

ANSIBLE FOR NETWORK AUTOMATION(5 days)

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1. Configure and manage network infrastructure using Red Hat Ansible Automation for Networking.
2. Ansible for Network Automation is designed for network administrators or infrastructure automation engineers who want to use network automation to centrally manage the switches, routers, and other devices in the organization's network infrastructure.
3. Learn how to use Red Hat Ansible Automation for Networking to remotely automate configuration of network devices, test and validate the current network state, and perform compliance checks to detect and correct configuration drift.

Course content summary

- Install and configure Red Hat Ansible Automation for Networking on a management system
- Use Ansible to run ad hoc commands and playbooks to automate tasks
- Write effective Ansible playbooks for network automation
- Gather information about network infrastructure configuration and backup
- Automate specific network administration use cases, including configuration of routers and switches, ports, VLANs, SNMP monitoring, and routing protocols
- Use Ansible playbooks to target devices from various hardware vendors, including Cisco, Juniper, and Arista

Audience for this course

- This course is designed for network administrators, network automation engineers, and infrastructure automation engineers who want to learn how to use Ansible to automate the administration, deployment, and configuration management of the network infrastructure of their organization or enterprise.

Prerequisites for this course

- Experience with network administration, including a solid understanding of TCP/IP, routers, and managed switches
- Familiarity with managing network devices from the command line, preferably with one or more of Cisco IOS, IOS XR, or NX-OS; Juniper JUNOS; Arista EOS;
- A working knowledge of Linux, including how to edit text files and run commands from the shell, and how to use SSH to log in to remote systems
- Knowledge equivalent to Red Hat System Administration or better is recommended
- Prior Ansible knowledge is not required

Course Contents

Ansible Fundamentals

Introduction to Ansible

Ansible Overview

Describe Ansible concepts and install Red Hat Ansible Engine.

Inventory

YAML - this is not the indentation you are looking for

Ansible Playbook Structure

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.

Variables, Modules, Network Fact Gathering

Ansible Variables

Ansible Modules

Cisco IOS Modules (basics)

Arista EOS Modules (basics)

Using cli_command

Directly Passing Credentials

Privilege Escalation (Become/Enable)

Conditionals, Loops, and Configuration Templating

Idempotency - what the what

Tags/Limit/Check Mode

Conditionals

Loops

Making Network Configuration Changes (Basics)

Ansible Network Configuration Overview

Collections and Collection Search Path

Feature Specific Modules (IOS)

Feature Specific Modules (EOS)

Feature Specific Modules (NX-OS)

Resource Modules

Write Mem and Ansible Handlers

Why Templating?

Jinja2 as part of Ansible

Configuration Templating Basics

Advanced Configuration Templating

Pushing Templates using Ansible Modules (Intro)

Simplify playbooks with roles

Use Ansible roles to develop playbooks more quickly and to reuse Ansible code.

Making Network Configuration Changes

- Using ios_config
- Using nxos_config
- Using cli_config
- Pushing Templates using Ansible Modules (Expanded)
- Using SSH Keys
- Composition / How the Parts Fit Together
 - Importing Variables
 - Importing Tasks
 - Importing Plays
 - Include vs Import - Dynamic vs Static
 - Roles - What are they?
 - Roles - How to use them?
- Parsers and Dynamic Inventory
 - Hostvars
 - Block/Rescue/Always
 - Ansible and Genie-Parsers
 - Ansible and RegEx
 - Dynamic Inventory - Some Python Required
- 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.
- Additional Ansible Techniques and Debugging
 - Ansible Lookups
 - Ansible Filters
 - Ansible Plugins
 - Manipulating Complex Data-Structures
 - Ansible Debugging
 - Using Ansible Vault
- Troubleshoot Ansible
- Troubleshoot playbooks and managed hosts.