Troubleshoot Statistics Database and Disk Ratio on Cisco vManage

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Introduction

This document describes Statistics Database principles and disk resources relation to align requirements.

Prerequisites

Requirements

Cisco recommends that you have knowledge of this topics:

- Cisco Software-Defined Wide Area Network (SD-WAN)
- Cisco vManage Controller Graphic User Interface (GUI)

Components Used

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Note: This document is not restricted to any software version.

Statistics Database

The Statistics Database is one of the main Network Manager Services (NMS) of the vManage controller, it keeps statistical data for audit logs, alarms, events, Deep Packet Inspection (DPI), Netflow, security features and so on.

It uses Elastic Search service to handle and process each feature information with the use of indexes, after it processes the collection of data, the elastic information can be polled from the vManage GUI.

Based on the disk space resources, each vManage calculates automatically its Maximum Available Space to allocate in the Statistics Database Configuration; which by default assigns 5 GB per feature; this can be modified as per requirements.

Before to assign any non-default value of disk space per feature, it is mandatory to validate the <u>Cisco</u> <u>vManage Recommended Computing Resources</u> per software version and overlay details, which are alinged specially if DPI feature is enable; noticed that after 20.6 computing resources replace DPI acronym for SAIE.

How to Estimate and Modify the Disk Usage Per Feature

To determine the required disk space to assign to each feature use the next Application Programming Interface (API) call:

https://vmanage-ip:port/dataservice/management/elasticsearch/index/size/estimate

Replace vmanage-ip:port with the IP and port of the vManage. This API call returns a JavaScript Object Notation (JSON) response with the total disk space and granular details of required disk space to save feature statistics for 1 day, 7 days, 14 days, 30 days, 90 days, 180 days and 1 year.

To validate the current disk assignation in vManage and modify it, navigate to Administration > Settings > Statistics Database Configuration.

Click Edit and modify the size to the desired value based on the overlay requirements, then click Save.

Best Practices

Administration Settings

Before to assign resources, it is necessary to validate which features and for which devices statistics are enable to collect data, to do so, navigate to **Administration** > **Settings** > **Statistics Settings**.

Reverse Praxy	Disabled				
Statistics Setting					
Aggregated DPI		C Enable All	O Disable All	O Custom	O vAnalytics only
AppHosting		 Enable All 	O Disable All	O Custom	O vAnalytics only
Approute		Enable All	O Disable All	O Custom	O vAnalytics only
Artstatistics		Enable All	O Disable All	O Custom	O vAnalytics only
Bridge Interface		C Enable All	O Disable All	O Custom	O vAnalytics only
3ridgeMac		Enable All	O Disable All	O Custom	O vAnalytics only
CloudExpress		C Enable All	O Disable All	O Custom	O vAnalytics only
Device System Status		C Enable All	O Disable All	O Custom	O vAnalytics only
DPI		C Enable All	O Disable All	O Custom	O vAnalytics only
00		C Enable All	O Disable All	O Custom	O vAnalytics only
Flow Log		C Enable All	O Disable All	O Custom	O vAnalytics only
Firewall		Enable All	O Disable All	O Custom	O vAnalytics only
nterface		Enable All	O Disable All	O Custom	O vAnalytics only
PS Alert		C Foable All	O Disable All	O Oustom	O vAnalytics only

This section shows all features for which vManage Collects data, by default Enable All is set for all

features:

- Enable All: Statistics data are processed for all Cisco Edge devices that are operational. If Cisco vAnalitics is enabled and configured, the statistics are also sent out to the cloud.
- **Disable All**: Statistics data is not collected for any operational device.
- **Custom**: This allows to do a full range of customization for the devices to which data collection is required.
- **vAnalytics Only**: All statistics, in the selected feature, are sent to vAnalytics without the need of vManage to process or show them.

After validate that Statistics are enable for the desired features and devices, as this is historical information that consumes disk, it is not possible to assign the total disk space to all features even though vManage allows it; instead, the maximum available space in the Statistics Database Configuration must be split among all features, this value is visible in the **Administration > Settings > Statistics Database Configuration**; where at the same time the resources are assigned per feature.

Statistics Type Approute Umbrella	Current Size(GB)	Size(GB)
	1.5757	
Umbrella		5
	0	5
DPI	0	5
Wian Client Info	0	5
QoS	0	5
Interface	1.1931	5
CloudExpress	4.1468	5
Device Events	4.1339	5
Alarm	0.0007	5
vnf statistics	0	5
Device System Status	4.5175	5
Flow Log	0	5
Bridge Interface	0	5
Device Configuration	0.0215	5
Urlf	0.0122	5
IPS Alert	0	5
Audit Log	0.0028	5
o Total	20.0420 GB	100.0000 GB

The best practice is to configure Statistics Database Configuration disk size not to exceed the 80% of the vManage /opt/data partition; this avoid to run out of resources that can cause unexpected and shorter time periods of statistics saved.

Note: To check the free disk space use the command df -kh | grep "opt/data" in vShell.

Besides the assignation of disk, when DPI/SAIE is enabled, the Statistics poll time must be set to 30 minutes or higher as a best practice; the default **Collection Interval(minutes)** is 30 minutes.

