

Accelerate your IT automation with AI

Realize the value of mission-critical
automation with Red Hat Ansible Lightspeed

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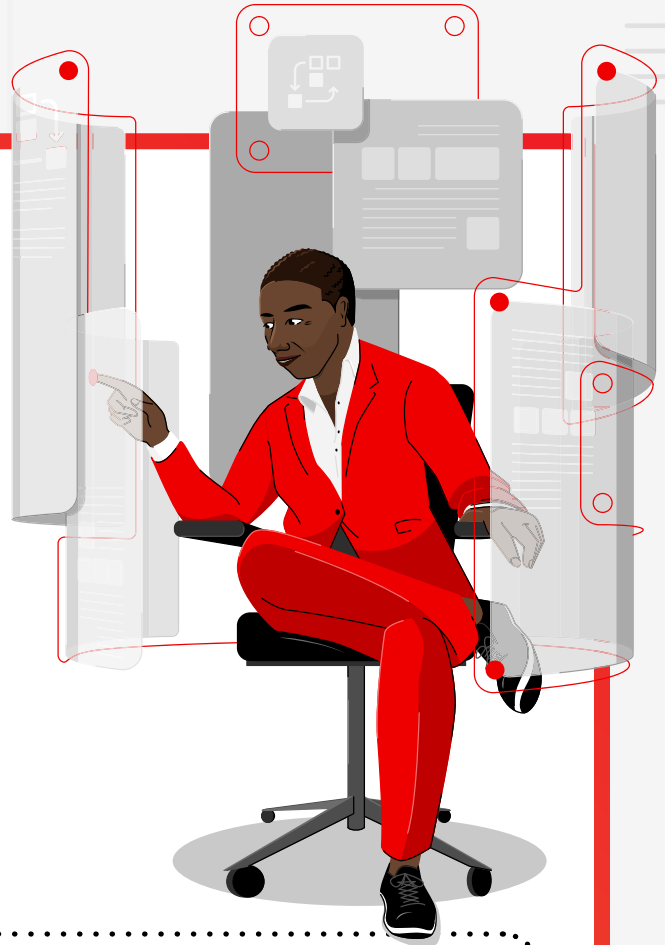
1 Introduction

More than ever, IT teams are faced with complexity, as organizations are operating more applications and systems while responding to security and compliance issues.

To overcome these challenges, platform engineering and developer teams need to rely on enterprise-wide automation to operate more reliably and efficiently. The productivity, consistency, and reliability afforded by automation is no longer a nice-to-have—it's now mission critical to every modern organization.

Accelerating an automation content pipeline can be challenging, even when relying on solutions as intuitive as Red Hat® Ansible® Automation Platform. Organizational skill gaps persist, leaving automation content creation in the hands of a few, making it difficult to democratize content creation across users and improve adoption of automation. Busy operations teams have limited time to learn new skills or train to improve existing skills, while developers find code maintenance repetitive and mundane.

Currently, artificial intelligence (AI) technologies are on the rise. A plethora of new applications are flooding the market, each promising to make modern businesses more efficient, improve time to value, and enhance productivity. Yet the publicly available, non-enterprise AI tools that generate automation content are fraught with inherent challenges that make them unpalatable for many businesses. These challenges include contending with inaccurate or malicious code from unverified sources leading to concerns about trust, reliability, and accuracy. Over time, code maintenance becomes even more problematic and time consuming.



In this e-book we will outline how Red Hat Ansible Lightspeed offers an enterprise-ready solution for using AI to create automation with more speed, efficiency, and consistency, while avoiding the unpredictability and unreliability of non-enterprise AI tools.



