



# ...než povoláte ZÁLOHY

#ransomware2024



**Boris Mittelman**

Senior Systems Engineer  
Veeam Software CEE

# UNDERSTANDING CYBERATTACKS

# Understanding cyberattacks

Information is gathered on the victim's people, processes and technology in play

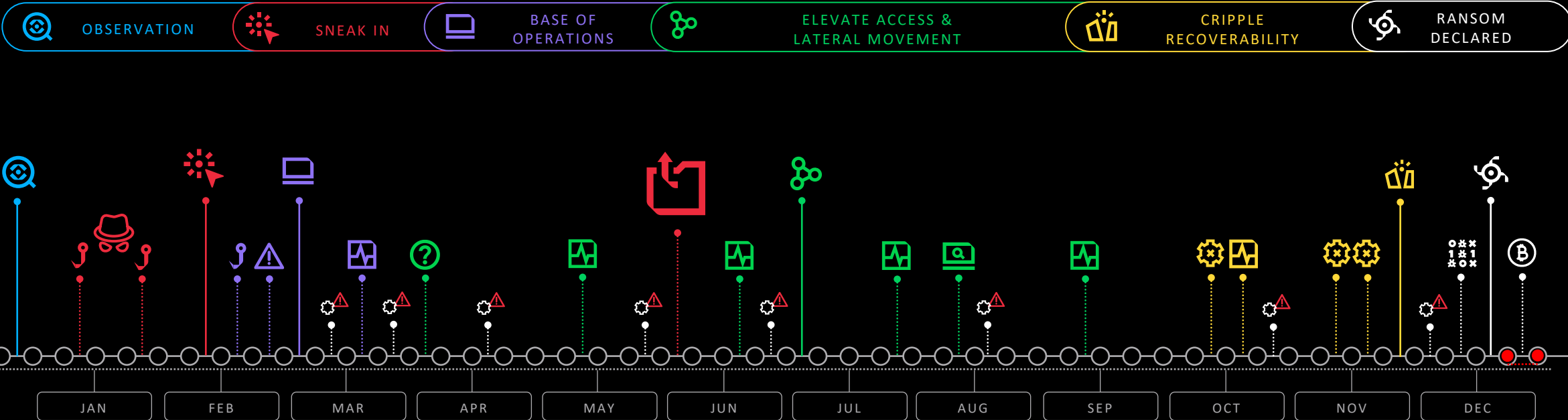
Gain access to the victim by sending phishing emails and let them click a link

Creating a base of operations and let's make it redundant and highly available

Snooping around without being detected and compromise higher value targets

Alter routines, documentation and security systems to reduce / deny restore capabilities

Encrypt victim's data, wipe archives/backup/data, issue ransom demands!



BACKUP

MALWARE/TOOLS



# VŽDY predpokladajte úspešný prienik útočníka

Nová správa zistila, že zločinci používajú umelú inteligenciu na škodlivé účely – a nejde len o deepfakes | (europa.eu)



## Počiatočné predpoklady návrhu kybernetickej bezpečnosti:

- Nemáte lepšie vybavenie ako útočník
- Nemáte viac vedomostí ako útočník
- Neviete viac o útočníkovi ako on o vás
- Nemáte ani zďaleka toľko času ako útočník
- Musíte minimalizovať dopad útoku



## Platby ransomvéru dosiahli v roku 2023 rekordných 1,1 MLD USD

# VŽDY předpokládejte úspěšný průnik útočníka

[Nová zpráva zjistila, že zločinci využívají umělou inteligenci ke škodlivým účelům – a nejde jen o deep fakes | \(europa.eu\)](#)

HN.cz > Archiv

 Sdílet

## Hledáme krtka, platíme štědře. Hackeři na darknetu poptávají firemní insidery na špinavou práci



Kristýna Matějková redaktorka

14. 3. 2024 00:00 ▪ 4 min. čtení

 PŘEHRÁT ČLÁNEK

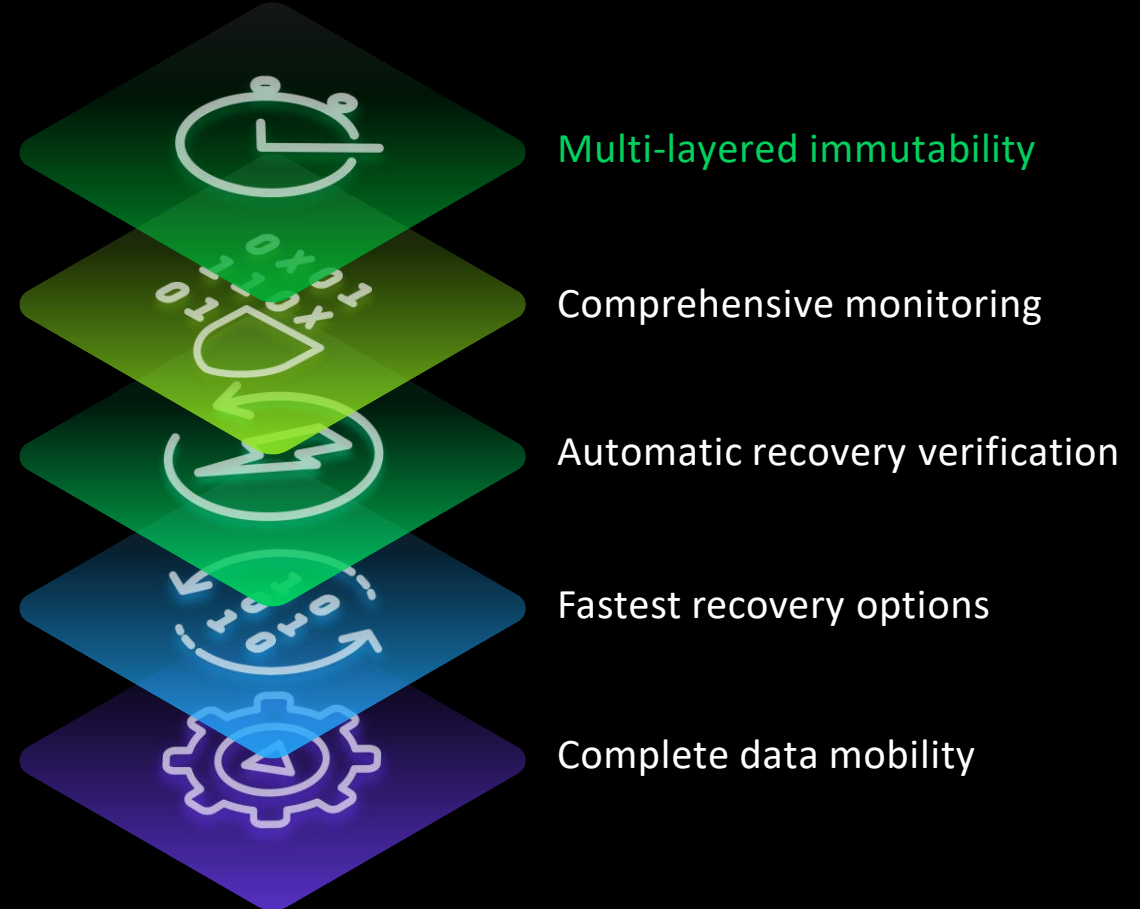
 ODEBÍRAT AUTORKU

## Platby ransomwaru dosáhly v roce 2023 rekord 1,1 Mld. USD

# ReSTORE vs. ReCOVER – KnowBe4!!!

Immutable  
Hardened  
Air-gapped

...už dnes NESTAČÍ!



# Multi-layered immutability

Veeam Ready Object  
with Immutability



Veeam Cloud Connect  
with Insider Protection



WORM (Write Once Read Many)  
– Or Tape media  
Physical air gap



Veeam Hardened Repository  
with Immutability and single  
use credentials



WORM storage snapshots



Offline, Air-Gapped Media copies on disk  
(Removable/rotating)

