

VMware SDDC Health Monitoring Solution

Management Packs for vRealize Operations Manager 8.4

You can find the most up-to-date technical documentation on the VMware website at:

<https://docs.vmware.com/>

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VMware SDDC Health Monitoring Solution

The documentation for the *VMware SDDC Health Monitoring Solution* for vRealize Operations Manager includes information about the installation, configuration, alerts, and provides details of a dashboard, which gives a graphical explanation of health of SDDC management components.

The VMware SDDC Health Monitoring Solution monitors the SDDC Management stack and provides badges for health and alerts related to configuration and compliance of SDDC product components.

Intended Audience

The information in this guide is intended for operations personnel who set up and support the VMware vRealize Operations Manager infrastructure.

Introduction to VMware SDDC Health Monitoring Solution

1

The VMware SDDC Health Monitoring Solution monitors the SDDC management stack and provides color coded metrics for health and efficiency of different components present as part of the SDDC management stack. With the dashboard, you can track SDDC management stack status and monitor the overall health and configuration of the SDDC management stack.

The health of a product is organized into the following categories:

Availability

Indicates that the necessary sets of services are up and in running the state in the product boundaries.

Usability

Indicates the consumption of product functions in terms of configuration, performance, security, and compliance.

SDDC Health Monitoring in vRealize Operations Cloud

The SDDC Health Monitoring in vRealize Operations Cloud monitors vCenter and vSAN. It has the SDDC Management Health Overview and SDDC Health Historic Trend dashboards.

Installing the VMware vRealize Operations Manager Management Pack for VMware Cloud Provider Pod

2

You can download the VMware Cloud Provider Pod MP from the VMware Solution Exchange web site.

This chapter includes the following topics:

- [Install the VMware SDDC Health Monitoring Solution](#)

Install the VMware SDDC Health Monitoring Solution

The VMware SDDC Health Monitoring Solution consists of a PAK file that contains default dashboards for the objects that the solution identifies.

Prerequisites

- Download the VMware SDDC Health Monitoring Solution from VMware Solutions Exchange.
- Log in to vRealize Operations Manager and install the VMware SDDC Health Monitoring Solution.

Procedure

- 1 Log in to the vRealize Operations Manager user interface with administrator privileges.
- 2 In the menu, select **Administration** and in the left pane select **Solutions > Repository**.
- 3 On the **Repository** tab, click **Add/Upgrade**.
- 4 Browse to the folder where you downloaded the PAK File and select the PAK file.
- 5 Click **Upload**.

The upload might take several minutes.

- 6 Read and accept the EULA, and click **Next**.

Installation details appear in the window during the process.

7 When the installation is complete, click **Finish**.

Note

- SDDC adapter instances are added by default per collector nodes. Once VMware SDDC Health Monitoring Solution is installed, vRealize Operations Manager automatically creates adapter instance and start collecting objects. Therefore, you need not configure the adapter instance separately.
 - When you install the VMware SDDC Health Monitoring Solution and try adding a data node to the vRealize Operations Manager cluster, SDDC Health Adapter instance is not created. To fix, create a SDDC Health Adapter instance manually from the UI after adding the node.
 - Even for some Cloud proxies in vRealize Operations Cloud or vRealize Operations on-premises, if the adapter instance is not created, you must create the adapter instance manually. Do not modify the existing adapter instances of other vRealize Operations nodes. For example, when there are four data nodes, and one of them does not have the SDDC health adapter instance then you can manually create the SDDC health adapter instance to such cluster.
-

Configure the vRealize Business for Cloud Adapter

3

Integrate VMware vRealize Business for Cloud with vRealize Operations Manager to view your infrastructure performance, cost information, and also troubleshooting tips.

You can connect vRealize Operations Manager to a single instance of vRealize Business for Cloud.

Procedure

- 1 On the menu, click **Administration** and in the left pane click **Solutions**.
- 2 Select **VMware vRealize Business for Cloud**, and click the **Configure** icon.
- 3 Enter a name for the adapter instance.
- 4 In the **vRealize Business for Cloud Server** text box, enter the IP address of the vRealize Business for Cloud server to which you want to connect.
- 5 Click **Test Connection** to verify that the connection is successful.
- 6 Click **Advanced Settings**, and in the **Collectors/Groups** text box, select the vRealize Operations Manager collector used to manage the adapter process.

If you have one adapter instance, select **Default collector group**. If you have multiple collectors in your environment, to distribute the workload and optimize performance, select the collector to manage the adapter processes for this instance.

- 7 Click **Save Settings** to finish configuration of the adapter, and click **Close**.

vRealize Business for Cloud adapter is available and is used only as a pre-configuration for SDDC health MP.

Upgrade to SDDC Health Monitoring Solution

4

You can upgrade to the latest version of VMware SDDC Health Monitoring Solution.

Prerequisites

Ensure that you have upgraded to vRealize Operations Manager 8.4.

Procedure

- 1 Log in to the vRealize Operations Manager user interface with administrator privileges.
- 2 In the menu, select **Administration** and in the left pane select **Solutions > Repository**.
- 3 On the **Repository** tab, click **Add/Upgrade**.
- 4 Browse to the folder where you downloaded the PAK File and select the PAK file.
- 5 Click **Upload**.
The upload might take several minutes.
- 6 Read and accept the EULA, and click **Next**.
Installation details appear in the window during the process.
- 7 When the installation is complete, click **Finish**.

Dashboards in the VMware SDDC Health Monitoring Solution

5

With the dashboards in the VMware SDDC Health Monitoring Solution, you can monitor specific components.

- vRealize Operations Manager
- vRealize Automation
- NSX for vSphere
- VMware vSAN
- vRealize Log Insight
- vCenter Server
- VMware Site Recovery Manager
- vRealize Orchestrator
- NSX-T
- VMware Identity Manager

This chapter includes the following topics:

- [VMware Cloud Foundation Dashboards](#)
- [Access Dashboards](#)
- [Apply Policy to SDDC Health Group](#)
- [SDDC Management Health Overview Dashboard](#)
- [SDDC Health Historic Trend Dashboard](#)
- [SDDC Health Dashboards](#)

VMware Cloud Foundation Dashboards

The VMware Cloud Foundation (VCF) dashboards cater to cloud administrators who are responsible for managing the expenses related to your cloud infrastructure. Using VCF dashboards you can manage multi-instance VCF, including proactive configuration audit, monitor performance, capacity, and troubleshoot issues related to VCF workload.

VCF Inventory Dashboard

The VCF Inventory dashboard provides an overview of the VCF inventory details in your VMware Cloud Foundation management domain components. You can use the VCF inventory dashboard to view the details of VCF solution inventory, VCF cluster list, VCF domain and VCF Kubernetes inventory environment.

You can use the dashboard widgets in several ways.

- **VCF Solution Environment** – Use this widget to know the count of vCenters, data centers, clusters, hosts, datastores, and VMs in your VCF environment.
- **VCF Kubernetes Inventory Environment** – Use this widget to know the count of Kubernetes clusters, Namespaces, Pods, Supervisor Clusters, Supervisor Hosts, and developer VMs in your VCF Kubernetes environment.
- **VCF Cluster List** – Use this widget to view the list of clusters and the cluster attributes in your cloud environment.
- **VCF Domain** – Use this widget to know the number of VMs, Hosts, Orphan disks, Clusters, Datastores, Cores, Usable Cores, Power Off VMs, Max Number of VMs and VM Templates in your VCF domain.
- **VCF Host Inventory Per Domain** – Use this widget to understand the inventory details per domain in your cloud environment.
- **VCF Virtual Machine Inventory Per Domain** – Use this widget to know the virtual machine resources per domain in your cloud environment.
- **VCF Datastore Inventory Per Domain** - Use this widget to know datastore resources per domain in your cloud environment.
- **VCF VDS Distributed Port Group List Per Domain** - Use this widget to list and view the port group details of the vSphere distributed switch per domain.
- **Inventory VM Power State Per Domain** – Use this widget to know the power state of VMs per domain.
- **Inventory Guest OS Distribution Per Domain** – Use this widget to know the guest operating system distribution per domain.

VCF Capacity Dashboard

The VCF Capacity dashboard provides an overview of the VCF capacity details in your VMware Cloud Foundation management domain components. You can use the VCF capacity dashboard to view the compute summary details, capacity details of hosts, VMs, and clusters. You can also view the domain list, capacity remaining in VCF clusters, hosts and VMs.

You can use the dashboard widgets in several ways.

- **VCF Compute Summary** - Use this widget to know the count of vCenters, data centers, clusters, hosts, datastores, CPU sockets, CPU cores, memory, disk space, and VMs in your VCF management domain components.

- **VCF Domain List** – Use this widget to view and list the domain attributes associated with the VCF domains present in your cloud environment.
- **VCF Domain Capacity Remaining** – Use this widget to know the memory used and the memory capacity remaining in your VCF domain.
- **VCF Cluster Capacity** – Use this widget to view and list the capacity attributes associated with your VCF cluster.
- **Cluster Capacity Remaining** – Use this widget to know the memory used and the memory capacity remaining in your cluster.
- **VCF Host Capacity** - Use this widget to view and list the capacity attributes associated with your VCF host.
- **VMs By Capacity Remaining** – Use this widget to know the capacity remaining across VMs in your cloud environment.
- **VCF VMs Capacity** – Use this widget to view and list the capacity attributes across VMs in your VCF cloud environment.
- **Datastore Capacity Remaining** – Use this widget to know the capacity remaining across datastores in your VCF cloud environment.
- **VCF Host Sized by Number of VMs X Capacity Remaining Heatmap** - Use this widget to show the heatmap of the workloads of the different VMs. The heatmap remains green and healthy as long as the workload remains below 80% of the capacity.
- **VMs By Time Remaining** - Use this widget to know the time remaining across VMs in your cloud environment.