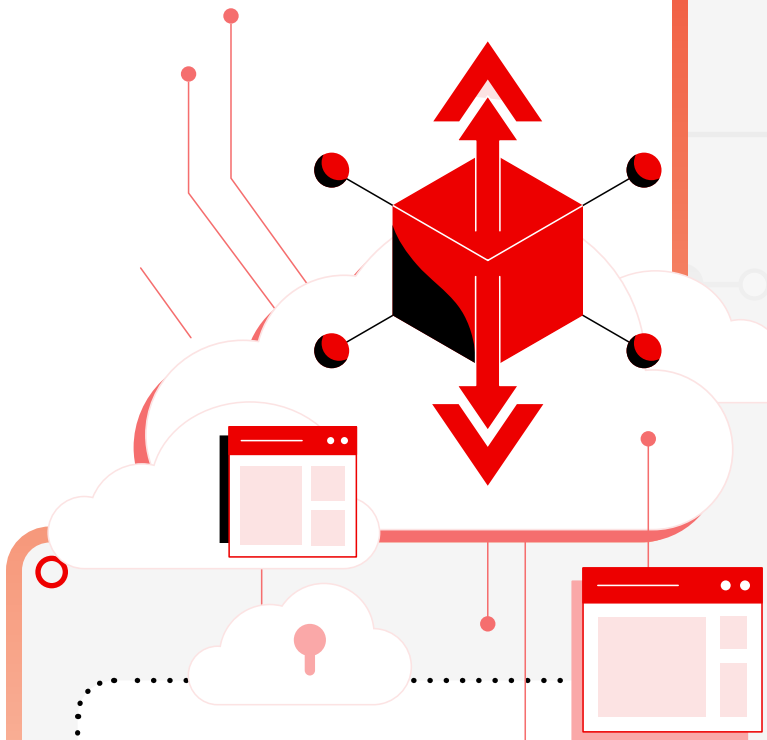
The basics: What is Ansible Automation Platform?

Ansible Automation Platform is an enterprise-specific IT automation platform to provision and configure mission-critical systems, deploy software, and orchestrate complex workflows that span IT teams.


It includes what organizations need to build, deploy, and manage end-to-end automation at scale, across any environment.

With Ansible Automation Platform, organizations can adopt a culture of collaborative automation and operate more efficiently, reduce costs, and free up time for innovation. With its intuitive, YAML-based interface, users can get started building automation faster, helping to accelerate the adoption of automation across their organization.

IT organizations in every industry are under increasing pressure to be even more efficient. Red Hat partnered with IBM to build Ansible Lightspeed to help accelerate automation from content creation through execution.



Where does the word "ansible" come from anyway?



"Ansible" was a term coined by speculative fiction author Ursula K. Le Guin to denote a device that can send and receive messages over galactic distances with no delay. The term was then adopted by the open source Ansible project before it was acquired by Red Hat.

What is Ansible Lightspeed?

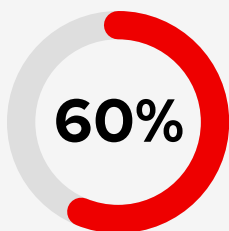
Ansible Lightspeed is a generative AI (gen AI) service engineered to help automation teams create, adopt, and maintain Ansible Automation Platform content more efficiently.

Connected to IBM watsonx Code Assistant—using a proprietary large language model (LLM) specifically trained to assist with the creation of code—Ansible Lightspeed helps users turn automation ideas into Ansible Automation Platform code through natural language prompts. Included with Ansible Automation Platform, Ansible Lightspeed is accessed via the Ansible extension in Visual Studio Code, and generates Ansible Automation Platform content that adheres to Ansible best practices.

Unlike general purpose models, the watsonx Granite LLM is finely tuned, automation-specific, and trained on comprehensive Ansible datasets spanning all automation domains and use cases to enhance the accuracy of generated code recommendations.

Ansible Lightspeed democratizes the automation code creation process by assisting more platform engineers, developers, and organizations, regardless of background or skills, to create reliable, accurate Ansible Automation Platform content. By reducing barriers to entry, more individuals within an organization can contribute to successful automation.

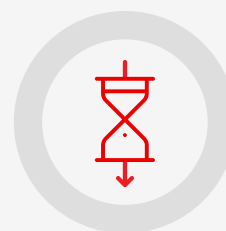
Impacts of Ansible Lightspeed



of IBM's Ansible Playbook content was automatically generated by watsonx Code Assistant for Red Hat Ansible Lightspeed in tech preview.¹



improvement in initial build productivity for Ansible Playbooks.²



Decrease in time it takes a new user to get up to speed and be productive in Ansible.²

¹ "Generative AI generated 60% of Ansible Playbook Content in IBM CIO Organization Pilot" IBM, accessed 18 March 2024.

² "Transforming the way developers learn and work" IBM, accessed 9 April 2024.

If you are:

An Ansible beginner, Ansible Lightspeed reduces your learning curve without requiring previous experience with Python. You'll discover Ansible Automation Platform best practices while building confidence and skills.

A platform engineer Ansible Lightspeed uses an Ansible-specific data model trained across IT domains so you can turn your expertise and ideas into Ansible automation content. With just a basic understanding of YAML syntax, you can describe automation tasks using a natural language and receive Ansible content recommendations to help reach your automation goals faster.

