

Advanced Ansible in Action: Building Smarter, Stronger Automation - TTDV7585

Build smarter, faster, and more reliable automation that scales across teams, clouds, and infrastructure

Duration: 4 Days

Skill Level: Intermediate

Available Format: Instructor-Led Online; Instructor-Led, Onsite In Person ; Blended; On Public Schedule

If you have been using Ansible for a while and are ready to take your skills further, this course is built for you. It focuses on helping you write better, cleaner playbooks that are easier to maintain and troubleshoot. You will learn how to work with Execution Environments so your automation is consistent across systems and teams. You will get to practice organizing complex playbooks, building dynamic inventories across cloud platforms, and creating custom plugins to meet your team's unique needs. The course also covers how to test your automation before deployment and how to tune it for performance at scale. You will explore powerful features like event-based automation, controller workflows, secure secrets management, and multi-environment deployments. Each topic is taught in a hands-on, practical way with real tools and exercises you can use on the job. This is a great fit for administrators, DevOps engineers, and IT pros who want to go beyond the basics and start solving bigger automation challenges. The environment is collaborative, the labs are challenging but fun, and the skills you gain will help you work faster and smarter in your day-to-day projects. You will leave with new ideas, tools, and techniques you can put to use right away.

What You'll Learn

Overview

Advanced Ansible is a practical, expert-led course that helps you become more confident and capable in managing complex automation projects. As your environment grows and your team relies more on automation, the way you build, test, and maintain

your playbooks starts to matter even more. This course focuses on the real-world skills that help you avoid common bottlenecks, reduce rework, and create automation that scales cleanly and runs reliably. You will walk away knowing how to structure your automation so it is easier to reuse, easier to secure, and easier to understand across your team.

You will spend time learning how to build and manage Execution Environments that ensure consistency across different systems, organize your playbooks using patterns that handle errors and edge cases gracefully, and work with tools that help you test changes before they break anything in production. Throughout the course, you will also learn how to tune Ansible for performance, integrate automation with version control and events, and manage real infrastructure across cloud platforms, networks, and container environments. The labs are designed to help you actually apply these skills in realistic scenarios.

This class is for IT professionals who already have experience writing Ansible playbooks and want to move into more advanced and strategic use of automation. Whether you are working in operations, cloud, DevOps, or infrastructure engineering, the tools and practices you learn here will help you build better automation that supports your team and scales with your systems. About half the course is hands-on, so you will get to build, test, and troubleshoot real automation as you learn it.

Objectives

This intermediate and beyond level Ansible course is designed to help you take your automation skills to the next level with hands-on practice and expert guidance. The goal is to help you write better playbooks, manage automation across complex environments, and feel more confident working with the advanced features Ansible offers. The class is intended for those who already have some experience writing playbooks and using roles, and are ready to build smarter, faster, and more reliable automation.

Here are some of the core skills you can expect to achieve:

- Write cleaner, more reusable playbooks. Learn how to organize your automation using real-world patterns like blocks, error handling, async tasks, and reusable logic so your playbooks are easier to manage and maintain.
- Work confidently with Execution Environments and ansible-navigator. Understand how to build, run, and troubleshoot with Execution Environments so your automation is consistent and portable across different teams and platforms.

- Use dynamic inventories in multi-cloud setups. Get hands-on experience pulling live inventory from AWS, Azure, and other sources so you can automate dynamic infrastructure with confidence.
- Build and test your own Ansible plugins and collections. Create custom filters and content to meet your team's needs and learn how to test them using tools like Molecule and GitHub Actions.
- Improve performance and scale your automation. Learn how to tune Ansible for large environments, reduce run times, and make your automation more efficient without sacrificing clarity.
- Automate smarter with Ansible Controller and Event-Driven Ansible. Use tools like surveys, workflows, and event rulebooks to build automation that reacts to real-world triggers and supports team workflows.

