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Security Brief

Detecting and Responding to PrintNightmare

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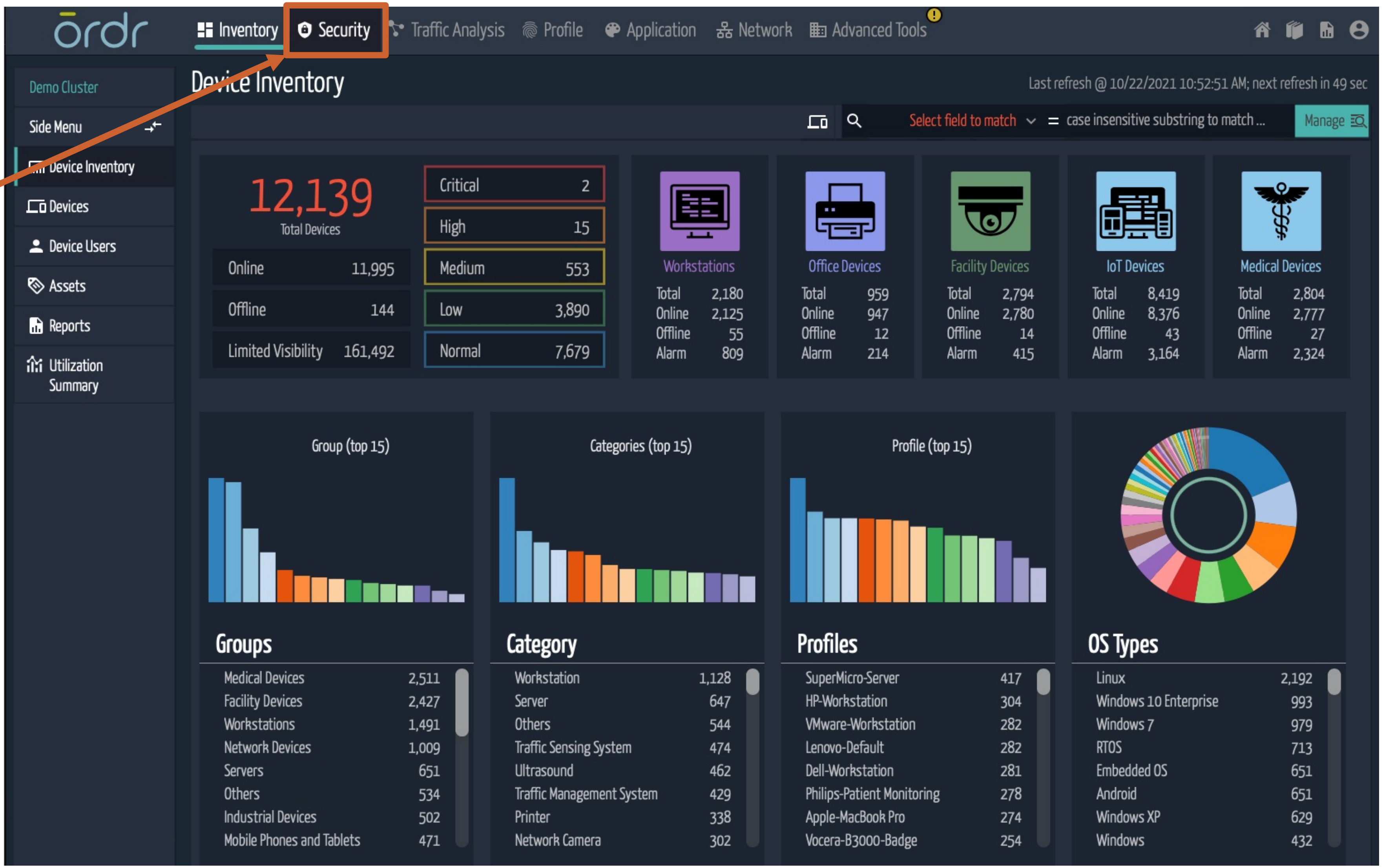
Identify Print Nightmare Vulnerable systems

Navigate to the Security Tab

Click Here



Device Inventory

Last refresh @ 10/22/2021 10:52:51 AM; next refresh in 49 sec

12,139 Total Devices

Online	11,995
Offline	144
Limited Visibility	161,492

Critical	2
High	15
Medium	553
Low	3,890
Normal	7,679

	Workstations	Office Devices	Facility Devices	IoT Devices	Medical Devices
Total	2,180	959	2,794	8,419	2,804
Online	2,125	947	2,780	8,376	2,777
Offline	55	12	14	43	27
Alarm	809	214	415	3,164	2,324

Groups

Medical Devices	2,511
Facility Devices	2,427
Workstations	1,491
Network Devices	1,009
Servers	651
Others	534
Industrial Devices	502
Mobile Phones and Tablets	471

