



APPENDIX—Splunk Integration with NVIDIA Products

Table of contents

Getting Started with Splunk

Switch Configuration

Adding a Task

Retrieving Data from TCP and UDP Ports

SNMP Input to Poll Attribute Values and Catch Traps

Getting Started

Configuration

Splunk automatically clusters millions of log records in real time back into their patterns and finds connections between those patterns to form the baseline flows of each software individually, thus enables you to search, monitor and analyze that data to discover powerful insights across multiple use cases.

This appendix provides a guide on the first steps with Splunk and helps you to begin enjoying reduced time in detecting and resolving production problems.

Getting Started with Splunk

1. Download Splunk and extract the Splunk Enterprise version. (Splunk software is available as an RPM or TGZ.)

2. Create a Splunk User /group. Run:

```
[root@server] groupadd splunk
[root@server] useradd -d /opt/splunk -m -g splunk splunk
```

3. Splunk installation. Run:

```
[root@server] tar -xzvf splunk-7.0.0-c8a78efdd40f-Linux-x86_64.tgz
[root@server] ls
```

4. A new folder called Splunk is created.

```
[root@server] cp -rp splunk/* /opt/splunk/
[root@server] chown -R splunk: /opt/splunk/
[root@server] su - splunk
[splunk@server] cd bin
[splunk@server] ./splunk start --accept-license
```

Now you can access your Splunk WebUI at <http://IP:8000/> or <http://hostname:8000/>. You need to make sure that port 8000 is open in your server firewall.

Switch Configuration

In this example we are not using the default UDP port 514 to show that any other port can be also used.

5. In order to add a task, the switch must be configured to send logs to our Splunk server.
Run:

```
switch > enable
switch # configure terminal
switch (config) # show snmp
SNMP enabled:          yes
SNMP port:             161
System contact:
System location:
Read-only communities:
    public

Read-write communities:
    (none)

Interface listen enabled: yes
No Listen Interfaces.
switch (config) # snmp-server host 10.212.23.1 informs port 8597
switch (config) # snmp-server host 10.212.23.1 traps port 8597
switch (config) # snmp host 10.212.23.1 informs 8597
switch (config) # snmp host 10.212.23.1 traps 8597

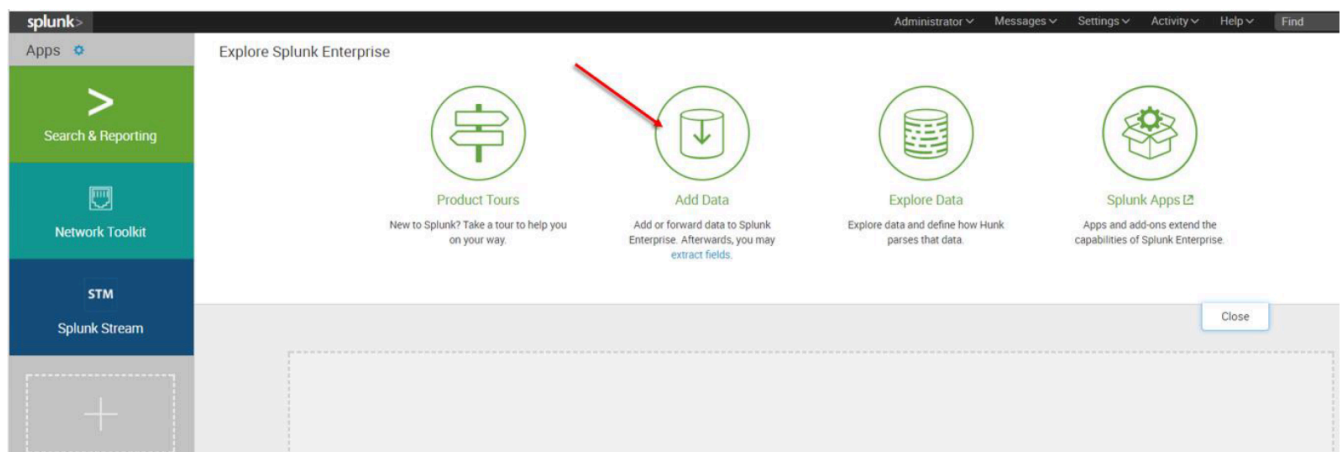
Summary configuration:

switch (config) # show running-config
## Logging configuration
##
```

