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Red Hat Insights

Proactive Analysis and Remediation

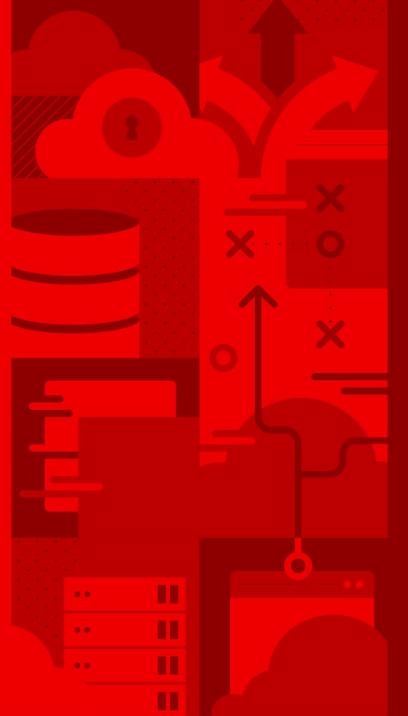
Joshua Preston

Solution Architect



Red Hat Insights assesses your Red Hat Enterprise Linux environment to help you proactively identify and remediate threats, avoiding outages, unplanned downtime and risks to security and compliance.





Insights Overview



Red Hat Insights

Included with all Red Hat Enterprise Linux subscriptions

Buy

Red Hat
Enterprise Linux

Get

Red Hat
Insights



Overview of Red Hat Insights



Advisor

Availability, performance, and stability risk analysis



Drift

Create baselines and compare system profiles



Vulnerability

Assess, remediate and report on Red Hat Enterprise Linux Common Vulnerability and Exposures (CVEs)



Policies

Define and monitor against your own policies to identify misalignment



Compliance

Assess and monitor regulatory compliance, built on OpenSCAP



G III

Subscription Watch

Track progress of your Red Hat subscription usage efficiently and confidently.



Patch

Analyze for Red Hat product advisory applicability to stay up to date



Why Red Hat Insights?

Operational Efficiency







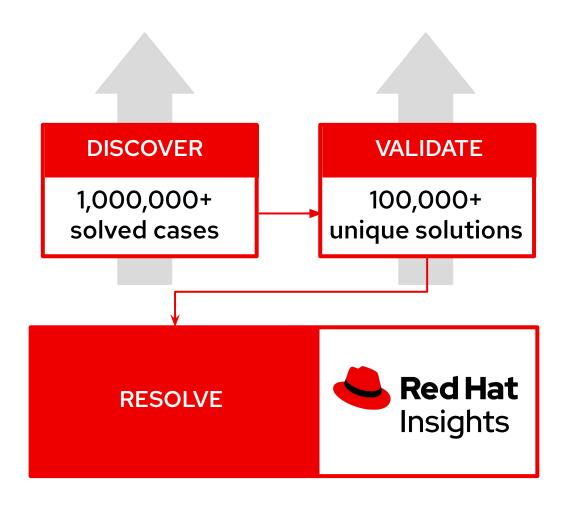


Single, consistent management solution across on-premise, hybrid cloud, and public cloud.

Security Risk Management



Value of experience



"85% of critical issues raised to Red Hat[®] support are already known to Red Hat or our partners."

- RED HAT GLOBAL SUPPORT SERVICES

Continuous identification of new risks driven by unique industry data

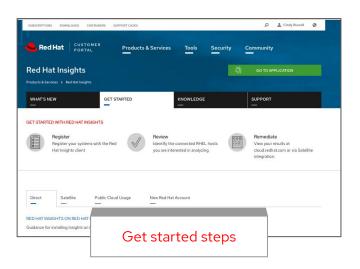
Based on real-world results from millions of enterprise deployments



Three steps to advanced RHEL management

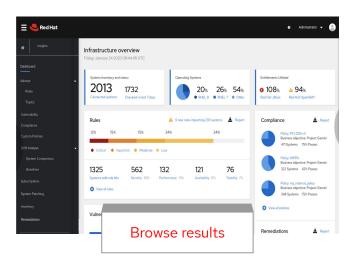
Register

Install client for Red Hat instances on-premises, virtual, cloud.



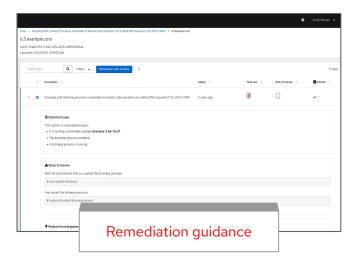
Review

Insights client runs and issues found are reported in the Insights dashboard at cloud.redhat.com



Remediate

Review issues and results in the dashboard and choose which you would like to remediate. Leverage guidance, and remediation options.



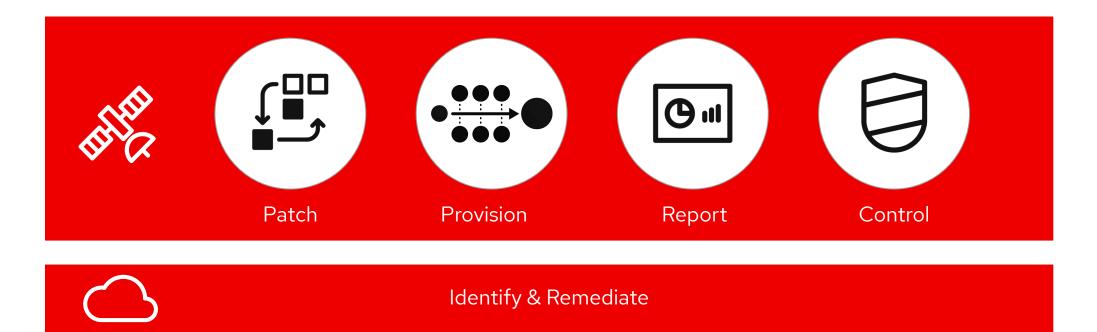


Smart Management for Red Hat Enterprise Linux

Combine the powerful infrastructure capabilities of Red Hat Satellite with the simplicity of management from the cloud

Improve operational efficiency by 28%*

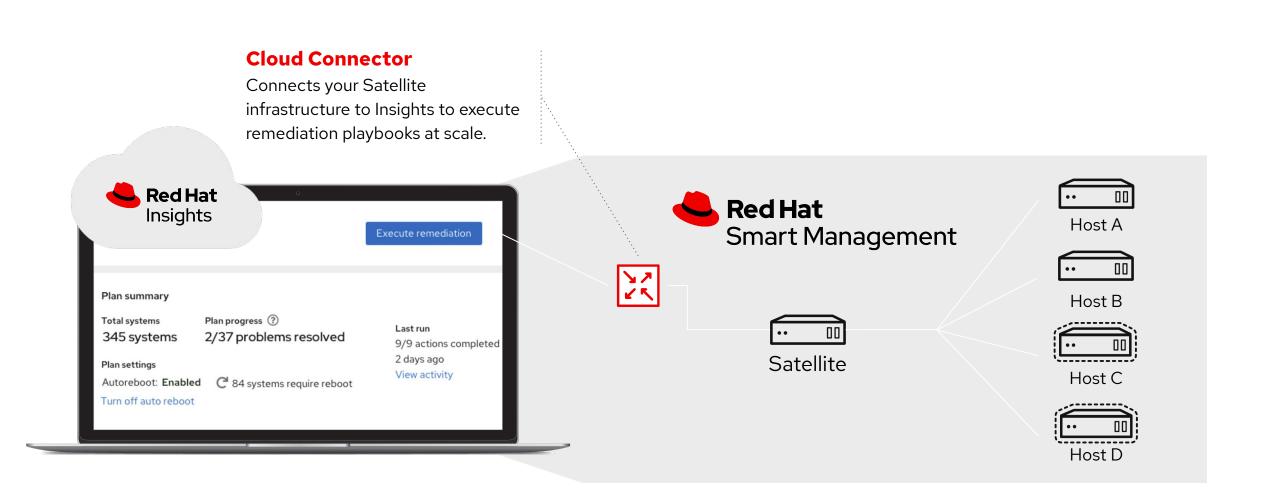
Overcome scale, skill, and security gaps





Insights and Smart Management

Smart Management subscription enables push-button remediation of issues identified by Insights.



Insights Use Cases



Key use cases



Uptime and efficiency

- Manage more with fewer admins
- Move to a managed service provider
- Consolidate operations teams



Security

- Keep up with vulnerabilities
- Harden infrastructure proactively
- Reduce unreasonable demands from security teams

Insights combines with other tools to enhance the Red Hat Enterprise Linux investment.

Insights + technical account manager (TAM) encourages deeper customer conversations and delivers regular assessments.