Category

Workstation	1,128
Server	647
Others	544
Traffic Sensing System	474
Ultrasound	462
Traffic Management System	429
Printer	338
Network Camera	302

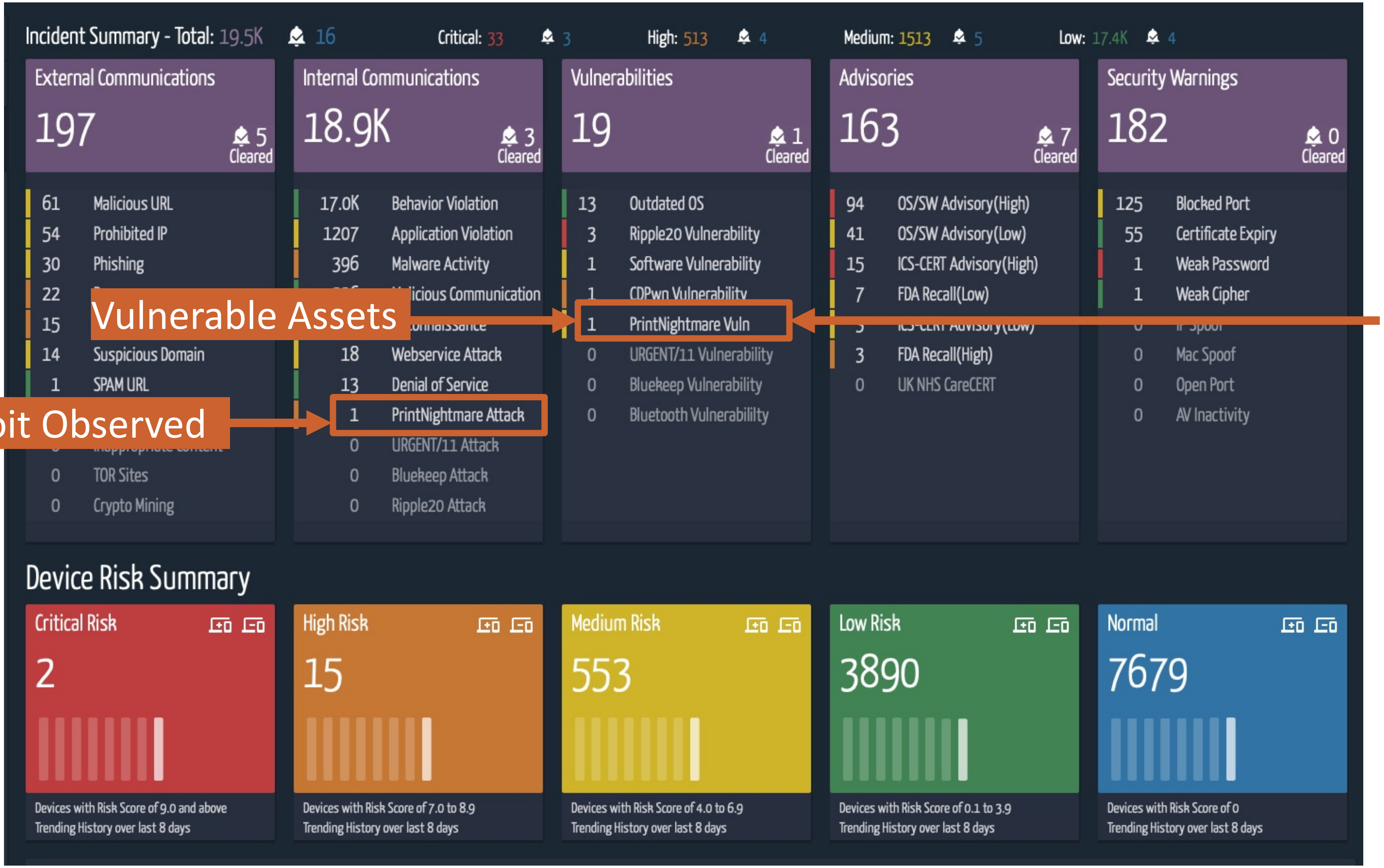
Profiles

SuperMicro-Server	417
HP-Workstation	304
VMware-Workstation	282
Lenovo-Default	282
Dell-Workstation	281
Philips-Patient Monitoring	278
Apple-MacBook Pro	274
Vocera-B3000-Badge	254

OS Types

Linux	2,192
Windows 10 Enterprise	993
Windows 7	979
RTOS	713
Embedded OS	651
Android	651
Windows XP	629
Windows	432

Locate Vulnerable Assets



Incident Summary - Total: 19.5K 16 Critical: 33 3 High: 513 4 Medium: 1513 5 Low: 17.4K 4