Throughout the course, you will practice these skills with hands-on labs and projects so you can apply what you learn immediately in your own environment.

If your team requires different topics, additional skills or a custom approach, our team will collaborate with you to adjust the course to focus on your specific learning objectives and goals.

Audience

This is an advanced-level course created for IT professionals who already have experience working with Ansible and want to strengthen and expand their automation skills. It is especially well-suited for system administrators, DevOps engineers, cloud specialists, and infrastructure teams who are responsible for managing and scaling automation in real environments. You should be comfortable writing playbooks, using roles, and working from the command line before joining the class.

Pre-Requisites

This is an advanced-level course created for IT professionals who already have experience working with Ansible and want to strengthen and expand their automation skills. It is especially well-suited for system administrators, DevOps engineers, cloud specialists, and infrastructure teams who are responsible for managing and scaling automation in real environments. You should be comfortable writing playbooks, using roles, and working from the command line before joining the class.

To ensure a smooth learning experience and to gain the most from attending this course, you should have:

- Ability to create and troubleshoot Ansible playbooks and roles

- Familiarity with Linux command-line tools and workflows
- Basic experience with Git and at least one cloud provider (such as AWS, Azure, or GCP)
- Basic python knowledge is also helpful.

Take Before: In order to gain the most from this course, you should have incoming skills equivalent to those in the course listed below, or should have attended this as a prerequisite:

TTDV7580	Hands-on Ansible Essentials Introduction to Automation with Ansible
TTLX2103	Introduction to Linux / Linux Essentials

Agenda

Please note that this list of topics is based on our standard course offering, evolved from current industry uses and trends. We will work with you to tune this course and level of coverage to target the skills you need most. Course agenda, topics and labs are subject to adjust during live delivery in response to student skill level, interests and participation. The course tools, topics, use cases and hands-on labs can also be easily adjusted to suit your specific needs, goals or requirements. Please inquire for details and options.

Welcome & Quick Refresher

Kick off the course with a brief review of core Ansible concepts, identify common pain points, and get everyone on the same page with a quick, fun refresher.

- Inventory types
- Variable precedence
- ansible-config view
- Lab: Lightning quiz and “pitfalls bingo” to warm up and surface common gotchas.

1: Ansible Architecture Deep-Dive

Explore how Ansible works under the hood by walking through its core architecture and execution flow, so you can better understand performance, debugging, and optimization.

- ansible-core vs Collections
- Python execution path
- Strategy plugins
- Fact cache back-ends

- Lab: Trace a task's lifecycle using `ANSIBLE_STRATEGY=debug` to see what really happens behind the scenes.

2: Execution Environments & ansible-navigator

Learn how Execution Environments make automation more portable and consistent across teams and tools, and how to build and run them effectively.

- Why Execution Environments (EEs) replace `virtualenvs`
- Building EE images
- Collections in image
- Content Signatures
- Lab: Build your own custom EE and run playbooks interactively with `ansible-navigator`.

3: Collections & Galaxy/Automation Hub

Understand how to create, version, and share reusable automation content with Collections, and how to manage them securely in private hubs.

- Semantic versioning
- Dependency chaining
- Private Galaxy servers
- Signed content
- Lab: Publish a custom collection to a local Galaxy server.

4: Playbook Patterns

Refine your playbook writing style with advanced patterns that help structure your automation cleanly, handle errors gracefully, and reuse logic efficiently.

- Blocks & rescue
- Loops with `set_fact`
- `async` / `poll`
- `check` / `diff`
- `run_once` + `delegate_to`
- `import` vs `include`
- Lab: Take a messy playbook and refactor it into well-organized, composable blocks.

5: Dynamic Inventory Mastery

Gain confidence using dynamic inventory sources to automate across cloud platforms and data centers, adapting quickly to real-world infrastructure changes.

- Inventory plugins (AWS, Azure, NetBox)
- Inventory scripts
- hostvars search paths
- Lab: Generate and manage a dynamic multi-cloud inventory and tag hosts for targeting.