An application developer you can save significant time creating and maintaining Ansible content while working within a familiar integrated experience using Visual Studio Code and Ansible development tools. This allows you to improve productivity and eliminate context switching between your web browser and development environment.



What is a large language model?

A large language model (LLM) is a type of AI model that utilizes machine learning (ML) techniques to understand and generate human language. LLMs can be incredibly valuable for organizations looking to automate and enhance various aspects of communication and data processing.

[Learn more](#)

"Innovation has been and always will be a human-centric story. It starts with the right idea, flourishes with the right team, and reaches its full potential with the right tools.

That's what we're doing with Ansible Lightspeed: giving people a capable technology that's intelligent yet understandable enough for developers and operators to use automation in new ways and for users to employ their existing knowledge so that a vision can come to life. This brings AI to life in your own domain. And most importantly, it's immediately capable, because your own experiences trained it."

Ashesh Badani

Senior Vice President and Chief Product Officer,
Red Hat

Inside Ansible Lightspeed

Ansible Lightspeed brings together 3 unique and independent capabilities:

Generative AI:

IBM's watsonx Code Assistant grants access to a specialized watsonx.ai foundation model. This model was trained on and specializes in generating Ansible content recommendations, constituting the core AI capability of the solution.

Integrated service:

Serving as the intermediary between the developer interface and [watsonx.ai](#), the Ansible Lightspeed service brings the solution into the Ansible Automation Platform experience. It also applies post-processing to AI-generated responses, optimizing the utility and relevance of suggestions based on Red Hat's expertise.

Developer interface:

Embedded directly within the [Visual Studio \(VS\) Code Ansible extension](#), this interface allows content creators to input natural language prompts to describe a task. The service then generates code suggestions for both single and multitask operations.



Red Hat Ansible Lightspeed

The developer interface.

Deployed natively in Visual Studio Code via the Ansible VS Code extension.

The integrated service.

Integration of AI services into Ansible Automation Platform via the Ansible VS Code extension.

The generative AI.

IBM watsonx Code Assistant powered by the Ansible-specific watsonx.ai foundation model.

Understanding the model: How watsonx Code Assistant is different

Content creation for Ansible Automation Platform customers represents IBM's initial foray into applying enterprise gen AI.

The watsonx Code Assistant uses the IBM watsonx Granite LLM. This model is specifically tailored for Ansible and maintained by IBM. The model aims to allow users to input natural language descriptions of their intended Ansible tasks. In response, it generates corresponding Ansible YAML task suggestions.

IBM's watsonx Code Assistant gen AI Granite model draws on a mix of natural language (English) and code (Ansible YAML) for its training data. Its natural language training sources encompass Wikipedia, Ansible Documentation, and StackExchange, while its code training sources include GitHub and Ansible Galaxy. This diverse dataset helps the AI to understand and generate accurate Ansible YAML tasks based on user descriptions.

Learn more about IBM watsonx
Code Assistant.

Learn more



Red Hat Ansible Lightspeed with IBM watsonx Code Assistant

Watch now

Explore Ansible Lightspeed

Ansible Lightspeed helps platform engineers and developers to create, adopt, and maintain Ansible Automation Platform content to help them be more efficient while ensuring accuracy, transparency, and trust.

Here are some key features, and how they can help your organization, in more detail.

VS Code integration

Red Hat Ansible Lightspeed is integrated directly through the Ansible VS Code extension. Once enabled, this setup automatically gathers recommendations, usage telemetry, and the state of Ansible YAML files via automated events within VS Code.

Security and trust

The Red Hat Ansible Lightspeed service adheres to Red Hat's Application Penetration Testing and Vulnerability Assessment process, helping the development of high-quality software with a security focus through best practices.

Aligned with the NIST Secure Software Development Framework (NIST SSDF SP-800-218), OWASP guidance, and various ISO standards, the [Red Hat Secure Software Management Lifecycle \(SSML\)](#) embodies a comprehensive approach to software development.

To enhance privacy and focus on security, commercial customer data remains isolated, meaning that Ansible Lightspeed uses this data solely for services tailored to each organization, including model training and enhancements.

The system does not employ customer data for training, improving, or modifying capabilities or models unrelated to the customer's organization.

