Incident Response Report

Project Title: SIEM-Based Simulated Incident Detection & Response
Analyst: Gautam Singh Patwal
Date: 16 July 2025
Tools Used: Splunk Free Trial (v9.4.1), Windows Event Logs, Sysmon, PerfMon logs

1. Executive Summary

During this simulated exercise, Splunk was used to ingest diverse Windows logs (System, Security, Sysmon, Performance Metrics). A series of suspicious activities were identified, triaged, and classified. A comprehensive incident response process was followed, including root cause analysis and suggested remediation.

2. Log Intake & Search Strategy

- Indexes Monitored:
  - winEventLog:System – OS-level events (e.g. EventCode=1014)
  - winEventLog:Security – Authentication & privilege changes
  - sysmon – Process execution, network behavior
  - main – Performance counters (bytes sent/received)

- Key Searches Executed:
  - index=winEventLog:System host="DESKTOP-8HOT83H"
  - index=sysmon host="DESKTOP-8HOT83H"
  - index=main or index=*

3. Alert & Activity Findings

A. Repeated System-Level Warnings (Event Codes 19 & 1014)
- Observed: Multiple entries within a short span
- Analysis: Possible DNS issues or malicious script behavior

B. Privilege Escalation Events (Security EventCodes 464, 4672, 4624)
- Observed: Sysmon logged 4 alerts
- Analysis: Potential unauthorized elevated access

C. Abnormal Performance Metrics
- Observed: High network traffic
- Analysis: Possible exfiltration or Command & Control activity

4. Incident Classification

Incident	Tactic (MITRE)	Severity	Status
Abnormal system logs	Reconnaissance/Initial Access	Medium	Closed (benign)
Privilege escalation	Credential Access / Persistence	High	Open (needs review)
Data exfiltration attempt	Exfiltration / C2	High	Open (under response)

5. Remediation Recommendations

1. System Warnings & Errors
- Whitelist benign DNS/registry traffic.
- Resolve network latency.

2. Privilege Escalation
- Review service accounts and admin roles.
- Use MFA.
- Eliminate local admin use.

3. Exfiltration Prevention
- Isolate affected host.
- Apply egress filtering.
- Enable session logs.

6. Lessons Learned

- Sysmon logs help identify process and account abuse.
- Monitoring performance metrics highlights abnormal data transfers.
- Alert tuning reduces false positives.

