vRealize Operations Management Pack for Smart Assurance Adapter Guide

VMware Smart Assurance 10.0

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VMware, Inc.
3401 Hillview Ave.
Palo Alto, CA 94304
www.vmware.com

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About This Book

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The *vRealize Operations Management Pack for Smart Assurance Adapter Guide* describes how to install and configure the Management Pack for Adapters for vRealize Operations Manager. It also explains how this management pack works and how to configure its adapters.

Intended Audience

The information in this guide is intended for storage administrators, data center architects, and IT operators.

Purpose

This document provides detail information about the Smart Assurance Adapter configuration and usages information.

Introduction to the vRealize Operations Management Pack for Smart Assurance Adapter

2

The Telco service providers needs consolidation of various services to serve their customers. Those services are running on complex, dynamic, and heterogeneous infrastructures. End-to-end service assurance of such systems becomes increasingly complicated with the deployment of rapidly growing cloud computing services and virtualized environments.

End-to-end Service Assurance involves collecting data from heterogeneous data sources, processing different types of data and presenting it in a visualization layer. The Smart Assurance Adapter implementation provide generic solution for collecting data from several heterogenous systems and represent it in a unified model which provides customers a seamless experience of visualization of topology and metrices in single glass of pane.

Solution Overview

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The Smart Assurance Adapter uses the existing management pack framework of vRealize Operations Manager to provide the solution. This management pack has uses the unified modeling to represent the collected data.

The management pack for Smart Assurance has the following outlines:

- The describe.xml file in management pack contains the information about the various network elements and the supported metric is designed in accordance with the unified data model.
- The describe.xml file is being read during the initialization process of adapter. The processed information then stored in the internal data structure for further future reference.
- The Kafka bus is one of the major subsystem of the solution. The management pack implements the kafka consumer to read the data from the kafka bus.
- The vRelalize Operation Manager framework periodically invokes onCollect() hook method of management pack and subsequently the management pack poll kafka bus in order to receive the data.
- The received data is checked for acceptability condition before processing. This check is driven by the information present in the describe.xml file. If the data is not modelled, then it is discarded.
- After the data passes the pre-condition:
  - The resulting data is parsed
  - The output data is passed through a filter
  - Non-monitored network adapter metrics may need to be filtered for certain usages.

  For example, non-monitored network adapter metrices may needs to be filtered for certain usages.
- After the data passes through the filter it is mapped to vROps resource which is again defined in unified model. Also, the unified model is used to convert the received data to metrices associated with resource.

Installing and Configuring the Management Pack

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To install a management pack, download the PAK file as part of the solution, and install it. Once installed you can configure the management pack and the adapter instance settings.

Prerequisites

Smart Assurance adapter needs following subsystems to be installed and pre-configured for it to be functional:

- DCF collectors
- Kafka
- Various data sources (for example SMART IP server)
- vROps

Procedure

1. Log in to the vRealize Operations Manager user interface with administrator privileges.
2. In the menu, click **Administration** and then in the left pane, click **Solutions**.
3. On the **Solutions** page, click the **Add** icon.
4. Browse to locate the temporary folder and select the PAK file.

   For example, `managementpack_name-buildnumber.pak`.
5. Click **Upload**.

   The upload might take several minutes.
6. Read and accept the EULA and then click **Next**.

   Installation details appear in the window during the process.
7. Ensure that you install the PAK file on the master node.
8. When the installation is complete, click **Finish**.

What to do next

Configure the adapter instance for the management pack.

Post Installation Task

After installing the Smart Assurance Adapter Management Pack, admin needs to edit the notifications.html file to point to the Notification log view GUI serve.