VCF Management Host Performance Dashboard

The VCF Management Host Performance dashboard helps you to know the usage details for CPU, Memory and Storage across hosts present in your VCF management domain components. You can also view performance graph for CPU demand distribution and host memory utilization in your VCF cloud environment.

You can use the dashboard widgets in several ways.

- **VCF Hosts Utilization** – Use this widget to know the utilization details of hosts in your VCF cloud environment.
- **Host CPU Demand %** - Use this widget to know the CPU demand for hosts on an hourly basis.
- **Worst VM CPU Co-stop %** - Use this widget to view the worst VM CPU co-stop percentage on an hourly basis.
- **Worst VM Memory Contention %** - Use this widget to view the worst VM memory contention on an hourly basis.
- **Host Memory Demand %** - Use this widget to know the memory demand for hosts on an hourly basis.

- **Top 5 VCF Mgmt Host CPU Usage** – Use this widget to view the top 5 hosts that consume maximum CPU in your VCF environment.
- **Top 5 VCF Mgmt Host Memory Usage** - Use this widget to view the top 5 hosts that consume maximum memory in your VCF environment.
- **Top 5 VCF Mgmt Host Storage Usage** - Use this widget to view the top 5 hosts that consume maximum storage in your VCF environment.
- **Host CPU Demand Distribution** - Use this graph to view the CPU demand distribution across hosts for a period of one week.
- **Performance Host Memory Utilization Distribution** – Use this graph to view the memory utilization distribution across hosts.
- **Performance VM Disk Write Latency** – Use this graph to view the disk write latency across hosts.

VCF Management Network Performance Dashboard

The VCF Management Network Performance dashboard helps you to know the details of network utilization across hosts in your VCF management domain components. You can view attributes like network data transmit rate, data receive rate, data transmitted per second, usage rate, and network IO usage and many other attributes.

You can use the dashboard widgets in several ways.

- **VCF Host Network Utilization** – Use this widget to know the host network utilization details.
- **Top -5 VM Network Data Transmit Rate** – Use this widget to know the Top-5 VMs and their network data transmit rate.
- **Top -5 VM Network Data Receive Rate** – Use this widget to know the Top-5 VMs and their network data receive rate.
- **Top -5 VM Network Drop Packages** – Use this widget to know the Top-5 VMs network drop packages.
- **Network Top VMs Talkers** – Use this widget to know the Top VM talkers in the VCF host network.
- **List of ESXi for Network Admin** – Administrators can use this widget to view the list of ESXis in the VCF management domain components.

VCF Management VMs Performance Dashboard

The VCF Management VMs Performance dashboard helps you to know the VMs CPU performance, memory performance, VMs relationship in your VCF cloud environment. You can also view the top 5 list for CPU workload, memory workload, disk latency, and host memory workload for the VMs in your cloud environment.

You can use the dashboard widgets in several ways.

- **VCF Management – VM CPU Performance** – Use this widget to know the VM CPU performance across VMs in your VCF environment.
- **VCF Management – VM Memory Performance** - Use this widget to know the VM memory performance across VMs in your VCF environment.
- **VCF Management VM Relationship** - Use this widget to know the relationship between the VM and other objects in your VCF environment.
- **Top-5 VCF Management VM CPU Workload %** - Use this widget to view the Top-5 VMs with their CPU workloads.
- **Top-5 VCF Management VM Memory Workload %** - Use this widget to view the Top-5 VMs with their memory workloads.
- **Top-5 VCF Management VM Host Memory Workload %** - Use this widget to view the Top-5 VMs with their host memory workloads.
- **Top-5 VCF Management VM Disk Total Latency %** - Use this widget to view the Top-5 VMs with their disk latency.
- **VCF Management VMs CPU Usage (%) Distribution** – Use this graph to view the CPU usage distribution across VMs in your VCF environment.
- **VCF Management VM Memory Max Workload %** - Use this graph to view the memory maximum workload distribution across VMs in your VCF environment.

VCF Rightsizing Dashboard

The VCF Rightsizing dashboard gives you details about the CPU capacity, memory capacity, disk space capacity, and snapshot capacity of in your VCF cloud environment. You can also view the VM status, VM snapshot size, and whether VCF admission control is enabled for the selected virtual machine.

You can use the dashboard widgets in several ways.

- **VCF Capacity CPU Undersize Virtual Machines** – Use this widget to know about the CPU capacity details and workload details of the undersize virtual machines in your VCF environment.
- **VCF Capacity CPU Undersize Virtual Machines Distribution** – Use this pie chart to view the CPU capacity distribution across undersized VMs.
- **VCF Capacity Memory Undersize Virtual Machines** - Use this widget to know about the memory capacity details and workload details of the undersize virtual machines in your VCF environment.
- **VCF Capacity Disk Space Full Virtual Machines** - Use this widget to know about the disk space capacity details of all the virtual machines in your VCF environment.
- **VCF Capacity Snapshot Virtual Machines** - Use this widget to know the Snapshot space and age of all the virtual machines in your VCF environment.

- **VCF Admission Control Configuration** – Use this widget to know whether VCF admission control is enabled for the virtual machine.
- **VCF Inventory | VM Power State** – Use this widget to know the status and inventory details of the virtual machines in your VCF environment.
- **VCF Capacity | VM Snapshot Size** – Use this graph to view the snapshot size across all VMs in your VCF environment.

VCF SDDC Manager Appliance Deep Dive Dashboard

The VCF SDDC Manager Appliance Deep Dive dashboard helps you to know the SDDC Manager's CPU performance, memory performance, capacity remaining, disk space utilization, and SDDC manager configuration in your VCF environment. You can check the sparkline chart and view the metrics related to SDDC Performance and SDDC Manager.

You can use the dashboard widgets in several ways.

- **SDDC Manager VM** – Use this widget to view the status of SDDC VM in your VCF environment.
- **SDDC Manager CPU Performance** – Use this widget to view metrics for CPU workload, CPU contention, and CPU ready metrics for your SDDC manger on an hourly basis.
- **SDDC Manager Memory Performance** - Use this widget to view metrics for memory workload, memory contention, and memory usage metrics for your SDDC manger on an hourly basis.
- **SDDC Manager Configuration** – Use this widget to know the configuration attributes associated with your SDDC manager.
- **SDDC Manager Disk Space Utilization** - Use this widget to know the disk space utilization in your SDDC manager.
- **SDDC Manager Capacity Remaining** – Use this widget to know the memory capacity used and memory capacity remaining in your SDDC manager.
- **SDDC Performance Sparkline Chart** – Use this widget to view the sparkline graph for the SDDC performance.
- **SDDC Manager Sparkline Chart** – Use this widget to view the sparkline graph for the SDDC Manager.
- **SDDC Manager vSphere Security Compliances View** – Use this widget to view the vSphere security compliance details of your SDDC manager.
- **SDDC Manager Top Alerts** – Use this widget to view the top alerts in your SDDC manager.

VCF vCenters Performance Dashboard

The VCF vCenters Performance dashboard helps you to know the vCenter performance in your VCF environment. You can view the vCenter disk space information, metric chart, sparkline chart, workload pattern in your VCF environment.

You can use the dashboard widgets in several ways.

- **VCF vCenter List** – Use this widget to view the vCenters and their attributes in your VCF environment.
- **VCF Management vCenter** – Use this widget to view the health, memory, CPU, and disk space metrics of your VCF management vCenter.
- **VCF vCenter Disk Space Info** - Use this widget to view the disk space details associated with your VCF vCenter.
- **Metric Chart** – Use this chart to view the hourly metrics like CPU and Memory workload, Disk Total Latency and other metrics for your VCF vCenter server.
- **vCenter Sparkline Chart** – Use this chart to view the sparkline metrics for your vCenter server.
- **VCF vCenter Workload Pattern** – Use this widget to view the hourly workload pattern for the object in your VCF vCenter.
- **VCF vCenter CPU Workload X Latency Heatmap** – Use this heat map to view the CPU workload latency for your vCenter.
- **VCF vCenter Memory X Contention Heatmap** – Use this heat map to view the memory contention details for your vCenter.

VCF Workload Host Performance Dashboard

The VCF Workload Host Performance dashboard helps you to know the host's workload, utilization, CPU demand, memory demand across hosts in your VCF environment. You can also view the top 5 list for host CPU workload, host memory workload, and host storage usage for the VCF domains. The graphs in this dashboard helps you to understand the distribution of CPU, memory, and VM disk write latency across hosts in your VCF domain.

You can use the dashboard widgets in several ways.

- **VCF Hosts Utilization** – Use this widget to know the CPU and memory usage across hosts in your VCF environment.
- **Host CPU Demand %** - Use this widget to view the change in host CPU demand on an hourly basis.
- **Worst VM CPU Co-Stop %** - Use this widget to know the VM CPU co-stop on an hourly basis.
- **Worst VM Memory Contention %** – Use this widget to know the worst VM memory contention on an hourly basis.
- **Host Memory Demand %** - Use this widget to view the change in host memory demand on an hourly basis.
- **Top-5 VCF Workload Domain Host CPU Usage** – Use this widget to view Top-5 Hosts and their host CPU workload.

