



VMWARE VREALIZE OPERATIONS MANAGEMENT PACK FOR  
**SAP HANA**

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Installation & Configuration Guide

## TABLE OF CONTENTS

|  |    |
|--|----|
| 1. Purpose .....                                       | 3  |
| 2. Installation and Configuration Requirements .....   | 3  |
| 2.1 Setting SAP HANA User Permissions .....            | 4  |
| 3. Licensing Requirements .....                        | 5  |
| 4. Installing the Management Pack .....                | 5  |
| 4.1 Uploading the Installation File .....              | 5  |
| 4.2 Adding a License Key .....                         | 7  |
| 5. Configuring the Management Pack .....               | 8  |
| 5.1 Creating an Adapter Instance and Credential .....  | 8  |
| 5.2 Manually Discovering Resources .....               | 11 |
| 5.3 Validating Data Collection .....                   | 13 |
| 6. Appendix I: Management Pack Folders and Files ..... | 14 |

**NOTE:** This document supports the version of each product listed, as well as all subsequent versions, until a new edition replaces it.

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The Blue Medora website also provides the latest product updates. If you have comments about this documentation, submit your feedback to: [support@bluemedora.com](mailto:support@bluemedora.com).

## 1. Purpose

The *Blue Medora VMware vRealize Operations (vROps) Management Pack for SAP HANA Installation and Configuration Guide* describes how to install and configure Blue Medora’s VMware vRealize Operations Management Pack for SAP HANA.

## 2. Installation and Configuration Requirements

Before installing and configuring the Management Pack for SAP HANA, ensure your system meets the following requirements:

Table 1: Management Pack Installation & Configuration Requirements

|             | VREALIZE OPERATIONS (VROPS) REQUIREMENTS                      | SAP HANA REQUIREMENTS  |
|-------------|---|--|
| VERSION(S)  | <b>vRealize Operations v6.2+</b><br>(Enterprise edition only) | <b>SAP HANA 1.0</b> <ul style="list-style-type: none"> <li>• SPS 10</li> <li>• SPS 12</li> </ul> <b>SAP HANA 2.0</b>   |
| CREDENTIALS | N/A   | <b>SAP HANA User Name/Password</b><br><br><b>NOTE:</b> Refer to section “2.1 Setting SAP HANA User Permissions” for information about granting the least amount of permissions for a user.   |
| CONNECTION  | vROps hostname or IP address                                  | <b>SAP HANA hostname or IP address</b><br><br>The Management Pack collects data via the SAP HANA platform’s API via <b>default port 30015</b> .<br><br><b>NOTE:</b> The port number is bound to the instance of the database. For more information on ranges and rules for port numbers, refer to: <a href="https://wiki.scn.sap.com/wiki/display/TCPIP/SAP+HANA+Platform">https://wiki.scn.sap.com/wiki/display/TCPIP/SAP+HANA+Platform</a><br><br><b>NOTE:</b> The Management Pack only supports IPv4. |

## 2.1 Setting SAP HANA User Permissions

The least privileged user requirements for the Management Pack include a restricted SAP HANA user account that has been customized as described in the following section. Creating the required SAP HANA user account includes the following tasks:

- Creating a Restricted SAP HANA User
- Granting Privileges to a Restricted SAP HANA User

### 2.1.1 Creating a Restricted SAP HANA User

1. Run `CREATE RESTRICTED USER <USERNAME> PASSWORD "<password>"`; to create a restricted user.
2. Run `ALTER USER <USERNAME> ENABLE CLIENT CONNECT`; to allow the user to connect to the database.

