

IBM Tivoli Monitoring for Virtual  
Environments Agent for VMware VI  
7.3 Fix Pack 5

*Reference*



**Note**

Before using this information and the product it supports, read the information in [“Notices” on page 269](#).

This edition applies to agent version 07.30.05 of IBM® Tivoli® Monitoring for Virtual Environments Agent for VMware VI (product number 5724-L92) and to all subsequent releases and modifications until otherwise indicated in new editions.

© **Copyright International Business Machines Corporation 2010, 2022.**

US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

---

# Contents

<b>Tables.....</b>	<b>vii</b>
<b>Chapter 1. Workspaces.....</b>	<b>1</b>
Predefined workspaces.....	1
Workspace descriptions.....	3
VMware VI navigator item.....	3
Clusters navigator item.....	4
Datastores navigator item.....	6
Events navigator item.....	8
Monitored Servers navigator item.....	9
Networks navigator item.....	9
VMware VI subnode.....	11
<b>Chapter 2. Attributes.....</b>	<b>17</b>
Attribute groups for the monitoring agent.....	17
Attributes in each attribute group.....	22
Active Tasks attribute group.....	22
Agent Events attribute group.....	24
Cluster DRS Faults attribute group.....	25
Clustered Datastores attribute group.....	27
Clustered Resource Pools attribute group.....	29
Clustered Servers attribute group.....	31
Clustered Virtual Apps attribute group.....	35
Clustered Virtual Machines attribute group.....	37
Clusters attribute group.....	38
Datacenters attribute group.....	48
Datastore Cluster attribute group.....	50
Datastore Host Disks attribute group.....	52
Datastore Topology attribute group.....	53
Datastores attribute group.....	55
Director attribute group.....	60
Distributed Virtual Portgroups attribute group.....	61
Distributed Virtual Switch Health attribute group.....	64
Distributed Virtual Switches attribute group.....	65
Distributed Virtual Uplinks attribute group.....	68
ESX Performance Object Status attribute group.....	71
Events attribute group.....	74
Monitored Servers attribute group.....	76
Networked Servers attribute group.....	77
Networked Virtual Machines attribute group.....	79
Networked Virtual Switches attribute group.....	81
Networks attribute group.....	83
Performance Object Status attribute group.....	84
Resource Pool CPU attribute group.....	87
Resource Pool General attribute group.....	90
Resource Pool Memory attribute group.....	92
Server attribute group.....	96
Server CPU attribute group.....	105
Server DataStore attribute group.....	106
Server Disk attribute group.....	109

Server HBA attribute group.....	114
Server Health attribute group.....	117
Server Memory attribute group.....	119
Server Network attribute group.....	123
Server SAN attribute group.....	126
Server Virtual Switches attribute group.....	127
Server VM Datastore Utilization attribute group.....	129
SubNode Events attribute group.....	130
Tasks attribute group.....	133
Thread Pool Status attribute group.....	134
Topological Events attribute group.....	137
Topology attribute group.....	138
Triggered Alarms attribute group.....	139
vCenters attribute group.....	141
Virtual Machines attribute group.....	143
Virtual Switches attribute group.....	150
VM CPU attribute group.....	152
VM Datastore Utilization attribute group.....	154
VM Disk attribute group.....	157
VM Disk Performance attribute group.....	159
VM Memory attribute group.....	160
VM Network attribute group.....	164
VM Orphaned Disk attribute group.....	166
VM Partition attribute group.....	168
VM Snapshot attribute group.....	170
VM SnapshotFileLayout attribute group.....	170
VM Snapshots attribute group.....	171
Disk capacity planning for historical data.....	173
<b>Chapter 3. Situations.....</b>	<b>177</b>
Predefined situations.....	177
Situation descriptions.....	179
VMware VI navigator item.....	180
Clusters navigator item.....	180
Datastores navigator item.....	183
Events navigator item.....	184
Monitored Servers navigator item.....	186
Networks navigator item.....	193
VMware VI subnode.....	193
<b>Chapter 4. Take Action commands.....</b>	<b>207</b>
Predefined Take Action commands.....	207
Take Action command descriptions.....	207
PowerOffVM action.....	208
PowerOnVM action.....	209
<b>Chapter 5. Policies.....</b>	<b>213</b>
Predefined policies.....	213
KVM_VM_Created.....	213
KVM_VM_Deleted.....	214
KVM_VM_Relocated.....	214
KVM_VMotion.....	214
<b>Chapter 6. Event mapping.....</b>	<b>215</b>
<b>Notices.....</b>	<b>269</b>
Trademarks.....	270

Privacy policy considerations.....	271
<b>Index.....</b>	<b>273</b>



---

# Tables

1. Capacity planning for historical data logged by the VMware VI agent.....	173
---	-----





---

# Chapter 1. Workspaces

A workspace is the working area of the Tivoli Enterprise Portal application window. The Navigator contains a list of the workspaces provided by the agent.

## About workspaces

Use the Navigator to select the workspace you want to see. As part of the application window, the status bar shows the Tivoli Enterprise Portal Server name and port number to which the displayed information applies and the ID of the current user.

When you select an item in the Navigator, a default workspace is displayed. When you right-click a navigator item, a menu that includes a Workspace item is displayed. The Workspace item contains a list of workspaces for that navigator item. Each workspace has at least one view. Some views have links to other workspaces. You can also use the Workspace Gallery tool as described in the *Tivoli Enterprise Portal User's Guide* to open workspaces.

The workspaces in the Navigator are displayed in a Physical view that shows your enterprise as a physical mapping or a dynamically populated logical view that is agent-specific. You can also create a Logical view. The Physical view is the default view.

This monitoring agent provides predefined workspaces. You cannot modify or delete the predefined workspaces, but you can create new workspaces by editing them and saving the changes with a different name.

The IBM Tivoli Monitoring for Virtual Environments Agent for VMware VI provides various default workspaces. These workspaces are displayed in the Navigator under the following nodes and subnodes for this monitoring agent:

### VMware VI

Corresponds to a VMware VI instance and contains agent instance-level workspaces.

### VMware VI

Each subnode is an ESX server.

When multiple instances of the monitoring agent are defined on a system, the top-level node becomes VMware VI. The VMware VI workspace is undefined at this node. A node for each instance is created called *Instance::VM*. A workspace that is called *Instance::VM* is associated with the instance node. This workspace is comparable to the VMware VI workspace.

Workspace views can be any combination of query-based views, event views, and special purpose views.

## Additional information about workspaces

For more information about creating, customizing, and working with workspaces, see "Using workspaces" in the *Tivoli Enterprise Portal User's Guide*.

For a list of the predefined workspaces for this monitoring agent and a description of each workspace, see [Predefined workspaces](#) and the information about each individual workspace.

Some attribute groups for this monitoring agent might not be represented in the predefined workspaces or views for this agent. For a full list of the attribute groups, see ["Attribute groups for the monitoring agent"](#) on page 17.

If you are using remote management to navigate to your systems in the Tivoli Enterprise Portal, navigate from the host name of the computer where you installed the agent.

The VMware VI agent provides predefined workspaces, which are organized by navigator item.

Agent-level navigator items

- VMware VI navigator item
  - VMware VI workspace
  - IBM Systems Director workspace
  - Virtual Enterprise workspace
- Clusters navigator item
  - Cluster Detail workspace
  - Cluster Performance workspace
  - Cluster Summary workspace
  - Clusters workspace
  - Distributed Resource Scheduler workspace
  - Virtual App workspace
- Datastores navigator item
  - Datastore and Volumes workspace
  - Datastore Detail - NAS workspace
  - Datastore Detail - VMFS workspace
  - Datastores workspace
  - Topology - Datastore workspace
  - Virtual Machines Topology workspace
  - VM Datastore Utilization workspace
  - VM Orphaned Disk workspace
- Events navigator item
  - Events workspace
  - Triggered Alarms workspace
- Monitored Servers navigator item
  - Monitored Servers workspace
  - Topology - Monitored Servers workspace
  - Virtual Machines - Monitored Servers workspace
- Networks navigator item
  - Distributed Network Detail workspace
  - Distributed Virtual Switch Detail workspace
  - Network Detail workspace
  - Network NIC Detail workspace
  - Networks workspace

VMware VI (ESX) subnode

- VMware VI navigator item
  - VMware VI workspace
  - All Orphaned Virtual Machines workspace
  - All Virtual Machines workspace

- CPU navigator item
  - CPU workspace
- Disk navigator item
  - Disk workspace
  - Server Disk Detail workspace
  - Server Disk Performance workspace
- ESX Server navigator item
  - Agent Health workspace
  - ESX Server workspace
  - Server DataStore workspace
  - Server Health workspace
- Memory navigator item
  - Memory workspace
- Network navigator item
  - Network workspace
- Resource Pools navigator item
  - Resource Pools workspace
- Virtual Machines navigator item
  - Virtual Machines workspace

## Workspace descriptions

[Edit online](#)

Each workspace description provides information about the workspace such as the purpose and a list of views in the workspace.

Workspaces are listed under navigator items. When the agent has subnodes, the navigator items are listed under the subnode.

### VMware VI navigator item

[Edit online](#)

The workspace descriptions are organized by the navigator item to which the workspaces are relevant.

#### VMware VI workspace

This workspace provides a snapshot of the health of clusters and data stores. Key indicators show the status to aid in problem identification.

This workspace contains the following views:

##### Clusters

This view contains key status and performance indicators for clusters. A link is provided to navigate to a workspace with more detailed information about this cluster.

##### Datstores

This view contains key status and performance indicators for data stores. A link is provided to navigate to a workspace with more detailed information about the data store.

##### Networks

This view displays all of the configured networks by data center and provides a summary of the health of the network. A link is provided to view the triggered alarms by network.

### **IBM Systems Director workspace**

This workspace provides the IBM Systems Director Web UI to the Director Server this agent is configured to use. It is only available as a workspace link target.

This workspace contains the following view:

#### **IBM Systems Director**

This view contains the IBM Systems Director Server Web interface.

### **Virtual Enterprise workspace**

This workspace provides high-level views of the ESX servers that this agent is monitoring.

This workspace contains the following views:

#### **Virtual Center Events**

This view contains events that were generated by a monitoring data source. The events are typically specific to the data source.

#### **Monitored Servers**

This view shows the ESX servers that this agent is actively monitoring. Each entry in this view contains a link that provides navigation to the ESX Servers and IBM Systems Director workspaces. The IBM Systems Director workspaces require that an IBM Systems Director Server has been configured for the agent and shows the ESX Server in the IBM Systems Director Web UI.

## **Clusters navigator item**

[Edit online](#)

The workspace descriptions are organized by the navigator item to which the workspaces are relevant.

### **Cluster Detail workspace**

This workspace contains views that are specific to one cluster. The metrics in the workspace are the detailed metrics of the cluster. The metrics include metrics that are configuration settings and metrics that represent a snapshot of some key performance metrics. Links to other workspaces provided by this agent are included in this workspace.

This workspace contains the following views:

#### **Cluster\_name - Datacenter\_Name**

This view contains a summary of memory and CPU usage for the selected cluster and an overall picture of the health of the cluster.

#### **CPU Utilization - Cluster\_Name - Datacenter\_Name**

This view contains a graph of the number of hosts operating within CPU usage ranges. This view allows a capacity planner or administrator to see how well the CPU resources of the cluster are being used across the entire cluster.

#### **Memory Utilization - Cluster\_Name - Datacenter\_Name**

This view contains a graph of the number of hosts operating within Memory usage ranges. This view allows a capacity planner or administrator to see how well the memory resources of the cluster are being used across the entire cluster.

#### **Navigator**

This view contains a navigation aid to quickly jump to views about the other known clusters.

### **Cluster Performance workspace**

This workspace contains views that are specific to one cluster.

This workspace contains the following views:

#### **vMotions vs VMs Powered On for Cluster - Cluster\_Name - Datacenter\_Name**

This view uses a line graph over time to show the number of virtual machines in the given cluster that are powered on. The view also shows the number of virtual machines that have migrated. Historical data collection must be enabled for this view to contain data. See the IBM Tivoli Monitoring Administrator's Guide for details about how to create historical collection. A collection must be created for the Clusters attribute group.

### **CPU vs Memory Utilization for Cluster - Cluster\_Name - Datacenter\_Name**

This view uses a line graph over time to show the usage of cluster resources CPU and memory. Historical data collection must be enabled for this view to contain data. See the IBM Tivoli Monitoring Administrator's Guide for details about how to create a historical collection. A collection must be created for the Clusters attribute group.

### **Navigator**

This view contains a navigation aid to quickly jump to views about the other known clusters.

### **Cluster Summary workspace**

This workspace contains views that are specific to one cluster. The views in this workspace provide a quick guide to all of the ESX servers, resource pools, and virtual machines that are contained within this cluster. Links are provided to quickly jump to a specific view.

This workspace contains the following views:

#### **ESX Servers - Cluster\_Name - Datacenter\_Name**

This view contains a list of the ESX servers that are members of this cluster. Basic performance data is shown for each server. By selecting the link within this view, you can quickly navigate to the ESX server view depicted in the row of data. The resulting workspace aids in providing additional detailed metrics regarding the ESX server. You can easily navigate back to this Cluster Summary workspace by selecting the appropriate icon.

#### **Resource Pools - Cluster\_Name - Datacenter\_Name**

This view contains a list of the resource pools that are the members of this cluster and shows the basic performance data for each resource pool. This view also provides a link to quickly navigate to the Virtual App workspace, and the link is available only if the Node Type is kvm.Virtual\_App.

#### **Datastores - Cluster\_Name - Datacenter\_Name**

This view contains a list of the data stores that are members of this cluster. Basic performance data is shown for each data store.

#### **Virtual Machines - Cluster\_Name - Datacenter\_Name**

This view contains a list of the virtual machines that are members of this cluster. Basic performance data is shown for each virtual machine. By selecting the link within this view, you can quickly navigate to the virtual machine view specific to this virtual machine. The resulting workspace aids in providing additional detailed metrics regarding the virtual machine. You can easily navigate back to this Cluster Summary workspace by selecting the appropriate icon.

### **Navigator**

This view contains a navigation aid to quickly jump to views about the other known clusters.

### **Clusters workspace**

This workspace provides a snapshot of the defined clusters.

This workspace contains the following views:

#### **Clusters**

This view contains a list of all of the clusters and a summary of memory and CPU usage for each cluster. Each entry in this view contains a link that provides the ability to navigate to the Cluster Summary, Cluster Details, Distributed Resource Scheduler and IBM Systems Director workspaces. The latter requires that an IBM Systems Director Server has been configured for the agent and shows the Cluster in Topology Common view.

#### **Top 5 by CPU**

This view contains a list of the clusters that are ordered by CPU usage.

#### **Top 5 by Memory**

This view contains a list of the clusters that are ordered by memory usage.

#### **Bottom 5 by CPU**

This view contains a list of the clusters that are ordered by CPU usage.

#### **Bottom 5 by Memory**

This view contains a list of the clusters that are ordered by memory usage.

### **Distributed Resource Scheduler workspace**

This workspace contains view that is specific to the Distributed Resource Scheduler (DRS) and Storage Distributed Resource Scheduler (SDRS) faults.

This workspace contains the following view:

#### **DRS Faults**

This view shows information about the DRS and SDRS faults that are associated with the clusters.

### **Virtual App workspace**

This workspace contains views that are specific to the virtual application.

This workspace contains the following view:

#### **Virtual App**

This view shows information about the virtual machines and virtual applications that are associated with the virtual machines.

## **Datastores navigator item**

[Edit online](#)

The workspace descriptions are organized by the navigator item to which the workspaces are relevant.

### **Datastore and Volumes workspace**

This workspace contains views that are specific to one data store. The metrics are supplied by both the IBM Tivoli Monitoring for Virtual Environments Agent for VMware VI and the Agent for NetApp Storage. This workspace provides for both a virtual and a physical view of the data store. Use the Storage Agent tab on the configuration windows to set up the relationship between the agents.

This workspace contains the following views:

#### **Datastore Health**

This view shows configuration metrics from the virtualized environment. This view is primarily configuration data.

#### **Volume by Operations**

This view shows physical metrics about the I/O operations and is supplied by the Agent for NetApp Storage.

#### **Volume by Latency**

This view describes the latency of the data store on a physical volume.

#### **Volume by Transfer Rate**

This view describes the I/O transfer rates for this physical volume.

### **Datastore Detail - NAS workspace**

This workspace contains views that are specific to one data store. The metrics in the workspace are the detailed metrics of the data store. The metrics include metrics that are configuration settings and metrics that represent a snapshot of some key performance metrics.

This workspace contains the following views:

#### **Utilization**

This view displays graphically the usage percentage of this data store.

#### **Connections**

This view shows the dependencies of other virtualization components on this data store.

#### **Percent Used - History**

This view shows percentage used of this data store over time. The time period is configurable.

This data helps identify trends and spikes that occur at various points in time. Historical collection must be enabled for this view to populate.

#### **Datastore Detail**

This view contains the detailed configuration specifications of this data store and additional usage metrics.

**Volumes**

This view contains data when an additional IBM Tivoli Monitoring agent has been configured and the data store is located on a NetApp or IBM Series N storage device.

**Topology**

This view is a link to topology workspaces that have this data store as a node. The status of the data store is depicted by the icon.

**Datastore Detail - VMFS workspace**

This workspace contains views that are specific to one data store. The metrics in the workspace are the detailed metrics of the data store. The metrics include metrics that are configuration settings and metrics that represent a snapshot of some key performance metrics.

This workspace contains the following views:

**Utilization**

This view displays graphically the usage percentage of this data store.

**Connections**

This view shows the dependencies of other virtualization components on this data store.

**Percent Used - History**

This view shows percentage used of this data store over time. The time period is configurable.

This data helps identify trends and spikes that occur at various points in time. Historical collection must be enabled for this view to populate.

**Datastore Detail**

This view contains the detailed configuration specifications of this data store and additional usage metrics.

**Topology**

This view is a link to topology workspaces that have this data store as a node. The status of the data store is depicted by the icon.

**Datastores workspace**

This workspace contains a list of all the data stores. This list might be used to identify problems with the data store. More detailed information about a specific data store can be obtained by using the link next to a row describing a data store.

This workspace contains the following views:

**Datastore Health**

This view shows all the data stores and basic health indicators for each one. In addition, information regarding how many other components are connected to the data store is shown.

This information is helpful in providing insight about the impact of performance problems that the data store might be experiencing.

**NAS Datastores**

This view is specific to all data stores that are not of the VMFS type. This view is typically data stores backed by network-attached devices and defined on NFS or CIFS volumes. The link on each row enables navigation to a more detailed workspace specific to that data store.

**VMFS Datastores**

This view is specific to all data stores that are of the VMFS type. Data stores of type VMFS can be local to an ESX host or attached through a SAN device. The link on each row enables navigation to a more detailed workspace specific to that data store.

**Datastore Clusters**

This view shows all the data store clusters. The link in each row enables the navigation to a workspace that is specific to the data store cluster.

**Topology - Datastore workspace**

This workspace shows the relationship between data stores and ESX servers and clusters.

This workspace contains the following view:

### **Topology**

This view displays graphically the logical connections of the data stores to ESX servers and clusters. The status of each entity is also depicted by each icon.

### **Virtual Machines Topology workspace**

This workspace shows the relationship between virtual machines and other entities in the virtual enterprise such as data stores and clusters.

This workspace contains the following view:

#### **Topology**

This view displays graphically the logical connections of the virtual machines to ESX servers, data stores, and clusters. The status of each entity is also depicted by each icon.

### **VM Datastore Utilization workspace**

This workspace contains views that are specific to one data store. These metrics provide insight about which virtual machines are allocated to this data store.

This workspace contains the following views:

#### **VM Datastore Utilization**

This view displays metrics that illustrate which virtual machines are allocated on this data store. These metrics show how much space the virtual machine is currently using and how much space the virtual machine is allowed to use as it grows.

#### **VM IO Operations**

This view displays the amount of data being read and written by the virtual machines on this datastore. These metrics show how busy the datastore is by virtual machine.

#### **VM Datastore Provisioned Space**

This view shows graphically how much of the total provisioned space that is given to the virtual machine is actually being used.

#### **Total IO by VM**

This view shows graphically how total data from both read and write operations is being done by each virtual machine.

### **VM Orphaned Disk workspace**

This workspace displays details about the orphaned virtual machine disk.

This workspace contains the following view:

#### **VM Orphaned Disk**

This view shows the details about the space that is used by an orphaned virtual machine disk on the data store. In addition, this view shows the date and time when an orphaned virtual machine disk was last modified.

## **Events navigator item**

[Edit online](#)

The workspace descriptions are organized by the navigator item to which the workspaces are relevant.

### **Events workspace**

This workspace contains a list of events that have occurred while the monitoring agent is running. The events that are listed are not specific to an ESX server, but they are specific to a configured data source.

This workspace contains the following views:

#### **Virtual Center Events**

This view contains a list of the events specific to the data source.

#### **Triggered Alarms**

This view contains a list of the alarms that are triggered by VMWare for various monitored entities such as data stores and ESX hosts.



### **Virtual Center Tasks**

This view contains a list of the tasks that are triggered on the vCenter server, and the tasks that are completed or failed for various monitored entities, such as data stores and the ESX hosts.

### **Virtual Center Active Tasks**

This view contains a list of the active tasks that are triggered on the vCenter server for various monitored entities, such as data stores and the ESX hosts.

### **Triggered Alarms workspace**

This workspace contains a view that lists the alarms for a specific entity in order to be able to quickly identify the alarms that influence the alarms that have triggered on that object.

This workspace contains the following view:

#### **Triggered Alarms**

This view contains a list of the alarms that are triggered by VMWare for various monitored entities such as data stores and ESX hosts.

## **Monitored Servers navigator item**

[Edit online](#)

The workspace descriptions are organized by the navigator item to which the workspaces are relevant.

### **Monitored Servers workspace**

This workspace contains a list of the monitored ESX servers.

This workspace contains the following views:

#### **Monitored Servers**

This view contains a list of the monitored ESX servers. Monitored servers are discovered from the agent data source, which can be a VMware Virtual Center or an ESX server. Each entry in this view contains a link that provides navigation to the ESX Servers and IBM Systems Director workspaces. The IBM Systems Director workspaces require that an IBM Systems Director Server has been configured for the agent and shows the ESX Server in the IBM System Director Web UI.

#### **Data Sources**

This view provides status information about the data sources that the agent uses to collect monitoring data.

#### **Agent Events**

This view provides status information about the agent that is helpful if there is a configuration issue or if there is a problem connecting to a vCenter or ESX server.

### **Topology - Monitored Servers workspace**

This workspace provides insight into the logical connections between the major entities in the virtual enterprise.

This workspace contains the following view:

#### **Topology**

This view shows the relationship among virtual machines, ESX servers, clusters, resource pools, data centers, and the vCenter.

### **Virtual Machines - Monitored Servers workspace**

This workspace shows the relationship between virtual machines and other entities in the virtual enterprise such as ESX servers and clusters.

This workspace contains the following view:

#### **Topology**

This view displays graphically the logical connections of the virtual machines to ESX servers, and clusters. The status of each entity is also depicted by each icon.

## Networks navigator item

[Edit online](#)

The workspace descriptions are organized by the navigator item to which the workspaces are relevant.

### **Distributed Network Detail workspace**

This workspace provides detail of a selected network in the infrastructure.

This workspace contains the following views:

#### **Network - Network\_Name**

This view displays the selected network status and configuration. A link is provided to view the triggered alarms by network.

#### **Networked Virtual Machines - Network\_Name**

This view shows the networked Virtual Machines usage.

#### **Networked Servers - Network\_Name**

This view shows the networked servers usage.

#### **Distributed Virtual Switches - Switch\_Name**

This view shows the Distributed virtual switches usage.

### **Distributed Virtual Switch Detail workspace**

This workspace provides detail of a selected Distributed Virtual switch in the infrastructure.

This workspace contains the following views:

#### **Distributed Virtual Switch - Switch\_Name**

This view displays the selected Distributed Virtual switch in the virtual infrastructure.

#### **Distributed Virtual Uplinks - Switch\_Name**

This view displays all the distributed virtual uplinks that are associated with the selected Distributed Virtual switch.

#### **Distributed Virtual Portgroups - Switch\_Name**

This view displays all the distributed virtual port groups that are associated with the selected Distributed Virtual switch.

#### **DVS Host Member Health - Switch\_Name**

This view displays health status of all the host associated with the selected Distributed Virtual switch.

### **Network Detail workspace**

This workspace provides detail of a selected network in the infrastructure.

This workspace contains the following views:

#### **Network - Network\_Name**

This view displays the selected network status and configuration. A link is provided to view the triggered alarms by network.

#### **Networked Virtual Machines - Network\_Name**

This view shows the networked Virtual Machines usage.

#### **Networked Servers - Network\_Name**

This view shows the networked servers usage.

#### **Networked Virtual Switches - Network\_Name**

This view shows the networked virtual switches usage.

### **Network NIC Detail workspace**

This workspace provides detail information about Network NIC in the infrastructure.

This workspace contains the following views:

#### **Networked Virtual Machines - Switch\_Name**

This view displays the Networked Virtual Machines that are associated with the selected switch.

**Distributed Virtual Uplinks - Switch\_Name - Host\_Name**

This view displays all the distributed virtual uplinks that are associated with the selected Distributed Virtual switch.

**Distributed Virtual Uplinks - Switch\_Name - Portgroup\_Name**

This view displays all the distributed virtual port groups that are associated with the selected Distributed Virtual switch.

**Networks workspace**

This workspace displays a summary of all the networks that are configured within the data centers.

This workspace contains the following views:

**Networks**

This view displays all of the configured networks by data center and provides a summary of the health of the network. A link is provided to view the triggered alarms by network.

**Standard Virtual Switches**

This view displays all of the virtual standard switches in the virtual infrastructure.

**Distributed Virtual Switches**

This view displays all of the Distributed Virtual switches in the virtual infrastructure.

## VMware VI subnode

[Edit online](#)

The predefined workspace descriptions for the subnode are organized by the navigator item to which the workspaces are relevant.

**VMware VI navigator item****VMware VI workspace**

This workspace provides views that show performance indicators for a single ESX server or host.

This workspace contains the following views:

**Server CPU Utilization**

This view shows CPU usage of the server or host by individual CPU.

**Server Memory Utilization**

This view shows the overall memory usage of the server.

**Server Network**

This view shows the network performance of the server by network interface.

**All Orphaned Virtual Machines workspace**

This workspace shows details about all the orphaned virtual machines.

This workspace contains the following view:

**All Orphaned Virtual Machines**

This view contains a list of the orphaned virtual machines of virtual environment.

**All Virtual Machines workspace**

This workspace shows the details of all the virtual machines.

This workspace contains the following views:

**Virtual Machines**

This view shows the details about status of the virtual machines. In addition, this view contains a list of the virtual machines.

**Virtual Machines by CPU**

This view contains a list of the virtual machines that are categorized by CPU.

**Virtual Machines by Memory**

This view contains a list of the virtual machines that are categorized by memory.

## CPU navigator item

### CPU workspace

This workspace provides views of the CPU usage of the ESX server.

This workspace contains the following views:

#### Virtual Machine CPU

This view shows the CPU usage of the virtual machines on this ESX server that are powered on.

#### Utilization by Virtual Machine Name - CPU%

This view shows the CPU usage of each virtual machine, by CPU, that is powered on.

#### Percent Ready by Virtual Machine Name - CPU

This view shows the CPU Percent Ready attribute for each virtual machine that is powered on. Ideally, this value is low.

#### Server CPU Percent Usage

This view shows the CPU usage of the ESX server.

#### CPU Percent Use Per VM

This view shows the CPU usage of the Virtual Machine.

## Disk navigator item

### Disk workspace

This workspace provides views of the disk usage of the ESX server.

This workspace contains the following views:

#### Server Disk

This view shows the ESX server disk usage.

#### Virtual Machine Partitions

This view shows the disk partitions within the virtual machines. Partition information is available only if the virtual machine has the VMware Tools package installed and running.

#### Virtual Machine Disks

This view shows the virtual disks defined for the virtual machine.

#### Virtual Machine Disks Performance

This view shows information about the performance of disks that are associated with the virtual machines.

### Server Disk Detail workspace

This workspace contains views that are specific to one ESX host. The metrics are for disks from the ESX host point of view. This data includes local disks and data stores visible to this host.

This workspace contains the following views:

#### Server Disk IO

This graphical view displays metrics for each disk. The metrics show the number of read and write operations on the disk. The metrics command and commands aborted show how well the disk is servicing the requests.

#### Server Disk Total Latencies

This graphical view displays the total latency values of the disk requests categorized into device, kernel and queue.

#### Server Disk Details

This view shows a summary of the performance metrics for this disk.

#### Server Disk Average Latencies

This graphical view displays the average latency metrics for the server disk introduced by the device, kernel and queue.

### Server Disk Performance workspace

This workspace contains views that are specific to one ESX host. The metrics are for disks from the ESX host point of view. This data includes local disks and data stores that are visible to this host.

This workspace contains the following views:

**Virtual Machine Disks**

This view shows the virtual hard disk drives that are configured for the virtual machines that are running on this host.

**Server Disk**

This view shows performance metrics for the disks defined to this host. This data includes local disks and data stores. These metrics give an idea of the demand on the disk and how well the disk is servicing the requests.

**Server SAN**

This view shows configuration information about SAN-attached disks on the ESX host.

## **ESX Server navigator item**

### **Agent Health workspace**

This workspace contains a list of the VMware data stores.

This workspace contains the following view:

**VMWare VI Agent Status**

This view contains a list of the status of the agent data collection operations for the attribute groups.

### **ESX Server workspace**

This workspace provides views that describe the overall operating state of an ESX server. Links that enable quick navigation to other workspaces have been provided in this workspace. To fully take advantage of this feature, the Monitoring Agent for Linux must be installed on the ESX server.

This workspace contains the following views:

**Server Summary**

This partial view of the ESX server shows the server status and basic information.

**Server Parameters**

This partial view of the ESX server shows the server status and basic resource consumption.

**Events**

This view contains a list of events that have recently occurred. VMware alarms and events pertaining to this server are displayed here.

**Overall CPU Utilization**

This view shows the overall CPU usage of this server. The areas in color represent usage ranges that are noteworthy.

**Overall Memory Utilization**

This view shows the overall memory usage of this server.

### **Server DataStore workspace**

This workspace contains a list of the VMware data stores.

This workspace contains the following views:

**Server DataStore**

This view contains a list of the data stores that this server is configured to use.

**Server DataStore Usage**

This view contains a list of the usage information for each data store.

**Server HBAs**

This view contains the Host Bus Adaptors for the EXS server.

### **Server Health workspace**

This workspace contains a list of all hardware sensors.

This workspace contains the following view:

### **Sensors**

This view contains a list of all hardware sensors, their status, and their value.

## **Memory navigator item**

### **Memory workspace**

This workspace provides views of the memory usage of the ESX server.

This workspace contains the following views:

#### **Server Memory**

This view shows the memory usage of the ESX server.

#### **Virtual Machine Memory**

This view shows the memory usage and configuration settings for the virtual machines configured on this ESX server.

#### **Guest Memory Utilization**

This view depicts the amount of memory used by the virtual machine guest operating system.

## **Network navigator item**

### **Network workspace**

This workspace provides views of the network usage of the ESX server.

This workspace contains the following views:

#### **Server Network**

This view shows the network usage of the ESX server.

#### **Virtual Machine Network**

This view shows the network usage of the virtual machines on this ESX server.

#### **Server Virtual Switches**

This view shows the virtual switches on this ESX server.

## **Resource Pools navigator item**

### **Resource Pools workspace**

This workspace provides views of the resource pools that are known to the ESX server.

This workspace contains the following views:

#### **Resource Pools**

This view shows the general metrics for the resource pools.

#### **Resource Pool CPU**

This view shows the CPU metrics for the resource pools.

#### **Resource Pool Memory**

This view shows the memory metrics for the resource pools.

## **Virtual Machines navigator item**

### **Virtual Machines workspace**

This workspace provides views of the virtual machines that are defined on this ESX server.

This workspace contains the following views:

#### **Virtual Machines Configuration**

This view shows the properties given to virtual machines at the time they were created.

#### **Virtual Machines Status**

This view shows some of the runtime metrics for the virtual machines. If the VMware Tools package is not running on the virtual machine or the virtual machine is powered off, then several metrics are not known.

### **Virtual Machines Snapshots**

This view shows information about the snapshots for the virtual machines.





---

## Chapter 2. Attributes

Attributes are the application properties that are being measured and reported by the IBM Tivoli Monitoring for Virtual Environments Agent for VMware VI.

### About attributes

Attributes are organized into attribute groups. Attributes in an attribute group relate to a single object such as an application, or to a single kind of data such as status information.

Attributes in a group can be used in queries, query-based views, situations, policy workflows, take action definitions, and launch application definitions. Chart or table views and situations are two examples of how attributes in a group can be used:

- Chart or table views

Attributes are displayed in chart and table views. The chart and table views use queries to specify which attribute values to request from a monitoring agent. You use the Properties editor to apply filters and set styles to define the content and appearance of a view based on an existing query.

- Situations

You use attributes to create situations that monitor the state of your operating system, database, or application. A situation describes a condition you want to test. When you start a situation, the values you assign to the situation attributes are compared with the values collected by the VMware VI agent and registers an *event* if the condition is met. You are alerted to events by indicator icons that are displayed in the Navigator.

### Additional information about attributes

For more information about using attributes and attribute groups, see the *Tivoli Enterprise Portal User's Guide*.

For a list of the attribute groups, a list of the attributes in each attribute group, and descriptions of the attributes for this monitoring agent, see [“Attribute groups for the monitoring agent” on page 17](#) and [“Attributes in each attribute group” on page 22](#).

---

## Attribute groups for the monitoring agent

[Edit online](#)

The VMware VI agent contains the following attribute groups. For agents that use IBM Tivoli Monitoring infrastructure, attributes are in attribute groups. For agents that use the lightweight infrastructure, attributes are in data sets.

The table name depends on the maximum table name limits of the target database being used for the historical data collection. If the maximum name is 30 characters, any warehouse or historical table name longer than 30 characters is shortened to 30 characters.

**Note:** Agents that use the Tivoli Monitoring infrastructure refer to the historical table name as the warehouse table name.

- Attribute group name: Active Tasks
  - Table name: KVMATASKS
  - Warehouse or historical table name: KVM\_ACTIVE\_TASKS or KVMATASKS
- Attribute group name: Agent Events

- Table name: KVMAEVENTS
- Warehouse or historical table name: KVM\_AGENT\_EVENTS or KVMAEVENTS
- Attribute group name: Cluster DRS Faults
  - Table name: KVMCLTDRSF
  - Warehouse or historical table name: KVM\_CLUSTER\_DRS\_FAULTS or KVMCLTDRSF
- Attribute group name: Clustered Datastores
  - Table name: KVMCLTRDST
  - Warehouse or historical table name: KVM\_CLUSTERED\_DATASTORES or KVMCLTRDST
- Attribute group name: Clustered Resource Pools
  - Table name: KVMCLTRRPS
  - Warehouse or historical table name: KVM\_CLUSTERED\_RESOURCE\_POOLS or KVMCLTRRPS
- Attribute group name: Clustered Servers
  - Table name: KVMCLTRSRV
  - Warehouse or historical table name: KVM\_CLUSTERED\_SERVERS or KVMCLTRSRV
- Attribute group name: Clustered Virtual Apps
  - Table name: KVMCLTVAPS
  - Warehouse or historical table name: KVM\_CLUSTERED\_VIRTUAL\_APPS or KVMCLTVAPS
- Attribute group name: Clustered Virtual Machines
  - Table name: KVMCLTRVMS
  - Warehouse or historical table name: KVM\_CLUSTERED\_VIRTUAL\_MACHINES or KVMCLTRVMS
- Attribute group name: Clusters
  - Table name: KVMCLUSTRT
  - Warehouse or historical table name: KVM\_CLUSTERS or KVMCLUSTRT
- Attribute group name: Datacenters
  - Table name: KVMDCTRS
  - Warehouse or historical table name: KVM\_DATACENTERS or KVMDCTRS
- Attribute group name: Datastore Cluster
  - Table name: KVMDRCLUST
  - Warehouse or historical table name: KVM\_DATASTORE\_CLUSTER or KVMDRCLUST
- Attribute group name: Datastore Host Disks
  - Table name: KVMDSHSD
  - Warehouse or historical table name: KVM\_DATASTORE\_HOST\_DISKS or KVMDSHSD
- Attribute group name: Datastore Topology
  - Table name: KVMSTOPO
  - Warehouse or historical table name: KVM\_DATASTORE\_TOPOLOGY or KVMSTOPO
- Attribute group name: Datastores
  - Table name: KVMDSTORES
  - Warehouse or historical table name: KVM\_DATASTORES or KVMDSTORES
- Attribute group name: Director
  - Table name: KVMDIRE
  - Warehouse or historical table name: KVM\_DIRECTOR or KVMDIRE
- Attribute group name: Distributed Virtual Portgroups

- Table name: KVMDVPGRPS
- Warehouse or historical table name: KVM\_DISTRIBUTED\_VIRTUAL\_PORTGROUPS or KVMDVPGRPS
- Attribute group name: Distributed Virtual Switch Health
  - Table name: KVMDVSHLTH
  - Warehouse or historical table name: KVM\_DISTRIBUTED\_VIRTUAL\_SWITCH\_HEALTH or KVMDVSHLTH
- Attribute group name: Distributed Virtual Switches
  - Table name: KVMDVSWTCH
  - Warehouse or historical table name: KVM\_DISTRIBUTED\_VIRTUAL\_SWITCHES or KVMDVSWTCH
- Attribute group name: Distributed Virtual Uplinks
  - Table name: KVMDVUPLNK
  - Warehouse or historical table name: KVM\_DISTRIBUTED\_VIRTUAL\_UPLINKS or KVMDVUPLNK
- Attribute group name: ESX Performance Object Status
  - Table name: KVMESSXPOS
  - Warehouse or historical table name: KVM\_ESX\_PERFORMANCE\_OBJECT\_STATUS or KVMESSXPOS
- Attribute group name: Events
  - Table name: KVMIRAEVNT
  - Warehouse or historical table name: KVM\_EVENTS or KVMIRAEVNT
- Attribute group name: Monitored Servers
  - Table name: KVMDAG
  - Warehouse or historical table name: KVM\_MONITORED\_SERVERS or KVMDAG
- Attribute group name: Networked Servers
  - Table name: KVMNETSERV
  - Warehouse or historical table name: KVM\_NETWORKED\_SERVERS or KVMNETSERV
- Attribute group name: Networked Virtual Machines
  - Table name: KVMNETVM
  - Warehouse or historical table name: KVM\_NETWORKED\_VIRTUAL\_MACHINES or KVMNETVM
- Attribute group name: Networked Virtual Switches
  - Table name: KVMNVSWITC
  - Warehouse or historical table name: KVM\_NETWORKED\_VIRTUAL\_SWITCHES or KVMNVSWITC
- Attribute group name: Networks
  - Table name: KVMDCNETS
  - Warehouse or historical table name: KVM\_NETWORKS or KVMDCNETS
- Attribute group name: Performance Object Status
  - Table name: KVMPOBJST
  - Warehouse or historical table name: KVM\_PERFORMANCE\_OBJECT\_STATUS or KVMPOBJST
- Attribute group name: Resource Pool CPU
  - Table name: KVMRSPoolC
  - Warehouse or historical table name: KVM\_RESOURCE\_POOL\_CPU or KVMRSPoolC
- Attribute group name: Resource Pool General
  - Table name: KVMRSPoolG
  - Warehouse or historical table name: KVM\_RESOURCE\_POOL\_GENERAL or KVMRSPoolG

- Attribute group name: Resource Pool Memory
  - Table name: KVMRSPPOOLM
  - Warehouse or historical table name: KVM\_RESOURCE\_POOL\_MEMORY or KVMRSPPOOLM
- Attribute group name: Server
  - Table name: KVMSERVERG
  - Warehouse or historical table name: KVM\_SERVER or KVMSERVERG
- Attribute group name: Server CPU
  - Table name: KVMSERVERC
  - Warehouse or historical table name: KVM\_SERVER\_CPU or KVMSERVERC
- Attribute group name: Server DataStore
  - Table name: KVMSEVRDS
  - Warehouse or historical table name: KVM\_SERVER\_DATASTORE or KVMSEVRDS
- Attribute group name: Server Disk
  - Table name: KVMSERVERD
  - Warehouse or historical table name: KVM\_SERVER\_DISK or KVMSERVERD
- Attribute group name: Server HBA
  - Table name: KVMSRVHBAS
  - Warehouse or historical table name: KVM\_SERVER\_HBA or KVMSRVHBAS
- Attribute group name: Server Health
  - Table name: KVMSVRHLTH
  - Warehouse or historical table name: KVM\_SERVER\_HEALTH or KVMSVRHLTH
- Attribute group name: Server Memory
  - Table name: KVMSERVERM
  - Warehouse or historical table name: KVM\_SERVER\_MEMORY or KVMSERVERM
- Attribute group name: Server Network
  - Table name: KVMSEVERN
  - Warehouse or historical table name: KVM\_SERVER\_NETWORK or KVMSEVERN
- Attribute group name: Server SAN
  - Table name: KVMSRVRSAN
  - Warehouse or historical table name: KVM\_SERVER\_SAN or KVMSRVRSAN
- Attribute group name: Server Virtual Switches
  - Table name: KVMSRVVSWI
  - Warehouse or historical table name: KVM\_SERVER\_VIRTUAL\_SWITCHES or KVMSRVVSWI
- Attribute group name: Server VM Datastore Utilization
  - Table name: KVMSVMDSUT
  - Warehouse or historical table name: KVM\_SERVER\_VM\_DATASTORE\_UTILIZATION or KVMSVMDSUT
- Attribute group name: SubNode Events
  - Table name: KVMSEVERE
  - Warehouse or historical table name: KVM\_SUBNODE\_EVENTS or KVMSEVERE
- Attribute group name: Tasks
  - Table name: KVMTASKS
  - Warehouse or historical table name: KVM\_TASKS

- Attribute group name: Thread Pool Status
  - Table name: KVMTHPLST
  - Warehouse or historical table name: KVM\_THREAD\_POOL\_STATUS or KVMTHPLST
- Attribute group name: Topological Events
  - Table name: KVMTOPEVNT
  - Warehouse or historical table name: KVM\_TOPOLOGICAL\_EVENTS or KVMTOPEVNT
- Attribute group name: Topology
  - Table name: KVMTOPO
  - Warehouse or historical table name: KVM\_TOPOLOGY or KVMTOPO
- Attribute group name: Triggered Alarms
  - Table name: KVMALARMS
  - Warehouse or historical table name: KVM\_TRIGGERED\_ALARMS or KVMALARMS
- Attribute group name: vCenters
  - Table name: KVMVCENTER
  - Warehouse or historical table name: KVM\_VCENTERS or KVMVCENTER
- Attribute group name: Virtual Machines
  - Table name: KVMVM\_GEN
  - Warehouse or historical table name: KVM\_VIRTUAL\_MACHINES or KVMVM\_GEN
- Attribute group name: Virtual Switches
  - Table name: KVMVSWITCH
  - Warehouse or historical table name: KVM\_VIRTUAL\_SWITCHES or KVMVSWITCH
- Attribute group name: VM CPU
  - Table name: KVMVM\_CPU
  - Warehouse or historical table name: KVM\_VM\_CPU
- Attribute group name: VM Datastore Utilization
  - Table name: KVMVMDSUTL
  - Warehouse or historical table name: KVM\_VM\_DATASTORE\_UTILIZATION or KVMVMDSUTL
- Attribute group name: VM Disk
  - Table name: KVMVM\_DISK
  - Warehouse or historical table name: KVM\_VM\_DISK
- Attribute group name: VM Disk Performance
  - Table name: KVMVMDKPRF
  - Warehouse or historical table name: KVM\_VM\_DISK\_PERFORMANCE or KVMVMDKPRF
- Attribute group name: VM Memory
  - Table name: KVMVM\_MEM
  - Warehouse or historical table name: KVM\_VM\_MEMORY or KVMVM\_MEM
- Attribute group name: VM Network
  - Table name: KVMVM\_NET
  - Warehouse or historical table name: KVM\_VM\_NETWORK or KVMVM\_NET
- Attribute group name: VM Orphaned Disk
  - Table name: KVMVMORPDI
  - Warehouse or historical table name: KVM\_VM\_ORPHANED\_DISK or KVMVMORPDI

- Attribute group name: VM Partition
  - Table name: KVMVM\_PART
  - Warehouse or historical table name: KVM\_VM\_PARTITION or KVMVM\_PART
- Attribute group name: VM Snapshot
  - Table name: KVMVMSNAP
- Attribute group name: VM SnapshotFileLayout
  - Table name: KVMVMSNPFL
- Attribute group name: VM Snapshots
  - Table name: KVMVMSNAPS
  - Warehouse or historical table name: KVM\_VM\_SNAPSHOTS or KVMVMSNAPS

## Attributes in each attribute group

[Edit online](#)

Attributes in each VMware VI agent attribute group collect data that the agent uses for monitoring.

