

**Advanced Ansible Configuration and Administration**

**Course Number:** ANS-103  
**Duration:** 2 days

**Overview**

This live, online or in-person Advanced Ansible training teaches more advanced Ansible skills, including using Ansible Tower, configuring a network device managed node, and implementing Ansible best practices.

**Prerequisites**

It is assumed that participants are working systems administrators/developers/testers with some working knowledge of Ansible Core basic/intermediate features and an understanding of fundamental system utilities/commands on Linux systems. It is also assumed that participants have attended the [Intermediate Ansible Configuration and Administration course](file:////training/ansible-configuration-and-administration-intermediate).

**Materials**

All Advanced Ansible training attendees receive comprehensive courseware.

**Software Needed on Each Student PC**

Attendees will not need to install any software on their computer for this class. The class will be conducted in a remote environment that Accelebrate will provide; students will only need a local computer with a web browser and a stable Internet connection. Any recent version of Microsoft Edge, Mozilla Firefox, or Google Chrome will be fine.

**Objectives**

* Perform advanced configuration for an Ansible control node and managed node(s)
* Add the usage of conditionals, loops, filters, and loopbacks to playbooks
* Control ad-hoc and playbook output with callback plugins
* Create and implement dynamic inventory definitions
* Implement reusable roles, capabilities, and dependencies
* Program and use the features of the Ansible Tower
* Develop best practices for all Ansible components

**Outline**

* Review of Control Code and Managed Node Required Configuration
  + Ansible components review
  + Running Ansible in escalated privilege mode
  + SSH key setup
  + Ansible common account creation, setup, and features
  + Required components for a Linux and networking device-managed node
* Advanced Control Node Setup and Configuration
  + Ansible Core installation methods: rpm, pip, and Tower (changes)
  + Ansible command and module documentation
  + Inventory (hosts) file contents (Linux/Unix and network device nodes)
  + Dynamic inventory (hosts) file contents and usage
  + Ansible configuration file (locations and parameter definitions)
  + Special use configuration parameter definitions
  + Fact caching using jsonfile and redis
  + Creating and using local system facts
  + Understanding the hostvars dictionary (usage)
  + All methods of variable creation and usage
* Ansible Playbooks
  + Using the FQCN (fully qualified collection path) for module access
  + Playbook: loops, conditionals, tags, notifications, plugins, filters, and lookups
  + Controls: output formatting and inclusion with callbacks
  + Advanced Jinja 2 template usage
  + Using “inner” and “outer” playbooks
  + The meta module
* Ansible Modules
  + Including external tasks in a playbook
  + Controls over node and task scheduling
  + Configuration parameters that control rolling updates
  + Using Ansible (playbook) debugging capabilities
  + Writing a customized module (and embedded documentation)
  + Asynchronous task scheduling
  + Block control - rescue always
* Roles in Ansible
  + Overview of a role (review)
  + Creating a role (review)
  + Using (a) role(s) (review)
  + Packaging up a role (review)
  + Ansible Galaxy - capabilities and usage with roles (review)
  + Git repo (role) repository (creation) on a non-control node
  + Local access of a Git repo role repository
  + Remote access of a Git repo role repository
  + Importing role definitions (on a control node)
  + Role dependencies definitions and usage
* Collections in Ansible
  + Overview of collections
  + Creating a collection (structure)
  + Using roles in a collection
  + Packaging up a collection (tar file and Git repository)
  + Installing a collection (from a tar file and Git repository)
  + Putting and using playbooks in a collection
  + Putting and using modules in a collection
* Network Device Managed Nodes
  + Requirements for a network device-managed node
  + Inventory and access control information on the control node
  + Required setup of a network device-managed node
  + Module usage for a network device-managed node
* Ansible Tower (AWX can be substituted in place of the Ansible Tower)
  + Features of the Ansible Tower (review)
  + Preparation and installation of the Ansible Tower (review)
  + Components (files and services) of the Ansible Tower (review)
  + Starting and stopping the Ansible Tower (review}
  + Logging into the Ansible Tower (review)
  + Using AWX-manage
  + Ansible Tower smart inventory
  + Defining manual and Git (SCM) projects
  + Creating job templates for an existing project
  + Watching and chaining (multi-) playbooks (workflows)
  + Using roles in the Ansible Tower
  + Interfacing with the Ansible Tower API
  + Installing and using the tower-CLI/AWS utility
  + Ansible Core tower\_ modules (to the Ansible Tower)
  + Backing up and restoring Ansible tower objects
  + Backing up and restoring the Ansible Tower database
  + Updating the Ansible Tower
  + Introduction to Ansible Tower clusters
  + Ansible Tower virtual environment (setup and usage)
* Conclusion