

Automate Red Hat Enterprise Linux

Powered by Red Hat Ansible Automation Platform



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Introduction

Red Hat® Enterprise Linux® is an essential foundation for a stable, reliable, and consistent IT environment across datacenters, clouds, and at the network edge.

However, managing a platform as flexible as Red Hat Enterprise Linux while also maintaining complex, heterogenous systems and applications is increasingly time-consuming and error-prone. This can result in inefficient IT operations, performance issues, or security risks when vulnerabilities aren't addressed in a timely manner.

Inconsistent configuration across users, applications, and environments can create long-term maintenance issues. Busy IT teams struggle to keep up with the complexity while organizations contend with skill gaps among users. Plus, proprietary knowledge often rests in the hands of a few individuals, leaving the day-to-day management of systems and infrastructure at risk if those individuals leave the organization.

Understand the impact of automation for Red Hat Enterprise Linux

An overview of the Red Hat Enterprise Linux deployment process with Red Hat Ansible® Automation Platform:

0

Day 0

The design or planning phase of a Red Hat Enterprise Linux deployment. This is when organizations determine the requirements to get systems up and running while ensuring availability and reliability throughout the migration or deployment process.

1

Day 1: Infrastructure as Code

[Infrastructure as Code](#) (IaC) is the managing and provisioning of infrastructure through code instead of through manual processes. The initial provisioning, configuration, and deployment of Red Hat Enterprise Linux happens at this stage. With automation, Day 1 tasks become simplified and accelerated through Infrastructure as Code (IaC).

2

Day 2: Operations as Code

[Operations as Code](#) (OaC) is when organizations use automation to resolve ongoing repetitive IT tasks such as patching, backups, reboots, and security fixes to keep Red Hat Enterprise Linux systems running smoothly. In more advanced applications, organizations can adopt event-driven automation to proactively remediate these issues as soon as they are detected by observability platforms or other systems.





OaC is where your automation investment begins to deliver tangible, long-term technical and business benefits.

In this e-book we will show how Red Hat Ansible Automation Platform can help simplify the deployment and management of Red Hat Enterprise Linux along with other applications and platforms across diverse IT environments. We'll provide insight into the features and capabilities that support your automation journey from IaC to OaC and beyond.

Chapter 1

The value of automating Red Hat Enterprise Linux

Automation is no longer considered just another tool, nor is it seen as a threat to IT professionals' livelihoods. It has become mission-critical for IT organizations wanting to optimize performance, agility, speed, and security. In short, automation is no longer simply a "nice to have" element of any effective modern IT strategy, but a necessity.

With a flexible, modern automation platform, you can:

Ensure consistency at scale

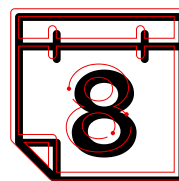
Use shareable, repeatable templates to establish a common, stable, and predictable path to managing Red Hat Enterprise Linux across any environment. This standardization is especially important as your organization transitions from operating only on-premise systems to more complex hybrid and multicloud environments.

Reduce security and compliance risks

Since automation establishes standardized workflows, provisioning and configuration happen the same way every time and eliminate "snowflake" systems that may require specialized expertise to run. This not only reduces human error in the execution of operational tasks, but helps teams adhere to a reliable schedule.

Accelerate time to market

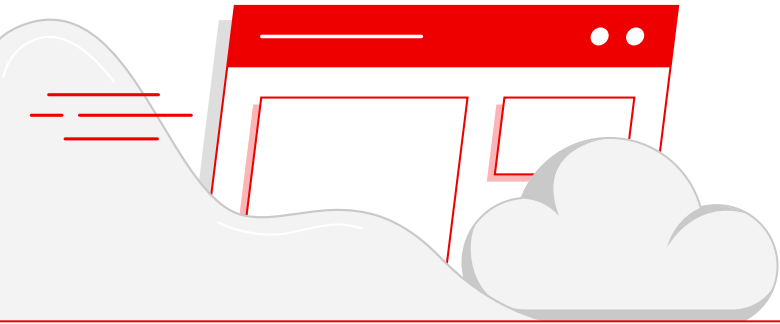
Applications and services can be brought to market more quickly, accelerating time to value for your customers. This means an IT organization has fewer periods of burn (where resources are spent, but money isn't coming in) and helps establish a more predictable revenue stream for the business.