The description of each attribute group contains the following details:

- Whether the attribute group is a historical type that you can roll off to a data warehouse.
- Information such as whether the attribute is a key attribute, type, verification method, warehouse name (as applicable), and other names.

A *key attribute* is an attribute that is used in warehouse aggregation to identify rows of data that represent the same object.

The source information sometimes uses C programming code syntax for if-then-else clauses to describe how an attribute is derived, for example:

```
(CPU_Pct < 0 ) || (Memory_Pct < 0 )? 0 : 1
```

This example means that if the CPU\_Pct attribute is less than 0 or if the Memory\_Pct attribute is less than 0, then the attribute is set to 0. Otherwise, the attribute is set to 1.

## Active Tasks attribute group

[Edit online](#)

This attribute group provides information about the active tasks that are running on the vCenter server. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### Cancelable attribute

Indicates whether cancellation of the task is supported. The type is integer with enumerated values. The following values are defined: Yes (1), No (0), Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CANCELABLE (warehouse name), Cancelable (caption), Cancelable (attribute name), and CANCELABLE (column name).

### Initiated By attribute

The type of the entity that created the task. The valid values are user name, another schedule task name, alarm name, and system. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: INITIATED\_BY or IB (warehouse name), Initiated By (caption), Initiated\_By (attribute name), and IB (column name).

#### **Name attribute**

The name of the task. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NAME (warehouse name), Name (caption), Name (attribute name), and NAME (column name).

#### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

#### **Queue Time attribute**

The date and time when the task was created. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: QUEUE\_TIME (warehouse name), Queue Time (caption), Queue\_Time (attribute name), and QUEUE\_TIME (column name).

#### **Source Hostname attribute**

The host name of the data source that created the task. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SOURCE\_HOSTNAME or SH (warehouse name), Source Hostname (caption), Source\_Hostname (attribute name), and SH (column name).

#### **Start Time attribute**

The date and time when the task started running. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: START\_TIME (warehouse name), Start Time (caption), Start\_Time (attribute name), and START\_TIME (column name).

#### **Status attribute**

The current status of the task. The valid values are queued and running. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: STATUS (warehouse name), Status (caption), Status (attribute name), and STATUS (column name).

#### **Target Entity attribute**

The name of the target managed entity for the task. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TARGET\_ENTITY or TE (warehouse name), Target Entity (caption), Target\_Entity (attribute name), and TE (column name).

#### **Target Entity Type attribute**

The type of the target managed entity for the task. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TARGET\_ENTITY\_TYPE or TET (warehouse name), Target Entity Type (caption), Target\_Entity\_Type (attribute name), and TET (column name).

### Timestamp attribute

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: `TIMESTAMP` (warehouse name), `Timestamp` (caption), `Timestamp` (attribute name), and `TIMESTAMP` (column name).

## Agent Events attribute group

[Edit online](#)

This attribute group receives messages from the agent about agent status. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### Managed System attribute

The managed system that is associated with this event. The type is string.

The following names are defined for this attribute: `MANAGED_SYSTEM` or `MS` (warehouse name), `Managed System` (caption), `Managed_System` (attribute name), and `MS` (column name).

### Message attribute

The message of this event. The type is integer with enumerated values. The following values are defined: Connection Timeout. (24), Server performance API unavailable. (23), Connection failed: Incorrect WSDL Version (22), Insufficient Permissions (21), Insufficient Permissions: Missing Datastore.Browse (20), Insufficient Permissions: Missing System.Read (19), Insufficient Permissions: Missing System.View (18), Insufficient Permissions: Missing VirtualMachine.Interact.PowerOff (17), Insufficient Permissions: Missing VirtualMachine.Interact.PowerOn (16), Initial Property Collection Complete (15), Connection failed: http redirected (14), Connection failed: unsupported server version (13), Agent Stopped (12), Agent Started (11), Connection failed: unknown failure (10), VM Power On Task Succeeded (9), VM Power On Task Failed (8), VM Power Off Task Succeeded (7), VM Power Off Task Failed (6), Connection reset (5), Connection succeeded (4), Connection failed: username or password invalid (3), Connection failed: ssl negotiation failed (2), Connection failed: connection refused (1), Connection failed: address not found (0). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: `MESSAGE` (warehouse name), `Message` (caption), `Message` (attribute name), and `MESSAGE` (column name).

### Node attribute

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: `NODE` (warehouse name), `Node` (caption), `ORIGINNODE` (attribute name), and `ORIGINNODE` (column name).

### Severity attribute

The level of severity for this agent event. The type is integer with enumerated values. The following values are defined: Severe (2), Warning (1), Info (0). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: `SEVERITY` (warehouse name), `Severity` (caption), `Severity` (attribute name), and `SEVERITY` (column name).

### Source attribute

The source of this agent event. The type is string.

The following names are defined for this attribute: `SOURCE` (warehouse name), `Source` (caption), `Source` (attribute name), and `SOURCE` (column name).



### **Subsystem attribute**

The subsystem of the agent that generated this event. The type is integer with enumerated values. The following values are defined: Permission (2), General (2), Task (1), Connection (0). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SUBSYSTEM (warehouse name), Subsystem (caption), Subsystem (attribute name), and SUBSYSTEM (column name).

### **Timestamp attribute**

The time the event was generated. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

## **Cluster DRS Faults attribute group**

[Edit online](#)

This attribute group provides information about the Distributed Resource Scheduler (DRS) and Storage Distributed Resource Scheduler (SDRS) faults that are generated in the cluster. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### **Cluster attribute**

The name of the cluster where the fault is generated. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CLUSTER (warehouse name), Cluster (caption), Cluster (attribute name), and CLUSTER (column name).

### **DataCenter attribute**

The name of the data center that contains the cluster. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), DataCenter (caption), DataCenter (attribute name), and DATACENTER (column name).

### **DRS Type attribute**

The type of DRS. The valid values are DRS and SDRS. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DRS\_TYPE (warehouse name), DRS Type (caption), DRS\_Type (attribute name), and DRS\_TYPE (column name).

### **Fault Message attribute**

The message that is displayed corresponding to the fault. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: FAULT\_MESSAGE or FM (warehouse name), Fault Message (caption), Fault\_Message (attribute name), and FM (column name).

### **Fault Name attribute**

The name of the fault that is generated in the cluster. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: FAULT\_NAME (warehouse name), Fault Name (caption), Fault\_Name (attribute name), and FAULT\_NAME (column name).

#### **FT Virtual Machine attribute**

The name of the fault tolerance virtual machine. If this attribute value is Unavailable, the fault is not associated with a particular virtual machine. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: FT\_VIRTUAL\_MACHINE or FVM (warehouse name), FT Virtual Machine (caption), FT\_Virtual\_Machine (attribute name), and FVM (column name).

#### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

#### **Reason attribute**

The code that explains why DRS attempted to set recommendations for entities (such as Rule enforcement, Power management, and so on) when faults were generated. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: REASON (warehouse name), Reason (caption), Reason (attribute name), and REASON (column name).

#### **Source attribute**

The host name of the data source. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SOURCE (warehouse name), Source (caption), Source (attribute name), and SOURCE (column name).

#### **Source Hostname attribute**

The name of the host system of a virtual machine. If this attribute value is Unavailable, the fault is not associated with a particular virtual machine. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SOURCE\_HOSTNAME or SH (warehouse name), Source Hostname (caption), Source\_Hostname (attribute name), and SH (column name).

#### **Target Hostname attribute**

The name of the target host system that is selected for the migration of virtual machine. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TARGET\_HOSTNAME or TH (warehouse name), Target Hostname (caption), Target\_Hostname (attribute name), and TH (column name).

#### **Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

#### **Virtual Machine attribute**

The name of the virtual machine that the DRS was trying to move when the fault was generated. If this attribute value is Unavailable, the fault is not associated with a particular virtual machine. The type is

string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VIRTUAL\_MACHINE or VM (warehouse name), Virtual Machine (caption), Virtual\_Machine (attribute name), and VM (column name).

## Clustered Datastores attribute group

[Edit online](#)

This attribute group describes the data stores that are used by a cluster. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### Accessible attribute

Whether the data store is accessible or not. The type is integer with enumerated values. The following values are defined: Yes (1), No (0). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: ACCESSIBLE (warehouse name), Accessible (caption), Accessible (attribute name), and ACCESSIBLE (column name).

### Capacity attribute

The storage capacity in MB of the data store. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CAPACITY (warehouse name), Capacity (caption), Capacity (attribute name), and CAPACITY (column name).

### Cluster attribute

The name of the cluster. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CLUSTER (warehouse name), Cluster (caption), Cluster (attribute name), and CLUSTER (column name).

### Cluster MOREf attribute

The internal managed object reference name of this cluster. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CLUSTER\_MOREF or CM (warehouse name), Cluster MOREf (caption), Cluster\_MOREf (attribute name), and CM (column name).

### Connected Hosts attribute

The number of hosts that are connected to the data store. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CONNECTED\_HOSTS or CH (warehouse name), Connected Hosts (caption), Connected\_Hosts (attribute name), and CH (column name).

### Connected VMs attribute

The number of virtual machines that are connected to the data store. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CONNECTED\_VMS or CV (warehouse name), Connected VMs (caption), Connected\_VMs (attribute name), and CV (column name).

**Datacenter attribute**

The name of the data center that contains the cluster. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

**Datastore attribute**

The name of the data store. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATASTORE (warehouse name), Datastore (caption), Datastore (attribute name), and DATASTORE (column name).

**Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Percent\_Used} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDISO (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDISO (column name).

**Managed System Name attribute**

The managed system name of the storage monitoring agent that is associated with the data. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MSN (warehouse name), Managed System Name (caption), MSN (attribute name), and MSN (column name).

**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

**Overall Status attribute**

The overall status for this data store. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OVERALL\_STATUS or OS (warehouse name), Overall Status (caption), Overall\_Status (attribute name), and OS (column name).

**Percent Overcommitted attribute**

The percentage of the total capacity of the datastore that is overcommitted. This attribute has a lower bound of -100% and no upper bound. The type is real number (32-bit gauge) with two decimal places of precision with enumerated values. The following values are defined: Unavailable (-21474836). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_OVERCOMMITTED or PO (warehouse name), Percent Overcommitted (caption), Percent\_Overcommitted (attribute name), and PO (column name).

**Percent Used attribute**

The percentage of used space in the data store. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_USED or PU (warehouse name), Percent Used (caption), Percent\_Used (attribute name), and PU (column name).

**Remote Host Address attribute**

The remote host address for the data store. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: REMOTE\_HOST\_ADDRESS or RHA (warehouse name), Remote Host Address (caption), Remote\_Host\_Address (attribute name), and RHA (column name).

**Remote Path attribute**

The remote path for the data store. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: REMOTE\_PATH or RP (warehouse name), Remote Path (caption), Remote\_Path (attribute name), and RP (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

**Type attribute**

The type for the data store. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TYPE (warehouse name), Type (caption), Type (attribute name), and TYPE (column name).

## Clustered Resource Pools attribute group

[Edit online](#)

This attribute group describes the resource pools that are members of a cluster. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

**Cluster Name attribute**

The name of the cluster. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CLUSTER\_NAME or CN (warehouse name), Cluster Name (caption), Cluster\_Name (attribute name), and CN (column name).

**CPU Usage attribute**

The CPU usage in MHz of all running child virtual machines including virtual machines in child resource pools. The type is integer (32-bit gauge) with enumerated values. The following values

are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_USAGE (warehouse name), CPU Usage (caption), CPU\_Usage (attribute name), and CPU\_USAGE (column name).

#### **DataCenter attribute**

The name of the data center that contains the cluster. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), DataCenter (caption), DataCenter (attribute name), and DATACENTER (column name).

#### **Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Max\_CPU\_Usage < 0) || (Percent\_CPU\_Usage < 0) || (CPU\_Usage < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDISO (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDISO (column name).

#### **Include Data In Summarization 1 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Max\_Memory\_Usage < 0) || (Memory\_Usage < 0) || (Percent\_Memory\_Usage < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_1 or IDIS1 (warehouse name), Include Data In Summarization 1 (caption), Include\_Data\_In\_Summarization\_1 (attribute name), and IDIS1 (column name).

#### **Max CPU Usage attribute**

The current upper bound on CPU usage in MHz. This limit is based on the limit that is configured for the resource pool and the limits that are configured for all parent resource pools. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MAX\_CPU\_USAGE or MCU (warehouse name), Max CPU Usage (caption), Max\_CPU\_Usage (attribute name), and MCU (column name).

#### **Max Memory Usage attribute**

The current upper bound on memory usage in MB. This limit is based on the limit configured for this resource pool and the limits configured for all parent resource pools. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MAX\_MEMORY\_USAGE or MMU (warehouse name), Max Memory Usage (caption), Max\_Memory\_Usage (attribute name), and MMU (column name).

#### **Memory Usage attribute**

The memory usage in MB of all running child virtual machines including virtual machines in child resource pools. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEMORY\_USAGE or MU (warehouse name), Memory Usage (caption), Memory\_Usage (attribute name), and MU (column name).

**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

**NodeType attribute**

The type of node. The valid values are kvm.Resource\_Pool and kvm.Virtual\_App. The type is string.

The following names are defined for this attribute: NODETYPE (warehouse name), NodeType (caption), NodeType (attribute name), and NODETYPE (column name).

**Overall Status attribute**

The overall status for this alarm. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OVERALL\_STATUS or OS (warehouse name), Overall Status (caption), Overall\_Status (attribute name), and OS (column name).

**Percent CPU Usage attribute**

The percentage of CPU resources being used relative to the maximum amount currently available to this resource pool. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_CPU\_USAGE or PCU (warehouse name), Percent CPU Usage (caption), Percent\_CPU\_Usage (attribute name), and PCU (column name).

**Percent Memory Usage attribute**

The percentage of memory resources being used relative to the maximum amount currently available to this resource pool. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_MEMORY\_USAGE or PMU (warehouse name), Percent Memory Usage (caption), Percent\_Memory\_Usage (attribute name), and PMU (column name).

**Pool Name attribute**

The name of this resource pool. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: POOL\_NAME (warehouse name), Pool Name (caption), Pool\_Name (attribute name), and POOL\_NAME (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

## Clustered Servers attribute group

[Edit online](#)

This attribute group describes the ESX servers that are members of a cluster. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### Cluster Name attribute

The name of the cluster. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CLUSTER\_NAME or CN (warehouse name), Cluster Name (caption), Cluster\_Name (attribute name), and CN (column name).

### CPU Effective Contribution attribute

The percentage of CPU resources that this server contributes to the effective CPU of the cluster. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_EFFECTIVE\_CONTRIBUTION or CEC (warehouse name), CPU Effective Contribution (caption), CPU\_Effective\_Contribution (attribute name), and CEC (column name).

### CPU Effective Utilization attribute

The CPU usage of this server as a percentage of the effective CPU resources that are owned by this cluster. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_EFFECTIVE\_UTILIZATION or CEU (warehouse name), CPU Effective Utilization (caption), CPU\_Effective\_Utilization (attribute name), and CEU (column name).

### CPU Total Contribution attribute

The percentage of CPU resources that this server contributes to the total CPU of the cluster. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_TOTAL\_CONTRIBUTION or CTC (warehouse name), CPU Total Contribution (caption), CPU\_Total\_Contribution (attribute name), and CTC (column name).

### CPU Total Utilization attribute

The CPU usage of this server as a percentage of the total CPU resources that are owned by this cluster. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_TOTAL\_UTILIZATION or CTU (warehouse name), CPU Total Utilization (caption), CPU\_Total\_Utilization (attribute name), and CTU (column name).

### DataCenter attribute

The name of the data center that contains the cluster. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), DataCenter (caption), DataCenter (attribute name), and DATACENTER (column name).

### Include Data In Summarization 0 attribute

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).



The source for this attribute is derived: (Server\_CPU\_Utilization < 0 ) || (CPU\_Total\_Utilization < 0 ) || (CPU\_Effective\_Utilization < 0 )? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDIS0 (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDIS0 (column name).

#### **Include Data In Summarization 1 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Server\_Memory\_Utilization < 0 ) || (Memory\_Total\_Utilization < 0 ) || (Memory\_Effective\_Utilization < 0 )? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_1 or IDIS1 (warehouse name), Include Data In Summarization 1 (caption), Include\_Data\_In\_Summarization\_1 (attribute name), and IDIS1 (column name).

#### **Include Data In Summarization 2 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (CPU\_Effective\_Contribution < 0 )? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_2 or IDIS2 (warehouse name), Include Data In Summarization 2 (caption), Include\_Data\_In\_Summarization\_2 (attribute name), and IDIS2 (column name).

#### **Include Data In Summarization 3 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Mem\_Effective\_Contribution < 0 )? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_3 or IDIS3 (warehouse name), Include Data In Summarization 3 (caption), Include\_Data\_In\_Summarization\_3 (attribute name), and IDIS3 (column name).

#### **Mem Effective Contribution attribute**

The percentage of memory resources that this server contributes to the effective memory of the cluster. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEM\_EFFECTIVE\_CONTRIBUTION or MEC (warehouse name), Mem Effective Contribution (caption), Mem\_Effective\_Contribution (attribute name), and MEC (column name).

#### **Mem Total Contribution attribute**

The percentage of memory resources that this server contributes to the total memory of the cluster. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEM\_TOTAL\_CONTRIBUTION or MTC (warehouse name), Mem Total Contribution (caption), Mem\_Total\_Contribution (attribute name), and MTC (column name).

#### **Memory Effective Utilization attribute**

The memory usage of this server as a percentage of the effective memory resources that are owned by this cluster. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEMORY\_EFFECTIVE\_UTILIZATION or MEU (warehouse name), Memory Effective Utilization (caption), Memory\_Effective\_Utilization (attribute name), and MEU (column name).

#### **Memory Total Utilization attribute**

The memory usage of this server as a percentage of the total memory resources that are owned by this cluster. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEMORY\_TOTAL\_UTILIZATION or MTU (warehouse name), Memory Total Utilization (caption), Memory\_Total\_Utilization (attribute name), and MTU (column name).

#### **MSN Name attribute**

The managed system name that is associated with the data. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MSN\_NAME (warehouse name), MSN Name (caption), MSN\_Name (attribute name), and MSN\_NAME (column name).

#### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

#### **NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

#### **Overall Status attribute**

The overall status for this alarm. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OVERALL\_STATUS or OS (warehouse name), Overall Status (caption), Overall\_Status (attribute name), and OS (column name).

#### **Server CPU Utilization attribute**

The overall CPU usage of this ESX server. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SERVER\_CPU\_UTILIZATION or SCU (warehouse name), Server CPU Utilization (caption), Server\_CPU\_Utilization (attribute name), and SCU (column name).

#### **Server Hostname attribute**

The host name of the ESX server that is a member of this cluster. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SERVER\_HOSTNAME or SH (warehouse name), Server Hostname (caption), Server\_Hostname (attribute name), and SH (column name).

#### **Server Memory Utilization attribute**

The overall memory usage of this ESX server. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SERVER\_MEMORY\_UTILIZATION or SMU (warehouse name), Server Memory Utilization (caption), Server\_Memory\_Utilization (attribute name), and SMU (column name).

#### **Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

## **Clustered Virtual Apps attribute group**

[Edit online](#)

This attribute group provides information about the virtual machines and virtual applications in the cluster. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

#### **Cluster Name attribute**

The name of the cluster. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CLUSTER\_NAME or CN (warehouse name), Cluster Name (caption), Cluster\_Name (attribute name), and CN (column name).

#### **Datacenter attribute**

The name of the data center that contains the cluster. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

#### **Destroy With Parent attribute**

Indicates whether the virtual machine must be removed when the virtual application that is associated with the virtual machine is removed. The type is integer with enumerated values. The following values are defined: Yes (1), No (0). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DESTROY\_WITH\_PARENT or DWP (warehouse name), Destroy With Parent (caption), Destroy\_With\_Parent (attribute name), and DWP (column name).

#### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

#### **NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

**Start Action attribute**

Indicates the method by which the virtual machine starts. The valid values are none and powerOn. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: START\_ACTION or SA (warehouse name), Start Action (caption), Start\_Action (attribute name), and SA (column name).

**Start Delay attribute**

The amount of time (in seconds) that the subsequent virtual machine was delayed to start in a sequence of virtual machines. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: START\_DELAY or SD (warehouse name), Start Delay (caption), Start\_Delay (attribute name), and SD (column name).

**Start Order attribute**

Indicates the order in which the virtual machine starts. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: START\_ORDER or SO (warehouse name), Start Order (caption), Start\_Order (attribute name), and SO (column name).

**Stop Action attribute**

Indicates the method by which the virtual machine stops. The valid values are none, powerOff, guestShutdown, and suspend. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: STOP\_ACTION or SA0 (warehouse name), Stop Action (caption), Stop\_Action (attribute name), and SA0 (column name).

**Stop Delay attribute**

The amount of time (in seconds) that the subsequent virtual machine was delayed to stop in a sequence of virtual machines. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: STOP\_DELAY (warehouse name), Stop Delay (caption), Stop\_Delay (attribute name), and STOP\_DELAY (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

**Virtual App Name attribute**

The name of the virtual application. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VIRTUAL\_APP\_NAME or VAN (warehouse name), Virtual App Name (caption), Virtual\_App\_Name (attribute name), and VAN (column name).

**Virtual Machine Name attribute**

The name of the virtual machine. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VIRTUAL\_MACHINE\_NAME or VMN (warehouse name), Virtual Machine Name (caption), Virtual\_Machine\_Name (attribute name), and VMN (column name).

#### **VM MOREf attribute**

The internal managed object reference name of the virtual machine. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MOREF (warehouse name), VM MOREf (caption), MOREf (attribute name), and MOREF (column name).

#### **Waiting for Guest attribute**

Indicates whether the virtual machine must start after receiving a heartbeat from the guest operating system. The type is integer with enumerated values. The following values are defined: Yes (1), No (0). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: WAITING\_FOR\_GUEST or WFG (warehouse name), Waiting for Guest (caption), Waiting\_For\_Guest (attribute name), and WFG (column name).

## **Clustered Virtual Machines attribute group**

[Edit online](#)

This attribute group describes the virtual machines that are members of a cluster. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

#### **Cluster MOREf attribute**

The internal managed object reference name of this cluster. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CLUSTER\_MOREF or CM (warehouse name), Cluster MOREf (caption), Cluster\_MOREf (attribute name), and CM (column name).

#### **Cluster Name attribute**

The name of the cluster. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CLUSTER\_NAME or CN (warehouse name), Cluster Name (caption), Cluster\_Name (attribute name), and CN (column name).

#### **CPU Utilization attribute**

The overall CPU usage of this virtual machine during the collection interval. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_UTILIZATION or CU (warehouse name), CPU Utilization (caption), CPU\_Utilization (attribute name), and CU (column name).

#### **DataCenter attribute**

The name of the data center that contains the cluster. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), DataCenter (caption), DataCenter (attribute name), and DATACENTER (column name).

**Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{CPU\_Utilization} < 0) \parallel (\text{Memory\_Utilization} < 0)? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDISO (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDISO (column name).

**Memory Utilization attribute**

The overall memory usage of this virtual machine during the collection interval. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEMORY\_UTILIZATION or MU (warehouse name), Memory Utilization (caption), Memory\_Utilization (attribute name), and MU (column name).

**MSN Name attribute**

The managed system name that is associated with the data. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MSN\_NAME (warehouse name), MSN Name (caption), MSN\_Name (attribute name), and MSN\_NAME (column name).

**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

**Overall Status attribute**

The overall status for this alarm. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OVERALL\_STATUS or OS (warehouse name), Overall Status (caption), Overall\_Status (attribute name), and OS (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

**VM Name attribute**

The user-defined display name of this virtual machine. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_NAME (warehouse name), VM Name (caption), VM\_Name (attribute name), and VM\_NAME (column name).

## Clusters attribute group

[Edit online](#)

This attribute group contains metrics that describe the configuration and performance of a cluster. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### Cluster MOREf attribute

The internal managed object reference name of this cluster. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CLUSTER\_MOREF or CM (warehouse name), Cluster MOREf (caption), Cluster\_MOREf (attribute name), and CM (column name).

### Cluster Name attribute

The name of the cluster. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CLUSTER\_NAME or CN (warehouse name), Cluster Name (caption), Cluster\_Name (attribute name), and CN (column name).

### CPU 00 10 attribute

The number of servers in this cluster whose CPU usage is 0 - 10 percent. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_00\_10 (warehouse name), CPU 00 10 (caption), CPU\_00\_10 (attribute name), and CPU\_00\_10 (column name).

### CPU 10 20 attribute

The number of servers in this cluster whose CPU usage is 11 - 20 percent. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_10\_20 (warehouse name), CPU 10 20 (caption), CPU\_10\_20 (attribute name), and CPU\_10\_20 (column name).

### CPU 20 30 attribute

The number of servers in this cluster whose CPU usage is 21 - 30 percent. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_20\_30 (warehouse name), CPU 20 30 (caption), CPU\_20\_30 (attribute name), and CPU\_20\_30 (column name).

### CPU 30 40 attribute

The number of servers in this cluster whose CPU usage is 31 - 40 percent. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_30\_40 (warehouse name), CPU 30 40 (caption), CPU\_30\_40 (attribute name), and CPU\_30\_40 (column name).

### CPU 40 50 attribute

The number of servers in this cluster whose CPU usage is 41 - 50 percent. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_40\_50 (warehouse name), CPU 40 50 (caption), CPU\_40\_50 (attribute name), and CPU\_40\_50 (column name).

**CPU 50 60 attribute**

The number of servers in this cluster whose CPU usage is 51 - 60 percent. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_50\_60 (warehouse name), CPU 50 60 (caption), CPU\_50\_60 (attribute name), and CPU\_50\_60 (column name).

**CPU 60 70 attribute**

The number of servers in this cluster whose CPU usage is 61 - 70 percent. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_60\_70 (warehouse name), CPU 60 70 (caption), CPU\_60\_70 (attribute name), and CPU\_60\_70 (column name).

**CPU 70 80 attribute**

The number of servers in this cluster whose CPU usage is 71 - 80 percent. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_70\_80 (warehouse name), CPU 70 80 (caption), CPU\_70\_80 (attribute name), and CPU\_70\_80 (column name).

**CPU 80 90 attribute**

The number of servers in this cluster whose CPU usage is 81 - 90 percent. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_80\_90 (warehouse name), CPU 80 90 (caption), CPU\_80\_90 (attribute name), and CPU\_80\_90 (column name).

**CPU 90 100 attribute**

The number of servers in this cluster whose CPU usage is 91 - 100 percent. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_90\_100 (warehouse name), CPU 90 100 (caption), CPU\_90\_100 (attribute name), and CPU\_90\_100 (column name).

**CPU Utilization attribute**

The total number of CPU resources being used by the member servers divided by the total CPU of the cluster, excluding any members in maintenance mode. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_UTILIZATION or CU (warehouse name), CPU Utilization (caption), CPU\_Utilization (attribute name), and CU (column name).

**Current EVC Mode attribute**

The current Enhanced VMotion Compatibility (EVC) mode of the cluster. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CURRENT\_EVC\_MODE or CEM (warehouse name), Current EVC Mode (caption), Current\_EVC\_Mode (attribute name), and CEM (column name).

**DataCenter attribute**

The name of the data center that contains the cluster. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), DataCenter (caption), DataCenter (attribute name), and DATACENTER (column name).



**Datacenter MOf attribute**

The internal managed object reference name of the data center for this cluster. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER\_MOREF or DM (warehouse name), Datacenter MOf (caption), Datacenter\_MOf (attribute name), and DM (column name).

**Datastores Total Free Space attribute**

The total free space of all data stores connected to this cluster in MB. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATASTORES\_TOTAL\_FREE\_SPACE or DTFS (warehouse name), Datastores Total Free Space (caption), Datastores\_Total\_Free\_Space (attribute name), and DTFS (column name).

**Datastores Total Space attribute**

The total space of all data stores connected to this cluster in MB. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATASTORES\_TOTAL\_SPACE or DTS (warehouse name), Datastores Total Space (caption), Datastores\_Total\_Space (attribute name), and DTS (column name).

**DRS Enabled attribute**

Indicates whether the VMware Dynamic Resource Scheduling facility is enabled for this cluster. The type is integer with enumerated values. The following values are defined: Yes (1), No (0). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DRS\_ENABLED or DE (warehouse name), DRS Enabled (caption), DRS\_Enabled (attribute name), and DE (column name).

**Effective CPU attribute**

The amount of CPU in GHz that is available to run virtual machines. This is an aggregation from all servers that are running normally. The amount of CPU used by the service consoles on each server is not included in the total. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: EFFECTIVE\_CPU or EC (warehouse name), Effective CPU (caption), Effective\_CPU (attribute name), and EC (column name).

**Effective Memory attribute**

The amount of memory in GB that is available to run virtual machines. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: EFFECTIVE\_MEMORY or EM (warehouse name), Effective Memory (caption), Effective\_Memory (attribute name), and EM (column name).

**Effective Servers attribute**

The number of ESX servers that are available to run virtual machines. Hosts that are unresponsive or in VMware maintenance mode are not counted. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: EFFECTIVE\_SERVERS or ES (warehouse name), Effective Servers (caption), Effective\_Servers (attribute name), and ES (column name).

### **HA Enabled attribute**

Indicates whether the VMware High Availability feature is enabled for this cluster. The type is integer with enumerated values. The following values are defined: Yes (1), No (0). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: HA\_ENABLED (warehouse name), HA Enabled (caption), HA\_Enabled (attribute name), and HA\_ENABLED (column name).

### **Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Number\_Servers < 0) || (Number\_CPUs < 0) || (Effective\_Servers < 0) || (Percent\_Effective\_Servers < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDIS0 (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDIS0 (column name).

### **Include Data In Summarization 1 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Total\_Memory < 0) || (Effective\_Memory < 0) || (Percent\_Effective\_Memory < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_1 or IDIS1 (warehouse name), Include Data In Summarization 1 (caption), Include\_Data\_In\_Summarization\_1 (attribute name), and IDIS1 (column name).

### **Include Data In Summarization 10 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Total\_VM\_Provisioned\_Space < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_10 or IDIS10 (warehouse name), Include Data In Summarization 10 (caption), Include\_Data\_In\_Summarization\_10 (attribute name), and IDIS10 (column name).

### **Include Data In Summarization 2 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Total\_CPU < 0) || (Effective\_CPU < 0) || (Percent\_Effective\_CPU < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_2 or IDIS2 (warehouse name), Include Data In Summarization 2 (caption), Include\_Data\_In\_Summarization\_2 (attribute name), and IDIS2 (column name).

### **Include Data In Summarization 3 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (CPU\_Utilization < 0) || (Memory\_Utilization < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_3 or IDIS3 (warehouse name), Include Data In Summarization 3 (caption), Include\_Data\_In\_Summarization\_3 (attribute name), and IDIS3 (column name).

**Include Data In Summarization 4 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{CPU\_00\_10} < 0) \parallel (\text{CPU\_10\_20} < 0) \parallel (\text{CPU\_20\_30} < 0) \parallel (\text{CPU\_30\_40} < 0) \parallel (\text{CPU\_40\_50} < 0) \parallel (\text{CPU\_50\_60} < 0) \parallel (\text{CPU\_60\_70} < 0) \parallel (\text{CPU\_70\_80} < 0) \parallel (\text{CPU\_80\_90} < 0) \parallel (\text{CPU\_90\_100} < 0) \parallel (\text{Memory\_00\_10} < 0) \parallel (\text{Memory\_10\_20} < 0) \parallel (\text{Memory\_20\_30} < 0) \parallel (\text{Memory\_30\_40} < 0) \parallel (\text{Memory\_40\_50} < 0) \parallel (\text{Memory\_50\_60} < 0) \parallel (\text{Memory\_60\_70} < 0) \parallel (\text{Memory\_70\_80} < 0) \parallel (\text{Memory\_80\_90} < 0) \parallel (\text{Memory\_90\_100} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_4 or IDIS4 (warehouse name), Include Data In Summarization 4 (caption), Include\_Data\_In\_Summarization\_4 (attribute name), and IDIS4 (column name).

**Include Data In Summarization 5 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Number\_vMotions} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_5 or IDIS5 (warehouse name), Include Data In Summarization 5 (caption), Include\_Data\_In\_Summarization\_5 (attribute name), and IDIS5 (column name).

**Include Data In Summarization 6 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Datastores\_Total\_Free\_Space} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_6 or IDIS6 (warehouse name), Include Data In Summarization 6 (caption), Include\_Data\_In\_Summarization\_6 (attribute name), and IDIS6 (column name).

**Include Data In Summarization 7 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Physical\_NICs} < 0) \parallel (\text{Physical\_NICs\_Down} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_7 or IDIS7 (warehouse name), Include Data In Summarization 7 (caption), Include\_Data\_In\_Summarization\_7 (attribute name), and IDIS7 (column name).

**Include Data In Summarization 8 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Servers\_In\_Maintenance\_Mode} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_8 or IDIS8 (warehouse name), Include Data In Summarization 8 (caption), Include\_Data\_In\_Summarization\_8 (attribute name), and IDIS8 (column name).

**Include Data In Summarization 9 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Total\_VM\_Configured\_Memory} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_9 or IDIS9 (warehouse name), Include Data In Summarization 9 (caption), Include\_Data\_In\_Summarization\_9 (attribute name), and IDIS9 (column name).

#### **Memory 00 10 attribute**

The number of servers in this cluster whose memory usage is 0 - 10 percent. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEMORY\_00\_10 or M01 (warehouse name), Memory 00 10 (caption), Memory\_00\_10 (attribute name), and M01 (column name).

#### **Memory 10 20 attribute**

The number of servers in this cluster whose memory usage is 11 - 20 percent. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEMORY\_10\_20 or M12 (warehouse name), Memory 10 20 (caption), Memory\_10\_20 (attribute name), and M12 (column name).

#### **Memory 20 30 attribute**

The number of servers in this cluster whose memory usage is 21 - 30 percent. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEMORY\_20\_30 or M23 (warehouse name), Memory 20 30 (caption), Memory\_20\_30 (attribute name), and M23 (column name).

#### **Memory 30 40 attribute**

The number of servers in this cluster whose memory usage is 31 - 40 percent. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEMORY\_30\_40 or M34 (warehouse name), Memory 30 40 (caption), Memory\_30\_40 (attribute name), and M34 (column name).

#### **Memory 40 50 attribute**

The number of servers in this cluster whose memory usage is 41 - 50 percent. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEMORY\_40\_50 or M45 (warehouse name), Memory 40 50 (caption), Memory\_40\_50 (attribute name), and M45 (column name).

#### **Memory 50 60 attribute**

The number of servers in this cluster whose memory usage is 51 - 60 percent. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEMORY\_50\_60 or M56 (warehouse name), Memory 50 60 (caption), Memory\_50\_60 (attribute name), and M56 (column name).

#### **Memory 60 70 attribute**

The number of servers in this cluster whose memory usage is 61 - 70 percent. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEMORY\_60\_70 or M67 (warehouse name), Memory 60 70 (caption), Memory\_60\_70 (attribute name), and M67 (column name).

#### **Memory 70 80 attribute**

The number of servers in this cluster whose memory usage is 71 - 80 percent. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEMORY\_70\_80 or M78 (warehouse name), Memory 70 80 (caption), Memory\_70\_80 (attribute name), and M78 (column name).

#### **Memory 80 90 attribute**

The number of servers in this cluster whose memory usage is 81 - 90 percent. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEMORY\_80\_90 or M89 (warehouse name), Memory 80 90 (caption), Memory\_80\_90 (attribute name), and M89 (column name).

#### **Memory 90 100 attribute**

The number of servers in this cluster whose memory usage is 91 - 100 percent. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEMORY\_90\_100 or M91 (warehouse name), Memory 90 100 (caption), Memory\_90\_100 (attribute name), and M91 (column name).

#### **Memory Utilization attribute**

The total amount of memory resources being used by the member servers divided by the total memory of the cluster, excluding any members in maintenance mode. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEMORY\_UTILIZATION or MU (warehouse name), Memory Utilization (caption), Memory\_Utilization (attribute name), and MU (column name).

#### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

#### **NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

#### **Number CPUs attribute**

The number of physical CPU cores across the cluster. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_CPUS or NC (warehouse name), Number CPUs (caption), Number\_CPUs (attribute name), and NC (column name).

#### **Number Servers attribute**

The number of ESX servers that are members of this cluster. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_SERVERS or NS (warehouse name), Number Servers (caption), Number\_Servers (attribute name), and NS (column name).

#### **Number vMotions attribute**

The total number of migrations that have occurred within this cluster. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_VMOTIONS or NV (warehouse name), Number vMotions (caption), Number\_vMotions (attribute name), and NV (column name).

**Number VMs attribute**

The number of virtual machines that are configured within this cluster. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_VMS (warehouse name), Number VMs (caption), Number\_VMs (attribute name), and NUMBER\_VMS (column name).

**Number VMs On attribute**

The number of virtual machines that are configured within this cluster that are powered on. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_VMS\_ON or NVO (warehouse name), Number VMs On (caption), Number\_VMs\_On (attribute name), and NVO (column name).

**Overall Status attribute**

The overall operational status of the cluster. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OVERALL\_STATUS or OS (warehouse name), Overall Status (caption), Overall\_Status (attribute name), and OS (column name).

**Percent Datastore Usage attribute**

The percentage of datastore used by the cluster. The type is real number (32-bit gauge) with two decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_DATASTORE\_USAGE or PDU (warehouse name), Percent Datastore Usage (caption), Percent\_Datastore\_Usage (attribute name), and PDU (column name).

**Percent Effective CPU attribute**

The percentage of CPU for the cluster that is available to run virtual machines. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_EFFECTIVE\_CPU or PEC (warehouse name), Percent Effective CPU (caption), Percent\_Effective\_CPU (attribute name), and PEC (column name).

**Percent Effective Memory attribute**

The percentage of memory for the cluster that is available to run virtual machines. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_EFFECTIVE\_MEMORY or PEM (warehouse name), Percent Effective Memory (caption), Percent\_Effective\_Memory (attribute name), and PEM (column name).

**Percent Effective Servers attribute**

The percentage of servers defined to the cluster that are available to run virtual machines. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_EFFECTIVE\_SERVERS or PES (warehouse name), Percent Effective Servers (caption), Percent\_Effective\_Servers (attribute name), and PES (column name).