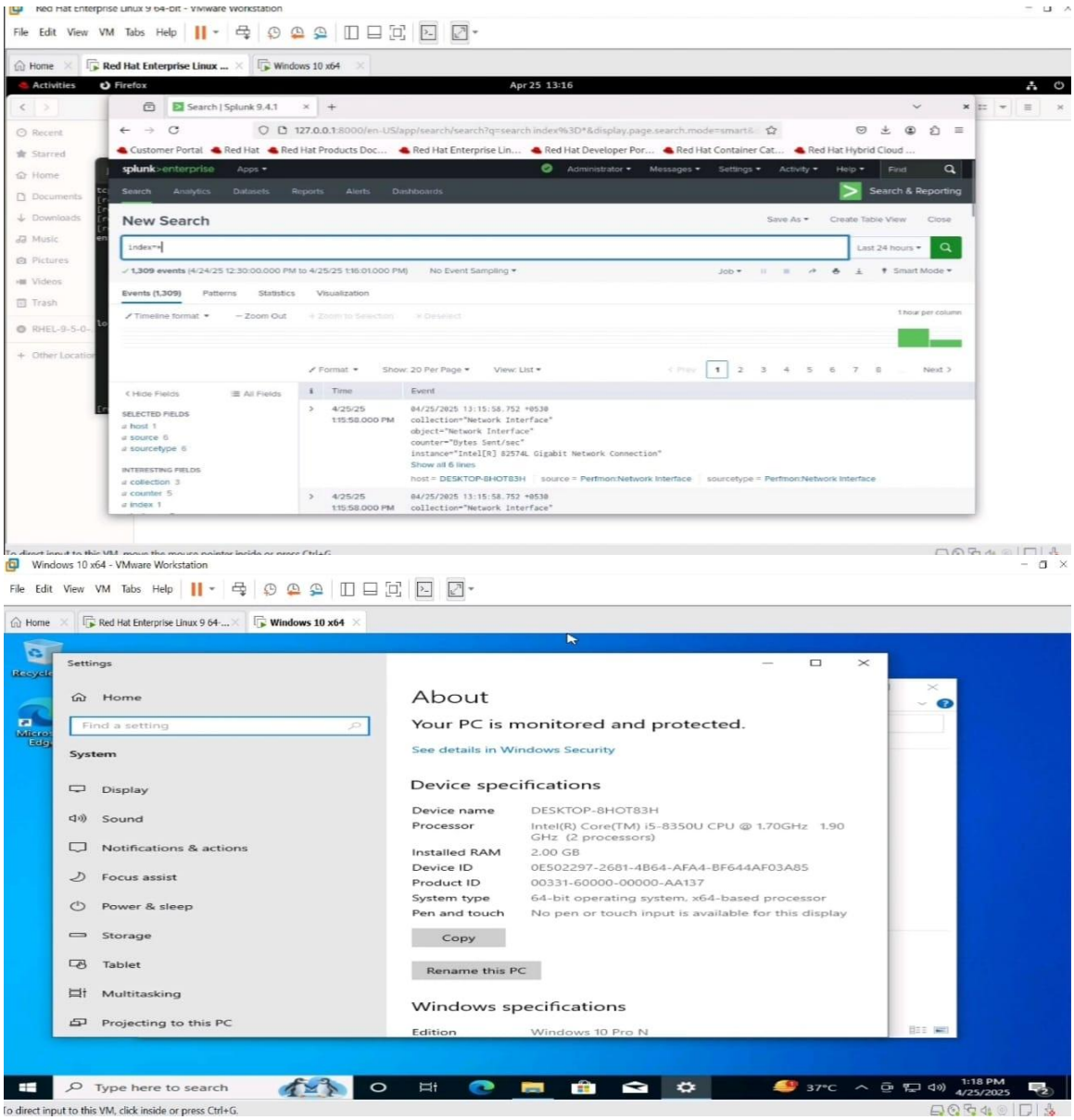
7. Conclusion

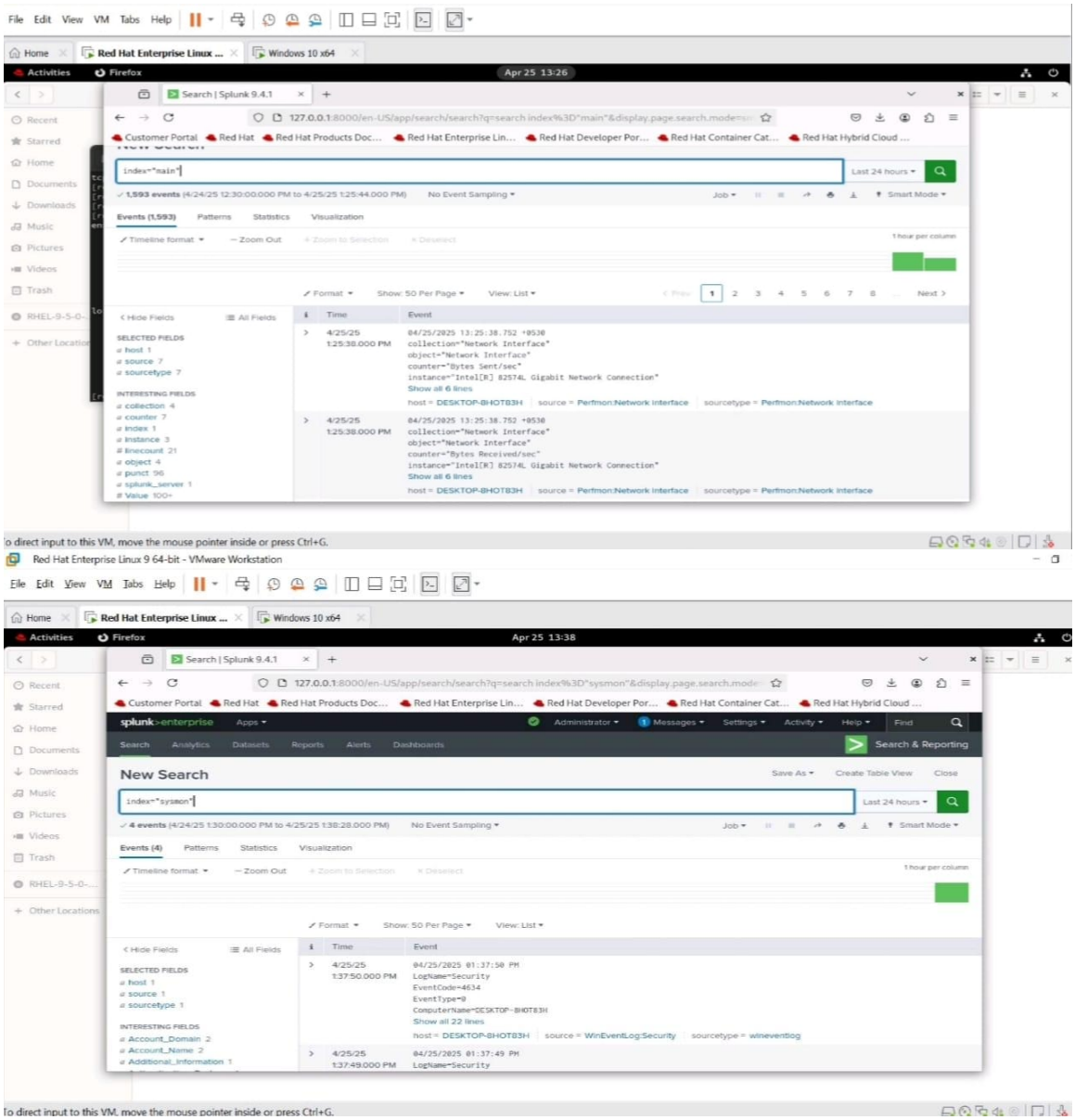
The simulated environment demonstrated the power of SIEM (Splunk + Sysmon) for real-time detection of reconnaissance, credential abuse, and data exfiltration techniques. Recommendations like privilege hardening and alert tuning improve defenses.