8 months

to payback on investment on average with Ansible Automation Platform.¹

¹ IDC White Paper, sponsored by Red Hat. "[The business value of Red Hat Ansible Automation Platform](#)," Document #US51839824, 12 March, 2024.



Increase IT team productivity and efficiency

Automation reduces the need for manual, repetitive, lower-value tasks such as resolving security and performance issues and applying patches. By easing the burdens of root cause analysis and investigation, IT teams are able to focus on higher value tasks that are more professionally rewarding. Systems run more reliably, even at the edge, so 24x7 operations can be more predictable. Businesses benefit from greater efficiency, agility, innovation, and strategy.

36%

higher development team productivity with Ansible Automation Platform.¹

Eliminate cross-functional barriers and build skills

Consolidating disparate automation tools and adopting a single platform helps teams align on common terminology, framework, and best practices, allowing IT professionals to share ideas and learn from their peers.



ALSTOM

Alstom uses Red Hat technologies to accelerate application modernization and management while delivering new business innovation

By implementing and standardizing on Red Hat Enterprise Linux as its host operating system on bare metal, Alstom was able to transform its railway Internet of Things (IoT) devices into a more flexible and modern solution for data acquisition and edge processing. This containerized architecture means Alstom is now able to prioritize security while reliably and efficiently deploying edge applications. The addition of Ansible Automation Platform has allowed Alstom to reduce manual processes by automating the life cycle of edge devices—from management to patching to new application deployment—with updates delivered to field devices in real time or on demand.

[Read the full case study](#)

¹ IDC White Paper, sponsored by Red Hat. "[The business value of Red Hat Ansible Automation Platform](#)," Document #US51839824, 12 March, 2024.

Inside Ansible Automation Platform for Red Hat Enterprise Linux

Overview

Red Hat Ansible Automation Platform is a leader in infrastructure automation, according to the Forrester Wave,² that includes everything needed to build, deploy, and manage end-to-end automation on Red Hat Enterprise Linux at scale.

Ansible Automation Platform helps enterprises with complex, heterogeneous environments create and execute repeatable workflows that include Red Hat Enterprise Linux, along with other operating systems such as Microsoft Windows, storage systems, IT Service Management (ITSM) platforms, networking devices, security systems, and much more.

With Ansible Automation Platform, you can reduce operational bottlenecks and points of failure, consolidate ad hoc and disparate automation tools, adopt a culture of collaboration, improve IT operations, and make time for innovation.

Built on a powerful, [agentless framework](#), Ansible Automation Platform helps you **create**, **manage**, and **scale** automation across your organization.



Create

Ansible Content Collections provide trusted, expert-generated code to help you start automating right away. They include both Red Hat Ansible Certified Content and Ansible validated content for integration with Red Hat platforms and solutions from over 70 industry-leading partners.

Red Hat Enterprise Linux System Roles

Red Hat Enterprise Linux System Roles are an example of Red Hat Ansible Certified Content that can be scheduled and executed at scale through Ansible Automation Platform. They support automation for provisioning, configuration, and patching that is shareable and trusted for enterprise operations.

[View the full list of Red Hat Enterprise Linux System Roles](#) →

Red Hat Ansible Lightspeed with IBM watsonx Code

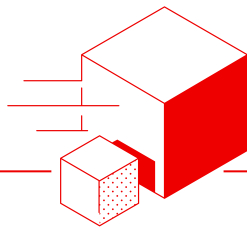
Assistant is a generative AI service that helps Red Hat Enterprise Linux system administrators and developers with diverse skills and experience learn to create and maintain Ansible Automation Platform content more efficiently.

