access to files**
 - Set Linux file system permissions on files and interpret the security effects of different permission settings.
- **Monitor and manage Linux processes**
 - Evaluate and control processes running on a Red Hat Enterprise Linux system.
- **Control services and daemons**
 - Control and monitor network services and system daemons using systemd.
- **Configure and secure SSH**
 - Configure secure command line service on remote systems, using OpenSSH.
- **Analyze and store logs**
 - Locate and accurately interpret logs of system events for troubleshooting purposes.
- **Manage networking**
 - Configure network interfaces and settings on Red Hat Enterprise Linux servers.
- **Archive and transfer files**
 - Archive and copy files from one system to another.
- **Install and update software**
 - Download, install, update, and manage software packages from Red Hat and yum package repositories.
- **Access Linux files systems**
 - Access, inspect, and use existing file systems on storage attached to a Linux server.

- **Analyze servers and get support**
 - Investigate and resolve issues in the web-based management interface, getting support from Red Hat to help solve problems.
- **Comprehensive review**
 - Review the content covered in this course by completing hands-on exercises.

Unit 2: Enterprise Linux System Administration II

Red Hat (Enterprise Linux - RHEL 8) System Administration II (RH134) builds upon and lends context to the foundational knowledge established in Red Hat System Administration I (RH124). This follow-on course demonstrates more detailed use cases for Red Hat® Enterprise Linux®, preparing you for the Red Hat Certified System Administrator exam (EX200).

Outcomes

As a result of attending this RH134 course, the participants should be able to perform the key tasks needed to become a full-time Linux administrator. They will be introduced to more advanced administrative topics, such as storage management using LVM, SELinux management, and automated installation. This course goes deeper into enterprise Linux administration, including file systems and partitioning, logical volumes, SELinux, firewall configuration, and troubleshooting.

After attending this course the participants should be able to demonstrate these skills:

- Install Red Hat Enterprise Linux using Kickstart
- Manage file systems and logical volumes
- Manage scheduled jobs
- Access network file systems
- Manage SELinux
- Control firewalls
- Perform server management with the Cockpit web management utility
- Troubleshoot and obtain support
- Run containers



Syllabus (RH134)

- **Improve command line productivity**
 - Run commands more efficiently by using advanced features of the bash shell, shell scripts, and various utilities provided by Red Hat Enterprise Linux.
- **Schedule future tasks**
 - Schedule commands to run in the future, either one time or on a repeating schedule.
- **Tune system performance**
 - Improve system performance by setting tuning parameters and adjusting scheduling priority of processes.
- **Control access to files with ACLs**
 - Interpret and set access control lists (ACLs) on files to handle situations requiring complex user and group access permissions.
- **Manage SELinux security**
 - Protect and manage the security of a server by using SELinux.
- **Maintain basic storage**
 - Create and manage storage devices, partitions, file systems, and swap spaces from the command line.
- **Manage logical volumes**
 - Create and manage logical volumes containing file systems and swap spaces from the command line.
- **Implement advanced storage features**
 - Manage storage using the Stratis local storage management system and use VDO volumes to optimize storage space in use.
- **Access network-attached storage**
 - Use the NFS protocol to administer network-attached storage.



- **Control the boot process**
 - Manage the boot process to control services offered and to troubleshoot and repair problems.
- **Manage network security**
 - Control network connections to services using the system firewall and SELinux rules.
- **Install Red Hat Enterprise Linux**
 - Install Red Hat Enterprise Linux on servers and virtual machines.
- **Run Containers**
 - Obtain, run, and manage simple, lightweight services as containers on a single Red Hat Enterprise Linux server.
- **Comprehensive review**
 - Review the content covered in this course by completing hands-on exercises.

RHCSA CERTIFICATION EXAM

The performance-based Red Hat Certified System Administrator (RHCSA) exam (EX200) tests your knowledge in areas of system administration common across a wide range of environments and deployment scenarios. The skills tested in this exam are the foundation for system administration across all Red Hat® products.