- **Top-5 VCF Workload Domain Host CPU Usage** – Use this widget to view Top-5 Hosts and their CPU usage workload.
- **Top-5 VCF Workload Domain Host Memory Usage** – Use this widget to view Top-5 Hosts and their memory usage workload.
- **Top-5 VCF Workload Domain Host Storage Usage** – Use this widget to view Top-5 Hosts and their storage usage workload.
- **Performance Host CPU Demand Distribution** - Use this graph to view the CPU demand distribution across hosts for a period of one week.
- **Performance Host Memory Utilization Distribution** – Use this graph to view the memory utilization distribution across hosts.
- **Performance VM Disk Write Latency** – Use this graph to view the disk write latency across hosts.

VCF Workload Network Performance Dashboard

The VCF Workload Network Performance dashboard helps you to know the details of network workload utilization across hosts in your VCF cloud environment. You can view attributes like network data transmit rate, data receive rate, data transmitted per second, usage rate, and network IO usage and many other attributes.

You can use the dashboard widgets in several ways.

- **VCF Workload Domain Host Network Utilization** – Use this widget to know the host network workload utilization details.
- **Top -5 VM Network Data Transmit Rate** – Use this widget to know the Top-5 VMs and their network data transmit rate.
- **Top -5 VM Network Data Receive Rate** – Use this widget to know the Top-5 VMs and their network data receive rate.
- **Top -5 VM Network Drop Packages** – Use this widget to know the Top-5 VMs network drop packages.
- **Network Top VMs Talkers** – Use this widget to know the top VM talkers in the VCF host network.
- **List of ESXi for Network Admin** – Administrators can use this widget to view the list of ESXi hosts in the VCF cloud environment.

VCF Workload Storage Performance Dashboard

The VCF Workload Storage Performance dashboard helps you to know the workload across VCF datastores, datastore performance, datastore latency, storage performance, and disk space details for the VCF datastores and VMs in your VCF cloud environment.

You can use the dashboard widgets in several ways.

- **VCF Datastores** – Use this widget to know the workload on the datastore objects in your VCF environment.
- **Top-5 VCF VMs Disk Latency** – Use this widget to know the Top-5 VCF VMs with their disk latency.
- **Datastore Performance** – Use this widget to know the datastore performance in terms of Read IOPs, Write IOPS, Read/Write Latency and other attributes in your VCF environment.
- **Datastore Latency 7 Days** – Use this widget to view the read/ write latency of a datastore for a period of 7 days.
- **VCF VMs Storage Performance** – Use this widget to view the storage performance of VCF VMs.
- **VCF Top-5 VMs Disk Space** – Use this widget to view the disk space for Top-5 VMs in your VCF environment.

VCF Workload VMs Performance Dashboard

The VCF Workload VMs Performance dashboard helps you to know the VMs CPU performance, memory performance, VMs relationship in your VCF cloud environment. You can also view the top 5 list for CPU workload, memory workload, disk latency, and host memory workload for the VMs in your cloud environment.

You can use the dashboard widgets in several ways.

- **VCF-Workload Domain VM CPU Performance** – Use this widget to know the VM CPU performance across VMs in your VCF environment.
- **VCF-Workload Domain VM Memory Performance** - Use this widget to know the VM memory performance across VMs in your VCF environment.
- **Workload Domain VM Relationship** - Use this widget to know the relationship between the VM and other objects in your VCF environment.
- **Top-5 VM CPU Workload %** - Use this widget to view the top 5 VMs with their CPU workloads.
- **Top-5 VM Memory Workload %** - Use this widget to view the top 5 VMs with their memory workloads.
- **Top-5 VM Host Memory Workload %** - Use this widget to view the top 5 VMs with their host memory workloads.
- **Top-5 VM Disk Total Latency %** - Use this widget to view the top 5 VMs with their disk latency.
- **VMs CPU Usage (%) Distribution** – Use this widget to check the CPU usage distribution across VMs in your VCF environment.

- **VCF VM Memory Max Workload** – Use this widget to view the Max workload memory distribution across VMs in your VCF environment.

Access Dashboards

You can use the dashboards to view, monitor, and troubleshoot objects in your SDDC cloud infrastructure.

To access the SDDC Health dashboards, select **Dashboard > SDDC Health Dashboards** menu from the vRealize Operations Manager menu bar.

To access VCF dashboards, select **Dashboard > VCF Dashboards** menu from the vRealize Operations Manager menu bar.

Procedure

- 1 In the menu, click **Dashboards**.
- 2 To view a different dashboard, click the drop-down menu and select the required dashboard.

Apply Policy to SDDC Health Group

After you have installed the VMware SDDC Health Monitoring Solution, you have to select the SDDC Health policy from the SDDC Health Group to display the alerts related to the VMware SDDC Health Monitoring Solution.

Prerequisites

Verify that you have installed the VMware SDDC Health Monitoring Solution.

Procedure

- 1 To select the policy, click **Administration > Policies** and from the policies library, select **SDDC Health Group**.
- 2 Click the horizontal ellipse, and select **Set Default Policy**.
- 3 To apply the policy for the SDDC Health Group objects, select the policy, and then in the right pane, click **Edit Policy**.
- 4 In the Edit policies workspace, click **Groups and Objects**.
- 5 Select the check box for the required groups or objects in the workspace.
- 6 Click **Save**.

Results

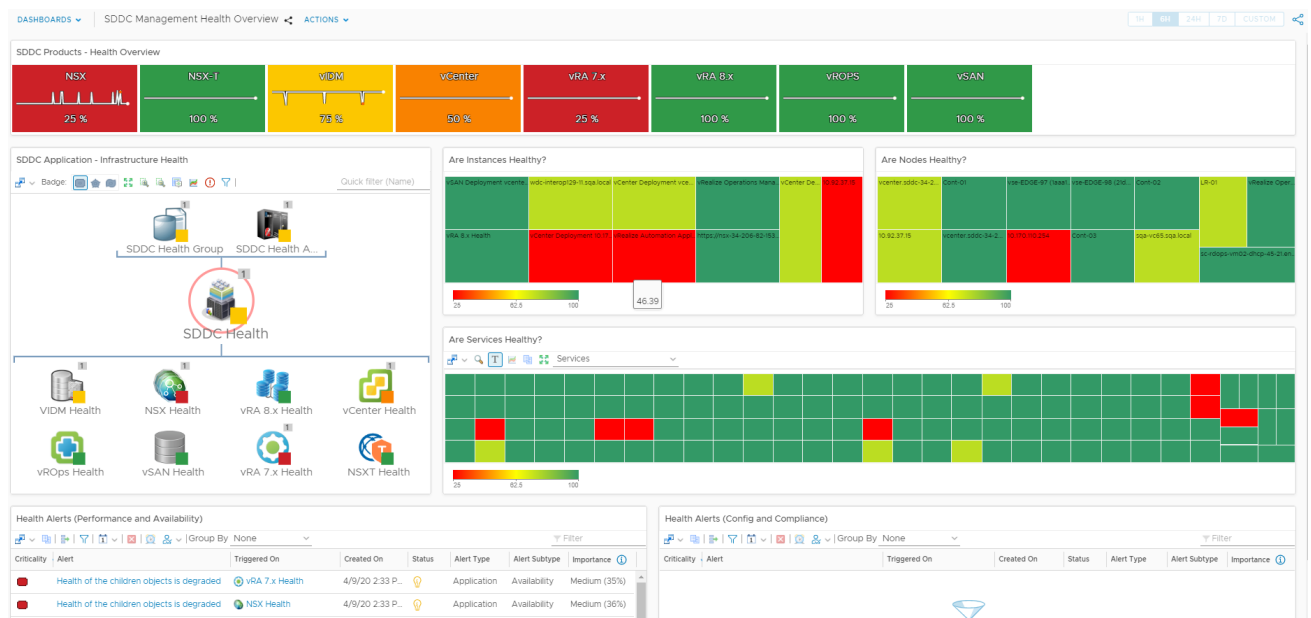
Note If you have any custom policies, apply the following super metrics to those policies to avoid user-defined custom policies to be overridden.

- Super Metric| Number of Children
- Super Metric| Children Badge health

SDDC Management Health Overview Dashboard

You can use **SDDC Management Health overview** dashboard to view and analyze the application-specific problems in the SDDC components. The SDDC Health Dashboard provides the health information for each of the components in the SDDC stack. You can select the component in the SDDC stack from the widgets available in the dashboard. The widgets help in rendering the infrastructure health of that component with its service health and associated configuration alerts, if any.

Figure 5-1. Widgets in SDDC Health Dashboard



The dashboard displays several widgets.