Insights + Satellite identifies and prioritizes risks and patches so customers can resolve issues faster



Operational efficiency management

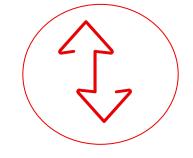
Putting Insights into action













CONFIGURATION ASSESSMENT

RISK IDENTIFICATION

CONTINUOUS INSIGHTS

REMEDIATION PLAN



Security and Compliance Risk Management

Value for Customers













INTEGRATED MANAGEMENT

PROACTIVE GUIDANCE

CONTINUOUS INSIGHTS

REMEDIATION PLAN



Customer Stories

- Insights was able to immediately identify 10 issues on an Oracle RAC system that has been **plaguing a customer for 6 months.**
 - Oracle RAC systems are EXPENSIVE. Why not keep them running at optimal capacity?
- Insights identified a misconfigured network bond, but the customer didn't use bonding. It was accidentally enabled on a production server.
 Insights was able to easily fix a problem then customer didn't even know they had!
 - Is your environment is correctly configured? Has it drifted?



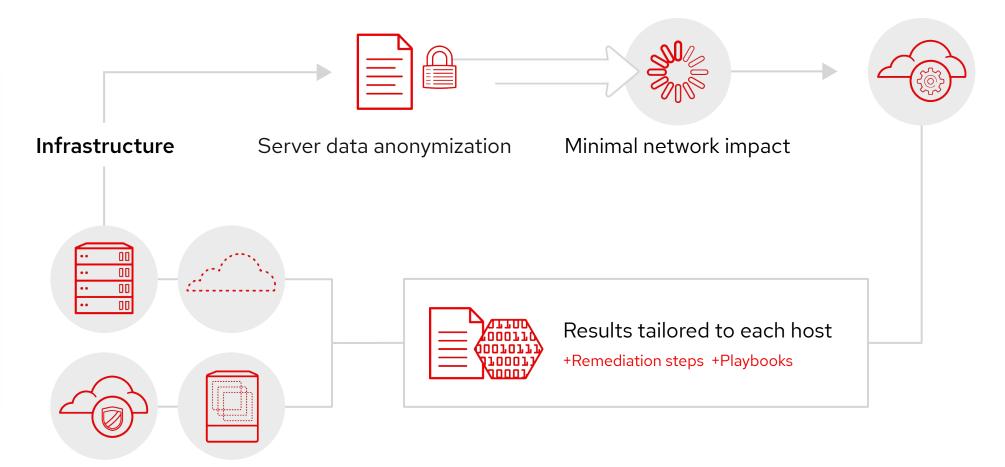


Architecture

Red Hat Insights

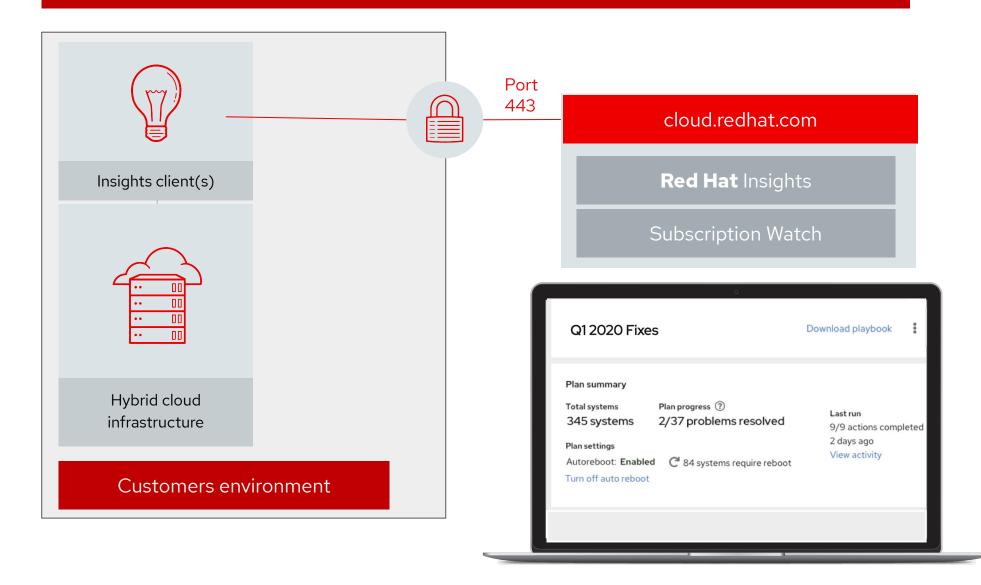


Insights Communication Flow



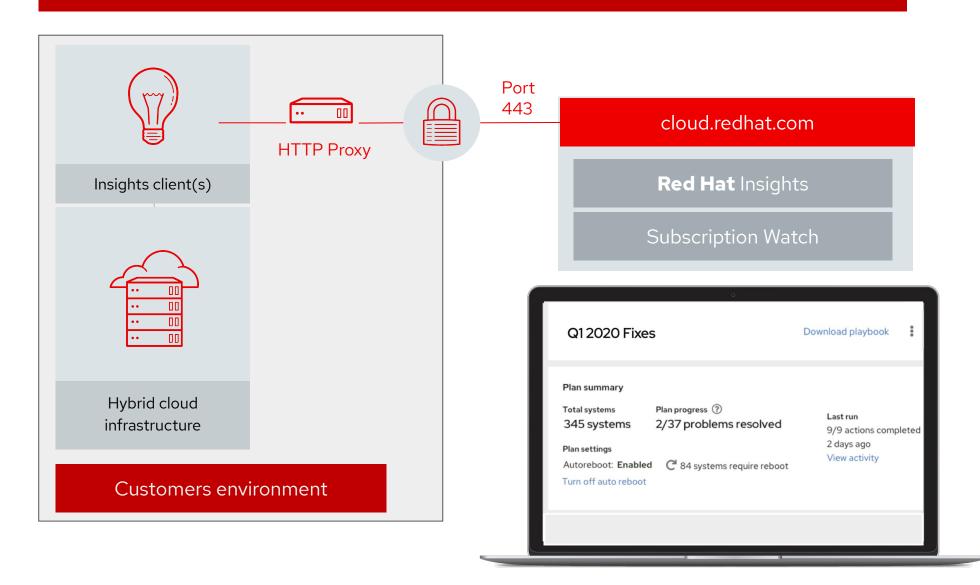


Direct Connection



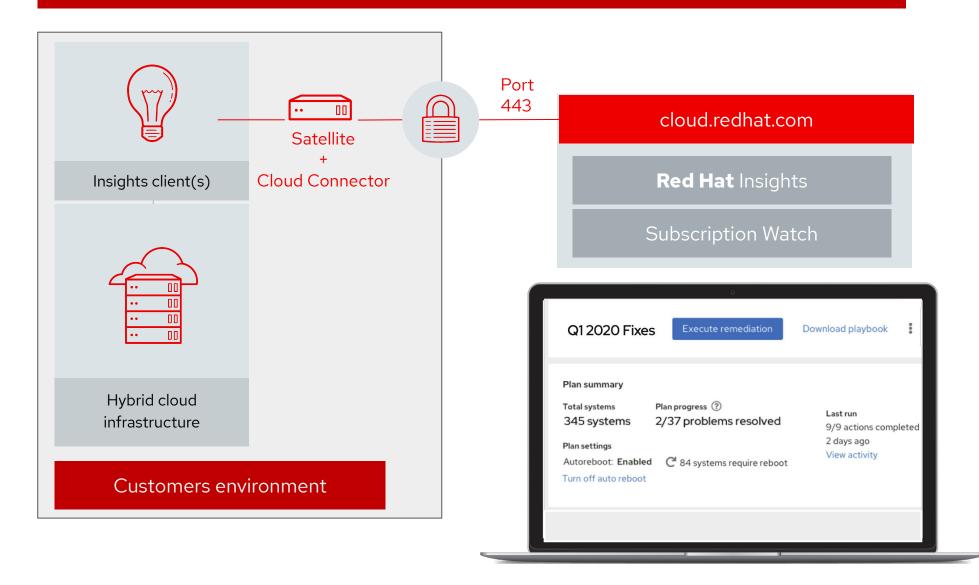


HTTP Proxy





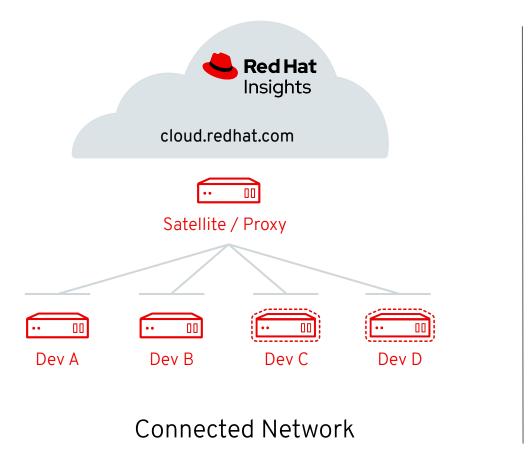
Smart Management

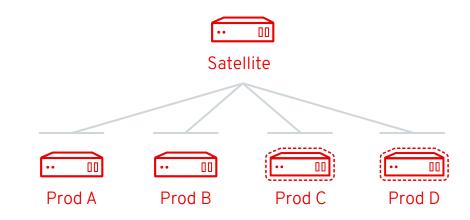




Insights with more Secure Environments

Connect Test/Dev environment to internet via proxy Production remains airgapped





Disconnected / Airgapped Network





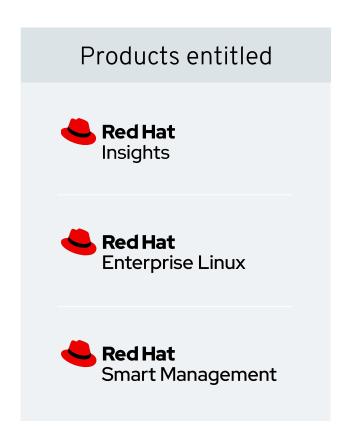