Procedure

1. After installing the Smart Assurance Adapter Management Pack, `notifications.html` is present at `/usr/lib/vmware-vcops/user/plugins/inbound/SMARTSAssuranceAdapter/conf/dashboards/`
2. Open the `notifications.html` file.
3. Update the "href" value with the actual notification log view server details, for example:

   ```
   <a href="<IpAddress/hostname>"
   ```

4. Go to the below location:

   ```
   /usr/lib/vmware-vcops/tools/opscli
   ```

5. Import `notifications.html`, by invoking the below command:

   ```
   VMWARE_PYTHON_BIN ops-cli.py file import txtwidget /usr/lib/vmware-vcops/user/plugins/inbound/SMARTSAssuranceAdapter/conf/dashboards/notifications.html
   ```

Configure the Smart Assurance Adapter

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After you install the management pack, add and configure an instance to start collecting data. Primarily SmartAssurance adapter needs kafka broker details to be configured for functioning.

Procedure

1 In the menu, click **Administration** and then in the left pane, click **Solutions**.

2 On the **Solutions** page, click **Smart Assurance Adapter**, and click the **Configure** icon.

3 Select the instance in the left pane and configure the instance settings.

Option	Description	Default Value
Display Name	Enter a name for the adapter instance.	
Description	Enter a description for the adapter instance.	
KafkaBrokerIP:Port	Enter the FDQN or the IP address for the Kafka broker IP and port. **Note** The kafka broker IP and port needs to be separated by ":" and the multiple IP Addresses must be separated by comma ",".	
Kafka Topic(s)	Enter the kafka topic name. These topics must be pre-configured on kafka and various DCF collector must be producing data in that topic. The multiple topic must be separated by comma ",".	
Kafka read time out Interval	Waiting period in seconds for kafka client to get the data on the kafka bus before it times out in that particular collection cycle.	120 seconds
Kafka Message Start Offset	Enter the kafka message. Kafka client will start reading messages from the specified offset value.	0

Option	Description	Default Value
Number of Retry	Number of retries attempted to read the data on failure.	2
Number of Iteration	Enter the number of times Kafka consumer poll data from kafka bus in one vROps polling cycle.	2

4 To add the credentials used to access the Kafka Server, click the **Add** icon.

a To add the credentials used to access the Kafka Server with authentication enabled:

Option	Description
Credential Name	Enter the name by which you are identifying the configured credentials.
USERNAME	Enter the username with which you connect to kafka.
PASSWORD	Enter the password with which you connect to kafka.

b To add the credentials used to access the Kafka Server with authentication disabled:

Option	Description
Credential Name	Enter the name by which you are identifying the configured credentials.
USERNAME	Leave the username blank.
PASSWORD	Leave the password field blank.

Note SASL_SSL and SSL authentication mechanism are not supported.

5 Click **OK** and then click **Test Connection** to validate the connection.

6 You can configure the **Advanced Settings** or leave it as default.

7 Click **Save Settings**.

The adapter instance is added to the list.

Management Pack for Smart Assurance Adapter

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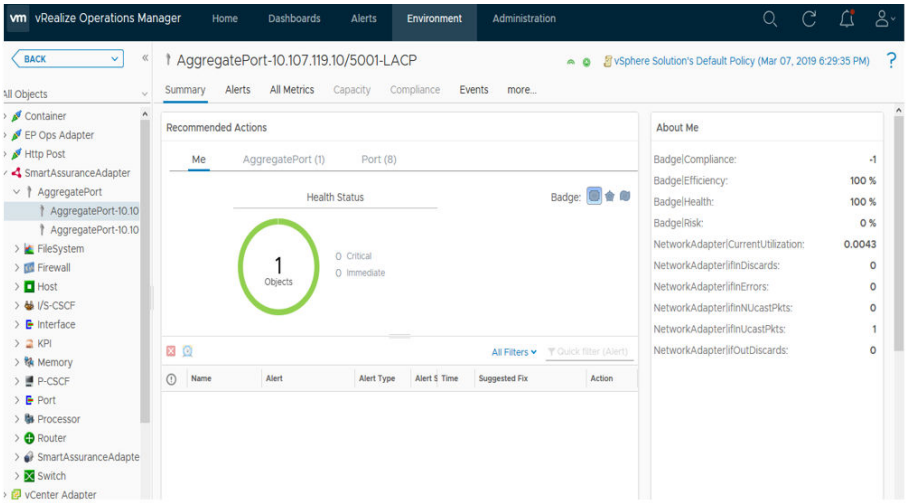
The Management Pack for Smart Assurance Adapter contains prepackaged dashboards for alerts, health, performance, capacity, and top utilization metrics. Post installation, it adds the preconfigured dashboards and alert definitions to monitor and troubleshoot the components in your storage area network. Once the data collection started from kafka bus the collected information can be viewed primarily from two panes Environment and Dashboard.