Table 5-1. Widgets in SDDC Management Health Overview Dashboard

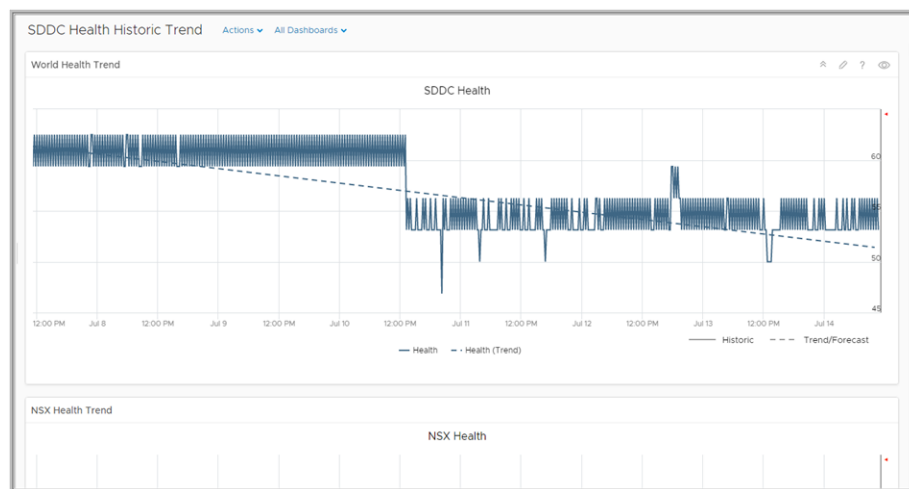
Widget	Description
SDDC Products - Health Overview	This widget provides the health of all the products and are represented in the form of badges. The widget displays the different components and its health that are available in the SDDC health dashboard.
SDDC Application: Infrastructure Health	This widget displays the associated cluster nodes for a selected product group. When you select a product group from the SDDC health overview, the corresponding graphical representation of that group appears in this widget. You can double-click a node in a cluster of a product group. When you select a node, the associated health is populated in the next widget.
Are Objects Healthy?	This widget displays a heatmap that displays the health of all the objects in a component from the SDDC Application: Infrastructure Health widget.
Object Health Timeline	This widget displays charts that show different aspects of the behavior of a selected resource. By default, the charts show data for the past six hours.
Critical Alerts	This widget provides two types of critical alerts of a product instance: <ul style="list-style-type: none"> ■ Health. This describes the critical or immediate alerts that impacts the health of the resource in the VMware vRealize Operations Manager. The alert defines the state of a component or a cluster instance that has an alert based on the availability and performance. ■ Config Assessment. The alert defines the state when a component or a cluster instance that has alerts based on compliance and configuration of an instance. However, these alerts does not impact the health.

SDDC Health Historic Trend Dashboard

The VMware SDDC Health Monitoring Solution consists of SDDC health historic trend dashboard, which displays the health trend for each component in the SDDC stack.

The dashboard provides an overall trend of the SDDC health components that are monitored for the last seven days.

Figure 5-2. SDDC Health Historic Trend



SDDC Health Dashboards

The SDDC Health Dashboards cater to cloud administrators who are responsible for managing the expenses related to your software defined data centers. Using SDDC dashboards you can monitor the resources used in your SDDC environment, reclaim capacity from oversized, idle, and powered off VMs, get sizing details for clusters, data nodes, and remote collects.

SDDC - Environment Growth Dashboard

The SDDC-Environment Growth dashboard provides an overview of growth in terms of resource usage in your SDDC environment. You can view the growth history of VMs and other resources on a monthly basis, this in turn helps you to plan your expenses for your SDDC.

You can use the dashboard widgets in several ways.

- **Environment Growth History (6 months)** – Use this widget to check the growth history of your total VMs versus running VMs for last six months.
- **Environment Inventory (Current)** – Use this widget to view the number of vCenters, data centers, clusters, hosts, datastores, and VMs in their different states in your current environment.
- **Environment Growth Analysis (6-Months)** – Use this widget to analyse the average VM growth per month and average VM growth for six months.
- **Environment Capacity by Month** – Use this widget to view the capacity growth in your environment per month.
- **Environment Inventory Growth by Month** - Use this widget to view the inventory growth in your environment per month.

SDDC VM Optimizer Dashboard

The SDDC VM Optimizer dashboard helps you to know how you can reclaim capacity from oversized, idle, powered off VMs and optimize these VMs for performance.

You can use the dashboard widgets in several ways.

- **Select a vCenter or Cluster** – Use this widget to select a cluster or vCenter whose resources you want to optimize.
- **Optimize Summary (Estimate)** - Use this widget to view the summary estimate for Oversized VMs, Undersized VMs, Idle VMs, Snapshot Space, and Power Off VMs.
- **Reclaim Capacity** – Use this widget to view the how much capacity you can reclaim from idle VMs, powered off VMs, Snapshots, oversized CPU, and oversized memory resources.
- **Optimize these VMs for Performance** – Use this widget to view how you perform memory and CPU assessment for undersized VMs and optimize them. You can also optimize the VMs based on the CPU and memory usage.

SDDC vRealize Operations Manager Sizing Dashboard

The SDDC vRealize Operations Manager Sizing Dashboard provides vRealize Operations Manager cluster capacity to process object and metrics. The dashboard displays information of whether the vRealize Operations Manager deployment is within the sizing guideline of vRealize Operations Manager. It provides sizing indication for a vRealize Operations Manager cluster, data nodes, and remote collector nodes. It also provides the maximum number of nodes that can be added in the vRealize Operations Manager cluster for a deployed node type.

For details on vRealize Operations Manager Sizing, see KB article [2093783](#).

The dashboard displays several widgets.

Note This dashboard indicates an issue by displaying an alert and coloring the numbers in red. However, before going ahead with further actions and cluster resize, check the Audit page (**Administration > History > Audit**) metrics/objects collection against the sizing guideline.

Table 5-2. Widgets in the Sizing Dashboard

Widgets	Description
vRealize Operations Manager Objects/Metrics Load	This widget provides deployment information of vRealize Operations Manager is within the sizing guideline.
Is HA enabled?	The widget checks if HA is enabled for a deployed cluster.
See the Cluster Analytics Load	The widget provides information of the number of nodes in the cluster, with the percentage of nodes in metric load and object load. It displays the load calculation for analytic nodes.
If you have Remote Collector, see collecting objects/metrics	This widget provides information of object load and metric load in vRealize Operations Manager. The widget displays load calculation for remote collectors.
Any Alerts?	The widget provides alerts pertaining to sizing, node recommendations, metric, and object load for analytic and remote collector nodes.
Max Recommended Number of Analytics Nodes	The widget provides the maximum number of nodes that can be added in the vRealize Operations Manager cluster for a deployed node type.

Monitor Health of SDDC Management Stack Components

You can monitor the health of each component in the SDDC management stack using the widgets present in the dashboard.

- Download the VMware SDDC Health Monitoring Solution from VMware Solutions Exchange.
- Log in to vRealize Operations Manager and install the VMware SDDC Health Monitoring Solution.

Prerequisites

- Ensure that you have configured the latest version of Management Pack for NSX for vSphere. For more information on configuring NSX management pack, see the *vRealize Operations Management Pack for NSX for vSphere* from the VMware Solution Exchange website.
- For a VMware vCenter[®] Server 6.0 U1/U2/U3 latest patch, ensure that it is a self-managed VC.

Note The VMware SDDC Health Monitoring Solution 6.0 does not support the vCenter 5.5/6.0 GA.

- Ensure that you have configured vCenter Server using vSphere solution.
- Ensure that the time between vRealize Operations Manager and vCenter Server is synchronized.
- Ensure that VMware Tools 10.1 or later for VMware vCenter[®] Server 6.0 U1/U2/U3 latest patch is installed and running in the guest operating system of the virtual machines on which the vCenter server runs.
- Ensure that all the endpoint adapter instances are configured and are in the data collection state.
- SDDC Health Adapter uses a vRealize Operations Management Pack for vSAN adapter to monitor VMware vSAN health.
- Verify that you have installed VMware Site Recovery Manager and configured your vCenter Server, where you have VMware Site Recovery Manager enabled site as an instance under VMware Site Recovery Manager adapter.
- Verify that you have installed and configured vRealize Orchestrator.
- Verify that you have configured your vCenter Server, where you have VMware vSAN enabled clusters as an instance under VMware vSAN adapter.
- Verify that you have configured the NSX-T adapter instance to retrieve NSX-T health.

- Verify that you have configured vRealize Automation 8.1 instance to retrieve vRA 8.1 health.

Note

- If VMware Tools 10.1 is not installed or is of an earlier version, VMs cannot discover services.
 - For a vCenter service monitoring 6.0 U1/U2/U3 latest patch, the VMware SDDC Health Monitoring Solution does not support the Open VMware Tool.
 - When you upgrade to the latest version of VMware SDDC Health Monitoring Solution, ensure that the SDDC group policy is applied. For more information, see [Apply Policy to SDDC Health Group](#).
 - For a vRealize Automation 7.3 or an earlier version component, Microsoft SQL plugin must have SQL permissions to connect to SQL server. Under the Server Properties of MS SQL, select the following check box:
 - Under Permissions, select CONNECT SQL, VIEW any definition, and VIEW any database.
-

Procedure

- 1 The **SDDC Management - Health Overview** widget contains a set of product that is represented in the form of badges.
- 2 Select a cluster instance or double-click to access a node of the product from the **SDDC Application: Infrastructure Health** widget.
- 3 You can view the health of the selected instances, nodes, and services in the **Are Objects Healthy?** widget.
- 4 From the **Health Alerts (Performance and Availability)** widget, view the list of alerts related to performance and availability.
- 5 From the **Health Alerts (Config and Compliance)** widget, you can track the active alerts to understand the configuration and compliance of an alert.

Support for Monitoring health for a vCenter Server

6

You can monitor vCenter Server instance health in your SDDC Health Monitoring Solution.

This chapter includes the following topics:

- [Permissions Required to Discover vCenter Services](#)
- [Configure vCenter Server Health](#)
- [vCenter Services](#)

Permissions Required to Discover vCenter Services

A user must have certain privileges to discover the services of vCenter.

The user should be a member of the 'SystemConfiguration.Administrator' group or have the administrator permissions to discover the vCenter services.

Configure vCenter Server Health

Before you monitor the health for avCenter Server instance, you have to configure the vCenter Server in your SDDC health solution.

Note The following procedure is applicable only for users on VMware vCenter[®] Server 6.0 U1/U2/U3.

Prerequisites

- Verify that the vCenter Server adapter is configured and is running.
- Ensure that the user is configured with privileges required to discover vCenter Services. See, [Permissions Required to Discover vCenter Services](#).

Procedure

- 1 Under **Inventory Explorer**, search for a vCenter object and click the edit icon.
- 2 Edit the required text boxes or click the plus icon to add new credentials.