Remediation

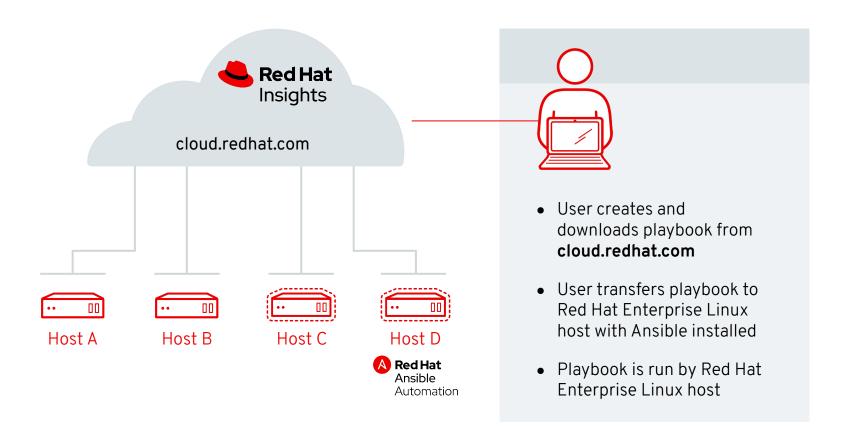
Red Hat Insights



Download and run playbooks

Scenario applies to Insights and cloud management services



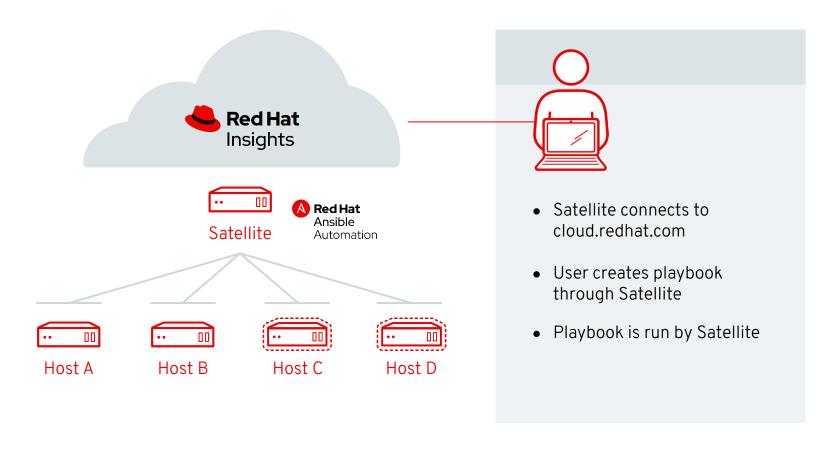




Build and run playbooks in Red Hat Satellite

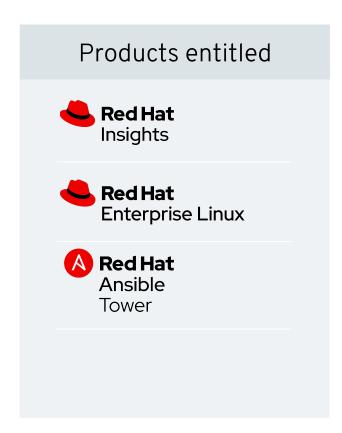
Scenario applies to Insights only

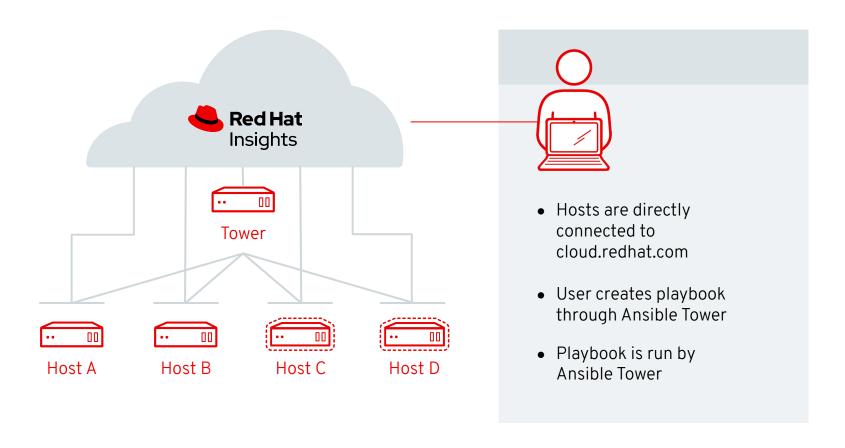




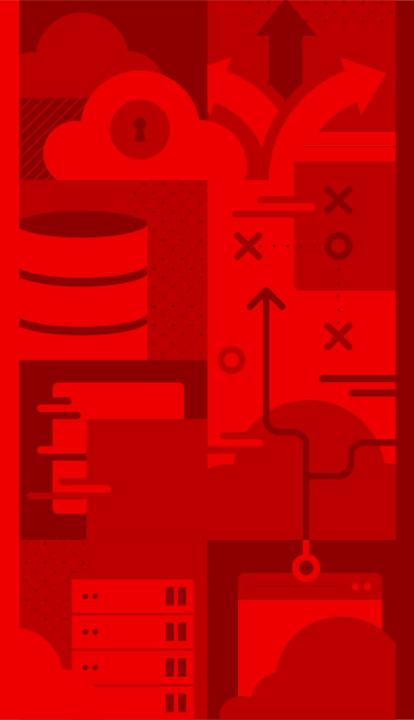


Ansible Tower + Insights Architecture









How to configure Red Hat Insights



Installation and registration

Simple and Straightforward



Step #1: Run (as root) # yum install insights-client

 Red Hat Enterprise Linux 8 customers will not need to perform this step - the Insights client is pre-installed.

Step #2: Run (as root) # insights-client --register

More information including automation playbooks are available at:

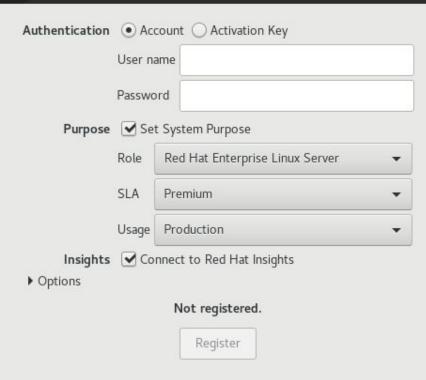
https://access.redhat.com/insights/getting-started

Man page available via \$ man insights-client



us us





Anaconda Installation

Connecting to Insights is an installation option.



RED HAT ENTERPRISE LINUX



Web Console

Insights registration is an option on the Subscriptions page

localhost.localdomain

Q Search

Networking

Podman Containers

Accounts

Services

Applications

Diagnostic Reports

Kernel Dump

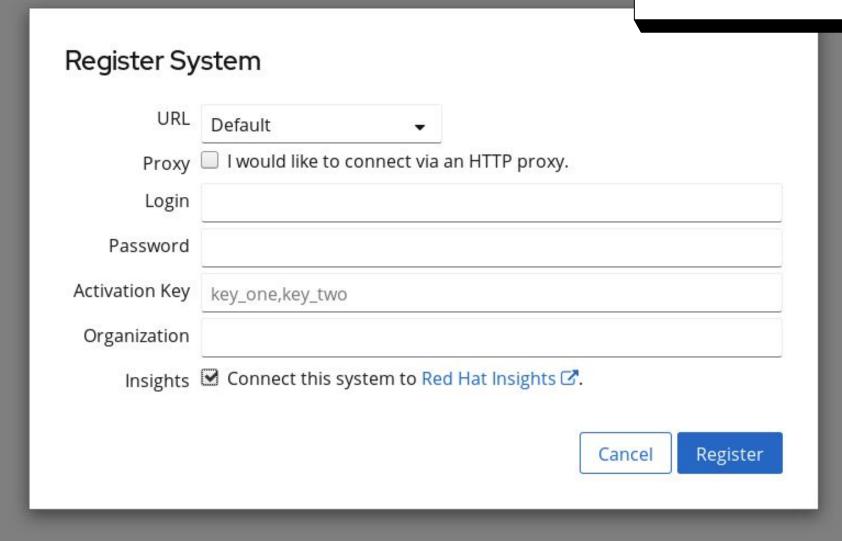
SELinux

Software Updates



Subscriptions

Terminal





Registration Assistant

Insights is part of the Registration Assistant in Labs. https://access.redhat.com/labs/registrationassistant/



