



Ansible Core Concepts and Advanced Features

Author(s): **Sander van Vugt**, Release: **September 2024**,
Publisher(s): **Pearson**

Ansible is the leading solution for configuration management. Learn what Ansible is and how to modify and organize your Ansible set-up, it is organized, and explore playbooks, modules, content collections and how to use these with variables and conditionals. You will also explore how to manage files with Jinja2 templates, and Ansible roles to include standardized components in Ansible. Further, it will look at more advanced topics, including filters and plugins, which let you extend Ansible functionality easily.

Module 1: Fundamentals

Lesson 1: What is Ansible

- 1.1 What is Configuration Management
- 1.2 Solutions for Configuration Management
- 1.3 Configuration as Code and DevOps
- 1.4 Ansible Components
- 1.5 Working with Ansible in Small Environments
- 1.6 Working with Ansible in Large Environments

Lesson 2: Getting Started

- 2.1 Ansible Infrastructure Components
- 2.2 Setting up a RHEL Ansible Control Node
- 2.3 Setting up an Ubuntu Ansible Control Node
- 2.4 Setting up an Ansible Control Node with Python pip
- 2.5 Requirements for Managing Assets
- 2.6 Modules and Collections
- 2.7 Using Ansible to Configure Managed Nodes - Part 1
- 2.8 Using Ansible to Configure Managed Nodes - Part 2
- 2.9 Using Ansible to Configure Managed Nodes - Part 3
- 2.10 Defining Default Settings in ansible.cfg
- 2.11 Managing Windows
- 2.12 Using MacOS as a Control Node

Lesson 3: Using Ansible in Large Environments

- 3.1 Centralizing Configuration as Code Using Git
- 3.2 Using AWX and Ansible Automation Platform

- 3.3 Configuring ansible-navigator
- 3.4 Working with ansible-navigator
- 3.5 Providing Required Collections for ansible-navigator
- 3.6 ansible-navigator Configuration

Lesson 4: Using Ad-Hoc Commands

- 4.1 Ad-hoc Commands versus Playbooks
- 4.2 Using Ansible Content Collections
- 4.3 Exploring Essential Ansible Modules
- 4.4 Using Module Documentation
- 4.5 Using Ansible in an Idempotent Way

Lesson 5: Using Ansible Playbooks

- 5.1 Understanding Playbook Structure
- 5.2 Running Your First Playbook
- 5.3 Understanding Task Execution and Errors
- 5.4 Using ansible-navigator to Run Playbooks

Module 2: Developing Flexible Playbooks

Lesson 6: Working with Variables

- 6.1 Separating Code from Site-Specific Configuration
- 6.2 Using Variables in a Playbook
- 6.3 Understanding Where to Define Your Variables
- 6.4 Using Ansible Facts
- 6.5 Using set_fact
- 6.6 Understanding Different Notations for Facts and Variables
- 6.7 Using Multi-valued Variables
- 6.8 Using Magic Variables
- 6.9 Using Register
- 6.10 Using Vault to Store Sensitive Information

Lesson 7: Using Conditionals

- 7.1 Conditionals Overview
- 7.2 Using loop to Process a List of Items
- 7.3 Using Handlers for Conditional Task Execution
- 7.4 Using when to Run Tasks in Specific Situations
- 7.5 Using register to Work with Task Results
- 7.6 Using Blocks
- 7.7 Managing Failure with the fail Module
- 7.8 Using assert

Lesson 8: Managing Files

- 8.1 Manipulating Files
- 8.2 Changing File Contents
- 8.3 Using the find Module
- 8.4 Using Templates
- 8.5 Using Conditional Statements in Templates

Lesson 9: Using Roles

- 9.1 Understanding and Using Roles
- 9.2 Working with ansible-galaxy
- 9.3 How Roles are Organized
- 9.4 Writing Custom Roles
- 9.5 Using System Roles

Module 3: Advanced Ansible Management

Lesson 10: Ansible Best Practices and Optimization

- 10.1 Using include and import
- 10.2 Configuring Security
- 10.3 Using Tags
- 10.4 Using Delegation
- 10.5 Managing Parallelism
- 10.6 Efficiently Copying Files
- 10.7 Optimizing SSH
- 10.8 Case Study: Optimizing Ansible

Lesson 11: Using Filters

- 11.1 Understanding Filters and Plugins
- 11.2 Filters, Plugins, and Collections
- 11.3 Understanding Filters and Variable Types
- 11.4 Using Filters to Change Variables
- 11.5 Using Filters to Work with Network Addresses
- 11.6 Examples of Using Filters
- 11.7 More examples of using filters

Lesson 12: Using Plugins

- 12.1 Understanding Plugins
- 12.2 Exploring Lookup Plugins
- 12.3 Common Lookup Plugins
- 12.4 Using the fileglob Plugin
- 12.5 Plugin-based Inventory
- 12.6 Fact Caching

- 12.7 Creating Random Passwords
- 12.8 The test Plugin