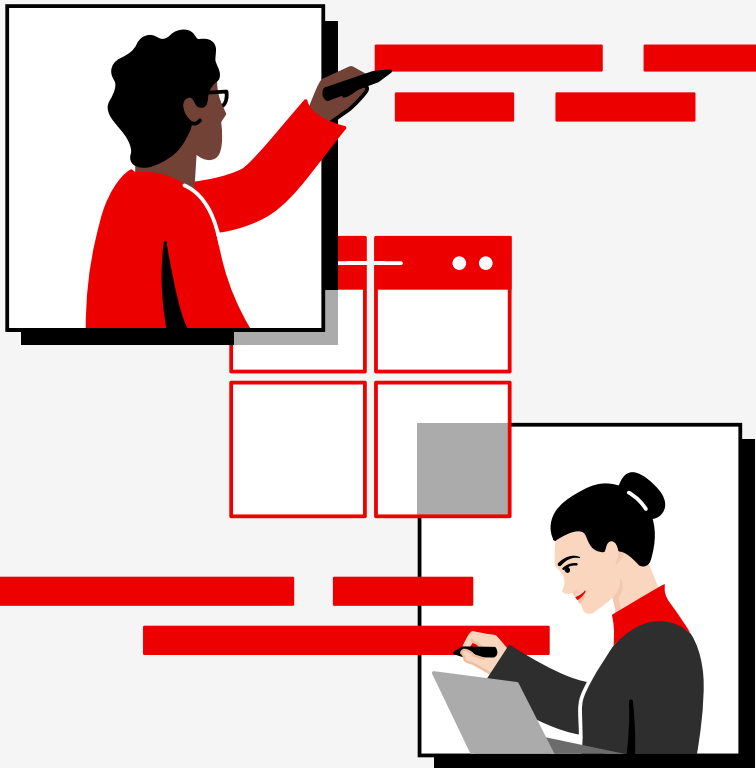


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Create automation content

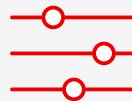
Multitask generation

Subject matter experts can use their domain knowledge, describing their automation requirements in a series of linked, natural language prompts with ampersands (&) in YAML comment lines (#).



Model customization / tuning

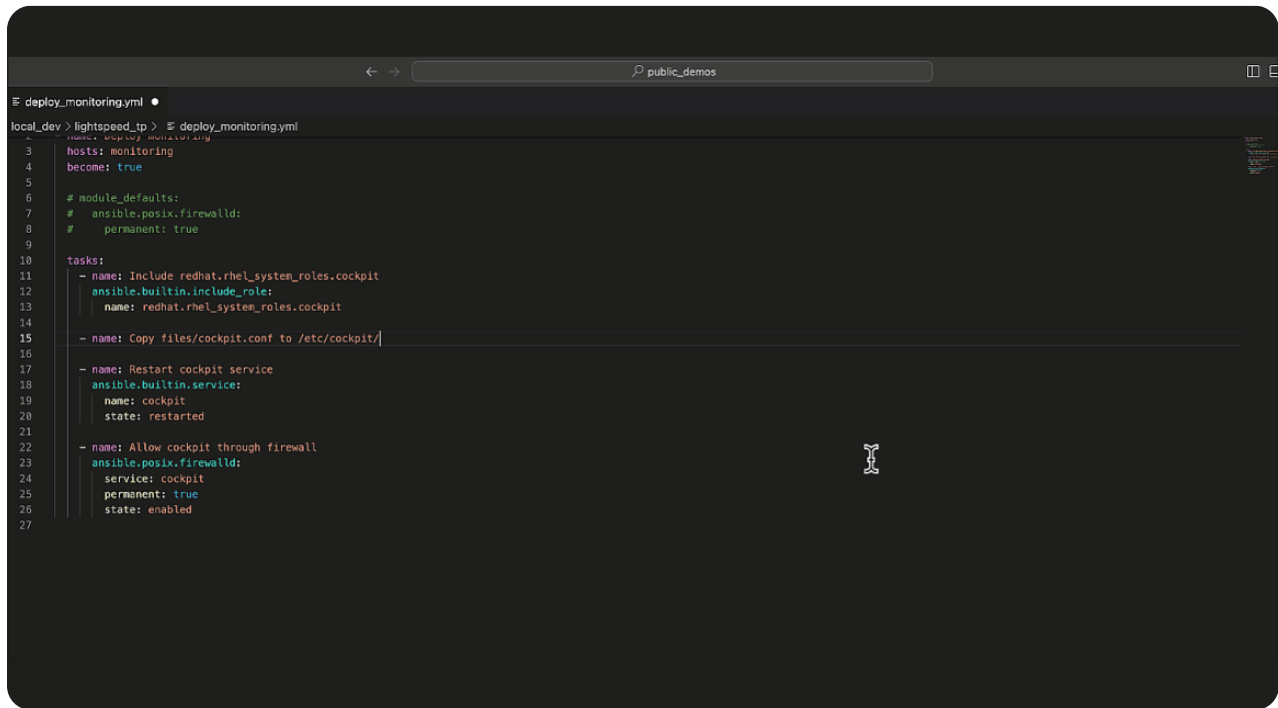
IBM watsonx Code Assistant allows organizations to train custom models using their existing Ansible content. This will tailor the recommendation experience to their unique organizational automation patterns and further their ability to ratify best practices directly into their automation creation toolset. As your repository of Ansible Playbook content expands, Ansible Lightspeed can adapt its content recommendations to match the evolution of your business.