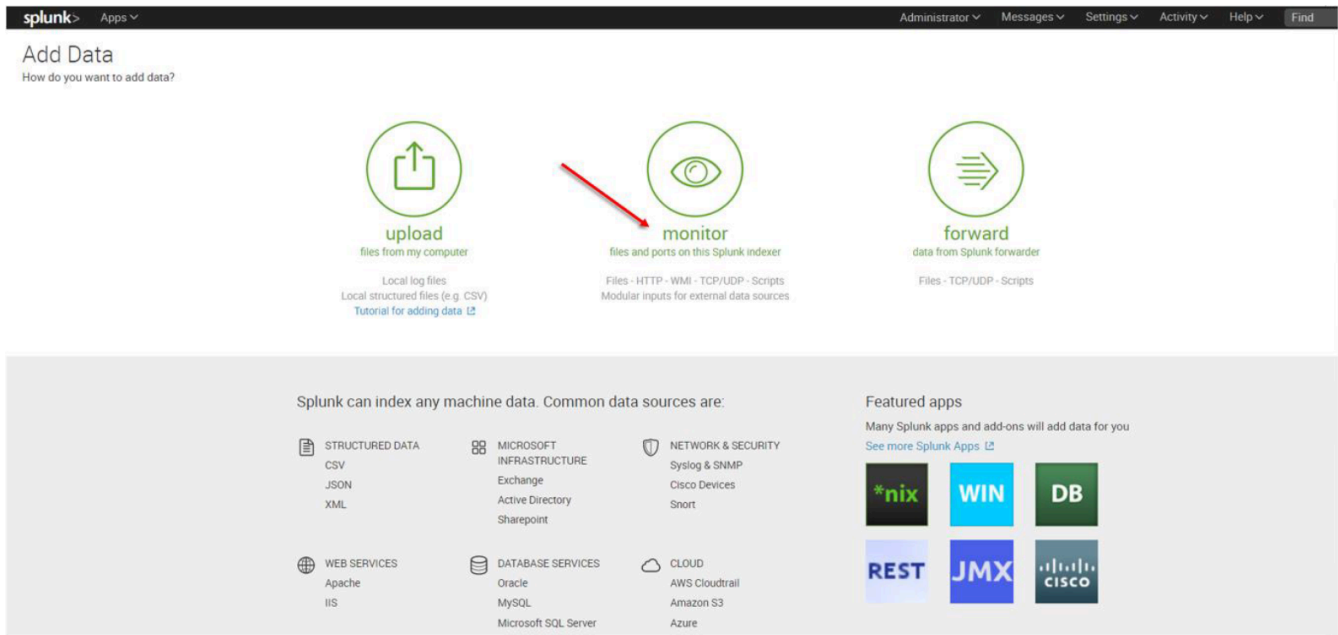
```
logging 10.212.23.1
logging 10.212.23.1 port 8597
logging 10.212.23.1 trap info
logging 10.212.23.1 trap override class events priority err
logging monitor events notice
logging receive
## SNMP configuration
no snmp-server host 10.209.21.221 disable
snmp-server host 10.209.21.221 traps port 8597 version 2c
no snmp-server host 10.212.23.1 disable
snmp-server host 10.212.23.1 traps port 8597 version 2c 8597
```

Adding a Task

6. The first screen encountered after signing into the Splunk WebUI includes the “Add Data” icon.



7. The “Add Data” tab opens up with three options: Upload, Monitor, and Forward. Here our task is to monitor a folder, so we click Monitor. to proceed