This chapter includes the following topics:

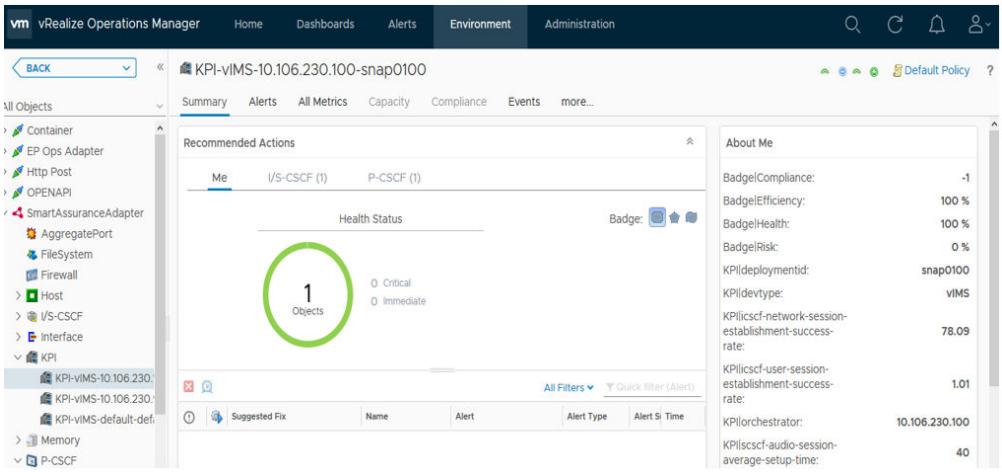
Environment Tab

The environment tab represents the tree view of the collected data. It also captures the parent child relationship of the object. Upon selecting the object from tree view it displays the Health Status of the object and the collected metrices in *About Me* pane.