Immutable device on either  
dedupe or object repository



Snapshot and CDP replication  
dependent on retention but fastest RTO

# Backup Target Storage Vendor Immutability Integrations

Ensure that your data is protected from Ransomware

## Integrated and Veeam Ready vendor qualified object storages with compliance immutability



## Integrated and Veeam Ready block and deduplication storage vendors with immutability

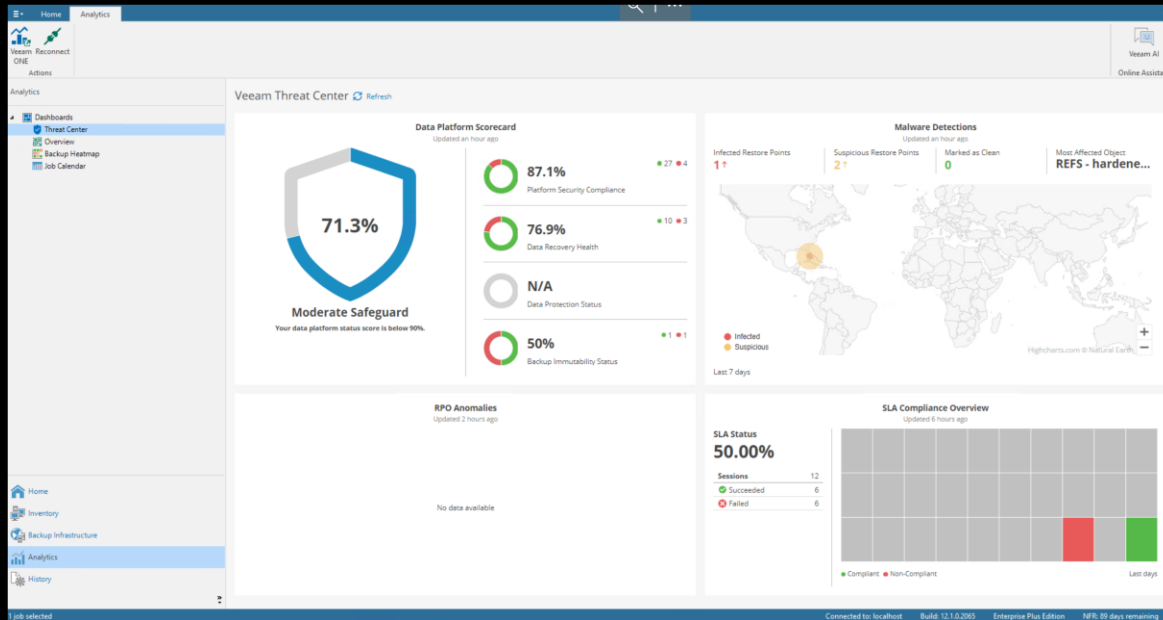


## External controlled immutability (compatible)





# ReSTORE vs. ReCOVER – KnowBe4!!!



Multi-layered immutability

Comprehensive monitoring

Automatic recovery verification

Fastest recovery options

Complete data mobility



# Detect + identify cyberthreats

Minimize the devastation  
of a cyberattack

## Data Security

Keep your data safe with multi-layered security that gives you confidence your data is always protected.

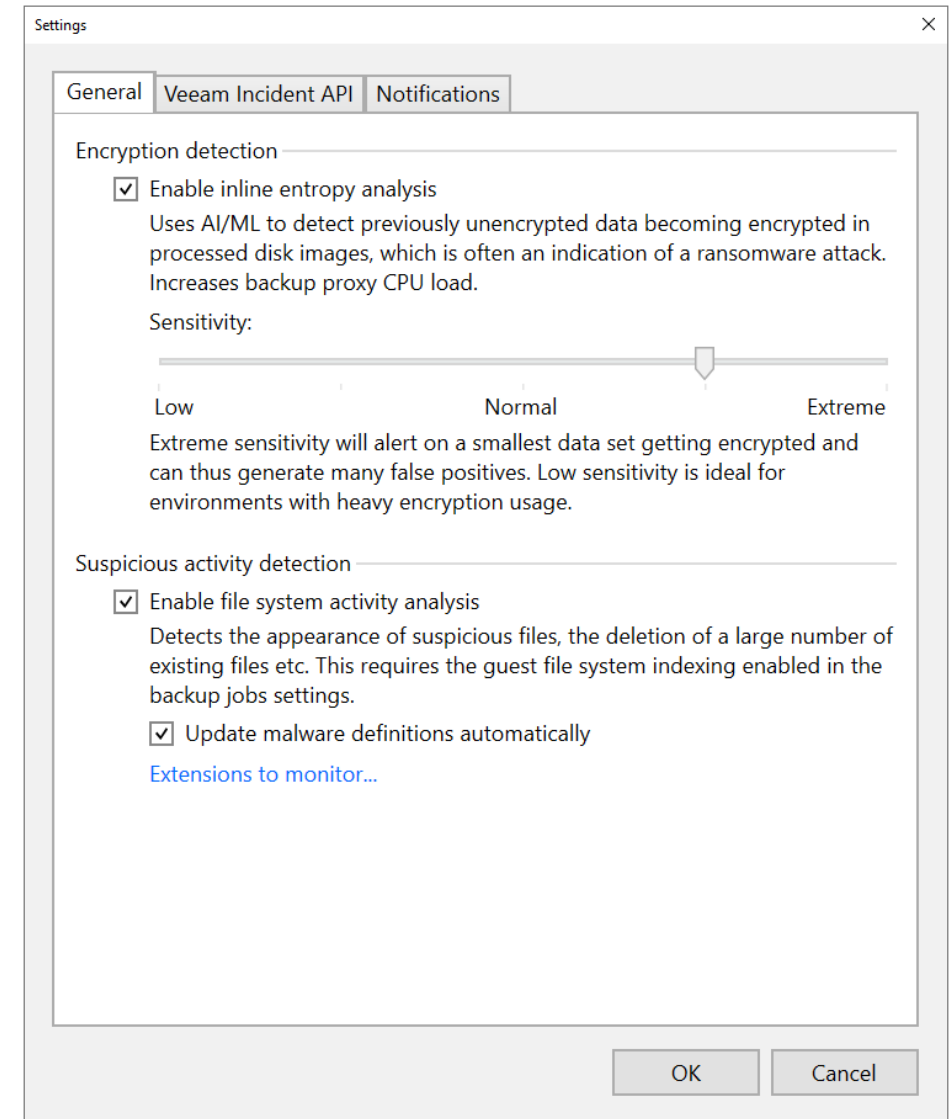
- Malware Detection
- Synchronous communication with ServiceNOW
- Veeam App for Splunk
- Veeam Incident API

# Malware Detection

## AI-powered inline scanning and file system analysis

Bring detection closer to the time of infection

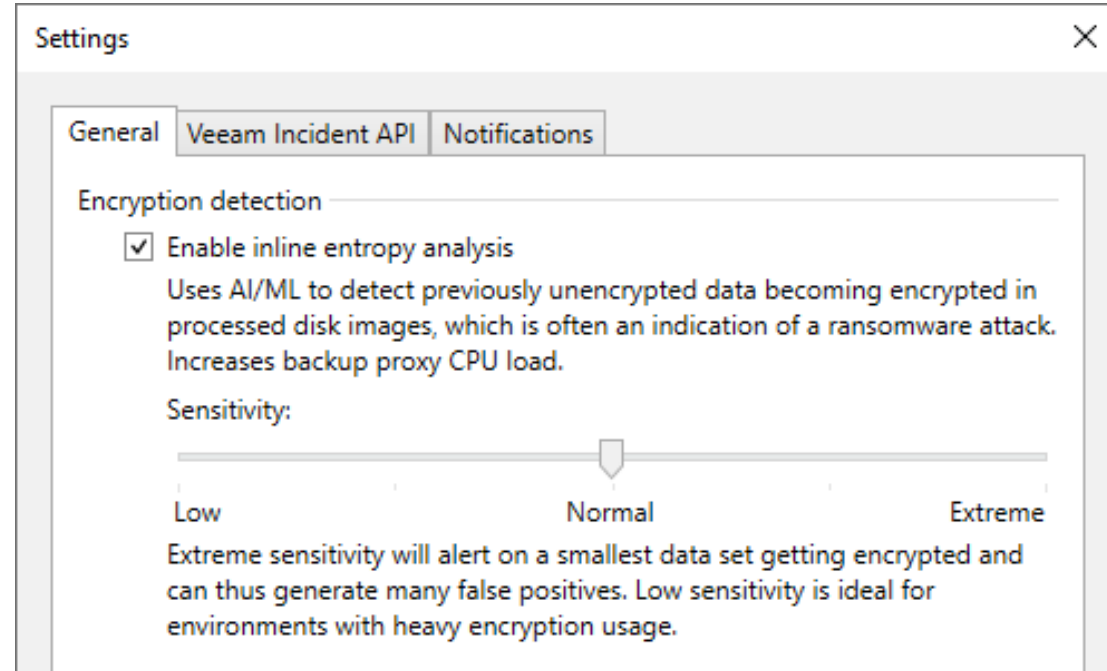
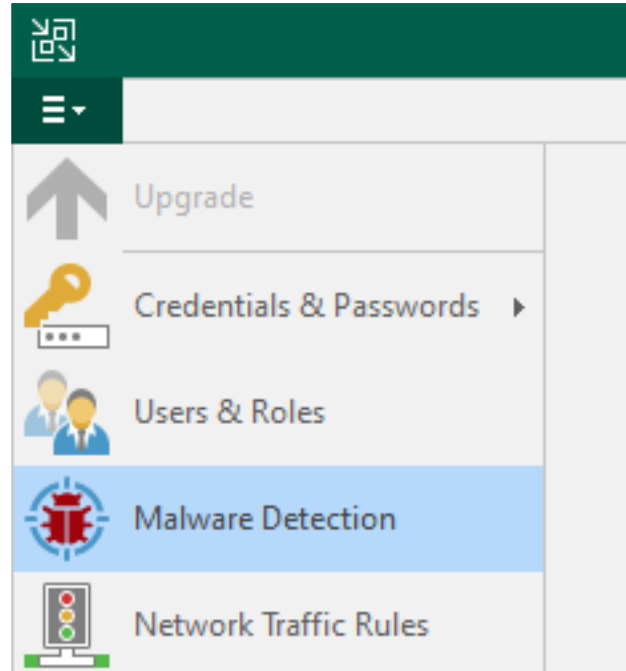
- Measure and analyze entropy changes
- Detect known indicators of compromise (IoC)
- Mark backups as *clean*, *suspect*, or *infected*



