

**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