6: Developing Custom Content

Extend Ansible to fit your unique use cases by creating your own modules and plugins, and learn how to test and document them properly.

- Module API v2
- Action, lookup, filter plugins
- ansible-doc
- Collection tests
- Lab: Write and test a custom filter plugin to clean up and standardize tag names.

7: Testing & CI/CD

Build confidence in your automation by integrating tests into your workflow and using modern CI/CD tools to validate changes automatically.

- ansible-test
- Molecule v6
- GitHub Actions matrix
- Ephemeral runners
- Lab: Set up Molecule with Docker and integrate tests into a pull request workflow.

8: Performance at Scale

Learn how to identify and fix performance bottlenecks when automating at scale, using built-in strategies, tuning options, and caching.

- Forks vs strategy
- Pipelining
- Mitogen
- Fact caching with Redis
- Linear vs free strategies
- Lab: Benchmark a 200-host run and tune Ansible for a 30% performance improvement.

9: Security & Compliance

Secure your automation by managing secrets correctly, enabling signing and FIPS compliance, and automating standard compliance checks.

- Vault v2
- Ansible Vault alternatives (HashiCorp Vault, AWS KMS)
- Signing playbooks
- FIPS mode
- Automating CIS benchmarks
- Lab: Rotate vaulted secrets and rekey securely using Execution Environments.

10: Automation Controller / AWX Advanced

Go beyond the basics in Automation Controller (or AWX) by managing workflows, access, and integrations to orchestrate complex automation at scale.

- RBAC
- Surveys
- Workflow job templates
- Schedule & notifications
- Callback tokens
- Lab: Build a workflow that includes approvals and Slack notifications.

11: Event-Driven Ansible (EDA)

Discover how to make your automation proactive by responding to real-time events using rulebooks and the EDA framework.

- Rulebooks
- Event sources (Kafka, webhooks, SNMP traps)
- ansible-rulebook CLI
- Lab: Trigger an automated deployment from a Git push event.

12: Network & Cloud Automation

Apply Ansible to configure and audit networks and cloud platforms using reliable, idempotent automation.

- ansible.netcommon basics
- Idempotent network modules
- Cloud control planes (AWS GuardDuty, Azure Policy)

13: Kubernetes & OpenShift

Automate container orchestration platforms by combining Ansible with Kubernetes and OpenShift tools for deployments and GitOps workflows.

- kubernetes.core collection
- Helm orchestrations
- GitOps hand-off
- Lab: Deploy a multi-tier application to OpenShift using Ansible.

14: Building Self-Service Catalogs

Learn how to build reusable, end-user-facing services using Controller catalogs and integrate them into enterprise ITSM tools.

- Service Catalogs in Controller
- Ansible Service Broker
- Integrating with ServiceNow
- Lab: Create and expose a “Request a Sandbox” catalog item.

15: Disaster Recovery & Maintenance

Be prepared for the worst by learning how to back up, restore, and safely maintain your Automation Controller and environments.

- Backing up Automation Controller
- EE registry backup
- Log aggregation
- Safe upgrades of core/collections
- Lab: Simulate a controller node failure and walk through the recovery process.

16: Capstone Project

Wrap up the course with a collaborative, end-to-end project that brings together everything you’ve learned into a real-world automation flow.

- Team design
- Peer review
- EDA trigger → Controller workflow → multi-cloud deployment
- Lab: Live demo of your automation project followed by a retrospective.

Follow On Courses

TTDV8400 DevSecOps in Action: Building Secure, Scalable Workflows

Related Courses

TTDV7580	Hands-on Ansible Essentials Introduction to Automation with Ansible
TTDV7590	Getting Started with Kubernetes
TTPS4824	Python Essentials for Networking & Systems Administration
TTPS4800	Introduction to Python Programming Basics
TTDV8400	DevSecOps in Action: Building Secure, Scalable Workflows

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