3 In **Manage Credential**, enter the OS credentials.

For a Windows vCenter, enter the OS user name. For example, administrator. For a VCSA, enter the local OS user name. For example, root or any user with a shell access.

4 Click **OK**.

vCenter Services

Once you configure the vCenter Server, the SDDC health solution starts collecting the health of the following vCenter services.

- VMware Image Builder Manager
- VMware Component Manager
- VMware vSphere Profile-Driven Storage Service
- VMware Service Control Agent
- VMware HTTP Reverse Proxy
- VMware vAPI Endpoint
- VMware vService Manager
- VMware Service Lifecycle Manager API
- VMware Performance Charts
- VMware Syslog Collector
- VMware VSAN Health Service
- VMware vSphere Web Client
- VMware vCenter Server
- VMware Postgres
- VMware ESX Agent Manager
- VMware vSphere Authentication Proxy
- VMware Message Bus Configuration Service
- VMware vSphere Client
- VMware Content Library Service
- VMware Authentication Framework
- VMware Service Lifecycle Manager
- VMware vSphere ESXi Dump Collector
- VMware vCenter-Services
- VMware vSphere Auto Deploy Waiter

- vCenter NTP Server
- vCenter Backup Jobs

Note

- The list of available services differ based on the type of Operating System and the version of vCenter.
 - The NTP and Backup Jobs services are available only for VCVA 6.5 version and above.
-

Support for Monitoring Health for vCenter HA

7

You can use the vCenter HA functionality to support vCenter 6.5 HA.

This component supports two new resources:

- Passive Node
- Witness Node

All the services are discovered in active nodes and are monitored by witness nodes. When ever the node fails, the passive nodes become active and starts discovering services. In such cases, the idle active node becomes passive.

Note Only IP address of the active node should be configured at the vCenter adapter.

Support for Monitoring Health for a HA Enabled vRealize Automation



When vRealize Operations Manager uses a HA enabled vRealize Automation 7.3 or earlier, only four objects can use a load balancer.

vRealize Automation now uses APIs to retrieve data to monitor vRealize Automation health. You need not install vRealize Automation nodes separately.

The four objects of the HA enabled vRealize Automation are:

- vRealize Automation Server
- vRealize Automation Manager Server
- vRealize Orchestrator App Server
- vRealize IaaS Web

The individual objects paths are.

- /vcac
- /vco
- /WAPI/api/status
- /VMPS2

User can access these objects individually in the Inventory Explorer and edit the object to enter the load balancer FQDN, IP address, port, and the path.

Note For a distributed vRealize Automation application, you can enter the vRealize Automation virtual server FQDN in the `vRA.fqdn` text box to access vRealize Automation. You can access the objects in the Inventory Explorer and edit the object in the `loadbalancer.hostname` and `hostname` for vRealize Orchestrator App Server.

Figure 8-1. Editing an Object

The screenshot shows the 'Edit Object' dialog box with the following fields and values:

Display Name	cava-p-12-042.eng.vmware.com vRealize Auton
Description	<input type="text"/>
Adapter Type	EP Ops Adapter
Adapter Instance	EP Ops adapter - fb10ecd4-b73c-4202-acd3-8e3915d4de2e
Object Type	vRealize Automation Server
Basic Settings	
Agent ID	1497368332745-2017863831829732511-4611785
vRA.fqdn	<input type="text"/> ⓘ ⓘ
Install Path	<input type="text"/> /usr/java/jre-vmware/bin/java
> Advanced Settings	

When you have an external load balancer, then the FQDN, IP, and Port should be provided. The relationship of the load balancer with its respective objects is created under the same group. A load balancer resource is created and grouped against which the HTTP check is performed. This helps in collecting Availability, Response Time, and Response Code of the call. For the load balancer FQDN and IP, you have to provide the management IP of the load balancer.

Note If you are using NSX for vSphere as a load balancer for a vRealize Automation component, provide the vCenter IP to a load balancer IP while configuring objects. For a third-party load balancer, you can provide the management pack IP address of the load balancer as it contains the management console.

Support for vRealize Automation Health Through API

9

If you have vRealize Automation 7.3 or earlier configured on your environment, then end-point Management agents must be installed on all nodes on vRealize Automation. vRealize Automation 7.4 or later uses the vRealize Health Broker that is used to expose APIs through which you can monitor vRealize Automation health. From vRealize Automation 7.4, SDDC Health Adapter collects metric using Health Broker and vRealize Automation API. vRealize Automation application object has to be modified to provide credentials and the credentials should be root credentials.

This chapter includes the following topics:

- [Configure vRealize Automation Health](#)

Configure vRealize Automation Health

Before you monitor the health for a vRealize Automation instance using vRealize Health Broker, configure the vRealize Automation appliance.

Prerequisites

- Verify that the vRealize Automation adapter is configured and is running.
- Verify that the vRealize Automation system health monitoring is enabled in the vRealize Automation UI.
- Verify that the tests are configured and are running in vRealize Automation appliance for vRealize Automation 7.4 and later.

Procedure

- 1 From the vRealize Automation appliance, log in with tenant details and click **Administration**.
- 2 On the left pane, click the **Health** tab and click **NEW CONFIGURATION**.
- 3 For **vRA test Configuration**, select the product name as vRealize Automation and enter the required details.
- 4 Select a schedule to run the test requirement.
- 5 Enable System Tests for vRealize Automation and Tenant Tests for vRealize Automation.
- 6 In **vRO test configuration**, select the product name as vRealize Orchestrator and provide required details and set a schedule to run the tests.

- 7 On the vRealize Operations Manager page, click **Solutions** and select **VMware vRealize Automation**.
- 8 Enable the **vRA system health monitoring** from the drop-down menu and provide details in the **vRA VA FQDN** text box.

Note By default, this option is disabled. If you have a distributed vRealize Automation instance, enter the FQDN of a cafe node.

Credentials are collected from the vRealize Automation NMP adapter endpoint and vRealize Automation application server resource is created. The object collection takes about five minutes and then a message indicating that the credentials are missing is prompted.

- 9 Click **Administration**, and click **Inventory Explorer**.
- 10 Select a vRealize Automation application object of an SDDC adapter instance and click **Edit**.
- 11 Select the add credentials icon, to add the credentials.
- 12 In the **Manager Credential**, provide the root credentials.
- 13 Enter qe for the **tenant** text box.

qe is the tenant information on which the health broker configurations are made.

Monitoring Health for NSX-T

10

You can monitor the health for NSX-T with the SDDC Health Monitoring Solution.

Table 10-1. Resources Monitored from NSX-T

Resource	Description
Logical Switches	Monitors admin state, replication mode, transport zone id, and vni of the logical switches
Controller Cluster	Monitors the deployed cluster node count for HA and maintains quorum
Controller Nodes	Monitors node connectivity with the controller cluster and manager node
Edge Nodes	Monitors edge node running state and its connectivity with the controller cluster and manager node
NSX-T Management Services	Monitors the following services: <ul style="list-style-type: none">■ nsx-message-bus■ liagent■ ntp■ snmp■ install-upgrade■ search■ http■ syslog■ mgmt.-plane-bus■ ssh■ nsx-uprade-agent■ node-mgmt■ cm-inventory■ manager
T0 Router Service	Monitors static route, NAT, BGP, BFD, and route redistribution services
T1 Router Service	Monitors static route, NAT, and route advertisement services
Logical Routers	Monitors failover mode, high availability mode, router type, and edge cluster id
Edge Clusters	Monitors edge cluster id and member type

Table 10-1. Resources Monitored from NSX-T (continued)

Resource	Description
Firewall Sections	Monitors firewall rule count and state
Transport Zones	Monitors switch modes

Monitoring Health for VMware Identity Manager

11

You can monitor the health for VMware Identity Manager with the SDDC Health Monitoring Solution.

Table 11-1. Resources Monitored from VMware Identity Manager

Resource	Description
Identity Manager Cluster Node	Monitors the following services: <ul style="list-style-type: none">■ Name■ UUID■ Version■ Status■ IP Address■ Time Zone■ Health
Cert Proxy Certificate	Monitors the following services: <ul style="list-style-type: none">■ Issuer■ Subject■ Start Date■ End Date■ Port
Certificates	Monitors the following services: <ul style="list-style-type: none">■ Issuer■ Subject■ Start Date■ End Date■ Port
Cert Proxy	Monitors status, summary, and port types
Disk Space	Monitors status and summary of disk space
AirWatch API Server	Monitors status and summary of AirWatch API server
Connector	Monitors status and summary of connectors
Configurator	Monitors status and summary of configurators
ACS Health	Monitors status and summary of ACS health
Identity Manager FQDN	Monitors status and summary identity manager
Port Connectivity	Monitors status for port connectivity

Table 11-1. Resources Monitored from VMware Identity Manager (continued)

Resource	Description
Database Connection	Monitors status for database connection
Analytics Connection	Monitors status for analytics connection
Messaging Connection	Monitors status for messaging connection
EhCache Cluster Diagnostics	Monitors status for EhCache cluster diagnostics
Elasticsearch Health	Monitors the following services: <ul style="list-style-type: none"> ■ Status ■ Primary Node ■ Index Count ■ Docs Count ■ Unassigned Shared ■ Cluster Nodes List
RabbitMQ	Monitors status, name and queue for RabbitMQ
Application Manager	Monitors status and summary for application manager
Directory System	Monitors the following services: <ul style="list-style-type: none"> ■ Number of Synced Users ■ Domain ■ Number of Synced Groups ■ Health ■ UUID ■ Name ■ Type ■ Number of Alerts ■ Last Sync Time ■ Sync Status

Metrics in the VMware SDDC Health Monitoring Solution

12

The plug-ins in the VMware SDDC Health Monitoring Solution collect metrics for object types contained in the plug-ins.