# Inline Malware Detection

## encryption detection & text analysis

- analyzes block-level data during backup

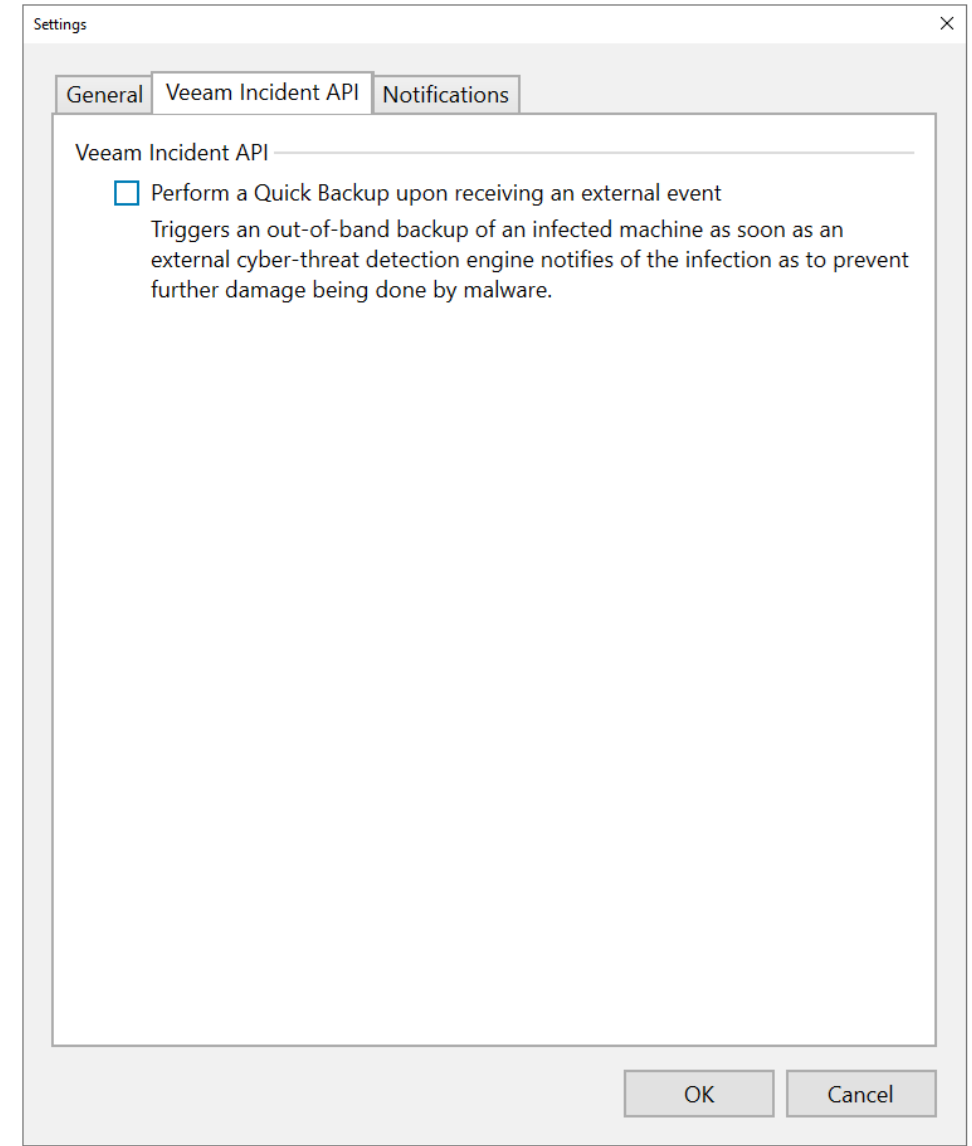


# Veeam Incident API

## Get a second opinion

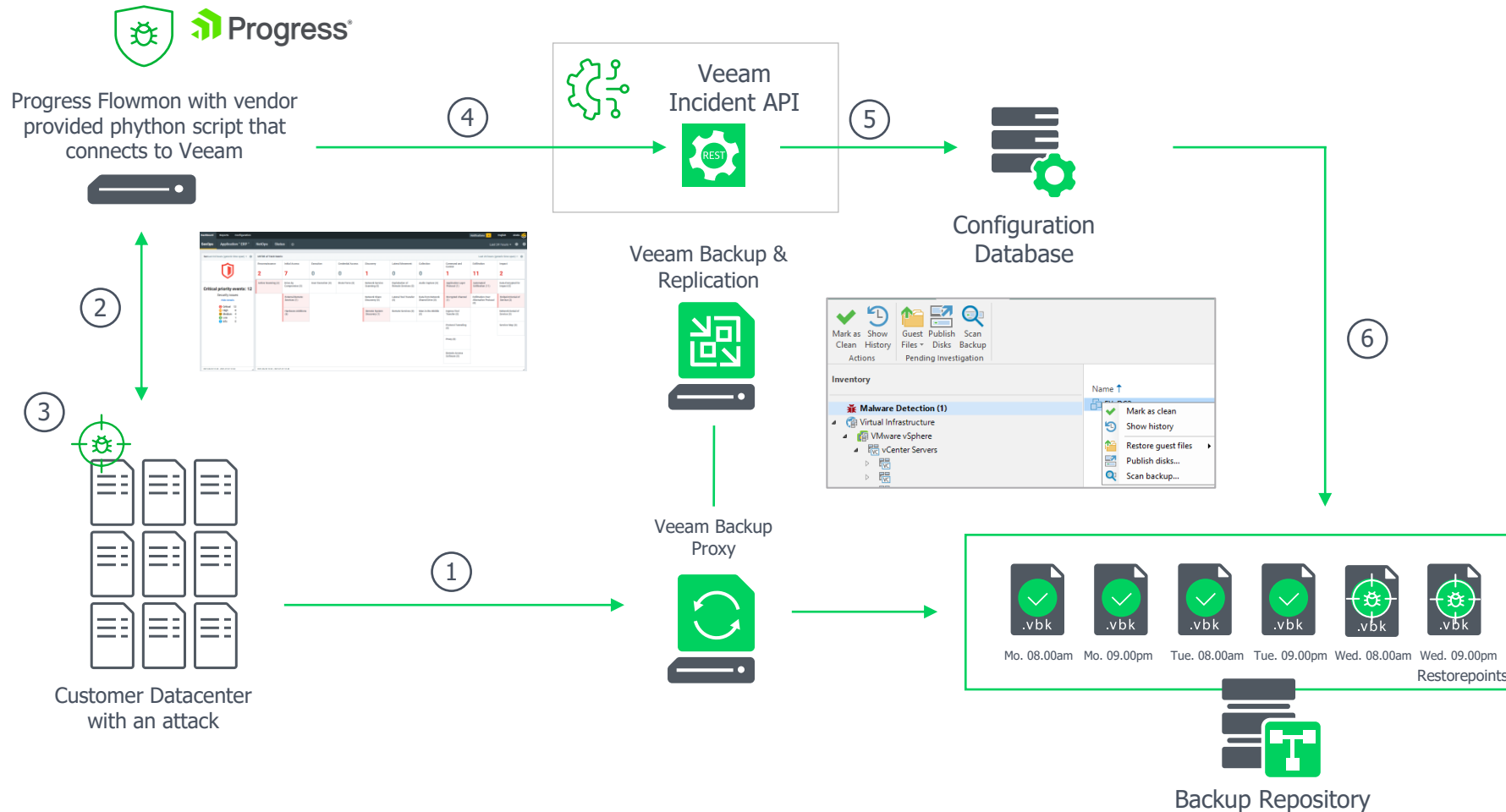
Receive real-time infection reports from third party tools

- Integrate with existing NDR/EDR/XDR tools
- Remove barriers between security and backup teams
- Minimize damage by immediately performing backups upon notification