Tree view of the physical network elements

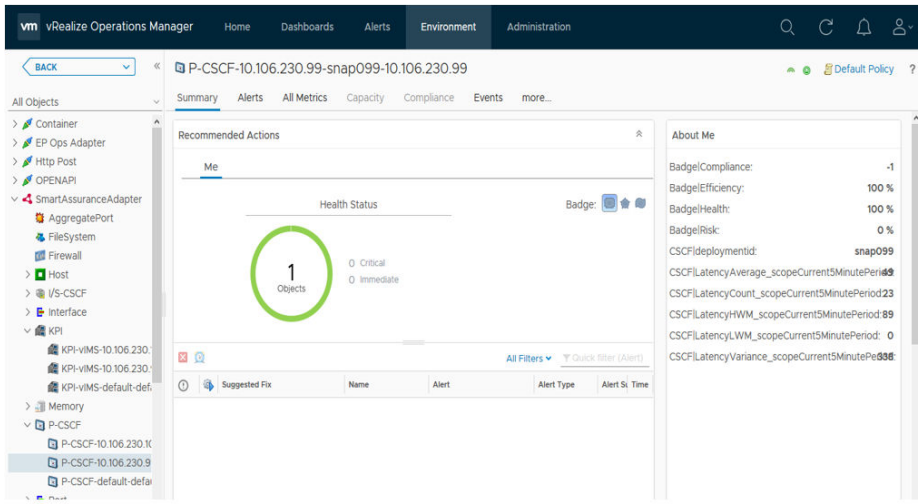


Tree view of KPI Metrices



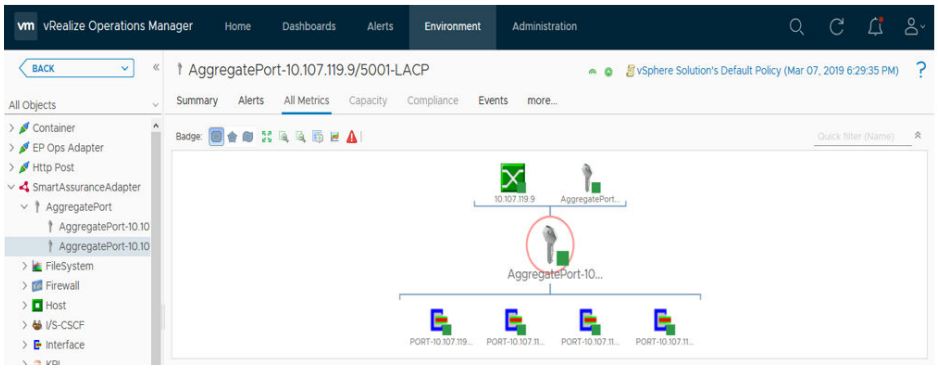
Tree view of vIMS Metrices

The vIMS metrices are represented as children of the I/S-CISF and P-CSCF objects.



Parent child relationship in physical network

Typically, the parent objects are placed on the top of the child objects in the display pane.

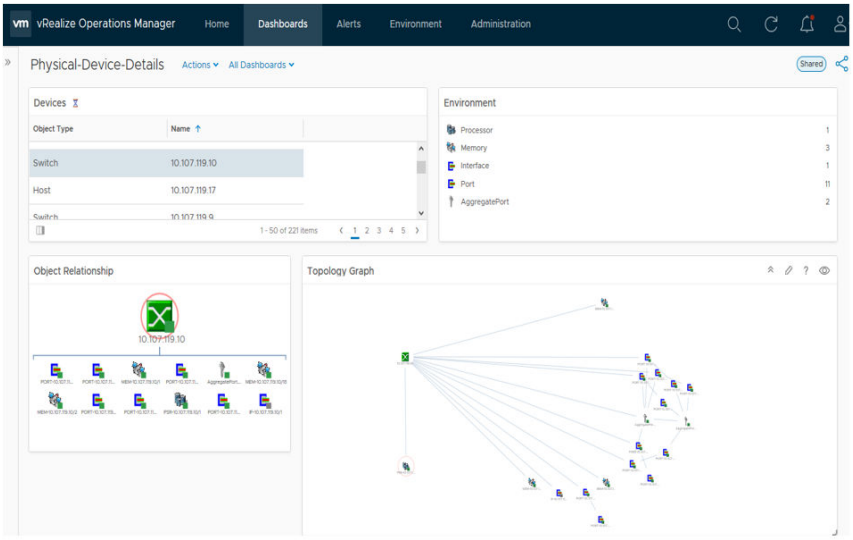


Dashboard Tab

Smart Assurance Adapter provides some default dashboards for customer to view various metrices. These dashboards can be reached by clicking the Dashboard tab. vROps provides various options to create dash board that user can use for various requirements.

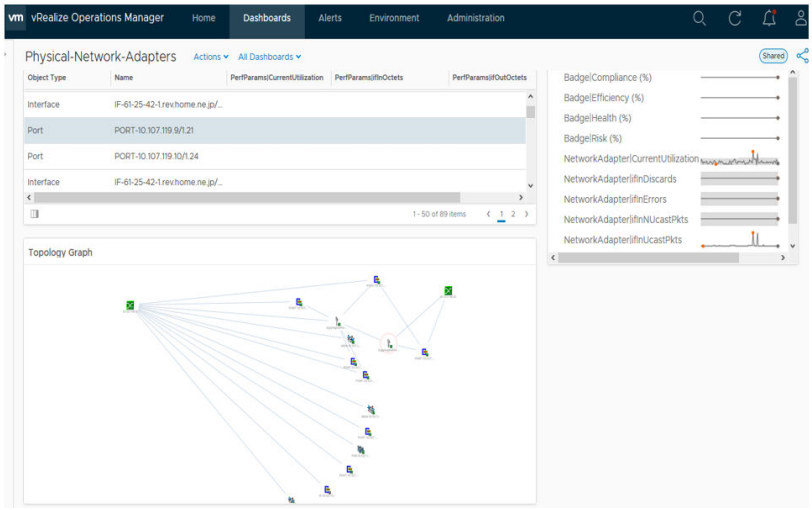
Physical Network Dashboard - Physical Device Details

This dashboard displays the various physical network devices and their relationship along with its containment information. The topology graph displays the associated topological elements of the selected physical device.