External Communications 197 5 Cleared

61	Malicious URL
54	Prohibited IP
30	Phishing
22	
15	
14	Suspicious Domain
1	SPAM URL
0	Inappropriate Content
0	TOR Sites
0	Crypto Mining

Internal Communications 18.9K 3 Cleared

17.0K	Behavior Violation
1207	Application Violation
396	Malware Activity
	Malicious Communication
	Reconnaissance
18	Webservice Attack
13	Denial of Service
1	PrintNightmare Attack
0	URGENT/11 Attack
0	Bluekeep Attack
0	Ripple20 Attack

Vulnerabilities 19 1 Cleared

13	Outdated OS
3	Ripple20 Vulnerability
1	Software Vulnerability
1	CDPwn Vulnerability
1	PrintNightmare Vuln
0	URGENT/11 Vulnerability
0	Bluekeep Vulnerability
0	Bluetooth Vulnerabililty

Advisories 163 7 Cleared

94	OS/SW Advisory(High)
41	OS/SW Advisory(Low)
15	ICS-CERT Advisory(High)
7	FDA Recall(Low)
3	ICS-CERT Advisory(Low)
3	FDA Recall(High)
0	UK NHS CareCERT

Security Warnings 182 0 Cleared

125	Blocked Port
55	Certificate Expiry
1	Weak Password
1	Weak Cipher
0	IP Spoof
0	Mac Spoof
0	Open Port
0	AV Inactivity

Device Risk Summary

Critical Risk	High Risk	Medium Risk	Low Risk	Normal
2	15	553	3890	7679
Devices with Risk Score of 9.0 and above Trending History over last 8 days	Devices with Risk Score of 7.0 to 8.9 Trending History over last 8 days	Devices with Risk Score of 4.0 to 6.9 Trending History over last 8 days	Devices with Risk Score of 0.1 to 3.9 Trending History over last 8 days	Devices with Risk Score of 0 Trending History over last 8 days