² Forrester Research. "[The Forrester Wave™: Infrastructure Automation, Q1 2023](#)." March 2023.

Ansible development tools help system administrators and developers create, test, and deploy reliable code. This suite of tools accelerates Ansible content development cycles and helps organizations improve time to value.

Automation execution environments are container images used to execute Ansible Playbooks and roles consistently across diverse Red Hat Enterprise Linux deployments, whether in a datacenter, cloud, or at the network edge.

Ansible automation hub is a catalog used to find, download, and share content collections for Red Hat Enterprise Linux System Roles as well as other industry solutions. Private automation hub lets you create your own curated library of automation content for internal teams to use and share.

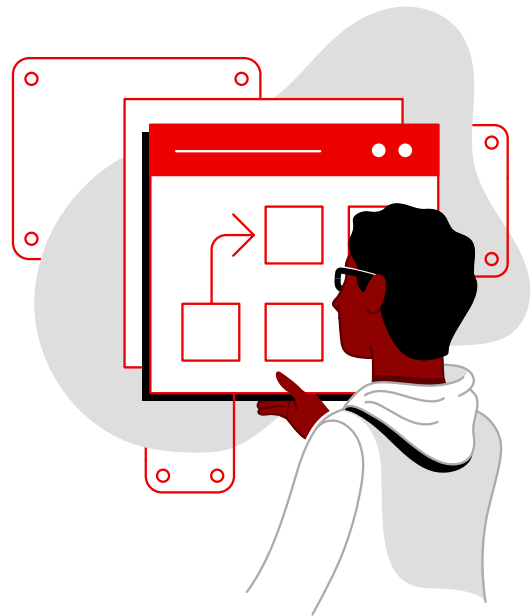


SIEMENS

Siemens enhances communication security with Red Hat Ansible Automation Platform

To simplify and better automate its public key infrastructure (PKI) environment, Siemens worked with Red Hat to replace its existing automation solution with Red Hat Ansible Automation Platform. Siemens worked closely with Red Hat consultants to learn how to use IaC and continuous integration and continuous delivery (CI/CD) practices to write and test playbooks, with all hardening measures now scripted in Ansible.

[Read the full case study](#)



Manage

Automation controller is a centralized management tool to manage inventory, launch and schedule Red Hat Enterprise Linux workflows, track changes, and integrate reporting with a centralized user interface.

Automation analytics and Red Hat Insights provide rich reporting and advanced analytics to optimize your automation, proactively identify potential issues, mitigate vulnerabilities, and improve resolution times.

Event-Driven Ansible allows you to automate specific IT actions with user-defined, rule-based constructs while creating end-to-end automated scenarios that require less human intervention. You can use Red Hat Insights as an event source for Event-Driven Ansible to detect and automatically respond to drift, misconfigurations, security vulnerabilities, and more.

Scale

Automation mesh lets you scale automation of Red Hat Enterprise Linux servers across diverse network topologies, platforms, and regions including physical and virtual datacenters, hybrid cloud environments, and edge locations.

Automate Red Hat Enterprise Linux in the cloud and at the edge

Provision, manage, govern, and retire cloud resources

Cloud complexity is a growing challenge. Hybrid cloud and multicloud environments continue to gain popularity as they offer IT organizations the best of 2 worlds: dedicated, compliant physical infrastructure with a focus on security, plus nearly limitless cloud resources.

Consistent Red Hat Enterprise Linux migration, deployment, configuration, and management are critical to the IT stack and key to successful hybrid cloud and multicloud operations. However, migrating and managing infrastructure and workloads distributed across multiple environments with consistency can become complicated.

Ansible Automation Platform can help you efficiently build and manage a reliable, security-focused foundation for your applications and workloads running on Red Hat Enterprise Linux.