**Physical NICs attribute**

The total number of physical network interface cards in the cluster. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PHYSICAL\_NICS or PN (warehouse name), Physical NICs (caption), Physical\_NICS (attribute name), and PN (column name).

#### **Physical NICs Down attribute**

The total number of physical network interface cards in the cluster with a link status of down. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PHYSICAL\_NICS\_DOWN or PND (warehouse name), Physical NICs Down (caption), Physical\_NICS\_Down (attribute name), and PND (column name).

#### **Servers In Maintenance Mode attribute**

The number of ESX servers that are in maintenance mode. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SERVERS\_IN\_MAINTENANCE\_MODE or SIMM (warehouse name), Servers In Maintenance Mode (caption), Servers\_In\_Maintenance\_Mode (attribute name), and SIMM (column name).

#### **Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

#### **Total CPU attribute**

The total amount of CPU resources in GHz over all of the member servers in the cluster. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TOTAL\_CPU (warehouse name), Total CPU (caption), Total\_CPU (attribute name), and TOTAL\_CPU (column name).

#### **Total Memory attribute**

The total memory capacity in GB over all of the member servers in the cluster. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TOTAL\_MEMORY or TM (warehouse name), Total Memory (caption), Total\_Memory (attribute name), and TM (column name).

#### **Total VM Configured Memory attribute**

The total amount of memory in GB configured for all VMs in the cluster. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TOTAL\_VM\_CONFIGURED\_MEMORY or TVCM (warehouse name), Total VM Configured Memory (caption), Total\_VM\_Configured\_Memory (attribute name), and TVCM (column name).

#### **Total VM Provisioned Space attribute**

The total amount of space in GB that is provisioned for use by VMs in this cluster. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TOTAL\_VM\_PROVISIONED\_SPACE or TVPS (warehouse name), Total VM Provisioned Space (caption), Total\_VM\_Provisioned\_Space (attribute name), and TVPS (column name).

## Datcenters attribute group

[Edit online](#)

This attribute group contains information about the data centers in the virtual infrastructure. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### CPU Utilization attribute

The percent of available CPU being used in this data center. The type is real number (32-bit gauge) with two decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_UTILIZATION or CU (warehouse name), CPU Utilization (caption), CPU\_Utilization (attribute name), and CU (column name).

### Datcenter attribute

The name of this data center. This attribute is a key attribute. The type is string.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

### Effective CPU attribute

The total amount of effective CPU of this data center in MHz. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: EFFECTIVE\_CPU or EC (warehouse name), Effective CPU (caption), Effective\_CPU (attribute name), and EC (column name).

### Effective Memory attribute

The total amount of effective memory of this data center in MB. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: EFFECTIVE\_MEMORY or EM (warehouse name), Effective Memory (caption), Effective\_Memory (attribute name), and EM (column name).

### Effective Servers attribute

The total number of effective servers that are members of this data center. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: EFFECTIVE\_SERVERS or ES (warehouse name), Effective Servers (caption), Effective\_Servers (attribute name), and ES (column name).

### Include Data In Summarization 0 attribute

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(Total\_Servers < 0) \parallel (Effective\_Servers < 0) \parallel (Percent\_Effective\_Servers < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDISO (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDISO (column name).



**Include Data In Summarization 1 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(Total\_Memory < 0) \parallel (Effective\_Memory < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_1 or IDIS1 (warehouse name), Include Data In Summarization 1 (caption), Include\_Data\_In\_Summarization\_1 (attribute name), and IDIS1 (column name).

**Include Data In Summarization 2 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(Total\_CPU < 0) \parallel (Effective\_CPU < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_2 or IDIS2 (warehouse name), Include Data In Summarization 2 (caption), Include\_Data\_In\_Summarization\_2 (attribute name), and IDIS2 (column name).

**Include Data In Summarization 3 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(Memory\_Utilization < 0) \parallel (CPU\_Utilization < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_3 or IDIS3 (warehouse name), Include Data In Summarization 3 (caption), Include\_Data\_In\_Summarization\_3 (attribute name), and IDIS3 (column name).

**Memory Utilization attribute**

The percent of available memory being used in this data center. The type is real number (32-bit gauge) with two decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEMORY\_UTILIZATION or MU (warehouse name), Memory Utilization (caption), Memory\_Utilization (attribute name), and MU (column name).

**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

**Overall Status attribute**

The overall status for this alarm. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OVERALL\_STATUS or OS (warehouse name), Overall Status (caption), Overall\_Status (attribute name), and OS (column name).

**Percent Effective Servers attribute**

The percent of servers that are effective for this data center. The type is real number (32-bit gauge) with two decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_EFFECTIVE\_SERVERS or PES (warehouse name), Percent Effective Servers (caption), Percent\_Effective\_Servers (attribute name), and PES (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

**Total CPU attribute**

The total amount of CPU of this data center in MHz. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TOTAL\_CPU (warehouse name), Total CPU (caption), Total\_CPU (attribute name), and TOTAL\_CPU (column name).

**Total Memory attribute**

The total amount of memory of this data center in MB. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TOTAL\_MEMORY or TM (warehouse name), Total Memory (caption), Total\_Memory (attribute name), and TM (column name).

**Total Servers attribute**

The total numbers of servers that are members of this data center. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TOTAL\_SERVERS or TS (warehouse name), Total Servers (caption), Total\_Servers (attribute name), and TS (column name).

## Datastore Cluster attribute group

[Edit online](#)

This attribute group contains attributes that provide information about the data store cluster (StoragePod). This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

**Capacity Used attribute**

The amount of allocated storage in GB for the data store cluster. The type is real number (32-bit gauge) with two decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CAPACITY\_USED or CU (warehouse name), Capacity Used (caption), Capacity\_Used (attribute name), and CU (column name).

**Config Status attribute**

The configuration status of the data store cluster. If a problem is detected in the configuration of the data store cluster, the value is displayed as red; and if a problem is about to occur or a transient condition has occurred, the value is displayed as yellow. The type is string with enumerated values.

The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CONFIG\_STATUS or CS (warehouse name), Config Status (caption), Config\_Status (attribute name), and CS (column name).

#### **DataCenter attribute**

The name of the data center that the data store cluster belongs to. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), DataCenter (caption), DataCenter (attribute name), and DATACENTER (column name).

#### **Datastore Cluster attribute**

The name of the data store cluster. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATASTORE\_CLUSTER or DC (warehouse name), Datastore Cluster (caption), Datastore\_Cluster (attribute name), and DC (column name).

#### **Datastore Count attribute**

The number of data stores in the data store cluster. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATASTORE\_COUNT or DC0 (warehouse name), Datastore Count (caption), Datastore\_Count (attribute name), and DC0 (column name).

#### **Default IntraVm Affinity attribute**

Indicates whether, by default, each virtual machine must have a virtual disk on the same data store in the data store cluster. The valid values are True and False. The type is integer with enumerated values. The following values are defined: True (1), False (0). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DEFAULT\_INTRAVM\_AFFINITY or DIA (warehouse name), Default IntraVm Affinity (caption), Default\_IntraVm\_Affinity (attribute name), and DIA (column name).

#### **Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Capacity} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDIS0 (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDIS0 (column name).

#### **Include Data In Summarization 1 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Percent\_Capacity\_Free} < 0) \parallel (\text{Capacity\_Used} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_1 or IDIS1 (warehouse name), Include Data In Summarization 1 (caption), Include\_Data\_In\_Summarization\_1 (attribute name), and IDIS1 (column name).

#### **IO Load Balance Enabled attribute**

Indicates whether the data store cluster considers the Storage I/O workload while creating load balancing and initial placement recommendations. The type is integer with enumerated values. The

following values are defined: True (1), False (0). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: IO\_LOAD\_BALANCE\_ENABLED or ILBE (warehouse name), IO Load Balance Enabled (caption), IO\_Load\_Balance\_Enabled (attribute name), and ILBE (column name).

#### **Load Balance Interval attribute**

The interval (in minutes) that the Storage Distributed Resource Scheduler (DRS) runs to load balance among data stores within the data store cluster. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: LOAD\_BALANCE\_INTERVAL or LBI (warehouse name), Load Balance Interval (caption), Load\_Balance\_Interval (attribute name), and LBI (column name).

#### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

#### **Overall Status attribute**

The overall alarm status of the data store cluster. If an alarm is triggered for the data store cluster, the value is displayed as red or yellow. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OVERALL\_STATUS or OS (warehouse name), Overall Status (caption), Overall\_Status (attribute name), and OS (column name).

#### **Percent Capacity Free attribute**

The percentage of unused capacity in the data store cluster. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_CAPACITY\_FREE or PCF (warehouse name), Percent Capacity Free (caption), Percent\_Capacity\_Free (attribute name), and PCF (column name).

#### **Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

#### **Total Capacity attribute**

The storage capacity in GB of this data store cluster. The type is real number (32-bit gauge) with two decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CAPACITY (warehouse name), Total Capacity (caption), Capacity (attribute name), and CAPACITY (column name).

## Datastore Host Disks attribute group

[Edit online](#)

This attribute group contains a mapping from a data store to a host disk. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### DataCenter attribute

The name of the data center that contains this disk. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), DataCenter (caption), DataCenter (attribute name), and DATACENTER (column name).

### Datastore attribute

The name of the data store on this disk. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATASTORE (warehouse name), Datastore (caption), Datastore (attribute name), and DATASTORE (column name).

### Disk attribute

The name of the disk. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DISK (warehouse name), Disk (caption), Disk (attribute name), and DISK (column name).

### Host attribute

The name of the host system for this disk. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: HOST (warehouse name), Host (caption), Host (attribute name), and HOST (column name).

### Node attribute

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

### NodeID attribute

This attribute is only for IBM-internal use. This attribute is a key attribute. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

### Timestamp attribute

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

## Datastore Topology attribute group

[Edit online](#)

This attribute group contains information about the storage topology of the virtual infrastructure. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### ConnectionType attribute

The connection type from this node to the parent of this node. The type is string.

The following names are defined for this attribute: CONNECTIONTYPE or C0 (warehouse name), ConnectionType (caption), ConnectionType (attribute name), and C0 (column name).

### ConnectToNode attribute

Indicates a connection from the NodeID to the node specified here. This attribute is a key attribute. The type is string.

The following names are defined for this attribute: CONNECTTONODE or C (warehouse name), ConnectToNode (caption), ConnectToNode (attribute name), and C (column name).

### Datacenter attribute

The name of this data center. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

### Managed System Name attribute

The managed system name that is associated with the data. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MSN (warehouse name), Managed System Name (caption), MSN (attribute name), and MSN (column name).

### Node attribute

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

### NodeID attribute

The identifier for this node in the topology. This attribute is a key attribute. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

### NodeName attribute

The name of this node in the tree. The type is string.

The following names are defined for this attribute: NODENAME (warehouse name), NodeName (caption), NodeName (attribute name), and NODENAME (column name).

### NodeStatus attribute

The status of this node. The type is string.

The following names are defined for this attribute: NODESTATUS (warehouse name), NodeStatus (caption), NodeStatus (attribute name), and NODESTATUS (column name).

### NodeType attribute

The kind of node in the tree. The type is string.

The following names are defined for this attribute: NODETYPE (warehouse name), NodeType (caption), NodeType (attribute name), and NODETYPE (column name).

#### **Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

## **Datastores attribute group**

[Edit online](#)

This attribute group displays general information about data stores. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

#### **Accessible attribute**

Whether the data store is accessible or not. The type is integer with enumerated values. The following values are defined: Yes (1), No (0). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: ACCESSIBLE (warehouse name), Accessible (caption), Accessible (attribute name), and ACCESSIBLE (column name).

#### **Capacity attribute**

The storage capacity in MB of the data store. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CAPACITY (warehouse name), Capacity (caption), Capacity (attribute name), and CAPACITY (column name).

#### **Connected Clusters attribute**

The number of clusters with hosts connected to this data store. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CONNECTED\_CLUSTERS or CC (warehouse name), Connected Clusters (caption), Connected\_Clusters (attribute name), and CC (column name).

#### **Connected Hosts attribute**

The number of hosts that are connected to the data store. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CONNECTED\_HOSTS or CH (warehouse name), Connected Hosts (caption), Connected\_Hosts (attribute name), and CH (column name).

#### **Connected VMs attribute**

The number of virtual machines that are connected to the data store. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CONNECTED\_VMS or CV (warehouse name), Connected VMs (caption), Connected\_VMs (attribute name), and CV (column name).

#### **Datacenter attribute**

The name of the data center for the data store. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

#### **Datastore Cluster attribute**

The name of the data store cluster that the data store belongs to. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATASTORE\_CLUSTER or DC (warehouse name), Datastore Cluster (caption), Datastore\_Cluster (attribute name), and DC (column name).

#### **Datastore MOfRef attribute**

The internal managed object reference name of the datastore. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATASTORE\_MOREF or DM (warehouse name), Datastore MOfRef (caption), Datastore\_MOfRef (attribute name), and DM (column name).

#### **Free Space attribute**

The amount of available storage in MB for the data store. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: FREE\_SPACE (warehouse name), Free Space (caption), Free\_Space (attribute name), and FREE\_SPACE (column name).

#### **Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(Used\_Space < 0) \parallel (Free\_Space < 0) \parallel (Percent\_Used < 0) \parallel (Percent\_Free < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDIS0 (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDIS0 (column name).

#### **Include Data In Summarization 1 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_1 or IDIS1 (warehouse name), Include Data In Summarization 1 (caption), Include\_Data\_In\_Summarization\_1 (attribute name), and IDIS1 (column name).

#### **Include Data In Summarization 2 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(Connected\_Hosts < 0) \parallel (Connected\_VMs < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_2 or IDIS2 (warehouse name), Include Data In Summarization 2 (caption), Include\_Data\_In\_Summarization\_2 (attribute name), and IDIS2 (column name).

#### **Include Data In Summarization 3 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).



The source for this attribute is derived:  $(\text{Total\_Read\_KBps} < 0) \parallel (\text{Total\_Write\_KBps} < 0) \parallel (\text{Total\_IO\_KBps} < 0)? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_3 or IDIS3 (warehouse name), Include Data In Summarization 3 (caption), Include\_Data\_In\_Summarization\_3 (attribute name), and IDIS3 (column name).

#### **Include Data In Summarization 4 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Percent\_Overcommitted} == -2147483600)? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_4 or IDIS4 (warehouse name), Include Data In Summarization 4 (caption), Include\_Data\_In\_Summarization\_4 (attribute name), and IDIS4 (column name).

#### **Include Data In Summarization 5 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Snapshot\_Storage\_Consumed} < 0) \parallel (\text{Percent\_Snapshot\_Storage\_Consumed} < 0)? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_5 or IDIS5 (warehouse name), Include Data In Summarization 5 (caption), Include\_Data\_In\_Summarization\_5 (attribute name), and IDIS5 (column name).

#### **Managed System Name attribute**

The managed system name of the storage monitoring agent that is associated with the data. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MSN (warehouse name), Managed System Name (caption), MSN (attribute name), and MSN (column name).

#### **Maximum File Size attribute**

The maximum size in KB of a file that might be allocated on this data store. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1), > 2048GB (-2). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MAXIMUM\_FILE\_SIZE or MFS (warehouse name), Maximum File Size (caption), Maximum\_File\_Size (attribute name), and MFS (column name).

#### **Name attribute**

The name of the data store. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NAME (warehouse name), Name (caption), Name (attribute name), and NAME (column name).

#### **NetApp Volume Name attribute**

A best effort guess at the corresponding NetApp volume name for the datastore. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable), No DNS Record (No\_DNS\_Record). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NETAPP\_VOLUME\_NAME or NVN (warehouse name), NetApp Volume Name (caption), NetApp\_Volume\_Name (attribute name), and NVN (column name).

#### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

#### **NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

#### **Overall Status attribute**

The overall status for the data store. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable), red (red), yellow (yellow), green (green), gray (gray). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OVERALL\_STATUS or OS (warehouse name), Overall Status (caption), Overall\_Status (attribute name), and OS (column name).

#### **Overcommitted attribute**

The amount of space, in megabytes, that the datastore has provisioned without available backing storage. This value can be negative, with a lower bound of negative free space. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OVERCOMMITTED or O (warehouse name), Overcommitted (caption), Overcommitted (attribute name), and O (column name).

#### **Percent Free attribute**

The percentage of unused space in this data store. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_FREE or PF (warehouse name), Percent Free (caption), Percent\_Free (attribute name), and PF (column name).

#### **Percent Overcommitted attribute**

The percentage of the total capacity of the datastore that is overcommitted. This attribute has a lower bound of -100% and no upper bound. The type is real number (32-bit gauge) with two decimal places of precision with enumerated values. The following values are defined: Unavailable (-21474836). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_OVERCOMMITTED or PO (warehouse name), Percent Overcommitted (caption), Percent\_Overcommitted (attribute name), and PO (column name).

#### **Percent Snapshot Storage Consumed attribute**

The percentage amount of disk space that is used by the snapshots. The type is real number (32-bit gauge) with two decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_SNAPSHOT\_STORAGE\_CONSUMED or PSSC (warehouse name), Percent Snapshot Storage Consumed (caption), Percent\_Snapshot\_Storage\_Consumed (attribute name), and PSSC (column name).

#### **Percent Used attribute**

The percentage of used space in the data store. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_USED or PU (warehouse name), Percent Used (caption), Percent\_Used (attribute name), and PU (column name).

**Remote Host Address attribute**

The remote host address for the data store. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: REMOTE\_HOST\_ADDRESS or RHA (warehouse name), Remote Host Address (caption), Remote\_Host\_Address (attribute name), and RHA (column name).

**Remote Path attribute**

The remote path for the data store. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: REMOTE\_PATH or RP (warehouse name), Remote Path (caption), Remote\_Path (attribute name), and RP (column name).

**Snapshot Storage Consumed attribute**

The amount of disk space (in GB) that is used by the snapshots. The type is real number (32-bit gauge) with two decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SNAPSHOT\_STORAGE\_CONSUMED or SSC (warehouse name), Snapshot Storage Consumed (caption), Snapshot\_Storage\_Consumed (attribute name), and SSC (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

**Total IO attribute**

The sum of total kilobytes read and written per second by all virtual machines that are configured for this datastore. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TOTAL\_IO\_KBPS or TIK (warehouse name), Total IO (caption), Total\_IO\_KBps (attribute name), and TIK (column name).

**Total Read attribute**

The total kilobytes read per second by all virtual machines that are configured for this datastore. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TOTAL\_READ\_KBPS or TRK (warehouse name), Total Read (caption), Total\_Read\_KBps (attribute name), and TRK (column name).

**Total Write attribute**

The total kilobytes written per second by all virtual machines that are configured for this datastore. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TOTAL\_WRITE\_KBPS or TWK (warehouse name), Total Write (caption), Total\_Write\_KBps (attribute name), and TWK (column name).

**Type attribute**

The type for the data store. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TYPE (warehouse name), Type (caption), Type (attribute name), and TYPE (column name).

#### **URL attribute**

The remote URL for the data store. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: URL (warehouse name), URL (caption), URL (attribute name), and URL (column name).

#### **Used Space attribute**

The amount of allocated storage in MB for the data store. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: USED\_SPACE (warehouse name), Used Space (caption), Used\_Space (attribute name), and USED\_SPACE (column name).

## **Director attribute group**

[Edit online](#)

This attribute group contains information about the IBM Systems Director configuration. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

#### **DirectorPort attribute**

The port number for the IBM Director Server. The type is string.

The source for this attribute is Script data

The following names are defined for this attribute: DIRECTORPORT or D0 (warehouse name), DirectorPort (caption), DirectorPort (attribute name), and D0 (column name).

#### **DirectorServer attribute**

The host name of the IBM Director Server. The type is string.

The source for this attribute is Script data

The following names are defined for this attribute: DIRECTORSERVER or D (warehouse name), DirectorServer (caption), DirectorServer (attribute name), and D (column name).

#### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

#### **Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

#### **UseTEPCredential attribute**

Use Tivoli Enterprise Portal credentials for IBM Systems Director authentication. The type is string.

The source for this attribute is Script data

The following names are defined for this attribute: USETEPCREDENTIAL or U (warehouse name), UseTEPCredential (caption), UseTEPCredential (attribute name), and U (column name).

## Distributed Virtual Portgroups attribute group

[Edit online](#)

This attribute group contains information about the distributed virtual portgroups in the virtual infrastructure. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### Blocked attribute

Whether traffic is being blocked for this portgroup. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: BLOCKED (warehouse name), Blocked (caption), Blocked (attribute name), and BLOCKED (column name).

### Datacenter attribute

The name of the data center that uses this distributed virtual portgroup. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

### Inbound Shaping Average Bandwidth attribute

The inbound traffic shaping target for average bandwidth. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: INBOUND\_SHAPING\_AVERAGE\_BANDWIDTH or ISAB (warehouse name), Inbound Shaping Average Bandwidth (caption), Inbound\_Shaping\_Average\_Bandwidth (attribute name), and ISAB (column name).

### Inbound Shaping Burst Size attribute

The inbound traffic shaping target for burst size. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: INBOUND\_SHAPING\_BURST\_SIZE or ISBS (warehouse name), Inbound Shaping Burst Size (caption), Inbound\_Shaping\_Burst\_Size (attribute name), and ISBS (column name).

### Inbound Shaping Enabled attribute

Whether inbound traffic shaping is enabled for this portgroup. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: INBOUND\_SHAPING\_ENABLED or ISE (warehouse name), Inbound Shaping Enabled (caption), Inbound\_Shaping\_Enabled (attribute name), and ISE (column name).

### Inbound Shaping Peak Bandwidth attribute

The inbound traffic shaping target for peak bandwidth. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: INBOUND\_SHAPING\_PEAK\_BANDWIDTH or ISPB (warehouse name), Inbound Shaping Peak Bandwidth (caption), Inbound\_Shaping\_Peak\_Bandwidth (attribute name), and ISPB (column name).

#### **Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Inbound\_Shaping\_Average\_Bandwidth} < 0) \parallel (\text{Inbound\_Shaping\_Burst\_Size} < 0) \parallel (\text{Inbound\_Shaping\_Peak\_Bandwidth} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDIS0 (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDIS0 (column name).

#### **Include Data In Summarization 1 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Outbound\_Shaping\_Peak\_Bandwidth} < 0) \parallel (\text{Outbound\_Shaping\_Average\_Bandwidth} < 0) \parallel (\text{Outbound\_Shaping\_Burst\_Size} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_1 or IDIS1 (warehouse name), Include Data In Summarization 1 (caption), Include\_Data\_In\_Summarization\_1 (attribute name), and IDIS1 (column name).

#### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

#### **Outbound Shaping Average Bandwidth attribute**

The outbound traffic shaping target for average bandwidth. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OUTBOUND\_SHAPING\_AVERAGE\_BANDWIDTH or OSAB (warehouse name), Outbound Shaping Average Bandwidth (caption), Outbound\_Shaping\_Average\_Bandwidth (attribute name), and OSAB (column name).

#### **Outbound Shaping Burst Size attribute**

The outbound traffic shaping target for burst size. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OUTBOUND\_SHAPING\_BURST\_SIZE or OSBS (warehouse name), Outbound Shaping Burst Size (caption), Outbound\_Shaping\_Burst\_Size (attribute name), and OSBS (column name).

#### **Outbound Shaping Enabled attribute**

Whether outbound traffic shaping is enabled for this portgroup. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OUTBOUND\_SHAPING\_ENABLED or OSE (warehouse name), Outbound Shaping Enabled (caption), Outbound\_Shaping\_Enabled (attribute name), and OSE (column name).

**Outbound Shaping Peak Bandwidth attribute**

The outbound traffic shaping target for peak bandwidth. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OUTBOUND\_SHAPING\_PEAK\_BANDWIDTH or OSPB (warehouse name), Outbound Shaping Peak Bandwidth (caption), Outbound\_Shaping\_Peak\_Bandwidth (attribute name), and OSPB (column name).

**Overall Status attribute**

The overall alarm status of the portgroup. A value of red or yellow indicates that an alarm has been triggered for the portgroup. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OVERALL\_STATUS or OS (warehouse name), Overall Status (caption), Overall\_Status (attribute name), and OS (column name).

**Portgroup attribute**

The name of this portgroup. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PORTGROUP\_NAME or PN (warehouse name), Portgroup (caption), Portgroup\_Name (attribute name), and PN (column name).

**Switch attribute**

The name of the distributed virtual switch associated with this portgroup. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SWITCH\_NAME or SN (warehouse name), Switch (caption), Switch\_Name (attribute name), and SN (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

**Type attribute**

The type of this portgroup. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TYPE (warehouse name), Type (caption), Type (attribute name), and TYPE (column name).

**VLAN ID attribute**

The VLAN ID used by this portgroup. For portgroups that support ranges of VLANs or multiple VLANs, this value is set to Unavailable. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VLAN\_ID (warehouse name), VLAN ID (caption), VLAN\_ID (attribute name), and VLAN\_ID (column name).

**VLAN Type attribute**

The type of VLAN used for this portgroup. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VLAN\_TYPE (warehouse name), VLAN Type (caption), VLAN\_Type (attribute name), and VLAN\_TYPE (column name).

## Distributed Virtual Switch Health attribute group

[Edit online](#)

This attribute group contains information about the health check of host system for distributed virtual switches. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### Datacenter attribute

The name of the data center that uses this distributed virtual switch. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

### DVS Teaming Status attribute

The teaming check status of the Distributed Virtual Switch. This teaming check status is available only for the VLAN Health check and the Teaming and Failover Health check. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DVS\_TEAMING\_STATUS or DTS (warehouse name), DVS Teaming Status (caption), DVS\_Teaming\_Status (attribute name), and DTS (column name).

### Health Check Type attribute

The type of the health check. The type is string with enumerated values. The following values are defined: VLAN Health (com.vmware.vim.VMwareDVSMtuHealthCheckResult), MTU Health (com.vmware.vim.VMwareDVSVlanHealthCheckResult), Teaming and Failover Health (com.vmware.vim.VMwareDVSTeamingHealthCheckResult). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: HEALTH\_CHECK\_TYPE or HCT (warehouse name), Health Check Type (caption), Health\_Check\_Type (attribute name), and HCT (column name).

### Host attribute

The host name of the ESX server that is connected to the Distributed Virtual Switch. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: HOST (warehouse name), Host (caption), Host (attribute name), and HOST (column name).

### MTU Mismatch attribute

Indicates whether the Maximum Transmission Unit (MTU) configured in the vSphere Distributed Switch is mismatched with the value configured in the Physical NIC. This MTU mismatch status is available only for MTU Health Check type. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable), Yes (true), No (false). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MTU\_MISMATCH or MM (warehouse name), MTU Mismatch (caption), MTU\_Mismatch (attribute name), and MM (column name).

### NIC attribute

The name of the physical network interface card (NIC) that is associated with the uplink. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NIC\_NAME (warehouse name), NIC (caption), NIC\_Name (attribute name), and NIC\_NAME (column name).



**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**Portgroup attribute**

The name of the portgroup. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PORTGROUP\_NAME or PN (warehouse name), Portgroup (caption), Portgroup\_Name (attribute name), and PN (column name).

**Source attribute**

The host name of the data source. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SOURCE (warehouse name), Source (caption), Source (attribute name), and SOURCE (column name).

**Summary attribute**

The health check summary. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SUMMARY (warehouse name), Summary (caption), Summary (attribute name), and SUMMARY (column name).

**Switch attribute**

The name of the Distributed Virtual Switch. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SWITCH\_NAME or SN (warehouse name), Switch (caption), Switch\_Name (attribute name), and SN (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

**Uplink attribute**

The name of the uplink that is used by the host to connect to the Distributed Virtual Switch. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: UPLINK\_NAME or UN (warehouse name), Uplink (caption), Uplink\_Name (attribute name), and UN (column name).

**Uplink Key attribute**

The uplink key that is used by the host to connect to the Distributed Virtual Switch. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: UPLINK\_KEY (warehouse name), Uplink Key (caption), Uplink\_Key (attribute name), and UPLINK\_KEY (column name).

## Distributed Virtual Switches attribute group

[Edit online](#)

This attribute group contains information about the distributed virtual switches in the virtual infrastructure. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### Datacenter attribute

The name of the data center that uses this distributed virtual switch. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

### Include Data In Summarization 0 attribute

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Number\_Of\_Portgroups} < 0) \parallel (\text{Number\_Of\_Uplinks} < 0) \parallel (\text{Number\_Of\_Ports} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDIS0 (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDIS0 (column name).

### Include Data In Summarization 1 attribute

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Number\_Of\_Hosts} < 0) \parallel (\text{Number\_Of\_VMs} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_1 or IDIS1 (warehouse name), Include Data In Summarization 1 (caption), Include\_Data\_In\_Summarization\_1 (attribute name), and IDIS1 (column name).

### Include Data In Summarization 2 attribute

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Transmitted} < 0) \parallel (\text{Received} < 0) \parallel (\text{Usage} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_2 or IDIS2 (warehouse name), Include Data In Summarization 2 (caption), Include\_Data\_In\_Summarization\_2 (attribute name), and IDIS2 (column name).

### Include Data In Summarization 3 attribute

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Max\_Number\_Of\_Ports} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_3 or IDIS3 (warehouse name), Include Data In Summarization 3 (caption), Include\_Data\_In\_Summarization\_3 (attribute name), and IDIS3 (column name).

**Max Number Ports attribute**

The maximum number of ports, excluding conflict ports, allowed for this switch. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MAX\_NUMBER\_OF\_PORTS or MNOP (warehouse name), Max Number Ports (caption), Max\_Number\_Of\_Ports (attribute name), and MNOP (column name).

**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**Number Hosts attribute**

The number of hosts that are attached to this switch. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_OF\_HOSTS or NOH (warehouse name), Number Hosts (caption), Number\_Of\_Hosts (attribute name), and NOH (column name).

**Number Of Portgroups attribute**

The number of portgroups, including uplink portgroups, attached to this switch. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_OF\_PORTGROUPS or NOP (warehouse name), Number Of Portgroups (caption), Number\_Of\_Portgroups (attribute name), and NOP (column name).

**Number Ports attribute**

The current number of ports, excluding conflict ports, of this switch. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_OF\_PORTS or NOP0 (warehouse name), Number Ports (caption), Number\_Of\_Ports (attribute name), and NOP0 (column name).

**Number Uplinks attribute**

The number of distributed virtual uplinks that are attached to this switch. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_OF\_UPLINKS or NOU (warehouse name), Number Uplinks (caption), Number\_Of\_Uplinks (attribute name), and NOU (column name).

**Number VMs attribute**

The number of virtual machines that are attached to this switch. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_OF\_VMS or NOV (warehouse name), Number VMs (caption), Number\_Of\_VMs (attribute name), and NOV (column name).

**Overall Status attribute**

The overall alarm status of the distributed virtual switch. A value of red or yellow indicates that an alarm has been triggered for the distributed virtual switch. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OVERALL\_STATUS or OS (warehouse name), Overall Status (caption), Overall\_Status (attribute name), and OS (column name).

**Received attribute**

The total reception rate in Kbps of the uplinks on this switch. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: RECEIVED (warehouse name), Received (caption), Received (attribute name), and RECEIVED (column name).

**Switch attribute**

The name of the distributed virtual switch. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SWITCH\_NAME or SN (warehouse name), Switch (caption), Switch\_Name (attribute name), and SN (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

**Transmitted attribute**

The total transmission rate in Kbps of the uplinks on this switch. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TRANSMITTED or T (warehouse name), Transmitted (caption), Transmitted (attribute name), and T (column name).

**Usage attribute**

The total rate in Kbps that the uplinks are transmitting and receiving data on this switch. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: USAGE (warehouse name), Usage (caption), Usage (attribute name), and USAGE (column name).

## Distributed Virtual Uplinks attribute group

[Edit online](#)

This attribute group contains information about the distributed virtual uplinks in the virtual infrastructure. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

**Component State attribute**

The component state of the uplink. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: COMPONENT\_STATE or CS (warehouse name), Component State (caption), Component\_State (attribute name), and CS (column name).

**Datacenter attribute**

The name of the data center that uses this distributed virtual uplink. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

#### **Duplex attribute**

The current operating mode of the NIC. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DUPLEX (warehouse name), Duplex (caption), Duplex (attribute name), and DUPLEX (column name).

#### **Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Transmitted} < 0) \parallel (\text{Received} < 0) \parallel (\text{Usage} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDIS0 (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDIS0 (column name).

#### **Include Data In Summarization 1 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Link\_Utilization} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_1 or IDIS1 (warehouse name), Include Data In Summarization 1 (caption), Include\_Data\_In\_Summarization\_1 (attribute name), and IDIS1 (column name).

#### **Include Data In Summarization 2 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Link\_Speed} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_2 or IDIS2 (warehouse name), Include Data In Summarization 2 (caption), Include\_Data\_In\_Summarization\_2 (attribute name), and IDIS2 (column name).

#### **Link Speed attribute**

The current operating speed of the NIC in Mbps. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: LINK\_SPEED (warehouse name), Link Speed (caption), Link\_Speed (attribute name), and LINK\_SPEED (column name).

#### **Link Utilization attribute**

The percent usage of the NIC relative to the capacity of the link (including duplex). The type is real number (32-bit gauge) with two decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: LINK\_UTILIZATION or LU (warehouse name), Link Utilization (caption), Link\_Utilization (attribute name), and LU (column name).

#### **Managed System Name attribute**

The managed system name of the subnode for the ESX server of the uplink. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SUBNODE\_MSN or SM (warehouse name), Managed System Name (caption), Subnode\_MSN (attribute name), and SM (column name).

**NIC attribute**

The name of the physical NIC associated with this uplink. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NIC (warehouse name), NIC (caption), NIC (attribute name), and NIC (column name).

**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**Overall Status attribute**

The overall alarm status of the uplink. A value of red or yellow indicates that an alarm has been triggered for the uplink. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OVERALL\_STATUS or OS (warehouse name), Overall Status (caption), Overall\_Status (attribute name), and OS (column name).

**Portgroup attribute**

The name of the portgroup for this uplink. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PORTGROUP\_NAME or PN (warehouse name), Portgroup (caption), Portgroup\_Name (attribute name), and PN (column name).

**Received attribute**

The total reception rate in KBps of this uplink's physical NIC. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: RECEIVED (warehouse name), Received (caption), Received (attribute name), and RECEIVED (column name).

**Server Hostname attribute**

The host name of the ESX server to which the uplink belongs. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: HOST\_SYSTEM or HS (warehouse name), Server Hostname (caption), Host\_System (attribute name), and HS (column name).

**Status attribute**

The current status, up or down, of the NIC. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: LINK\_STATUS or LS (warehouse name), Status (caption), Link\_Status (attribute name), and LS (column name).

**Switch attribute**

The name of the distributed virtual switch that is attached to this uplink. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SWITCH\_NAME or SN (warehouse name), Switch (caption), Switch\_Name (attribute name), and SN (column name).

#### **Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

#### **Transmitted attribute**

The total transmission rate in KBps of this uplink's physical NIC. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TRANSMITTED or T (warehouse name), Transmitted (caption), Transmitted (attribute name), and T (column name).

#### **Uplink attribute**

The name of this uplink. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: UPLINK\_NAME or UN (warehouse name), Uplink (caption), Uplink\_Name (attribute name), and UN (column name).

#### **Usage attribute**

The total rate in KBps that data is being transmitted and received data on this uplink's physical NIC. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: USAGE (warehouse name), Usage (caption), Usage (attribute name), and USAGE (column name).

## **ESX Performance Object Status attribute group**

[Edit online](#)

The Performance Object Status attribute group contains information that reflects the status of other attribute groups so you can see the status of all performance objects that make up this application all at once. Each of these other performance attribute groups is represented by a row in this table (or other type of view). The status for an attribute group reflects the result of the last attempt to collect data for that attribute group, so you can see whether the agent is collecting data correctly. Unlike other attribute groups, the Performance Object Status attribute group does not reflect the state of the monitored application. This attribute group is most often used to determine why data is not available for one of the performance attribute groups. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

#### **Average Collection Duration attribute**

The average duration of all data collections of this group in seconds. The type is real number (32-bit counter) with two decimal places of precision with enumerated values. The following values are defined: NO DATA (-100). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: AVERAGE\_COLLECTION\_DURATION or COLAVGD (warehouse name), Average Collection Duration (caption), Average\_Collection\_Duration (attribute name), and COLAVGD (column name).

### Cache Hit Percent attribute

The percentage of external data requests for this group that were satisfied from the cache. The type is real number (32-bit counter) with two decimal places of precision.

The following names are defined for this attribute: `CACHE_HIT_PERCENT` or `CACHPCT` (warehouse name), `Cache Hit Percent` (caption), `Cache_Hit_Percent` (attribute name), and `CACHPCT` (column name).

### Cache Hits attribute

The number of times an external data request for this group was satisfied from the cache. The type is integer (32-bit counter).

The following names are defined for this attribute: `CACHE_HITS` or `CACHEHT` (warehouse name), `Cache Hits` (caption), `Cache_Hits` (attribute name), and `CACHEHT` (column name).

### Cache Misses attribute

The number of times an external data request for this group was not available in the cache. The type is integer (32-bit counter).

The following names are defined for this attribute: `CACHE_MISSES` or `CACHEMS` (warehouse name), `Cache Misses` (caption), `Cache_Misses` (attribute name), and `CACHEMS` (column name).

### Error Code attribute

The error code associated with the query. The type is integer with enumerated values. The following values are defined: NO ERROR (0), GENERAL ERROR (1), OBJECT NOT FOUND (2), COUNTER NOT FOUND (3), NAMESPACE ERROR (4), OBJECT CURRENTLY UNAVAILABLE (5), COM LIBRARY INIT FAILURE (6), SECURITY INIT FAILURE (7), PROXY SECURITY FAILURE (9), NO INSTANCES RETURNED (10), ASSOCIATOR QUERY FAILED (11), REFERENCE QUERY FAILED (12), NO RESPONSE RECEIVED (13), CANNOT FIND JOINED QUERY (14), CANNOT FIND JOIN ATTRIBUTE IN QUERY 1 RESULTS (15), CANNOT FIND JOIN ATTRIBUTE IN QUERY 2 RESULTS (16), QUERY 1 NOT A SINGLETON (17), QUERY 2 NOT A SINGLETON (18), NO INSTANCES RETURNED IN QUERY 1 (19), NO INSTANCES RETURNED IN QUERY 2 (20), CANNOT FIND ROLLUP QUERY (21), CANNOT FIND ROLLUP ATTRIBUTE (22), FILE OFFLINE (23), NO HOSTNAME (24), MISSING LIBRARY (25), ATTRIBUTE COUNT MISMATCH (26), ATTRIBUTE NAME MISMATCH (27), COMMON DATA PROVIDER NOT STARTED (28), CALLBACK REGISTRATION ERROR (29), MDL LOAD ERROR (30), AUTHENTICATION FAILED (31), CANNOT RESOLVE HOST NAME (32), SUBNODE UNAVAILABLE (33), SUBNODE NOT FOUND IN CONFIG (34), ATTRIBUTE ERROR (35), CLASSPATH ERROR (36), CONNECTION FAILURE (37), FILTER SYNTAX ERROR (38), FILE NAME MISSING (39), SQL QUERY ERROR (40), SQL FILTER QUERY ERROR (41), SQL DB QUERY ERROR (42), SQL DB FILTER QUERY ERROR (43), PORT OPEN FAILED (44), ACCESS DENIED (45), TIMEOUT (46), NOT IMPLEMENTED (47), REQUESTED A BAD VALUE (48), RESPONSE TOO BIG (49), GENERAL RESPONSE ERROR (50), SCRIPT NONZERO RETURN (51), SCRIPT NOT FOUND (52), SCRIPT LAUNCH ERROR (53), CONF FILE DOES NOT EXIST (54), CONF FILE ACCESS DENIED (55), INVALID CONF FILE (56), EIF INITIALIZATION FAILED (57), CANNOT OPEN FORMAT FILE (58), FORMAT FILE SYNTAX ERROR (59), REMOTE HOST UNAVAILABLE (60), EVENT LOG DOES NOT EXIST (61), PING FILE DOES NOT EXIST (62), NO PING DEVICE FILES (63), PING DEVICE LIST FILE MISSING (64), SNMP MISSING PASSWORD (65), DISABLED (66), URLS FILE NOT FOUND (67), XML PARSE ERROR (68), NOT INITIALIZED (69), ICMP SOCKETS FAILED (70), DUPLICATE CONF FILE (71), DELETED CONFIGURATION (72), KVM NO DATASOURCES (1000), KVM DATASOURCE LOGIN FAILED (1005), KVM DATASOURCE NOT FOUND (1010), SUBNODE UNAVAILABLE (1033), KVM PROVIDER RESET (2222). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: `ERROR_CODE` or `ERRCODE` (warehouse name), `Error Code` (caption), `Error_Code` (attribute name), and `ERRCODE` (column name).

### Intervals Skipped attribute

The number of times a background data collection for this group was skipped because the previous collection was still running when the next one was due to start. The type is integer (32-bit counter).

The following names are defined for this attribute: `INTERVALS_SKIPPED` or `INTSKIP` (warehouse name), `Intervals Skipped` (caption), `Intervals_Skipped` (attribute name), and `INTSKIP` (column name).



**Last Collection Duration attribute**

The duration of the most recently completed data collection of this group in seconds. The type is real number (32-bit counter) with two decimal places of precision.

The following names are defined for this attribute: LAST\_COLLECTION\_DURATION or COLDURA (warehouse name), Last Collection Duration (caption), Last\_Collection\_Duration (attribute name), and COLDURA (column name).

**Last Collection Finished attribute**

The most recent time a data collection of this group finished. The type is timestamp with enumerated values. The following values are defined: NOT COLLECTED (0691231190000000), NOT COLLECTED (0000000000000001). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: LAST\_COLLECTION\_FINISHED or COLFINI (warehouse name), Last Collection Finished (caption), Last\_Collection\_Finished (attribute name), and COLFINI (column name).