### 2.1.2 Granting Privileges to a Restricted SAP HANA User

1. Run `GRANT CATALOG READ TO <USERNAME>`; to give the user read-only access to all system views.
2. Run `GRANT SELECT ON <VIEW_NAME> TO <USERNAME>`; for each view listed below:
  - `_SYS_STATISTICS.STATISTICS_CURRENT_ALERTS`
  - `SYS.M_BLOCKED_TRANSACTIONS`
  - `SYS.M_CACHES`
  - `SYS.M_CONNECTION_STATISTICS`
  - `SYS.M_CONNECTIONS`
  - `SYS.M_DATABASE`
  - `SYS.M_DATABASE_HISTORY`
  - `SYS.M_DISKS`
  - `SYS.M_EXPENSIVE_STATEMENTS`
  - `SYS.M_GARBAGE_COLLECTION_STATISTICS`
  - `SYS.M_HOST_INFORMATION`
  - `SYS.M_HOST_RESOURCE_UTILIZATION`
  - `SYS.M_JOB_PROGRESS`
  - `SYS.M_LANDSCAPE_HOST_CONFIGURATION`
  - `SYS.M_LICENSE`
  - `SYS.M_MEMORY`
  - `SYS.M_RECORD_LOCKS`
  - `SYS.M_SERVICE_MEMORY`
  - `SYS.M_SERVICE_STATISTICS`
  - `SYS.M_SERVICE_THREADS`
  - `SYS.M_SERVICES`
  - `SYS.M_SHARED_MEMORY`
  - `SYS.M_SYSTEM_OVERVIEW`
  - `SYS.M_TRANSACTIONS`
  - `SYS.M_VOLUME_IO_STATISTICS`
  - `SYS.M_VOLUME_SIZES`
  - `SYS.M_VOLUMES`

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**NOTE:** After creating the user, the password must be changed by logging in to the SAP HANA Administration Console.

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For detailed information on [creating restricted users](#) and [granting privileges to users](#), refer to the SAP Help Portal.

### 3. Licensing Requirements

When purchased individually, the Management Pack for SAP HANA is licensed **by the maximum amount of allocated memory (GB) toward SAP HANA**.

Alternatively, customers who have purchased Blue Medora’s True Visibility Suite (Standard, Advanced, or Enterprise) can access all management packs within that suite (and the edition below it, if applicable). The Management Pack for SAP HANA is part of Blue Medora’s **Enterprise** True Visibility Suite (TVS), which means a TVS **Enterprise** license is required to use it. For more information, visit <http://www.bluededora.com/true-visibility-suite-for-vmware/>.

A license key will be provided by Blue Medora when the Management Pack or True Visibility Suite is purchased and must be added as an SAP HANA Adapter License within vRealize Operations before the Management Pack can be configured and used. Refer to section “4.2 Adding a License Key” for details.

### 4. Installing the Management Pack

Installing the Management Pack in vRealize Operations involves completing the following tasks:

- Uploading the Installation File
- Adding a License Key

#### 4.1 Uploading the Installation File

The Management Pack for SAP HANA is installed using a .pak file.

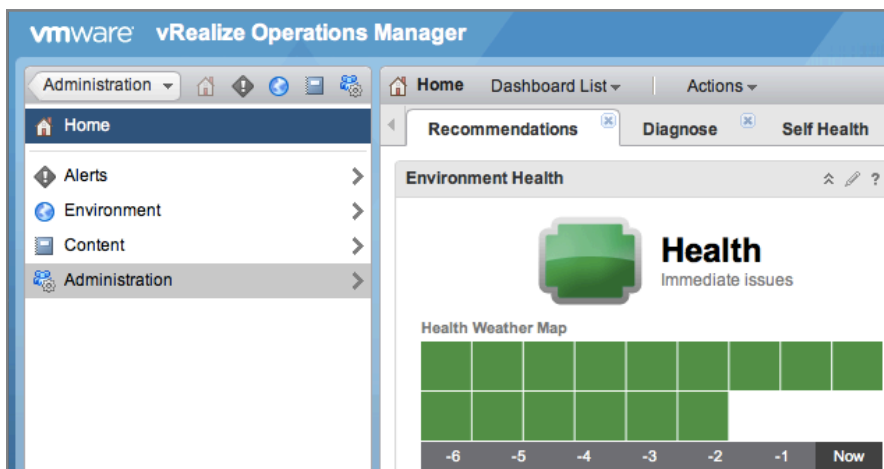
##### 4.1.1 Prerequisites

- Obtain the Management Pack installation file from <http://www.bluededora.com/true-visibility-suite-for-vmware/>.
- Read the release notes that are included with the .pak file.