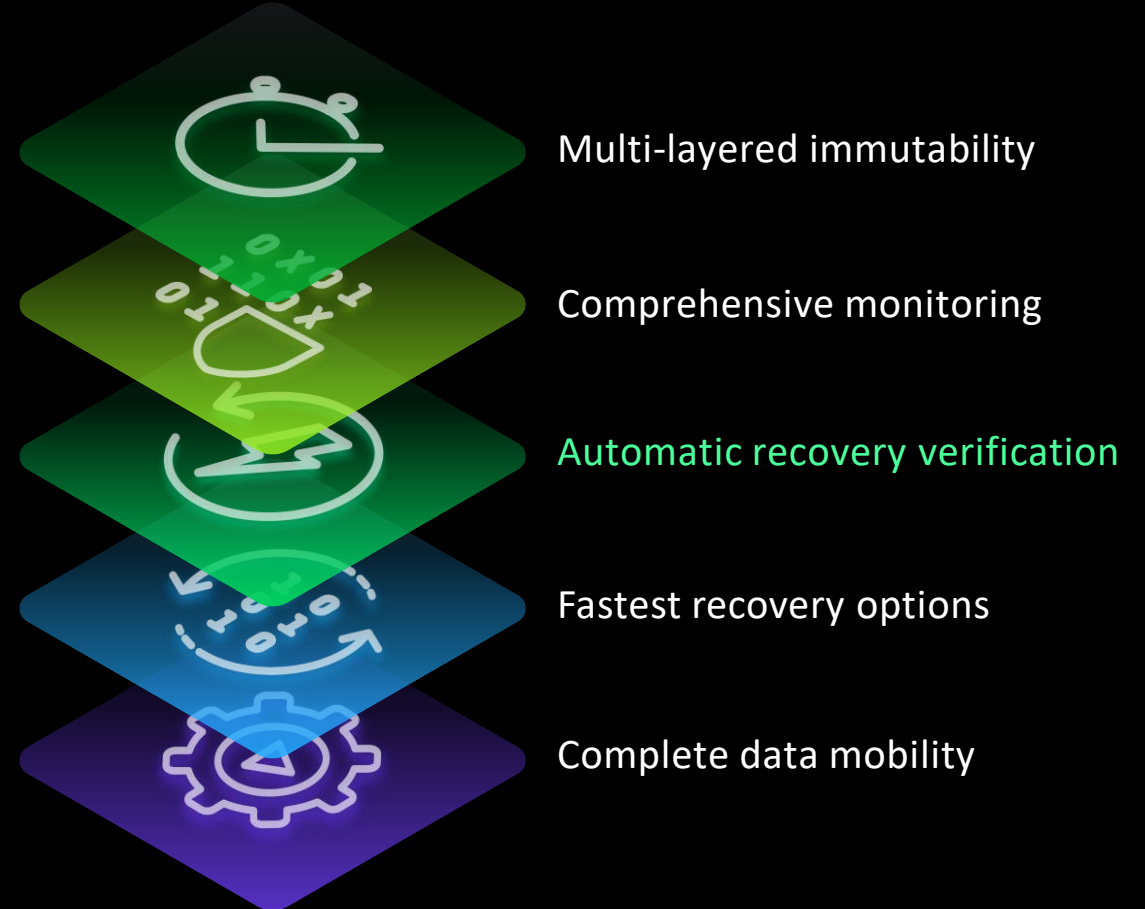


# Veeam Incident API with Progress Flowmon



- 1 Veeam Backup & Replication runs regular backups of the source systems
- 2 External CyberProtection solutions are monitoring the environment
- 3 The external CyberProtection detects suspicious activities or a Ransomware attack
- 4 The external CyberProtection calls the Veeam Incident API and sends details of the incident
- 5 Veeam Backup & Replication flags any restore point created after the detection as potentially infected in the configuration database
- 6 This is also reflected in the GUI where those restore points now show up as clean or infected

# ReSTORE vs. ReCOVER – KnowBe4!!!





# Respond + recover from ransomware

Empower your team to  
slash incident  
response time

## Data Recovery

*Breadth and scalability enables you to reliably perform  
Instant Recovery*

- Avoid reinfection
- YARA content analysis
- Recover clean the first time
- I/O Anomaly Visualizer

# Avoid reinfection

Uncover threats before you restore

## Automated offline malware detection

- Automated scheduled scans that support the *new* SureBackup® mode
- Orchestrated ad-hoc scans to assist with investigations
- Powered by **both** antivirus engines and/or YARA rules

The image displays two screenshots of the Veeam SureBackup configuration wizard, showing the 'New SureBackup Job' dialog box.

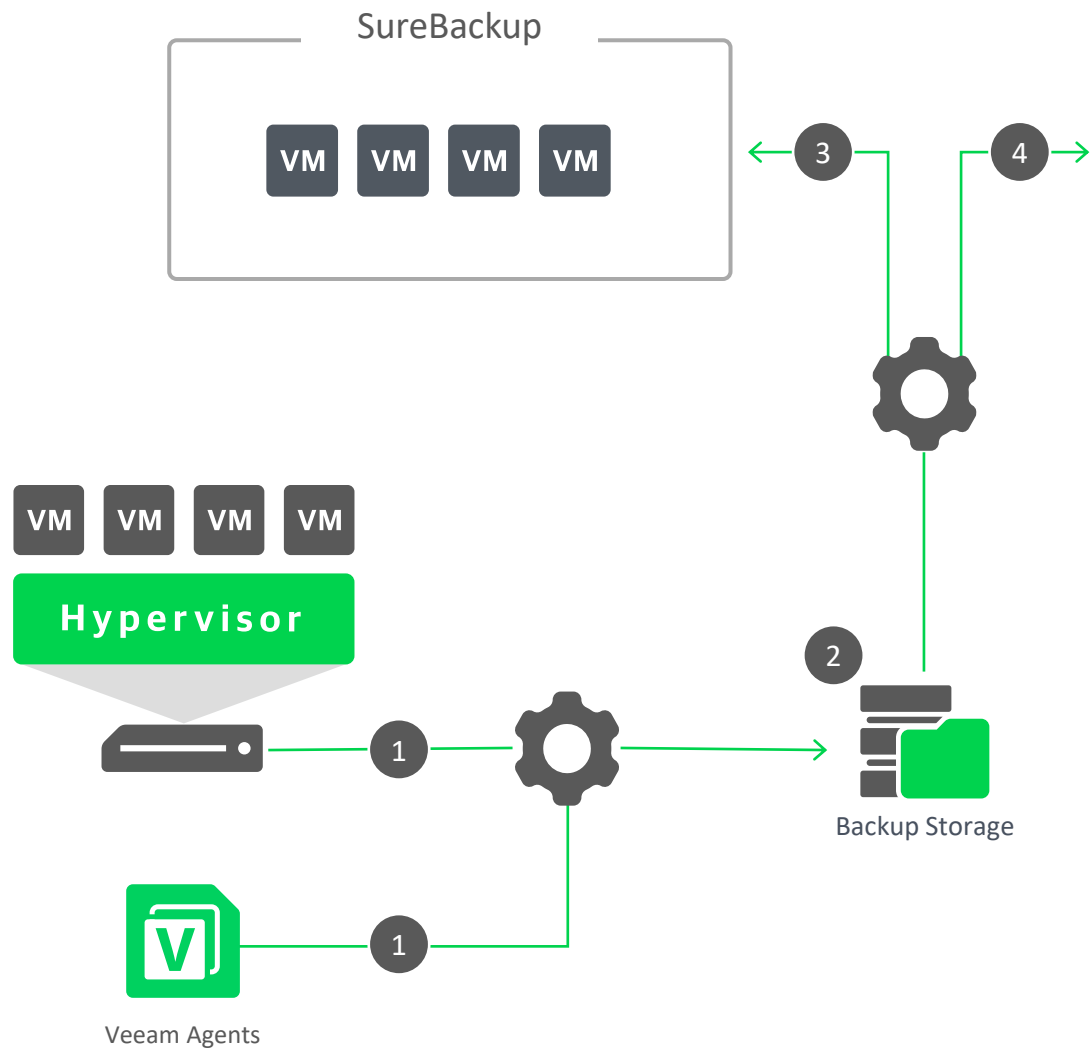
**Top Screenshot: Settings Tab**

- Title:** New SureBackup Job
- Section:** Settings (Choose recovery verification job settings.)
- Left Panel:** Name, Linked Jobs, Settings (selected), Schedule, Summary.
- Content analysis:**
  - ☒ Scan backup content with an antivirus software
  - ☒ Scan backup content with the following YARA rule:
    - YARA rules location: C:\Program Files\Veeam\Backup and Replication\Backup\YaraRules\
    - Selected rule: MALW\_Mirai.yar
- Scan options:**
  - ☐ Continue scanning remaining files after the first occurrence
- Backup integrity:**
  - ☐ Perform backup integrity check (read and verify each block against a checksum)

**Bottom Screenshot: Name Tab**

- Title:** New SureBackup Job
- Section:** Name (Type in a name and description for this SureBackup job.)
- Left Panel:** Name (selected), Linked Jobs, Settings, Schedule, Summary.
- Name:** Scan for threats
- Description:** Automated threat scanning
- Backup verification mode:**
  - ☐ Full recoverability testing (recommended)  
Runs machines in an isolated environment directly from backup and performs tests against live applications. This ensures recoverability of your production workloads in a DR event.
  - ☒ Backup verification and content scan only  
Performs backup integrity check and its content analysis to detect traces of malware or any other unwanted or sensitive data. These tests do not require setting up a virtual lab.

Navigation buttons at the bottom: < Previous, Next > (highlighted), Finish, Cancel.



### 1 Inline Malware Scanning

AI / ML Analysis, using Entropy Scanning and in-guest filesystem index.  
Cross-correlation between current & historic values.  
Marks backup “suspicious” if positive.

### 2 On-Demand Scanning

Malware scanning using Antivirus software and/or YARA rules to find the last clean restore point.  
Scan all backup points and marks “suspicious” if positive.

### 3 SureBackup® Scanning

Malware scanning using Antivirus software and/or YARA rules as a part of scheduled SureBackup job. With or without DataLabs.  
Marks backup “suspicious” if positive.

### 4 Secure Restore Scanning

Malware scanning using Antivirus software and/or YARA rules on any Image based restore task. Marks backup “suspicious” if positive.



# YARA content analysis

Know what potential risks may be hiding in your backups

## Pinpoint ransomware strains in your environment

- Comprehensive and customizable signature-based detection
- Uncover threats almost in real time with Continuous Data Protection (CDP) replicas
- Detect compliance violations

Scan Backup

Performs an ad-hoc scan of your backups with an antivirus or the YARA engine to find the latest malware-free restore point or to detect the presence of specific entries, such as personal information.

Scan mode:

- ☒ Find the last clean restore point  
Restore points will be scanned sequentially starting from the most recent one until the first malware-free one is found. Use this option when a cyber-attack is known to have started recently.
- ☐ Find the last clean restore point in range  
Restore points will be scanned in an optimal order to identify the last clean backup in range with least number of scans possible. Use this option if you are not sure when the attack started, or when dealing with a known sleeping malware.
- ☐ Scan all restore points in range for content analysis  
All restore points in range will be scanned sequentially. Use this option for backup content analysis with an applicable YARA rule, for example to look for personally identifiable information (PII), personal health information (PHI) or payment card industry (PCI) data.