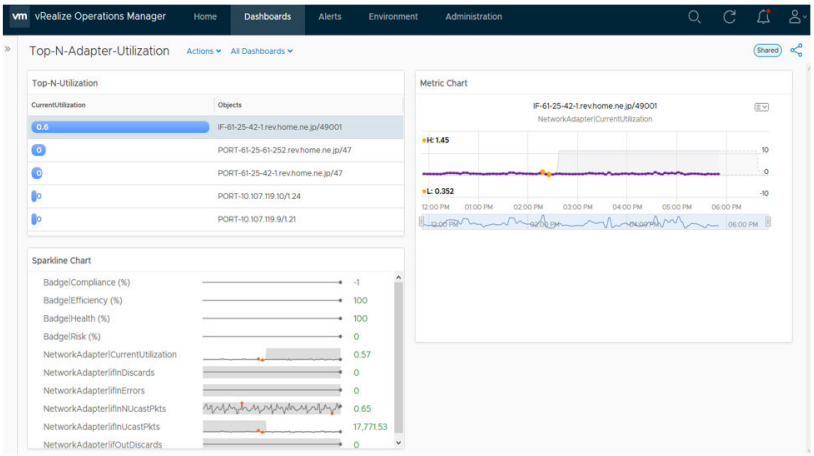
Physical Network Dashboard - Physical Network Adapters

This dashboard displays various network adapters (interface, Port, Aggregate Port) and it's metrices along with connected topology details. It also displays the collected metrices in a trend graph.



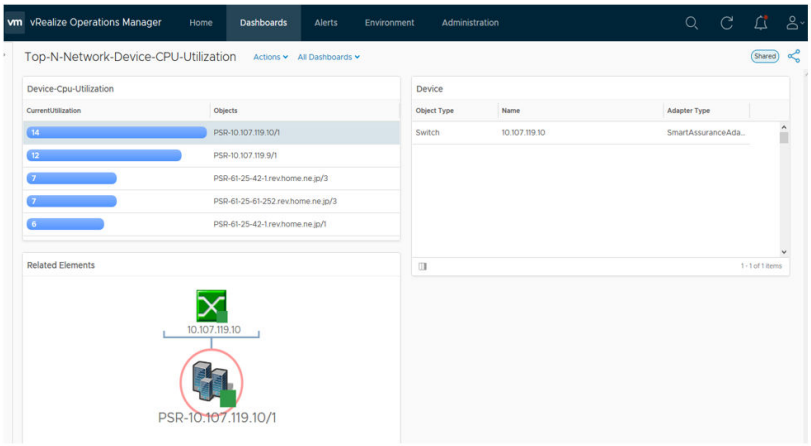
Physical Network Dashboard - Top-N-Adapter-Utilization

This report displays the Top 5 Network-Adapters that are highly utilized.



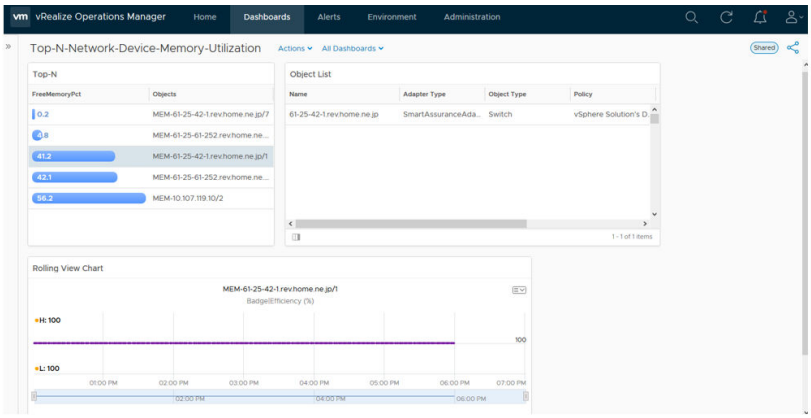
Physical Network Dashboard - Top-N-Network-Device-CPU-Utilization

This report displays the Top 5 CPU that are highly utilized along with the device information.