Vulnerable Assets

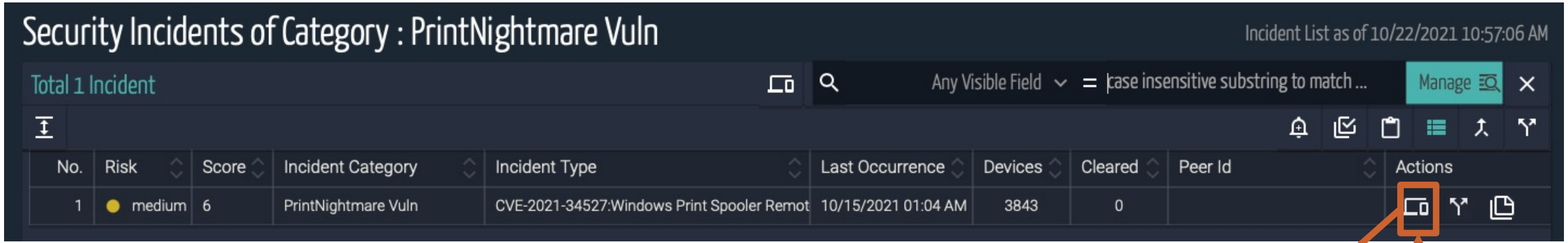
Active Exploit Observed

Slide 8 and beyond cover this

Click Here

Following slides cover this

Uncover all assets with a running vulnerable print spooler



Security Incidents of Category : PrintNightmare Vuln

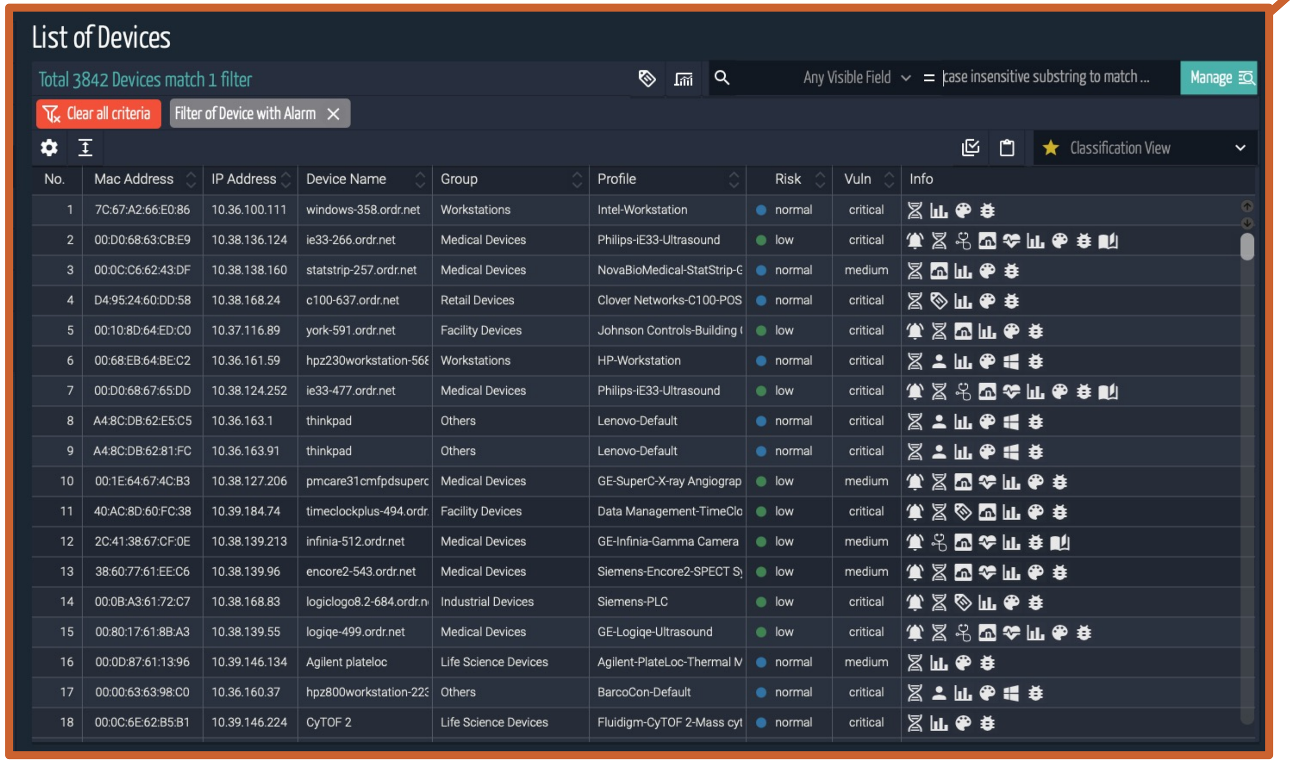
Incident List as of 10/22/2021 10:57:06 AM

Total 1 Incident

Any Visible Field = case insensitive substring to match ...

No.	Risk	Score	Incident Category	Incident Type	Last Occurrence	Devices	Cleared	Peer Id	Actions
1	● medium	6	PrintNightmare Vuln	CVE-2021-34527:Windows Print Spooler Remot	10/15/2021 01:04 AM	3843	0		

Click Here



List of Devices

Total 3842 Devices match 1 filter

Any Visible Field = case insensitive substring to match ...

No.	Mac Address	IP Address	Device Name	Group	Profile	Risk	Vuln	Info
1	7C:67:A2:66:E0:86	10.36.100.111	windows-358.ordr.net	Workstations	Intel-Workstation	● normal	critical	
2	00:D0:68:63:CB:E9	10.38.136.124	ie33-266.ordr.net	Medical Devices	Philips-iE33-Ultrasound	● low	critical	
3	00:0C:C6:62:43:DF	10.38.138.160	statstrip-257.ordr.net	Medical Devices	NovaBioMedical-StatStrip-G	● normal	medium	
4	D4:95:24:60:DD:58	10.38.168.24	c100-637.ordr.net	Retail Devices	Clover Networks-C100-POS	● normal	critical	
5	00:10:8D:64:ED:C0	10.37.116.89	york-591.ordr.net	Facility Devices	Johnson Controls-Building (	● low	critical	
6	00:68:EB:64:BE:C2	10.36.161.59	hpz230workstation-568	Workstations	HP-Workstation	● normal	critical	
7	00:D0:68:67:65:DD	10.38.124.252	ie33-477.ordr.net	Medical Devices	Philips-iE33-Ultrasound	● low	critical	
8	A4:8C:DB:62:E5:C5	10.36.163.1	thinkpad	Others	Lenovo-Default	● normal	critical	
9	A4:8C:DB:62:81:FC	10.36.163.91	thinkpad	Others	Lenovo-Default	● normal	critical	
10	00:1E:64:67:4C:B3	10.38.127.206	pmcare31cmfpdsuperc	Medical Devices	GE-SuperC-X-ray Angiograp	● low	medium	
11	40:AC:8D:60:FC:38	10.39.184.74	timeclockplus-494.ordr.	Facility Devices	Data Management-TimeClo	● low	critical	
12	2C:41:38:67:CF:0E	10.38.139.213	infinia-512.ordr.net	Medical Devices	GE-Infinia-Gamma Camera	● low	medium	
13	38:60:77:61:EE:C6	10.38.139.96	encore2-543.ordr.net	Medical Devices	Siemens-Encore2-SPECT Sy	● low	medium	
14	00:0B:A3:61:72:C7	10.38.168.83	logiclogo8.2-684.ordr.n	Industrial Devices	Siemens-PLC	● low	critical	
15	00:80:17:61:8B:A3	10.38.139.55	logiqe-499.ordr.net	Medical Devices	GE-Logiqe-Ultrasound	● low	critical	
16	00:0D:87:61:13:96	10.39.146.134	Agilent plateloc	Life Science Devices	Agilent-PlateLoc-Thermal M	● normal	medium	
17	00:00:63:63:98:C0	10.36.160.37	hpz800workstation-223	Others	BarcoCon-Default	● normal	critical	
18	00:0C:6E:62:B5:B1	10.39.146.224	CyTOF 2	Life Science Devices	Fluidigm-CyTOF 2-Mass cyt	● normal	critical	