By passing this exam, you become a Red Hat Certified System Administrator. If you choose to continue your learning journey beyond RHCSA, the credential can also serve as a foundational step on your path toward our highest level of certification—Red Hat Certified Architect.

This exam is based on Red Hat® Enterprise Linux® 8.

Unit 3: Linux Automation with Ansible

Red Hat Linux Automation with Ansible (RH294) teaches the skills needed to manage large numbers of systems and applications efficiently and consistently. Candidates will learn the techniques needed to use Ansible® to automate provisioning, configuration, application deployment, and orchestration. This course is based on Red Hat® Enterprise Linux® 8 and Red Hat Ansible Engine 2.8.

Outcomes

As a result of attending this course, participants should be able to use Ansible for the purpose of automation, configuration, and management.

After completing the course the participants should be able to demonstrate these skills:

- Install and configure Ansible or Red Hat Ansible Engine on a control node.
- Create and manage inventories of managed hosts, as well as prepare them for Ansible automation.
- Run individual ad hoc automation tasks from the command line.
- Write Ansible Playbooks to consistently automate multiple tasks and apply them to managed hosts.
- Parameterize playbooks using variables and facts, and protect sensitive data with Ansible Vault.
- Write and reuse existing Ansible roles to simplify playbook creation and reuse code.
- Automate common Red Hat Enterprise Linux system administration tasks using Ansible.

Syllabus (RH294)

- **Introduce Ansible**
 - Describe Ansible concepts and install Red Hat Ansible Engine.
- **Deploy Ansible**
 - Configure Ansible to manage hosts and run ad hoc Ansible commands.
- **Implement playbooks**



- Write a simple Ansible Playbook and run it to automate tasks on multiple managed hosts.
- **Manage variables and facts**
 - Write playbooks that use variables to simplify management of the playbook and facts to reference information about managed hosts.
- **Implement task control**
 - Manage task control, handlers, and task errors in Ansible Playbooks.
- **Deploy files to managed hosts**
 - Deploy, manage, and adjust files on hosts managed by Ansible.
- **Manage large projects**
 - Write playbooks that are optimized for larger, more complex projects.
- **Simplify playbooks with roles**
 - Use Ansible roles to develop playbooks more quickly and to reuse Ansible code.
- **Troubleshoot Ansible**
 - Troubleshoot playbooks and managed hosts.
- **Automate Linux administration tasks**
 - Automate common Linux system administration tasks with Ansible.

RHCE CERTIFICATION

Red Hat Certified Engineer (RHCE) is known as the “Crown Jewel of Linux Certifications” and it proves the eligibility of candidates on live systems. This certification is achieved by passing the RHCSA Certification Exam - EX200 and the RHCE Certification Exam EX294.



Unit 4: Basic Networking and Server Administration (Industry Internship module)

- Server Configuration for Website/Web Apps
- Server Hardening, Server Tuning, etc.
- Server Monitoring and Troubleshooting
- Shell Scripting, Git, Mail server, DNS and FTP Server
- Basics of Jenkins
- cPanel/WHM Installation and Hands on Practice
- Basic Hardware and Networking

Unit 5: AWS, Cloud, Containers & Automation (Industry Internship module with mentoring support)

Module 1:

- Introduction to Cloud Computing
- Introduction to AWS & Azure Cloud Computing
- Understanding differences between On-premises and Cloud architecture.
- Understanding AWS Regions & Availability Zones.
- Understanding IP Addressing & Subnetting.
- Understanding Shared InfraStructure and Isolation in AWS Cloud.

Module 2:

- What is a VPC(Virtual Private Cloud)?
- VPC Architecture and Internal working of VPC.
- Design and Deploy Virtual Private Cloud.
- Create Subnets, Internet gateway, Routing, Security Groups and deploy EC2 machines with Key Pair.