8. Appendices

- A: Splunk search queries & screenshots
- B: Timeline of detected critical activities

- C: IOC Summary
- D: Incident Response Runbook




File Edit View VM Tabs Help
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Red Hat Enterprise Linux ...
Windows 10 x64
Activities
Firefox
Apr 25 13:26
Search | Splunk 9.4.1
127.0.0.1:8000/en-US/app/search/search?q=search index%3D"main"&display.page.search.mode=
Customer Portal
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Red Hat Products Doc...
Red Hat Enterprise Lin...
Red Hat Developer Por...
Red Hat Container Cat...
Red Hat Hybrid Cloud ...
index="main"
Last 24 hours
1,593 events (4/24/25 12:30:00.000 PM to 4/25/25 1:25:44.000 PM)
No Event Sampling
Job
Smart Mode
Events (1,593)
Patterns
Statistics
Visualization
Timeline format
Zoom Out
Zoom to Selection
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1 hour per column
Format
Show: 50 Per Page
View: List
Prev
1
2
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4
5
6
7
8
Next
Hide Fields
All Fields
Time
Event
SELECTED FIELDS
host 1
source 7
sourcetype 7
INTERESTING FIELDS
collection 4
counter 7
index 1
instance 3
linecount 21
object 4
punct 96
splunk_server 1
Value 100+
4/25/25 1:25:38.000 PM
04/25/2025 13:25:38.752 +0530
collection="Network Interface"
object="Network Interface"
counter="Bytes Sent/sec"
instance="Intel[R] 82574L Gigabit Network Connection"
Show all 6 lines
host = DESKTOP-8HOT83H
source = Perfmon:Network Interface
sourcetype = Perfmon:Network Interface
4/25/25 1:25:38.000 PM
04/25/2025 13:25:38.752 +0530
collection="Network Interface"
object="Network Interface"
counter="Bytes Received/sec"
instance="Intel[R] 82574L Gigabit Network Connection"
Show all 6 lines
host = DESKTOP-8HOT83H
source = Perfmon:Network Interface
sourcetype = Perfmon:Network Interface
Recent
Starred
Home
Documents
Downloads
Music
Pictures
Videos
Trash
RHEL-9-5-0...
Other Locations
o direct input to this VM, move the mouse pointer inside or press Ctrl+G.