**Last Collection Start attribute**

The most recent time a data collection of this group started. The type is timestamp with enumerated values. The following values are defined: NOT COLLECTED (0691231190000000), NOT COLLECTED (0000000000000001). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: LAST\_COLLECTION\_START or COLSTRT (warehouse name), Last Collection Start (caption), Last\_Collection\_Start (attribute name), and COLSTRT (column name).

**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**Number of Collections attribute**

The number of data collections for this group since the agent started. The type is integer (32-bit counter).

The following names are defined for this attribute: NUMBER\_OF\_COLLECTIONS or NUMCOLL (warehouse name), Number of Collections (caption), Number\_of\_Collections (attribute name), and NUMCOLL (column name).

**Object Name attribute**

The name of the performance object. The type is string.

The following names are defined for this attribute: OBJECT\_NAME or OBJNAME (warehouse name), Object Name (caption), Object\_Name (attribute name), and OBJNAME (column name).

**Object Status attribute**

The status of the performance object. The type is integer with enumerated values. The following values are defined: ACTIVE (0), INACTIVE (1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OBJECT\_STATUS or OBJSTTS (warehouse name), Object Status (caption), Object\_Status (attribute name), and OBJSTTS (column name).

**Object Type attribute**

The type of the performance object. The type is integer with enumerated values. The following values are defined: WMI (0), PERFMON (1), WMI ASSOCIATION GROUP (2), JMX (3), SNMP (4), SHELL COMMAND (5), JOINED GROUPS (6), CIMOM (7), CUSTOM (8), ROLLUP DATA (9), WMI REMOTE DATA (10), LOG FILE (11), JDBC (12), CONFIG DISCOVERY (13), NT EVENT LOG (14), FILTER (15), SNMP EVENT (16), PING (17), DIRECTOR DATA (18), DIRECTOR EVENT (19), SSH REMOTE SHELL COMMAND (20). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OBJECT\_TYPE or OBJTYPE (warehouse name), Object Type (caption), Object\_Type (attribute name), and OBJTYPE (column name).

#### **Query Name attribute**

The name of the attribute group. This attribute is a key attribute. The type is string.

The following names are defined for this attribute: QUERY\_NAME or ATTRGRP (warehouse name), Query Name (caption), Query\_Name (attribute name), and ATTRGRP (column name).

#### **Refresh Interval attribute**

The interval at which this group is refreshed in seconds. The type is integer (32-bit counter).

The following names are defined for this attribute: REFRESH\_INTERVAL or REFRINT (warehouse name), Refresh Interval (caption), Refresh\_Interval (attribute name), and REFRINT (column name).

#### **Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

## **Events attribute group**

[Edit online](#)

This attribute group contains events that are not specific to an ESX server. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

#### **Category attribute**

The severity level that is associated with the event by VMware. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CATEGORY (warehouse name), Category (caption), Category (attribute name), and CATEGORY (column name).

#### **Compute Resource attribute**

The compute resource that is associated with this event. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: COMPUTE\_RESOURCE or CR (warehouse name), Compute Resource (caption), Compute\_Resource (attribute name), and CR (column name).

#### **Datacenter attribute**

The data center that is associated with this event. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

#### **Datastore attribute**

The name of the data store that is associated with the event. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATASTORE (warehouse name), Datastore (caption), Datastore (attribute name), and DATASTORE (column name).

**Datastore UUID attribute**

The Universal Unique ID of the data store that is associated with the event. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATASTORE\_UUID or DU (warehouse name), Datastore UUID (caption), Datastore\_UUID (attribute name), and DU (column name).

**Entity Type attribute**

The type of entity of the event. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: ENTITY\_TYPE or ET (warehouse name), Entity Type (caption), Entity\_Type (attribute name), and ET (column name).

**Event attribute**

The event data string. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: EVENT (warehouse name), Event (caption), Event (attribute name), and EVENT (column name).

**Event Seq Number attribute**

A sequence number for this event. This attribute is a key attribute. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: EVENT\_SEQ\_NUMBER or ESN (warehouse name), Event Seq Number (caption), Event\_Seq\_Number (attribute name), and ESN (column name).

**Event Text attribute**

The full event data string. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: EVENT\_TEXT (warehouse name), Event Text (caption), Event\_Text (attribute name), and EVENT\_TEXT (column name).

**Event Time attribute**

The time that the event occurred. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: EVENT\_TIME (warehouse name), Event Time (caption), Event\_Time (attribute name), and EVENT\_TIME (column name).

**Event Type attribute**

The type of event that is given by VMware. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: EVENT\_TYPE (warehouse name), Event Type (caption), Event\_Type (attribute name), and EVENT\_TYPE (column name).

**Event Type ID attribute**

The type ID of the event that is given by VMware. This is unavailable unless the event is an extended event. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: EVENT\_TYPE\_ID or ETI (warehouse name), Event Type ID (caption), Event\_Type\_ID (attribute name), and ETI (column name).

**Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Event\_Seq\_Number < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDISO (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDISO (column name).

**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**Source Hostname attribute**

The host name of the data source that originated this event. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SOURCE\_HOSTNAME or SH (warehouse name), Source Hostname (caption), Source\_Hostname (attribute name), and SH (column name).

**Timestamp attribute**

The time the event was generated. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

**UserId attribute**

The user ID that caused the event. The type is string with enumerated values. The following values are defined: Not applicable (Not applicable), Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: USERID (warehouse name), UserId (caption), UserId (attribute name), and USERID (column name).

**Virtual Machine attribute**

The virtual machine that is associated with this event. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VIRTUAL\_MACHINE or VM (warehouse name), Virtual Machine (caption), Virtual\_Machine (attribute name), and VM (column name).

**Virtual Machine UUID attribute**

The UUID of the virtual machine that is associated with this event. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VIRTUAL\_MACHINE\_UUID or VMU (warehouse name), Virtual Machine UUID (caption), Virtual\_Machine\_UUID (attribute name), and VMU (column name).

## Monitored Servers attribute group

[Edit online](#)

This attribute group is the current list of ESX servers that are being monitored. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### Node attribute

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

### Subnode Affinity attribute

The affinity of this subnode. The type is string.

The following names are defined for this attribute: SUBNODE\_AFFINITY or SN\_AFFIN (warehouse name), Subnode Affinity (caption), Subnode\_Affinity (attribute name), and SN\_AFFIN (column name).

### Subnode MSN attribute

The Managed System Name of this subnode. This attribute is a key attribute. The type is string.

The following names are defined for this attribute: SUBNODE\_MSN or SN\_MSN (warehouse name), Subnode MSN (caption), Subnode\_MSN (attribute name), and SN\_MSN (column name).

### Subnode Resource Name attribute

The resource name of this subnode. The type is string.

The following names are defined for this attribute: SUBNODE\_RESOURCE\_NAME or SN\_RES (warehouse name), Subnode Resource Name (caption), Subnode\_Resource\_Name (attribute name), and SN\_RES (column name).

### Subnode Resource Name Enhanced attribute

This is enhanced version of subnode\_resource\_name attribute with increased limit to show 100 characters of ESX Server name. The type is string.

The following names are defined for this attribute: SUBNODE\_RESOURCE\_NAME\_ENHANCED or SRNE (warehouse name), Subnode Resource Name Enhanced (caption), Subnode\_Resource\_Name\_Enhanced (attribute name), and SRNE (column name).

### Subnode Type attribute

The node type of this subnode. This attribute is a key attribute. The type is string.

The following names are defined for this attribute: SUBNODE\_TYPE or SN\_TYPE (warehouse name), Subnode Type (caption), Subnode\_Type (attribute name), and SN\_TYPE (column name).

### Subnode Version attribute

The version of this subnode. The type is string.

The following names are defined for this attribute: SUBNODE\_VERSION or SN\_VER (warehouse name), Subnode Version (caption), Subnode\_Version (attribute name), and SN\_VER (column name).

### Timestamp attribute

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

## Networked Servers attribute group

[Edit online](#)

This attribute group lists the hosts on each network. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### Datacenter attribute

The data center that this network is on. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

### Include Data In Summarization 0 attribute

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Transmitted < 0) || (Received < 0) || (Usage < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDISO (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDISO (column name).

### Managed System Name attribute

The managed system name of the subnode for the ESX server. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SUBNODE\_MSN or SM (warehouse name), Managed System Name (caption), Subnode\_MSN (attribute name), and SM (column name).

### Network attribute

The name of the network. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NETWORK (warehouse name), Network (caption), Network (attribute name), and NETWORK (column name).

### Node attribute

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

### Received attribute

The total reception rate in KBps of the host on this virtual switch. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: RECEIVED (warehouse name), Received (caption), Received (attribute name), and RECEIVED (column name).

### Server Hostname attribute

The host name of the ESX server that is connected to the network. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SERVER\_HOSTNAME or SH (warehouse name), Server Hostname (caption), Server\_Hostname (attribute name), and SH (column name).

**Switch attribute**

The switch that the network uses. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SWITCH (warehouse name), Switch (caption), Switch (attribute name), and SWITCH (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

**Transmitted attribute**

The total transmission rate in Kbps of the host on this virtual switch. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TRANSMITTED or T (warehouse name), Transmitted (caption), Transmitted (attribute name), and T (column name).

**Usage attribute**

The total rate in Kbps that the host is transmitting and receiving data on this virtual switch. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: USAGE (warehouse name), Usage (caption), Usage (attribute name), and USAGE (column name).

## Networked Virtual Machines attribute group

[Edit online](#)

This attribute group lists the virtual machine NICs on each network. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

**Datacenter attribute**

The data center that this virtual machine NIC is on. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

**Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Transmitted < 0) || (Received < 0) || (Usage < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDISO (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDISO (column name).

**Managed System Name attribute**

The managed system name of the subnode for the ESX server of the virtual machine NIC. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SUBNODE\_MSN or SM (warehouse name), Managed System Name (caption), Subnode\_MSN (attribute name), and SM (column name).

**Network attribute**

The name of the network the virtual machine NIC is on. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NETWORK (warehouse name), Network (caption), Network (attribute name), and NETWORK (column name).

**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**Received attribute**

The total reception rate in KBps of this virtual machine NIC. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: RECEIVED (warehouse name), Received (caption), Received (attribute name), and RECEIVED (column name).

**Server Hostname attribute**

The hostname of the ESX server on which the virtual machine resides. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SERVER\_HOSTNAME or SH (warehouse name), Server Hostname (caption), Server\_Hostname (attribute name), and SH (column name).

**Switch attribute**

The name of the virtual switch to which the virtual machine NIC is connected. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SWITCH (warehouse name), Switch (caption), Switch (attribute name), and SWITCH (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

**Transmitted attribute**

The total transmission rate in KBps of this virtual machine NIC. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TRANSMITTED or T (warehouse name), Transmitted (caption), Transmitted (attribute name), and T (column name).



### Usage attribute

The total rate in Kbps that data is being transmitted and received data on this virtual machine NIC. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: USAGE (warehouse name), Usage (caption), Usage (attribute name), and USAGE (column name).

### Virtual Machine attribute

The name of the virtual machine. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VIRTUAL\_MACHINE or VM (warehouse name), Virtual Machine (caption), Virtual\_Machine (attribute name), and VM (column name).

### VM NIC attribute

The name of the virtual machine NIC. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_NIC (warehouse name), VM NIC (caption), VM\_NIC (attribute name), and VM\_NIC (column name).

## Networked Virtual Switches attribute group

[Edit online](#)

This attribute group contains information about the standard virtual switches in the virtual infrastructure grouped by network. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### Datacenter attribute

The name of the data center that uses this virtual switch. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

### Include Data In Summarization 0 attribute

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Number\_Of\_NICs < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDIS0 (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDIS0 (column name).

### Include Data In Summarization 1 attribute

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Transmitted < 0) || (Received < 0) || (Usage < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_1 or IDIS1 (warehouse name), Include Data In Summarization 1 (caption), Include\_Data\_In\_Summarization\_1 (attribute name), and IDIS1 (column name).

**Managed System Name attribute**

The managed system name of the subnode for the ESX server of the virtual switch. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SUBNODE\_MSN or SM (warehouse name), Managed System Name (caption), Subnode\_MSN (attribute name), and SM (column name).

**Network attribute**

The name of the network with which the virtual switch is associated. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NETWORK (warehouse name), Network (caption), Network (attribute name), and NETWORK (column name).

**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**Number NICs attribute**

The number of NICs connected to the virtual switch. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_OF\_NICS or NON (warehouse name), Number NICs (caption), Number\_Of\_NICs (attribute name), and NON (column name).

**Received attribute**

The total reception rate in KBps of the host on this virtual switch. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: RECEIVED (warehouse name), Received (caption), Received (attribute name), and RECEIVED (column name).

**Server Hostname attribute**

The hostname of the ESX server to which the virtual switch belongs. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SERVER\_HOSTNAME or SH (warehouse name), Server Hostname (caption), Server\_Hostname (attribute name), and SH (column name).

**Switch attribute**

The name of the virtual switch. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SWITCH (warehouse name), Switch (caption), Switch (attribute name), and SWITCH (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

### **Transmitted attribute**

The total transmission rate in KBps of the host on this virtual switch. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TRANSMITTED or T (warehouse name), Transmitted (caption), Transmitted (attribute name), and T (column name).

### **Usage attribute**

The total rate in KBps that the host is transmitting and receiving data on this virtual switch. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: USAGE (warehouse name), Usage (caption), Usage (attribute name), and USAGE (column name).

## **Networks attribute group**

[Edit online](#)

This attribute group contains information about the networks in the virtual infrastructure. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### **Datacenter attribute**

The name of the data center that uses this network. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

### **Distributed Switch attribute**

The name of the distributed virtual switch for this network, if applicable. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DISTRIBUTED\_SWITCH or DS (warehouse name), Distributed Switch (caption), Distributed\_Switch (attribute name), and DS (column name).

### **Network attribute**

The name of the network. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NETWORK (warehouse name), Network (caption), Network (attribute name), and NETWORK (column name).

### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

### **Number Hosts attribute**

The number of hosts connected to the network. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_OF\_HOSTS or NOH (warehouse name), Number Hosts (caption), Number\_Of\_Hosts (attribute name), and NOH (column name).

### Number VMs attribute

The number of virtual machines connected to the network. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_OF\_VMS or NOV (warehouse name), Number VMs (caption), Number\_Of\_VMs (attribute name), and NOV (column name).

### Overall Status attribute

The overall alarm status of the network. A value of red or yellow indicates that an alarm has been triggered for the network. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable), red (red), yellow (yellow), green (green), gray (gray). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OVERALL\_STATUS or OS (warehouse name), Overall Status (caption), Overall\_Status (attribute name), and OS (column name).

### Timestamp attribute

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

### Type attribute

The type of network. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NETWORK\_TYPE or NT (warehouse name), Type (caption), Network\_Type (attribute name), and NT (column name).

## Performance Object Status attribute group

[Edit online](#)

The Performance Object Status attribute group contains information that reflects the status of other attribute groups so you can see the status of all performance objects that make up this application all at once. Each of these other performance attribute groups is represented by a row in this table (or other type of view). The status for an attribute group reflects the result of the last attempt to collect data for that attribute group, so you can see whether the agent is collecting data correctly. Unlike other attribute groups, the Performance Object Status attribute group does not reflect the state of the monitored application. This attribute group is most often used to determine why data is not available for one of the performance attribute groups. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### Average Collection Duration attribute

The average duration of all data collections of this group in seconds. The type is real number (32-bit counter) with two decimal places of precision with enumerated values. The following values are defined: NO DATA (-100). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: AVERAGE\_COLLECTION\_DURATION or COLAVGD (warehouse name), Average Collection Duration (caption), Average\_Collection\_Duration (attribute name), and COLAVGD (column name).

### Cache Hit Percent attribute

The percentage of external data requests for this group that were satisfied from the cache. The type is real number (32-bit counter) with two decimal places of precision.

The following names are defined for this attribute: `CACHE_HIT_PERCENT` or `CACHPCT` (warehouse name), `Cache Hit Percent` (caption), `Cache_Hit_Percent` (attribute name), and `CACHPCT` (column name).

#### **Cache Hits attribute**

The number of times an external data request for this group was satisfied from the cache. The type is integer (32-bit counter).

The following names are defined for this attribute: `CACHE_HITS` or `CACHEHT` (warehouse name), `Cache Hits` (caption), `Cache_Hits` (attribute name), and `CACHEHT` (column name).

#### **Cache Misses attribute**

The number of times an external data request for this group was not available in the cache. The type is integer (32-bit counter).

The following names are defined for this attribute: `CACHE_MISSES` or `CACHEMS` (warehouse name), `Cache Misses` (caption), `Cache_Misses` (attribute name), and `CACHEMS` (column name).

#### **Error Code attribute**

The error code associated with the query. The type is integer with enumerated values. The following values are defined: NO ERROR (0), GENERAL ERROR (1), OBJECT NOT FOUND (2), COUNTER NOT FOUND (3), NAMESPACE ERROR (4), OBJECT CURRENTLY UNAVAILABLE (5), COM LIBRARY INIT FAILURE (6), SECURITY INIT FAILURE (7), PROXY SECURITY FAILURE (9), NO INSTANCES RETURNED (10), ASSOCIATOR QUERY FAILED (11), REFERENCE QUERY FAILED (12), NO RESPONSE RECEIVED (13), CANNOT FIND JOINED QUERY (14), CANNOT FIND JOIN ATTRIBUTE IN QUERY 1 RESULTS (15), CANNOT FIND JOIN ATTRIBUTE IN QUERY 2 RESULTS (16), QUERY 1 NOT A SINGLETON (17), QUERY 2 NOT A SINGLETON (18), NO INSTANCES RETURNED IN QUERY 1 (19), NO INSTANCES RETURNED IN QUERY 2 (20), CANNOT FIND ROLLUP QUERY (21), CANNOT FIND ROLLUP ATTRIBUTE (22), FILE OFFLINE (23), NO HOSTNAME (24), MISSING LIBRARY (25), ATTRIBUTE COUNT MISMATCH (26), ATTRIBUTE NAME MISMATCH (27), COMMON DATA PROVIDER NOT STARTED (28), CALLBACK REGISTRATION ERROR (29), MDL LOAD ERROR (30), AUTHENTICATION FAILED (31), CANNOT RESOLVE HOST NAME (32), SUBNODE UNAVAILABLE (33), SUBNODE NOT FOUND IN CONFIG (34), ATTRIBUTE ERROR (35), CLASSPATH ERROR (36), CONNECTION FAILURE (37), FILTER SYNTAX ERROR (38), FILE NAME MISSING (39), SQL QUERY ERROR (40), SQL FILTER QUERY ERROR (41), SQL DB QUERY ERROR (42), SQL DB FILTER QUERY ERROR (43), PORT OPEN FAILED (44), ACCESS DENIED (45), TIMEOUT (46), NOT IMPLEMENTED (47), REQUESTED A BAD VALUE (48), RESPONSE TOO BIG (49), GENERAL RESPONSE ERROR (50), SCRIPT NONZERO RETURN (51), SCRIPT NOT FOUND (52), SCRIPT LAUNCH ERROR (53), CONF FILE DOES NOT EXIST (54), CONF FILE ACCESS DENIED (55), INVALID CONF FILE (56), EIF INITIALIZATION FAILED (57), CANNOT OPEN FORMAT FILE (58), FORMAT FILE SYNTAX ERROR (59), REMOTE HOST UNAVAILABLE (60), EVENT LOG DOES NOT EXIST (61), PING FILE DOES NOT EXIST (62), NO PING DEVICE FILES (63), PING DEVICE LIST FILE MISSING (64), SNMP MISSING PASSWORD (65), DISABLED (66), URLS FILE NOT FOUND (67), XML PARSE ERROR (68), NOT INITIALIZED (69), ICMP SOCKETS FAILED (70), DUPLICATE CONF FILE (71), DELETED CONFIGURATION (72), KVM NO DATASOURCES (1000), KVM DATASOURCE LOGIN FAILED (1005), KVM DATASOURCE NOT FOUND (1010), SUBNODE UNAVAILABLE (1033), KVM PROVIDER RESET (2222). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: `ERROR_CODE` or `ERRCODE` (warehouse name), `Error Code` (caption), `Error_Code` (attribute name), and `ERRCODE` (column name).

#### **Intervals Skipped attribute**

The number of times a background data collection for this group was skipped because the previous collection was still running when the next one was due to start. The type is integer (32-bit counter).

The following names are defined for this attribute: `INTERVALS_SKIPPED` or `INTSKIP` (warehouse name), `Intervals Skipped` (caption), `Intervals_Skipped` (attribute name), and `INTSKIP` (column name).

#### **Last Collection Duration attribute**

The duration of the most recently completed data collection of this group in seconds. The type is real number (32-bit counter) with two decimal places of precision.

The following names are defined for this attribute: LAST\_COLLECTION\_DURATION or COLDURA (warehouse name), Last Collection Duration (caption), Last\_Collection\_Duration (attribute name), and COLDURA (column name).

#### **Last Collection Finished attribute**

The most recent time a data collection of this group finished. The type is timestamp with enumerated values. The following values are defined: NOT COLLECTED (0691231190000000), NOT COLLECTED (0000000000000001). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: LAST\_COLLECTION\_FINISHED or COLFINI (warehouse name), Last Collection Finished (caption), Last\_Collection\_Finished (attribute name), and COLFINI (column name).

#### **Last Collection Start attribute**

The most recent time a data collection of this group started. The type is timestamp with enumerated values. The following values are defined: NOT COLLECTED (0691231190000000), NOT COLLECTED (0000000000000001). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: LAST\_COLLECTION\_START or COLSTRT (warehouse name), Last Collection Start (caption), Last\_Collection\_Start (attribute name), and COLSTRT (column name).

#### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

#### **Number of Collections attribute**

The number of data collections for this group since the agent started. The type is integer (32-bit counter).

The following names are defined for this attribute: NUMBER\_OF\_COLLECTIONS or NUMCOLL (warehouse name), Number of Collections (caption), Number\_of\_Collections (attribute name), and NUMCOLL (column name).

#### **Object Name attribute**

The name of the performance object. The type is string.

The following names are defined for this attribute: OBJECT\_NAME or OBJNAME (warehouse name), Object Name (caption), Object\_Name (attribute name), and OBJNAME (column name).

#### **Object Status attribute**

The status of the performance object. The type is integer with enumerated values. The following values are defined: ACTIVE (0), INACTIVE (1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OBJECT\_STATUS or OBJSTTS (warehouse name), Object Status (caption), Object\_Status (attribute name), and OBJSTTS (column name).

#### **Object Type attribute**

The type of the performance object. The type is integer with enumerated values. The following values are defined: WMI (0), PERFMON (1), WMI ASSOCIATION GROUP (2), JMX (3), SNMP (4), SHELL COMMAND (5), JOINED GROUPS (6), CIMOM (7), CUSTOM (8), ROLLUP DATA (9), WMI REMOTE DATA (10), LOG FILE (11), JDBC (12), CONFIG DISCOVERY (13), NT EVENT LOG (14), FILTER (15), SNMP EVENT (16), PING (17), DIRECTOR DATA (18), DIRECTOR EVENT (19), SSH REMOTE SHELL COMMAND (20). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OBJECT\_TYPE or OBJTYPE (warehouse name), Object Type (caption), Object\_Type (attribute name), and OBJTYPE (column name).

**Query Name attribute**

The name of the attribute group. This attribute is a key attribute. The type is string.

The following names are defined for this attribute: QUERY\_NAME or ATTRGRP (warehouse name), Query Name (caption), Query\_Name (attribute name), and ATTRGRP (column name).

**Refresh Interval attribute**

The interval at which this group is refreshed in seconds. The type is integer (32-bit counter).

The following names are defined for this attribute: REFRESH\_INTERVAL or REFRINT (warehouse name), Refresh Interval (caption), Refresh\_Interval (attribute name), and REFRINT (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

## Resource Pool CPU attribute group

[Edit online](#)

This attribute group contains information about CPU metrics for resource pools. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

**CPU Usage attribute**

The CPU usage in MHz of all running child virtual machines including virtual machines in child resource pools. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_USAGE (warehouse name), CPU Usage (caption), CPU\_Usage (attribute name), and CPU\_USAGE (column name).

**Expandable attribute**

Indicates if the CPU reservation is permitted to grow beyond the specified configuration value when the parent resource pool has sufficient unreserved CPU resource. The type is integer with enumerated values. The following values are defined: Yes (1), No (0). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: EXPANDABLE (warehouse name), Expandable (caption), Expandable (attribute name), and EXPANDABLE (column name).

**Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDISO (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDISO (column name).

**Include Data In Summarization 1 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Percent\_Overall\_Usage} < 0) \parallel (\text{Max\_Usage} < 0) \parallel (\text{CPU\_Usage} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_1 or IDIS1 (warehouse name), Include Data In Summarization 1 (caption), Include\_Data\_In\_Summarization\_1 (attribute name), and IDIS1 (column name).

#### **Include Data In Summarization 2 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Reservation\_Used} < 0) \parallel (\text{Percent\_Reserved\_VMs} < 0) \parallel (\text{Reservation\_Used\_VM} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_2 or IDIS2 (warehouse name), Include Data In Summarization 2 (caption), Include\_Data\_In\_Summarization\_2 (attribute name), and IDIS2 (column name).

#### **Include Data In Summarization 3 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Unreserved} < 0) \parallel (\text{Unreserved\_VM} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_3 or IDIS3 (warehouse name), Include Data In Summarization 3 (caption), Include\_Data\_In\_Summarization\_3 (attribute name), and IDIS3 (column name).

#### **Limit attribute**

The configured upper limit of CPU resources in MHz that this resource pool can get even if there are sufficient resources that would otherwise permit the limit to be higher. A value of -1 indicates that there is no limit. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-2), No limit (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: LIMIT (warehouse name), Limit (caption), Limit (attribute name), and LIMIT (column name).

#### **Max Usage attribute**

The current upper bound on CPU usage in MHz. This limit is based on the limit that is configured for the resource pool and the limits that are configured for all parent resource pools. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MAX\_USAGE (warehouse name), Max Usage (caption), Max\_Usage (attribute name), and MAX\_USAGE (column name).

#### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

#### **NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).



**Parent Name attribute**

The name of the parent of this resource pool. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PARENT\_NAME or PN (warehouse name), Parent Name (caption), Parent\_Name (attribute name), and PN (column name).

**Percent Overall Usage attribute**

The percentage of CPU resources being used relative to the maximum amount currently available. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_OVERALL\_USAGE or POU (warehouse name), Percent Overall Usage (caption), Percent\_Overall\_Usage (attribute name), and POU (column name).

**Percent Reserved VMs attribute**

The percentage of CPU resources that are reserved for virtual machines. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_RESERVED\_VMS or PRV (warehouse name), Percent Reserved VMs (caption), Percent\_Reserved\_VMs (attribute name), and PRV (column name).

**Pool Name attribute**

The name of this resource pool. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: POOL\_NAME (warehouse name), Pool Name (caption), Pool\_Name (attribute name), and POOL\_NAME (column name).

**Reservation attribute**

The amount of CPU resource in MHz that is guaranteed to be available to the resource pool. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: RESERVATION or R (warehouse name), Reservation (caption), Reservation (attribute name), and R (column name).

**Reservation Used attribute**

The total amount of CPU resources in MHz that have been used to satisfy the reservation requirements of all descendants of this resource pool. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: RESERVATION\_USED or RU (warehouse name), Reservation Used (caption), Reservation\_Used (attribute name), and RU (column name).

**Reservation Used VM attribute**

The total amount of CPU resources in MHz that have been used to satisfy the reservations of running virtual machines in this resource pool and its descendants. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: RESERVATION\_USED\_VM or RUV (warehouse name), Reservation Used VM (caption), Reservation\_Used\_VM (attribute name), and RUV (column name).

**Server Hostname attribute**

The host name of the ESX server. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SERVER\_HOSTNAME or SH (warehouse name), Server Hostname (caption), Server\_Hostname (attribute name), and SH (column name).

#### **Share Level attribute**

The named level for the defined number of shares. This level corresponds to the Shares attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SHARE\_LEVEL or SL (warehouse name), Share Level (caption), Share\_Level (attribute name), and SL (column name).

#### **Shares attribute**

The relative weighting of CPU allocations given to this resource pool in actual numeric form. This attribute is only applicable when the shares level is defined as custom. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-2), Not applicable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SHARES (warehouse name), Shares (caption), Shares (attribute name), and SHARES (column name).

#### **Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

#### **Unreserved attribute**

The total amount of CPU resources in MHz available to satisfy a reservation for child resource pool. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: UNRESERVED (warehouse name), Unreserved (caption), Unreserved (attribute name), and UNRESERVED (column name).

#### **Unreserved VM attribute**

The total amount of CPU resources available in MHz to satisfy a reservation for a child virtual machine. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: UNRESERVED\_VM or UV (warehouse name), Unreserved VM (caption), Unreserved\_VM (attribute name), and UV (column name).

## **Resource Pool General attribute group**

[Edit online](#)

This attribute group contains information about general metrics and the configuration of resource pools. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

#### **CPU Usage attribute**

The CPU usage in MHz of all running child virtual machines including virtual machines in child resource pools. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_USAGE (warehouse name), CPU Usage (caption), CPU\_Usage (attribute name), and CPU\_USAGE (column name).

**Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Number\_Child\_Pools} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDIS0 (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDIS0 (column name).

**Include Data In Summarization 1 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{CPU\_Usage} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_1 or IDIS1 (warehouse name), Include Data In Summarization 1 (caption), Include\_Data\_In\_Summarization\_1 (attribute name), and IDIS1 (column name).

**Include Data In Summarization 2 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Memory\_Usage} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_2 or IDIS2 (warehouse name), Include Data In Summarization 2 (caption), Include\_Data\_In\_Summarization\_2 (attribute name), and IDIS2 (column name).

**Memory Usage attribute**

The memory usage in MB of all running child virtual machines including virtual machines in child resource pools. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEMORY\_USAGE or MU (warehouse name), Memory Usage (caption), Memory\_Usage (attribute name), and MU (column name).

**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

**Number Child Pools attribute**

The number of resource pools that are immediate children of this resource pool. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_CHILD\_POOLS or NCP (warehouse name), Number Child Pools (caption), Number\_Child\_Pools (attribute name), and NCP (column name).

**Number VMs attribute**

The number of virtual machines that are children of this resource pool including virtual machines in child resource pools. The type is integer (32-bit gauge) with enumerated values. The following values

are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_VMS (warehouse name), Number VMs (caption), Number\_VMs (attribute name), and NUMBER\_VMS (column name).

#### **Number VMs On attribute**

The number of virtual machines that are children of this resource pool including virtual machines in child resource pools that are powered on. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_VMS\_ON or NVO (warehouse name), Number VMs On (caption), Number\_VMs\_On (attribute name), and NVO (column name).

#### **Overall Status attribute**

The overall status indication of this resource pool. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable), red (red), yellow (yellow), green (green), gray (gray). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: STATUS (warehouse name), Overall Status (caption), Status (attribute name), and STATUS (column name).

#### **Parent Name attribute**

The name of the parent of this resource pool. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PARENT\_NAME or PN (warehouse name), Parent Name (caption), Parent\_Name (attribute name), and PN (column name).

#### **Pool Name attribute**

The name of this resource pool. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: POOL\_NAME (warehouse name), Pool Name (caption), Pool\_Name (attribute name), and POOL\_NAME (column name).

#### **Server Hostname attribute**

The host name of the ESX server. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SERVER\_HOSTNAME or SH (warehouse name), Server Hostname (caption), Server\_Hostname (attribute name), and SH (column name).

#### **Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

## **Resource Pool Memory attribute group**

[Edit online](#)

This attribute group contains information about memory metrics for resource pools. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

#### **Expandable attribute**

Indicates if the memory reservation is permitted to grow beyond the specified configuration value when the parent resource pool has sufficient unreserved CPU resource. The type is integer with enumerated values. The following values are defined: Yes (1), No (0). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: EXPANDABLE (warehouse name), Expandable (caption), Expandable (attribute name), and EXPANDABLE (column name).

#### **Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDISO (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDISO (column name).

#### **Include Data In Summarization 1 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Memory\_Usage < 0) || (Max\_Usage < 0) || (Percent\_Overall\_Usage < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_1 or IDIS1 (warehouse name), Include Data In Summarization 1 (caption), Include\_Data\_In\_Summarization\_1 (attribute name), and IDIS1 (column name).

#### **Include Data In Summarization 2 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Reservation\_Used < 0) || (Reservation\_Used\_VM < 0) || (Percent\_Reserved\_VMs < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_2 or IDIS2 (warehouse name), Include Data In Summarization 2 (caption), Include\_Data\_In\_Summarization\_2 (attribute name), and IDIS2 (column name).

#### **Include Data In Summarization 3 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Unreserved < 0) || (Unreserved\_VM < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_3 or IDIS3 (warehouse name), Include Data In Summarization 3 (caption), Include\_Data\_In\_Summarization\_3 (attribute name), and IDIS3 (column name).

#### **Limit attribute**

The configured upper limit of memory resources in MB that this resource pool can get even if there are sufficient resources that would otherwise permit the limit to be higher. A value of -1 indicates that there is no limit. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-2), No limit (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: LIMIT (warehouse name), Limit (caption), Limit (attribute name), and LIMIT (column name).

**Max Usage attribute**

The current upper bound on memory usage in MB. This value is based on the limit configured for this resource pool and the limits configured for all parent resource pools. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MAX\_USAGE (warehouse name), Max Usage (caption), Max\_Usage (attribute name), and MAX\_USAGE (column name).

**Memory Usage attribute**

The memory usage in MB of all running child virtual machines including virtual machines in child resource pools. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEMORY\_USAGE or MU (warehouse name), Memory Usage (caption), Memory\_Usage (attribute name), and MU (column name).

**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

**Parent Name attribute**

The name of the parent of this resource pool. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PARENT\_NAME or PN (warehouse name), Parent Name (caption), Parent\_Name (attribute name), and PN (column name).

**Percent Overall Usage attribute**

The percentage of memory resources being used relative to the maximum amount currently available. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_OVERALL\_USAGE or POU (warehouse name), Percent Overall Usage (caption), Percent\_Overall\_Usage (attribute name), and POU (column name).

**Percent Reserved VMs attribute**

The percentage of memory resources that are reserved for virtual machines. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_RESERVED\_VMS or PRV (warehouse name), Percent Reserved VMs (caption), Percent\_Reserved\_VMs (attribute name), and PRV (column name).

**Pool Name attribute**

The name of this resource pool. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: POOL\_NAME (warehouse name), Pool Name (caption), Pool\_Name (attribute name), and POOL\_NAME (column name).

**Reservation attribute**

The amount of memory resource in MB that is guaranteed to be available to the resource pool. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: RESERVATION or R (warehouse name), Reservation (caption), Reservation (attribute name), and R (column name).

**Reservation Used attribute**

The total amount of memory resources in MB that have been used to satisfy the reservation requirements of all descendants of this resource pool. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: RESERVATION\_USED or RU (warehouse name), Reservation Used (caption), Reservation\_Used (attribute name), and RU (column name).

**Reservation Used VM attribute**

The total amount of memory resources in MB that have been used to satisfy the reservations of running virtual machines in this resource pool and its descendants. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: RESERVATION\_USED\_VM or RUV (warehouse name), Reservation Used VM (caption), Reservation\_Used\_VM (attribute name), and RUV (column name).

**Server Hostname attribute**

The host name of the ESX server. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SERVER\_HOSTNAME or SH (warehouse name), Server Hostname (caption), Server\_Hostname (attribute name), and SH (column name).

**Share Level attribute**

The named level for the defined number of shares. This value corresponds to the Shares attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SHARE\_LEVEL or SL (warehouse name), Share Level (caption), Share\_Level (attribute name), and SL (column name).

**Shares attribute**

The relative weighting of memory allocations given to this resource pool. This attribute is applicable only when the shares level is defined as custom. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-2), Not applicable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SHARES (warehouse name), Shares (caption), Shares (attribute name), and SHARES (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

**Unreserved attribute**

The total amount of memory resources in MB available to satisfy a reservation for a child resource pool. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: UNRESERVED (warehouse name), Unreserved (caption), Unreserved (attribute name), and UNRESERVED (column name).

#### **Unreserved VM attribute**

The total amount of memory resources available in MB to satisfy a reservation for a child virtual machine. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: UNRESERVED\_VM or UV (warehouse name), Unreserved VM (caption), Unreserved\_VM (attribute name), and UV (column name).

## **Server attribute group**

[Edit online](#)

This attribute group contains basic information about an ESX server. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

#### **Average VM CPU Percent Ready attribute**

The average of all CPU percent ready values for all the virtual machines on this ESX server. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: AVG\_VM\_CPU\_PERCENT\_RDY or AVCPR (warehouse name), Average VM CPU Percent Ready (caption), Avg\_VM\_CPU\_Percent\_Rdy (attribute name), and AVCPR (column name).

#### **BIOS Date attribute**

The date of release for this system's BIOS. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: BIOS\_DATE (warehouse name), BIOS Date (caption), BIOS\_Date (attribute name), and BIOS\_DATE (column name).

#### **Build number attribute**

The VMware product build number for the installed level of ESX. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: BUILD\_NUMBER or BN (warehouse name), Build number (caption), Build\_number (attribute name), and BN (column name).

#### **capacity attribute**

The total capacity of the vFlash resource in MB(Megabytes) connected to this server. The type is integer (64-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CAPACITY (warehouse name), capacity (caption), Capacity (attribute name), and CAPACITY (column name).

#### **Capacity For Vm Cache attribute**

The total capacity of vFlash resource in MB(Megabytes) that can be allocated for VM caches. The type is integer (64-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CAPACITYFORVMCACHE or C (warehouse name), Capacity For Vm Cache (caption), CapacityForVmCache (attribute name), and C (column name).



**CloneFrom Snapshot Supported attribute**

Indicates whether cloning a virtual machine from a snapshot point is allowed. The type is integer with enumerated values. The following values are defined: True (1), False (0). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CLONEFROMSNAPSHOT\_SUPPORTED or CS0 (warehouse name), CloneFrom Snapshot Supported (caption), CloneFromSnapshot\_Supported (attribute name), and CS0 (column name).

**Cluster attribute**

The name of the cluster that this server is a member of or unavailable if not a member of any cluster. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CLUSTER (warehouse name), Cluster (caption), Cluster (attribute name), and CLUSTER (column name).

**Connection State attribute**

The connection state of the server. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable), connected (connected), disconnected (disconnected), notResponding (notResponding). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CONNECTION\_STATE or CS (warehouse name), Connection State (caption), Connection\_State (attribute name), and CS (column name).

**CPU Packages attribute**

The number of CPU packages for this host. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_PACKAGES or CP (warehouse name), CPU Packages (caption), CPU\_Packages (attribute name), and CP (column name).

**Current EVC Mode attribute**

The current Enhanced VMotion Compatibility (EVC) mode of the host system. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CURRENT\_EVC\_MODE or CEM (warehouse name), Current EVC Mode (caption), Current\_EVC\_Mode (attribute name), and CEM (column name).

**Datacenter attribute**

The name of the data center for this server. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

**Datacenter MORef attribute**

The internal managed object reference name of the data center for this server. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER\_MOREF or DM (warehouse name), Datacenter MORef (caption), Datacenter\_MORef (attribute name), and DM (column name).

**Datastore Space attribute**

The total capacity in GB of the data stores connected to this server. This is across all of the data stores that this server is configured to use. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATASTORE\_SPACE or DS (warehouse name), Datastore Space (caption), Datastore\_Space (attribute name), and DS (column name).

#### **Datastore Used attribute**

The total amount of datastore storage in GB that is actually in use by this server. This is across all of the data stores that this server is configured to use. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: USED\_DATASTORE or UD (warehouse name), Datastore Used (caption), Used\_Datastore (attribute name), and UD (column name).

#### **Demand attribute**

The average active CPU load (in MHz) for the last minute. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DEMAND (warehouse name), Demand (caption), Demand (attribute name), and DEMAND (column name).

#### **Energy Usage attribute**

The amount of energy (in joules) that is used since the host system was started. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: ENERGY\_USAGE or EU (warehouse name), Energy Usage (caption), Energy\_Usage (attribute name), and EU (column name).

#### **Fault Tolerance Supported attribute**

Indicates whether the host supports fault tolerance. The type is integer with enumerated values. The following values are defined: True (1), False (0). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: FT\_SUPPORTED or FS (warehouse name), Fault Tolerance Supported (caption), FT\_Supported (attribute name), and FS (column name).

#### **Fully Qualified Name attribute**

This host's fully qualified name. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: FULLY\_QUALIFIED\_NAME or FQN (warehouse name), Fully Qualified Name (caption), Fully\_Qualified\_Name (attribute name), and FQN (column name).

#### **HBA Count attribute**

The number of Host Bus Adapters (HBAs). The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_HBA (warehouse name), HBA Count (caption), Number\_HBA (attribute name), and NUMBER\_HBA (column name).

#### **HyperThreading Enabled attribute**

Whether hyperthreading is enabled on this server. The type is integer with enumerated values. The following values are defined: Yes (1), No (0), Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: HYPERTHREADING\_ENABLED or HE (warehouse name), HyperThreading Enabled (caption), HyperThreading\_Enabled (attribute name), and HE (column name).

**Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Number\_VMs} < 0) \parallel (\text{Number\_VMs\_On} < 0)? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDIS0 (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDIS0 (column name).

**Include Data In Summarization 1 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{NICs} < 0) \parallel (\text{Physical\_CPUs} < 0) \parallel (\text{CPU\_Packages} < 0) \parallel (\text{Physical\_Memory} < 0)? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_1 or IDIS1 (warehouse name), Include Data In Summarization 1 (caption), Include\_Data\_In\_Summarization\_1 (attribute name), and IDIS1 (column name).