Scan engine:

- ☐ Scan restore points with an antivirus
- ☒ Scan restore points with the following YARA rule:  
APT\_HackingTeam.yar

YARA rules location: C:\Program Files\Veeam\Backup and Replication\Backup\YaraRules\

Scan range:

From:

- ☒ Most recent restore point
- ☐ Start date:

To:

- ☒ Oldest available restore point
- ☐ End date:

☐ Continue scanning all remaining files after the first occurrence

[Hide scan range](#) OK Cancel

# On-Demand Scan For Malware & Content *in Backups section*

The screenshot illustrates the process of performing an on-demand scan for malware and content in the Veeam Backup & Replication interface. On the left, the 'Home' pane shows the 'Backups' section expanded, with 'Disk' selected. The main pane displays a list of backup jobs, with 'HK-DC01' selected. A right-click context menu is open, and the 'Scan backup...' option is highlighted with a red rectangle. To the right, the 'Scan Backup' dialog box is shown, detailing the scan configuration.

**Scan Backup**

Performs an ad-hoc scan of your backups with an antivirus or the YARA engine to find the latest malware-free restore point or to detect the presence of specific entries, such as personal information.

**Scan mode:**

- ☒ Find the last clean restore point  
Restore points will be scanned sequentially starting from the most recent one until the first malware-free one is found. Use this option when a cyber-attack is known to have started recently.
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**Scan engine:**

- ☐ Scan restore points with an antivirus
- ☒ Scan restore points with the following YARA rule:  
eicar.yar

YARA rules location: C:\Program Files\Veeam\Backup and Replication\Backup\YaraRules\

**Scan range:**

From: ☒ Most recent restore point To: ☒ Oldest available restore point

☐ Start date:  ☐ End date:

☐ Continue scanning all remaining files after the first occurrence

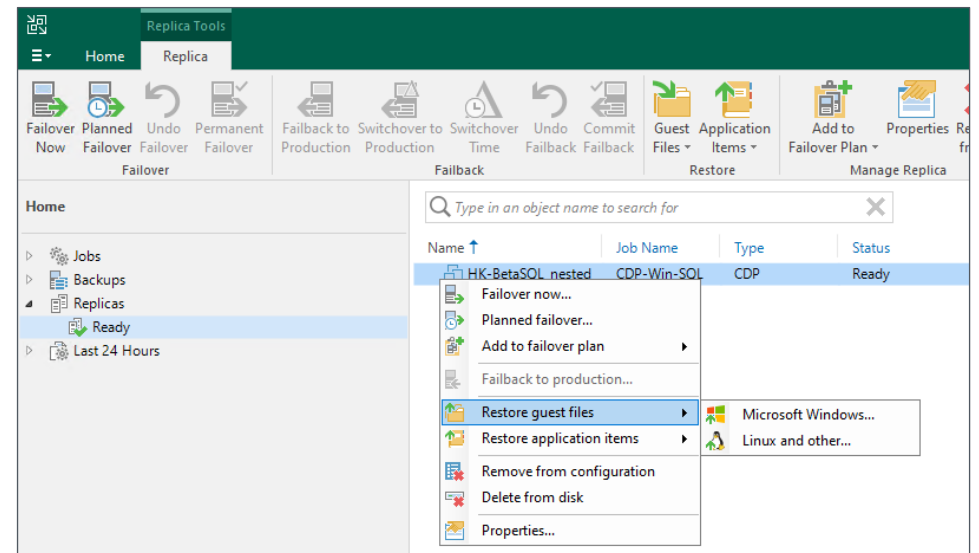
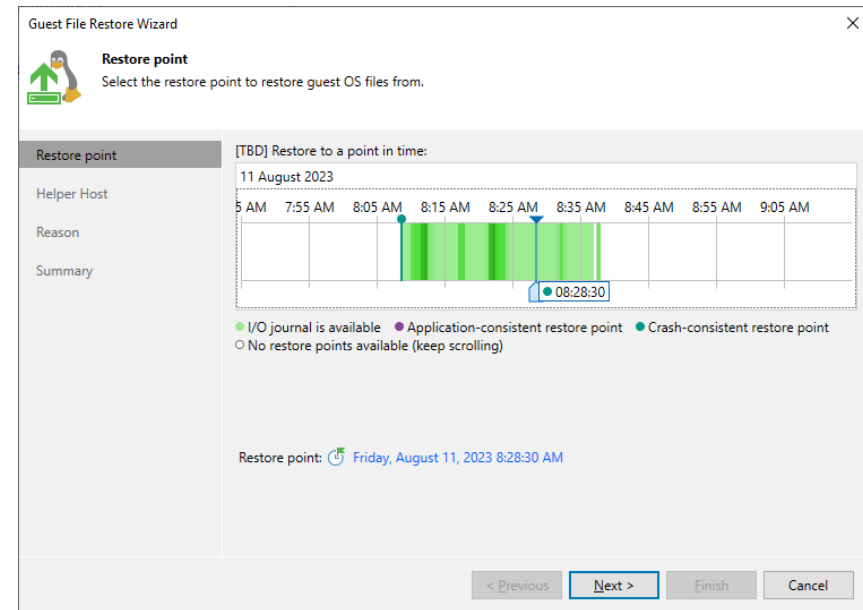
[Hide scan range](#) OK Cancel

# I/O Anomaly Visualizer

## For when seconds matter

### Recover from the moment you choose

- Pinpoint variances and recover with exceptional precision
- CDP file-level restores enable the lowest possible data loss
- Standardized application item recovery powered by Veeam Explorers™



# Recover clean the first time

## Orchestrated recovery with malware-free restore points

## Proven confidence when disaster strikes

- Expedite recovery by circumventing known-infected restore points
- Flexible recovery on-premises or in the cloud, with post-recovery customizations
- Automated testing proves compliance before you need it

**Run Plan**

**Credentials**

**Readiness Check**

**Recovery Location**

**Restore Point**

**Malware Detection**

**Summary**

**Check for malware**  
Scan restore points for possible malware. The first clean restore point found will be used.

☒ Check malware flags on a maximum of 10 restore points

If no clean restore point found: Complete restore and connect VM to quarantine

Additional malware checks: ☒ On

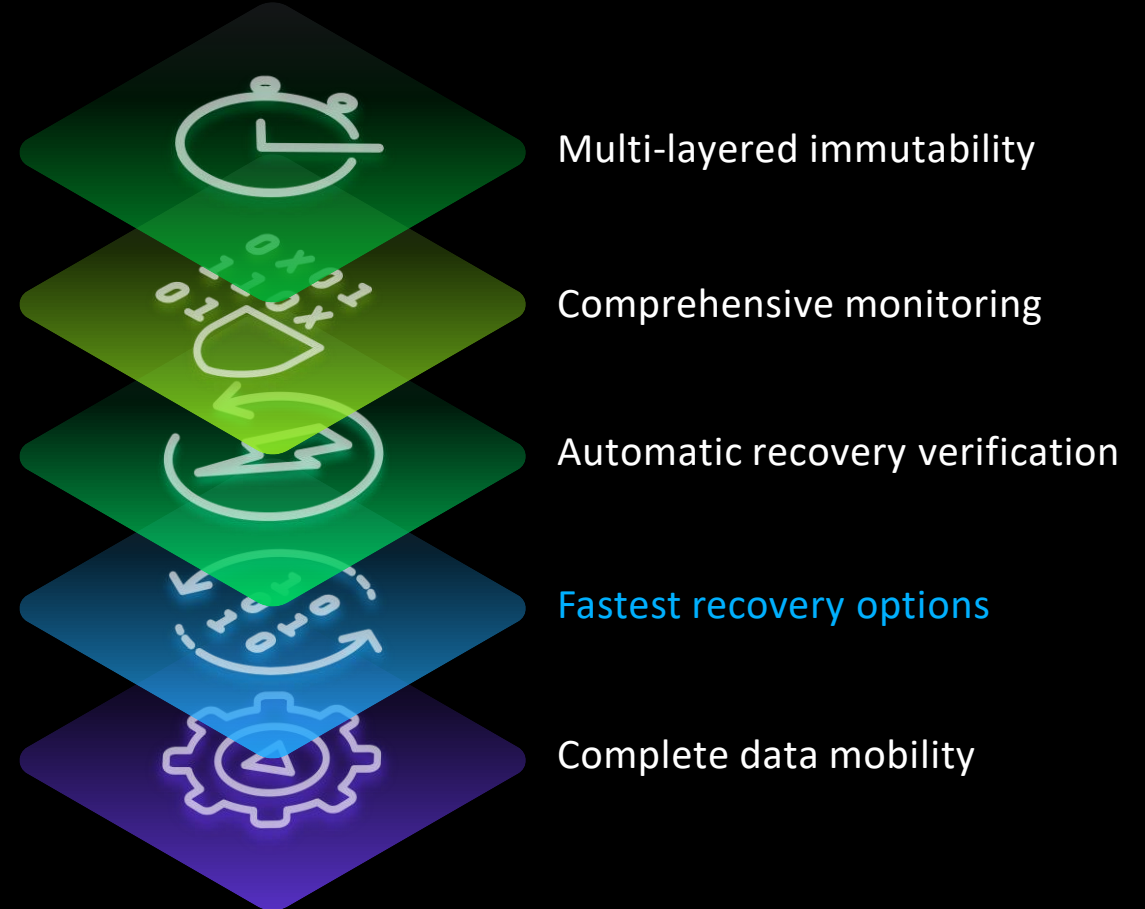
Mount each restore point and perform:

☒ Virus scan

☒ YARA scan using rule file: clop.yara

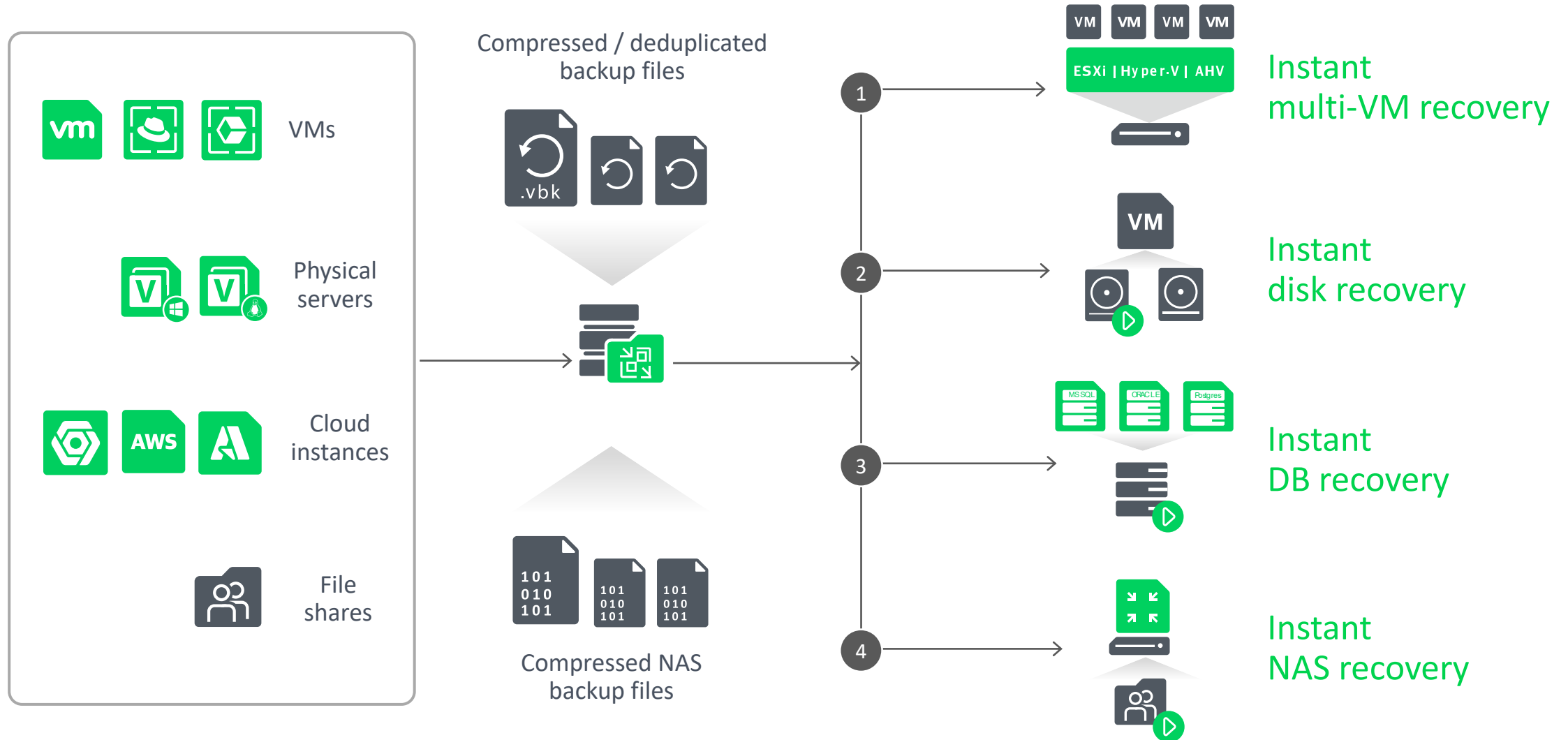
Back Next Cancel

# ReSTORE vs. ReCOVER – KnowBe4!!!





# Instant recovery at scale



# Veeam Explorers

Veeam Explorers Suite rozširuje funkčnosť Veeam Backup for Microsoft 365 a Veeam Backup & Replication, čo vám umožňuje obnoviť alebo exportovať údaje na úrovni aplikácie z image-based zálohovaných alebo replikových súborov.



Veeam Explorer for Microsoft Active Directory



Veeam Explorer for Microsoft SQL Server



Veeam Explorer for Oracle



Veeam Explorer for PostgreSQL



Veeam Explorer for SAP HANA (NEW in v12.1)



Veeam Explorer for Storage Snapshots



Veeam Explorer for Microsoft Exchange



Veeam Explorer for Microsoft Sharepoint

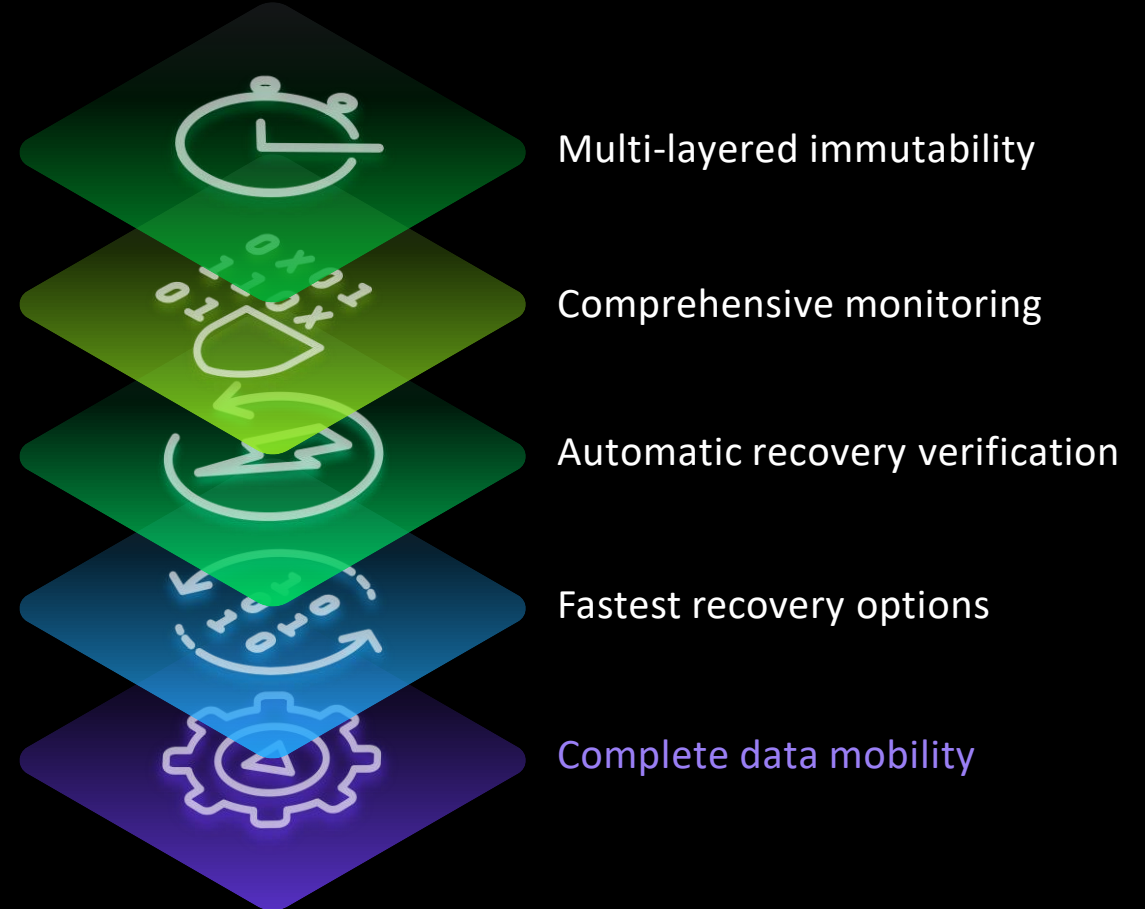


Veeam Explorer for OneDrive for Business



Veeam Explorer for Microsoft Teams

# ReSTORE vs. ReCOVER – KnowBe4!!!



# Veeam Backup File Format



Veeam Backup & Replication



Veeam Backup & Replication  
Community Edition



Veeam Agent for Microsoft Windows



Veeam Agent for Linux



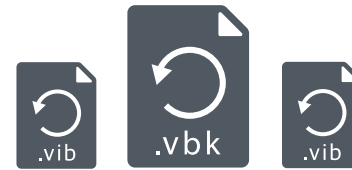
Veeam Backup for AHV



Veeam Backup for RHEV










Veeam Backup for Cloud



Any on-premises VMware vSphere,  
Microsoft Hyper-V, Nutanix AHV VMs,  
physical servers and workstations...

# Veeam mobility matrix

To From	vSphere	Hyper-V	Nutanix AHV	Azure VM	AWS EC2	Google Cloud VM
 vSphere	✓	✓	✓	✓	✓	✓
 Hyper-V	✓	✓	✓	✓	✓	✓
 Nutanix AHV	✓	✓	✓	✓	✓	✓
 Red Hat / Oracle KVM	✓	✓	✓	✓	✓	✓
 Windows Agent	✓	✓	✓	✓	✓	✓
 Linux Agent	✓	✓	✓	✓	✓	✓
 Azure VM	✓	✓	✓	✓	✓	✓
 AWS EC2	✓	✓	✓	✓	✓	✓
 GCP VM	✓	✓	✓	✓	✓	✓
 Other Clouds (agent based)	✓	✓	✓	✓	✓	✓

✓ Supported

✓ Supported via Backup Copy

04032024

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veeam





## Secure + compliant protection

Complete your  
security and  
compliance standing

## Data Freedom

Support for hybrid- and multi-cloud infrastructures that help protect all your data with zero lock-in. Your data should be protected wherever you need it — in the cloud, on-premises, or at the edge.