Red Hat Enterprise Linux 9 64-bit - VMware Workstation
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Home
Red Hat Enterprise Linux ...
Windows 10 x64
Activities
Firefox
Apr 25 13:38
Search | Splunk 9.4.1
127.0.0.1:8000/en-US/app/search/search?q=search index%3D"sysmon"&display.page.search.mode=
Customer Portal
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Red Hat Products Doc...
Red Hat Enterprise Lin...
Red Hat Developer Por...
Red Hat Container Cat...
Red Hat Hybrid Cloud ...
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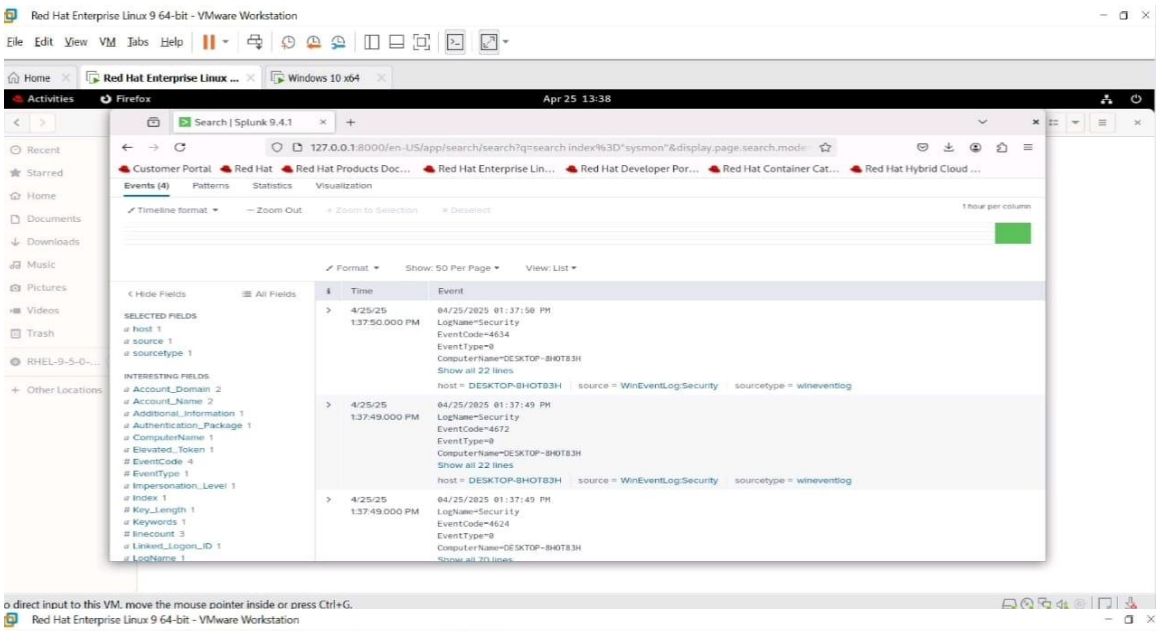
Apps
Administrator
Messages
Settings
Activity
Help
Find
Search
Analytics
Datasets
Reports
Alerts
Dashboards
Search & Reporting
New Search
Save As
Create Table View
Close
index="sysmon"
Last 24 hours
4 events (4/24/25 1:30:00.000 PM to 4/25/25 1:38:28.000 PM)
No Event Sampling
Job
Smart Mode
Events (4)
Patterns
Statistics
Visualization
Timeline format
Zoom Out
Zoom to Selection
Deselect
1 hour per column
Format
Show: 50 Per Page
View: List
Hide Fields
All Fields
Time
Event
SELECTED FIELDS
host 1
source 1
sourcetype 1
INTERESTING FIELDS
Account_Domain 2
Account_Name 2
Additional_Information 1
4/25/25 1:37:50.000 PM
04/25/2025 01:37:50 PM
LogName=Security
EventCode=4634
EventType=0
ComputerName=DESKTOP-8HOT83H
Show all 22 lines
host = DESKTOP-8HOT83H
source = WinEventLog:Security
sourcetype = wineventlog
4/25/25 1:37:49.000 PM
04/25/2025 01:37:49 PM
LogName=Security
Recent
Starred
Home
Documents
Downloads
Music
Pictures
Videos
Trash
RHEL-9-5-0-...
Other Locations
To direct input to this VM, move the mouse pointer inside or press Ctrl+G.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Events (4)