**Include Data In Summarization 2 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Overall\_CPU\_Util} < 0) \parallel (\text{Avg\_VM\_CPU\_Percent\_Rdy} < 0)? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_2 or IDIS2 (warehouse name), Include Data In Summarization 2 (caption), Include\_Data\_In\_Summarization\_2 (attribute name), and IDIS2 (column name).

**Include Data In Summarization 3 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Used\_Datastore} < 0)? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_3 or IDIS3 (warehouse name), Include Data In Summarization 3 (caption), Include\_Data\_In\_Summarization\_3 (attribute name), and IDIS3 (column name).

**Include Data In Summarization 4 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Latency} < 0) \parallel (\text{Demand} < 0)? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_4 or IDIS4 (warehouse name), Include Data In Summarization 4 (caption), Include\_Data\_In\_Summarization\_4 (attribute name), and IDIS4 (column name).

**Include Data In Summarization 5 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Energy\_Usage} < 0) \parallel (\text{Power\_Usage} < 0) \parallel (\text{Power\_Capacity} < 0)? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_5 or IDIS5 (warehouse name), Include Data In Summarization 5 (caption), Include\_Data\_In\_Summarization\_5 (attribute name), and IDIS5 (column name).

#### **Include Data In Summarization 6 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Overall\_Memory\_Util < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_6 or IDIS6 (warehouse name), Include Data In Summarization 6 (caption), Include\_Data\_In\_Summarization\_6 (attribute name), and IDIS6 (column name).

#### **Include Data In Summarization 7 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Total\_VM\_Configured\_Memory < 0) || (Total\_VM\_Provisioned\_Space < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_7 or IDIS7 (warehouse name), Include Data In Summarization 7 (caption), Include\_Data\_In\_Summarization\_7 (attribute name), and IDIS7 (column name).

#### **Include Data In Summarization 8 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Storage\_Adapter\_Max\_Latency < 0) || (Storage\_Path\_Max\_Latency < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_8 or IDIS8 (warehouse name), Include Data In Summarization 8 (caption), Include\_Data\_In\_Summarization\_8 (attribute name), and IDIS8 (column name).

#### **Include Data In Summarization 9 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Used\_CPU\_MHz < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_9 or IDIS9 (warehouse name), Include Data In Summarization 9 (caption), Include\_Data\_In\_Summarization\_9 (attribute name), and IDIS9 (column name).

#### **IP Address attribute**

The IP address of the host system. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: IP\_ADDRESS (warehouse name), IP Address (caption), IP\_Address (attribute name), and IP\_ADDRESS (column name).

#### **Latency attribute**

The amount of time (in percentage) that the resource pool waits in the ready state and is not scheduled because of a CPU resource contention. The type is real number (32-bit gauge) with two decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: LATENCY (warehouse name), Latency (caption), Latency (attribute name), and LATENCY (column name).

**Maintenance Mode attribute**

Whether this server is in maintenance mode. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1), No (0), Yes (1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MAINTENANCE\_MODE or MM (warehouse name), Maintenance Mode (caption), Maintenance\_Mode (attribute name), and MM (column name).

**Max EVC Mode attribute**

The maximum Enhanced VMotion Compatibility (EVC) mode of the host system. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MAX\_EVC\_MODE or MEM (warehouse name), Max EVC Mode (caption), Max\_EVC\_Mode (attribute name), and MEM (column name).

**NICs attribute**

The number of NIC interfaces on this server. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NICS (warehouse name), NICs (caption), NICs (attribute name), and NICS (column name).

**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

**Number VMs attribute**

The number of virtual machines configured on this server. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_VMS (warehouse name), Number VMs (caption), Number\_VMs (attribute name), and NUMBER\_VMS (column name).

**Number VMs On attribute**

The number of virtual machines configured on this server that are powered on. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_VMS\_ON or NVO (warehouse name), Number VMs On (caption), Number\_VMs\_On (attribute name), and NVO (column name).

**Overall CPU Util attribute**

The overall CPU usage of the server. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OVERALL\_CPU\_UTIL or OCU (warehouse name), Overall CPU Util (caption), Overall\_CPU\_Util (attribute name), and OCU (column name).

**Overall Memory Util attribute**

The overall memory usage of the server. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OVERALL\_MEMORY\_UTIL or OMU (warehouse name), Overall Memory Util (caption), Overall\_Memory\_Util (attribute name), and OMU (column name).

#### **Overall Status attribute**

An indicator of the overall status of the server. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable), red (red), yellow (yellow), green (green), gray (gray). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OVERALL\_STATUS or OS (warehouse name), Overall Status (caption), Overall\_Status (attribute name), and OS (column name).

#### **Performance Error Pct attribute**

The percentage of performance monitoring API calls against this host that failed during their last execution. The type is real number (32-bit gauge) with two decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERFORMANCE\_ERROR\_PCT or PEP (warehouse name), Performance Error Pct (caption), Performance\_Error\_Pct (attribute name), and PEP (column name).

#### **Performance Error Rate attribute**

The error rate of performance monitoring API calls against this host over a configured interval. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERFORMANCE\_ERROR\_RATE or PER (warehouse name), Performance Error Rate (caption), Performance\_Error\_Rate (attribute name), and PER (column name).

#### **Physical CPUs attribute**

The number of physical CPUs on this server. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PHYSICAL\_CPUS or PC (warehouse name), Physical CPUs (caption), Physical\_CPUs (attribute name), and PC (column name).

#### **Physical Memory attribute**

The amount of physical memory on this server in MB. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PHYSICAL\_MEMORY or PM (warehouse name), Physical Memory (caption), Physical\_Memory (attribute name), and PM (column name).

#### **Power Capacity attribute**

The maximum amount of power (in watts) that can be used. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: POWER\_CAPACITY or PC0 (warehouse name), Power Capacity (caption), Power\_Capacity (attribute name), and PC0 (column name).

#### **Power State attribute**

The power status of the host system. The valid values are POWERED\_OFF, POWERED\_ON, STAND\_BY, and UNKNOWN. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: POWER\_STATE or PS (warehouse name), Power State (caption), Power\_State (attribute name), and PS (column name).

**Power Usage attribute**

The amount of power (in watts) that is currently used. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: POWER\_USAGE or PU (warehouse name), Power Usage (caption), Power\_Usage (attribute name), and PU (column name).

**Processor Family attribute**

The processor family of this host's CPUs. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PROCESSOR\_FAMILY or PF (warehouse name), Processor Family (caption), Processor\_Family (attribute name), and PF (column name).

**Product attribute**

The VMware product string for the installed level of ESX. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PRODUCT (warehouse name), Product (caption), Product (attribute name), and PRODUCT (column name).

**Serial Number attribute**

The serial number of the hardware of the host system. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SERIAL\_NUMBER or SN (warehouse name), Serial Number (caption), Serial\_Number (attribute name), and SN (column name).

**Server Hostname attribute**

The host name of the ESX server. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SERVER\_HOSTNAME or SH (warehouse name), Server Hostname (caption), Server\_Hostname (attribute name), and SH (column name).

**SSH Status attribute**

The SSH service status of the ESX Server. The value Up indicates that the service is running. The value Down indicates that the service has stopped, Unknown Host indicates that the server is unreachable, and Unavailable indicates that the service status is unknown. The type is integer with enumerated values. The following values are defined: Unavailable (-1), Down (0), Up (1), Unknown Host (2). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SSH\_STATUS (warehouse name), SSH Status (caption), SSH\_Status (attribute name), and SSH\_STATUS (column name).

**Storage Adapter Max Latency attribute**

The highest latency (in milliseconds) across all the storage adapters that are used by the host. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: STORAGE\_ADAPTER\_MAX\_LATENCY or SAML (warehouse name), Storage Adapter Max Latency (caption), Storage\_Adapter\_Max\_Latency (attribute name), and SAML (column name).

**Storage Path Max Latency attribute**

The highest latency (in milliseconds) across all the storage paths that are used by the host. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: STORAGE\_PATH\_MAX\_LATENCY or SPML (warehouse name), Storage Path Max Latency (caption), Storage\_Path\_Max\_Latency (attribute name), and SPML (column name).

#### **System Model attribute**

The system model of this host. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SYSTEM\_MODEL or SM (warehouse name), System Model (caption), System\_Model (attribute name), and SM (column name).

#### **System Up Time attribute**

The number of seconds since the server was started. The type is default with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SYSTEM\_UP\_TIME or SUT (warehouse name), System Up Time (caption), System\_up\_time (attribute name), and SUT (column name).

#### **System Vendor attribute**

The system vendor of this host. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SYSTEM\_VENDOR or SV (warehouse name), System Vendor (caption), System\_Vendor (attribute name), and SV (column name).

#### **Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

#### **Total CPU MHz attribute**

The total amount of the CPU of the server in MHz. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TOTAL\_CPU\_MHZ or TCM (warehouse name), Total CPU MHz (caption), Total\_CPU\_MHz (attribute name), and TCM (column name).

#### **Total VM Configured Memory attribute**

The total amount of memory in GB configured for all VMs on this server, The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TOTAL\_VM\_CONFIGURED\_MEMORY or TVCM (warehouse name), Total VM Configured Memory (caption), Total\_VM\_Configured\_Memory (attribute name), and TVCM (column name).

#### **Total VM Provisioned Space attribute**

The total amount of space in GB, that has been provisioned for use by VMs on this server. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TOTAL\_VM\_PROVISIONED\_SPACE or TVPS (warehouse name), Total VM Provisioned Space (caption), Total\_VM\_Provisioned\_Space (attribute name), and TVPS (column name).



**usage attribute**

The total usage of vFlash resource in MB(Megabytes). The type is integer (64-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: USAGE (warehouse name), usage (caption), Usage (attribute name), and USAGE (column name).

**Used CPU MHz attribute**

The amount of the CPU (in MHz) that is used by the server. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: USED\_CPU\_MHZ or UCM (warehouse name), Used CPU MHz (caption), Used\_CPU\_MHz (attribute name), and UCM (column name).

**UUID attribute**

The UUID of the server. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: UUID (warehouse name), UUID (caption), UUID (attribute name), and UUID (column name).

**Version attribute**

The VMware product version for the installed level of ESX. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VERSION (warehouse name), Version (caption), Version (attribute name), and VERSION (column name).

**vMotion enabled attribute**

A flag to indicate whether vMotion is configured on this server. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable), Yes (Yes), No (No). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VMOTION\_ENABLED or VE (warehouse name), vMotion enabled (caption), vMotion\_enabled (attribute name), and VE (column name).

## Server CPU attribute group

[Edit online](#)

This attribute group contains information about CPU usage for a server. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

**Core Utilization attribute**

The percentage of the CPU core that is currently utilized. A core is utilized if either a single or both the logical CPU cores are utilized when hyper-threading is enabled. The type is real number (32-bit gauge) with two decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CORE\_UTILIZATION or CU0 (warehouse name), Core Utilization (caption), Core\_Utilization (attribute name), and CU0 (column name).

**CPU Number attribute**

The number of this CPU. This attribute is a key attribute. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_NUMBER (warehouse name), CPU Number (caption), CPU\_Number (attribute name), and CPU\_NUMBER (column name).

#### **CPU Utilization attribute**

The usage of this CPU. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_UTILIZATION or CU (warehouse name), CPU Utilization (caption), CPU\_Utilization (attribute name), and CU (column name).

#### **Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(CPU\_Utilization < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDIS0 (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDIS0 (column name).

#### **Include Data In Summarization 1 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(Core\_Utilization < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_1 or IDIS1 (warehouse name), Include Data In Summarization 1 (caption), Include\_Data\_In\_Summarization\_1 (attribute name), and IDIS1 (column name).

#### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

#### **NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

#### **Server Hostname attribute**

The host name of the ESX server. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SERVER\_HOSTNAME or SH (warehouse name), Server Hostname (caption), Server\_Hostname (attribute name), and SH (column name).

#### **Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

## Server DataStore attribute group

[Edit online](#)

This attribute group contains information about data stores for a server. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### Agent MSN attribute

This attribute is only for IBM-internal use. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The source for this attribute is derived: `getenv("KQZ_INSTANCE_NAME")`  
`+"."+getenv("CTIRA_HOSTNAME")+":VM"`

The following names are defined for this attribute: AGENT\_MSN (warehouse name), Agent MSN (caption), Agent\_MSN (attribute name), and AGENT\_MSN (column name).

### Capacity attribute

The storage capacity in MB. This metric does not apply to floppy or CD drives. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CAPACITY (warehouse name), Capacity (caption), Capacity (attribute name), and CAPACITY (column name).

### Datacenter attribute

The name of this datacenter. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

### Datastore MOREf attribute

The internal managed object reference name of this datastore. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATASTORE\_MOREF or DM (warehouse name), Datastore MOREf (caption), Datastore\_MOREf (attribute name), and DM (column name).

### Free Space attribute

The amount of available storage in MB. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: FREE\_SPACE (warehouse name), Free Space (caption), Free\_Space (attribute name), and FREE\_SPACE (column name).

### Include Data In Summarization 0 attribute

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: `(Free_Space < 0) || (Used_Space < 0) || (Percent_Used < 0) || (Percent_Free < 0)? 0 : 1`

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDISO (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDISO (column name).

**Include Data In Summarization 1 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Read\_Latency} < 0) \parallel (\text{Write\_Latency} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_1 or IDIS1 (warehouse name), Include Data In Summarization 1 (caption), Include\_Data\_In\_Summarization\_1 (attribute name), and IDIS1 (column name).

**Maximum File Size attribute**

The maximum size in KB of a file that might be allocated. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1), > 2048GB (-2). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MAXIMUM\_FILE\_SIZE or MFS (warehouse name), Maximum File Size (caption), Maximum\_File\_Size (attribute name), and MFS (column name).

**Name attribute**

The name of the data store. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NAME (warehouse name), Name (caption), Name (attribute name), and NAME (column name).

**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

**Overall Status attribute**

The overall status for this alarm. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OVERALL\_STATUS or OS (warehouse name), Overall Status (caption), Overall\_Status (attribute name), and OS (column name).

**Percent Free attribute**

The percentage of unused space in this data store. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_FREE or PF (warehouse name), Percent Free (caption), Percent\_Free (attribute name), and PF (column name).

**Percent Used attribute**

The percentage of used space in the data store. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_USED or PU (warehouse name), Percent Used (caption), Percent\_Used (attribute name), and PU (column name).

**Read Latency attribute**

The average amount of time (in milliseconds) taken for a read operation from the datastore. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: READ\_LATENCY or RL (warehouse name), Read Latency (caption), Read\_Latency (attribute name), and RL (column name).

**Server Hostname attribute**

The host name of the ESX server. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SERVER\_HOSTNAME or SH (warehouse name), Server Hostname (caption), Server\_Hostname (attribute name), and SH (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

**Type attribute**

The file system type of this data store: NFS or VMFS. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TYPE (warehouse name), Type (caption), Type (attribute name), and TYPE (column name).

**Used Space attribute**

The amount of allocated storage in MB. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: USED\_SPACE (warehouse name), Used Space (caption), Used\_Space (attribute name), and USED\_SPACE (column name).

**Write Latency attribute**

The average amount of time (in milliseconds) taken for a write operation from the datastore. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: WRITE\_LATENCY or WL (warehouse name), Write Latency (caption), Write\_Latency (attribute name), and WL (column name).

## Server Disk attribute group

[Edit online](#)

This attribute group contains information about disk usage for a server. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

**Backing Datastore attribute**

The name of the data store that backs this server disk if there is one. The type is string with enumerated values. The following values are defined: Not Applicable (Not Applicable), Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: BACKING\_DATASTORE or BD (warehouse name), Backing Datastore (caption), Backing\_Datastore (attribute name), and BD (column name).

**BUS Resets attribute**

The number of bus resets in the performance interval. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: BUS\_RESETS (warehouse name), BUS Resets (caption), BUS\_Resets (attribute name), and BUS\_RESETS (column name).

**Commands attribute**

The number of disk commands issued during the performance interval. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: COMMANDS (warehouse name), Commands (caption), Commands (attribute name), and COMMANDS (column name).

**Commands Aborted attribute**

The number of disk commands stopped during the performance interval. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: COMMANDS\_ABORTED or CA (warehouse name), Commands Aborted (caption), Commands\_Aborted (attribute name), and CA (column name).

**Device Latency attribute**

The average amount of time in milliseconds to complete an operation by the physical device. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DEVICE\_LATENCY or DL (warehouse name), Device Latency (caption), Device\_Latency (attribute name), and DL (column name).

**Device Read Latency attribute**

The average amount of time in milliseconds that a read operation took by the physical device. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DEVICE\_READ\_LATENCY or DRL (warehouse name), Device Read Latency (caption), Device\_Read\_Latency (attribute name), and DRL (column name).

**Device Total Latency attribute**

The sum of the average amount of time in milliseconds to complete read and write operations by the physical device. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DEVICE\_TOTAL\_LATENCY or DTL (warehouse name), Device Total Latency (caption), Device\_Total\_Latency (attribute name), and DTL (column name).

**Device Write Latency attribute**

The average amount of time in milliseconds that a write operation took by the physical device. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DEVICE\_WRITE\_LATENCY or DWL (warehouse name), Device Write Latency (caption), Device\_Write\_Latency (attribute name), and DWL (column name).

**Disk Name attribute**

The name of a virtual disk on the server. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DISK\_NAME (warehouse name), Disk Name (caption), Disk\_Name (attribute name), and DISK\_NAME (column name).

#### **Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(Write < 0) \parallel (Number\_Write < 0)? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDIS0 (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDIS0 (column name).

#### **Include Data In Summarization 1 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(Device\_Latency < 0) \parallel (Device\_Total\_Latency < 0)? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_1 or IDIS1 (warehouse name), Include Data In Summarization 1 (caption), Include\_Data\_In\_Summarization\_1 (attribute name), and IDIS1 (column name).

#### **Include Data In Summarization 2 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(Kernel\_Latency < 0) \parallel (Kernel\_Total\_Latency < 0)? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_2 or IDIS2 (warehouse name), Include Data In Summarization 2 (caption), Include\_Data\_In\_Summarization\_2 (attribute name), and IDIS2 (column name).

#### **Include Data In Summarization 3 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(Queue\_Latency < 0) \parallel (Queue\_Total\_Latency < 0)? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_3 or IDIS3 (warehouse name), Include Data In Summarization 3 (caption), Include\_Data\_In\_Summarization\_3 (attribute name), and IDIS3 (column name).

#### **Include Data In Summarization 4 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(Total\_Read\_Latency < 0) \parallel (Device\_Read\_Latency < 0) \parallel (Kernel\_Read\_Latency < 0)? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_4 or IDIS4 (warehouse name), Include Data In Summarization 4 (caption), Include\_Data\_In\_Summarization\_4 (attribute name), and IDIS4 (column name).

#### **Include Data In Summarization 5 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(Total\_Write\_Latency < 0) \parallel (Device\_Write\_Latency < 0) \parallel (Kernel\_Write\_Latency < 0)? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_5 or IDIS5 (warehouse name), Include Data In Summarization 5 (caption), Include\_Data\_In\_Summarization\_5 (attribute name), and IDIS5 (column name).

#### **Include Data In Summarization 6 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(Total\_Latency < 0) \parallel (Queue\_Read\_Latency < 0) \parallel (Queue\_Write\_Latency < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_6 or IDIS6 (warehouse name), Include Data In Summarization 6 (caption), Include\_Data\_In\_Summarization\_6 (attribute name), and IDIS6 (column name).

#### **Include Data In Summarization 7 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(Read < 0) \parallel (Number\_Read < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_7 or IDIS7 (warehouse name), Include Data In Summarization 7 (caption), Include\_Data\_In\_Summarization\_7 (attribute name), and IDIS7 (column name).

#### **Kernel Latency attribute**

The average amount of time in milliseconds to complete an operation by the VMware kernel. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: KERNEL\_LATENCY or KL (warehouse name), Kernel Latency (caption), Kernel\_Latency (attribute name), and KL (column name).

#### **Kernel Read Latency attribute**

The average amount of time in milliseconds that a read operation took by the VMware kernel. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: KERNEL\_READ\_LATENCY or KRL (warehouse name), Kernel Read Latency (caption), Kernel\_Read\_Latency (attribute name), and KRL (column name).

#### **Kernel Total Latency attribute**

The sum of the average amount of time in milliseconds to complete read and write an operations by the VMware kernel. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: KERNEL\_TOTAL\_LATENCY or KTL (warehouse name), Kernel Total Latency (caption), Kernel\_Total\_Latency (attribute name), and KTL (column name).

#### **Kernel Write Latency attribute**

The average amount of time in milliseconds that a write operation took by the VMware kernel. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: KERNEL\_WRITE\_LATENCY or KWL (warehouse name), Kernel Write Latency (caption), Kernel\_Write\_Latency (attribute name), and KWL (column name).

#### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.



The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

#### **NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

#### **Number Read attribute**

The number of read operations on the disk in the performance interval. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_READ or NR (warehouse name), Number Read (caption), Number\_Read (attribute name), and NR (column name).

#### **Number Write attribute**

The number of write operations on the disk in the performance interval. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_WRITE or NW (warehouse name), Number Write (caption), Number\_Write (attribute name), and NW (column name).

#### **Queue Latency attribute**

The average amount of time in milliseconds spent in the queue for the VMware kernel per IO command. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: QUEUE\_LATENCY or QL (warehouse name), Queue Latency (caption), Queue\_Latency (attribute name), and QL (column name).

#### **Queue Read Latency attribute**

The average amount of time in milliseconds that a read operation spent in the queue for the VMware kernel. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: QUEUE\_READ\_LATENCY or QRL (warehouse name), Queue Read Latency (caption), Queue\_Read\_Latency (attribute name), and QRL (column name).

#### **Queue Total Latency attribute**

The sum of the average amount of time in milliseconds spent in the queue for reads and writes in the VMware kernel per IO command. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: QUEUE\_TOTAL\_LATENCY or QTL (warehouse name), Queue Total Latency (caption), Queue\_Total\_Latency (attribute name), and QTL (column name).

#### **Queue Write Latency attribute**

The average amount of time in milliseconds that a write operation spent in the queue for the VMware kernel. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: QUEUE\_WRITE\_LATENCY or QWL (warehouse name), Queue Write Latency (caption), Queue\_Write\_Latency (attribute name), and QWL (column name).

**Read attribute**

The amount of data read in the interval for this disk in KBps. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: READ (warehouse name), Read (caption), Read (attribute name), and READ (column name).

**Server Hostname attribute**

The host name of the ESX server. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SERVER\_HOSTNAME or SH (warehouse name), Server Hostname (caption), Server\_Hostname (attribute name), and SH (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

**Total Latency attribute**

The average total amount of time spent on an IO operation for both the physical and kernel layers. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TOTAL\_LATENCY or TL (warehouse name), Total Latency (caption), Total\_Latency (attribute name), and TL (column name).

**Total Read Latency attribute**

The average total amount of time in milliseconds spent on a read operation for both the physical and kernel layers. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TOTAL\_READ\_LATENCY or TRL (warehouse name), Total Read Latency (caption), Total\_Read\_Latency (attribute name), and TRL (column name).

**Total Write Latency attribute**

The average total amount of time in milliseconds spent on a write operation for both the physical and kernel layers. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TOTAL\_WRITE\_LATENCY or TWL (warehouse name), Total Write Latency (caption), Total\_Write\_Latency (attribute name), and TWL (column name).

**Write attribute**

The amount of data written in the interval for this disk in KB per second. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: WRITE (warehouse name), Write (caption), Write (attribute name), and WRITE (column name).

## Server HBA attribute group

[Edit online](#)

This attribute group contains information about the host bus adapters (HBA) of the server. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### Bus attribute

The bus number of this HBA. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: BUS (warehouse name), Bus (caption), Bus (attribute name), and BUS (column name).

### Current Link Speed attribute

The current operating link speed (in megabits per second) of the port. This attribute is available for the HostInternetScsiHba HBA type. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CURRENT\_LINK\_SPEED or CLS (warehouse name), Current Link Speed (caption), Current\_Link\_Speed (attribute name), and CLS (column name).

### Device attribute

The device name of this HBA. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DEVICE (warehouse name), Device (caption), Device (attribute name), and DEVICE (column name).

### Driver attribute

The driver being used for this HBA. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DRIVER (warehouse name), Driver (caption), Driver (attribute name), and DRIVER (column name).

### HBA Type attribute

The type of Host Bus Adapter (HBA). The valid values are HostBlockHba, HostFibreChannelHba, HostInternetScsiHba, and HostParallelScsiHba. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: HBA\_TYPE (warehouse name), HBA Type (caption), HBA\_Type (attribute name), and HBA\_TYPE (column name).

### Include Data In Summarization 0 attribute

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Read < 0 ) || (Write < 0 ) || (Read\_Latency < 0 ) || (Write\_Latency < 0 )? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDISO (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDISO (column name).

**Include Data In Summarization 1 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Storage\_Adapter\_Throughput\_Usage} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_1 or IDIS1 (warehouse name), Include Data In Summarization 1 (caption), Include\_Data\_In\_Summarization\_1 (attribute name), and IDIS1 (column name).

**Max Link Speed attribute**

The maximum supported link speed (in megabits per second) of the port. This attribute is available for the HostInternetScsiHba HBA type. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MAX\_LINK\_SPEED or MLS (warehouse name), Max Link Speed (caption), Max\_Link\_Speed (attribute name), and MLS (column name).

**Model attribute**

The model string for this HBA. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MODEL (warehouse name), Model (caption), Model (attribute name), and MODEL (column name).

**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

**PCI ID attribute**

The PCI ID for this HBA. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PCI\_ID (warehouse name), PCI ID (caption), PCI\_ID (attribute name), and PCI\_ID (column name).

**Read attribute**

The average amount of data that is read (in KB per second) by the storage adapter. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: READ (warehouse name), Read (caption), Read (attribute name), and READ (column name).

**Read Latency attribute**

The average amount of time (in milliseconds) over a given sample interval that the storage adapter consumes for a read operation to complete. This average amount of time is the sum of kernel latency and device latency. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: READ\_LATENCY or RL (warehouse name), Read Latency (caption), Read\_Latency (attribute name), and RL (column name).

#### **Server Hostname attribute**

The host name of the ESX server. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SERVER\_HOSTNAME or SH (warehouse name), Server Hostname (caption), Server\_Hostname (attribute name), and SH (column name).

#### **Speed attribute**

The current operating speed (in KB per second) of the adapter. This attribute is available for the HostFibreChannelHba HBA type. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SPEED (warehouse name), Speed (caption), Speed (attribute name), and SPEED (column name).

#### **Status attribute**

The operational status for this HBA. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: STATUS (warehouse name), Status (caption), Status (attribute name), and STATUS (column name).

#### **Storage Adapter Throughput Usage attribute**

The I/O rate (in KB per second) of the storage adapter. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: STORAGE\_ADAPTER\_THROUGHPUT\_USAGE or SATU (warehouse name), Storage Adapter Throughput Usage (caption), Storage\_Adapter\_Throughput\_Usage (attribute name), and SATU (column name).

#### **Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

#### **Write attribute**

The average amount of data that is written (in KB per second) by the storage adapter. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: WRITE (warehouse name), Write (caption), Write (attribute name), and WRITE (column name).

#### **Write Latency attribute**

The average amount of time (in milliseconds) over a given sample interval that the storage adapter consumes for a write operation to complete. This average amount of time is the sum of kernel latency and device latency. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: WRITE\_LATENCY or WL (warehouse name), Write Latency (caption), Write\_Latency (attribute name), and WL (column name).

## Server Health attribute group

[Edit online](#)

This attribute group contains ESX server health information. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### Node attribute

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

### NodeID attribute

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

### Sensor Name attribute

The name of the sensor. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SENSOR\_NAME or SN (warehouse name), Sensor Name (caption), Sensor\_Name (attribute name), and SN (column name).

### Sensor Status attribute

The operational status of the sensor. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SENSOR\_STATUS or SS (warehouse name), Sensor Status (caption), Sensor\_Status (attribute name), and SS (column name).

### Sensor Type attribute

The type of sensor. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SENSOR\_TYPE or ST (warehouse name), Sensor Type (caption), Sensor\_Type (attribute name), and ST (column name).

### Sensor Units attribute

The units of Sensor\_Value. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable), Not applicable (Not applicable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SENSOR\_UNITS or SU (warehouse name), Sensor Units (caption), Sensor\_Units (attribute name), and SU (column name).

### Sensor Value attribute

The value of the sensor. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-2147483648), Not applicable (-2147483647). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SENSOR\_VALUE or SV (warehouse name), Sensor Value (caption), Sensor\_Value (attribute name), and SV (column name).

### **Server Hostname attribute**

The host name of the ESX server. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SERVER\_HOSTNAME or SH (warehouse name), Server Hostname (caption), Server\_Hostname (attribute name), and SH (column name).

### **Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

## **Server Memory attribute group**

[Edit online](#)

This attribute group contains information about memory usage for a server. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### **Active Memory attribute**

The amount of memory that is actively used in KB. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: ACTIVE\_MEMORY or AM (warehouse name), Active Memory (caption), Active\_Memory (attribute name), and AM (column name).

### **Active Write attribute**

The amount of memory (in KB) that is written to disk. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: ACTIVE\_WRITE or AW (warehouse name), Active Write (caption), Active\_Write (attribute name), and AW (column name).

### **Balloon Used attribute**

The amount of memory used by the virtual machine memory control system in KB. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: BALLOON\_USED or BU (warehouse name), Balloon Used (caption), Balloon\_Used (attribute name), and BU (column name).

### **Free Memory attribute**

The amount of physical memory that is currently free in MB. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: FREE\_MEMORY or FM (warehouse name), Free Memory (caption), Free\_Memory (attribute name), and FM (column name).

### **Granted Max Memory attribute**

The maximum amount of memory (in KB) that can be used by the virtual machine. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: GRANTED\_MAX\_MEMORY or GMM (warehouse name), Granted Max Memory (caption), Granted\_Max\_Memory (attribute name), and GMM (column name).

#### **Granted Memory attribute**

The amount of memory available for use in KB. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: GRANTED\_MEMORY or GM (warehouse name), Granted Memory (caption), Granted\_Memory (attribute name), and GM (column name).

#### **Granted Min Memory attribute**

The minimum amount of memory (in KB) that can be used by the virtual machine. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: GRANTED\_MIN\_MEMORY or GMM0 (warehouse name), Granted Min Memory (caption), Granted\_Min\_Memory (attribute name), and GMM0 (column name).

#### **Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Memory\_Utilization} < 0) \parallel (\text{Active\_Memory} < 0) \parallel (\text{Granted\_Memory} < 0) \parallel (\text{Granted\_Max\_Memory} < 0) \parallel (\text{Granted\_Min\_Memory} < 0)? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDIS0 (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDIS0 (column name).

#### **Include Data In Summarization 1 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Swap\_In\_Rate} < 0) \parallel (\text{Swap\_Out\_Rate} < 0) \parallel (\text{Swap\_Total\_Rate} < 0) \parallel (\text{Swap\_Used} < 0)? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_1 or IDIS1 (warehouse name), Include Data In Summarization 1 (caption), Include\_Data\_In\_Summarization\_1 (attribute name), and IDIS1 (column name).

#### **Include Data In Summarization 2 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Active\_Write} < 0)? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_2 or IDIS2 (warehouse name), Include Data In Summarization 2 (caption), Include\_Data\_In\_Summarization\_2 (attribute name), and IDIS2 (column name).

#### **Include Data In Summarization 3 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Memory\_Usage} < 0) \parallel (\text{Free\_Memory} < 0)? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_3 or IDIS3 (warehouse name), Include Data In Summarization 3 (caption), Include\_Data\_In\_Summarization\_3 (attribute name), and IDIS3 (column name).



**Include Data In Summarization 4 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Swap\_In\_Rate\_Host\_Cache} < 0) \parallel (\text{Swap\_Out\_Rate\_Host\_Cache} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_4 or IDIS4 (warehouse name), Include Data In Summarization 4 (caption), Include\_Data\_In\_Summarization\_4 (attribute name), and IDIS4 (column name).

**Low Free Threshold attribute**

The threshold of the free host physical memory (in KB). The ESX server starts recovering the memory from the virtual machines by using ballooning and swapping when the threshold is reached. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: LOW\_FREE\_THRESHOLD or LFT (warehouse name), Low Free Threshold (caption), Low\_Free\_Threshold (attribute name), and LFT (column name).

**Memory Usage attribute**

The amount of physical memory in use in MB. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEMORY\_USAGE or MU (warehouse name), Memory Usage (caption), Memory\_Usage (attribute name), and MU (column name).

**Memory Utilization attribute**

The physical memory usage as a percentage of used physical memory divided by physical memory installed. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEMORY\_UTILIZATION or MU0 (warehouse name), Memory Utilization (caption), Memory\_Utilization (attribute name), and MU0 (column name).

**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

**Physical Memory attribute**

The amount of physical memory in MB on this server. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PHYSICAL\_MEMORY or PM (warehouse name), Physical Memory (caption), Physical\_Memory (attribute name), and PM (column name).

**Server Hostname attribute**

The host name of the ESX server. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SERVER\_HOSTNAME or SH (warehouse name), Server Hostname (caption), Server\_Hostname (attribute name), and SH (column name).

**Service Console attribute**

The amount of memory reserved by the service console for the server in KB. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SERVICE\_CONSOLE or SC (warehouse name), Service Console (caption), Service\_Console (attribute name), and SC (column name).

**Swap In Rate attribute**

The rate at which memory is swapped in in kilobytes per second. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SWAP\_IN\_RATE or SIR (warehouse name), Swap In Rate (caption), Swap\_In\_Rate (attribute name), and SIR (column name).

**Swap In Rate From Host Cache attribute**

The rate (in KB per second) at which the memory is swapped from the host cache to the active memory. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SWAP\_IN\_RATE\_HOST\_CACHE or SIRHC (warehouse name), Swap In Rate From Host Cache (caption), Swap\_In\_Rate\_Host\_Cache (attribute name), and SIRHC (column name).

**Swap Out Rate attribute**

The rate at which memory is swapped out in kilobytes per second. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SWAP\_OUT\_RATE or SOR (warehouse name), Swap Out Rate (caption), Swap\_Out\_Rate (attribute name), and SOR (column name).

**Swap Out Rate From Host Cache attribute**

The rate (in KB per second) at which the memory is swapped from the active memory to the host cache. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SWAP\_OUT\_RATE\_HOST\_CACHE or SORHC (warehouse name), Swap Out Rate From Host Cache (caption), Swap\_Out\_Rate\_Host\_Cache (attribute name), and SORHC (column name).

**Swap Total Rate attribute**

The total rate at which memory is swapped in or out in kilobytes per second. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SWAP\_TOTAL\_RATE or STR (warehouse name), Swap Total Rate (caption), Swap\_Total\_Rate (attribute name), and STR (column name).

**Swap Used attribute**

The amount of memory used for swap space in KB. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SWAP\_USED (warehouse name), Swap Used (caption), Swap\_Used (attribute name), and SWAP\_USED (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

## Server Network attribute group

[Edit online](#)

This attribute group contains information about network usage for a server. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### Cluster attribute

The name of the cluster that this ESX server is a member of or unavailable if not a member of any cluster. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CLUSTER (warehouse name), Cluster (caption), Cluster (attribute name), and CLUSTER (column name).

### Datacenter attribute

The name of the data center this ESX Server is a member of. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

### Duplex attribute

The current operating mode of the NIC. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DUPLEX (warehouse name), Duplex (caption), Duplex (attribute name), and DUPLEX (column name).

### Include Data In Summarization 0 attribute

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Usage < 0) || (Transmitted < 0) || (Received < 0) || (Pkts\_Received < 0) || (Pkts\_Transmitted < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDISO (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDISO (column name).

### Include Data In Summarization 1 attribute

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Link\_Utilization < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_1 or IDIS1 (warehouse name), Include Data In Summarization 1 (caption), Include\_Data\_In\_Summarization\_1 (attribute name), and IDIS1 (column name).

### Include Data In Summarization 2 attribute

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Transmit\_Pkts\_Dropped < 0) || (Receive\_Pkts\_Dropped < 0) || (Pkts\_Dropped < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_2 or IDIS2 (warehouse name), Include Data In Summarization 2 (caption), Include\_Data\_In\_Summarization\_2 (attribute name), and IDIS2 (column name).

#### **Link Speed attribute**

The current operating speed of the NIC in MB per second (mbps). The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: LINK\_SPEED (warehouse name), Link Speed (caption), Link\_Speed (attribute name), and LINK\_SPEED (column name).

#### **Link Utilization attribute**

The percent usage of the NIC relative to the capacity of the link (including duplex). The type is real number (32-bit gauge) with two decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: LINK\_UTILIZATION or LU (warehouse name), Link Utilization (caption), Link\_Utilization (attribute name), and LU (column name).

#### **NIC Name attribute**

The name or label of this network interface. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NIC\_NAME (warehouse name), NIC Name (caption), NIC\_Name (attribute name), and NIC\_NAME (column name).

#### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

#### **NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

#### **Physical Address attribute**

The physical address of this NIC. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PHYSICAL\_ADDR or PA (warehouse name), Physical Address (caption), Physical\_Addr (attribute name), and PA (column name).

#### **Pkts Dropped attribute**

The number of packets dropped in the performance interval. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PKTS\_DROPPED or PD (warehouse name), Pkts Dropped (caption), Pkts\_Dropped (attribute name), and PD (column name).

#### **Pkts Received attribute**

The number of packets received in the performance interval. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PKTS\_RECEIVED or PR (warehouse name), Pkts Received (caption), Pkts\_Received (attribute name), and PR (column name).

**Pkts Transmitted attribute**

The number of packets transmitted in the performance interval. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PKTS\_TRANSMITTED or PT (warehouse name), Pkts Transmitted (caption), Pkts\_Transmitted (attribute name), and PT (column name).

**Receive Pkts Dropped attribute**

The number of receive packets dropped in the performance interval. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: RECEIVE\_PKTS\_DROPPED or RPD (warehouse name), Receive Pkts Dropped (caption), Receive\_Pkts\_Dropped (attribute name), and RPD (column name).

**Received attribute**

The amount of data received in the performance interval in KB per second. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: RECEIVED (warehouse name), Received (caption), Received (attribute name), and RECEIVED (column name).

**Server Hostname attribute**

The host name of the ESX server. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SERVER\_HOSTNAME or SH (warehouse name), Server Hostname (caption), Server\_Hostname (attribute name), and SH (column name).

**Status attribute**

The current status, up or down, of the NIC. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable), down (down), up (up). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: STATUS (warehouse name), Status (caption), Status (attribute name), and STATUS (column name).

**Switch attribute**

The name of the virtual switch that the NIC is configured with. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VIRTUAL\_SWITCH or VS (warehouse name), Switch (caption), Virtual\_Switch (attribute name), and VS (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

**Transmit Pkts Dropped attribute**

The number of transmit packets dropped in the performance interval. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TRANSMIT\_PKTS\_DROPPED or TPD (warehouse name), Transmit Pkts Dropped (caption), Transmit\_Pkts\_Dropped (attribute name), and TPD (column name).

**Transmitted attribute**

The amount of data transmitted in the performance interval in KB per second. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TRANSMITTED or T (warehouse name), Transmitted (caption), Transmitted (attribute name), and T (column name).

**Usage attribute**

The sum of data transmitted and received in the performance interval in KB per second. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: USAGE (warehouse name), Usage (caption), Usage (attribute name), and USAGE (column name).

## Server SAN attribute group

[Edit online](#)

This attribute group contains information about the SAN devices for a server. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

**Broken Paths attribute**

The number of broken paths the host has to the device. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: BROKEN\_PATHS or BP (warehouse name), Broken Paths (caption), Broken\_Paths (attribute name), and BP (column name).

**Datastore attribute**

The name of the associated data store for the disk. The type is string with enumerated values. The following values are defined: Not applicable (Not applicable), Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATASTORE (warehouse name), Datastore (caption), Datastore (attribute name), and DATASTORE (column name).

**Disabled Paths attribute**

The number of disabled paths the host has to the device. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DISABLED\_PATHS or DP (warehouse name), Disabled Paths (caption), Disabled\_Paths (attribute name), and DP (column name).

**Disk Name attribute**

The name of the disk. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DISK\_NAME (warehouse name), Disk Name (caption), Disk\_Name (attribute name), and DISK\_NAME (column name).

**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

**Path Selection Policy attribute**

The path selection policy the host uses to determine how to access the device. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PATH\_SELECTION\_POLICY or PSP (warehouse name), Path Selection Policy (caption), Path\_Selection\_Policy (attribute name), and PSP (column name).

**Paths attribute**

The number of paths the host has to the device. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PATHS (warehouse name), Paths (caption), Paths (attribute name), and PATHS (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

## Server Virtual Switches attribute group

[Edit online](#)

This attribute group contains information about the virtual switches in the virtual infrastructure. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

**Datacenter attribute**

The name of the data center that uses this virtual switch. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

**Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Transmitted < 0) || (Received < 0) || (Usage < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDISO (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDISO (column name).

**Network attribute**

The name of the network with which the virtual switch is associated. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NETWORK (warehouse name), Network (caption), Network (attribute name), and NETWORK (column name).

#### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

#### **Number NICs attribute**

The number of NICs connected to the virtual switch. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_OF\_NICS or NON (warehouse name), Number NICs (caption), Number\_Of\_NICs (attribute name), and NON (column name).

#### **Received attribute**

The amount of data received in the performance interval in KB per second. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: RECEIVED (warehouse name), Received (caption), Received (attribute name), and RECEIVED (column name).