Export this list and do what MS says

MSFT - recommends that customer follow these steps immediately:

- In ALL cases, apply the CVE-2021-34527 security update. The update will not change existing registry settings
- After applying the security update, review the registry settings documented in the CVE-2021-34527 advisory
- If the registry keys documented do not exist, no further action is required
- If the registry keys documented exist, in order to secure your system, you must confirm that the following registry keys are set to 0 (zero) or are not present:
  - HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Windows NT\Printers\PointAndPrint
  - NoWarningNoElevationOnInstall = 0 (DWORD) or not defined (default setting)
  - UpdatePromptSettings = 0 (DWORD) or not defined (default setting)
- For more in-depth guidance, please see KB5005010: Restricting installation of new printer drivers after applying the July 6, 2021 updates and CVE-2021-34527.
- If our investigation identifies additional issues, we will take action as needed to help protect customers

Microsoft Documented Workarounds: (if patch is not available)

Find Systems With Print Spoolers

1. Users are urged to disable the “Print Spooler” service on servers that do not require it. Microsoft has provided a series of workarounds to be applied. Determine if the Print Spooler service is running (run as a Domain Admin)
2. Run the following as a Domain Admin: `Get-Service -Name Spooler`
3. If the Print Spooler is running or if the service is not set to disabled, select one of the following options to either disable the Print Spooler service, or to Disable inbound remote printing through Group Policy.

Option 1: Disable Print Spooler

If disabling the Print Spooler service is appropriate for your enterprise, use the following PowerShell commands:

```
Stop-Service -Name Spooler -Force
Set-Service -Name Spooler -StartupType Disabled
```

Impact of workaround: Disabling the Print Spooler service disables the ability to print both locally and remotely.

Option 2: Disable Remote Printing

You can also configure the settings via Group Policy as follows: *Computer Configuration / Administrative Templates / Printers*

Disable the “Allow Print Spooler to accept client connections:” policy to block remote attacks.

Impact of workaround: This policy will block the remote attack vector by preventing inbound remote printing operations. The system will no longer function as a print server, but local printing to a directly attached device will still be possible.

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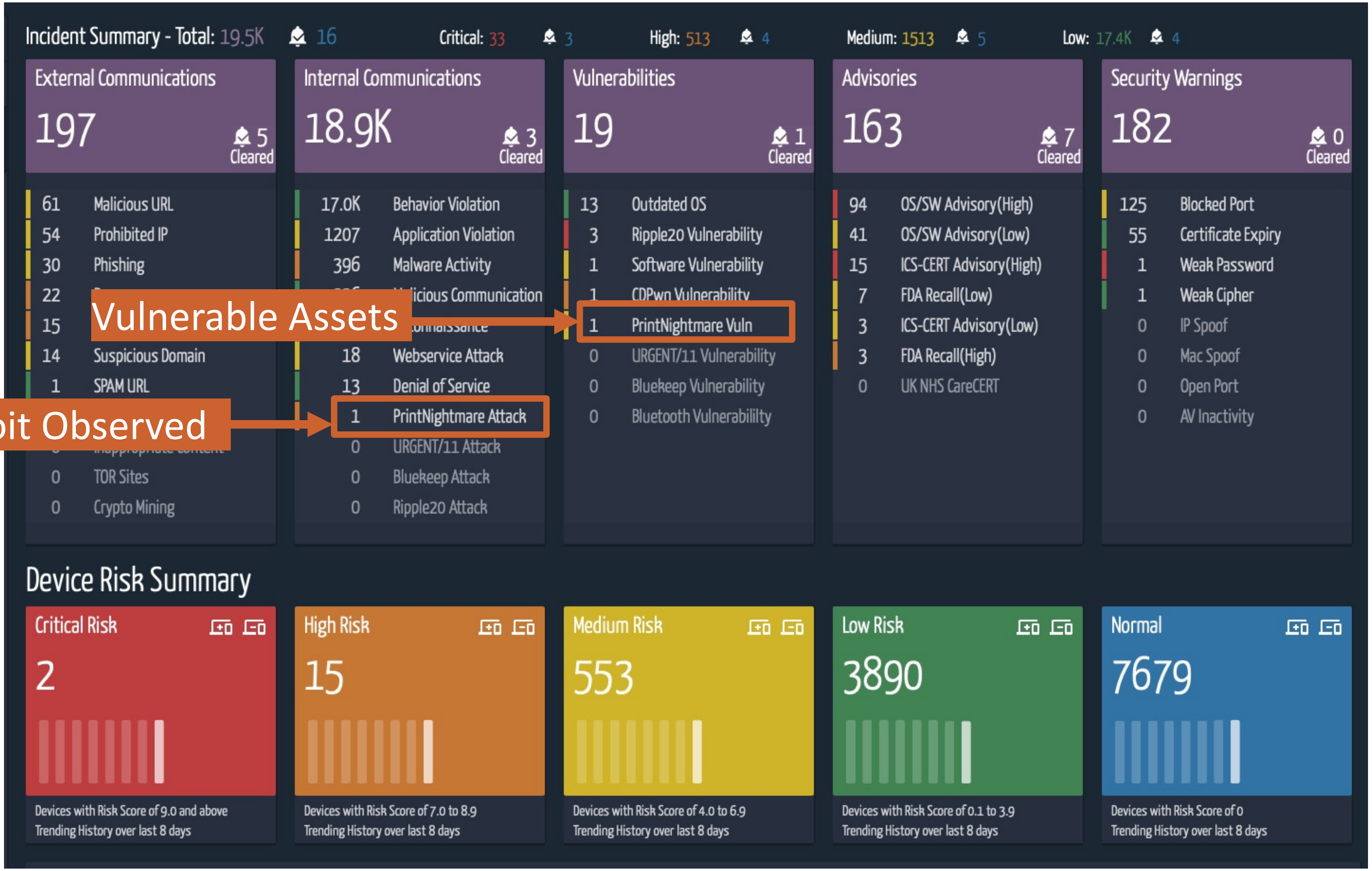
Active Print Nightmare Attack