Adopt with trust

Content source matching

Transparency concerns have significantly hindered the adoption and trust in gen AI, primarily due to uncertainties about the origins of code and the use of AI-generated code. To address these issues, Ansible Lightspeed matches content recommendations with potential training sources, allowing for a review of the Ansible content, authors, licenses, and other relevant information. This process provides insights into the model's training sources, enhancing transparency and trust.



```
local_dev > lightspeed_tp > F deploy_monitoring.yml
1
2
3 hosts: monitoring
4   become: true
5
6 # module_defaults:
7 #   ansible.posix.firewalld:
8 #     permanent: true
9
10 tasks:
11   - name: Include redhat.rhel_system_roles.cockpit
12     ansible.builtin.include_role:
13       name: redhat.rhel_system_roles.cockpit
14
15   - name: Copy files/cockpit.conf to /etc/cockpit/
16
17   - name: Restart cockpit service
18     ansible.builtin.service:
19       name: cockpit
20       state: restarted
21
22   - name: Allow cockpit through firewall
23     ansible.posix.firewalld:
24       service: cockpit
25       permanent: true
26       state: enabled
27
```

Post-processing

Post-processing capabilities from Red Hat infuse the IBM watsonx Code Assistant model recommendations with Ansible best practices. This feature provides an extra layer of trust and confidence that the code recommendations are optimized for Ansible automation, and offers value beyond that contained in the IBM models.

Administrative dashboard

This new feature allows Red Hat account administrators to track adoption and usage of the Ansible Lightspeed service. You can monitor metrics related to generative AI requests that flow through the service, as well as receive insights into how end-users are using the service.