##### 4.1.2 Procedure

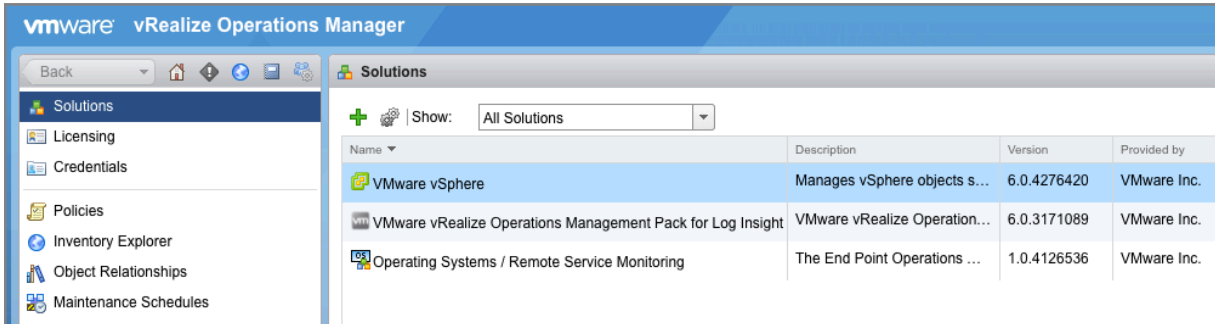
1. Save the .pak file in a temporary location.
2. Log in to vRealize Operations as an admin user.
3. Click the *Home* icon, then select the *Administration* navigation shortcut from the panel on the left.

Figure 1: Home > Administration



- In the right panel, the *Solutions* tab will be displayed.

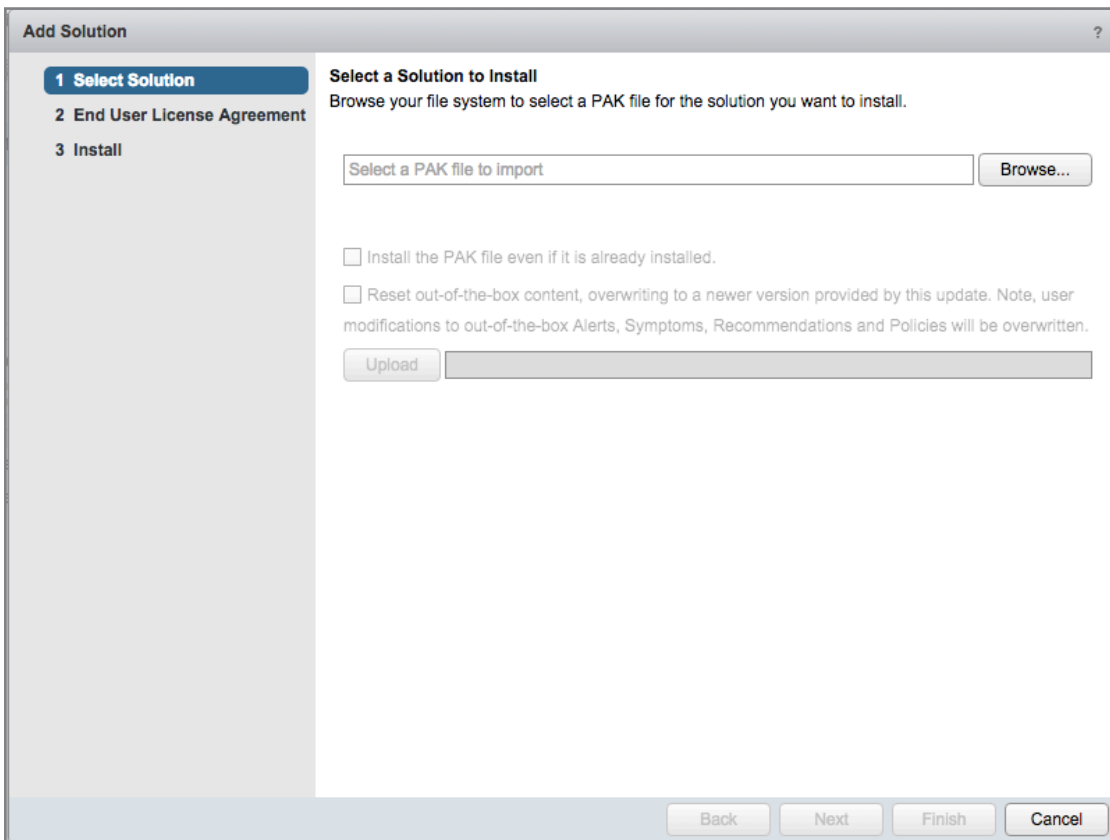
Figure 2: Solutions Tab



- Click the *Add* icon (+) to upload the .pak file to the vRealize Operations server. In the dialog that appears, browse to the location of the saved .pak file, then click *Upload*.

**NOTE:** The .pak file upload may take several minutes to complete. Status information appears in the Installation Details text box throughout the installation process.