#### **Server Hostname attribute**

The host name of the ESX server that the virtual switch belongs to. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SERVER\_HOSTNAME or SH (warehouse name), Server Hostname (caption), Server\_Hostname (attribute name), and SH (column name).

#### **Switch attribute**

The name of the virtual switch. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SWITCH (warehouse name), Switch (caption), Switch (attribute name), and SWITCH (column name).

#### **Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

#### **Transmitted attribute**

The amount of data transmitted in the performance interval in KB per second. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TRANSMITTED or T (warehouse name), Transmitted (caption), Transmitted (attribute name), and T (column name).

#### **Usage attribute**

The total usage of the virtual switch. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: USAGE (warehouse name), Usage (caption), Usage (attribute name), and USAGE (column name).



## Server VM Datastore Utilization attribute group

[Edit online](#)

This attribute group contains information about how each virtual machine is utilizing a data store. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### Committed attribute

The amount of space in GB, on this data store, that this virtual machine is using. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: COMMITTED (warehouse name), Committed (caption), Committed (attribute name), and COMMITTED (column name).

### DataCenter attribute

The name of the data center that contains this data store. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), DataCenter (caption), DataCenter (attribute name), and DATACENTER (column name).

### Include Data In Summarization 0 attribute

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Committed} < 0) \parallel (\text{Uncommitted} < 0) \parallel (\text{Provisioned} < 0) \parallel (\text{Unshared} < 0) \parallel (\text{Percent\_Committed} < 0)? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDISO (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDISO (column name).

### Name attribute

The name of the data store. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NAME (warehouse name), Name (caption), Name (attribute name), and NAME (column name).

### Node attribute

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

### NodeID attribute

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

### Percent Committed attribute

The percentage of space on this datastore that is committed as a percentage of the provisioned amount. The type is real number (32-bit gauge) with two decimal places of precision with enumerated

values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_COMMITTED or PC (warehouse name), Percent Committed (caption), Percent\_Committed (attribute name), and PC (column name).

#### **Provisioned attribute**

The total reserved amount of space in GB, on this data store, that this virtual machine can use. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PROVISIONED or P (warehouse name), Provisioned (caption), Provisioned (attribute name), and P (column name).

#### **Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

#### **Uncommitted attribute**

The reserved but unused amount of space in GB, on this data store, that this virtual machine can use in the future. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: UNCOMMITTED or U (warehouse name), Uncommitted (caption), Uncommitted (attribute name), and U (column name).

#### **Unshared attribute**

The amount of space in GB, on this data store, occupied by this virtual machine that is not shared with any other virtual machines. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: UNSHARED (warehouse name), Unshared (caption), Unshared (attribute name), and UNSHARED (column name).

#### **Virtual Machine attribute**

The name of the virtual machine on the data store. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VIRTUAL\_MACHINE or VM (warehouse name), Virtual Machine (caption), Virtual\_Machine (attribute name), and VM (column name).

#### **VMNodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: VMNODEID (warehouse name), VMNodeID (caption), VMNodeID (attribute name), and VMNODEID (column name).

## **SubNode Events attribute group**

[Edit online](#)

This attribute group contains events for a server. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

**Category attribute**

The severity level associated with the event by VMware. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CATEGORY (warehouse name), Category (caption), Category (attribute name), and CATEGORY (column name).

**Compute Resource attribute**

The compute resource associated with this event. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: COMPUTE\_RESOURCE or CR (warehouse name), Compute Resource (caption), Compute\_Resource (attribute name), and CR (column name).

**Datacenter attribute**

The data center associated with this event. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

**Entity Type attribute**

The entity type of the event. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: ENTITY\_TYPE or ET (warehouse name), Entity Type (caption), Entity\_Type (attribute name), and ET (column name).

**ESX Server UUID attribute**

The UUID of the ESX server associated with this event. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: ESX\_SERVER\_UUID or ESU (warehouse name), ESX Server UUID (caption), ESX\_Server\_UUID (attribute name), and ESU (column name).

**Event attribute**

The event data string. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: EVENT (warehouse name), Event (caption), Event (attribute name), and EVENT (column name).

**Event Seq Number attribute**

A sequence number for the event. This attribute is a key attribute. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: EVENT\_SEQ\_NUMBER or ESN (warehouse name), Event Seq Number (caption), Event\_Seq\_Number (attribute name), and ESN (column name).

**Event Text attribute**

The full event data string. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: EVENT\_TEXT (warehouse name), Event Text (caption), Event\_Text (attribute name), and EVENT\_TEXT (column name).

**Event Time attribute**

The time that the event occurred. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: EVENT\_TIME (warehouse name), Event Time (caption), Event\_Time (attribute name), and EVENT\_TIME (column name).

**Event Type attribute**

The type of event given by VMware. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: EVENT\_TYPE (warehouse name), Event Type (caption), Event\_Type (attribute name), and EVENT\_TYPE (column name).

**Event Type ID attribute**

The type ID of the event given by VMware. This is unavailable unless the event is an extended event. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: EVENT\_TYPE\_ID or ETI (warehouse name), Event Type ID (caption), Event\_Type\_ID (attribute name), and ETI (column name).

**Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Event\_Seq\_Number < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDISO (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDISO (column name).

**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**Server Hostname attribute**

The host name of the ESX server that originated this event. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SERVER\_HOSTNAME or SH (warehouse name), Server Hostname (caption), Server\_Hostname (attribute name), and SH (column name).

**Timestamp attribute**

The time the event was generated. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

**UserId attribute**

The user ID that caused the event. The type is string with enumerated values. The following values are defined: Not applicable (Not applicable), Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: USERID (warehouse name), UserId (caption), UserId (attribute name), and USERID (column name).

### **Virtual Machine attribute**

The virtual machine associated with this event. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VIRTUAL\_MACHINE or VM (warehouse name), Virtual Machine (caption), Virtual\_Machine (attribute name), and VM (column name).

### **Virtual Machine UUID attribute**

The UUID of the virtual machine associated with this event. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VIRTUAL\_MACHINE\_UUID or VMU (warehouse name), Virtual Machine UUID (caption), Virtual\_Machine\_UUID (attribute name), and VMU (column name).

## **Tasks attribute group**

[Edit online](#)

This attribute group provides information about the tasks that are completed on the vCenter server. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### **Completed Time attribute**

The date and time when the task was completed. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: COMPLETED\_TIME or CT (warehouse name), Completed Time (caption), Completed\_Time (attribute name), and CT (column name).

### **Error Message attribute**

The reason for the task failure. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: ERROR\_MESSAGE or EM (warehouse name), Error Message (caption), Error\_Message (attribute name), and EM (column name).

### **Initiated By attribute**

The type of the entity that created the task. The valid values are user name, another schedule task name, alarm name, and system. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: INITIATED\_BY or IB (warehouse name), Initiated By (caption), Initiated\_By (attribute name), and IB (column name).

### **Name attribute**

The name of the task. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NAME (warehouse name), Name (caption), Name (attribute name), and NAME (column name).

### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

#### **Queue Time attribute**

The date and time when the task was created. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: QUEUE\_TIME (warehouse name), Queue Time (caption), Queue\_Time (attribute name), and QUEUE\_TIME (column name).

#### **Source Hostname attribute**

The host name of the data source that created the task. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SOURCE\_HOSTNAME or SH (warehouse name), Source Hostname (caption), Source\_Hostname (attribute name), and SH (column name).

#### **Start Time attribute**

The date and time when the task started running. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: START\_TIME (warehouse name), Start Time (caption), Start\_Time (attribute name), and START\_TIME (column name).

#### **Status attribute**

The status of the task. The valid values are error and success. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: STATUS (warehouse name), Status (caption), Status (attribute name), and STATUS (column name).

#### **Target Entity attribute**

The name of the target managed entity for the task. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TARGET\_ENTITY or TE (warehouse name), Target Entity (caption), Target\_Entity (attribute name), and TE (column name).

#### **Target Entity Type attribute**

The type of the target managed entity for the task. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TARGET\_ENTITY\_TYPE or TET (warehouse name), Target Entity Type (caption), Target\_Entity\_Type (attribute name), and TET (column name).

#### **Timestamp attribute**

The time the event was generated. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

## Thread Pool Status attribute group

[Edit online](#)

The Thread Pool Status attribute group contains information that reflects the status of the internal thread pool used to collect data asynchronously. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### Node attribute

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

### Thread Pool Active Threads attribute

The number of threads in the thread pool currently active doing work. The type is integer (32-bit gauge) with enumerated values. The following values are defined: NO DATA (-1), NO DATA (-100). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: THREAD\_POOL\_ACTIVE\_THREADS or TPACTTH (warehouse name), Thread Pool Active Threads (caption), Thread\_Pool\_Active\_Threads (attribute name), and TPACTTH (column name).

### Thread Pool Avg Active Threads attribute

The average number of threads in the thread pool simultaneously active doing work. The type is real number (32-bit gauge) with two decimal places of precision with enumerated values. The following values are defined: NO DATA (-1), NO DATA (-100). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: THREAD\_POOL\_AVG\_ACTIVE\_THREADS or TPAVGAT (warehouse name), Thread Pool Avg Active Threads (caption), Thread\_Pool\_Avg\_Active\_Threads (attribute name), and TPAVGAT (column name).

### Thread Pool Avg Job Wait attribute

The average time a job spends waiting on the thread pool queue in seconds. The type is real number (32-bit gauge) with two decimal places of precision with enumerated values. The following values are defined: NO DATA (-1), NO DATA (-100). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: THREAD\_POOL\_AVG\_JOB\_WAIT or TPAVJBW (warehouse name), Thread Pool Avg Job Wait (caption), Thread\_Pool\_Avg\_Job\_Wait (attribute name), and TPAVJBW (column name).

### Thread Pool Avg Queue Length attribute

The average length of the thread pool queue during this run. The type is real number (32-bit gauge) with two decimal places of precision with enumerated values. The following values are defined: NO DATA (-1), NO DATA (-100). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: THREAD\_POOL\_AVG\_QUEUE\_LENGTH or TPAVGQL (warehouse name), Thread Pool Avg Queue Length (caption), Thread\_Pool\_Avg\_Queue\_Length (attribute name), and TPAVGQL (column name).

### Thread Pool Max Active Threads attribute

The peak number of threads in the thread pool that were simultaneously active doing work. The type is integer (32-bit counter) with enumerated values. The following values are defined: NO DATA (-1), NO DATA (-100). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: THREAD\_POOL\_MAX\_ACTIVE\_THREADS or TPMAXAT (warehouse name), Thread Pool Max Active Threads (caption), Thread\_Pool\_Max\_Active\_Threads (attribute name), and TPMAXAT (column name).

**Thread Pool Max Queue Length attribute**

The peak length the thread pool queue reached. The type is integer (32-bit counter) with enumerated values. The following values are defined: NO DATA (-1), NO DATA (-100). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: THREAD\_POOL\_MAX\_QUEUE\_LENGTH or TPMAXQL (warehouse name), Thread Pool Max Queue Length (caption), Thread\_Pool\_Max\_Queue\_Length (attribute name), and TPMAXQL (column name).

**Thread Pool Max Size attribute**

The maximum number of threads that are allowed to exist in the thread pool. The type is integer (32-bit numeric property) with enumerated values. The following values are defined: NO DATA (-1), NO DATA (-100). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: THREAD\_POOL\_MAX\_SIZE or TPMAXSZ (warehouse name), Thread Pool Max Size (caption), Thread\_Pool\_Max\_Size (attribute name), and TPMAXSZ (column name).

**Thread Pool Min Active Threads attribute**

The smallest number of threads in the thread pool that were simultaneously active doing work. The type is integer (32-bit counter) with enumerated values. The following values are defined: NO DATA (-1), NO DATA (-100). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: THREAD\_POOL\_MIN\_ACTIVE\_THREADS or TPMINAT (warehouse name), Thread Pool Min Active Threads (caption), Thread\_Pool\_Min\_Active\_Threads (attribute name), and TPMINAT (column name).

**Thread Pool Min Queue Length attribute**

The minimum length the thread pool queue reached. The type is integer (32-bit counter) with enumerated values. The following values are defined: NO DATA (-1), NO DATA (-100). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: THREAD\_POOL\_MIN\_QUEUE\_LENGTH or TPMINQL (warehouse name), Thread Pool Min Queue Length (caption), Thread\_Pool\_Min\_Queue\_Length (attribute name), and TPMINQL (column name).

**Thread Pool Queue Length attribute**

The number of jobs currently waiting in the thread pool queue. The type is integer (32-bit gauge) with enumerated values. The following values are defined: NO DATA (-1), NO DATA (-100). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: THREAD\_POOL\_QUEUE\_LENGTH or TPQLGTH (warehouse name), Thread Pool Queue Length (caption), Thread\_Pool\_Queue\_Length (attribute name), and TPQLGTH (column name).

**Thread Pool Size attribute**

The number of threads currently existing in the thread pool. The type is integer (32-bit gauge) with enumerated values. The following values are defined: NO DATA (-1), NO DATA (-100). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: THREAD\_POOL\_SIZE or THPSIZE (warehouse name), Thread Pool Size (caption), Thread\_Pool\_Size (attribute name), and THPSIZE (column name).

**Thread Pool Total Jobs attribute**

The number of jobs that are completed by all threads in the pool since agent start. The type is integer (32-bit counter) with enumerated values. The following values are defined: NO DATA (-1), NO DATA (-100). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: THREAD\_POOL\_TOTAL\_JOBS or TPTJOBS (warehouse name), Thread Pool Total Jobs (caption), Thread\_Pool\_Total\_Jobs (attribute name), and TPTJOBS (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.



The source for this attribute is the agent

The following names are defined for this attribute: `TIMESTAMP` (warehouse name), `Timestamp` (caption), `Timestamp` (attribute name), and `TIMESTAMP` (column name).

## Topological Events attribute group

[Edit online](#)

This attribute group posts events when ESX servers and virtual machines are created or destroyed, or when virtual machines are relocated using vMotion. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### **DATASTORE UUID attribute**

The Universal Unique ID of the data store that is associated with the event. The type is string with enumerated values. The following values are defined: `Unavailable` (`Unavailable`). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: `DATASTORE_UUID` or `DU` (warehouse name), `DATASTORE UUID` (caption), `DATASTORE_UUID` (attribute name), and `DU` (column name).

### **Entity Type attribute**

The type of topological entity to which the event applies. The type is string with enumerated values. The following values are defined: `Host System` (`Host System`), `Virtual Machine` (`Virtual Machine`). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: `ENTITY_TYPE` or `ET` (warehouse name), `Entity Type` (caption), `Entity_Type` (attribute name), and `ET` (column name).

### **Event Type attribute**

The type of topological event that occurred. The type is string with enumerated values. The following values are defined: `Created` (`Created`), `Destroyed` (`Destroyed`), `Relocated` (`Relocated`). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: `EVENT_TYPE` (warehouse name), `Event Type` (caption), `Event_Type` (attribute name), and `EVENT_TYPE` (column name).

### **Host UUID attribute**

The UUID of the host system associated with this event. The type is string with enumerated values. The following values are defined: `Unavailable` (`Unavailable`). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: `HOST_UUID` (warehouse name), `Host UUID` (caption), `Host_UUID` (attribute name), and `HOST_UUID` (column name).

### **Managed System Name attribute**

The managed system name associated with this event. The type is string with enumerated values. The following values are defined: `Unavailable` (`Unavailable`). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: `MSN` (warehouse name), `Managed System Name` (caption), `MSN` (attribute name), and `MSN` (column name).

### **Name attribute**

The name of the virtual machine or host that is producing this topology update. The type is string with enumerated values. The following values are defined: `Unavailable` (`Unavailable`). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: `NAME` (warehouse name), `Name` (caption), `Name` (attribute name), and `NAME` (column name).

**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**Server Hostname attribute**

The host name of the ESX server that is associated with the event. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SERVER\_HOSTNAME or SH (warehouse name), Server Hostname (caption), Server\_Hostname (attribute name), and SH (column name).

**Timestamp attribute**

The time the event was generated. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

**VM UUID attribute**

The UUID of the virtual machine associated with this event. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_UUID (warehouse name), VM UUID (caption), VM\_UUID (attribute name), and VM\_UUID (column name).

## Topology attribute group

[Edit online](#)

This attribute group contains information about the topology of servers and virtual machines. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

**ConnectionType attribute**

The connection type from this node to the parent of this node. The type is string.

The following names are defined for this attribute: CONNECTIONTYPE or C0 (warehouse name), ConnectionType (caption), ConnectionType (attribute name), and C0 (column name).

**ConnectToNode attribute**

Indicates a connection from the NodeID to the node specified here. This attribute is a key attribute. The type is string.

The following names are defined for this attribute: CONNECTTONODE or C (warehouse name), ConnectToNode (caption), ConnectToNode (attribute name), and C (column name).

**Datacenter attribute**

The name of this data center. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

**Managed System Name attribute**

The managed system name that is associated with the data. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MSN (warehouse name), Managed System Name (caption), MSN (attribute name), and MSN (column name).

**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**NodeID attribute**

The identifier for this node in the topology. This attribute is a key attribute. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

**NodeName attribute**

The name of this node in the tree. The type is string.

The following names are defined for this attribute: NODENAME (warehouse name), NodeName (caption), NodeName (attribute name), and NODENAME (column name).

**NodeStatus attribute**

The status of this node. The type is string.

The following names are defined for this attribute: NODESTATUS (warehouse name), NodeStatus (caption), NodeStatus (attribute name), and NODESTATUS (column name).

**NodeType attribute**

The type of node in the tree. The type is string.

The following names are defined for this attribute: NODETYPE (warehouse name), NodeType (caption), NodeType (attribute name), and NODETYPE (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

## Triggered Alarms attribute group

[Edit online](#)

This attribute group contains information about the alarms in the virtual infrastructure. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

**Affected Entity attribute**

The name of the entity that was affected by this alarm. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: AFFECTED\_ENTITY or EN (warehouse name), Affected Entity (caption), Affected\_Entity (attribute name), and EN (column name).

**Alarm Name attribute**

The name of the alarm that got triggered. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: ALARM\_NAME (warehouse name), Alarm Name (caption), Alarm\_Name (attribute name), and ALARM\_NAME (column name).

**Alarm Status attribute**

The alarm status for this alarm. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable), red (red), yellow (yellow), green (green), gray (gray). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: ALARM\_STATUS or OS (warehouse name), Alarm Status (caption), Alarm\_Status (attribute name), and OS (column name).

**Alarm Triggered Time attribute**

The time that this alarm is triggered. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: ALARM\_TRIGGERED\_TIME or ATT (warehouse name), Alarm Triggered Time (caption), Alarm\_Triggered\_Time (attribute name), and ATT (column name).

**Datacenter attribute**

The name of this data center. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

**Description attribute**

The description of this alarm. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DESCRIPTION or D (warehouse name), Description (caption), Description (attribute name), and D (column name).

**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

**Triggered Entity attribute**

The name of the entity that this alarm was triggered on. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TRIGGERED\_ENTITY or TE (warehouse name), Triggered Entity (caption), Triggered\_Entity (attribute name), and TE (column name).

### Triggered Entity Type attribute

The type of the entity for which this alarm was triggered. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TRIGGERED\_ENTITY\_TYPE or TET (warehouse name), Triggered Entity Type (caption), Triggered\_Entity\_Type (attribute name), and TET (column name).

## vCenters attribute group

[Edit online](#)

This attribute group displays basic information about VMware data sources. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### Agent Connection attribute

The current connection status of this agent to the configured data source. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1), Down (0), Up (1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: AGENT\_CONNECTION or AC (warehouse name), Agent Connection (caption), Agent\_Connection (attribute name), and AC (column name).

### Average CU Execution Time attribute

The number of seconds that the previously executed collection units executed, divided by the number of previously executed collection units. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: AVERAGE\_CU\_EXECUTION\_TIME or ACET (warehouse name), Average CU Execution Time (caption), Average\_CU\_Execution\_Time (attribute name), and ACET (column name).

### Average CU Queue Time attribute

The number of seconds that the previously queued collection units were queued, divided by the number of previously queued collection units. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: AVERAGE\_CU\_QUEUE\_TIME or ACQT (warehouse name), Average CU Queue Time (caption), Average\_CU\_Queue\_Time (attribute name), and ACQT (column name).

### Collection Units attribute

The total number of collection units. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: COLLECTION\_UNITS or CU (warehouse name), Collection Units (caption), Collection\_Units (attribute name), and CU (column name).

### Configured Address attribute

The host address of the data source as entered in the agent data source configuration. This attribute is a key attribute. The type is string.

The following names are defined for this attribute: CONFIGURED\_ADDRESS or CA (warehouse name), Configured Address (caption), Configured\_Address (attribute name), and CA (column name).

**Current CU Execution Time attribute**

The number of seconds that the currently executing collection units have been executing, divided by the number of currently executing collection units. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CURRENT\_CU\_EXECUTION\_TIME or CCET (warehouse name), Current CU Execution Time (caption), Current\_CU\_Execution\_Time (attribute name), and CCET (column name).

**Current CU Queue Time attribute**

The number of seconds that the currently queued collection units have been queued, divided by the number of currently queued collection units. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CURRENT\_CU\_QUEUE\_TIME or CCQT (warehouse name), Current CU Queue Time (caption), Current\_CU\_Queue\_Time (attribute name), and CCQT (column name).

**Executing Collection Units attribute**

The total number of collection units currently executing. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: EXECUTING\_COLLECTION\_UNITS or ECU (warehouse name), Executing Collection Units (caption), Executing\_Collection\_Units (attribute name), and ECU (column name).

**FQDN attribute**

The fully qualified domain name of the data source. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: FQDN (warehouse name), FQDN (caption), FQDN (attribute name), and FQDN (column name).

**Inventory Age attribute**

The number of seconds elapsed since the last time the inventory was updated. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: INVENTORY\_AGE or IA (warehouse name), Inventory Age (caption), Inventory\_Age (attribute name), and IA (column name).

**IP Address attribute**

The IP address of the data source. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: IP\_ADDRESS (warehouse name), IP Address (caption), IP\_Address (attribute name), and IP\_ADDRESS (column name).

**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**Queued Collection Units attribute**

The total number of collection units currently queued. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: QUEUED\_COLLECTION\_UNITS or QCU (warehouse name), Queued Collection Units (caption), Queued\_Collection\_Units (attribute name), and QCU (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

**Type attribute**

The type of data source, which can be vCenter or ESX server. The type is string with enumerated values. The following values are defined: Unavailable (-1), ESX (0), vCenter (1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TYPE (warehouse name), Type (caption), Type (attribute name), and TYPE (column name).

**Web Services Port attribute**

The port through which the agent communicates with the data source. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: WEB\_SERVICES\_PORT or WSP (warehouse name), Web Services Port (caption), Web\_Services\_Port (attribute name), and WSP (column name).

## Virtual Machines attribute group

[Edit online](#)

This attribute group contains basic information about the virtual machines running on a server. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

**Cluster attribute**

The name of the cluster that this virtual machine is a member of or unavailable if not a member of any cluster. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CLUSTER (warehouse name), Cluster (caption), Cluster (attribute name), and CLUSTER (column name).

**Connection State attribute**

The connection status of the virtual machine. The valid values are connected, disconnected, inaccessible, invalid, and orphaned. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CONNECTION\_STATE or CS (warehouse name), Connection State (caption), Connection\_State (attribute name), and CS (column name).

**Consolidation Needed attribute**

Indicates whether any disk of the virtual machine requires consolidation. The type is integer with enumerated values. The following values are defined: Unavailable (-1), No (0), Yes (1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CONSOLIDATIONNEEDED or C (warehouse name), Consolidation Needed (caption), consolidationNeeded (attribute name), and C (column name).

#### **CPU Limit attribute**

The CPU limit of the virtual machine in mhz. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_LIMIT (warehouse name), CPU Limit (caption), CPU\_Limit (attribute name), and CPU\_LIMIT (column name).

#### **CPU Reservation attribute**

Minimum amount of CPU in mhz guaranteed to be available to the virtual machine. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_RESERVATION or CR (warehouse name), CPU Reservation (caption), CPU\_Reservation (attribute name), and CR (column name).

#### **CPU Shares attribute**

The number of CPU shares, the relative weight, allocated to this virtual machine. This number is the actual value when the shares level has been configured as 'custom'. In general, the more shares a virtual machine has the more resource it gets. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-2), Not applicable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_SHARES (warehouse name), CPU Shares (caption), CPU\_Shares (attribute name), and CPU\_SHARES (column name).

#### **CPU Utilization attribute**

The overall CPU usage of this virtual machine during the collection interval. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_UTILIZATION or CU (warehouse name), CPU Utilization (caption), CPU\_Utilization (attribute name), and CU (column name).

#### **Datacenter attribute**

The name of this data center. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

#### **Datastore Percent Utilization attribute**

The overall datastore usage of this virtual machine during the collection interval. The type is real number (32-bit gauge) with two decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_DATASTOREPERCENT\_UTILIZATION or VDU (warehouse name), Datastore Percent Utilization (caption), VM\_DatastorePercent\_Utilization (attribute name), and VDU (column name).

#### **Fault Tolerance attribute**

An indication of the protection of the virtual machine against hardware failures. This attribute can be configured with a secondary virtual machine or it can be running on a server that is a member of a cluster that is configured for High Availability. The type is integer with enumerated values. The following values are defined: None (-1), FT Primary (1), FT NonPrimary (2), HA (3). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: FAULT\_TOLERANCE or FT (warehouse name), Fault Tolerance (caption), Fault\_Tolerance (attribute name), and FT (column name).



**FQDN attribute**

The fully qualified domain name of the virtual machine. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: FQDN (warehouse name), FQDN (caption), FQDN (attribute name), and FQDN (column name).

**FT Instance UUID attribute**

The instance UUID of the fault tolerance virtual machine. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: FT\_INSTANCE\_UUID or FIU (warehouse name), FT Instance UUID (caption), FT\_Instance\_UUID (attribute name), and FIU (column name).

**Guest OS Managed System Name attribute**

The managed system name of the guest OS agent within the virtual machine. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: GUESTOS\_MSN or GM (warehouse name), Guest OS Managed System Name (caption), GuestOS\_MSN (attribute name), and GM (column name).

**Guest State attribute**

The operational state of the guest operating system installed in this virtual machine. The values can be running, shuttingdown, resetting, standby, notrunning, and unknown. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: GUEST\_STATE or GS (warehouse name), Guest State (caption), Guest\_State (attribute name), and GS (column name).

**GuestOS Name attribute**

The full name of the guest operating system for this virtual machine. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: GUESTOS\_NAME or GN (warehouse name), GuestOS Name (caption), GuestOS\_Name (attribute name), and GN (column name).

**Heartbeats attribute**

The number of heartbeats received from the virtual machine. The type is default with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: HEARTBEATS (warehouse name), Heartbeats (caption), Heartbeats (attribute name), and HEARTBEATS (column name).

**Hostname attribute**

The host name of this virtual machine. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: HOSTNAME (warehouse name), Hostname (caption), Hostname (attribute name), and HOSTNAME (column name).

**Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDIS0 (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDIS0 (column name).

#### **Include Data In Summarization 1 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Num\_CPUs} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_1 or IDIS1 (warehouse name), Include Data In Summarization 1 (caption), Include\_Data\_In\_Summarization\_1 (attribute name), and IDIS1 (column name).

#### **Include Data In Summarization 2 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{CPU\_Utilization} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_2 or IDIS2 (warehouse name), Include Data In Summarization 2 (caption), Include\_Data\_In\_Summarization\_2 (attribute name), and IDIS2 (column name).

#### **Include Data In Summarization 3 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{VM\_Percent\_RDY} < 0) \parallel (\text{Used\_CPU\_MHz} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_3 or IDIS3 (warehouse name), Include Data In Summarization 3 (caption), Include\_Data\_In\_Summarization\_3 (attribute name), and IDIS3 (column name).

#### **Include Data In Summarization 4 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Number\_Of\_Snapshots} < 0) \parallel (\text{Snapshot\_Storage\_Consumed} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_4 or IDIS4 (warehouse name), Include Data In Summarization 4 (caption), Include\_Data\_In\_Summarization\_4 (attribute name), and IDIS4 (column name).

#### **Include Data In Summarization 5 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Memory\_Limit} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_5 or IDIS5 (warehouse name), Include Data In Summarization 5 (caption), Include\_Data\_In\_Summarization\_5 (attribute name), and IDIS5 (column name).

#### **Include Data In Summarization 6 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{CPU\_Limit} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_6 or IDIS6 (warehouse name), Include Data In Summarization 6 (caption), Include\_Data\_In\_Summarization\_6 (attribute name), and IDIS6 (column name).

#### **Instance UUID attribute**

The virtual center specific 128-bit Universal Unique ID (UUID) of a virtual machine. The UUID is represented as a hexadecimal string. This identifier is used by VirtualCenter to uniquely identify all the virtual machine instances. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: INSTANCE\_UUID or IU (warehouse name), Instance UUID (caption), Instance\_UUID (attribute name), and IU (column name).

#### **IP Address attribute**

The IP address of this virtual machine. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: IP\_ADDRESS (warehouse name), IP Address (caption), IP\_Address (attribute name), and IP\_ADDRESS (column name).

#### **Memory Limit attribute**

The memory limit of the virtual machine in MB. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEMORY\_LIMIT or ML (warehouse name), Memory Limit (caption), Memory\_Limit (attribute name), and ML (column name).

#### **Memory Reservation attribute**

Minimum amount of memory in MB guaranteed to be available to the virtual machine. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEMORY\_RESERVATION or MR (warehouse name), Memory Reservation (caption), Memory\_Reservation (attribute name), and MR (column name).

#### **Memory Shares attribute**

The number of memory shares, the relative weight, allocated to this virtual machine. This number is the actual value when the shares level has been configured as 'custom'. In general, the more shares a virtual machine has the more resource it gets. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-2), Not applicable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEMORY\_SHARES or MS0 (warehouse name), Memory Shares (caption), Memory\_Shares (attribute name), and MS0 (column name).

#### **Memory Size attribute**

The memory size of the virtual machine in MB. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MEMORY\_SIZE or MS (warehouse name), Memory Size (caption), Memory\_Size (attribute name), and MS (column name).

#### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

#### **NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

#### **Num CPUs attribute**

The number of CPUs configured for this virtual machine. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUM\_CPUS (warehouse name), Num CPUs (caption), Num\_CPUs (attribute name), and NUM\_CPUS (column name).

#### **Number Disks attribute**

The number of disks that are connected to the virtual machine. The type is integer (32-bit numeric property) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_OF\_DISKS or NOD (warehouse name), Number Disks (caption), Number\_Of\_Disks (attribute name), and NOD (column name).

#### **Number NICs attribute**

The number of NICs that are connected to the virtual machine. The type is integer (32-bit numeric property) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_OF\_NICS or NON (warehouse name), Number NICs (caption), Number\_Of\_NICs (attribute name), and NON (column name).

#### **Number Of Snapshots attribute**

The number of snapshots stored for this virtual machine. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_OF\_SNAPSHOTS or NOS (warehouse name), Number Of Snapshots (caption), Number\_Of\_Snapshots (attribute name), and NOS (column name).

#### **Overall Status attribute**

The overall status for this alarm. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OVERALL\_STATUS or OS (warehouse name), Overall Status (caption), Overall\_Status (attribute name), and OS (column name).

#### **Power Status attribute**

The current power status of the virtual machine. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: POWER\_STATUS or PS (warehouse name), Power Status (caption), Power\_Status (attribute name), and PS (column name).

#### **Resource Pool attribute**

The name of the resource pool of which this virtual machine is a member. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: RESOURCE\_POOL or RP (warehouse name), Resource Pool (caption), Resource\_Pool (attribute name), and RP (column name).

#### **Snapshot Storage Consumed attribute**

The amount of disk space (in MB) that is used by the virtual machine for the snapshots. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: `SNAPSHOT_STORAGE_CONSUMED` or `SSC` (warehouse name), `Snapshot Storage Consumed` (caption), `Snapshot_Storage_Consumed` (attribute name), and `SSC` (column name).

#### **Storage DRS Enable attribute**

Indicates whether the Storage DRS is enabled. The type is integer with enumerated values. The following values are defined: `True` (1), `False` (0). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: `STORAGE_DRS_ENABLE` or `SDE` (warehouse name), `Storage DRS Enable` (caption), `Storage_DRS_Enable` (attribute name), and `SDE` (column name).

#### **Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: `TIMESTAMP` (warehouse name), `Timestamp` (caption), `Timestamp` (attribute name), and `TIMESTAMP` (column name).

#### **Tools Status attribute**

The operational status of the VMware VM Tools package in the guest operating system. The type is string with enumerated values. The following values are defined: `Unavailable` (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: `TOOLS_STATUS` or `TS` (warehouse name), `Tools Status` (caption), `Tools_Status` (attribute name), and `TS` (column name).

#### **Universally Unique Identifier attribute**

The UUID (Universally Unique Identifier) for this virtual machine. The type is string with enumerated values. The following values are defined: `Unavailable` (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: `UUID` (warehouse name), `Universally Unique Identifier` (caption), `UUID` (attribute name), and `UUID` (column name).

#### **Up Time attribute**

The number of seconds since the virtual machine was started. The type is default with enumerated values. The following values are defined: `Unavailable` (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: `UP_TIME` (warehouse name), `Up Time` (caption), `Up_Time` (attribute name), and `UP_TIME` (column name).

#### **Used CPU MHz attribute**

The total amount of CPU used by this virtual machine during the last sample period measured in MHz. The type is integer (32-bit gauge) with enumerated values. The following values are defined: `Unavailable` (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: `USED_CPU_MHZ` or `UCM` (warehouse name), `Used CPU MHz` (caption), `Used_CPU_MHz` (attribute name), and `UCM` (column name).

#### **Version attribute**

The version string for this virtual machine. The type is string with enumerated values. The following values are defined: `Unavailable` (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: `VERSION` (warehouse name), `Version` (caption), `Version` (attribute name), and `VERSION` (column name).

#### **VM MRef attribute**

The internal managed object reference name of the virtual machine. The type is string with enumerated values. The following values are defined: `Unavailable` (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MOREF (warehouse name), VM MOREf (caption), MOREf (attribute name), and MOREF (column name).

#### **VM Name attribute**

The user-defined display name of this virtual machine. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_NAME (warehouse name), VM Name (caption), VM\_Name (attribute name), and VM\_NAME (column name).

#### **VM OS Type attribute**

The guest family for the operating system. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_OS\_TYPE (warehouse name), VM OS Type (caption), VM\_OS\_Type (attribute name), and VM\_OS\_TYPE (column name).

#### **VM Percent Ready attribute**

The CPU percent ready metric across all the virtual machine CPUs. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_PERCENT\_RDY or VPR (warehouse name), VM Percent Ready (caption), VM\_Percent\_RDY (attribute name), and VPR (column name).

#### **VM Server Name attribute**

The host name of the ESX server that runs this virtual machine. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_SERVER\_NAME or VSN (warehouse name), VM Server Name (caption), VM\_Server\_Name (attribute name), and VSN (column name).

#### **VM Template attribute**

Indicates whether this virtual machine is a template instead of a regular virtual machine. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1), Yes (1), No (0). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TEMPLATE (warehouse name), VM Template (caption), Template (attribute name), and TEMPLATE (column name).

## **Virtual Switches attribute group**

[Edit online](#)

This attribute group contains information about the standard virtual switches in the virtual infrastructure. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

#### **Datacenter attribute**

The name of the data center that uses this virtual switch. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

**Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Number\_Of\_NICs} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDIS0 (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDIS0 (column name).

**Include Data In Summarization 1 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived:  $(\text{Transmitted} < 0) \parallel (\text{Received} < 0) \parallel (\text{Usage} < 0) ? 0 : 1$

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_1 or IDIS1 (warehouse name), Include Data In Summarization 1 (caption), Include\_Data\_In\_Summarization\_1 (attribute name), and IDIS1 (column name).

**Managed System Name attribute**

The managed system name of the subnode for the ESX server of the virtual switch. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SUBNODE\_MSN or SM (warehouse name), Managed System Name (caption), Subnode\_MSN (attribute name), and SM (column name).

**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**Number NICs attribute**

The number of NICs connected to the virtual switch. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_OF\_NICS or NON (warehouse name), Number NICs (caption), Number\_Of\_NICs (attribute name), and NON (column name).

**Received attribute**

The total reception rate in KBps of the host on this virtual switch. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: RECEIVED (warehouse name), Received (caption), Received (attribute name), and RECEIVED (column name).

**Server Hostname attribute**

The hostname of the ESX server to which the virtual switch belongs. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SERVER\_HOSTNAME or SH (warehouse name), Server Hostname (caption), Server\_Hostname (attribute name), and SH (column name).

**Switch attribute**

The name of the virtual switch. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SWITCH (warehouse name), Switch (caption), Switch (attribute name), and SWITCH (column name).

#### **Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

#### **Transmitted attribute**

The total transmission rate in KBps of the host on this virtual switch. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TRANSMITTED or T (warehouse name), Transmitted (caption), Transmitted (attribute name), and T (column name).

#### **Usage attribute**

The total rate in KBps that the host is transmitting and receiving data on this virtual switch. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: USAGE (warehouse name), Usage (caption), Usage (attribute name), and USAGE (column name).

## **VM CPU attribute group**

[Edit online](#)

This attribute group contains information about CPU usage for virtual machines that are powered on. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

#### **CPU Number attribute**

The virtual CPU number. This attribute is a key attribute. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CPU\_NUMBER (warehouse name), CPU Number (caption), CPU\_Number (attribute name), and CPU\_NUMBER (column name).

#### **Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Wait\_Time < 0) || (Ready\_Time < 0) || (Used\_Time < 0) || (Utilization < 0) || (Percent\_Rdy < 0) || (User\_Time < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDISO (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDISO (column name).

#### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).



**NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

**Percent Ready attribute**

The CPU ready time percentage. This value is calculated as the amount of time the VM spent in the ready state divided by the size of the sample interval. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_RDY or PR (warehouse name), Percent Ready (caption), Percent\_Rdy (attribute name), and PR (column name).

**Ready Time attribute**

The amount of time the CPU spent in the ready state in milliseconds. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: READY\_TIME (warehouse name), Ready Time (caption), Ready\_Time (attribute name), and READY\_TIME (column name).

**Sys Time attribute**

The amount of time the CPU spent in the system state in milliseconds. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SYS\_TIME (warehouse name), Sys Time (caption), Sys\_Time (attribute name), and SYS\_TIME (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

**Used Time attribute**

The amount of time the CPU used in milliseconds. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: USED\_TIME (warehouse name), Used Time (caption), Used\_Time (attribute name), and USED\_TIME (column name).

**User Time attribute**

The amount of time the CPU spent in the user (non\_system) state in milliseconds. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: USER\_TIME (warehouse name), User Time (caption), User\_Time (attribute name), and USER\_TIME (column name).

**Utilization attribute**

The CPU usage percentage. This value is calculated as user time divided by the sum of used, ready, and wait times. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: UTILIZATION or U (warehouse name), Utilization (caption), Utilization (attribute name), and U (column name).

### **VM HostName attribute**

The host name of the virtual machine. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_HOSTNAME or VH (warehouse name), VM HostName (caption), VM\_HostName (attribute name), and VH (column name).

### **VM Name attribute**

The user-defined display name of this virtual machine. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_NAME (warehouse name), VM Name (caption), VM\_Name (attribute name), and VM\_NAME (column name).

### **VM Name CPU Number attribute**

A concatenation of the VM Name and the CPU ID. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_NAME\_CPU\_NUMBER or VNCN (warehouse name), VM Name CPU Number (caption), VM\_Name\_CPU\_Number (attribute name), and VNCN (column name).

### **VM OS Type attribute**

The family for the guest operating system. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_OS\_TYPE (warehouse name), VM OS Type (caption), VM\_OS\_Type (attribute name), and VM\_OS\_TYPE (column name).

### **VM Server Name attribute**

The host name of the ESX server that runs this virtual machine. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_SERVER\_NAME or VSN (warehouse name), VM Server Name (caption), VM\_Server\_Name (attribute name), and VSN (column name).

### **Wait Time attribute**

The amount of time the CPU spent in the wait state in milliseconds. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: WAIT\_TIME (warehouse name), Wait Time (caption), Wait\_Time (attribute name), and WAIT\_TIME (column name).

## **VM Datastore Utilization attribute group**

[Edit online](#)

This attribute group contains information about the how each virtual machine is utilizing a data store. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### **Committed attribute**

The amount of space in GB, on this datastore, that is being used by this virtual machine. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The

following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: COMMITTED (warehouse name), Committed (caption), Committed (attribute name), and COMMITTED (column name).

#### **DataCenter attribute**

The name of the data center that contains this datastore. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), DataCenter (caption), DataCenter (attribute name), and DATACENTER (column name).

#### **Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Committed < 0) || (Uncommitted < 0) || (Provisioned < 0) || (Unshared < 0) || (Percent\_Committed < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDISO (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDISO (column name).

#### **Include Data In Summarization 1 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Total\_Read\_KBps < 0) || (Total\_Write\_KBps < 0) || (Total\_IO\_KBps < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_1 or IDIS1 (warehouse name), Include Data In Summarization 1 (caption), Include\_Data\_In\_Summarization\_1 (attribute name), and IDIS1 (column name).

#### **Name attribute**

The name of this datastore. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NAME (warehouse name), Name (caption), Name (attribute name), and NAME (column name).

#### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

#### **NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

#### **Percent Committed attribute**

The percentage of space on this datastore that is committed as a percentage of the provisioned amount. The type is real number (32-bit gauge) with two decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_COMMITTED or PC (warehouse name), Percent Committed (caption), Percent\_Committed (attribute name), and PC (column name).

#### **Provisioned attribute**

The total reserved amount of space in GB, on this datastore, that can be used by this virtual machine. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PROVISIONED or P (warehouse name), Provisioned (caption), Provisioned (attribute name), and P (column name).