Move your Red Hat Enterprise Linux workloads to where you need them—from on-site to cloud or from traditional compute architectures to cloud-native platforms. Ansible Automation Platform works with all types of infrastructures, including those that are traditional, virtualized, and containerized.

As a result, you can use the migration strategy that works best for your organization: classic backup and restore, scan and recreate, or even IaC and OaC. And with the workflow visualizer, you can orchestrate your entire cloud migration.

Ansible Automation Platform lets you orchestrate, operationalize, and govern complete hybrid cloud workflows—from provisioning and deployment, to Day 2 operations and management, to policy application and enforcement.



68%

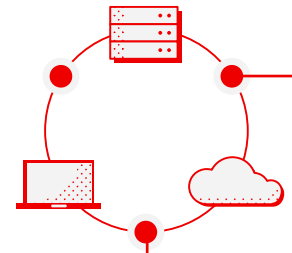
faster deployment of new compute resources on average with Ansible Automation Platform.¹



¹ IDC White Paper, sponsored by Red Hat. "[The business value of Red Hat Ansible Automation Platform](#)," Document #US51839824, 12 March, 2024.

Here are some examples of the many tasks that you can automate across Red Hat Enterprise Linux deployments in hybrid cloud and multicloud environments:

- ▶ Orchestrate cloud resources.
- ▶ Provision and retire systems using IaC tools integrated into your existing automation workflows.
- ▶ Configure and deploy Red Hat Enterprise Linux instances more efficiently using system roles.
- ▶ Manage and scale workloads across on-site and cloud infrastructure using a centralized automation mesh.
- ▶ Upgrade Red Hat Enterprise Linux systems to the latest version across your environments.
- ▶ Monitor and remediate configuration drift across your Red Hat Enterprise Linux instances.
- ▶ Manage your Red Hat Enterprise Linux server inventory, along with other cloud resources.
- ▶ Govern your cloud environments.



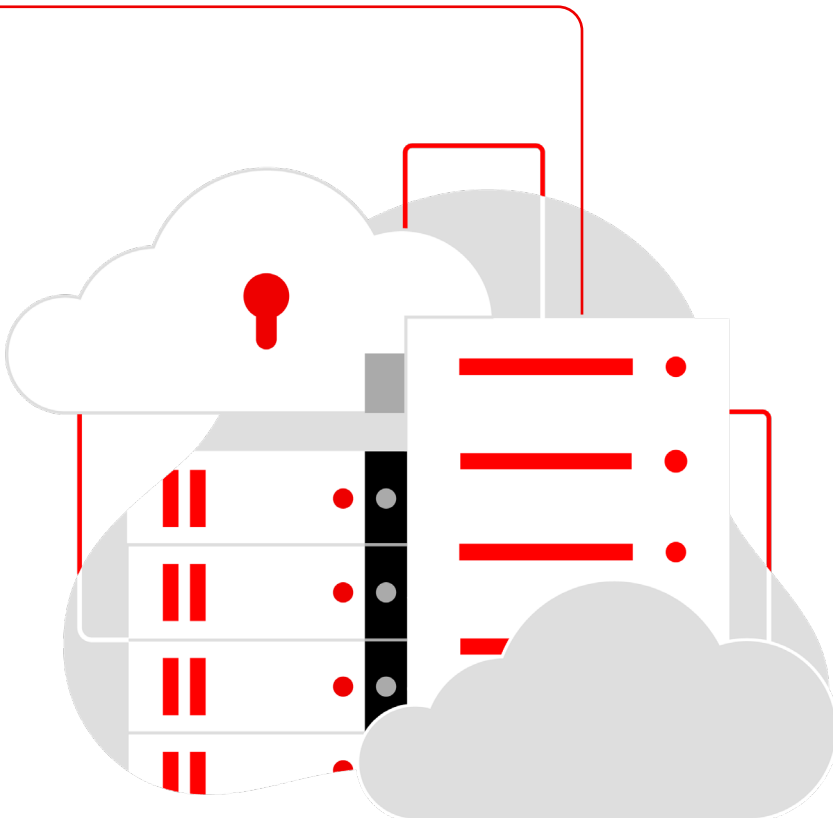
HCA Healthcare develops predictive analytics using Red Hat software