Figure 3: Select the .pak file to upload



6. Click *Next* when the upload has finished. Read the *End User License Agreement (EULA)* and click the 'I accept the terms of this agreement' checkbox to accept, then click *Next*.
7. Click *Finish* when the installation process is complete.

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**NOTE:** The installation utility creates the `saphana_adapter3` folder and `saphana_adapter3.jar` file in the `$VCOPS_BASE/user/plugins/inbound` folder. Refer to section "6. Appendix I: Management Pack Folders and Files" for more information.

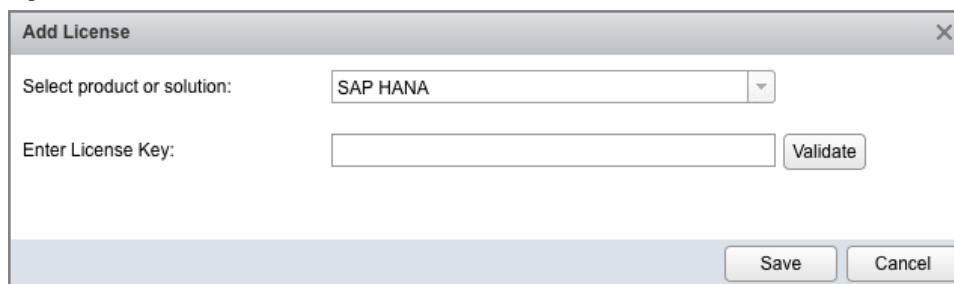
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## 4.2 Adding a License Key

The Management Pack requires a valid license for full operation. Complete the following steps to license the Management Pack.

1. In vRealize Operations Manager, navigate to *Administration > Licensing > License Keys*.
2. Click the *Add* icon (+). In the dialog that appears, select 'SAP HANA'.

Figure 4: Add License



3. Enter your Blue Medora license key, then click *Validate*. If successful, "License key validated successfully" will be displayed.
4. Click *Save* to finish adding your license key.

## 5. Configuring the Management Pack

Configuring the Management Pack for SAP HANA includes the following tasks:

- Creating an Adapter Instance and Credential
- Manually Discovering Resources (if necessary)
- Validating Management Pack Data Collection

### 5.1 Creating an Adapter Instance and Credential

You must create an adapter instance and credential for the Management Pack in order to define the adapter type and identify the device(s) from which the adapter instance will retrieve data.

#### 5.1.1 Prerequisites

Install the Management Pack for SAP HANA. Refer to section “4. Installing the Management Pack”.

#### 5.1.2 Procedure


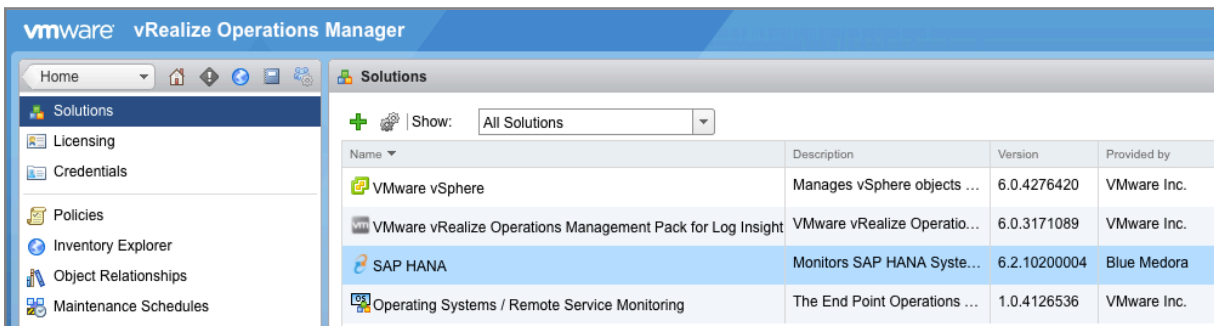
1. Log in to vRealize Operations as an administrator.
2. Click on the *Administration* navigation shortcut (  ). The *Solutions* view should automatically open.
3. Select ‘SAP HANA’ from the *Solutions* list.