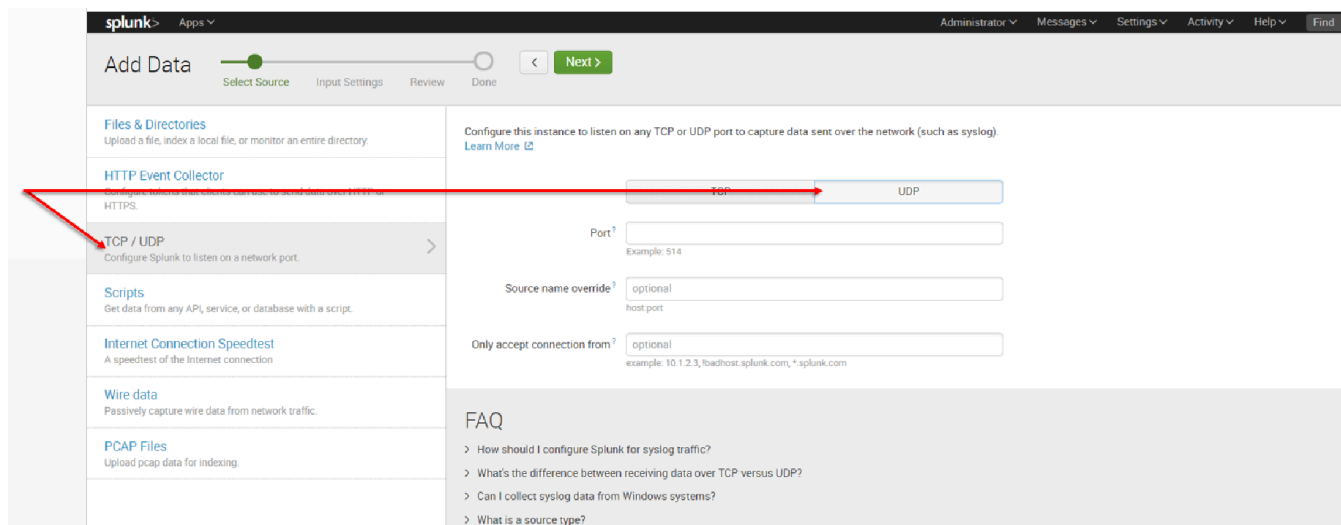


In the Monitor option, the following four categories are available:

- File & Directories – monitor files/folders
- HTTP Event Collector – monitor data streams over HTTP
- TCP/UDP – monitor service ports
- Scripts – monitor scripts

Retrieving Data from TCP and UDP Ports

8. Per our current purpose, we choose TCP/UDP option.



9. Click the TCP or UDP button to choose between a TCP or UDP input, and enter a port number in the “Port” field.

10. In the “Source name override” field, enter a new source name to override the default source value, if required.

The screenshot shows the Splunk 'Add Data' configuration interface. At the top, there is a progress bar with four steps: 'Select Source' (active), 'Input Settings', 'Review', and 'Done'. A 'Next >' button is visible. The left sidebar lists several data sources: 'Files & Directories', 'HTTP Event Collector', 'TCP / UDP' (selected), 'Scripts', and 'Internet Connection Speedtest'. The main content area is titled 'Configure this instance to listen on any TCP or UDP port to capture data sent over the network (such as syslog)'. It features two radio buttons for 'TCP' and 'UDP'. Below these are three input fields: 'Port?' with the value '8597' and an example of '514'; 'Source name override?' with the value '10.209.21.221:8597' and a sub-label 'host:port'; and 'Only accept connection from?' with the value '10.209.21.221|' and an example of '10.1.2.3, !badhost.splunk.com, *splunk.com'.

11. Click “Next” to continue to the Input Settings page where we will create a new source type called Mellanox-Switch.

splunk > Apps ▾

Add Data ◀ Review >

Select Source **Input Settings** Review Done

Input Settings

Optionally set additional input parameters for this data input as follows:

Source type

The source type is one of the default fields that Splunk assigns to all incoming data. It tells Splunk what kind of data you've got, so that Splunk can format the data intelligently during indexing. And it's a way to categorize your data, so that you can search it easily.

Source Type: Select New

Source Type Category:

Source Type Description:

App context

Application contexts are folders within a Splunk instance that contain configurations for a specific use case or domain of data. App contexts improve manageability of input and source type definitions. Splunk loads all app contexts based on precedence rules. [Learn More](#)

App Context:

Host

When Splunk indexes data, each event receives a "host" value. The host value should be the name of the machine from which the event originates. The type of input you choose determines the available configuration options. [Learn More](#)

Method:

Index

Splunk stores incoming data as events in the selected index. Consider using a "sandbox" index as a destination if you have problems determining a source type for your data. A sandbox index lets you troubleshoot your configuration without impacting production indexes. You can always change this setting later. [Learn More](#)

Index: [Create a new index](#)

12. Click Next > Review > Done > Start Searching

✓ **UDP input has been created successfully.**

Configure your inputs by going to [Settings > Data Inputs](#)

Start Searching Search your data now or see [examples and tutorials](#).