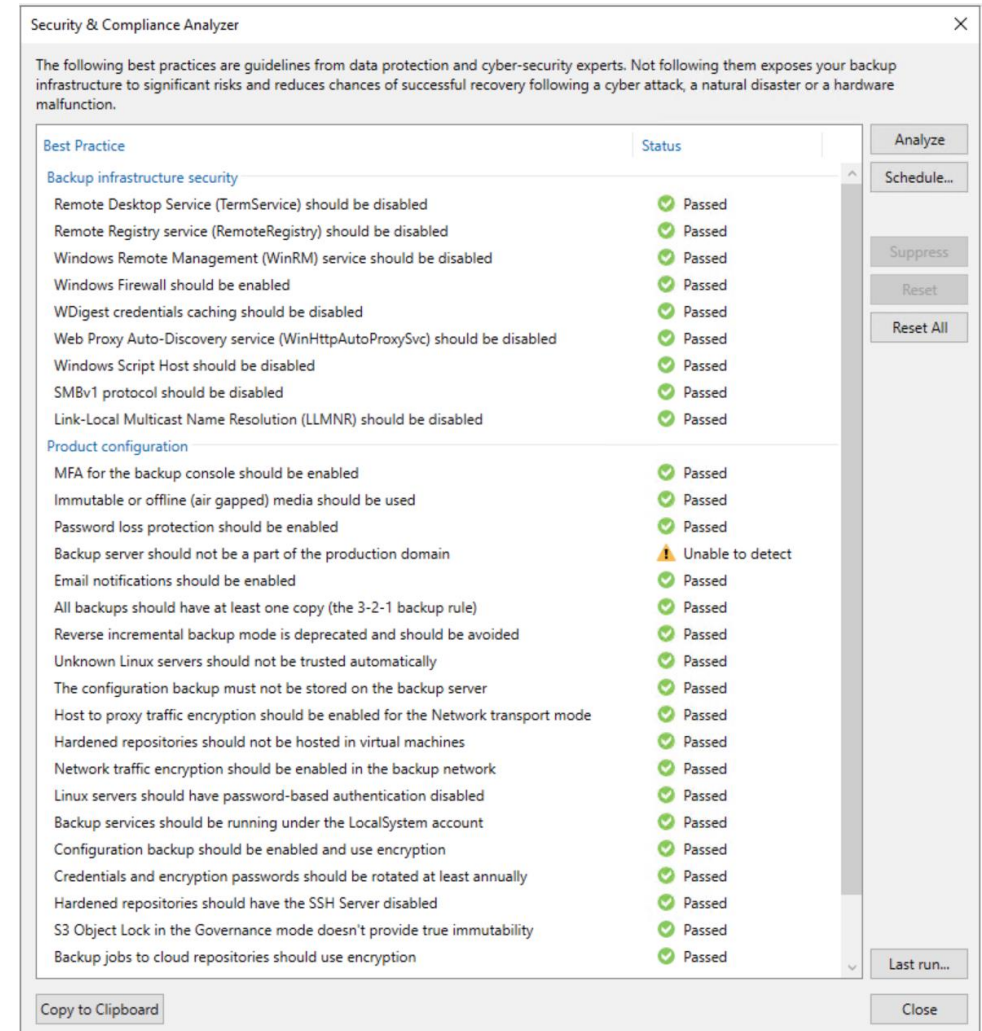
- Security and compliance analyzer
- “Four-eyes” principle protection
- Veeam Threat Center
- Veeam ONE Audit Reports

# Security and compliance analyzer

Align to cybersecurity best practices

## Verify security and compliance

- Uncover and identify risks to your backup infrastructure
- Perform ad hoc scans or execute based on a flexible schedule
- Comprehensive and powerful best practices for backup administrators



DISCUSSION ONGOING

# Restrict "worst practice" configurations

Related products: Veeam Backup and Replication

1 year ago



Liked! · Upvote 2



Bo. · 2 comments

Besides all smart warnings we p believe we should completly res up warning if they understand th

- running VBR server on don
- running VBR server under i
- use same credentials / sing
- configure repository on stc
- configure repository withir
- ....just for example

Cybersecurity

Ransom



## Best Practices Analyzer

Best practices are guidelines that are considered the ic not necessarily problematic, they indicate server config problems.

### Finding

#### General security settings

- Remote Desktop Service (TermService) is disabled
- Remote Registry service (RemoteRegistry) is disable
- Windows Firewall is turned on

#### Product configuration

- MFA is enabled for backup console
- Immutable or offline media presence
- Password loss protection is enabled

Copy to Clipboard

## Security & Compliance Analyzer

The following best practices are guidelines from data protection and cyber-security experts. Not following them exposes your backup infrastructure to significant risks and reduces chances of successful recovery following a cyber attack, a natural disaster or a hardware malfunction.

Best Practice	Status
Backup infrastructure security	
Remote Desktop Service (TermService) should be disabled	Not implemented
Remote Registry service (RemoteRegistry) should be disabled	Not implemented
Windows Remote Management (WinRM) service should be disabled	Not implemented
Windows Firewall should be enabled	Passed
WDigest credentials caching should be disabled	Passed
Web Proxy Auto-Discovery service (WinHttpAutoProxySvc) should be disabled	Not implemented
Deprecated versions of SSL and TLS should be disabled	Not implemented
Windows Script Host should be disabled	Not implemented
SMBv1 protocol should be disabled	Not implemented
Link-Local Multicast Name Resolution (LLMNR) should be disabled	Not implemented
SMBv3 signing and encryption should be enabled	Not implemented
Product configuration	
MFA for the backup console should be enabled	Not implemented
Immutable or offline (air gapped) media should be used	Not implemented
Password loss protection should be enabled	Not implemented
Backup server should not be a part of the production domain	Passed
Email notifications should be enabled	Not implemented
All backups should have at least one copy (the 3-2-1 backup rule)	Not implemented
Reverse incremental backup mode is deprecated and should be avoided	Passed
Unknown Linux servers should not be trusted automatically	Not implemented
The configuration backup must not be stored on the backup server	Not implemented
Host to proxy traffic encryption should be enabled for the Network transport mode	Passed
Hardened repositories should not be hosted in virtual machines	Passed
Network traffic encryption should be enabled in the backup network	Passed
Linux servers should have password-based authentication disabled	Passed
Backup services should be running under the LocalSystem account	Passed
Configuration backup should be enabled and use encryption	Not implemented
Credentials and encryption passwords should be rotated at least annually	Passed
Hardened repositories should have the SSH Server disabled	Passed
S3 Object Lock in the Governance mode doesn't provide true immutability	Passed
Backup jobs to cloud repositories should use encryption	Passed

Analyze  
Schedule...

Suppress  
Reset  
Reset All

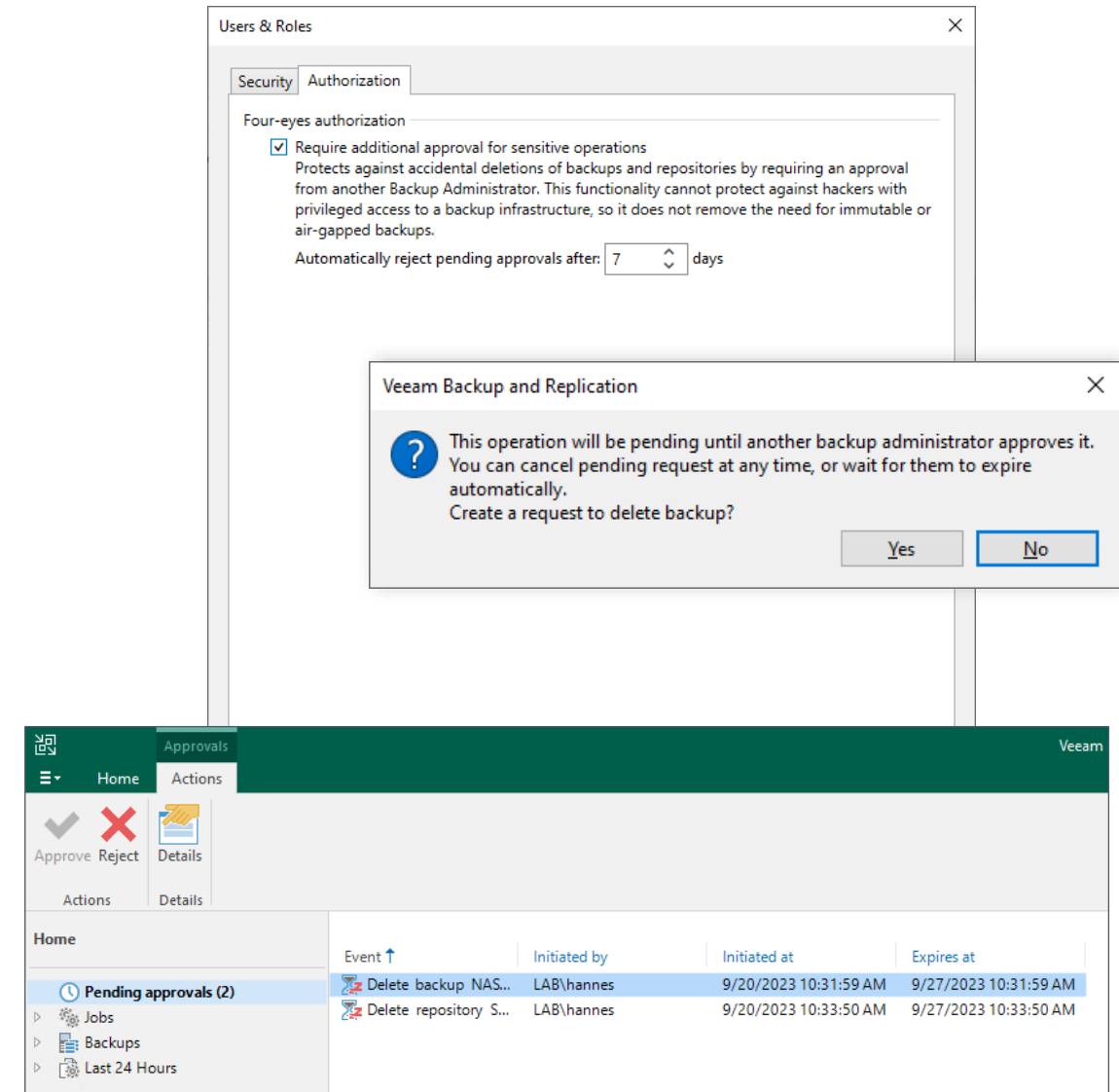
Last run...