Figure 5: Solutions List



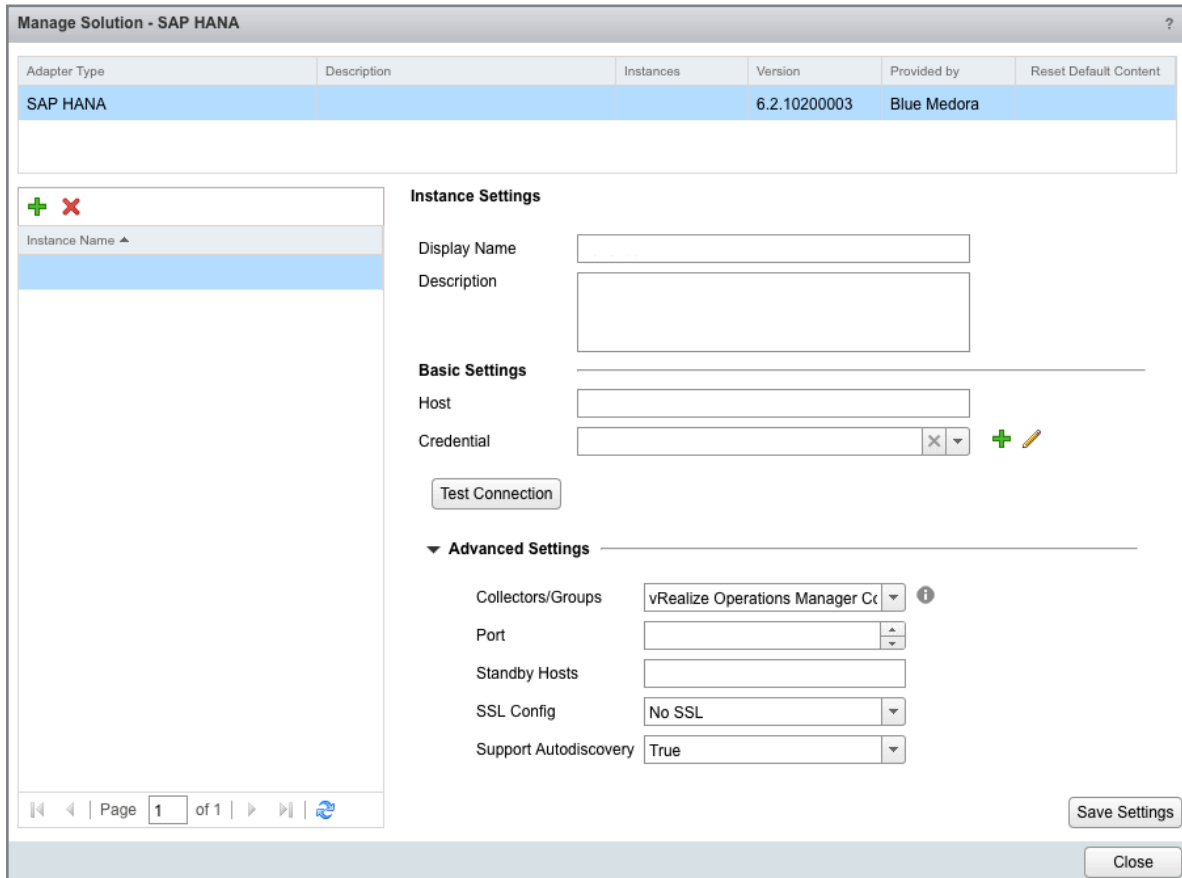
The screenshot shows the VMware vRealize Operations Manager interface. The left sidebar contains navigation options: Home, Solutions, Licensing, Credentials, Policies, Inventory Explorer, Object Relationships, and Maintenance Schedules. The main area displays the 'Solutions' view with a table of installed management packs. The 'SAP HANA' entry is highlighted in blue.

| Name   | Description                  | Version      | Provided by |
|--|------------------------------|--------------|-------------|
| VMware vSphere   | Manages vSphere objects ...  | 6.0.4276420  | VMware Inc. |
| VMware vRealize Operations Management Pack for Log Insight | VMware vRealize Operatio...  | 6.0.3171089  | VMware Inc. |
| SAP HANA   | Monitors SAP HANA Syste...   | 6.2.10200004 | Blue Medora |
| Operating Systems / Remote Service Monitoring              | The End Point Operations ... | 1.0.4126536  | VMware Inc. |



- Click the *Configure* icon (). The *Manage Solution* window will appear.

Figure 6: Manage Solution Window



**NOTE:** If creating multiple adapter instances, click the *Add* icon () above the list of *Instance Names* on the left.