#### **Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

#### **Total IO attribute**

The sum of total kilobytes read and written per second by this vm from this datastore. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TOTAL\_IO\_KBPS or TIK (warehouse name), Total IO (caption), Total\_IO\_KBps (attribute name), and TIK (column name).

#### **Total Read attribute**

The total kilobytes read per second by this vm from this datastore. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TOTAL\_READ\_KBPS or TRK (warehouse name), Total Read (caption), Total\_Read\_KBps (attribute name), and TRK (column name).

#### **Total Write attribute**

The total kilobytes written per second by this vm from this datastore. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TOTAL\_WRITE\_KBPS or TWK (warehouse name), Total Write (caption), Total\_Write\_KBps (attribute name), and TWK (column name).

#### **Uncommitted attribute**

The reserved but unused amount of space in GB, on this datastore, that can be used in the future by this virtual machine. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: UNCOMMITTED or U (warehouse name), Uncommitted (caption), Uncommitted (attribute name), and U (column name).

#### **Unshared attribute**

The amount of space in GB, on this datastore, occupied by this virtual machine that is not shared with any other virtual machines. The type is real number (32-bit gauge) with three decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: UNSHARED (warehouse name), Unshared (caption), Unshared (attribute name), and UNSHARED (column name).

#### **UUID attribute**

The UUID of the virtual machine associated with this datastore. This attribute is a key attribute. The type is string.

The following names are defined for this attribute: UUID (warehouse name), UUID (caption), UUID (attribute name), and UUID (column name).

#### **Virtual Machine attribute**

The name of the virtual machine on the datastore. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VIRTUAL\_MACHINE or VM (warehouse name), Virtual Machine (caption), Virtual\_Machine (attribute name), and VM (column name).

## **VM Disk attribute group**

[Edit online](#)

This attribute group contains information about disk usage for virtual machines. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

#### **Access attribute**

The disk access (read or write). The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: ACCESS (warehouse name), Access (caption), Access (attribute name), and ACCESS (column name).

#### **Backing data store attribute**

The name of the data store that backs this disk. The type is string with enumerated values. The following values are defined: Not Applicable (Not Applicable), Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: BACKING\_DATASTORE or BD (warehouse name), Backing data store (caption), Backing\_Datastore (attribute name), and BD (column name).

#### **Capacity attribute**

The capacity of the disk in MB. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1), Not applicable (0). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CAPACITY (warehouse name), Capacity (caption), Capacity (attribute name), and CAPACITY (column name).

#### **Connected attribute**

Indicates whether the disk is currently connected to the virtual machine. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable), Yes (Yes), No (No). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CONNECTED (warehouse name), Connected (caption), Connected (attribute name), and CONNECTED (column name).

#### **Description attribute**

The disk label and description. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DESCRIPTION or D (warehouse name), Description (caption), Description (attribute name), and D (column name).

#### **Disk Shares attribute**

The number of disk shares, or the relative weight, allocated to this virtual machine. This is the actual value when the shares level has been configured as 'custom'. In general, the more shares a virtual

machine has the more resource it gets. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-2), Not Applicable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DISK\_SHARES or DS (warehouse name), Disk Shares (caption), Disk\_Shares (attribute name), and DS (column name).

#### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

#### **NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

#### **Removable attribute**

Indicates whether the disk is a removable disk. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable), removable (removable), non-removable (non-removable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: REMOVABLE (warehouse name), Removable (caption), Removable (attribute name), and REMOVABLE (column name).

#### **Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

#### **VM HostName attribute**

The host name of the virtual machine. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_HOSTNAME or VH (warehouse name), VM HostName (caption), VM\_HostName (attribute name), and VH (column name).

#### **VM Name attribute**

The user-defined display name of this virtual machine. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_NAME (warehouse name), VM Name (caption), VM\_Name (attribute name), and VM\_NAME (column name).

#### **VM OS Type attribute**

The guest family for the operating system. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_OS\_TYPE (warehouse name), VM OS Type (caption), VM\_OS\_Type (attribute name), and VM\_OS\_TYPE (column name).

#### **VM Server Name attribute**

The host name of the ESX server that runs this virtual machine. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_SERVER\_NAME or VSN (warehouse name), VM Server Name (caption), VM\_Server\_Name (attribute name), and VSN (column name).

## VM Disk Performance attribute group

[Edit online](#)

This attribute group provides information about the performance of the disks that are associated with the virtual machines. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### Backing Datastore attribute

The name of the datastore that backs this VM disk if there is one. The type is string with enumerated values. The following values are defined: Not Applicable (Not Applicable), Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: BACKING\_DATASTORE or BD (warehouse name), Backing Datastore (caption), Backing\_Datastore (attribute name), and BD (column name).

### Disk Name attribute

The name of the disk. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DISK\_NAME (warehouse name), Disk Name (caption), Disk\_Name (attribute name), and DISK\_NAME (column name).

### Include Data In Summarization 0 attribute

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Read < 0 ) || (Write < 0 ) || (Number\_Read < 0 ) || (Number\_Write < 0 )? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDISO (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDISO (column name).

### Node attribute

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

### Number Read attribute

The number of times the data was read from the disk. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_READ or NR (warehouse name), Number Read (caption), Number\_Read (attribute name), and NR (column name).

### Number Write attribute

The number of times the data was written to the disk. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NUMBER\_WRITE or NW (warehouse name), Number Write (caption), Number\_Write (attribute name), and NW (column name).

**Read attribute**

The amount of data that is read (in KB per second) from the disk during the collection interval. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: READ (warehouse name), Read (caption), Read (attribute name), and READ (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

**Virtual Machine Name attribute**

The name of the virtual machine. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VIRTUAL\_MACHINE or VM (warehouse name), Virtual Machine Name (caption), Virtual\_Machine (attribute name), and VM (column name).

**VM MOREf attribute**

The internal managed object reference name of the virtual machine. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MOREF (warehouse name), VM MOREf (caption), MOREf (attribute name), and MOREF (column name).

**VMNodeID attribute**

This attribute is only for IBM-internal use. Provides the interval node ID of the virtual machine. The type is string.

The following names are defined for this attribute: VMNODEID (warehouse name), VMNodeID (caption), VMNodeID (attribute name), and VMNODEID (column name).

**Write attribute**

The amount of data that is written (in KB per second) to the disk during the collection interval. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: WRITE (warehouse name), Write (caption), Write (attribute name), and WRITE (column name).

## VM Memory attribute group

[Edit online](#)

This attribute group contains information about memory usage for virtual machines. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

**Active attribute**

The amount of memory (in MB) that is actively used. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: ACTIVE (warehouse name), Active (caption), Active (attribute name), and ACTIVE (column name).



**Balloon Usage attribute**

The amount of memory in KB being used by the VMware balloon driver. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: BALLOON\_USAGE or BU (warehouse name), Balloon Usage (caption), Balloon\_Usage (attribute name), and BU (column name).

**Datacenter attribute**

The name of the data center that contains this virtual machine. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

**Granted attribute**

The amount of memory (in MB) that is mapped to the virtual machine. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: GRANTED (warehouse name), Granted (caption), Granted (attribute name), and GRANTED (column name).

**Guest Free attribute**

The amount of guest OS memory currently free in MB. This value is calculated as the difference between MemoryTotalSize and MemoryGuestUsage. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: GUEST\_FREE (warehouse name), Guest Free (caption), Guest\_Free (attribute name), and GUEST\_FREE (column name).

**Guest Usage attribute**

The amount of memory being used by the guest operating system in MB. The value can be between 0 and the configured memory size of the virtual machine. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: GUEST\_USAGE or GU (warehouse name), Guest Usage (caption), Guest\_Usage (attribute name), and GU (column name).

**Guest Util attribute**

The percentage of memory (average) that was used by the guest running in this virtual machine over the past sample interval. This value is calculated as the percentage of MemoryGuestUsage over MemoryTotalSize. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: GUEST\_UTIL (warehouse name), Guest Util (caption), Guest\_Util (attribute name), and GUEST\_UTIL (column name).

**Host Free attribute**

The amount of virtual machine memory currently free in MB. This value is calculated as the difference between MemoryTotalSize and MemoryHostUsage. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: HOST\_FREE (warehouse name), Host Free (caption), Host\_Free (attribute name), and HOST\_FREE (column name).

**Host Usage attribute**

The amount of host (server) memory in MB that is currently being used by the virtual machine. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: HOST\_USAGE (warehouse name), Host Usage (caption), Host\_Usage (attribute name), and HOST\_USAGE (column name).

#### **Host Util attribute**

The percentage of memory (average) that was used by the virtual machine over the past sample interval. This value is calculated as the percentage of MemoryHostUsage over MemoryTotalSize. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: HOST\_UTIL (warehouse name), Host Util (caption), Host\_Util (attribute name), and HOST\_UTIL (column name).

#### **Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Host\_Usage < 0) || (Host\_Util < 0) || (Guest\_Usage < 0) || (Guest\_Util < 0) || (Guest\_Free < 0) || (Host\_Free < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDIS0 (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDIS0 (column name).

#### **Include Data In Summarization 1 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Min\_Alloc < 0) || (Usage < 0) || (Swap\_To\_File < 0) || (Balloon\_Usage < 0) || (Active < 0) || (Shared < 0) || (Granted < 0)? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_1 or IDIS1 (warehouse name), Include Data In Summarization 1 (caption), Include\_Data\_In\_Summarization\_1 (attribute name), and IDIS1 (column name).

#### **Include Data In Summarization 2 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_2 or IDIS2 (warehouse name), Include Data In Summarization 2 (caption), Include\_Data\_In\_Summarization\_2 (attribute name), and IDIS2 (column name).

#### **Max Alloc attribute**

Maximum amount of memory in MB that can be used by the virtual machine. The value is -1 if there is no limit. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-2), No limit (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MAX\_ALLOC (warehouse name), Max Alloc (caption), Max\_Alloc (attribute name), and MAX\_ALLOC (column name).

#### **Min Alloc attribute**

Minimum amount of memory in MB guaranteed to be allocated to the virtual machine. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: MIN\_ALLOC (warehouse name), Min Alloc (caption), Min\_Alloc (attribute name), and MIN\_ALLOC (column name).

#### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

#### **NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

#### **Shared attribute**

The amount of memory (in MB) that is shared with other virtual machines. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SHARED (warehouse name), Shared (caption), Shared (attribute name), and SHARED (column name).

#### **Swap In Rate attribute**

The rate (in KB per second) at which the memory is swapped from the disk to the active memory, over the past sample interval. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SWAP\_IN\_RATE or SIR (warehouse name), Swap In Rate (caption), Swap\_In\_Rate (attribute name), and SIR (column name).

#### **Swap Out Rate attribute**

The rate (in KB per second) at which memory is swapped from the active memory to the disk, over the past sample interval. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SWAP\_OUT\_RATE or SOR (warehouse name), Swap Out Rate (caption), Swap\_Out\_Rate (attribute name), and SOR (column name).

#### **Swap To File attribute**

The total amount of virtual machine memory that has been swapped out to the swap file in KB. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SWAP\_TO\_FILE or STF (warehouse name), Swap To File (caption), Swap\_To\_File (attribute name), and STF (column name).

#### **Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

#### **Total Size attribute**

Total amount of memory allocated to the virtual machine in MB. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TOTAL\_SIZE (warehouse name), Total Size (caption), Total\_Size (attribute name), and TOTAL\_SIZE (column name).

#### **Usage attribute**

The amount of memory (in percentage) that is used from the total configured or available memory. The type is real number (32-bit gauge) with two decimal places of precision with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: USAGE (warehouse name), Usage (caption), Usage (attribute name), and USAGE (column name).

#### **VM HostName attribute**

The host name of the virtual machine. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_HOSTNAME or VH (warehouse name), VM HostName (caption), VM\_HostName (attribute name), and VH (column name).

#### **VM Name attribute**

The user-defined display name of this virtual machine. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_NAME (warehouse name), VM Name (caption), VM\_Name (attribute name), and VM\_NAME (column name).

#### **VM OS Type attribute**

The guest family for the operating system. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_OS\_TYPE (warehouse name), VM OS Type (caption), VM\_OS\_Type (attribute name), and VM\_OS\_TYPE (column name).

#### **VM Server Name attribute**

The host name of the ESX server that runs this virtual machine. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_SERVER\_NAME or VSN (warehouse name), VM Server Name (caption), VM\_Server\_Name (attribute name), and VSN (column name).

## **VM Network attribute group**

[Edit online](#)

This attribute group contains information about the network usage for the virtual machines on this ESX server. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

#### **Cluster attribute**

The name of the cluster that this virtual machine is a member of or unavailable if not a member of any cluster. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CLUSTER (warehouse name), Cluster (caption), Cluster (attribute name), and CLUSTER (column name).

#### **Datacenter attribute**

The name of the data center this virtual machine is a member of. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), Datacenter (caption), Datacenter (attribute name), and DATACENTER (column name).

**Description attribute**

The description of this NIC. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DESCRIPTION or D (warehouse name), Description (caption), Description (attribute name), and D (column name).

**Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).

The source for this attribute is derived: (Transmitted < 0) || (Received < 0) || (Pkts\_Trans < 0) || (Pkts\_Recd < 0) ? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDISO (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDISO (column name).

**Network attribute**

The network name that the virtual NIC is associated with. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: NETWORK\_NAME or NN (warehouse name), Network (caption), Network\_Name (attribute name), and NN (column name).

**Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

**NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

**Physical Address attribute**

The physical address of this NIC. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PHYSICAL\_ADDR or PA (warehouse name), Physical Address (caption), Physical\_Addr (attribute name), and PA (column name).

**Pkts Received attribute**

The number of packets received in the sample interval. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PKTS\_RECD (warehouse name), Pkts Received (caption), Pkts\_Recd (attribute name), and PKTS\_RECD (column name).

**Pkts Transmitted attribute**

The number of packets transmitted in the sample interval. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PKTS\_TRANS (warehouse name), Pkts Transmitted (caption), Pkts\_Trans (attribute name), and PKTS\_TRANS (column name).

**Received attribute**

The amount of data received in the sample interval in KB per second. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: RECEIVED (warehouse name), Received (caption), Received (attribute name), and RECEIVED (column name).

**Switch attribute**

The name of the virtual switch that interface uses. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SWITCH (warehouse name), Switch (caption), Switch (attribute name), and SWITCH (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

**Transmitted attribute**

The amount of data transmitted in the sample interval in KB per second. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: TRANSMITTED or T (warehouse name), Transmitted (caption), Transmitted (attribute name), and T (column name).

**VM HostName attribute**

The host name of the virtual machine. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_HOSTNAME or VH (warehouse name), VM HostName (caption), VM\_HostName (attribute name), and VH (column name).

**VM Name attribute**

The user-defined display name of this virtual machine. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_NAME (warehouse name), VM Name (caption), VM\_Name (attribute name), and VM\_NAME (column name).

**VM OS Type attribute**

The guest family for the operating system. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_OS\_TYPE (warehouse name), VM OS Type (caption), VM\_OS\_Type (attribute name), and VM\_OS\_TYPE (column name).

**VM Server Name attribute**

The host name of the ESX server that runs this virtual machine. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_SERVER\_NAME or VSN (warehouse name), VM Server Name (caption), VM\_Server\_Name (attribute name), and VSN (column name).

## VM Orphaned Disk attribute group

[Edit online](#)

This attribute group provides information about the orphaned virtual machine disks. It shows the orphaned disks of data store that are dedicated to vCenter; Data may not be valid if data store is shared across or managed by more than one vCenters. Data may not be valid if virtual machine is renamed and name mismatch occurred to the vmdk files created on the data store. Administrator is expected to ensure the data validity before taking any actions against the disks showed in this attribute group. IBM will not be responsible for any data loss. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### DataCenter attribute

The name of the data center that the data store belongs to. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATACENTER (warehouse name), DataCenter (caption), DataCenter (attribute name), and DATACENTER (column name).

### Datastore attribute

The name of the data store that the orphaned virtual machine disk belongs to. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATASTORE (warehouse name), Datastore (caption), Datastore (attribute name), and DATASTORE (column name).

### Datastore Cluster attribute

The name of the data store cluster that the data store belongs to. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DATASTORE\_CLUSTER or DC (warehouse name), Datastore Cluster (caption), Datastore\_Cluster (attribute name), and DC (column name).

### File Path attribute

The path of the orphaned virtual machine disk. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: FILE\_PATH (warehouse name), File Path (caption), File\_Path (attribute name), and FILE\_PATH (column name).

### File Size attribute

The size (in MB) of the orphaned virtual machine disk. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: FILE\_SIZE (warehouse name), File Size (caption), File\_Size (attribute name), and FILE\_SIZE (column name).

### Last Modified attribute

The time when the orphaned virtual machine disk was last modified. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: LAST\_MODIFIED or LM (warehouse name), Last Modified (caption), Last\_Modified (attribute name), and LM (column name).

### Node attribute

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

#### **Owner attribute**

The name of the owner of the orphaned virtual machine disk. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: OWNER (warehouse name), Owner (caption), Owner (attribute name), and OWNER (column name).

#### **Source attribute**

The host name of the data source. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: SOURCE (warehouse name), Source (caption), Source (attribute name), and SOURCE (column name).

#### **Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

## **VM Partition attribute group**

[Edit online](#)

This attribute group contains information about disk partitions for virtual machines. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

#### **Capacity attribute**

The size of the partition in MB. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: CAPACITY (warehouse name), Capacity (caption), Capacity (attribute name), and CAPACITY (column name).

#### **Description attribute**

The description or label of this disk partition. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: DESCRIPTION or D (warehouse name), Description (caption), Description (attribute name), and D (column name).

#### **Free Space attribute**

The amount of unused space in MB. The type is integer (32-bit gauge) with enumerated values.

The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: FREE\_SPACE (warehouse name), Free Space (caption), Free\_Space (attribute name), and FREE\_SPACE (column name).

#### **Include Data In Summarization 0 attribute**

This attribute is only for IBM-internal use. Indicates whether to include certain attribute data (numbers) in Tivoli Data Warehouse summarization. The valid values are 0 (exclude) and 1 (include). The type is integer (32-bit gauge).



The source for this attribute is derived: (Free\_Space < 0 ) || (Used\_Space < 0 ) || (Percent\_Used < 0 ) || (Percent\_Free < 0 )? 0 : 1

The following names are defined for this attribute: INCLUDE\_DATA\_IN\_SUMMARIZATION\_0 or IDISO (warehouse name), Include Data In Summarization 0 (caption), Include\_Data\_In\_Summarization\_0 (attribute name), and IDISO (column name).

#### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

#### **NodeID attribute**

This attribute is only for IBM-internal use. The type is string.

The following names are defined for this attribute: NODEID (warehouse name), NodeID (caption), NodeID (attribute name), and NODEID (column name).

#### **Percent Free attribute**

The percentage of space on the partition is unallocated. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_FREE or PF (warehouse name), Percent Free (caption), Percent\_Free (attribute name), and PF (column name).

#### **Percent Used attribute**

The percentage usage of used space. The type is integer (32-bit gauge) with enumerated values.

The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: PERCENT\_USED or PU (warehouse name), Percent Used (caption), Percent\_Used (attribute name), and PU (column name).

#### **Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

#### **Used Space attribute**

The amount of space used in MB. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: USED\_SPACE (warehouse name), Used Space (caption), Used\_Space (attribute name), and USED\_SPACE (column name).

#### **VM HostName attribute**

The host name of the virtual machine. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_HOSTNAME or VH (warehouse name), VM HostName (caption), VM\_HostName (attribute name), and VH (column name).

#### **VM Name attribute**

The user-defined display name of this virtual machine. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_NAME (warehouse name), VM Name (caption), VM\_Name (attribute name), and VM\_NAME (column name).

#### **VM OS Type attribute**

The guest family for the operating system. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_OS\_TYPE (warehouse name), VM OS Type (caption), VM\_OS\_Type (attribute name), and VM\_OS\_TYPE (column name).

#### **VM Server Name attribute**

The host name of the ESX server that runs this virtual machine. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The following names are defined for this attribute: VM\_SERVER\_NAME or VSN (warehouse name), VM Server Name (caption), VM\_Server\_Name (attribute name), and VSN (column name).

## **VM Snapshot attribute group**

[Edit online](#)

This attribute group is for IBM-internal use only. This attribute group is not eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

#### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

#### **Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

## **VM SnapshotFileLayout attribute group**

[Edit online](#)

This attribute group is for IBM-internal use only. This attribute group is not eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

#### **Node attribute**

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

### Timestamp attribute

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

## VM Snapshots attribute group

[Edit online](#)

This attribute group provides information about the snapshots for the virtual machines. This attribute group is eligible for use with Tivoli Data Warehouse.

This attribute group contains the following attributes:

### Creation Time(Deprecated) attribute

This attribute is deprecated, alternative to use is Creation\_Timestamp The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The source for this attribute is derived: Creation\_Date\_I

The following names are defined for this attribute: CREATION\_TIME or CT (warehouse name), Creation Time(Deprecated) (caption), Creation\_Time (attribute name), and CT (column name).

### Creation Timestamp attribute

The date and time when the snapshot was created. Timestamp format is MM/DD/YY HH:MM:SS The type is timestamp.

The source for this attribute is derived: Creation\_Time\_I

The following names are defined for this attribute: CREATION\_TIMESTAMP or CT0 (warehouse name), Creation Timestamp (caption), Creation\_Timestamp (attribute name), and CT0 (column name).

### Description attribute

The description of the snapshot. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The source for this attribute is derived: Description\_I

The following names are defined for this attribute: DESCRIPTION or D (warehouse name), Description (caption), Description (attribute name), and D (column name).

### Node attribute

The managed system name of the agent. This attribute is a key attribute. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: NODE (warehouse name), Node (caption), ORIGINNODE (attribute name), and ORIGINNODE (column name).

### Snapshot Age attribute

The age of the snapshot, in days. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The source for this attribute is derived: SnapshotAge\_I

The following names are defined for this attribute: SNAPSHOT\_AGE or SA (warehouse name), Snapshot Age (caption), Snapshot\_Age (attribute name), and SA (column name).

**Snapshot MOREf attribute**

The internal managed object reference name of the snapshot. This attribute is a key attribute. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The source for this attribute is derived: ManRef\_I

The following names are defined for this attribute: SNAPSHOT\_MOREF or SM (warehouse name), Snapshot MOREf (caption), Snapshot\_MOREf (attribute name), and SM (column name).

**Snapshot Name attribute**

The name of the snapshot. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The source for this attribute is derived: Snapshot\_Name\_I

The following names are defined for this attribute: SNAPSHOT\_NAME or SN (warehouse name), Snapshot Name (caption), Snapshot\_Name (attribute name), and SN (column name).

**Snapshot State attribute**

Indicates whether snapshot of a virtual machine has taken by including its memory component. PoweredOff represents snapshot has taken in offline state with no memory inclusion, PoweredOn indicates snapshot has included memory component, Unavailable indicates state is unknown. This attribute is supported since vCenter/ESXi 6.0 onward. The type is string with enumerated values. The following values are defined: Unavailable (-1), PoweredOff (PoweredOff), PoweredOn (PoweredOn). Any value that does not have a definition here is displayed in the User Interface.

The source for this attribute is derived: Memory\_Key\_I

The following names are defined for this attribute: SNAPSHOT\_STATE or SS (warehouse name), Snapshot State (caption), Snapshot\_State (attribute name), and SS (column name).

**Space Consumed attribute**

The amount of disk space (in MB) that is used by the snapshot. The type is integer (32-bit gauge) with enumerated values. The following values are defined: Unavailable (-1). Any value that does not have a definition here is displayed in the User Interface.

The source for this attribute is derived: Space\_Consumed\_I

The following names are defined for this attribute: SPACE\_CONSUMED or SC (warehouse name), Space Consumed (caption), Space\_Consumed (attribute name), and SC (column name).

**Timestamp attribute**

The local time at the agent when the data was collected. The type is string.

The source for this attribute is the agent

The following names are defined for this attribute: TIMESTAMP (warehouse name), Timestamp (caption), Timestamp (attribute name), and TIMESTAMP (column name).

**VM Name attribute**

The name of the virtual machine. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The source for this attribute is derived: VM\_Name\_I

The following names are defined for this attribute: VM\_NAME (warehouse name), VM Name (caption), VM\_Name (attribute name), and VM\_NAME (column name).

**VM State attribute**

The state of the virtual machine when the snapshot was created. The type is string with enumerated values. The following values are defined: Unavailable (Unavailable). Any value that does not have a definition here is displayed in the User Interface.

The source for this attribute is derived: Virtual\_Machine\_State\_I

The following names are defined for this attribute: VM\_STATE (warehouse name), VM State (caption), VM\_State (attribute name), and VM\_STATE (column name).

## Disk capacity planning for historical data

[Edit online](#)

Disk capacity planning for a monitoring agent is a prediction of the amount of disk space to be consumed by the historical data in each attribute group that is collecting historical data. Required disk storage is an important factor when you are defining data collection rules and your strategy for historical data collection.

The Capacity planning for historical data table provides the following information, which is required to calculate disk space for this monitoring agent:

### Table

Table name as it is displayed in the warehouse database, if the attribute group is configured to be written to the warehouse. The table name listed here corresponds to the table name in [“Attribute groups for the monitoring agent”](#) on page 17.

### Attribute group

Name of the attribute group that is used to create the table in the warehouse database if it is short enough to fit in the table naming constraints of the database that is being used for the warehouse. The attribute group name listed here corresponds to the Warehouse table name in [“Attribute groups for the monitoring agent”](#) on page 17.

### Bytes per row (agent)

Estimate of the record length for each row or instance that is written to the agent disk for historical data collection. This estimate can be used for agent disk space planning purposes.

### Database bytes per row (warehouse)

Estimate of the record length for detailed records that are written to the warehouse database, if the attribute group is configured to be written to the warehouse. Detailed records are records that have been uploaded from the agent for long-term historical data collection. This estimate can be used for warehouse disk-space planning purposes.

### Aggregate bytes per row (warehouse)

Estimate of the record length for aggregate records that are written to the warehouse database, if the attribute group is configured to be written to the warehouse. Aggregate records are created by the Summarization agent for attribute groups that have been configured for summarization. This estimate can be used for warehouse disk-space planning purposes.

In addition to the information in the tables, you must know the number of rows of data that you plan to collect. An attribute group can have single or multiple rows of data, depending on the application environment that is being monitored. For example, if your attribute group monitors each processor in your computer and you have a dual processor computer, the number of rows is two.

Table 1. Capacity planning for historical data logged by the VMware VI agent				
Table	Attribute group	Bytes per row (agent)	Database bytes per row (warehouse)	Aggregate bytes per row (warehouse)
KVMATASKS	KVM_ACTIVE_TASKS	880	885	922
KVMAEVENTS	KVM_AGENT_EVENTS	220	221	258
KVMCLTRDST	KVM_CLUSTERED_DATASTORES	882	893	1098

Table 1. Capacity planning for historical data logged by the VMware VI agent (continued)				
Table	Attribute group	Bytes per row (agent)	Database bytes per row (warehouse)	Aggregate bytes per row (warehouse)
KVMCLTRRPS	KVM_CLUSTERED_RESOURCE_POOLS	658	668	963
KVMCLTRSRV	KVM_CLUSTERED_SERVERS	628	643	1106
KVMCLTVAPS	KVM_CLUSTERED_VIRTUAL_APPS	846	855	1009
KVMCLTRVMS	KVM_CLUSTERED_VIRTUAL_MACHINES	588	593	720
KVMCLUSTRT	KVM_CLUSTERS	896	1050	2953
KVMCLTDRSF	KVM_CLUSTER_DRS_FAULTS	1576	1587	1624
KVMDCTRS	KVM_DATACENTERS	378	426	898
KVMDSTORES	KVM_DATASTORES	1300	1367	2136
KVMDRCLUST	KVM_DATASTORE_CLUSTER	512	545	825
KVMDSHSD	KVM_DATASTORE_HOST_DISKS	576	577	614
KVMSTOPO	KVM_DATASTORE_TOPOLOGY	826	830	867
KVMDIRE	KVM_DIRECTOR	146	145	182
KVMDVPGRPS	KVM_DISTRIBUTED_VIRTUAL_PORTGROUPS	622	636	970
KVMDVSWTCH	KVM_DISTRIBUTED_VIRTUAL_SWITCHES	378	390	826
KVMDVSHLTH	KVM_DISTRIBUTED_VIRTUAL_SWITCH_HEALTH	1076	1084	1121
KVMDVUPLNK	KVM_DISTRIBUTED_VIRTUAL_UPLINKS	858	885	1165
KVMESXPOS	KVM_ESX_PERFORMANCE_OBJECT_STATUS	352	399	664
KVMIRAEVNT	KVM_EVENTS	1968	1985	2034
KVMDAG	KVM_MONITORED_SERVERS	197	198	235
KVMNETSERV	KVM_NETWORKED_SERVERS	542	547	713
KVMNETVM	KVM_NETWORKED_VIRTUAL_MACHINES	742	749	915
KVMNVSWITC	KVM_NETWORKED_VIRTUAL_SWITCHES	550	557	774
KVMDCNETS	KVM_NETWORKS	534	537	652
KVMPOBJST	KVM_PERFORMANCE_OBJECT_STATUS	352	399	664
KVMRSPOLC	KVM_RESOURCE_POOL_CPU	640	657	1171
KVMRSPOLG	KVM_RESOURCE_POOL_GENERAL	608	617	885
KVMRSPOLM	KVM_RESOURCE_POOL_MEMORY	640	657	1171
KVMSEVERG	KVM_SERVER	2310	2425	3632
KVMSEVERC	KVM_SERVER_CPU	296	311	462
KVMSERVDS	KVM_SERVER_DATASTORE	716	729	1102

<i>Table 1. Capacity planning for historical data logged by the VMware VI agent (continued)</i>				
<b>Table</b>	<b>Attribute group</b>	<b>Bytes per row (agent)</b>	<b>Database bytes per row (warehouse)</b>	<b>Aggregate bytes per row (warehouse)</b>
KVMSERVERD	KVM_SERVER_DISK	592	621	1600
KVMSRVHBAS	KVM_SERVER_HBA	670	685	1097
KVMSVRHLTH	KVM_SERVER_HEALTH	780	795	883
KVMSERVERM	KVM_SERVER_MEMORY	368	389	1188
KVMSERVERN	KVM_SERVER_NETWORK	828	858	1333
KVMSRVRSAN	KVM_SERVER_SAN	488	491	645
KVMSRVVSWI	KVM_SERVER_VIRTUAL_SWITCHES	496	501	706
KVMSVMDSUT	KVM_SERVER_VM_DATASTORE_UTILIZATION	500	566	870
KVMSERVERE	KVM_SUBNODE_EVENTS	1904	1920	1969
KVMTASKS	KVM_TASKS	1976	1986	2023
KVMTHPLST	KVM_THREAD_POOL_STATUS	124	168	550
KVMTOPEVNT	KVM_TOPOLOGICAL_EVENTS	498	502	539
KVMTOPO	KVM_TOPOLOGY	826	830	867
KVMALARMS	KVM_TRIGGERED_ALARMS	814	821	858
KVMVCENTER	KVM_VCENTERS	444	514	1001
KVMVM_GEN	KVM_VIRTUAL_MACHINES	1716	1769	2517
KVMVSWITCH	KVM_VIRTUAL_SWITCHES	450	456	673
KVMVM_CPU	KVM_VM_CPU	616	627	988
KVMVMDSUTL	KVM_VM_DATASTORE_UTILIZATION	516	586	1019
KVMVM_DISK	KVM_VM_DISK	988	996	1150
KVMVMDKPRF	KVM_VM_DISK_PERFORMANCE	346	350	555
KVMVM_MEM	KVM_VM_MEMORY	652	684	1393
KVMVM_NET	KVM_VM_NETWORK	1100	1112	1356
KVMVMORPDI	KVM_VM_ORPHANED_DISK	780	784	860
KVMVM_PART	KVM_VM_PARTITION	604	612	895
KVMVMSNAP	KVM_VM_SNAPSHOT	76	72	109
KVMVMSNPFL	KVM_VM_SNAPSHOTFILELAYOUT	76	72	109
KVMVMSNAPS	KVM_VM_SNAPSHOTS	680	683	759

For more information about historical data collection, see "Managing historical data" in the *IBM Tivoli Monitoring Administrator's Guide*.





---

## Chapter 3. Situations

A situation is a logical expression involving one or more system conditions. Situations are used to monitor the condition of systems in your network. You can manage situations from the Tivoli Enterprise Portal by using the Situation Editor or from the command-line interface using the `tacmd` commands for situations. You can manage private situations in the private configuration XML file.

### About situations

The monitoring agents that you use to monitor your system environment include a set of predefined situations that you can use as-is. You can also create new situations to meet your requirements.

Predefined situations contain attributes that check for system conditions common to many enterprises. Using predefined situations can improve the speed with which you can begin using the IBM Tivoli Monitoring for Virtual Environments Agent for VMware VI. You can change the conditions or values being monitored by a predefined situation to the conditions or values best suited to your enterprise.

You can display predefined situations and create your own situations using the Situation editor. The Situation editor initially lists the situations associated with the navigator item that you selected. When you click a situation name or create a situation, a panel opens with the following tabs:

#### Formula

Formula describing the condition being tested.

#### Distribution

List of managed systems (operating systems, subsystems, or applications) to which the situation can be distributed. All the VMware VI agent managed systems are assigned by default.

#### Expert advice

Comments and instructions to be read in the event workspace.

#### Action

Command to be sent to the system.

#### EIF

Customize forwarding of the event to an Event Integration Facility receiver. (Available when the Tivoli Enterprise Monitoring Server is configured to forward events.)

#### Until

Options to close the event after a period of time, or when another situation becomes true.

### Additional information about situations

The *Tivoli Enterprise Portal User's Guide* contains more information about predefined and custom situations and how to use them to respond to alerts.

For a list of the predefined situations and information about each individual situation for this monitoring agent, see [“Predefined situations” on page 177](#).

---

## Predefined situations

[Edit online](#)

The monitoring agent contains predefined situations, which are organized by Navigator item.

Agent level Navigator items

- VMware VI
  - Not applicable
- Clusters

- KVM\_Cluster\_Bad\_Status
- KVM\_Cluster\_CPU\_Util\_High
- KVM\_Cluster\_Effective\_CPU\_Low
- KVM\_Cluster\_Effective\_Mem\_Low
- KVM\_Cluster\_Effective\_Svrs\_Low
- KVM\_Cluster\_Memory\_Util\_High
- Datastores
  - KVM\_Datastore\_Bad\_Status
  - KVM\_Datastore\_Inaccessible
  - KVM\_Datastore\_Usage\_High
- Events
  - KVM\_Cluster\_Critical\_Event
  - KVM\_Datastore\_Critical\_Event
  - KVM\_VM\_Critical\_Event
- Monitored Servers
  - KVM\_Collection\_Error
  - KVM\_Collection\_Time\_Excessive
  - KVM\_Connection\_Failure
  - KVM\_Host\_System\_Created
  - KVM\_Host\_System\_Created2
  - KVM\_Host\_System\_Destroyed
  - KVM\_Host\_System\_Destroyed2
  - KVM\_Inventory\_Out\_Of\_Date
  - KVM\_Take\_Action\_Failure
  - KVM\_Virtual\_Machine\_Created
  - KVM\_Virtual\_Machine\_Created2
  - KVM\_Virtual\_Machine\_Destroyed
  - KVM\_Virtual\_Machine\_Destroyed2
  - KVM\_Virtual\_Machine\_Relocated
  - KVM\_Virtual\_Machine\_Relocated2
- Networks
  - Not applicable

#### VMware VI (ESX) subnode

- VMware VI
  - Not applicable
- CPU
  - KVM\_VM\_CPU\_Ready\_High
  - KVM\_VM\_CPU\_Util\_High
- Disk
  - KVM\_Server\_Disk\_Reads\_High
  - KVM\_Server\_Disk\_Writes\_High
  - KVM\_VM\_Disk\_Free\_Low

- ESX Server
  - KVM\_ESX\_Server\_Disconnected
  - KVM\_Host\_Server\_Bad\_Status
  - KVM\_Server\_CPU\_Util\_High
  - KVM\_Server\_Critical\_Event
  - KVM\_Server\_Datastore\_Free\_Low
  - KVM\_Server\_HBA\_Fault
  - KVM\_Server\_Memory\_Util\_High
  - KVM\_Server\_VMotion\_Event
  - KVM\_Server\_VM\_Critical\_Event
- Memory
  - KVM\_VM\_Guest\_Memory\_Util\_High
  - KVM\_VM\_Host\_Memory\_Util\_High
- Network
  - KVM\_Server\_NIC\_Down
  - KVM\_Server\_Receive\_Rate\_High
  - KVM\_Server\_Transmit\_Rate\_High
  - KVM\_VM\_Receive\_Rate\_High
  - KVM\_VM\_Transmit\_Rate\_High
- Resource Pools
  - KVM\_Resource\_Pool\_CPU\_High
  - KVM\_Resource\_Pool\_Memory\_High
- Virtual Machines
  - KVM\_Snapshots\_High
  - KVM\_VM\_Bad\_Status
  - KVM\_VM\_Powered\_Off

## Situation descriptions

[Edit online](#)

Each situation description provides information about the situation that you can use to monitor the condition of systems in your network.

The situation descriptions provide the following information:

### **Description**

Information about the conditions that the situation tests.

### **Formula**

Syntax that contains one or more logical expressions that describe the conditions for the situation to monitor.

### **Distribution**

Whether the situation is automatically distributed to instances of the agent or is available for manual distribution.

### **Run at startup**

Whether the situation starts monitoring when the agent starts.

**Sampling interval**

Number of seconds that elapse between one sample of data that the monitoring agent collects for the server and the next sample.

**Situation persistence**

Whether the conditions specified in the situation evaluate to "true" for the defined number of occurrences in a row before the situation is raised. The default of one means that no persistence-checking takes place.

**Severity**

Severity of the predefined events: Warning, Informational, or Critical.

**Clearing conditions**

Controls when a true situation closes: after a period, when another situation is true, or whichever occurs first if both are selected.

## VMware VI navigator item

[Edit online](#)

No predefined situations are included for this navigator item.

## Clusters navigator item

[Edit online](#)

The situation descriptions are organized by the navigator item to which the situations are relevant.

**KVM\_Cluster\_Bad\_Status situation****Description**

The status of the cluster is not green.

The situation is evaluated for each distinct value of the DataCenter attribute.

**Formula**

```
*IF *VALUE KVM_CLUSTERS.Overall_Status *NE 'Unavailable' *AND *VALUE  
KVM_CLUSTERS.Overall_Status *NE 'green'
```

See [“Attributes in each attribute group” on page 22](#) for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

15 minutes

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_Cluster\_CPU\_Util\_High situation****Description**

The CPU utilization of the cluster is high.

The situation is evaluated for each distinct value of the DataCenter attribute.

**Formula**

\*IF \*VALUE KVM\_CLUSTERS.CPU\_Utilization \*GT 90

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

1 minute 30 seconds

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_Cluster\_Effective\_CPU\_Low situation**

**Description**

The effective CPU amount of the cluster is low.

The situation is evaluated for each distinct value of the DataCenter attribute.

**Formula**

\*IF \*VALUE KVM\_CLUSTERS.Percent\_Effective\_CPU \*GE 0 \*AND \*VALUE KVM\_CLUSTERS.Percent\_Effective\_CPU \*LT 50

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

1 minute 30 seconds

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_Cluster\_Effective\_Mem\_Low situation**

**Description**

The effective memory of the cluster amount is low.

The situation is evaluated for each distinct value of the DataCenter attribute.

**Formula**

\*IF \*VALUE KVM\_CLUSTERS.Percent\_Effective\_Memory \*GE 0 \*AND \*VALUE KVM\_CLUSTERS.Percent\_Effective\_Memory \*LT 50

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

1 minute 30 seconds

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_Cluster\_Effective\_Svrs\_Low situation****Description**

The number of effective servers in the cluster is low.

The situation is evaluated for each distinct value of the DataCenter attribute.

**Formula**

\*IF \*VALUE KVM\_CLUSTERS.Percent\_Effective\_Servers \*GE 0 \*AND \*VALUE KVM\_CLUSTERS.Percent\_Effective\_Servers \*LT 30

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

1 minute 30 seconds

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_Cluster\_Memory\_Util\_High situation****Description**

The memory utilization of the cluster is high.

The situation is evaluated for each distinct value of the DataCenter attribute.

**Formula**

\*IF \*VALUE KVM\_CLUSTERS.Memory\_Utilization \*GT 90

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

1 minute 30 seconds

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

## Datastores navigator item

[Edit online](#)

The situation descriptions are organized by the navigator item to which the situations are relevant.

### KVM\_Datastore\_Bad\_Status situation

**Description**

The status of the data store is not green.

The situation is evaluated for each distinct value of the Name attribute.

**Formula**

```
*IF *VALUE KVM_DATASTORES.Overall_Status *NE 'Unavailable' *AND *VALUE  
KVM_DATASTORES.Overall_Status *NE 'green'
```

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

30 seconds

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

### KVM\_Datastore\_Inaccessible situation

**Description**

The connectivity status of the data store is currently false.

The situation is evaluated for each distinct value of the Name attribute.

**Formula**

\*IF \*VALUE KVM\_DATASTORES.Accessible \*EQ 'No'

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

30 seconds

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_Datastore\_Usage\_High situation****Description**

The data store is nearing or is at its defined capacity.

The situation is evaluated for each distinct value of the Name attribute.

**Formula**

\*IF \*VALUE KVM\_DATASTORES.Percent\_Used \*GT 90

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

30 seconds

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Critical

**Clearing conditions**

The situation clears when the condition becomes false.

## Events navigator item

[Edit online](#)

The situation descriptions are organized by the navigator item to which the situations are relevant.