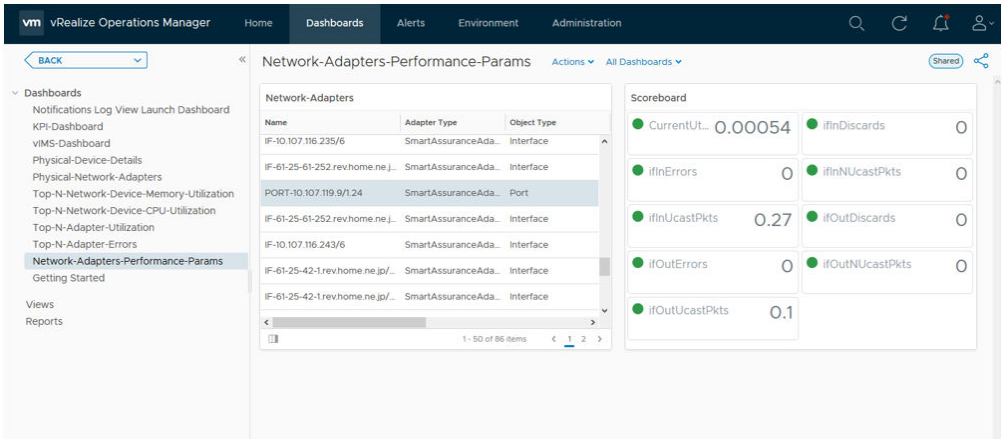
Physical Network Dashboard - Top-N-Network-Device-Memory-Utilization

This report displays the Top 5 Memory that are highly utilized along with the device information.



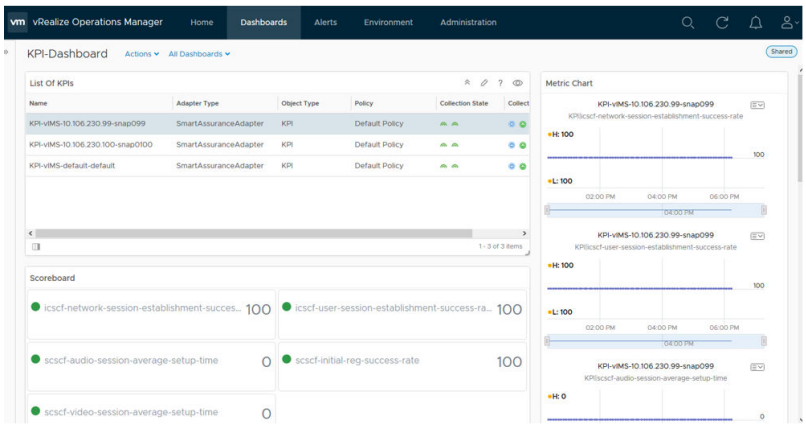
Physical Network Dashboard - Network-Adapters-Performance-Params

This report displays various network adapters and available performance metrices. Upon selecting the adapter, the various collected metrics gets displayed in the right most frame.



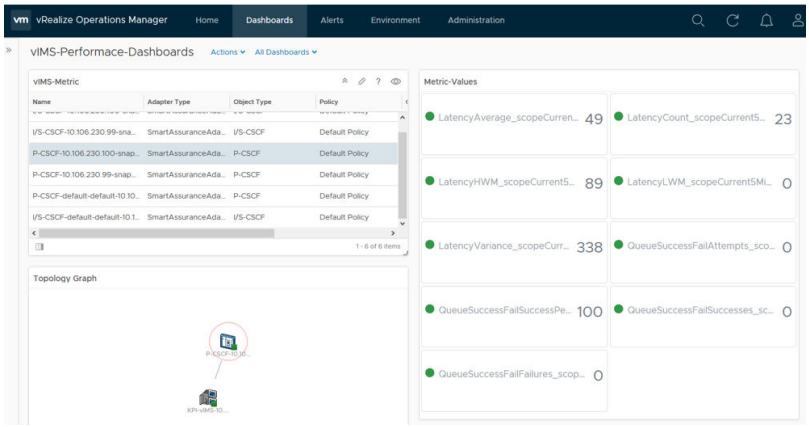
KPI - Dashboards

This dashboard provides the details of KPI collected by Smart Aassurance Adapter. The "List of KPIs" displays the list of KPIs. The Scoreboard displays the current values of various metrices and right most frame provides the metric chart.