Patterns
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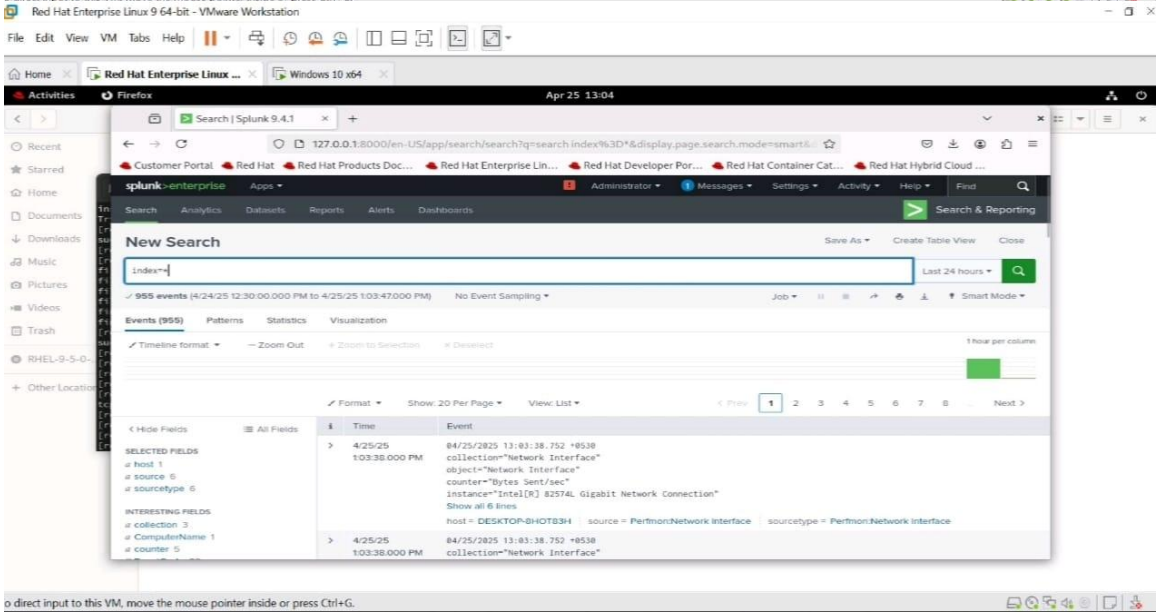
Visualization
Timeline format
Zoom Out
Zoom to Selection
Deselect
1 hour per column
Format
Show: 50 Per Page
View: List
Hide Fields
All Fields
Time
Event
SELECTED FIELDS
host 1
source 1
sourcetype 1
INTERESTING FIELDS
Account_Domain 2
Account_Name 2
AdditionalInformation 1
Authentication_Package 1
ComputerName 1
Elevated_Token 1
EventCode 4
EventType 1
Impersonation_Level 1
Index 1
Key_Length 1
Keywords 1
linecount 3
Linked_Logon_ID 1
LogName 1
4/25/25 1:37:50.000 PM
04/25/2025 01:37:50 PM
LogName=Security
EventCode=4634
EventType=0
ComputerName=DESKTOP-8HOT83H
Show all 22 lines
host = DESKTOP-8HOT83H source = WinEventLog:Security sourcetype = wineventlog
4/25/25 1:37:49.000 PM
04/25/2025 01:37:49 PM
LogName=Security
EventCode=4672
EventType=0
ComputerName=DESKTOP-8HOT83H
Show all 22 lines
host = DESKTOP-8HOT83H source = WinEventLog:Security sourcetype = wineventlog
4/25/25 1:37:49.000 PM
04/25/2025 01:37:49 PM
LogName=Security
EventCode=4624
EventType=0
ComputerName=DESKTOP-8HOT83H
Show all 70 lines
o direct input to this VM, move the mouse pointer inside or press Ctrl+G.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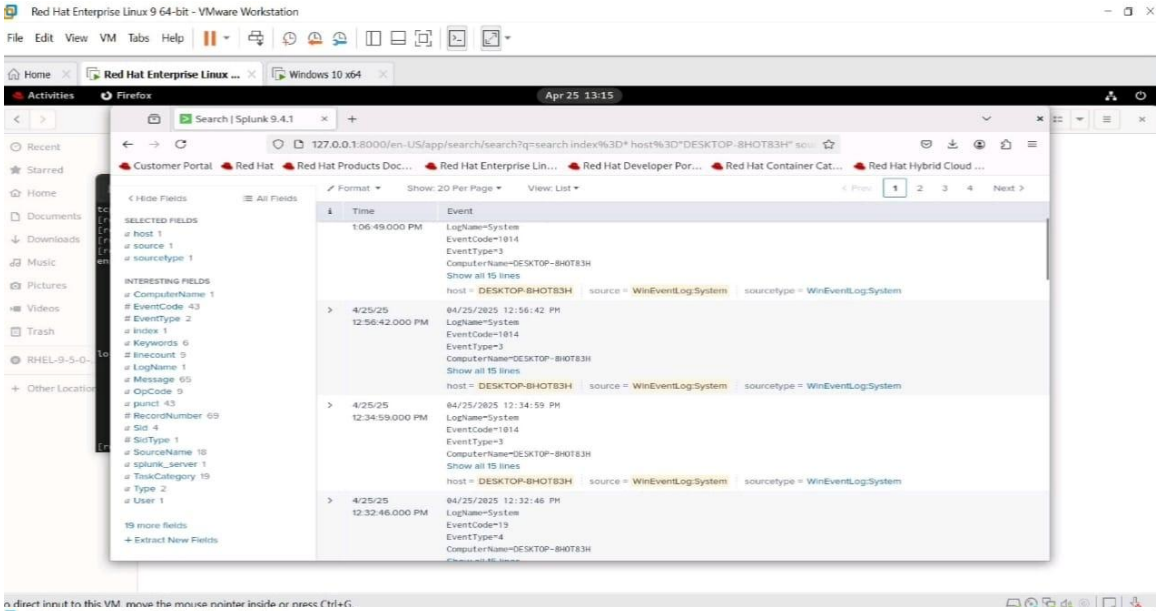
Search
Analytics
Datasets
Reports
Alerts
Dashboards
Search & Reporting
New Search
Save As
Create Table View
Close
index=*
Last 24 hours
955 events (4/24/25 12:30:00.000 PM to 4/25/25 1:03:47.000 PM)
No Event Sampling
Job
Smart Mode
Events (955)
Patterns
Statistics
Visualization
Timeline format
Zoom Out
Zoom to Selection
Deselect
