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# RH-DO447 Advanced Automation: Ansible Best Practices

## Course description

**Take your Red Hat Ansible Automation skills to the next level and manage automation at scale**

Advanced Automation: Ansible Best Practices (DO447) is for experienced Red Hat® Ansible® Automation users who want to take their Ansible skills to the next level, enabling scalable design and operation of Ansible Automation in the enterprise. You will explore better ways to automate tasks and use Red Hat Ansible Engine effectively, as well as how to leverage advanced features of Ansible to perform more complex tasks. You will also learn how to install and use Red Hat Ansible Tower to centrally coordinate your use of Ansible, control access to hosts and systems, and manage Ansible workflows through the web interface and the Red Hat Ansible Tower API.

This course is based on Red Hat Ansible Automation (Red Hat Ansible Engine 2.8 / Red Hat Ansible Tower 3.5) and Red Hat Enterprise Linux® 8.

## Course content summary

- Investigate recommended practices for effective and efficient automation with Ansible.
- Perform rolling updates with your Ansible Automation operations.
- Use advanced features of Ansible to work with data, including filters and plugins.
- Control applications through their REST API with Ansible Playbooks.
- Implement Red Hat Ansible Tower to centrally coordinate and scale Red Hat Ansible Automation.
- Leverage capabilities of Red Hat Ansible Tower to manage complex automation workflows.
- Implement a CI/CD pipeline for your automation with Git and Red Hat Ansible Tower.

## Audience for this course

This course is designed for users who need to set recommended design patterns and operate automation practices at scale, including these roles:

- DevOps engineers
- Linux system administrators, developers
- Release engineers
- Other IT professionals with basic expertise using Ansible or Red Hat Ansible Engine to automate, provision, configure, and deploy applications and services in a Linux environment



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## Prerequisites for this course

- Be a [Red Hat Certified System Administrator \(RHCSA®\)](#), or demonstrate equivalent Red Hat Enterprise Linux knowledge and experience
- Be a [Red Hat Certified Specialist in Ansible Automation](#) or [Red Hat Certified Engineer \(RHCE®\)](#) on Red Hat Enterprise Linux 8, or demonstrate equivalent Ansible experience

## Outline for this course

### Develop with recommended practices

Demonstrate and implement recommended practices for effective and efficient use of Ansible for automation.

### Manage inventories

Use advanced features of Ansible to manage inventories.

### Manage task execution

Control and optimize the execution of tasks by Ansible Playbooks.

### Transform data with filters and plugins

Populate, manipulate, and manage data in variables using filters and plugins.

### Coordinate rolling updates

Minimize downtime and ensure maintainability and simplicity of Ansible Playbooks by using the advanced features of Ansible to manage rolling updates.

### Install and access Red Hat Ansible Tower

Explain what Red Hat Ansible Tower is and demonstrate a basic ability to navigate and use its web user interface.

### Manage access with users and teams

Create user accounts and organize them into teams in Red Hat Ansible Tower, then assign the users and teams permissions to administer and access resources in the Ansible Tower service.

### Manage inventories and credentials

Create inventories of machines to manage, then configure credentials necessary for Red Hat Ansible Tower to log in and run Ansible jobs on those systems.

### Manage projects and launching Ansible jobs

Create projects and job templates in the web UI, using these tools to launch Ansible Playbooks that are stored in Git repositories in order to automate tasks on managed hosts.



## Construct advanced job workflows

Use advanced features of job templates to improve performance, simplify customization of jobs, launch multiple jobs, schedule automatically recurring jobs, and provide notification of job results.

## Communicate with APIs using Ansible

Interact with REST APIs with Ansible Playbooks and control Red Hat Ansible Tower using its REST API.

## Manage advanced inventories

Administer inventories that are loaded from external files or generated dynamically from scripts or the Ansible Tower smart inventory feature.

## Create a simple CI/CD pipeline with Ansible Tower

Build and operate a proof-of-concept CI/CD pipeline based on Ansible Automation and integrating Red Hat Ansible Tower.

## Maintain Ansible Tower

Perform routine maintenance and administration of Red Hat Ansible Tower.

## Perform a comprehensive review

Demonstrate skills learned in this course by configuring and operating a new organization in Ansible Tower using a provided specification, Ansible projects, and hosts to be provisioned and managed.

## **Impact on the organization**

This course is intended to develop the skills needed to leverage and extend the use of an existing Ansible infrastructure across business units in large enterprise environments. These skills are suitable for organizations seeking to increase cost savings and operational efficiency through wider adoption of Ansible in their enterprise.

Red Hat has created this course in a way intended to benefit our customers, but each company and infrastructure is unique, and actual results or benefits may vary.

## **Impact on the individual**

As a result of taking this course, you should be able to use Red Hat Ansible Tower to centrally manage your Red Hat Ansible Automation projects in a way that scales to large teams and complex enterprise installations. You should be able to demonstrate these skills:

- Follow recommended practices to write and manage Ansible Automation.
- Use Git to effectively manage playbooks and inventories as part of a DevOps workflow.
- Control and optimize the performance of task execution by Ansible Playbooks.



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- Use filters and plugins to populate, manipulate, and manage data used by Ansible Playbooks.
  - Delegate tasks for one managed host to other hosts and manage rolling updates with Ansible.
  - Deploy and use Red Hat Ansible Tower to manage existing Ansible projects, playbooks, and roles at scale.
  - Use the Red Hat Ansible Tower API to launch jobs from existing templates and integrate Red Hat Ansible Tower into a simple CI/CD pipeline.

## **Recommended next exam or course**

- Ansible for Network Automation (DO457)
- Red Hat Security: Linux in Physical, Virtual, and Cloud (RH415)
- Red Hat Certified Specialist in Advanced Automation: Ansible Best Practices (EX447)