Extract Fields Create search-time field extractions. [Learn more about fields](#).

Add More Data Add more data inputs now or see [examples and tutorials](#).

Download Apps Apps help you do more with your data. [Learn more](#).

Build Dashboards Visualize your searches. [Learn more](#).

SNMP Input to Poll Attribute Values and Catch Traps

SNMP represents an incredibly rich source of data that you can get into Splunk for visibility across a very diverse IT landscape.

SNMP agents may also send notifications, called Traps, to an SNMP trap listening daemon.

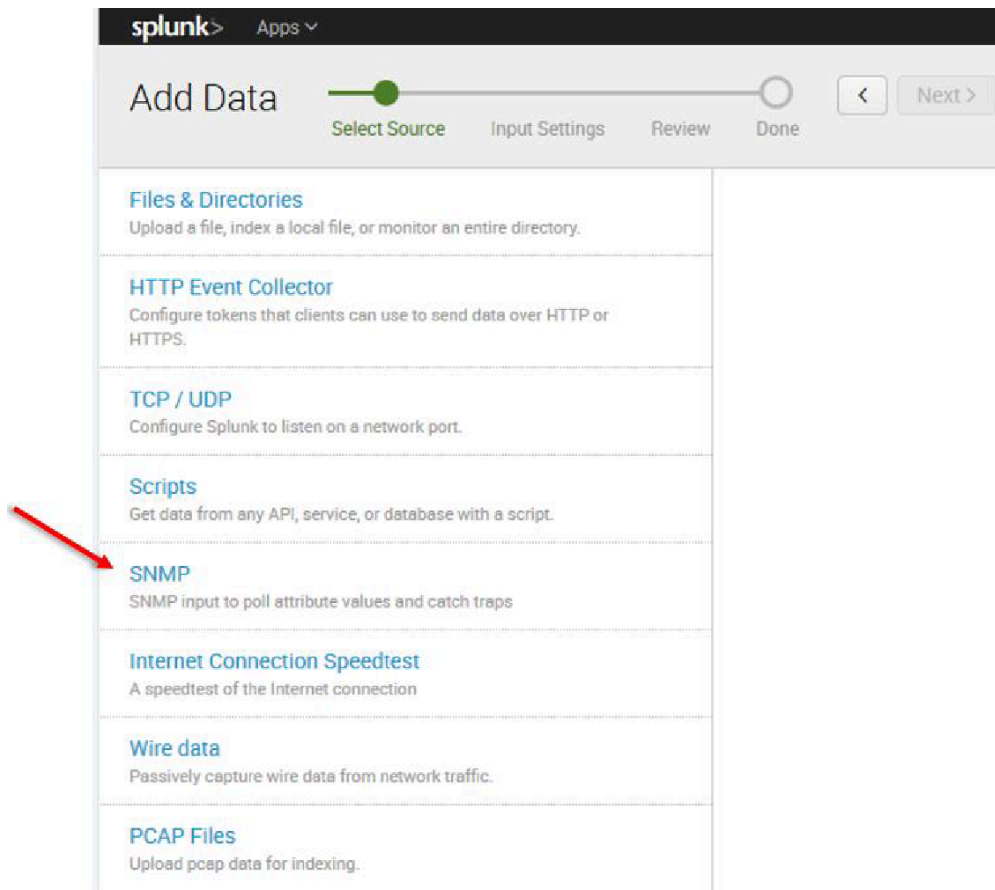
Getting Started

Browse to Splunkbase and download the SNMP Modular Input from <https://splunkbase.splunk.com/app/1537/>.

To install, simply untar the file to `SPLUNK_HOME/etc/apps` and restart Splunk.

Configuration

Login to the Splunk WebUI and go to Manager > Add Data > Monitor > SNMP > New, and set up your input data.



- Files & Directories**
Upload a file, index a local file, or monitor an entire directory.
- HTTP Event Collector**
Configure tokens that clients can use to send data over HTTP or HTTPS.
- TCP / UDP**
Configure Splunk to listen on a network port.
- Scripts**
Get data from any API, service, or database with a script.
- SNMP** >
SNMP input to poll attribute values and catch traps.
- Internet Connection Speedtest**
A speedtest of the Internet connection.
- Wire data**
Passively capture wire data from network traffic.
- PCAP Files**
Upload pcap data for indexing.