Locate Vulnerable Assets



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Vulnerable Assets

Active Exploit Observed

Click Here

Following slides cover this

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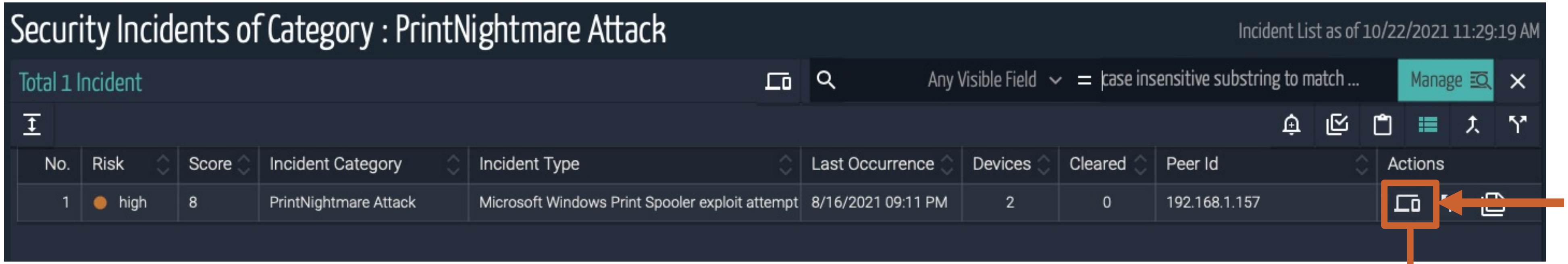
Identify the offending systems



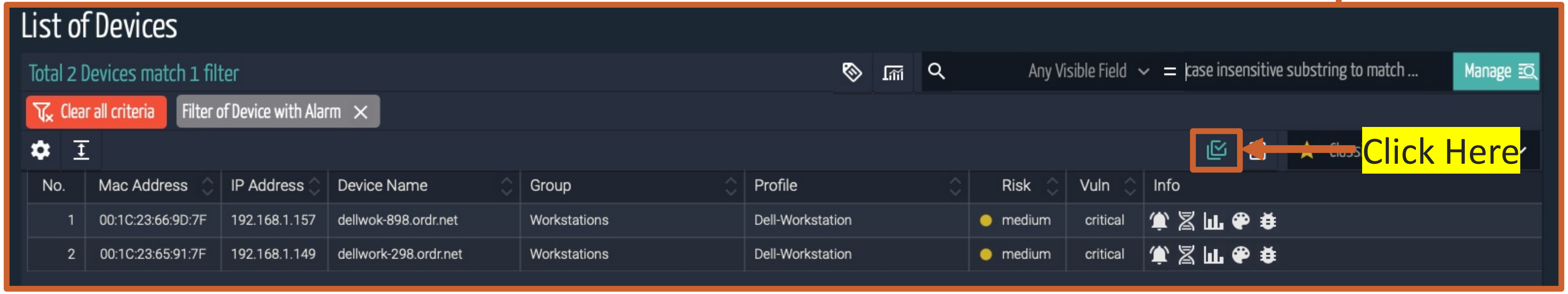
Security Incidents of Category : PrintNightmare Attack