After evaluating different solutions, HCA Healthcare used Red Hat OpenShift® Container Platform and Red Hat Enterprise Linux to create a scalable, container-based Platform- as-a-Service (PaaS) foundation for its platform. Ansible Automation Platform provides broad automation capabilities for data collection, analysis, and proactive notification processes that help save lives by accelerating sepsis detection. Additionally, Red Hat Satellite and Red Hat Insights provide management and analytics for HCA Healthcare's Red Hat environment.

"Our relationship with Red Hat is critical to ensuring service quality in the clinical environment."

Dr. Edmund Jackson
Chief Data Scientist, HCA Healthcare

[Read the full case study](#)



Boost reliability and availability at the network edge

At the edge of the network, infrastructure is distributed across multiple remote locations outside the datacenter. Operating across these heterogeneous environments has security and management implications, particularly at scale.

You need to extend controls from the datacenter to the edge, including the multivendor and multipurpose devices and services required for running remote Red Hat Enterprise Linux endpoints. This is why automation is no longer optional, but mission-critical.

Ansible Automation Platform provides the flexibility to meet the often limited physical space and power requirements of distributed remote sites, while also managing datacenter and cloud environments. This allows organizations not only to manage today's most demanding workloads, but to proactively evolve as business strategy changes, in order to meet tomorrow's needs.

38%

more efficient network management teams on average with Ansible Automation Platform.¹

Scale rapidly

Automation mesh reliably scales capacity for local and remote automation workloads to meet automation volume demands in less time.

Reduce risk

Native features like hop nodes introduce fault tolerance and redundancy capabilities to reduce the effect of external dependencies.

Execute consistently

Automated health checks determine the optimal route and node to run automation jobs based on key metrics before sending staff into the field.

Scale with improved security

Execute automation workflows closer to edge endpoints through an encrypted and distributed architecture, while keeping a centralized control layer with enterprise-ready capabilities.

Execute locally

Increase resilience against high latency and connection disruptions by running automation closer to the endpoints.

Automate across your enterprise

Manage infrastructure across vendors, locations, and domains where there are few or no IT staff. Use Event-Driven Ansible to respond automatically to environmental changes and mitigate performance issues.

¹ IDC White Paper, sponsored by Red Hat. "[The business value of Red Hat Ansible Automation Platform](#)," Document #US51839824, 12 March, 2024.

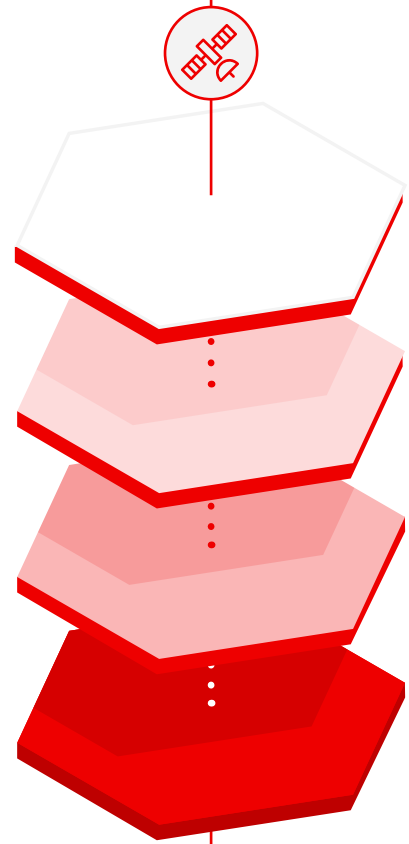
Red Hat Satellite with Ansible Automation Platform: Better together

Where Ansible Automation Platform automates a variety of different systems and workloads, Red Hat Satellite is purpose-built for Red Hat Enterprise Linux systems.