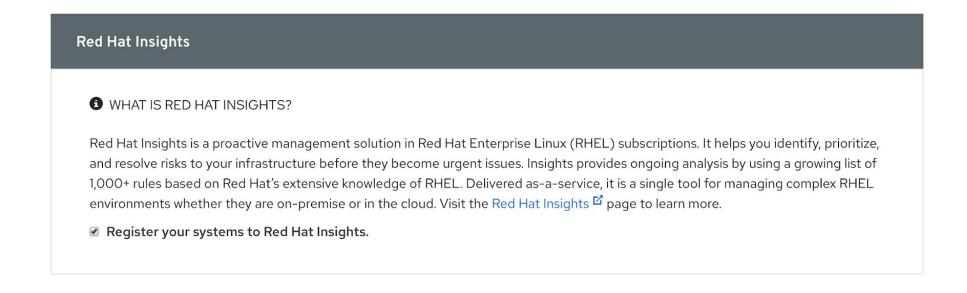




Your guide to registering your Red Hat Enterprise Linux systems.

To get started, please select the version of Red Hat Enterprise Linux you are trying to register. Once you've selected the appropriate major and minor versions for your systems, the Registration Assistant will provide you with instructions to register your systems via any channel available for your chosen release.

,	Version	
	Red Hat Enterprise Linux 8 - All Versions	\$



Data collection

No sensitive data targeted for collection

Example files

/etc/redhat-release
/proc/meminfo
/var/log/messages
/boot/grub/grub.conf
/boot/grub2/grub.cfg
/etc/modprobe.conf

Commands

/bin/rpm -qa /bin/uname -a /usr/sbin/dmidecode /bin/netstat -i /bin/ps auxcww

We do not collect log files, but we collect the lines that match a potential recommendation (e.g., page allocation failure.)





Deconstructing Insights Rules





System hostname

Version of the RHEL kernel it's running

Confirm it's one of those specified CPUs

Identify how long the the system has been up



How it is collected

/bin/hostname -A

/bin/uname -a

/proc/cpuinfo

/sys/devices/system/clocksource/clocksour

ce0/current clocksource

Rule: Kernel panic after 200+ days of uptime on certain Xeon CPUs

Description: Intel Xeon P5, P5 v2, and P7 v2 CPUs running certain Red Hat Enterprise Linux kernels are susceptible to a bug that can lead to a system panic based on accumulated uptime.

Rule on Insights:

https://cloud.redhat.com/insights/rules/ tsc_xeon_reboot_uptime|TSC_XEON_ REBOOT_UPTIME



Four things you should know about data collection in Red Hat Insights



- Only portions of logs are collected.
 - Bits of information about server configuration, recommendation match to the line of a log file.
- Data uploads are customizable.
 For example, you can delete server names or IP
- addresses. Collection schedules are also customizable.
- Information is encrypted.
 From the client's servers through transmission to the Insights service.
- Data remains for a short period of time.

 Daily replace of server upload. If upload is not sent, the current upload is typically deleted after 14 days.

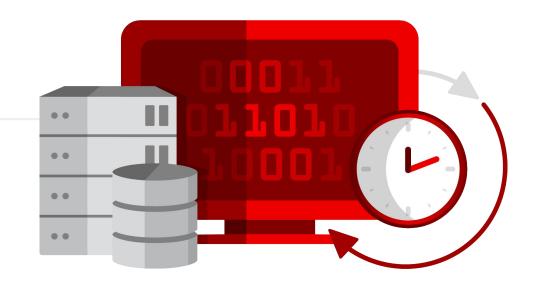


How long does Red Hat store data?

Typically 24 hours

Typically 2 weeks maximum*

No permanent data storage





^{*}Some services aggregate information and keep longer to show historical trending

Common concerns, answered

I can't use Software-as-a-Service (SaaS).

Many times we find that SaaS is already being used. Services like Salesforce, ServiceNow, and New Relic are often deployed as SaaS.

We can't share our data or what data is collected.

Data collection is <1% of an SoS Report, which you likely use today. You also have full control of what is collected.

Adding new firewall rules is a long, painful process or my systems don't connect to the internet.

HTTP proxies are supported, and Satellite has one built in. You may be able to use existing approved infrastructure.

Hostname / IP are sensitive, and we are concerned about sharing information about our systems.

All data is encrypted in transit AND at rest, and you can easily redact that further.

I am located in <LOCATION>, and can't use Insights.

Many regions have restrictions around citizen data storage, e.g., GDPR, but these types of laws are unrelated to the type of data Insights collects.

We don't want an agent in the background taking up resources.

Insights is a client that runs during off hours, staggered, customizable time, is not constantly running. Items like cgroup constraints and timeouts, all can be configured.



Data collection customization

Commonly used configuration items

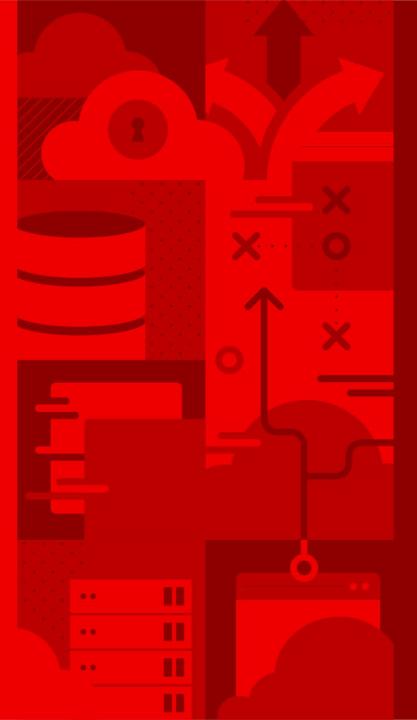
```
# Example options in this file are the defaults
# Change log level, valid options DEBUG, INFO, WARNING, ERROR, CRITICAL. Default DEBUG
#loglevel=DEBUG
# Attempt to auto configure with Satellite server
#auto_config=True
# Change authentication method, valid options BASIC, CERT. Default BASIC
#authmethod=BASIC
# username to use when authmethod is BASIC
# password to use when authmethod is BASIC
#password=
#base_url=cert-api.access.redhat.com:443/r/insights
# URL for your proxy. Example: http://user:pass@192.168.100.50:8080
# Automatically update the dynamic configuration
#auto_update=True
# Obfuscate IP addresses
#obfuscate=False
# Obfuscate hostname. Requires obfuscate=True.
#obfuscate_hostname=False
```

/etc/insights-client/insights-client.conf

- Change log level
- Configure satellite server
- Change auth level
- Configure proxy settings

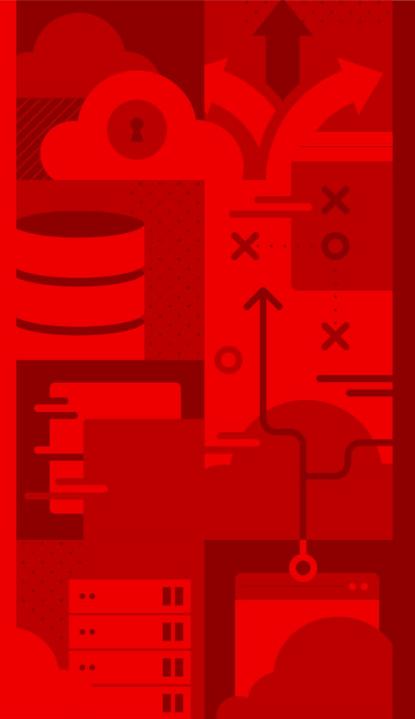
- Hide IP address
- Hide hostname
- Change display name
- Eliminate timeouts





Demo





Common Questions



Four ways Red Hat Insights can help me manage my Linux environment

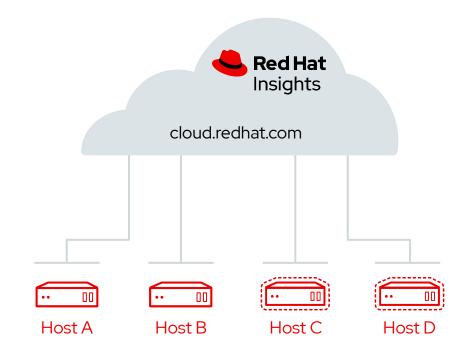
- **1 Where** is my inventory?
 - Insights has a **single unified inventory** to centralize all registered systems.
- What kinds of risks does Insights identify?
 - Each Insights service focuses on a different type of risk.