Incident List as of 10/22/2021 11:29:19 AM

Total 1 Incident

No.	Risk	Score	Incident Category	Incident Type	Last Occurrence	Devices	Cleared	Peer Id	Actions
1	● high	8	PrintNightmare Attack	Microsoft Windows Print Spooler exploit attempt	8/16/2021 09:11 PM	2	0	192.168.1.157	

Click Here



List of Devices

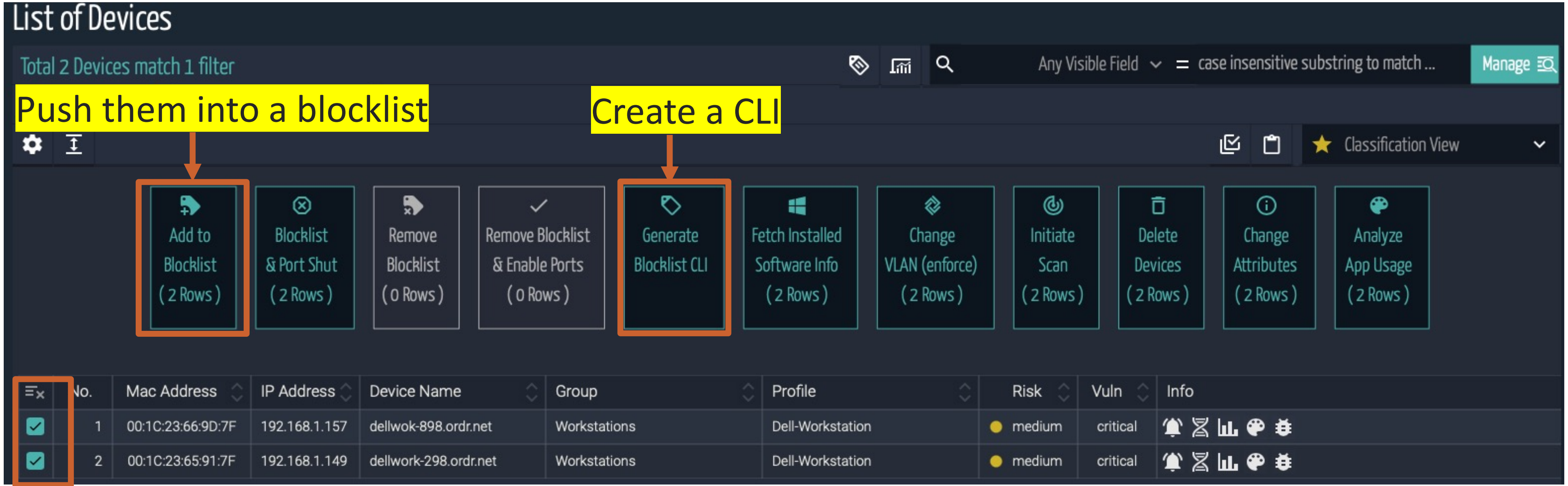
Total 2 Devices match 1 filter

Any Visible Field
case insensitive substring to match ...
Manage
Clear all criteria
Filter of Device with Alarm

Click Here

No.	Mac Address	IP Address	Device Name	Group	Profile	Risk	Vuln	Info
1	00:1C:23:66:9D:7F	192.168.1.157	dellwok-898.ordr.net	Workstations	Dell-Workstation	● medium	critical	
2	00:1C:23:65:91:7F	192.168.1.149	dellwork-298.ordr.net	Workstations	Dell-Workstation	● medium	critical	

To mitigate the threat from these attacks


List of Devices
Total 2 Devices match 1 filter
Any Visible Field
= case insensitive substring to match ...
Manage
Classification View
Add to Blocklist (2 Rows)
Blocklist & Port Shut (2 Rows)
Remove Blocklist (0 Rows)
Remove Blocklist & Enable Ports (0 Rows)
Generate Blocklist CLI
Fetch Installed Software Info (2 Rows)
Change VLAN (enforce) (2 Rows)
Initiate Scan (2 Rows)
Delete Devices (2 Rows)
Change Attributes (2 Rows)
Analyze App Usage (2 Rows)