1 hour per column
Format
Show: 20 Per Page
View: List
Prev
1 2 3 4 5 6 7 8
Next
Hide Fields
All Fields
Time
Event
SELECTED FIELDS
host 1
source 6
sourcetype 6
INTERESTING FIELDS
collection 3
ComputerName 1
counter 5
4/25/25 1:03:38.000 PM
04/25/2025 13:03:38.752 +0530
collection="Network Interface"
object="Network Interface"
counter="Bytes Sent/sec"
instance="Intel[R] 82574L Gigabit Network Connection"
Show all 6 lines
host = DESKTOP-8HOT83H source = Perfmon:Network Interface sourcetype = Perfmon:Network Interface
4/25/25 1:03:38.000 PM
04/25/2025 13:03:38.752 +0530
collection="Network Interface"
o direct input to this VM, move the mouse pointer inside or press Ctrl+G.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127.0.0.1:8000/en-US/app/search/search?q=search index%3D* host%3D"DESKTOP-8HOT83H"
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Red Hat Developer Por...
Red Hat Container Cat...
Red Hat Hybrid Cloud ...
Hide Fields
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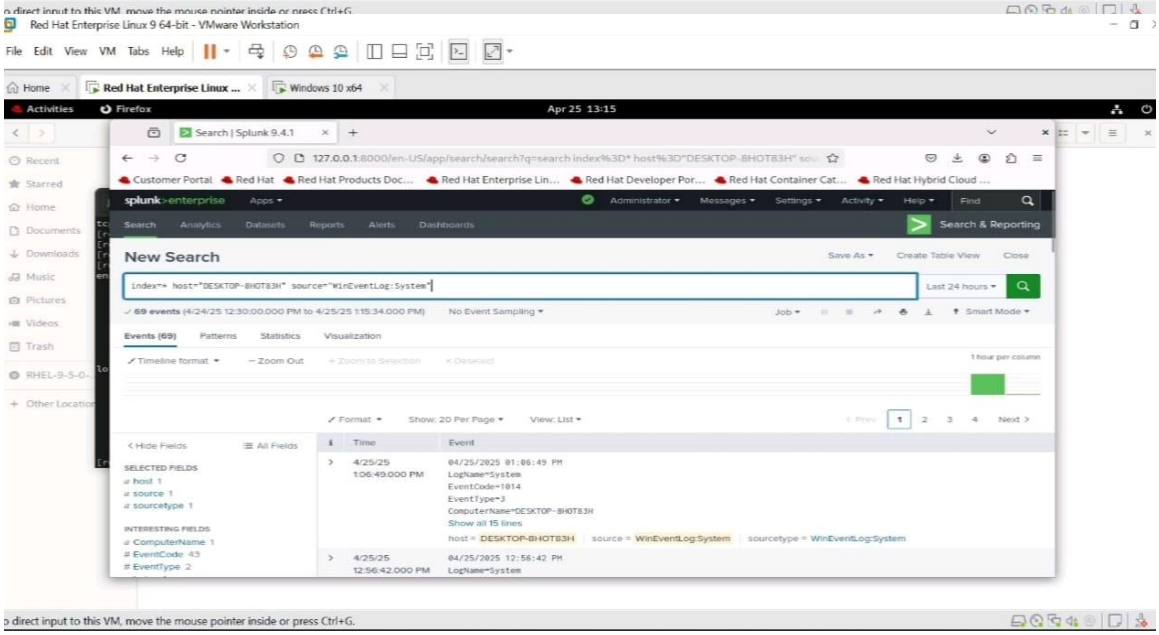
Format
Show: 20 Per Page
View: List
Time
Event
SELECTED FIELDS
host 1
source 1
sourcetype 1
INTERESTING FIELDS
ComputerName 1
EventCode 43
EventType 2
Index 1
Keywords 6
linecount 9
LogName 1
Message 65
OpCode 9
punct 43
RecordNumber 69
Sid 4
SidType 1
SourceName 18
splunk_server 1
TaskCategory 19
Type 2
User 1
19 more fields
+ Extract New Fields
4/25/25 1:06:49.000 PM
LogName=System
EventCode=1014
EventType=3
ComputerName=DESKTOP-8HOT83H
Show all 15 lines
host = DESKTOP-8HOT83H source = WinEventLog:System sourcetype = WinEventLog:System
4/25/25 12:56:42.000 PM
04/25/2025 12:56:42 PM
LogName=System