Smart Metric Dashboard

This dashboard provides information about collected metrices of Smart deployment and topology information.


vRealize Operations Manager
Home
Dashboards
Alerts
Environment
Administration
vIMS-Performace-Dashboards
Actions
All Dashboards
vIMS-Metric
Name
Adapter Type
Object Type
Policy
I/S-CSCF-10.106.230.99-sna...
SmartAssuranceAda...
I/S-CSCF
Default Policy
P-CSCF-10.106.230.100-snap...
SmartAssuranceAda...
P-CSCF
Default Policy
P-CSCF-10.106.230.99-snap...
SmartAssuranceAda...
P-CSCF
Default Policy
P-CSCF-default-default-10.10...
SmartAssuranceAda...
P-CSCF
Default Policy
I/S-CSCF-default-default-10.1...
SmartAssuranceAda...
I/S-CSCF
Default Policy
1 - 6 of 6 items
Topology Graph
Metric-Values
LatencyAverage_scopeCurren... 49
LatencyCount_scopeCurrent5... 23
LatencyHWM_scopeCurrent5... 89
LatencyLWM_scopeCurrent5Mi... 0
LatencyVariance_scopeCurr... 338
QueueSuccessFailAttempts_sco... 0
QueueSuccessFailSuccessPe... 100
QueueSuccessFailSuccesses_sc... 0
QueueSuccessFailFailures_scop... 0

Management Pack for Smart Assurance Adapter Metrics 7

The Management Pack for Smart Assurance Adapter collects metrics for objects. It also displays object properties in the vRealize Operations Manager user interface.

This chapter includes the following topics:

Statistical Metrics of the Management Pack for Smart Assurance Adapter

The Management Pack for Smart Assurance Adapter collects statistical metrics of objects.

You can view these metrics from the vRealize Operations Manager user interface, click **Administration** > **Configuration** > **Inventory Explorer** > **Adapter Instances** > **SmartAssuranceAdapter Instance**. Alternately, you can also click **Environment** > **All Objects**> **SmartAssuranceAdapter** Instance.

Physical Device Metrics

The Management Pack for Smart Assurance Adapters collects metrics about the devices discovers in SMARTS IP.

Table 7-1. Physical Device Metrics

Device	Metric Name
Switch	Reachability
	ip
	vendor
	model
	devdesc
Router	Reachability
	ip
	vendor

Table 7-1. Physical Device Metrics (Continued)

Device	Metric Name
	model
	devdesc
Host	Reachability
	ip
	vendor
	model
	devdesc
Firewall	Availability
	ip
	vendor
	model
	devdesc
Port	CurrentUtilization
	ifInDiscards
	ifInUcastPkts
	ifOutOctets
	ifOutUcastPkts
	ifOutErrors
	ifInOctets
	ifInNUcastPkts
	ifInErrors
	ifOutNUcastPkts
	ifOutDiscards
Interface	CurrentUtilization
	ifInDiscards
	ifInUcastPkts
	ifOutOctets
	ifOutUcastPkts
	ifOutErrors
	ifInOctets
	ifInNUcastPkts
	ifInErrors
	ifOutNUcastPkts
	ifOutDiscards

Table 7-1. Physical Device Metrics (Continued)

Device	Metric Name
AggregatePort	CurrentUtilization
	ifInDiscards
	ifInUcastPkts
	ifOutOctets
	ifOutUcastPkts
	ifOutErrors
	ifInOctets
	ifInNUcastPkts
	ifInErrors
	ifOutNUcastPkts
	ifOutDiscards
FileSystem	CurrentUtilization
	Capacity
	FreeCapacity
Processor	CurrentUtilization
Memory	FreeMemoryPct
	TotalMemory
	TotalBufferAllocationFailures
	LargestFreeBuffer
	FreeMemory

vIMS Performance Metrics

The Management Pack for Smart Assurance Adapter collects metrics about the Virtual IP Multimedia Subsystem(vIMS) components.

