Ansible for network engineers Training

Duration: **2 Day**

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Ansible for Network Engineers focuses on using Ansible to automate and configure network devices rather than its more traditional server management use case.

The course begins with the fundamentals of Ansible and playbooks before progressing to network-specific modules and integration with NAPALM. Participants also explore how Jinja2 templating can be combined with Ansible to create more consistent and automated network device configurations.

Hands-on activities follow the major sections of the course, giving participants practical experience in using Ansible to configure routers and switches.

Prerequisites

There are no formal prerequisite courses for this training. However, participants should have a good understanding of how IP networking works.

Learners who need to strengthen their networking fundamentals may benefit from completing a foundational TCP/IP course, such as **TCP/IP Foundation for Engineers**, before attending.

What You Will Learn

By the end of the course, participants will be able to:

- Automate network-related tasks with Ansible,
- Create and run Ansible playbooks,
- Configure network devices using Ansible,
- Use Ansible when troubleshooting network devices,
- Work with Ansible network modules,
- Use Jinja2 templates with Ansible to generate network configurations.

Training Outline

What Is Ansible?

This section introduces the core components of Ansible, its operating model, and its role in automation and orchestration.

- The Ansible language, engine, and framework
- Common uses of Ansible
- Orchestration concepts
- **Hands-on:** Install Ansible and enable SSH on network devices

Ansible Architecture

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Explore the standard Ansible architecture and understand how its approach is applied to network devices.

- How Ansible normally operates
- Agentless architecture
- SSH connectivity
- Ansible and Python
- Modules
- How Ansible works with network devices
- Configuration management
- Inventories
- Playbooks and modules
- ansible.cfg
- **Hands-on:** Get started with Ansible and run ad hoc commands

Playbooks

Learn the fundamental components required to create and execute Ansible playbooks.

- Using ansible-playbook
- Users
- YAML
- Plays and tasks
- Modules
- ansible-vault
- **Hands-on:** Run Ansible playbooks

Advanced Playbook Techniques

Build more flexible playbooks by working with variables, handlers, facts, and conditional execution.

- Handlers
- Variables
- Environment variables
- Playbook variables
- Inventory variables
- Variable scope and precedence
- Accessing variables
- Facts
- Ansible Vault
- Conditionals
- Using wait_for
- **Hands-on:** Work with variables and conditions in playbooks

Inventories

Learn how Ansible identifies, organises, and manages the network devices included in automation workflows.

- /etc/ansible/hosts
- Inventory variables
- Static inventories

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- Dynamic inventories
- **Hands-on:** Work with inventories and variables

Ansible Network Modules

Explore built-in, custom, and vendor-specific modules that can be used to automate network devices.

- Built-in modules
- Custom modules
- Module return values
- `ansible-doc -l`
- `connection: local`
- Cisco modules
- Juniper modules
- **Hands-on:** Use Ansible modules with network devices

Ansible Templating

Learn how Ansible and Jinja2 templates can be used to generate and apply network configurations.

- The template module
- The assemble module
- Jinja2 templates
- `for` structures
- `if/else` conditions
- **Hands-on:** Configure network devices from templates

Roles and Includes

Explore ways to organise Ansible automation into modular and reusable components.

- Dynamic includes
- Handler includes
- Playbook includes
- Roles
- Role components: handlers, files, and templates
- Cross-platform roles
- Ansible Galaxy
- **Hands-on:** Work with includes and build roles

Ansible and NAPALM

The final section introduces the use of NAPALM modules within Ansible-based network automation workflows.

- NAPALM installation
- napalm-ansible
- napalm_diff_yang
- napalm_get_facts
- napalm_install_config
- napalm_parse_yang
- napalm_ping
- napalm_translate_yang

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- napalm_validate
- **Hands-on:** Use NAPALM modules with Ansible