# “Four-eyes” principle protection

## Prevent accidental or malicious deletion

### Remove single points of destruction

- Requires approval by a second backup administrator
- Restrict backup and repository deletions and access setting modifications
- Logged in Veeam history, Windows event log, and email

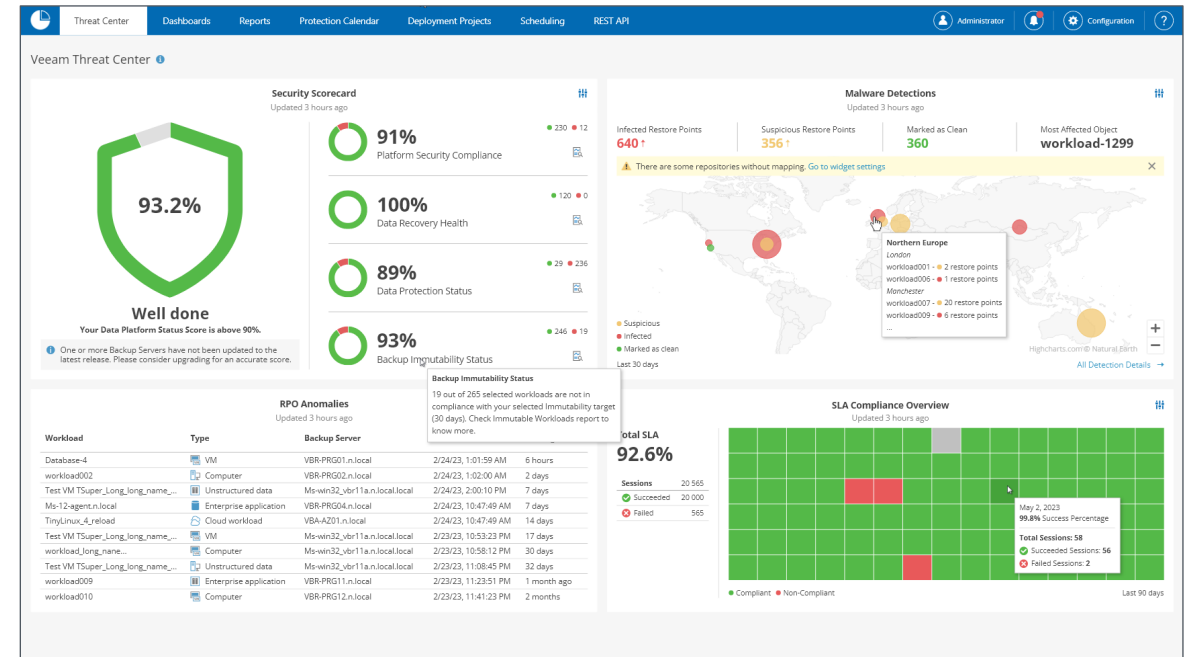


# Veeam Threat Center

## Put the spotlight on malware

### Comprehensive data protection visibility

- Complete platform security score
- Global Malware Detection Map
- Measure compliance and identify recovery point objective (RPO) anomalies







## Security Scorecard

Updated 3 hours ago



93.2%

Well done

Your Data Platform Status Score is above 90%.

One or more Backup Servers have not been updated to the latest release. Please consider upgrading for an accurate score.



91%

Platform Security Compliance

230 12



100%

Data Recovery Health

120 0



89%

Data Protection Status

29 236



93%

Backup Immutability Status

246 19



## Backup Immutability Status

19 out of 265 selected workloads are not in compliance with your selected Immutability target (30 days). Check Immutable Workloads report to know more.

## RPO Anomalies

Updated 3 hours ago

Workload	Type	Backup Server		
Database-4	VM	VBR-PRG01.n.local	2/24/23, 1:01:59 AM	6 hours
workload002	Computer	VBR-PRG02.n.local	2/24/23, 1:02:00 AM	2 days
Test VM TSuper_Long_long_name_...	Unstructured data	Ms-win32_vbr11a.n.local.local	2/24/23, 2:00:10 PM	7 days
Ms-12-agent.n.local	Enterprise application	VBR-PRG04.n.local	2/24/23, 10:47:49 AM	7 days
TinyLinux_4_reload	Cloud workload	VBA-AZ01.n.local	2/24/23, 10:47:49 AM	14 days
Test VM TSuper_Long_long_name_...	VM	Ms-win32_vbr11a.n.local.local	2/23/23, 10:53:23 PM	17 days
workload_long_nane...	Computer	Ms-win32_vbr11a.n.local.local	2/23/23, 10:58:12 PM	30 days
Test VM TSuper_Long_long_name_...	Unstructured data	Ms-win32_vbr11a.n.local.local	2/23/23, 11:08:45 PM	32 days
workload009	Enterprise application	VBR-PRG11.n.local	2/23/23, 11:23:51 PM	1 month ago
workload010	Computer	VBR-PRG12.n.local	2/23/23, 11:41:23 PM	2 months

## Malware Detections

Updated 3 hours ago



Infected Restore Points

640 ↑

Suspicious Restore Points

356 ↑

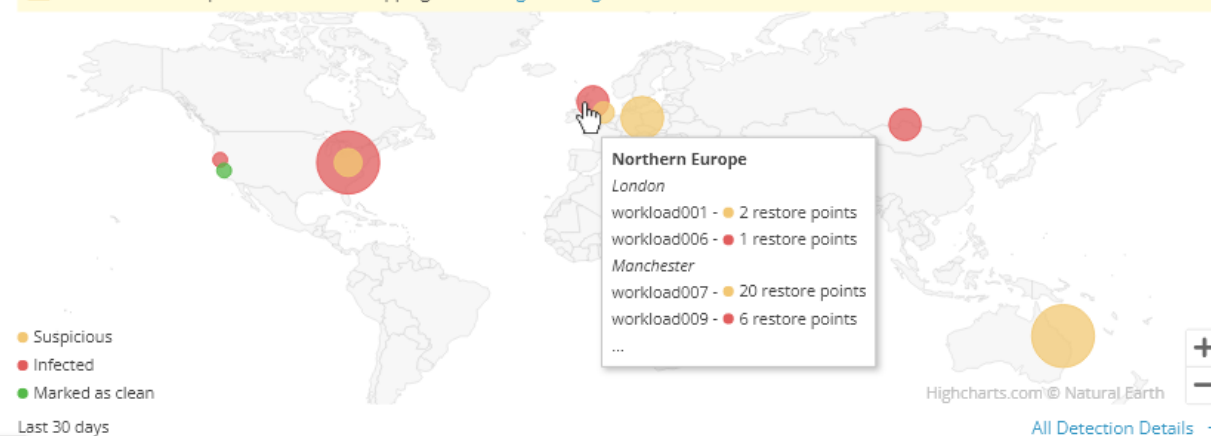
Marked as Clean

360

Most Affected Object

workload-1299

There are some repositories without mapping. [Go to widget settings](#)

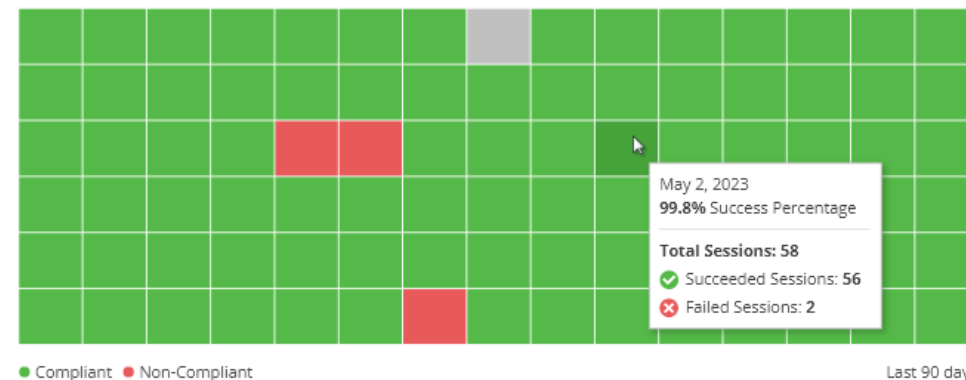
[All Detection Details](#)

## SLA Compliance Overview

Updated 3 hours ago

Total SLA  
92.6%

Sessions 20 565  
Succeeded 20 000  
Failed 565



Last 90 days

The Veeam logo is centered in the upper half of the image. It features the word "veeam" in a white, lowercase, sans-serif font. The text is contained within a white-outlined rectangular box with rounded corners. Behind this box, there are two large, semi-transparent, light green geometric shapes that resemble stylized mountain peaks or abstract letterforms, one on the left and one on the right.

veeam

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