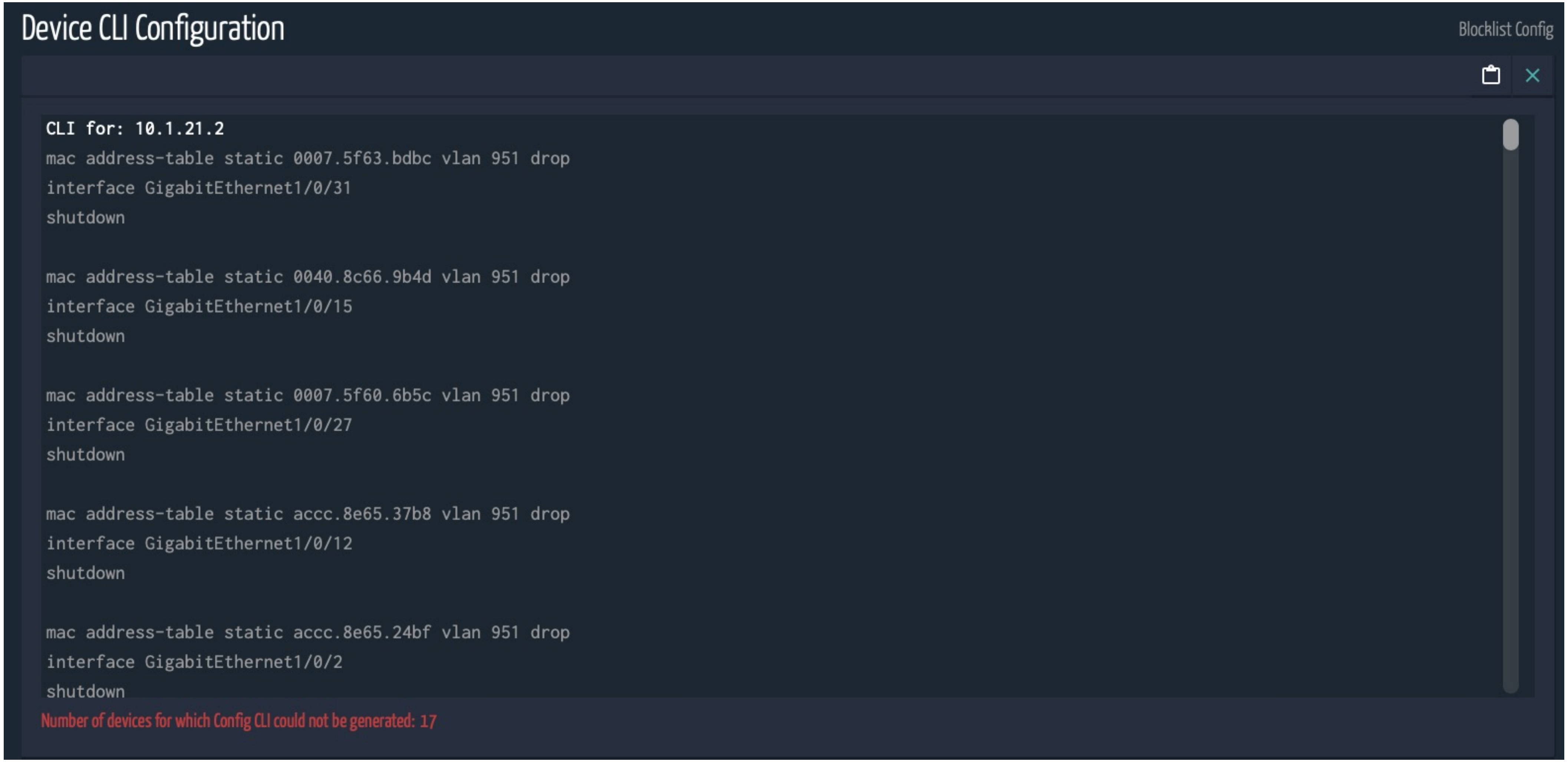
	No.	Mac Address	IP Address	Device Name	Group	Profile	Risk	Vuln	Info
☑	1	00:1C:23:66:9D:7F	192.168.1.157	dellwok-898.ordr.net	Workstations	Dell-Workstation	● medium	critical	
☑	2	00:1C:23:65:91:7F	192.168.1.149	dellwork-298.ordr.net	Workstations	Dell-Workstation	● medium	critical	

Push them into a blocklist

Create a CLI

Select the offending hosts

Copy paste this into your switches



```
CLI for: 10.1.21.2
mac address-table static 0007.5f63.bdbc vlan 951 drop
interface GigabitEthernet1/0/31
shutdown

mac address-table static 0040.8c66.9b4d vlan 951 drop
interface GigabitEthernet1/0/15
shutdown

mac address-table static 0007.5f60.6b5c vlan 951 drop
interface GigabitEthernet1/0/27
shutdown

mac address-table static accc.8e65.37b8 vlan 951 drop
interface GigabitEthernet1/0/12
shutdown

mac address-table static accc.8e65.24bf vlan 951 drop
interface GigabitEthernet1/0/2
shutdown
```

Number of devices for which Config CLI could not be generated: 17

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