- In the *Manage Solution* window, enter the following information:


*Instance Settings:*

- **Display Name:** A name for this particular instance of the Management Pack
- **Description:** Optional; most helpful for describing multiple adapter instances of the Management Pack

*Basic Settings:*

- **Host:** SAP HANA hostname or IP address

**NOTE:** The Management Pack only supports IPv4.

- **Credential:** Click the *Add* icon () , then select the credential type (refer to Figure 7).

*Advanced Settings:*

- **Collectors/Groups:** Automatically selected
- **Port:** Default port is 30015

**NOTE:** The port number is bound to the instance of the database. For more information on ranges and rules for port numbers, refer to: <https://wiki.scn.sap.com/wiki/display/TCPIP/SAP+HANA+Platform>

- **Standby Hosts:** Individual hostname or list of hostnames to be used for failover

**NOTE:** The Standby Hosts field supports input of multiple hosts using a comma-separated list. If using a port other than the default, it can be appended using the following format: `<hostname_or_IP1>:<port>,<hostname_or_IP2>:<port>`.

- **SSL Config:** Default setting is No SSL (SSL disabled), other choices are No Verify (SSL enabled/certificate not verified) and Verify (SSL enabled/certificate verified)
- **Support Autodiscovery:** Default setting is True, which enables the adapter instance to create resources for you. If you select False, you must manually discover your SAP HANA resources.

Figure 7: Manage Credential



- **Credential Name:** A name for this set of Management Pack credentials
  - **User Name:** SAP HANA User Name
  - **Password:** SAP HANA Password
6. Click *OK* to save your credential.
  7. Click *Test Connection* to ensure vRealize Operations can connect properly to the network device(s).
  8. Click *Save Settings* to save your adapter instance configuration.

## 5.2 Manually Discovering Resources

If Autodiscovery was set to False when configuring the adapter instance, you will need to manually discover resources as described in this section. With manual discovery, the adapter sends a request to the SAP HANA system to return resources, which you then manually select to import into vRealize Operations.

### 5.2.1 Prerequisites

Create an SAP HANA adapter instance and credential. Refer to section “5.1 Creating an Adapter Instance and Credential”, for details.

### 5.2.2 Procedure


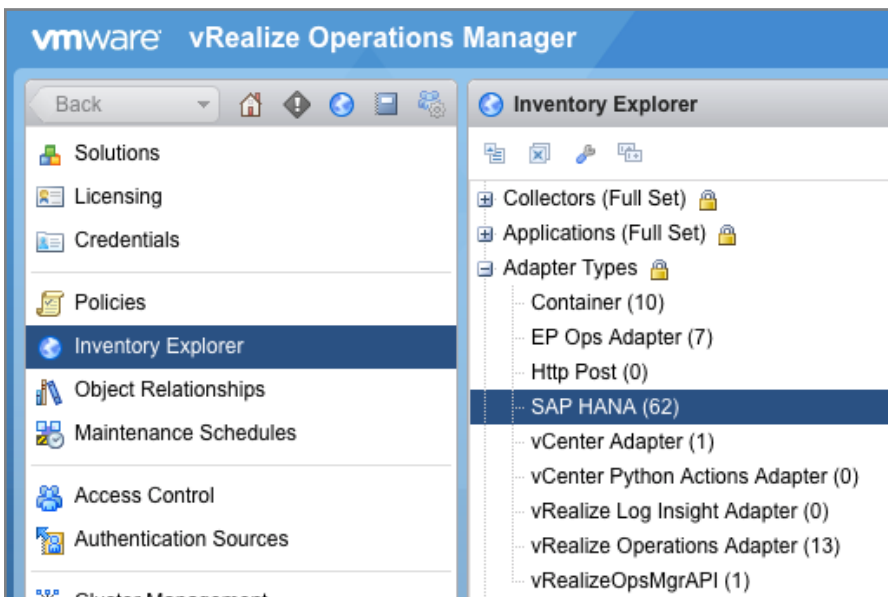
1. Log in to vRealize Operations as an administrator.
2. Click the *Administration* navigation shortcut (  ).
3. Click *Inventory Explorer* in the navigator pane.