Response Handler arguments string, key=value,key2=value2

SNMP Attribute polling settings

Destination:
IP or hostname of the device you would like to query, or a comma delimited list

Port:
The SNMP port. Defaults to 161

Object Names List:
1 or more Objects Names, comma delimited, in either textual(iso.org.dod.internet.mgmt.mib-2.system.sysDescr.0) or numerical(1.3.6.1.2.1.1.3.0) format

Interval:
How often to run the SNMP query (in seconds). Defaults to 60 seconds

Perform GET BULK:
Whether or not to perform an SNMP GET BULK operation. This will retrieve all the object attributes in the sub tree of the declared OIDs. Be aware of potential performance issues, http://www.net-snmp.org/wiki/index.php/GETBULK. Defaults to false.

Perform GET SUBTREE:
Whether or not to perform an SNMP GET SUBTREE operation. This will retrieve all the object attributes in the sub tree of the declared OIDs. Be aware of potential performance issues, http://www.net-snmp.org/wiki/index.php/GETNEXT. Defaults to false.

Split Bulk Results:
Whether or not to split up bulk output into individual events. Defaults to false.

Non Repeaters (for GET BULK):
The number of objects that are only expected to return a single GETNEXT instance, not multiple instances. Managers frequently request the value of sysUpTime and only want that instance plus a list of other objects. Defaults to 0.

Max Repetitions (for GET BULK):
The number of objects that should be returned for all the repeating OIDs. Agent's must truncate the list to something shorter if it won't fit within the max-message size supported by the command generator or the agent. Defaults to 25.

Source type
Set sourcetype field for all events from this source.

Set sourcetype:

Select source type from list:

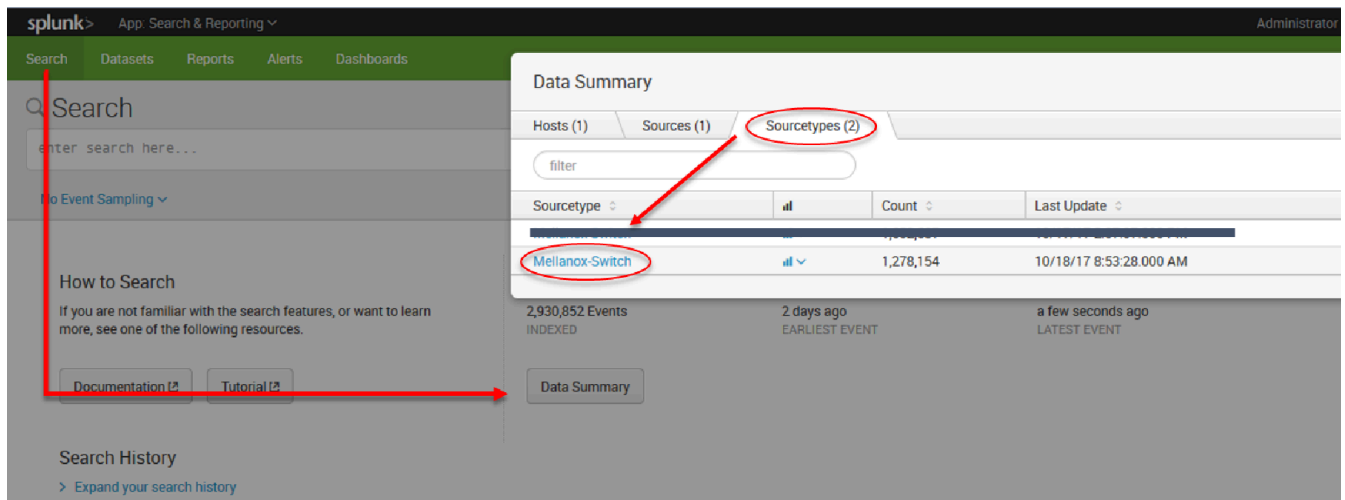
Splunk classifies all common data types automatically, but if you're looking for something specific, you can find more source types in the Splunkbase apps browser or online at www.splunkbase.com.