Many Red Hat customers begin their automation and management of Red Hat Enterprise Linux with system roles and Red Hat Satellite. As their business demands grow, they need Ansible Automation Platform for full end-to-end IT workflow automation and sophisticated capabilities that integrate their operating system with networking, ITSM, storage systems, and more. The good news is that they can keep their existing Red Hat Satellite configuration and use Ansible Automation Platform to orchestrate Red Hat Enterprise Linux with these systems.

With Ansible Automation Platform and Red Hat Satellite, IT teams can:

- ▶ Manage automation at scale, with the required level of consistency and governance.
- ▶ Reduce technical time and resources devoted to daily administration.
- ▶ Minimize manual tasks and execute them consistently across physical, virtual, private cloud, public cloud, and edge environments.
- ▶ Allow IT teams to expand their automation use cases with certified Ansible Content Collections from leading third-party vendors.
- ▶ Automate at the edge to speed up transactions, improve customer experience, and gain a competitive edge.
- ▶ Deploy edge workloads to meet local compliance requirements and ensure continuous operations.



Sapphire Health accelerates innovation with Red Hat

Sapphire deployed Ansible Automation Platform across their environments, initially focusing on the acceleration of Red Hat Enterprise Linux server builds and related maintenance. They eliminated manual errors, a potential security concern. They created complete and accurate documentation without manual intervention and were able to build servers 10 times faster, allowing the infrastructure team to focus on innovation.

[Read the full case study](#)

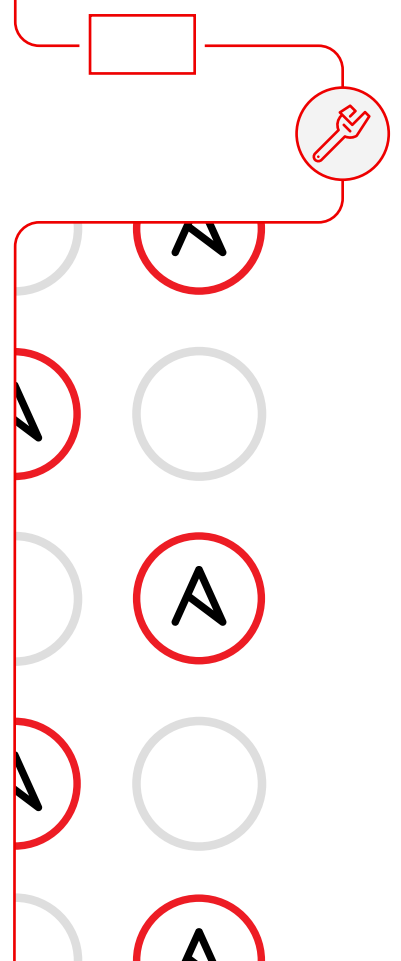
Take the initial steps of your automation journey

Most IT organizations use some automation today, but organizations that see the greatest gains and performance from their investment are those that put automation at the center of their IT strategy.

Success with automation doesn't happen overnight. Though it's often tempting to focus on the most complex and problematic part of your environment, Red Hat Services experts typically recommend starting small, with a single use case such as automating Red Hat Enterprise Linux using system roles. Once successfully deployed, you

should measure your performance, then begin to identify other domains that create roadblocks for the rest of the organization or that require a lot of manual effort, such as networking.

Regardless of which use cases you start with, IT executives and managers have the power to present their vision, show the value of automation to their teams, and structure their operations so that users have access to the tools they need to be successful with automation without compromising security or operational performance.



Learn more about getting started with automation for Red Hat Enterprise Linux:



Watch

[Top 5 use cases for automating Red Hat Enterprise Linux](#) →



Learn

[Red Hat Enterprise Linux Automation with Ansible](#) →



Read

[4 benefits of automating Microsoft SQL Server on Red Hat Enterprise Linux](#) →