These could be CVEs, compliance issues, systems in need of patches, or Red Hat recommendations for availability or performance

- **How** do I fix issues that Insights find?
- Most services provide **remediation** in the form of step-by-step instructions and in many cases an Ansible playbook.

 Download the playbook and run it with Ansible Automation Platform
- How do I fix issues that Insights finds at scale?

With **Red Hat Smart Management**, you can use the combination of Red Hat Satellite and cloud connector to enable an "**Execute Remediation**" button and run remediation playbooks from Insights.





Top 3 Insights Concerns

I can't use Software-as-a-Service (SaaS).

Often we find that SaaS is already being used.

Services like Salesforce, ServiceNow, and New Relic are often deployed as SaaS. Hostname / IP are sensitive, and we are concerned about sharing information about our systems.

All data is encrypted in transit AND at rest, and you can easily redact that further.

I am located in <LOCATION>, and can't use Insights.

Many regions have restrictions around citizen data storage, e.g., GDPR, but these types of laws are unrelated to the type of data Insights collects.



Top 3 Insights Data Collection Concerns

At a high level, what information does Insights collect?

Red Hat Insights Security Information article:

https://red.ht/2V6doqg

How can my Security team review the actual Insights collection?

Generate a collection and inspect it in detail. Follow instructions in this article:

System Information Collected by Red Hat Insights

https://red.ht/2yPIWsH

How can I redact information from the Insights collection?

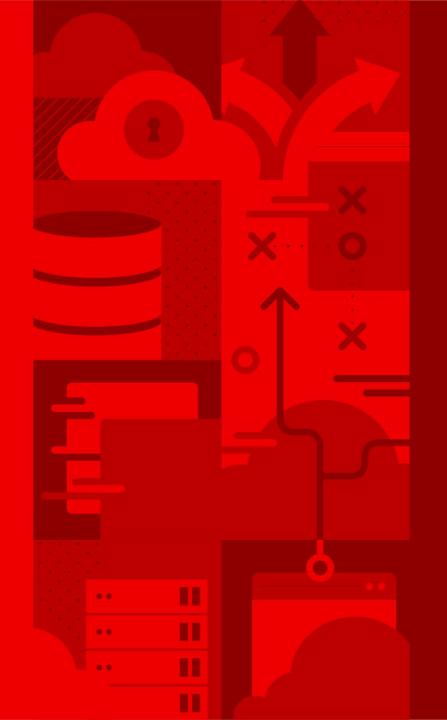
Opting Out of Sending Metadata from Red Hat Insights Client Knowledgebase article:

https://red.ht/3ehAy4v

Just worried about IP Address and hostname? See article on Obfuscating IP Addresses and Host Names in Red Hat Insights

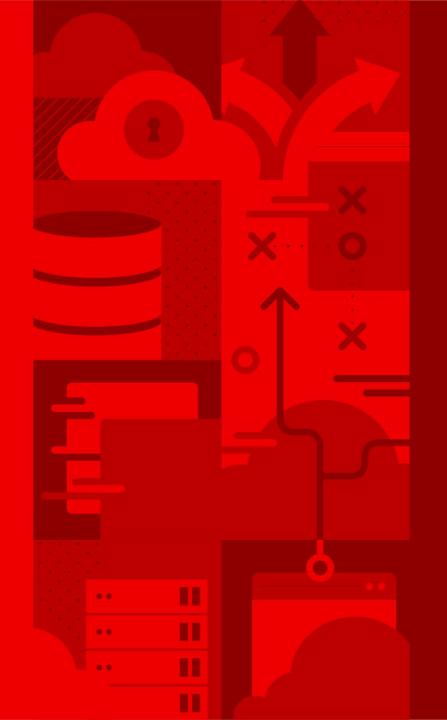
https://red.ht/2KebCgB





Insights Services





Advisor



Advisor

Red Hat Recommendations based on 20+ years of supporting RHEL in areas of availability, performance, stability, and security risks.

With Advisor:



Assess impact of Red Hat Recommendations on your systems



Remediate findings with prescriptive remediation steps or an Ansible playbook

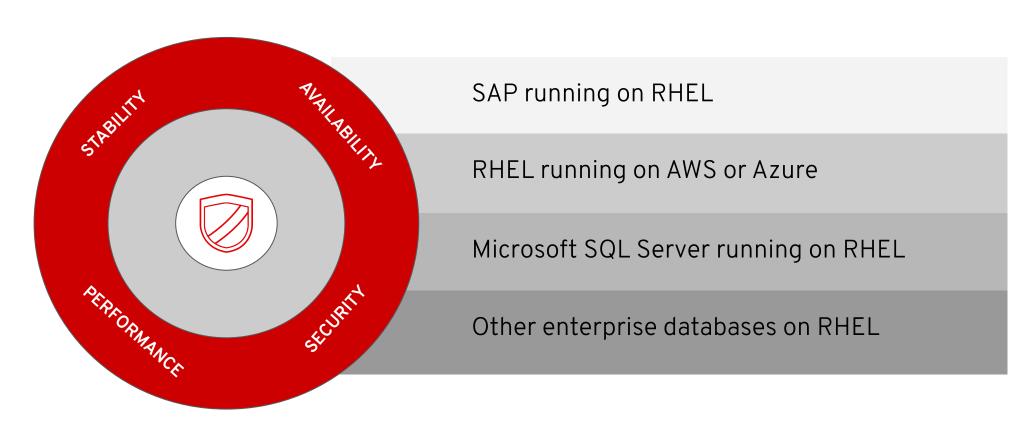


Report via JavaScript Object
Notation (JSON) and
Comma-Separated Values (CSV)
view-based reports to keep
relevant stakeholders informed



Snapshot of Advisor Recommendations

The Advisor service has more than 1,100+ recommendations across several categories and workloads







Advisor

Availability, performance, stability, and

Red Hat Insights

Dashboard

Advisor

Recommendations

Topics

Vulnerability

Compliance >

Policies

Drift >

>

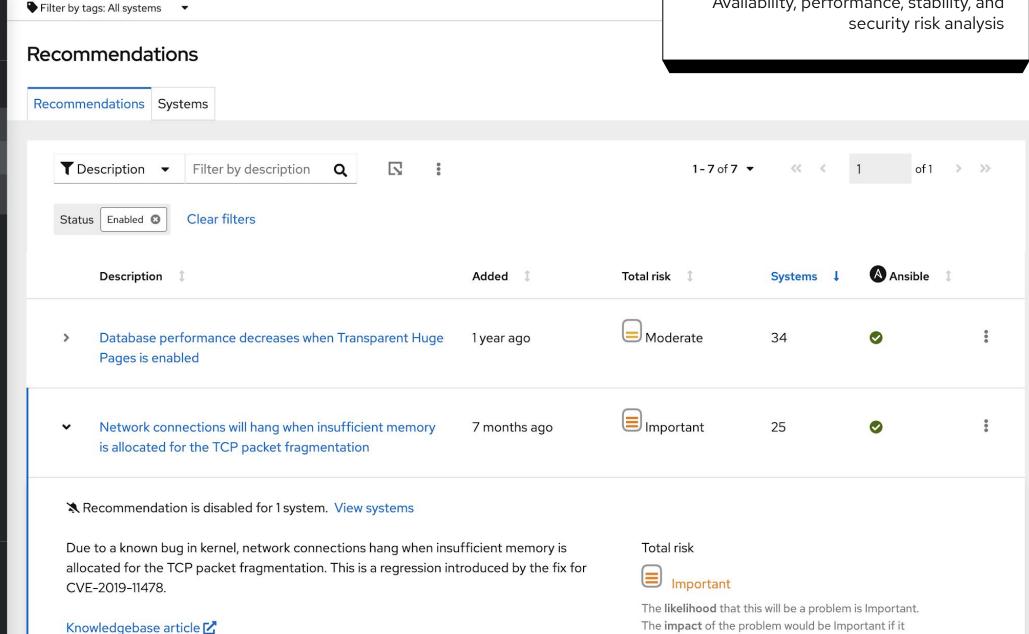
Subscription Watch

Patch

Inventory

Remediations

Documentation



occurred.