EventCode=1014
EventType=3
ComputerName=DESKTOP-8HOT83H
Show all 15 lines
host = DESKTOP-8HOT83H source = WinEventLog:System sourcetype = WinEventLog:System
4/25/25 12:34:59.000 PM
04/25/2025 12:34:59 PM
LogName=System
EventCode=1014
EventType=3
ComputerName=DESKTOP-8HOT83H
Show all 15 lines
host = DESKTOP-8HOT83H source = WinEventLog:System sourcetype = WinEventLog:System
4/25/25 12:32:46.000 PM
04/25/2025 12:32:46 PM
LogName=System
EventCode=19
EventType=4
ComputerName=DESKTOP-8HOT83H
o direct input to this VM, move the mouse pointer inside or press Ctrl+G.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Datasets
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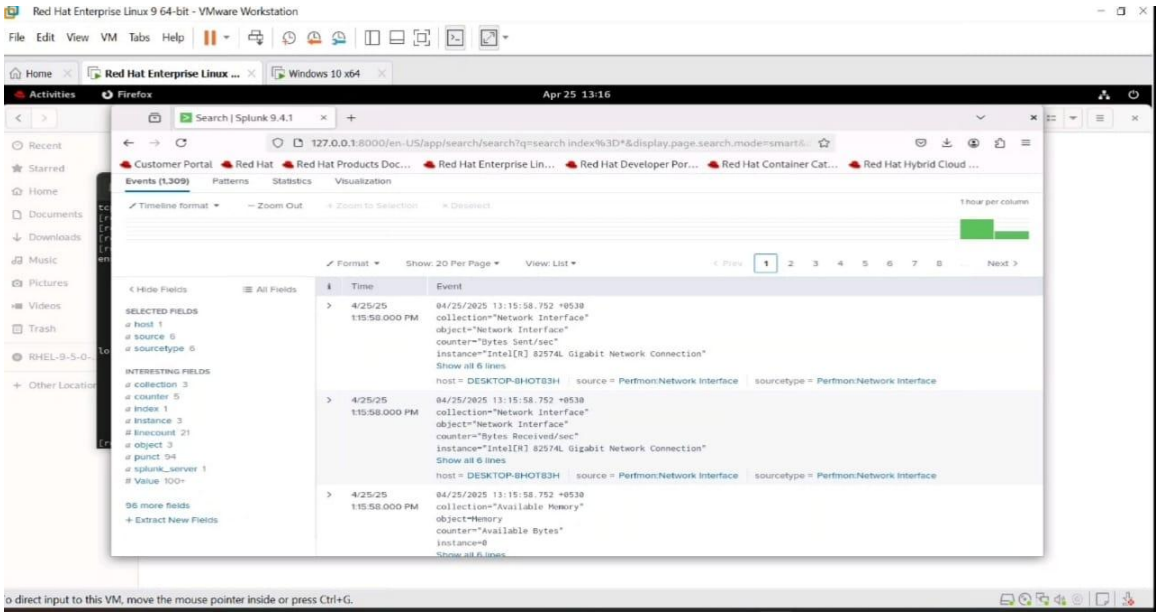
Alerts
Dashboards
Search & Reporting
New Search
Save As
Create Table View
Close
index=* host="DESKTOP-8HOT83H" source="WinEventLog:System"
Last 24 hours
69 events (4/24/25 12:30:00.000 PM to 4/25/25 1:15:34.000 PM)
No Event Sampling
Job
Smart Mode
Events (69)
Patterns
Statistics
Visualization
Timeline format
Zoom Out
Zoom to Selection
Deselect
1 hour per column
Format
Show: 20 Per Page
View: List
Hide Fields
All Fields
Time
Event
SELECTED FIELDS
host 1
source 1
sourcetype 1
INTERESTING FIELDS
ComputerName 1
EventCode 43
EventType 2
4/25/25 1:06:49.000 PM
04/25/2025 01:06:49 PM
LogName=System
EventCode=1014
EventType=3
ComputerName=DESKTOP-8HOT83H
Show all 15 lines
host = DESKTOP-8HOT83H source = WinEventLog:System sourcetype = WinEventLog:System
4/25/25 12:56:42.000 PM
04/25/2025 12:56:42 PM
LogName=System
o direct input to this VM, move the mouse pointer inside or press Ctrl+G.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Customer Portal