Table 7-2. vIMS Performance Metrics

Source	Metric Name
Sprout	ICSCFSessionEstablishmentNetworkSuccesses_scopeCurrent5MinutePeriod
	ICSCFSessionEstablishmentNetworkAttempts_scopeCurrent5MinutePeriod
	ICSCFSessionEstablishmentNetworkFailures_scopeCurrent5MinutePeriod
	ICSCFSessionEstablishmentNetworkSuccessPercent_scopeCurrent5MinutePeriod
	SCSCFInitialRegistrationAttempts_scopeCurrent5MinutePeriod
	SCSCFInitialRegistrationSuccesses_scopeCurrent5MinutePeriod
	SCSCFInitialRegistrationFailures_scopeCurrent5MinutePeriod
	SCSCFInitialRegistrationSuccessPercent_scopeCurrent5MinutePeriod

Table 7-2. vIMS Performance Metrics (Continued)

Source	Metric Name
	SCSCFAudioSessionSetupTimeAverage_scopeCurrent5MinutePeriod
	SCSCFAudioSessionSetupTimeVariance_scopeCurrent5MinutePeriod
	SCSCFAudioSessionSetupTimeHWM_scopeCurrent5MinutePeriod
	SCSCFAudioSessionSetupTimeLWM_scopeCurrent5MinutePeriod
	SCSCFAudioSessionSetupTimeCount_scopeCurrent5MinutePeriod
	SCSCFVideoSessionSetupTimeAverage_scopeCurrent5MinutePeriod
	SCSCFVideoSessionSetupTimeVariance_scopeCurrent5MinutePeriod
	SCSCFVideoSessionSetupTimeHWM_scopeCurrent5MinutePeriod
	SCSCFVideoSessionSetupTimeLWM_scopeCurrent5MinutePeriod
	SCSCFVideoSessionSetupTimeCount_scopeCurrent5MinutePeriod
	ICSCFSessionEstablishmentAttempts_scopeCurrent5MinutePeriod
	ICSCFSessionEstablishmentSuccesses_scopeCurrent5MinutePeriod
	ICSCFSessionEstablishmentFailures_scopeCurrent5MinutePeriod
	ICSCFSessionEstablishmentSuccessPercent_scopeCurrent5MinutePeriod
Bono	QueueSuccessFailSuccesses_scopeCurrent5MinutePeriod
	QueueSuccessFailFailures_scopeCurrent5MinutePeriod
	QueueSuccessFailSuccessPercent_scopeCurrent5MinutePeriod
	QueueSuccessFailAttempts_scopeCurrent5MinutePeriod
	LatencyAverage_scopeCurrent5MinutePeriod
	LatencyVariance_scopeCurrent5MinutePeriod
	LatencyHWM_scopeCurrent5MinutePeriod
	LatencyLWM_scopeCurrent5MinutePeriod
	LatencyCount_scopeCurrent5MinutePeriod
K4M	scscf-initial-reg-success-rate
	scscf-video-session-average-setup-time
	scscf-audio-session-average-setup-time
	icscf-user-session-establishment-success-rate
	icscf-network-session-establishment-success-rate

8 Troubleshooting Methodologies

Logs and log locations

Log for Smart Assurance Adapter is located at:

`/storage/vcops/log/adapters/SmartAssuranceAdapter`

Logging and troubleshooting

How do I increase logging levels if required?

To change the log label follow the below steps:

1 Go to **Administration**> **Support** > **Logs**.

2 From the **Group by** drop-down, select **Log Type**.

3 Select **COLLECTOR**.

4 Click **Edit Properties** icon, **Edit Logger Configuration** window appears.

5 Add a new **Log Class** by pressing **+** icon.

6 Enter the name of a log class to add: as *com.vmware.sas.smart.assurance.adapter*.

7 Change the **Logging Level** to **All** to get all the log.