Module 3:

- What is VPC Peering?
- Single & Multi-Region VPC Peering.
- Configure Intra VPC and Inter-VPC Peering.



- Real time use cases of AWS VPC Peering.
- Problems with VPC Peering and solutions.

Module 4:

- What is Network Address Translation?
- Configuring a NAT Gateway.
- Securing inbound connectivity with NAT Gateway.
- Understanding VPC Endpoints.
- Testing the use case with VPC Endpoints.

Module 5:

- How to monitor & secure VPC traffic?
- What is a Security Group(SG)?
- What is Network Access Control List (NACL)?
- Differentiate SG vs NACL?
- Testing Security Group & NACL

Module 6:

- Overview of VPN Connectivity between AWS and On-Prem DC?
- What is a Virtual Private Gateway(VPG)?
- Creating a Virtual Private Gateway and establishing VPN Connection?
- Testing the VPN Connectivity between On-Premises and AWS on private networks.
- Introduction to Software OpenVPN.
- Configuring OpenVPN.

Module 7:

- Discussing VPC Peering issues.
- What is a Transit Gateway?
- Configuring Transit Gateway.
- Connecting multiple VPC using Transit Gateway.

Module 8:

- Introduction to EC2 Instances and deployment options.



- **EC2 Metadata, Variable Creation and AMI Creation**
- **EC2 Launch Templates, Spot Instances & Reservations.**
- **Introduction to Elastic Block Storage(EBS) and Instance Store.**
- **Creating and configuration EBS Storage.**
- **Understanding AWS Snapshots.**
- **Performing EBS backup using Snapshots and Life Cycle Manager**

Module 9:

- **Introduction to Application & Network Load Balancer.**
- **Difference between Targets Groups and Load Balancer.**
- **Deploy and Configure Network Load Balancer and perform load balancing.**
- **Simulate Network Load Balancing Scenarios.**
- **Deploy and configure Application Load Balancing.**
- **Simulate Path-Based load balancing using multi-target groups.**
- **SSL Certificate configuration using AWS Certificate Manager and 3rd Party Certificate Authorities.**
- **Integrating NLB and ALB with Route53 Zones.**

Module 10:

- **Introduction to EC2 Auto Scaling**
- **Creating Custom AMI for Auto Scaling**
- **Creating Launch Configuration and Auto Scaling Groups**
- **Deploy the machines behind NLB and perform CPU stress testing**
- **Simulate Auto Scaling Scenarios**

Module 11:

- **Introduction to AWS Systems Manager**
- **Using SSM RUN command for EC2 configuration Management.**
- **Using SSM session manager for EC2 console access.**
- **Overview on SSM Patching and Automation**

Module 12:

- **Introduction to AWS Simple Storage Service(S3)**



- **Creating S3 buckets, versioning, static hosting and log configuration**
- **Creating bucket policies for granular S3 items access**
- **Creating Bucket wide replication and Life Cycle Policies.**
- **Introduction to Elastic File System (EFS)**
- **Creating EFS between AZs and testing data consistency.**
- **Introduction to Storage Gateway and Deploying it.**
- **Introduction to AWS Glacier and creating vaults.**
- **Introduction to FSx and AWS Backup**

Module 13:

- **Introduction Databases and SQL vs NoSQL**
- **Deploy MySQL RDS Multi-AZ Database**
- **Create a new DB on RDS and alter the data.**
- **Perform Failover and Failback of RDS Database**
- **Introduction to DynamoDB**
- **Create a Serverless application using DynamoDB, API Gateway & AWS Lambda.**
- **Introduction to AWS RedShift**
- **Create RedShift Cluster and upload data , query the data.**
- **Introduction to ElastiCache**

Module 14:

- **Introduction Cloudwatch, Dashboards, Alarms,**
- **Cloud Watch Logs and Schedules with Lambda**
- **Infra as a Code(IaaC) with Cloudformation and version with GitHub**
- **AWS AP & Resource audit with Cloud Trail & AWS Config.**
- **Automation with OpsWorks and Automated deployment with Aws Elastic BeanStalk.**
- **Working with Trusted Advisor, Service Catalog, License Manager & Personal Health Dashboard.**

Module 15:

- **Introduction to AWS IAM (Identity & Access Management)**
- **Creating Users, Roles, Groups and Security Policies.**
- **Restricting User Access and Cross Account Roles.**
- **Deploy AWS AD Directory Service, Create AWS Organization.**
- **Integration AWS Active Directory Service with Single Sign On.**



- Introduction to AWS Resource Access manager(RAM), Inspector and Guard Duty.
- Understanding Cognito, KMS, Macie, CloudHSM & WAF.

Module 16:

- Introduction AWS Certificate Manager
- Creating SSL Certificates in ACM and Importing 3rd Party certificates with ACM.
- Create Route 53 domain and Application Load Balancer.
- Import SSL certificates to Load Balancer and convert HTTP to HTTPS
- Configuring Route53 Failover Policies.
- Introduction to CloudFront.
- Configuring S3 Static Website with CloudFront.
- Introduction to AWS Direct Connect and Global Accelerator.

Module 17:

- Introduction to Container Services.
- Installing and configuring Docker.
- Understand Docker Hub and download images.
- Creating containers on Docker pushing images to Docker Hub.
- Introduction to ECR and ECS.
- Creating a repository in ECR and uploading the images
- Create ECS Cluster with EC2 Machines.
- Creating Task Definitions for deploying containers.
- Deploy Tasks and Services on ECS Cluster.

Module 18:

- AWS migration overview
- Deploying AWS Service Migration Service.
- Integrate SMS with VMware vSphere environment.
- Create a replication job for copying On-prem machines to AWS.
- Introduction to Database Migration Service (DMS).
- Overview of migration of MySQL to RDS using DMS.
- Introduction of AWS Migration Hub.

Module 19:

- Introduction to AWS Developer Tools.



- **Create code repository and version control with CodeCommit.**
- **Understanding AWS CodeBuild.**
- **Building the Code from CodeCommit to WAR file using Code Build.**
- **Deploying Code with AWS Code Deploy.**
- **Creating Code pipelines and integrating with GitHub.**
- **Understanding the CI/CD process.**
- **Introduction to SNS/SES/SQS & Step Functions.**

Module 20:

- **Introduction to Automation & Configuration Tools.**
- **Introduction to Terraform.**
- **Understanding Terraform Vs CloudFormation.**
- **Deploying & Destroying AWS environment with Terraform.**
- **Introduction to Packer.**

Module 21:

- **Ansible & Puppet Configuration Tools.**
- **Installing Ansible and running Ad-Hoc Commands.**
- **Creating a Playbook and executing it.**
- **Installing Puppet master and client.**
- **Creating manifest for user creation and testing it.**

Module 22:

- **Overview of AWS Data Analytics.**
- **Understanding EMR, CloudSearch, ElasticSearch**
- **Understanding ETL on Athena & Glue.**

Module 23:

- **Understanding AWS Lambda.**
- **Creating functions using Python in Lambda and understanding contexts and events.**
- **Introduction to Boto Library and integrating with Lambda.**
- **Integrating AWS Lambda with other AWS Services.**

Module 24:

- **Day-to-Day Activities of AWS Admin.**



- **AWS Environment Security Best Practices.**
- **AWS project explanation.**

Contact Us

ipsr solutions limited

Merchant's Association Building

M.L. Road, Kottayam - 686001

Kerala, India, Pin-686001

Phone: +91-481 2561410, 2561420, 2301085

Mobile: +91 9447294635, +91 9447169776

Email: training@ipsrsolutions.com

Website: <http://www.ipsr.edu.in/>

We have branches at Kochi, Calicut and Bengaluru.



Red Hat

Advanced

Business Partner
Training