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Red Hat Products Doc...
Red Hat Enterprise Lin...
Red Hat Developer Por...
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Events (1,309)
Patterns
Statistics
Visualization
Timeline format
Zoom Out
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1 hour per column
Format
Show: 20 Per Page
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Prev
1
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Next >
Hide Fields
All Fields
SELECTED FIELDS
host 1
source 6
sourcetype 6
INTERESTING FIELDS
collection 3
counter 5
index 1
instance 3
linecount 21
object 3
punct 94
splunk_server 1
Value 100+
96 more fields
+ Extract New Fields
Time
Event
4/25/25 1:15:58.000 PM
04/25/2025 13:15:58.752 +0530
collection="Network Interface"
object="Network Interface"
counter="Bytes Sent/sec"
instance="Intel[R] 82574L Gigabit Network Connection"
Show all 6 lines
host = DESKTOP-8HOT83H
source = Perfmon:Network Interface
sourcetype = Perfmon:Network Interface
4/25/25 1:15:58.000 PM
04/25/2025 13:15:58.752 +0530
collection="Network Interface"
object="Network Interface"
counter="Bytes Received/sec"
instance="Intel[R] 82574L Gigabit Network Connection"
Show all 6 lines
host = DESKTOP-8HOT83H
source = Perfmon:Network Interface
sourcetype = Perfmon:Network Interface
4/25/25 1:15:58.000 PM
04/25/2025 13:15:58.752 +0530
collection="Available Memory"
object=Memory
counter="Available Bytes"
instance=0
Show all 6 lines
Recent
Starred
Home
Documents
Downloads
Music
Pictures
Videos
Trash
RHEL-9-5-0...
Other Locations
o direct input to this VM, move the mouse pointer inside or press Ctrl+G.