Vulnerability



Vulnerability

Remediate all Common Vulnerabilities and Exposures (CVEs)

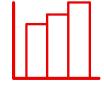
With Vulnerability:



Assess and monitor the risk of vulnerabilities that impact Red Hat products with operational ease



Remediate known Common Vulnerabilities and Exposures (CVEs)

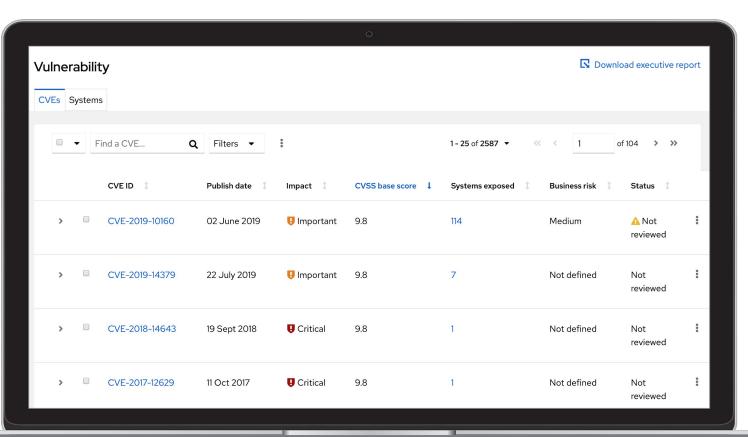


Ability to generate JavaScript
Object Notation and CSV
view-based **reports** to keep
relevant stakeholders informed



Get ahead of key security risks

Don't wait for your security team to tap you on the shoulder



- Quick view of CVEs, CVSS score, impact, and systems exposed across all systems
- Add your own business risk and status
- Ability to create a remediation plan for all hosts impacted by a CVE, or for all CVEs for a specific host

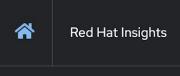
"...when a vulnerability is released, it's likely to be exploited within **40-60** days. However, it takes security teams between **100-120** days on average to remediate..."

- KENNA SECURITY GROUP









Dashboard

Advisor

>

>

Vulnerability

Compliance >

Policies

Drift >

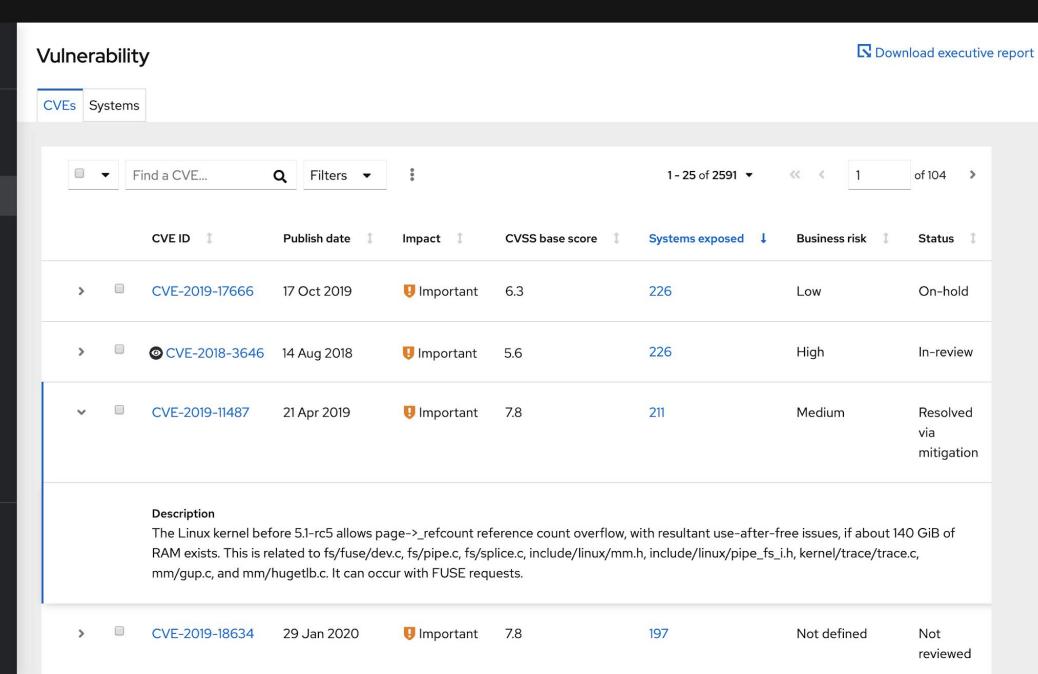
Subscription Watch

Patch

Inventory

Remediations

Documentation





Compliance



Compliance

Built on OpenSCAP reporting

With Compliance:



Assess and monitor the degree/level of compliance to a policy for Red Hat products with operational ease



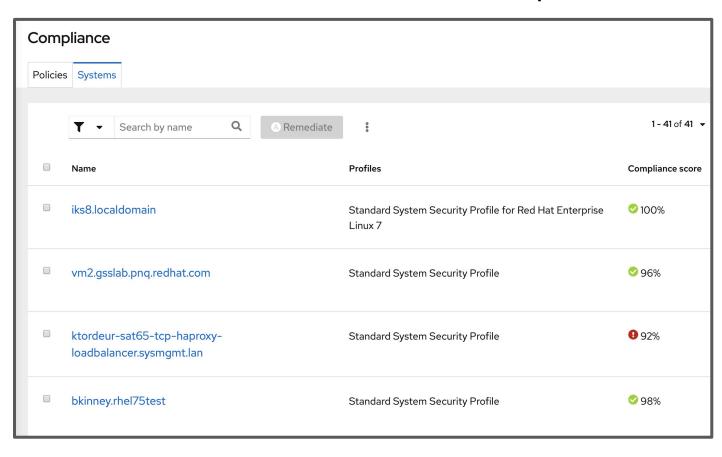
Remediate known issues of non-compliance in the Red Hat environment via Ansible playbooks based on business risk & relevance



Ability to generate JavaScript
Object Notation and CSV
view-based reports to keep
relevant stakeholders informed



Easily identify and remediate out of compliance systems and specific rules failing



- Report by policy or by system
- Adjustable compliance thresholds
- Easy customization of business objectives
- Can create and tailor your own policies





Compliance

Assess and monitor compliance, built on OpenSCAP

External policy

Red Hat Insights

Dashboard i

Advisor >

Vulnerability

Compliance

Reports

Policies

Systems

Policies

Drift

>

Subscription Watch

Patch

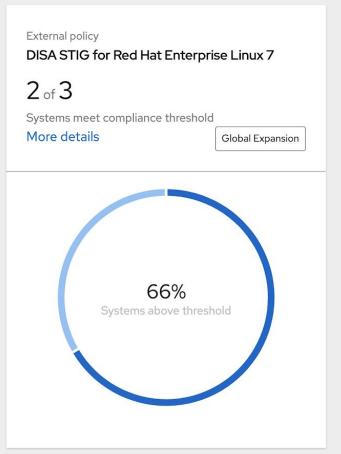
Inventory

Remediations

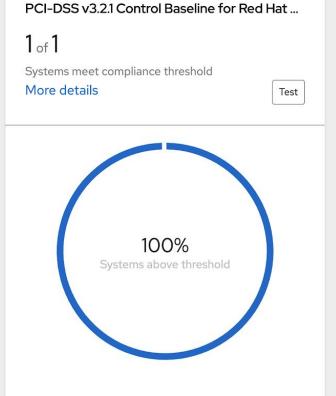
Documentation

Compliance reports

By policy By system







What is OpenSCAP?

- Security Content Automation Protocol (SCAP) is a method for using a specified standard to enable automated policy compliance evaluations for systems.
- OpenSCAP is an open source implementation of the SCAP standard.
 - SCAP and OpenSCAP use security policies, also known as SCAP content, as the centerpoint of the compliance strategy.
 - Several security policies are included as part of the <u>SCAP Security Guide</u>.
- You can also create your own policy or customize an existing policy to meet your needs.
 - For the purposes of Insights Compliance, you will need to (for each host):
 - o Install the OpenSCAP scanner or the OpenSCAP Workbench.
 - Install the SCAP Security Guide (installed with the workbench by default)
 - Evaluate the host against the selected policy.





Drift



Drift

Create Baselines and compare system profiles

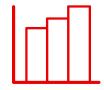
With Drift:



Create Baselines and compare system profiles and change
history of one host to other hosts
or to baselines.



Filter displayed profile facts, highlighting areas that match, are different, or where information is missing.