You can view these metrics from the vRealize Operations Manager user interface.

This chapter includes the following topics:

- [vCenter Server Health Metrics](#)
- [Management Pack for NSX for vSphere Health Metrics](#)
- [vRealize Automation Health Metrics](#)
- [vRealize Automation 8.1 Health Metrics](#)
- [vRealize Operations Manager Health Metrics](#)
- [vRealize Log Insight Metrics](#)
- [VMware Site Recovery Manager Metrics](#)
- [vCenter HA Metrics](#)
- [VMware vSAN Health Metrics](#)
- [Services in vCenter Server Appliance](#)
- [vRealize Operations Manager Sizing Metrics](#)
- [vRealize Orchestrator Health Metrics](#)

vCenter Server Health Metrics

The vCenter Server health collects metrics for the object within its plug-in.

Table 12-1. vCenter Server Metrics

Product Instance	Metric Key	Metric Value
vCenter Node	<ul style="list-style-type: none"> ■ applmgmt ■ cis-license ■ cm ■ content-library ■ software-packages ■ eam ■ imagebuilder ■ mbc ■ netdumper ■ perfcharts ■ rbd ■ rhttpproxy ■ sca ■ sps ■ statsmonitor ■ updatemgr ■ vapi-endpoint ■ vcha ■ vmcam ■ vmware-vpostgres ■ vpxd ■ vpxd-svcs ■ vsan-health ■ vsm ■ vsphere-client ■ vsphere-ui ■ vCenter NTP Server ■ vCenter Backup Jobs 	STARTED/STOPPED
vCenter Node	<p>Note These services are optional.</p> <ul style="list-style-type: none"> ■ vmware-mbc ■ mbc ■ vmware-netdumper ■ vmware-network-coredump ■ VMWareNetworkCoredumpWebs erver ■ vmware-rbd-watchdog 	STARTED/STOPPED

Table 12-1. vCenter Server Metrics (continued)

Product Instance	Metric Key	Metric Value
	<ul style="list-style-type: none"> ■ vmware-autodeploy-waiter 	
	<p>Note</p> <ul style="list-style-type: none"> ■ The list of available services differ based on the type of Operating System and the version of vCenter. ■ The NTP and Backup Jobs services are available only for VCVA 6.5 version and above. 	
Embedded Platform Service Controller (PSC) Node	<ul style="list-style-type: none"> ■ applmgmt ■ database-storage ■ load ■ mem ■ software-packages ■ storage ■ swap ■ system 	
	<p>Note</p> <ul style="list-style-type: none"> ■ Appliance services collection from the external PSC node is supported in vCenter server 6.5 and later. ■ For external PSC, if the credentials are not same as the vCenter credentials, then go to Object, click Edit, and provide the required credential. ■ For a windows vCenter, appliance services are not present. 	
Appliance Mgmt Service	applmgmt health	
License Service	cis-license health	
Component Manager	cml health	
Content Library Service	content-library health	
Endpoint Application Mgmt Service	eam health	
Image Builder Service	imagebuilder health	
	mbcs health	
	netdumper health	
	perfcharts health	
	rbd health	
	rhttpproxy health	

Table 12-1. vCenter Server Metrics (continued)

Product Instance	Metric Key	Metric Value
	scal health	
	sps health	
	statsmonitor health	
	updatemgr health	
	vapi-endpoint health	
	vchal health	
	vmcam health	
	vmonapi health	
	vmware-vpostgres health	
	vpxd health	
	vpxd-svcs health	
	vsan-health health	
	vsm health	
	vsphere-client health	
	vsphere-ui health	

Management Pack for NSX for vSphere Health Metrics

The Management Pack for NSX for vSphere collects metrics for the object.

Table 12-2. Management Pack for NSX for vSphere Metrics

Product instance	Metric Key	Metric Value
Controller Node	■ VM Power Status	■ ON/OFF
	■ diskLatencyAlertDetected	■ true/false
	■ Connectivity - Ping Status	■ success/failure
NSX Manager Node	■ Status	■ Running/started/Stopped
	■ Enabled	■ True/False
	■ CPU Usage	
	■ Memory Usage	
	■ Storage Usage	
Edge	■ EdgeStatus	■ RED/GREEN

vRealize Automation Health Metrics

The vRealize Automation health collects metrics for the object within its plug-in. This metrics is applicable only for avRealize Automation 7.3 or earlier version .

Table 12-3. vRealize Automation Health Metrics

Product instance	Metric Key	Metric value
vRealize Automation Database	Resource Availability	0/1
vRealize Automation IaaS Web	Resource Availability	0/1
vRealize Automation Proxy Agent	Resource Availability	0/1
vRealize Automation DEM	<ul style="list-style-type: none"> ■ vRealize Automation DEM Worker : Resource Availability ■ vRealize Automation DEM Orchestrator: Resource Availability 	<ul style="list-style-type: none"> ■ 0/1 ■ 0/1
vSphere SSO	VMware Identity Manager: Resource Availability	0/1
vRealize Automation Manager Server	Resource Availability	0/1
vRealize Automation Application Services	status	RED/GREEN/ORANGE/GREY
vRealize Automation Server	<ul style="list-style-type: none"> ■ Resource Availability ■ Service availability <ul style="list-style-type: none"> ■ advanced-designer-service availability ■ approval-service availability ■ branding-service availability ■ catalog-service availability ■ component-registry availability ■ iaas-proxy-provider availability ■ identity availability ■ management-service availability ■ notification-service availability ■ shell-ui-app availability ■ vRealize Automation Logon page availability ■ vRealize Automation Process availability ■ vRealize Automation UI availability ■ workitem-service availability 	<ul style="list-style-type: none"> ■ 0/1 ■ service availability (%) ■ service availability (%) ■ service availability(%) ■ service availability (%) ■ registry availability (%) ■ provider availability (%) ■ identity availability (%) ■ service availability (%) ■ service availability (%) ■ app availability (%) ■ Logon page availability (%) ■ Process availability (%) ■ UI availability (%) ■ service availability (%)
Edge Feature	Enabled	0/1

vRealize Automation 8.1 Health Metrics

The vRealize Automation 8.1 health collects metrics for the object within its plug-in.

Table 12-4. vRA 8.x Server Metrics

Product Instance	Metric Keys	Metric Value
vRA 8.x Server	Service Availability	Up / Down / Unknown

For all the services collected in vRealize Automation 8.1, the metrics are:

Product Instance	Metric Keys	Metric Value
Node Instance Usage	Cpu percentage	Up / Down / Unknown
	Disk bytes	
	Memory Bytes	

For all the services collected in vRealize Automation 8.1, the properties are:

Product Instance	Property Keys
Node Instance Health	Health
	State
Node Service Health	Health
	State

vRealize Operations Manager Health Metrics

The vRealize Operations Manager health collects metrics for the object within its plug-in.

Table 12-5. vRealize Operations Manager Metrics

Product instance	Metric Key
<ul style="list-style-type: none"> ■ Data Node ■ Remote Collector 	Availability
<ul style="list-style-type: none"> ■ Analytics ■ Collector ■ Suite-api ■ Watchdog ■ Product-UI ■ Persistence ■ Controller ■ Admin-UI ■ CASA 	Availability

vRealize Log Insight Metrics

The vRealize Log Insight health collects metrics. This is a default component that is integrated with VMware SDDC Health Monitoring Solution for vRealize Operations Manager 6.5 and later.

Table 12-6. vRealize Log Insight Metrics

Service	Metrics
vRealize Log Insight network accessibility	Service Availability

VMware Site Recovery Manager Metrics

The VMware Site Recovery Manager health collects metrics for the object within its plug-in.

Table 12-7. VMware Site Recovery Manager Metrics

Product instance	Metric Name
Recovery Plan	Recovery Plan Folder
	Recovery Plan name
	Recovery Plan status
Protection Group	Protection group folder
	protection group name
	protection status
	protection group type

vCenter HA Metrics

The vCenter HA collects metrics for the object within its plug-in.

Table 12-8. vCenter HA metrics

Metric Name
PostgreSQL replication mode
PostgreSQL replication mode
Appliance configuration
Appliance State
Appliance sqlite db
Cluster health
Cluster State

The vCenter High Availability metrics contains two nodes:

- Passive Node
- Witness Node

VMware vSAN Health Metrics

The VMware vSAN health adapter collects metrics for the object within its plug-in.

Table 12-9. VMware vSAN Metrics

Metric Name	API
clusterOverallHealth	clusterOverallHealth class
vSanConfig(Compression is enabled, DeDup is enabled)	VsanConfigInfoEx
getClomdLiveness	VsanHostClomdLivenessResult class

Table 12-9. VMware vSAN Metrics (continued)

Metric Name	API
ClusterStatus	clusterOverallHealth class
vsanHealthIsRebalanceRunning	clusterOverallHealth class
ClusterNetworkLoadTestResult	VsanClusterNetworkLoadTestResult class

Services in vCenter Server Appliance

When a vCenter is just a node, you can render many services. When the vCenter Server node is not an appliance, fewer services are available.

Table 12-10. Service Name for an appliance

Service Name
applmgmt
database-storage
load
mem
software-packages
storage
swap
system

vRealize Operations Manager Sizing Metrics

The vRealize Operations Managersizing dashboard collects metrics for the object within its plug-in.