To modify the poll timer, from the Cisco vManage menu, navigate to Administration > Settings > Statistics Configuration. Click Edit and modify the Collection Interval(minutes) to the desired value based on the DPI traffic, click Save.

Common Statistics Database Issues

vManage does not show oldest statistics from the specified time range

When in **Monitor > Network > Select Device** and view options inside **Applications**, **WAN**, **Security Monitoring** sections; after a time range is selected in the time filter, old statistics are not displayed or saved data is less than expected.

Network > Applications - DPI Select Device	cedge1 20.20.20.1 Site ID: 20202020 Device Model: CSR1000v ()	
APPLICATIONS	Filter ~	1h 3h 6h 12h 24
DPI Applications	47.68 MB	Legend
Interface	42.92 MB	audio_video
QoS	NL 72 112	file_server
ON-DEMAND	34.35 MB	network_se
TROUBLESHOOTING	33.38 MB	standard
SSL Proxy	28.61 M8	Web
AppQoE TCP Optimization	g 23.84 MB	
AppQoE DRE Optimization	3	
WAN Throughput	19.07 M	
Flows	14.33 MB	
Top Talkers	9.54 MB	-
WAN	4.77.16	-
TLOC		
Tunnel	5ep 27, 18:00 5ep 27, 20:00 5ep 27, 22:00 5ep 28, 00:00 5ep 28, 02:00 5ep 28, 04:00 5ep 28, 06:00 5ep 28, 08:00 5ep 28, 10:00 5ep 28, 12:00 5ep 28, 14:00 5e	16:00

This issue happens because of the disk assignation in the **Administration > Settings > Statistics Database Configuration** is less than the estimated value obtained by the API call <u>https://vmanage-</u> <u>ip:port/dataservice/management/elasticsearch/index/size/estimate</u> for each feature.

vManage does not update statistics

When in **Monitor > Network > Select Device** and view options inside **Applications**, **WAN**, **Security Monitoring** sections noticed Statistics, statistics graphs update but not in real time.

1	Network > Applications - DPI						
	Select Device	cedge1 20.20.20.1 Site ID: 2020202	0 Device Model: CSR1000v ()				
	APPLICATIONS	Filter 🗸				16	3h 6h 12h
	DPI Applications						Legend
	Interface						authentic
	Qo5	439.45 KB					encrypter
	ON-DEMAND TROUBLESHOOTING	390.63 KE					file-serve
	FEC Recovery Rate	341.8 KB					web
	SSL Proxy	292.97 KB					
	AppQoE TCP Optimization	abry 244.14 KB	1				
	AppQoE DRE Optimization						
1	WAN Throughput	195.31 KB					
	Flows	146.43 KB					
	Top Talkers	97.66 X8					
	WAN						
	TLOC	41.43 KB					
	Tunnel	0 May 11, 11:20 May 11, 1	1.25 May 11, 11:30 May 11, 11:35 May 11, 11:40	May 11, 11:45 May 11, 11:50 May 11, 11:55 May 11,	12:00 May 11, 12:05 May 11, 12:10	May 11, 12:15	
	SECURITY MONITORING	Q. Search					
	Firewall						
	Intrusion Prevention	0 Rows Selected					
	URL Filtering						Total Rows: 0
	Advanced Malware Protection	Application Family		Usage 👻	FEC Recovery Rate (%)	Percentage of 1	fotal Traffic
	TLS/SSL Decryption			No data available			

This happens because vManage updates statistics data based on the **Statistics Configuration Timer** which defaults to 30 minutes, when DPI/SAIE is enabled, higher collection values are recommended; as consequence, the vManage takes longer than 30 minutes to process and update the information.

vManage shows "No data to Display"

When in **Monitor > Network > Select Device** and view options inside **Applications**, **WAN**, **Security Monitoring** sections, **''No Data to Display''** message is displayed instead the graph.

Select Device	cedge1 20.20.20.1 Site ID: 20202020 Device M	odet GSR1000v 🕦					
APPLICATIONS	Filter v				1h 3	in 6h 12h <mark>24</mark> h	1
DPI Applications						Legend	
Interface							
QoS							
ON-DEMAND TROUBLESHOOTING							
FEC Recovery Rate							
SSL Proxy							
AppQoE TCP Optimization		No data to display					
AppQoE DRE Optimization							
WAN Throughput							
Flows							
Top Talkers							
WAN							
TLOC							
Tunnel .							_
SECURITY MONITORING	0						
Firewall	Q. Search						
Intrusion Prevention	0 Rows Selected						
URL Filtering						Total Rows: 0	-
Advanced Malware Protection	Application Family	Us	sage 💌	FEC Recovery Rate (%)	Percentage of To	otal Traffic	
TLS/SSL Decryption		No data a	vailable				

Possible causes:

- Total assignment and disk used in **Administration > Settings > Statistics Database Configuration** section exceed the Maximum Available Space limit specified at the top of the section; in those cases, the Total Space is flagged in red color as a warning message.
- /opt/data partition exceeds 80% of usage.
- Collection Interval(minute) is set to less than 30 minutes.
- Analytics Only is selected in Administration > Settings > Statistics Settings for the selected feature, so data is only visible on vAnalytics.

Related Information

- <u>Update Statistics Database Settings in Cisco vManage</u>
- <u>Cisco vManage Command your SD-WAN</u>
- The Cisco SD-WAN Solution