More settings

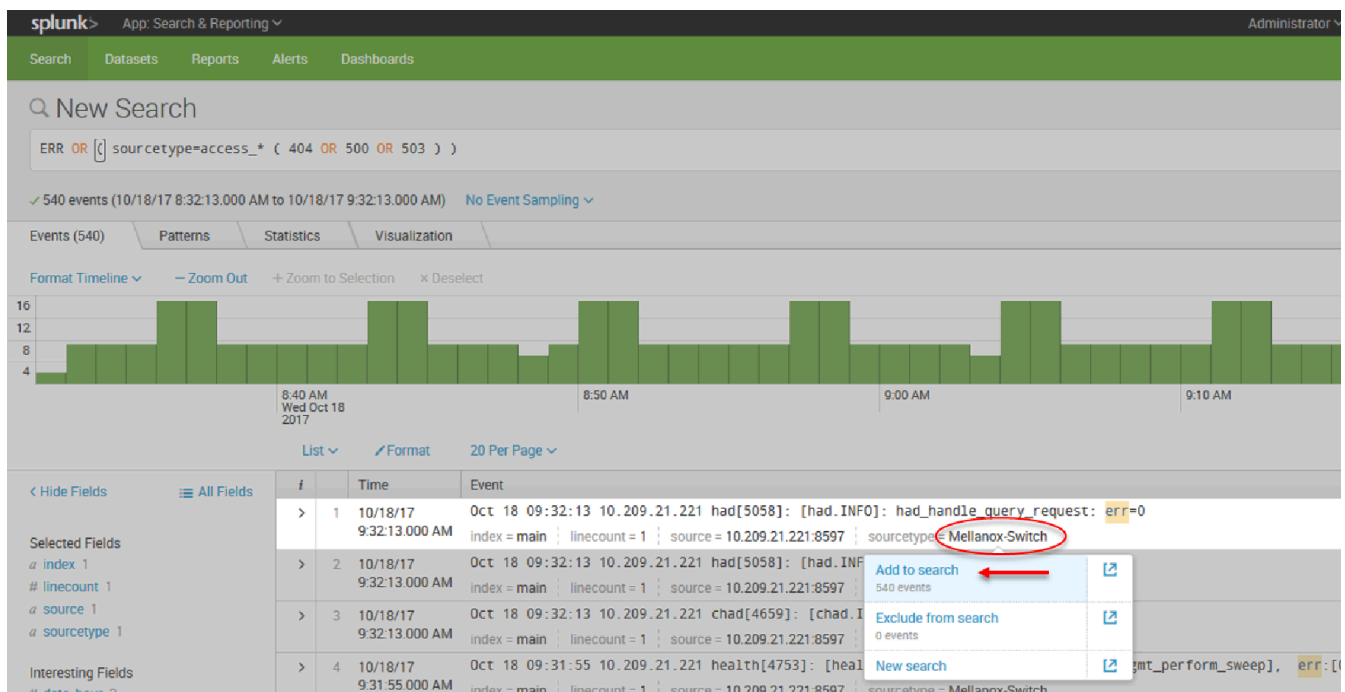
Host
Host field value:

Index
Set the destination index for this source.
Index:

13. After configuration is complete it is recommend to run Mellanox-Switch again: Search > Data Summary > Sourcetypes > Mellanox-Switch.



14. Select “Mellanox-Switch” and “Add to search”.



15. You can add to search any value that is relevant for you.



nat 20 Per Page ▾

Event	
Oct 18 09:01:31 10.209.21.221	dhclient[4508]: dhc6: send_packet6() sent -1 of 151 bytes
host = 10.209.21.221 linecount = 1 source = 10.209.21.221:8597 sourcetype = Mellanox-Switch	
Oct 18 09:01:31 10.209.21.221	dhclient[4508]: send_packet6: Network is unreachable
host = 10.209.21.221 linecount = 1 source = 10.209.21.221:8597 sourcetype = Mellanox-Switch	
Oct 18 09:01:31 10.209.21.221	dhclient[4508]: XMT: Solicit on mgmt1, interval 109220ms.
host = 10.209.21.221 linecount = 1 source = 10.209.21.221:8597 sourcetype = Mellanox-Switch	
Oct 18 09:01:31 10.209.21.221	arpd[4965]: TID 140429637707520: [arpd.INFO]: linux_ifindex: 4
host = 10.209.21.221 linecount = 1 source = 10.209.21.221:8597 sourcetype = Mellanox-Switch	

Note

Patterns can be viewed not on real time and you can create alert on most repeatable events.

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