Table 12-11. vRealize Operations Manager Sizing Metrics

Metric Key	Metric Value	Product Key	Product Value
SDDC vROps Sizing Metrics Nodes Object Load (%) (Cluster Metrics)	-1 to indicate that at least one analytic nodes not following the sizing guidelines, >=0 to indicate the load	SDDC HealthIHA Enabled	True/False
SDDC vROps Sizing Metrics Nodes Metric Load (%) (Cluster Metrics)	-1 to indicate that at least one analytic nodes not following the sizing guidelines, >=0 to indicate the load		

Table 12-11. vRealize Operations Manager Sizing Metrics (continued)

Metric Key	Metric Value	Product Key	Product Value
SDDC vROps Sizing Metrics Object Load (%) (Remote Collector Metrics)	-1 to indicate that nodes not following the sizing guidelines, >=0 to indicate the load		
SDDC vROps Sizing Metrics Metric Load (%) (Remote Collector Metrics)	- 1 to indicate that nodes not following the sizing guidelines, >=0 to indicate the load		

vRealize Orchestrator Health Metrics

The vRealize Orchestrator collects metrics for the object within its plug-in.

There are two metrics stated for vRealize Orchestrator:

- Heath State
- Health Status

Metrics for vRealize Orchestrator Certificates

- IdentityCertificatenotValidAfter
- IdentityCertificatenotValidBefore
- initialized
- serviceInitializationStatus
- SSLCertificatenotValidAfter
- SSLCertificatenotValidBefore

Properties are attributes of objects in the vRealize Operations Manager environment. You use properties in symptom definitions. You can also use properties in dashboards, views, and reports.

vRealize Operations Manager uses adapters to collect properties for target objects in your environment. The properties collected depend on the objects in your environment.

This chapter includes the following topics:

- [vCenter Server Properties](#)

vCenter Server Properties

vRealize Operations Manager uses the vRealize Operations Manager adapter to collect properties that monitor its own objects. These vCenter Server properties are useful for monitoring changes within vCenter Servers in SDDCs.

Some of the useful properties for vCenter Server objects are as follows:

- `config.SDDC.Deployed.Flavor`
- `config.SDDC.Deployed.InstanceId`
- `config.SDDC.Deployed.Method`
- `config.SDDC.Deployed.Type`
- `config.SDDC.Deployed.Version`
- `config.SDDC.Deployed.WorkloadDomain`

VMware SDDC Health Monitoring Solution Alert Definitions

14

VMware SDDC Health Monitoring Solution provides alerts from different SDDC components that are already installed and configured. If you install these components, it adds alert definitions that you can use to monitor and troubleshoot the components in your storage area network.

This chapter includes the following topics:

- [Alerts in vRealize Operations Management Pack for vSAN](#)
- [Alerts and Notifications in vCenter Server](#)
- [Alerts in VMware Site Recovery Manager](#)
- [Alerts in vCenter High Availability](#)
- [Alerts in NSX for vSphere Health Monitor](#)
- [Alerts in NSX-T](#)
- [Alerts in vRealize Log Insight](#)
- [Alerts in vRealize Automation 7.x](#)
- [Alerts in vRealize Automation 8.1](#)
- [Alerts in vRealize Orchestrator](#)
- [Alerts in CloudPod vRealize Operations Manager Sizing](#)

Alerts in vRealize Operations Management Pack for vSAN

vRealize Operations Manager generates an alert if a problem occurs in the SDDC product components in the storage area network that the VMware vSAN adapter is monitoring.

An alert that is related to config compliance and health is passed through VMware SDDC Health Monitoring Solution management pack from VMware vSAN management pack.

Alerts and Notifications in vCenter Server

If a problem occurs, general alerts and notifications are generated.

Table 14-1. Alerts in vCenter Server

Alert	Description
Passive Node is Down	Triggered when the vCenter passive node is down.
vCenter HA health is degraded	Triggered when the vCenter HA health is degraded.
vCenter License is Overused	Triggered when the vCenter license is overused.
vCenter NTP Status is Failed/Down	Triggered when the NTP server of the vCenter is down or has failed.
vCenter Backup Job failed	Triggered when the backup job of vCenter has failed.
vCenter Server is Down	Triggered when the vCenter Server is down.
Services are down in vCenter Server	Triggered when the service of the vCenter Server is not running or is down.
External PSC is Down	Triggered when the external PSC VM of vCenter Server is down.
Witness Host Node is Down.	Triggered when the vCenter witness host node is down.

Table 14-2. Notification in vCenter Server

Notification	Symptoms
SDDC Availability Notification	Unable to retrieve the list of services (Guest Auth Failed). vCenter might be DOWN or some of the Critical services are not running.
The SDDC Config Notification	vCenter OS Credentials Missing, Services might not be discovered for this vCenter. Configure the VC HOST OS Credential in Inventory Explorer.
SDDC Availability Notification	Some of the vCenter Services is either not running or not healthy on vCenter <vCenterName> and the Service name is <serviceName>.
SDDC Availability Notification	Host has lost connection to vCenter Server for <Host IP>.
SDDC Config Notification	vCenter OS VM Tools Version is below 10.1.

Note The VMware SDDC Health Monitoring Solution generates a general notification when any adapter instance fails with a symptom SDDC Availability Notification - Adapter Instance.

Alerts in VMware Site Recovery Manager

vRealize Operations Manager generates an alert if a problem occurs in the site recovery area that the VMware Site Recovery Manager adapter is monitoring.

Table 14-3. Alerts in VMware Site Recovery Manager

Alert	Description
SRM Server Host is Down	Triggered when the SRM Server host is down.
Recovery Plan Has Errors	Triggered when the SRM site's recovery plan has errors.

Table 14-3. Alerts in VMware Site Recovery Manager (continued)

Alert	Description
SRM Site Has Objects With Issues	Triggered when the SRM site has one or more objects with issues.
Site Not Paired	Triggered when the SRM sites are not paired.
Protection Group Is Not Configured	Triggered when the no protection group is configured on SRM.
Is Pair Site Not Connected	Triggered when an SRM paired site is down.

Alerts in vCenter High Availability

vRealize Operations Manager generates an alert when a problem occurs in the vCenter high availability.

Table 14-4. Alerts in vCenter high Availability

Alert	Description
Availability Alert for Passive Node	Triggered when the vCenter Passive Node is not responding.
Availability Alert for Witness Node	Triggered when the vCenter Witness Node is not responding.

Alerts in NSX for vSphere Health Monitor

The NSX for vSphere adapter generates alerts to monitor health for the SDDC stack component.

An alert is generated when related to a config compliance and the health is sent through the VMware SDDC Health Monitoring Solution from the NSX for vSphere NP.

Alerts in NSX-T

There is only one alert generated by the NSX-T adapter.

The following alert is raised when the NSX-T server status is down.

Table 14-5. Alerts in NSX-T

Alert	Description
NSX-T Server Status is Down	Triggered when the NSX-T server status is down.

Alerts in vRealize Log Insight

There is only one alert generated by the vRealize Log Insight adapter.

The following alert is raised when the vRealize Log Insight server host is not reachable.

Table 14-6. Alerts in vRealize Log Insight

Alert	Description
vRLI Server Host is down.	Triggered when the vRLI server is not responding.

Alerts in vRealize Automation 7.x

vRealize Operations Manager generates an alert if a problem occurs in the vRealize Automation area that the vRealize Automation adapter is monitoring. These alerts are generated by the vRealize Automation 7.x or earlier.

Table 14-7. Alerts in vRealize Automation 7.x

Alert	Description
vRealize Automation Application availability degraded	Triggered when the vRealize Automation Application service has stopped.
vRealize Automation Application Services Group availability degraded	Triggered when the vRealize Automation Application Services Group service has stopped.
vRealize Automation DEM Group availability degraded	Triggered when the vRealize Automation DEM Group service has stopped.
vRealize Automation Databases Group availability degraded	Triggered when the vRealize Automation Databases Group service has stopped.
vRealize Automation IaaS Web Availability Degraded	Triggered when the vRealize Automation IaaS Web service has stopped.
vRealize Automation IaaS Web Group availability degraded	Triggered when the vRealize Automation IaaS Web Group service has stopped.
vRealize Automation Manager Server Group availability degraded	Triggered when the vRealize Automation Manager Server Group service has stopped.
vRealize Automation Manager Server More than one active	Triggered when the vRealize Automation Manager Server has more than one active nodes.
vRealize Automation Proxy Agent Group availability degraded	Triggered when the vRealize Automation Proxy Agent Group service has stopped.
vRealize Automation Server Group availability degraded	Triggered when the vRealize Automation Server Group service has stopped.
vRealize Automation Server Availability Degraded	Triggered when the vRealize Automation Server service has stopped.
vRealize Business Group availability degraded	Triggered when the vRealize Business Group service has stopped.
vRealize Orchestrator Availability Degraded	Triggered when the vRealize Orchestrator service has stopped.
vRealize Orchestrator Group availability degraded	Triggered when the vRealize Orchestrator Group service has stopped.
vSphere SSO Availability Degraded	Triggered when the vSphere SSO service has stopped.
vSphere SSO Critical Services are not available	Triggered when the vSphere SSO Critical service has stopped.

Table 14-7. Alerts in vRealize Automation 7.x (continued)

Alert	Description
vSphere SSO Group availability degraded	Triggered when the vSphere SSO Group service has stopped.
vRealize Orchestrator UI is unavailable	Triggered when the vRealize Orchestrator UI service has stopped.
vRealize Orchestrator API is unavailable	Triggered when the vRealize Orchestrator API has stopped.
vRA 7.x IaaS Web certificate is about to expire	Triggered when the vRA 7.x IaaS Web certificate is about to expire.
vRealize IaaS Web Server disk usage is high	Triggered when the vRealize IaaS Web server disk usage is high.