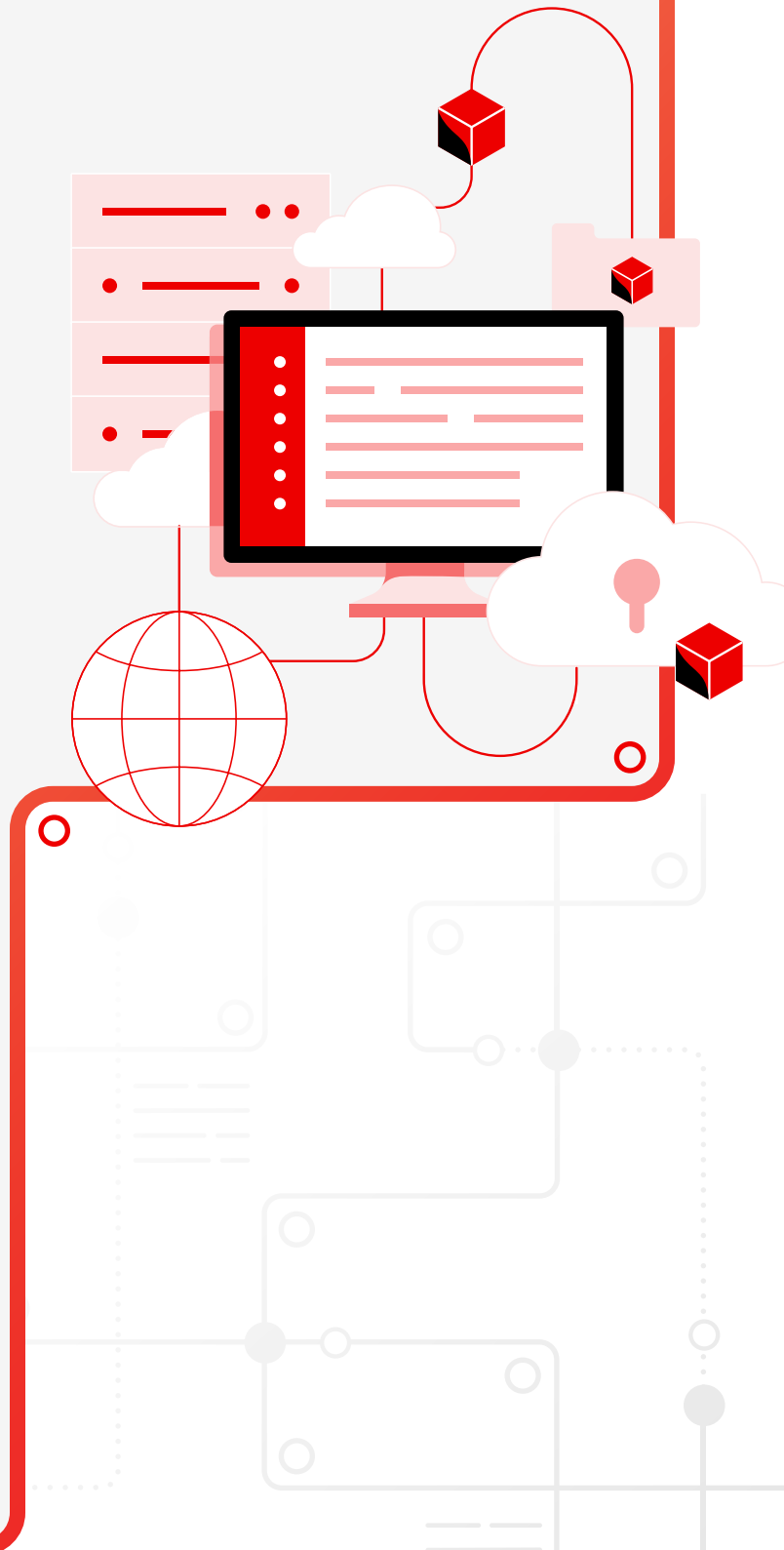
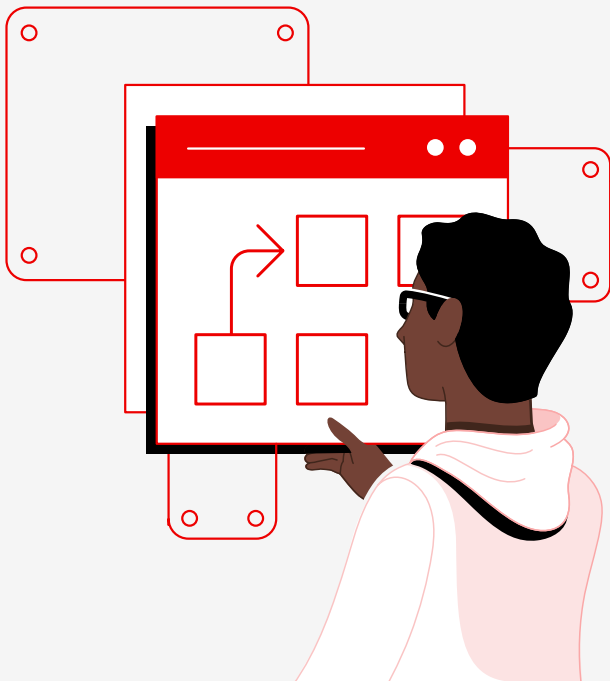
Maintain your code

Ansible code bot

The Ansible code bot scans existing content collections, roles, and playbooks through designated Git repositories, then proactively creates pull requests whenever best practices or quality improvement recommendations are available. You can scan your Git repository manually or schedule scans at regular intervals. This reduces the administrative burden of ongoing code maintenance.

Ansible Lightspeed offers value that goes beyond the creation of new automation playbooks, providing features that assist teams in managing and updating their existing automation code bases. This helps raise quality and consistency throughout the automation development life cycle.

The improvement in automation code quality stems from using unique insights into the Ansible code base and the deep expertise of the Ansible Automation Platform team.



² "Generative AI generated 60% of Ansible Playbook Content in IBM CIO Organization Pilot" IBM, accessed 18 March 2024.

In closing

Ansible Lightspeed represents an opportunity for your organization to integrate mission-critical automation at the rate demanded by the modern marketplace, while avoiding the pitfalls of using general purpose AI solutions.



Next steps

[Get started with Red Hat Ansible Lightspeed](#)

Get started

Additional resources

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