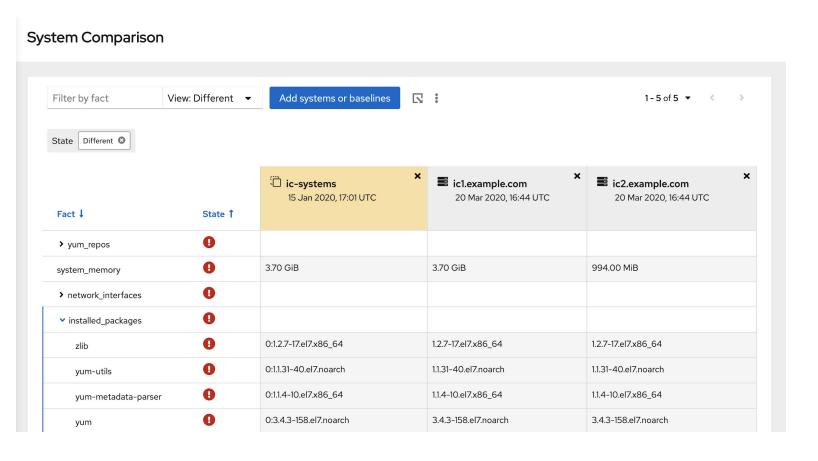


Ability to generate CSV view-based output



Red Hat

Set a baseline and compare systems



- Easily create baselines
- Compare a system to a baseline
- Compare systems to other systems
- Filter on what is different, what is the same, and/or where there is not enough info





Drift

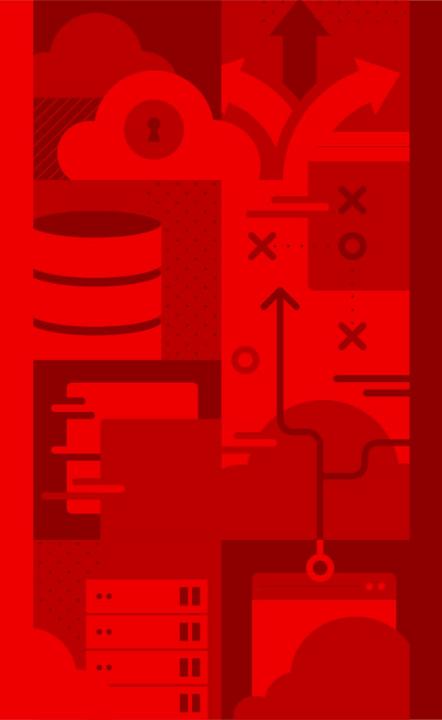
Create baselines and compare system profiles

Red Hat Insights

Comparison

Dashboard	
Advisor	>
Vulnerability	
Compliance	>
Policies	
Drift	~
Comparison	
Baselines	
Subscription Watch	>
Patch	
Inventory	
Remediations	
Documentation	

Filter by fact \	/iew: Different ▼	Add systems or baselines		1-2 of 2 ▼ 《
State Different 3				
Fact ↓	State 1	☐ rhel8 STANDARD ★ 18 Feb 2020, 23:38 UTC	x rhel8aws ☆ 27 Mar 2020, 20:55 UTC 5	rhel8kvm ☆ 31 Mar 2020, 20:38 UTC 5
os_release	0	8.1	8.0	8.2
▼ installed_packages	•			
zlib	0	1.2.11-10.el8.x86_64	1.2.11-10.el8.x86_64	1.2.11-13.el8.x86_64
yum	0	4.2.7-7.el8_1.noarch	4.0.9.2-5.el8.noarch	4.2.17-3.el8.noarch
xkeyboard-config	0	2.24-3.el8.noarch	2.24-3.el8.noarch	2.28-1.el8.noarch
xfsprogs	0	5.0.0-1.el8.x86_64	4.19.0-2.el8.x86_64	5.0.0-2.el8.x86_64
which	0	2.21-10.el8.x86_64	2.21-10.el8.x86_64	2.21-12.el8.x86_64
vim-minimal	0	8.0.1763-13.el8.x86_64	8.0.1763-10.el8.x86_64	8.0.1763-13.el8.x86_64
util-linux	0	2.32.1-17.el8.x86_64	2.32.1-8.el8.x86_64	2.32.1-17.el8.x86_64
unbound-libs	0	1.7.3-8.el8.x86_64	1.7.3-8.el8.x86_64	1.7.3-10.el8.x86_64
tzdata	0	2019c-1.el8.noarch	2019a-1.el8.noarch	2019c-1.el8.noarch



Policies



Policies

Create Policies to identify misalignment

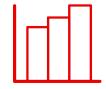
With Policies:



Create Policies to meet your custom needs, such as all hosts need a specific NTP configuration.



Analyze environment configurations and identify systems that are not aligned.



Trigger alert or action when a system does not match the policy.



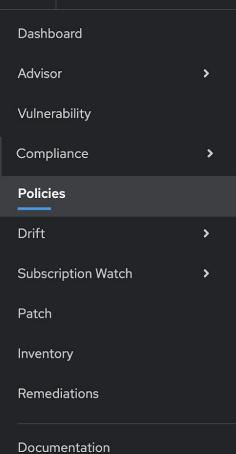


Policies

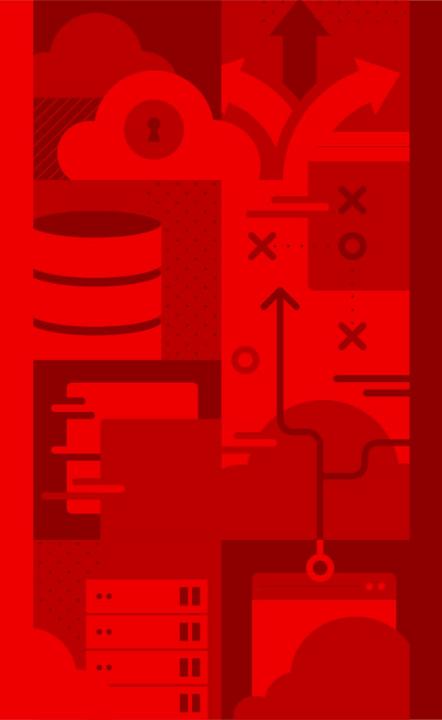
Define and monitor against your own policies to identify misalignment

Red Hat Insights

Policies



□ ▼ Name ▼ Filter by name Q Create poli	ey ®	1 - 10 of 18 ▼ 《	>
Name 1	Trigger actions	Last triggered \$	
> Ensure deprecated packages are not installed on RHEL8	≥ &	about 1 hour ago	0 0
> Ensure Cirrus VGA virtual GPU type is not used on Virtual Machin	es (deprecated) 🔀 🙈	about 1 hour ago	•
➤ Ensure libsecret is installed in place of libgnome-keyring (deprec	ated)	about 1 hour ago	
Description The libgnome-keyring library has been deprecated in favor of the libst maintained upstream, and does not follow the necessary cryptograph library is the replacement that follows the necessary security standard Last updated 02 Apr 2020 Created 02 Apr 2020	c policies for RHEL8. The new libsecret		
Conditions facts.os_release > 8 and not (facts.installed_packages contains ['libsecret'] and not facts.installed_packages contains ['libgnome-keyring'])	Trigger actions Send Email Send to Hook		



Patch



Patch

Patch systems to keep them up to date

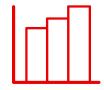
With Patch:



Assess and monitor Red Hat product advisories (errata) across all deployment footprints



Prioritize most important advisories based on advisory type, severity, and system criticality.



Discover systems that have fallen behind your patching process





Patch

Analyze for Red Hat product advisory applicability to stay up to date

Red Hat Insights

Dashboard

Advisor >

Patch

Vulnerability

Compliance >

Policies

Drift >

>

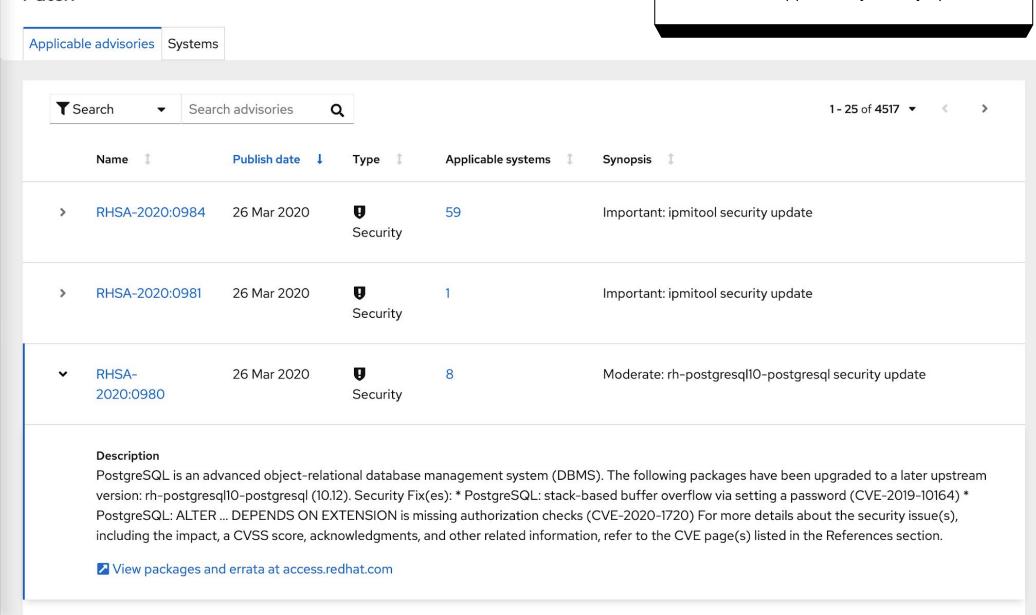
Subscription Watch

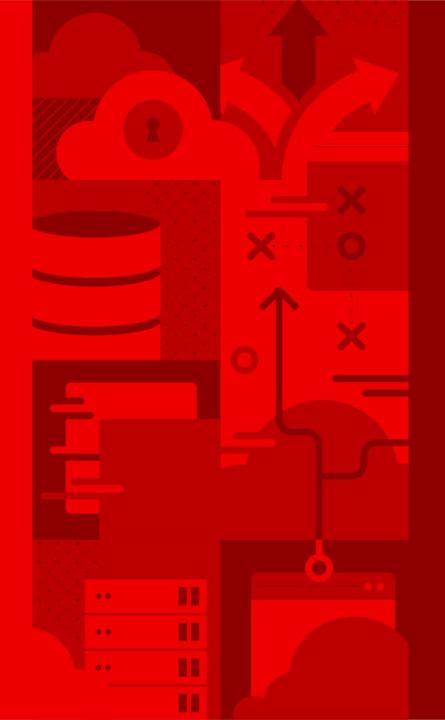
Patch

Inventory

Remediations

Documentation





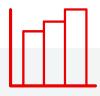
Subscription Watch



Subscription Watch

Understand your subscription utilization

With Subscription Watch:







Account-level view of subscription utilization over time

Aggregated reporting helps your architects understand what they have and procurement understand what they're paying for..

Streamline operations four footprints, four architectures; one account and one report.





Subscription Watch

Track progress of your Red Hat subscription usage efficiently and confidently

Subscription Watch

Red Hat Enterprise Linux

All

ARM

IBM Power

IBM Z systems

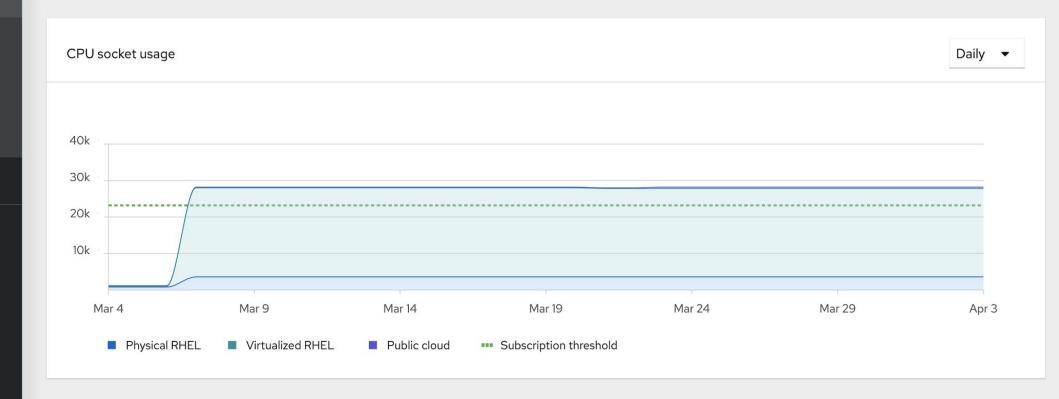
x86

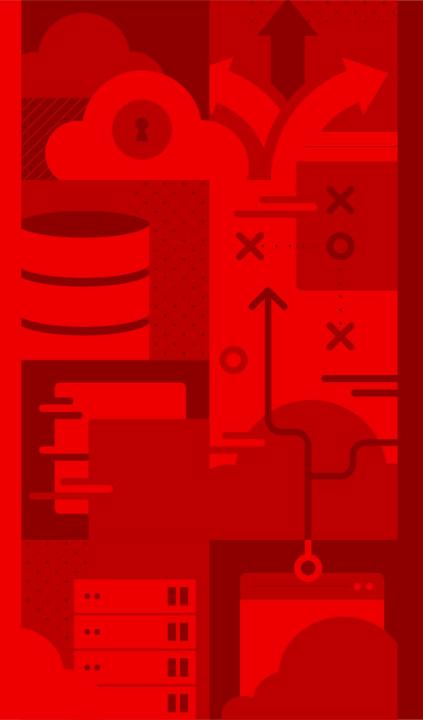
Red Hat OpenShift

Documentation

Red Hat Enterprise Linux







Resources & Next Steps



Red Hat Insights: Additional resources and next steps

ALREADY A RED HAT® ENTERPRISE LINUX® CUSTOMER?

You have Red Hat Insights at no additional cost:

https://red.ht/insights_start

WOULD YOU LIKE TO LEARN MORE ABOUT RED HAT INSIGHTS?

https://redhat.com/insights

For more info, visit: https://access.redhat.com/insights/info

Watch the **intro video**

Read the <u>Insights blog</u>



Insights Resources

Webpages and Docs:

- Red Hat Insights product webpage https://www.redhat.com/insights
- Get Started with Insights https://access.redhat.com/products/red-hat-insights/#getstarted
- Red Hat Insights Documentation https://access.redhat.com/documentation/en-us/red hat insights/1.0/
- IDC Analyst Whitepaper: value of Red Hat Insights and predictive analytics <u>https://www.redhat.com/en/resources/idc-whitepaper-optimizing-infrastructure-management-with-predictive-analytics</u>
- Insights blog: https://www.redhat.com/en/blog/channel/red-hat-insights
- Red Hat Insights archived Blog Site https://access.redhat.com/blogs/insights

Security Links:

- Insights Security page: https://access.redhat.com/insights/security
- System info collected by Insights: https://access.redhat.com/articles/1598863
- Opting out of Sending metadata from the Insights Client: https://access.redhat.com/articles/2025273

Videos:

- Introduction to Red Hat Insights Video: https://youtu.be/MdT4xrllvpY
- Installation and Registration of Red Hat Insights Video: https://youtu.be/BOhQ9larUb8
- Find it. Fix it. Before it breaks. Satellite, Insights, and Ansible: https://youtu.be/mCBhUuxRCgA



Thank you

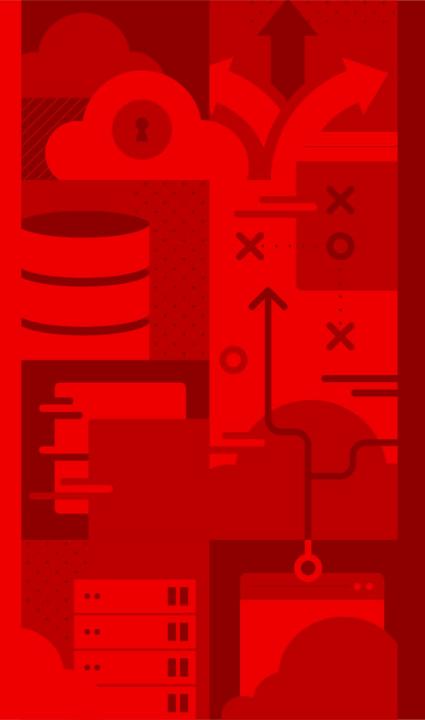
Red Hat is the world's leading provider of enterprise open source software solutions.

Award-winning support, training, and consulting services make

Red Hat a trusted adviser to the Fortune 500.

- in linkedin.com/company/red-hat
- youtube.com/user/RedHatVideo s
- facebook.com/redhatinc
- twitter.com/RedHat



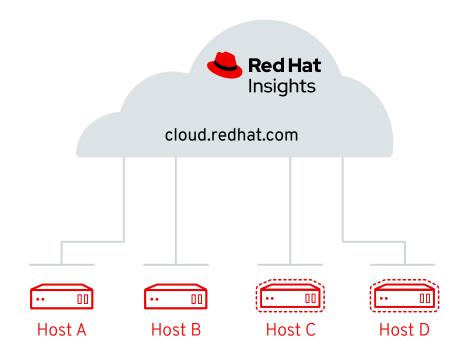


Insights Client Communication Flow



Default Insights Client behavior

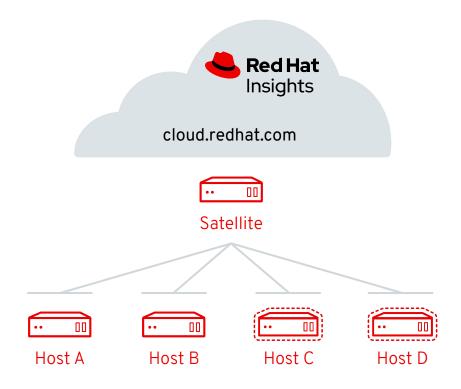
Each host connects directly to cloud.redhat.com





Insights Client when connected to Satellite

Insights Client uses Satellite as a proxy No additional config needed





Insights Client when connected to HTTP Proxy

Insights Client can be configured with HTTP Proxy

Configure a HTTP Proxy in the insights-client.conf

/etc/insights-client/insights-client.conf

Change:

proxy=http://user:pass@ 192.168.100.50:8080