Note New licensing group introduced for vRealize Operations Manager instances provides vRealize Operations Manager license. If the license is expired or overused, the alert "vCenter License is Overused" is generated.

Alerts through vRealize Automation Health Broker API

The vRealize Automation 7.4 or later generates alerts that are generated by the Health Broker API.

Alert Definition	Symptom
Check vRealize Automation Dem Orchestrator Memory Utilization	This test checks if Dem Orchestrator Memory utilization is less than 90%.
Check vRealize Automation Dem Orchestrator CPU Utilization	This test checks if Dem Orchestrator CPU utilization is less than 90%.
Check vRealize Automation Dem Worker CPU Utilization	This test checks if Dem Worker CPU utilization is less than 90%.
Check vRealize Automation Dem Worker Memory Utilization	This test checks if Dem Worker Memory utilization is less than 90%.
Check vRealize Automation IaaS Web (WAPI) Memory Utilization	This test checks if IaaS Web Memory utilization is less than 90%.
Check vRealize Automation IaaS Web (WAPI) CPU Utilization	This test checks if IaaS Web CPU utilization is less than 90%.
Check vRealize Automation IaaS Web (WAPI) Disk Utilization	This test checks if IaaS Web Disk utilization is less than 90%.
Check vRealize Automation Manager Service Memory Utilization	This test checks if Manager Service Memory utilization is less than 90%.
Check vRealize Automation Manager Service CPU Utilization	This test checks if Manager Service CPU utilization is less than 90%.
Check vRealize Automation Proxy Agent CPU Utilization	This test checks if Proxy Agent CPU utilization is less than 90%.
Check vRealize Automation Proxy Agent Memory Utilization	This test checks if Proxy Agent Memory utilization is less than 90%.

Alert Definition	Symptom
Check vRealize Automation Proxy Agent Availability	This test checks if vRA 7.x Proxy Agent is in Started state.
Check that vRA 7.x disk space usage is below the critical threshold	Verifies that the percentage of disk space used by the VA does not exceed the critical threshold.
Identity VA Connection Test	Verifies that the vIDM is correctly connected.
vRealize Automation License Check - Is License Expired?	Verifies that the vRA 7.x license has not expired.

Note The value 90% is the threshold set during the Test configuration that can be altered.

Objects through EP ops vRA 7.x Plugin

vRealize Automation Application

vRealize Automation Server

vRealize Automation IaaS Web

vRealize Automation Server Load Balancer

vRealize Automation IaaS Web Load Balancer

vRealize Automation DEM Worker

vRealize Automation Manager Server

vRealize Automation Manager Server Load Balancer

vRealize Automation DEM Orchestrator

vRealize Automation Proxy Agent

Database

vSphere SSO

VMware Identity Manager

vRealize Orchestrator App Server

vRealize Orchestrator Configurator

vRealize Automation Application Services

vRealize Automation Server or Load Balancer

advanced-designer-service

approval-service

branding-service

catalog-service

component-registry

eventlog-service

iaas-proxy-provider

management-service

notification-service

Objects through EP ops vRA 7.x Plugin

workitem-service

vRealize Automation Health configuration

vRealize Automation Health Broker service

Alerts in vRealize Automation 8.1

vRealize Operations Manager generates an alert if a problem occurs in the vRealize Automation 8.1 area that the vRealize Automation adapter is monitoring.

Table 14-8. Alerts in vRealize Automation 8.1

Alert	Description
vRA 8.x Server Status is Down	Triggered when the vRealize Automation 8.x server status is down.
vRA 8.x Service health is not healthy	Triggered when the vRealize Automation 8.x service health is not healthy.
vRA 8.x Service is in Failed/Down State	Triggered when the vRealize Automation 8.x service is in the Failed or Down state.
vRA 8.x Service health is degraded	Triggered when the vRealize Automation 8.x health has degraded.
Unable to discover vRA 8.x health services	Triggered when the vRA 8.x Server (with load balancer) does not have the port forwarding configuration enabled for port 8008.
vRealize Automation Application (7.x) configured with invalid or missing credentials	Triggered when the vRA 7.x (vRealize Automation Application) object is not having credential or configured with invalid credential.
Notifications	
Notifications generated when vRealize Automation 8.x nodes are down	Triggered when the vRealize Automation 8.x nodes are down and the notification automatically gets cancelled when the nodes are up.

Alerts in vRealize Orchestrator

If a problem occurs in the vRealize Orchestrator adapter, and the SSL certificates and Identity Certificate expire then vRealize Operations Manager generates an alert.

Alert	Description
vRO SSL Certificate is Expired on Server.	Triggered when the vRO SSL certificate is expired on the vRO Server.
vRO Identity Certificate is Expired on Server.	Triggered when the vRO Identity certificate is expired on the vRO Server.

If the vRealize Orchestrator instance is bad, then an alert "vRO instance is up but Health status is bad" is generated.

Alerts in CloudPod vRealize Operations Manager Sizing

Alerts are generated from the CloudPod vRealize Operations Manager sizing dashboard.

Alerts	Description
Current Sizing of the vRealize Operations Manager nodes are not sufficient for given Load	Triggered when the vROps manager node is not configured as per standard deployment sizing guideline, as the node has excessive object load.
Cluster node configuration does not follow the vRealize Operations Manager Sizing guideline	Triggered when the vROps manager node is not configured as per standard deployment sizing guideline, as the node lacks any object load.
Current Sizing of the Remote Collector is not sufficient for given Load	Triggered when the vROps remote collector node is not configured as per standard deployment sizing guideline, as the node has excessive object load.
Remote Collector configuration does not follow the vRealize Operations Manager Sizing guideline	Triggered when the vROps remote collector node is not configured as per standard deployment sizing guideline, as the node lacks any object load.
vRealize Operations Cluster has exceeded the recommended number of analytic nodes	Triggered when the vROps cluster is not configured as per the standard deployment sizing guideline, as it has more data nodes.

Troubleshooting in VMware SDDC Health Monitoring Solution

15

You can troubleshoot general problems that might occur when using the VMware SDDC Health Monitoring Solution.

This chapter includes the following topics:

- [vRealize Automation IAAS group does not list IAAS Web object](#)
- [External vRealize Orchestrator object does not appear under vRealize Orchestrator object list](#)
- [New Postgres User Authentication Fails](#)

vRealize Automation IAAS group does not list IAAS Web object

After you install End Point Operations agent on vRealize Automation 7.0 or later, you cannot see the IaaS Web Object configured in the vRealize Automation IaaS Web Group.

Problem

The IaaS Web relationship is not displayed for vRealize Automation 7.0 and later.

Cause

If an IaaS node and manager server are on different nodes, you cannot see the IaaS Web object configured in the IaaS Web group. If the IaaS node is not installed with a Management server, the IaaS relationship between IaaS Web group and Web object is not built.

Solution

- 1 Enter the IaaS node fully qualified domain name (FQDN) on the IaaS Web object.
- 2 From the **Inventory Explorer**, select the **vRealize Automation IAAS Web** object.
- 3 Click the **Edit** icon to edit the object.
- 4 Click **Advanced Settings** and enter the FQDN for the **vra.cafe.fqdn** text box.
- 5 Click **OK**.

Solution

After 30 minutes, the IaaS Web object and the relationship between vRealize Automation IaaS Web group and vRealize Automation IaaS Web object is formed.

External vRealize Orchestrator object does not appear under vRealize Orchestrator object list

An external vRealize Orchestrator object that is configured in the vRealize Orchestrator group is not displayed under the vRealize Orchestrator object list.

Problem

Even after installing an End Point Operations agent on an external vRealize Orchestrator, the external vRealize Orchestrator object configured in the vRealize Orchestrator group does not appear under the object list.

Cause

When an external vRealize Orchestrator FQDN is not specified in the vRealize Automation Server object, then the object is not listed in the vRealize Orchestrator group.

Solution

- 1 From the **Inventory Explorer**, select the **vRealize Automation Server** object.
- 2 Click the **Edit** icon to edit the object.
- 3 Click **Advanced Settings** and enter the FQDN of an external vRealize Orchestrator in the **vro.external.fqdn** text box.
- 4 Click **OK**.

Solution

After 30 minutes, the vRealize Orchestrator object appears in the vRealize Orchestrator group.

New Postgres User Authentication Fails

User cannot collect data from vRealize Automation Postgres database.

Problem

You can collect data from vRealize Automation Postgres database using End-Point operation.

Cause

When user credentials are mismatched for postgres database.

Note This is applicable for vRealize Automation 7.3 and below along with End-Point Operations agents.

Solution

- 1 To retrieve the correct user credentials of the postgres database, login to vRealize Automation appliance.
- 2 Copy the encrypted password from the file `/etc/vcac/server.xml`.
- 3 To decrypt the password obtained as a parameter from the older set-up, run the following command `vcac-config prop-util -d --p {password}`.
- 4 From the **Inventory Explorer** in vRealize Operations Manager edit the object and use the password to copy the decrypted password and configure the Postgres object.
 - a To configure agent and update postgres object settings, login to each virtual machine where Postgres is installed.
 - b To verify whether the agent is running, run the command - `./ep-agent.sh status`.
 - c Delete the data folder from End-Point installation directory.
 - d Go to `/etc/epops` and delete `epops-token` file.
 - e Go back to agent installation directory and restart the agent `./ep-agent.sh start`.
 - f Add this to the "pg_hba.conf" : `host postgres vcac 127.0.0.1/32 trust`
 - g Restart vpostgres: `service vpostgres restart`
 - h In vRealize Operations Manager UI, change the value of `postgresql.host` to `localhost` by editing the discovered PostgreSQL data base.
 - i Set up the user name and password. Use `vcac` as user.