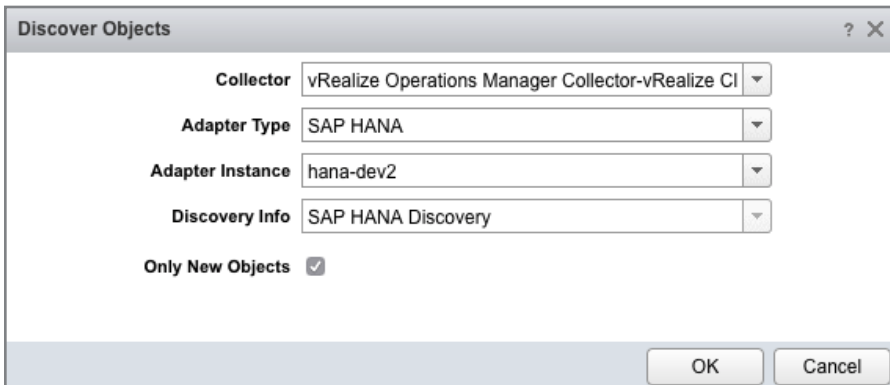
Figure 8: Inventory Explorer > Adapter Types



4. Under *Adapter Types*, select 'SAP HANA'.

- Click the *Discover Resources* icon (  ) to open the *Discover Objects* window.

Figure 9: *Discover Objects* Window



- In the *Discover Objects* window, select the following information:
  - The *Collector* to use

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**NOTE:** Unless you added additional collectors, the only available collector is your vROps server.

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- 'SAP HANA' for *Adapter Type*
  - The applicable *Adapter Instance*
  - 'SAP HANA Discovery' for *Discovery Info*
  - Whether *Only New Objects* (select/de-select checkbox) should be collected
- Click *OK* to start the discovery process.
  - The discovery process can take several seconds to several minutes. When it has finished, the *Discovery Results* window lists your resources.
  - Double-click each resource kind that contains resources to add.
  - Select options for each kind of resource. Refer to Table 2.

Table 2: *Resource Options*

| OPTION  | DESCRIPTION  |
|---------|--|
| Import  | Import the resources but do not start collecting data. Resources appear in the resource list as Not Collecting; data is not stored; analysis is not performed. |
| Collect | Import the resources and start collecting data. When you select the Collect check box, the Import check box is also selected.                                  |

- Click *OK*. The *Discovery Results* window closes and the new resources appear.

### 5.2.3 What To Do Next

If you did not select the option to start metric collection when you defined a resource, you can start metric collection after the resource is defined. To start collecting metrics for a resource, choose the resources, then click the *Start Collecting* icon (  ).

### 5.3 Validating Data Collection

After you add an SAP HANA adapter instance, you will want to validate the data that it collects in vRealize Operations.

#### 5.3.1 Prerequisites

Add an SAP HANA adapter instance. Refer to section “5.1 Creating an Adapter Instance and Credential”, for details.

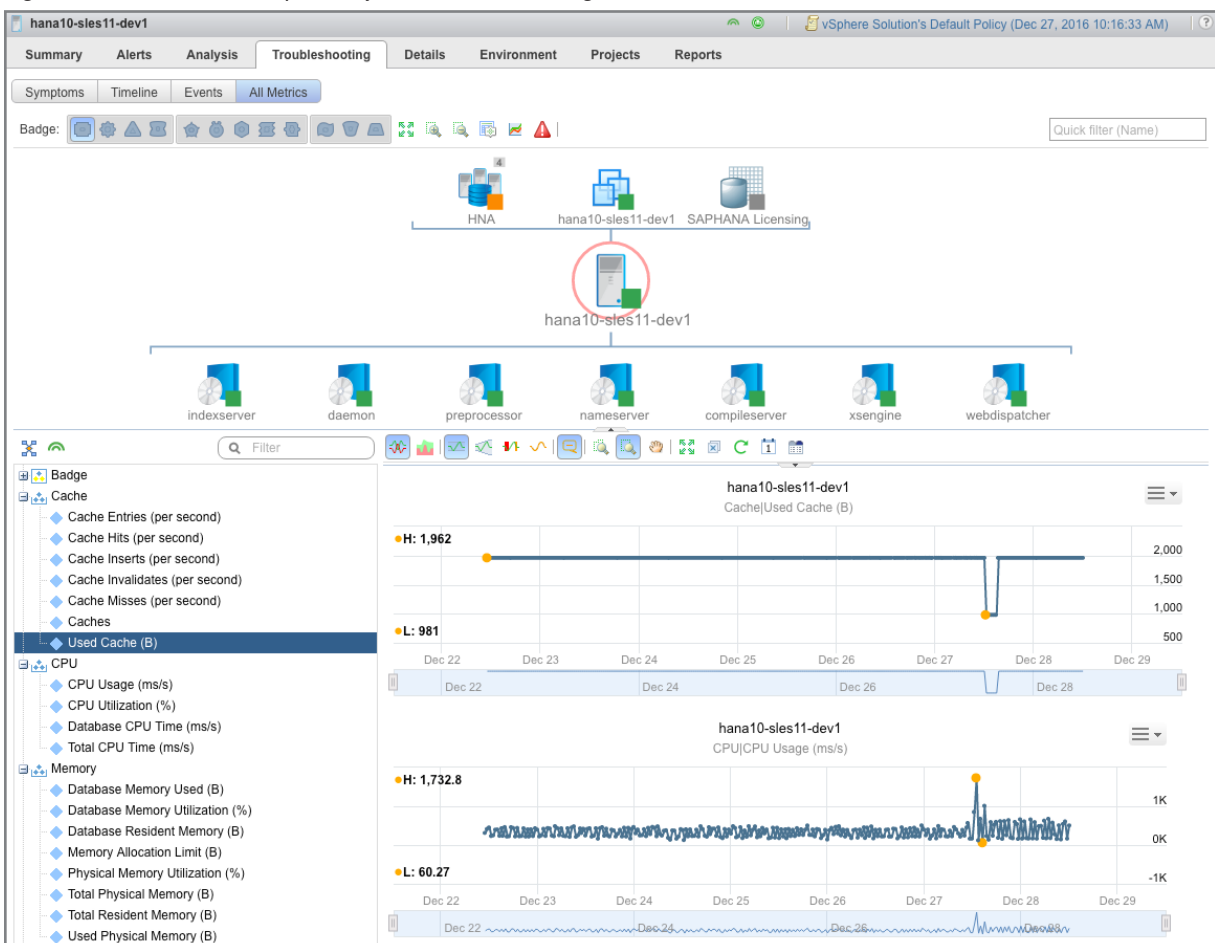
#### 5.3.2 Procedure

1. Select the *Environment* shortcut

**NOTE:** If you enabled Autodiscovery for the adapter instance, it will create resources as soon as it begins collecting metrics. If you disabled Autodiscovery for the adapter instance, you must go back and discover resources manually before you can validate data collection. Refer to section “5.2 Manually Discovering Resources”.

2. Under Inventory Trees, select *All Objects*, then expand the *SAP HANA* objects list.
3. Select a resource from the list, then click the *Troubleshooting* tab and *All Metrics* view to validate values against the data source.

Figure 10: SAP HANA Adapter Objects Troubleshooting



## 6. Appendix I: Management Pack Folders and Files

The installer places the Management Pack files in the `saphana_adapter3` folder under the `$VCOPS_BASE/user/plugins/inbound` folder as shown below.

Table 3: Management Pack Folders and Files

| FOLDER | FILE   | DESCRIPTION  |
|--------|--|--|
| conf   | #_SAPHANA_ADAPTER_max_observations.moar                  | Tracks 'Max Observed' metrics for the adapter instance   |
|        | dashboards (folder)                                      | Contains .json files for Management Pack Dashboards  |
|        | describe.xml   | Describes the Management Pack  |
|        | describeSchema.xsd                                       | Used to validate describe.xml  |
|        | historical.properties                                    | Not used by this Management Pack   |
|        | images (folder)  | Contains .png files for AdapterKind, ResourceKind, and TraversalSpec   |
|        | license.properties                                       | Contains back-up copy of licenses used for this Management Pack  |
|        | oss_attribution.txt                                      | Describes open source libraries used by the Management Pack  |
|        | oss_attribution-sap_hana_dp_1.0.0_ga_20161227_194212.txt | Describes open source libraries used by the data provider  |
|        | reports (folder)   | Contains .xml files for Management Pack Reports  |
|        | reskndmetrics (folder)                                   | Contains .xml files for Dashboard Metric configuration   |
|        | resources (folder)                                       | Contains resources.properties file   |
|        | saphana.properties                                       | Contains properties that can be modified to adjust adapter operation   |
|        | scripts (folder)   | Contains .sdm files consumed by the Management Pack  |
|        | version.txt  | Contains version information   |
|        | views (folder)   | Contains .xml files for Management Pack Views  |
| lib    | Refer to lib folder for entire list                      | .jar files that contain the classes and resources used to implement the Management Pack                      |
| work   | install.log  |  |
|        | lastcollection_#.properties                              | Tracks when the last collection for each adapter instance was performed (used when historic mode is enabled) |



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