**KVM\_Cluster\_Critical\_Event situation****Description**

An error has occurred on the cluster.



The situation is evaluated for each distinct value of the Source\_Hostname attribute.

**Formula**

\*IF \*VALUE KVM\_EVENTS.Entity\_Type \*EQ 'Cluster' \*AND \*VALUE KVM\_EVENTS.Category \*EQ 'error'

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

None. Data is analyzed when it becomes available.

**Situation persistence**

Not Applicable

**Error conditions**

Critical

**Clearing conditions**

The situation does not clear automatically.

**KVM\_Datastore\_Critical\_Event situation**

**Description**

An error has occurred on the data store.

The situation is evaluated for each distinct value of the Source\_Hostname attribute.

**Formula**

\*IF \*VALUE KVM\_EVENTS.Entity\_Type \*EQ 'Datastore' \*AND \*VALUE KVM\_EVENTS.Category \*EQ 'error'

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

None. Data is analyzed when it becomes available.

**Situation persistence**

Not Applicable

**Error conditions**

Critical

**Clearing conditions**

The situation does not clear automatically.

**KVM\_VM\_Critical\_Event situation**

**Description**

An error has occurred on the virtual machine.

The situation is evaluated for each distinct value of the Source\_Hostname attribute.

**Formula**

\*IF \*VALUE KVM\_EVENTS.Entity\_Type \*EQ 'VirtualMachine' \*AND \*VALUE KVM\_EVENTS.Category \*EQ 'error'

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is available for distribution.

**Run at startup**

No

**Sampling interval**

None. Data is analyzed when it becomes available.

**Situation persistence**

Not Applicable

**Error conditions**

Critical

**Clearing conditions**

The situation does not clear automatically.

## Monitored Servers navigator item

[Edit online](#)

The situation descriptions are organized by the navigator item to which the situations are relevant.

### KVM\_Collection\_Error situation

**Description**

An ESX server is not responding to performance API queries.

The situation is evaluated for the table.

**Formula**

```
*IF *VALUE KVM_AGENT_EVENTS.Message *EQ 23 *AND *VALUE  
KVM_AGENT_EVENTS.Severity *EQ Warning
```

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

None. Data is analyzed when it becomes available.

**Situation persistence**

Not Applicable

**Error conditions**

Warning

**Clearing conditions**

The situation does not clear automatically.

### KVM\_Collection\_Time\_Excessive situation

**Description**

A data collection is taking excessively long.

The situation is evaluated for each distinct value of the Configured\_Address attribute.

**Formula**

```
*IF *VALUE KVM_VCENERS.Current_CU_Execution_Time *GT 600000
```

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

2 minutes

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Critical

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_Connection\_Failure situation****Description**

A problem exists with the data source connection.

The situation is evaluated for each distinct value of the Configured\_Address attribute.

**Formula**

\*IF \*VALUE KVM\_VCENTERS.Agent\_Connection \*EQ 0

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

30 seconds

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Critical

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_Host\_System\_Created situation****Description**

A new ESX server was created.

The situation is evaluated for each distinct value of the Entity\_Type attribute.

**Formula**

\*IF \*VALUE KVM\_TOPOLOGICAL\_EVENTS.Entity\_Type \*EQ 'Host System' \*AND  
\*VALUE KVM\_TOPOLOGICAL\_EVENTS.Event\_Type \*EQ 'Created'

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is available for distribution.

**Run at startup**

No

**Sampling interval**

None. Data is analyzed when it becomes available.

**Situation persistence**

Not Applicable

**Error conditions**

Informational

**Clearing conditions**

The situation does not clear automatically.

**KVM\_Host\_System\_Created2 situation****Description**

A new ESX server was created.

The situation is evaluated for each distinct value of the Entity\_Type attribute.

**Formula**

```
*IF *VALUE KVM_TOPOLOGICAL_EVENTS.Entity_Type *EQ 'Host System' *AND  
*VALUE KVM_TOPOLOGICAL_EVENTS.Event_Type *EQ 'Created'
```

See “[Attributes in each attribute group](#)” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is available for distribution.

**Run at startup**

No

**Sampling interval**

None. Data is analyzed when it becomes available.

**Situation persistence**

Not Applicable

**Error conditions**

Informational

**Clearing conditions**

The situation does not clear automatically.

**KVM\_Host\_System\_Destroyed situation****Description**

An ESX server was destroyed.

The situation is evaluated for each distinct value of the Entity\_Type attribute.

**Formula**

```
*IF *VALUE KVM_TOPOLOGICAL_EVENTS.Entity_Type *EQ 'Host System' *AND  
*VALUE KVM_TOPOLOGICAL_EVENTS.Event_Type *EQ 'Destroyed'
```

See “[Attributes in each attribute group](#)” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is available for distribution.

**Run at startup**

No

**Sampling interval**

None. Data is analyzed when it becomes available.

**Situation persistence**

Not Applicable

**Error conditions**

Informational

**Clearing conditions**

The situation does not clear automatically.

**KVM\_Host\_System\_Destroyed2 situation****Description**

An ESX server was destroyed.

The situation is evaluated for each distinct value of the Entity\_Type attribute.

**Formula**

\*IF \*VALUE KVM\_TOPOLOGICAL\_EVENTS.Entity\_Type \*EQ 'Host System' \*AND  
\*VALUE KVM\_TOPOLOGICAL\_EVENTS.Event\_Type \*EQ 'Destroyed'

See [“Attributes in each attribute group” on page 22](#) for descriptions of the attributes in this formula.

**Distribution**

This situation is available for distribution.

**Run at startup**

No

**Sampling interval**

None. Data is analyzed when it becomes available.

**Situation persistence**

Not Applicable

**Error conditions**

Informational

**Clearing conditions**

The situation does not clear automatically.

**KVM\_Inventory\_Out\_Of\_Date situation****Description**

The agent inventory is out of date.

The situation is evaluated for each distinct value of the Configured\_Address attribute.

**Formula**

\*IF \*VALUE KVM\_VCENTERS.Inventory\_Age \*GT 180000

See [“Attributes in each attribute group” on page 22](#) for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

30 seconds

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Critical

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_Take\_Action\_Failure situation****Description**

A problem occurred during a Take Action command.

The situation is evaluated for the table.

**Formula**

\*IF \*VALUE KVM\_AGENT\_EVENTS.Subsystem \*EQ Task \*AND \*VALUE  
KVM\_AGENT\_EVENTS.Severity \*EQ Warning

See [“Attributes in each attribute group” on page 22](#) for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

None. Data is analyzed when it becomes available.

**Situation persistence**

Not Applicable

**Error conditions**

Warning

**Clearing conditions**

The situation does not clear automatically.

**KVM\_Virtual\_Machine\_Created situation****Description**

A new virtual machine was created.

The situation is evaluated for each distinct value of the Entity\_Type attribute.

**Formula**

\*IF \*VALUE KVM\_TOPOLOGICAL\_EVENTS.Entity\_Type \*EQ 'Virtual Machine' \*AND  
\*VALUE KVM\_TOPOLOGICAL\_EVENTS.Event\_Type \*EQ 'Created'

See [“Attributes in each attribute group” on page 22](#) for descriptions of the attributes in this formula.

**Distribution**

This situation is available for distribution.

**Run at startup**

No

**Sampling interval**

None. Data is analyzed when it becomes available.

**Situation persistence**

Not Applicable

**Error conditions**

Informational

**Clearing conditions**

The situation does not clear automatically.

## KVM\_Virtual\_Machine\_Created2 situation

### Description

A new virtual machine was created.

The situation is evaluated for each distinct value of the Entity\_Type attribute.

### Formula

```
*IF *VALUE KVM_TOPOLOGICAL_EVENTS.Entity_Type *EQ 'Virtual Machine' *AND  
*VALUE KVM_TOPOLOGICAL_EVENTS.Event_Type *EQ 'Created'
```

See [“Attributes in each attribute group” on page 22](#) for descriptions of the attributes in this formula.

### Distribution

This situation is available for distribution.

### Run at startup

No

### Sampling interval

None. Data is analyzed when it becomes available.

### Situation persistence

Not Applicable

### Error conditions

Informational

### Clearing conditions

The situation does not clear automatically.

## KVM\_Virtual\_Machine\_Destroyed situation

### Description

A virtual machine was destroyed.

The situation is evaluated for each distinct value of the Entity\_Type attribute.

### Formula

```
*IF *VALUE KVM_TOPOLOGICAL_EVENTS.Entity_Type *EQ 'Virtual Machine' *AND  
*VALUE KVM_TOPOLOGICAL_EVENTS.Event_Type *EQ 'Destroyed'
```

See [“Attributes in each attribute group” on page 22](#) for descriptions of the attributes in this formula.

### Distribution

This situation is available for distribution.

### Run at startup

No

### Sampling interval

None. Data is analyzed when it becomes available.

### Situation persistence

Not Applicable

### Error conditions

Informational

### Clearing conditions

The situation does not clear automatically.

## KVM\_Virtual\_Machine\_Destroyed2 situation

### Description

A virtual machine was destroyed.

The situation is evaluated for each distinct value of the Entity\_Type attribute.

**Formula**

```
*IF *VALUE KVM_TOPOLOGICAL_EVENTS.Entity_Type *EQ 'Virtual Machine' *AND  
*VALUE KVM_TOPOLOGICAL_EVENTS.Event_Type *EQ 'Destroyed'
```

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is available for distribution.

**Run at startup**

No

**Sampling interval**

None. Data is analyzed when it becomes available.

**Situation persistence**

Not Applicable

**Error conditions**

Informational

**Clearing conditions**

The situation does not clear automatically.

**KVM\_Virtual\_Machine\_Relocated situation**

**Description**

A virtual machine was relocated.

The situation is evaluated for each distinct value of the Entity\_Type attribute.

**Formula**

```
*IF *VALUE KVM_TOPOLOGICAL_EVENTS.Entity_Type *EQ 'Virtual Machine' *AND  
*VALUE KVM_TOPOLOGICAL_EVENTS.Event_Type *EQ 'Relocated'
```

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is available for distribution.

**Run at startup**

No

**Sampling interval**

None. Data is analyzed when it becomes available.

**Situation persistence**

Not Applicable

**Error conditions**

Informational

**Clearing conditions**

The situation does not clear automatically.

**KVM\_Virtual\_Machine\_Relocated2 situation**

**Description**

A virtual machine was relocated.

The situation is evaluated for each distinct value of the Entity\_Type attribute.

**Formula**

```
*IF *VALUE KVM_TOPOLOGICAL_EVENTS.Entity_Type *EQ 'Virtual Machine' *AND  
*VALUE KVM_TOPOLOGICAL_EVENTS.Event_Type *EQ 'Relocated'
```



See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is available for distribution.

**Run at startup**

No

**Sampling interval**

None. Data is analyzed when it becomes available.

**Situation persistence**

Not Applicable

**Error conditions**

Informational

**Clearing conditions**

The situation does not clear automatically.

## Networks navigator item

[Edit online](#)

No predefined situations are included for this navigator item.

## VMware VI subnode

[Edit online](#)

The situation descriptions are organized by the navigator item to which the situations are relevant.

### VMware VI navigator item

No predefined situations are included for this navigator item.

### CPU navigator item

#### KVM\_VM\_CPU\_Ready\_High situation

**Description**

The CPU percent ready is high.

The situation is evaluated for each distinct value of the VM\_Name attribute.

**Formula**

\*IF \*VALUE KVM\_VM\_CPU.Percent\_Rdy \*GT 15

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is available for distribution.

**Run at startup**

No

**Sampling interval**

15 minutes

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_VM\_CPU\_Util\_High situation****Description**

The CPU utilization is high.

The situation is evaluated for each distinct value of the VM\_Name attribute.

**Formula**

\*IF \*VALUE KVM\_VM\_CPU.Utilization \*GT 90

See “[Attributes in each attribute group](#)” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

15 minutes

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Critical

**Clearing conditions**

The situation clears when the condition becomes false.

**Disk navigator item****KVM\_Server\_Disk\_Reads\_High situation****Description**

The disk read activity is high.

The situation is evaluated for each distinct value of the Server\_Hostname attribute.

**Formula**

\*IF \*VALUE KVM\_SERVER\_DISK.Read \*GT 5000

See “[Attributes in each attribute group](#)” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is available for distribution.

**Run at startup**

No

**Sampling interval**

15 minutes

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_Server\_Disk\_Writes\_High situation****Description**

The disk write activity is high.

The situation is evaluated for each distinct value of the Server\_Hostname attribute.

**Formula**

\*IF \*VALUE KVM\_SERVER\_DISK.Write \*GT 5000

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is available for distribution.

**Run at startup**

No

**Sampling interval**

15 minutes

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_VM\_Disk\_Free\_Low situation****Description**

The virtual machine disk partition free space is low.

The situation is evaluated for each distinct value of the VM\_Name attribute.

**Formula**

\*IF \*VALUE KVM\_VM\_PARTITION.Percent\_Free \*GE 0 \*AND \*VALUE  
KVM\_VM\_PARTITION.Percent\_Free \*LT 10

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

15 minutes

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**ESX Server navigator item****KVM\_ESX\_Server\_Disconnected situation****Description**

An ESX Server is not connected.

The situation is evaluated for each distinct value of the Server\_Hostname attribute.

**Formula**

```
*IF *VALUE KVM_SERVER.Connection_State *NE 'Unavailable' *AND  
*VALUE KVM_SERVER.Connection_State *NE 'connected' *AND *VALUE  
KVM_SERVER.Maintenance_Mode *NE Yes
```

See [“Attributes in each attribute group” on page 22](#) for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

1 minute 30 seconds

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_Host\_Server\_Bad\_Status situation****Description**

The status of the host server is not green.

The situation is evaluated for each distinct value of the Server\_Hostname attribute.

**Formula**

```
*IF *VALUE KVM_SERVER.Overall_Status *NE 'Unavailable' *AND *VALUE  
KVM_SERVER.Overall_Status *NE 'green'
```

See [“Attributes in each attribute group” on page 22](#) for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

15 minutes

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_Server\_CPU\_Util\_High situation****Description**

The CPU utilization is high.

The situation is evaluated for each distinct value of the Server\_Hostname attribute.

**Formula**

\*IF \*VALUE KVM\_SERVER.Overall\_CPU\_Util \*GE 90

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

15 minutes

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_Server\_Critical\_Event situation****Description**

An error has occurred on the ESX server.

The situation is evaluated for each distinct value of the Server\_Hostname attribute.

**Formula**

\*IF \*VALUE KVM\_SUBNODE\_EVENTS.Entity\_Type \*EQ 'HostSystem' \*AND \*VALUE KVM\_SUBNODE\_EVENTS.Category \*EQ 'error'

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is available for distribution.

**Run at startup**

No

**Sampling interval**

None. Data is analyzed when it becomes available.

**Situation persistence**

Not Applicable

**Error conditions**

Critical

**Clearing conditions**

The situation does not clear automatically.

**KVM\_Server\_Datastore\_Free\_Low situation****Description**

The data store free space is low.

The situation is evaluated for each distinct value of the Server\_Hostname attribute.

**Formula**

```
*IF *VALUE KVM_SERVER_DATASTORE.Percent_Free *GE 0 *AND *VALUE  
KVM_SERVER_DATASTORE.Percent_Free *LT 10
```

See [“Attributes in each attribute group” on page 22](#) for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

15 minutes

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_Server\_HBA\_Fault situation****Description**

An ESX server host bus adapter has a fault.

The situation is evaluated for each distinct value of the Server\_Hostname attribute.

**Formula**

```
*IF *VALUE KVM_SERVER_HBA.Status *EQ 'fault'
```

See [“Attributes in each attribute group” on page 22](#) for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

15 minutes

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_Server\_Memory\_Util\_High situation****Description**

The memory utilization is high.

The situation is evaluated for each distinct value of the Server\_Hostname attribute.

**Formula**

\*IF \*VALUE KVM\_SERVER.Overall\_Memory\_Util \*GE 90

See [“Attributes in each attribute group” on page 22](#) for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

15 minutes

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_Server\_VMotion\_Event situation****Description**

A VMotion event has been detected.

The situation is evaluated for each distinct value of the Server\_Hostname attribute.

**Formula**

\*IF \*VALUE KVM\_SUBNODE\_EVENTS.Event\_Type \*EQ 'VmMigratedEvent' \*OR \*VALUE KVM\_SUBNODE\_EVENTS.Event\_Type \*EQ 'DrsVmMigratedEvent'

See [“Attributes in each attribute group” on page 22](#) for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

None. Data is analyzed when it becomes available.

**Situation persistence**

Not Applicable

**Error conditions**

Informational

**Clearing conditions**

The situation does not clear automatically.

**KVM\_Server\_VM\_Critical\_Event situation**

**Description**

An error has occurred on the virtual machine.

The situation is evaluated for each distinct value of the Server\_Hostname attribute.

**Formula**

```
*IF *VALUE KVM_SUBNODE_EVENTS.Entity_Type *EQ 'VirtualMachine' *AND
*VALUE KVM_SUBNODE_EVENTS.Category *EQ 'error'
```

See “[Attributes in each attribute group](#)” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is available for distribution.

**Run at startup**

No

**Sampling interval**

None. Data is analyzed when it becomes available.

**Situation persistence**

Not Applicable

**Error conditions**

Critical

**Clearing conditions**

The situation does not clear automatically.

**Memory navigator item****KVM\_VM\_Guest\_Memory\_Util\_High situation****Description**

The virtual machine guest memory usage is high.

The situation is evaluated for each distinct value of the VM\_Name attribute.

**Formula**

```
*IF *VALUE KVM_VM_MEMORY.Guest_Util *GT 90
```

See “[Attributes in each attribute group](#)” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

15 minutes

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_VM\_Host\_Memory\_Util\_High situation**



**Description**

The virtual machine host memory usage is high.

The situation is evaluated for each distinct value of the VM\_Name attribute.

**Formula**

\*IF \*VALUE KVM\_VM\_MEMORY.Host\_Util \*GT 90

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

15 minutes

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

## Network navigator item

### KVM\_Server\_NIC\_Down situation

**Description**

The host NIC adapter is not operational.

The situation is evaluated for each distinct value of the Server\_Hostname attribute.

**Formula**

\*IF \*VALUE KVM\_SERVER\_NETWORK.Status \*EQ 'down' \*AND \*VALUE KVM\_SERVER\_NETWORK.Virtual\_Switch \*NE 'Unavailable'

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is available for distribution.

**Run at startup**

No

**Sampling interval**

15 minutes

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

### KVM\_Server\_Receive\_Rate\_High situation

**Description**

The receive rate is high for the server.

The situation is evaluated for each distinct value of the Server\_Hostname attribute.

**Formula**

\*IF \*VALUE KVM\_SERVER\_NETWORK.Received \*GT 5000

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is available for distribution.

**Run at startup**

No

**Sampling interval**

15 minutes

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_Server\_Transmit\_Rate\_High situation****Description**

The transmit rate is high for the server.

The situation is evaluated for each distinct value of the Server\_Hostname attribute.

**Formula**

\*IF \*VALUE KVM\_SERVER\_NETWORK.Transmitted \*GT 5000

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is available for distribution.

**Run at startup**

No

**Sampling interval**

15 minutes

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_VM\_Receive\_Rate\_High situation****Description**

The receive rate is high for the virtual machine.

The situation is evaluated for each distinct value of the VM\_Name attribute.

**Formula**

\*IF \*VALUE KVM\_VM\_NETWORK.Received \*GT 5000

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is available for distribution.

**Run at startup**

No

**Sampling interval**

15 minutes

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_VM\_Transmit\_Rate\_High situation****Description**

The transmit rate is high for the virtual machine.

The situation is evaluated for each distinct value of the VM\_Name attribute.

**Formula**

\*IF \*VALUE KVM\_VM\_NETWORK.Transmitted \*GT 5000

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is available for distribution.

**Run at startup**

No

**Sampling interval**

15 minutes

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**Resource Pools navigator item****KVM\_Resource\_Pool\_CPU\_High situation****Description**

The CPU utilization is high.

The situation is evaluated for each distinct value of the Server\_Hostname attribute.

**Formula**

\*IF \*VALUE KVM\_RESOURCE\_POOL\_CPU.Percent\_Overall\_Usage \*GE 90

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

15 minutes

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_Resource\_Pool\_Memory\_High situation****Description**

The memory utilization is high.

The situation is evaluated for each distinct value of the Server\_Hostname attribute.

**Formula**

\*IF \*VALUE KVM\_RESOURCE\_POOL\_MEMORY.Percent\_Overall\_Usage \*GE 90

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is automatically distributed to instances of this agent.

**Run at startup**

Yes

**Sampling interval**

15 minutes

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**Virtual Machines navigator item****KVM\_Snapshots\_High situation****Description**

The number of snapshots is high.

The situation is evaluated for each distinct value of the VM\_Name attribute.

**Formula**

\*IF \*VALUE KVM\_VIRTUAL\_MACHINES.Number\_Of\_Snapshots \*GE 32

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is available for distribution.

**Run at startup**

No

**Sampling interval**

15 minutes

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_VM\_Bad\_Status situation****Description**

The status of the virtual machine is not green.

The situation is evaluated for each distinct value of the VM\_Name attribute.

**Formula**

\*IF \*VALUE KVM\_VIRTUAL\_MACHINES.Overall\_Status \*NE 'Unavailable' \*AND  
\*VALUE KVM\_VIRTUAL\_MACHINES.Overall\_Status \*NE 'green'

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is available for distribution.

**Run at startup**

No

**Sampling interval**

15 minutes

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Warning

**Clearing conditions**

The situation clears when the condition becomes false.

**KVM\_VM\_Powered\_Off situation****Description**

The virtual machine is powered off.

The situation is evaluated for each distinct value of the VM\_Name attribute.

**Formula**

\*IF \*VALUE KVM\_VIRTUAL\_MACHINES.Power\_Status \*EQ 'poweredOff'

See “Attributes in each attribute group” on page 22 for descriptions of the attributes in this formula.

**Distribution**

This situation is available for distribution.

**Run at startup**

No

**Sampling interval**

15 minutes

**Situation persistence**

The number of times the condition specified by the situation must occur for the situation to be true is 1.

**Error conditions**

Informational

**Clearing conditions**

The situation clears when the condition becomes false.

---

## Chapter 4. Take Action commands

Take Action commands can be run from the portal client or included in a situation or a policy.

### About Take Action commands

When included in a situation, the command runs when the situation becomes true. A Take Action command in a situation is also referred to as *reflex automation*. When you enable a Take Action command in a situation, you automate a response to system conditions. For example, you can use a Take Action command to send a command to restart a process on the managed system or to send a text message to a cell phone.

In advanced automation, policies are used to take actions, schedule work, and automate manual tasks. A policy comprises a series of automated steps called activities that are connected to create a workflow. After an activity is completed, the Tivoli Enterprise Portal receives return-code feedback, and advanced automation logic responds with subsequent activities that are prescribed by the feedback.

A basic Take Action command shows the return code of the operation in a message box that is displayed after the action is completed or in a log file. After you close this window, no further information is available for this action.

### Additional information about Take Action commands

For more information about working with Take Action commands, see "Take Action commands" in the *Tivoli Enterprise Portal User's Guide*.

For a list of the Take Action commands for this monitoring agent and a description of each command, see ["Predefined Take Action commands" on page 207](#) and the information for each individual command.

---

## Predefined Take Action commands

[Edit online](#)

Not all agents have predefined Take Action commands. But you can create Take Action commands for any agent.

This monitoring agent contains the following Take Action commands:

- PowerOffVM
- PowerOnVM

---

## Take Action command descriptions

[Edit online](#)

Each Take Action command description provides information you can use to decide whether to run the Take Action command or whether to include the Take Action command in a situation or a policy.

The descriptions of the Take Action commands provide the following information:

### Description

Actions the command performs on the system to which it is sent, and the permissions required for the Take Action command to function.

## Return codes

Information that the Take Action command returns.

## PowerOffVM action

[Edit online](#)

This action attempts to power off a virtual machine. Two parameters are required for this action: the host name of the ESX server and the name of the virtual machine (the display name, not the virtual machine host name).

### System command

To include the Take Action command in a situation or workflow policy, use the following syntax for the system command:

```
POWEROFFVM \  
    [KVM_VIRTUAL_MACHINES.VM_Name]
```

You can use attribute substitution to supply the Take Action command arguments from the situation, for example:

```
POWEROFFVM \  
    [&{KVM_VIRTUAL_MACHINES.VM_Name}]
```

You can also use attribute substitution in a workflow policy though the format is slightly different:

```
POWEROFFVM \  
    [&WaitOnSituation:KVM_VIRTUAL_MACHINES.VM_Name]
```

### Command arguments

- **Name:** KVM\_VIRTUAL\_MACHINES.VM\_Name
  - **Description:** Name of the virtual machine to be powered off.
  - **Default:** ""

### Return codes

- Return Code: 8
  - Return Code Type: TIMED\_OUT
  - Operating systems: Linux (32-bit x86), Linux (64-bit IBM Z), Linux (64-bit x86), Windows (32-bit), Windows (64-bit)
  - Message ID: KVM1019
  - Message: WARNING::NO MESSAGE FOUND FOR THIS RETURN CODE!!!!
- Return Code: 12
  - Return Code Type: INSUFFICIENT\_USER\_AUTHORITY
  - Operating systems: Linux (32-bit x86), Linux (64-bit IBM Z), Linux (64-bit x86), Windows (32-bit), Windows (64-bit)
  - Message ID: KVM1020
  - Message: WARNING::NO MESSAGE FOUND FOR THIS RETURN CODE!!!!
- Return Code: 0
  - Return Code Type: OK



- Operating systems: Linux (32-bit x86), Linux (64-bit IBM Z), Linux (64-bit x86), Windows (32-bit), Windows (64-bit)
- Message ID: KVM5004I
- Message: The request to power off the virtual machine was sent successfully.
- Return Code: 1
  - Return Code Type: NOT\_RUNNING
  - Operating systems: Linux (32-bit x86), Linux (64-bit IBM Z), Linux (64-bit x86), Windows (32-bit), Windows (64-bit)
  - Message ID: KVM5005I
  - Message: The virtual machine is powered off.
- Return Code: 2
  - Return Code Type: GENERAL\_ERROR
  - Operating systems: Linux (32-bit x86), Linux (64-bit IBM Z), Linux (64-bit x86), Windows (32-bit), Windows (64-bit)
  - Message ID: KVM5006E
  - Message: Could not perform the requested power off action.
- Return Code: 3
  - Return Code Type: GENERAL\_ERROR
  - Operating systems: Linux (32-bit x86), Linux (64-bit IBM Z), Linux (64-bit x86), Windows (32-bit), Windows (64-bit)
  - Message ID: KVM5007E
  - Message: The ESX server name specified is invalid or could not be found.
- Return Code: 4
  - Return Code Type: GENERAL\_ERROR
  - Operating systems: Linux (32-bit x86), Linux (64-bit IBM Z), Linux (64-bit x86), Windows (32-bit), Windows (64-bit)
  - Message ID: KVM5008E
  - Message: One of the required parameters for this action was not specified.
- Return Code: 5
  - Return Code Type: GENERAL\_ERROR
  - Operating systems: Linux (32-bit x86), Linux (64-bit IBM Z), Linux (64-bit x86), Windows (32-bit), Windows (64-bit)
  - Message ID: KVM5009E
  - Message: An unknown action was specified for this request.
- Return Code: 6
  - Return Code Type: GENERAL\_ERROR
  - Operating systems: Linux (32-bit x86), Linux (64-bit IBM Z), Linux (64-bit x86), Windows (32-bit), Windows (64-bit)
  - Message ID: KVM5045E
  - Message: The specified virtual machine was not found.

## PowerOnVM action

[Edit online](#)

This action attempts to power on a virtual machine. Two parameters are required for this action: the host name of the ESX server and the name of the virtual machine (the display name, not the virtual machine host name).

### System command

To include the Take Action command in a situation or workflow policy, use the following syntax for the system command:

```
POWERONVM \  
    [KVM_VIRTUAL_MACHINES.VM_Name]  
    [KVM_VIRTUAL_MACHINES.VM_Server_Name]
```

You can use attribute substitution to supply the Take Action command arguments from the situation, for example:

```
POWERONVM \  
    [&{KVM_VIRTUAL_MACHINES.VM_Name}] \  
    [&{KVM_VIRTUAL_MACHINES.VM_Server_Name}]
```

You can also use attribute substitution in a workflow policy though the format is slightly different:

```
POWERONVM \  
    [&WaitOnSituation:KVM_VIRTUAL_MACHINES.VM_Name] \  
    [&WaitOnSituation:KVM_VIRTUAL_MACHINES.VM_Server_Name]
```

### Command arguments

- **Name:** KVM\_VIRTUAL\_MACHINES.VM\_Name
  - **Description:** Name of the virtual machine to be powered on.
  - **Default:** ""
- **Name:** KVM\_VIRTUAL\_MACHINES.VM\_Server\_Name
  - **Description:** Name of the target virtual machine server.
  - **Default:** ""

### Return codes

- Return Code: 8
  - Return Code Type: TIMED\_OUT
  - Operating systems: Linux (32-bit x86), Linux (64-bit IBM Z), Linux (64-bit x86), Windows (32-bit), Windows (64-bit)
  - Message ID: KVM1019
  - Message: WARNING::NO MESSAGE FOUND FOR THIS RETURN CODE!!!!
- Return Code: 12
  - Return Code Type: INSUFFICIENT\_USER\_AUTHORITY
  - Operating systems: Linux (32-bit x86), Linux (64-bit IBM Z), Linux (64-bit x86), Windows (32-bit), Windows (64-bit)
  - Message ID: KVM1020
  - Message: WARNING::NO MESSAGE FOUND FOR THIS RETURN CODE!!!!
- Return Code: 0

- Return Code Type: OK
- Operating systems: Linux (32-bit x86), Linux (64-bit IBM Z), Linux (64-bit x86), Windows (32-bit), Windows (64-bit)
- Message ID: KVM5001I
- Message: The request to power on the virtual machine was sent successfully.
- Return Code: 1
  - Return Code Type: ALREADY\_RUNNING
  - Operating systems: Linux (32-bit x86), Linux (64-bit IBM Z), Linux (64-bit x86), Windows (32-bit), Windows (64-bit)
  - Message ID: KVM5002I
  - Message: The virtual machine is already powered on.
- Return Code: 2
  - Return Code Type: GENERAL\_ERROR
  - Operating systems: Linux (32-bit x86), Linux (64-bit IBM Z), Linux (64-bit x86), Windows (32-bit), Windows (64-bit)
  - Message ID: KVM5003E
  - Message: Could not perform the requested power on action.
- Return Code: 3
  - Return Code Type: GENERAL\_ERROR
  - Operating systems: Linux (32-bit x86), Linux (64-bit IBM Z), Linux (64-bit x86), Windows (32-bit), Windows (64-bit)
  - Message ID: KVM5007E
  - Message: The ESX server name specified is invalid or could not be found.
- Return Code: 4
  - Return Code Type: GENERAL\_ERROR
  - Operating systems: Linux (32-bit x86), Linux (64-bit IBM Z), Linux (64-bit x86), Windows (32-bit), Windows (64-bit)
  - Message ID: KVM5008E
  - Message: One of the required parameters for this action was not specified.
- Return Code: 5
  - Return Code Type: GENERAL\_ERROR
  - Operating systems: Linux (32-bit x86), Linux (64-bit IBM Z), Linux (64-bit x86), Windows (32-bit), Windows (64-bit)
  - Message ID: KVM5009E
  - Message: An unknown action was specified for this request.
- Return Code: 6
  - Return Code Type: GENERAL\_ERROR
  - Operating systems: Linux (32-bit x86), Linux (64-bit IBM Z), Linux (64-bit x86), Windows (32-bit), Windows (64-bit)
  - Message ID: KVM5045E
  - Message: The specified virtual machine was not found.



---

## Chapter 5. Policies

Policies are used as an advanced automation technique for implementing more complex workflow strategies than you can create through simple automation. All agents do not provide predefined policies, but you can create policies for any agent.

A *policy* is a set of automated system processes that can take actions, schedule work for users, or automate manual tasks. You use the Workflow Editor to design policies. You control the order in which the policy executes a series of automated steps, which are also called *activities*. Policies are connected to create a workflow. After an activity is completed, the Tivoli Enterprise Portal receives return-code feedback, and advanced automation logic responds with subsequent activities prescribed by the feedback.

For more information about working with policies, see "Automation with policies" in the *Tivoli Enterprise Portal User's Guide*.

For information about using the Workflow Editor, see the *IBM Tivoli Monitoring Administrator's Guide* or the Tivoli Enterprise Portal online help.

### Predefined policies

[Edit online](#)

This monitoring agent contains predefined workflow policies that interact with Tivoli Application Dependency Discovery Manager systems to keep the VMware topology up-to-date between scheduled discoveries performed by the Tivoli Application Dependency Discovery Manager sensors.

All these predefined policies are, by default, configured to send requests to the Tivoli Application Dependency Discovery Manager system identified by the name of VMWARE-TADDM in IBM Tivoli Monitoring.

In order to create the VMWARE-TADDM Tivoli Application Dependency Discovery Manager system in IBM Tivoli Monitoring, see the instructions listed in the section on initialization of Tivoli Application Dependency Discovery Manager policies in the Tivoli Enterprise Portal User's Guide.

After the VMWARE-TADDM Tivoli Application Dependency Discovery Manager system is created in IBM Tivoli Monitoring, complete the following steps to enable the predefined policies to run:

1. Click the **Workflow Editor** icon.
2. Select a VMware Workflow policy and select the **Auto start** check box.
3. Ensure the policy is configured.
4. To save your changes, click **OK** or **Apply**.

This monitoring agent contains the following policies:

- KVM\_VM\_Created
- KVM\_VM\_Deleted
- KVM\_VM\_Relocated
- KVM\_VMotion

## KVM\_VM\_Created

[Edit online](#)

This policy sends a create request to Tivoli Application Dependency Discovery Manager when a new virtual machine is created.

The create request is sent so that the corresponding virtual machine CDM object is created in the Tivoli Application Dependency Discovery Manager database. This policy is triggered by the KVM\_Virtual\_Machine\_Created situation.

This policy includes two workflow activities:

### **On Demand Report activity**

Used to collect additional information about the virtual machine being created that is not present in the situation processed, for example, the virtual machine name.

### **Send a Tivoli Application Dependency Discovery Manager Update activity**

Used to send a create update to Tivoli Application Dependency Discovery Manager. The payload consists of the data contained in the situation processed and the data returned by the On Demand Report.

## KVM\_VM\_Deleted

[Edit online](#)

This policy sends a delete request to Tivoli Application Dependency Discovery Manager when a new virtual machine is deleted.

The delete request is sent so that the corresponding virtual machine CDM object is deleted from the Tivoli Application Dependency Discovery Manager database. This policy is triggered by the KVM\_Virtual\_Machine\_Deleted situation.

This policy consists of a single workflow activity:

### **Send a Tivoli Application Dependency Discovery Manager Update activity**

Used to send a delete update to Tivoli Application Dependency Discovery Manager. The payload consists of the data contained in the situation processed.

## KVM\_VM\_Relocated

[Edit online](#)

This policy sends a move request to Tivoli Application Dependency Discovery Manager when a virtual machine disk storage is moved.

The move request is sent so that the virtualizes relationship of the corresponding virtual machine CDM object is updated in the Tivoli Application Dependency Discovery Manager database. This policy is triggered by the KVM\_Virtual\_Machine\_Relocated situation.

This policy consists of a single workflow activity:

### **Send a Tivoli Application Dependency Discovery Manager Update activity**

Used to send a move update to Tivoli Application Dependency Discovery Manager. The payload consists of the data contained in the situation processed.

## KVM\_VMotion

[Edit online](#)

This policy sends a move request to Tivoli Application Dependency Discovery Manager when a virtual machine is moved to execute somewhere else.

The move request is sent so that the virtualizes relationship of the corresponding virtual machine CDM object is updated in the Tivoli Application Dependency Discovery Manager database. This policy is triggered by the KVM\_Server\_VMotion situation.

This policy consists of a single workflow activity:

### **Send a Tivoli Application Dependency Discovery Manager Update activity**

Used to send a move update to Tivoli Application Dependency Discovery Manager. The payload consists of the data contained in the situation processed.

---

## Chapter 6. Event mapping

The Tivoli Event Integration Facility (EIF) interface is used to forward situation events to Tivoli Netcool/OMNIbus or Tivoli Enterprise Console®.

EIF events specify an event class, and the event data is specified as name-value pairs that identify the name of an event slot and the value for the slot. An event class can have subclasses. IBM Tivoli Monitoring provides the base event class definitions and a set of base slots that are included in all monitoring events. Agents extend the base event classes to define subclasses that include agent-specific slots. For VMware VI agent events, the event classes correspond to the agent attribute groups, and the agent-specific slots correspond to the attributes in the attribute group.

The situation editor in the Tivoli Enterprise Portal can be used to perform custom mapping of data to EIF slots instead of using the default mapping described in this topic. For more information about EIF slot customization, see the *Tivoli Enterprise Portal User's Guide*.

Tivoli Enterprise Console requires that event classes and their slots are defined in BAROC (Basic Recorder of Objects in C) files. Each agent provides a BAROC file that contains event class definitions for the agent and is installed on the Tivoli Enterprise Monitoring Server in the TECLIB directory (`install_dir/cms/TECLIB` for Windows systems and `install_dir/tables/TEMS_hostname/TECLIB` for UNIX systems) when application support for the agent is installed. The BAROC file for the agent and the base BAROC files provided with Tivoli Monitoring must also be installed onto the Tivoli Enterprise Console. For details, see "Setting up event forwarding to Tivoli Enterprise Console" in the *IBM Tivoli Monitoring Installation and Setup Guide*.

Each of the event classes is a child of KVM\_Base and is defined in the `kvm.baroc` (version 07.30.05) file. The KVM\_Base event class can be used for generic rules processing for any event from the IBM Tivoli Monitoring for Virtual Environments Agent for VMware VI.

For events that are generated by situations in the Active Tasks attribute group, events are sent by using the ITM\_KVM\_ACTIVE\_TASKS event class. This event class contains the following slots:

- cancelable: INTEGER
- cancelable\_enum: STRING
- initiated\_by: STRING
- initiated\_by\_enum: STRING
- kvm\_status: STRING
- kvm\_status\_enum: STRING
- name: STRING
- name\_enum: STRING
- node: STRING
- queue\_time: STRING
- queue\_time\_enum: STRING
- source\_hostname: STRING
- source\_hostname\_enum: STRING
- start\_time: STRING
- start\_time\_enum: STRING
- target\_entity: STRING
- target\_entity\_enum: STRING
- target\_entity\_type: STRING

- target\_entity\_type\_enum: STRING
- timestamp: STRING

For events that are generated by situations in the Agent Events attribute group, events are sent by using the ITM\_KVM\_AGENT\_EVENTS event class. This event class contains the following slots:

- kvm\_severity: INTEGER
- kvm\_severity\_enum: STRING
- kvm\_source: STRING
- managed\_system: STRING
- message: INTEGER
- message\_enum: STRING
- node: STRING
- subsystem: INTEGER
- subsystem\_enum: STRING
- timestamp: STRING

For events that are generated by situations in the Cluster DRS Faults attribute group, events are sent by using the ITM\_KVM\_CLUSTER\_DRS\_FAULTS event class. This event class contains the following slots:

- cluster: STRING
- cluster\_enum: STRING
- datacenter: STRING
- datacenter\_enum: STRING
- drs\_type: STRING
- drs\_type\_enum: STRING
- fault\_message: STRING
- fault\_message\_enum: STRING
- fault\_name: STRING
- fault\_name\_enum: STRING
- ft\_virtual\_machine: STRING
- ft\_virtual\_machine\_enum: STRING
- kvm\_source: STRING
- kvm\_source\_enum: STRING
- node: STRING
- reason: STRING
- reason\_enum: STRING
- source\_hostname: STRING
- source\_hostname\_enum: STRING
- target\_hostname: STRING
- target\_hostname\_enum: STRING
- timestamp: STRING
- virtual\_machine: STRING



- virtual\_machine\_enum: STRING

For events that are generated by situations in the Clustered Datastores attribute group, events are sent by using the ITM\_KVM\_CLUSTERED\_DATASTORES event class. This event class contains the following slots:

- accessible: INTEGER
- accessible\_enum: STRING
- capacity: INTEGER
- capacity\_enum: STRING
- cluster: STRING
- cluster\_enum: STRING
- cluster\_moref: STRING
- cluster\_moref\_enum: STRING
- connected\_hosts: INTEGER
- connected\_hosts\_enum: STRING
- connected\_vms: INTEGER
- connected\_vms\_enum: STRING
- datacenter: STRING
- datacenter\_enum: STRING
- datastore: STRING
- datastore\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- msn: STRING
- msn\_enum: STRING
- node: STRING
- nodeid: STRING
- overall\_status: STRING
- overall\_status\_enum: STRING
- percent\_used: INTEGER
- percent\_used\_enum: STRING
- remote\_host\_address: STRING
- remote\_host\_address\_enum: STRING
- remote\_path: STRING
- remote\_path\_enum: STRING
- timestamp: STRING
- type: STRING
- type\_enum: STRING

For events that are generated by situations in the Clustered Resource Pools attribute group, events are sent by using the ITM\_KVM\_CLUSTERED\_RESOURCE\_POOLS event class. This event class contains the following slots:

- cluster\_name: STRING

- cluster\_name\_enum: STRING
- cpu\_usage: INTEGER
- cpu\_usage\_enum: STRING
- datacenter: STRING
- datacenter\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- include\_data\_in\_summarization\_1: INTEGER
- include\_data\_in\_summarization\_1\_enum: STRING
- max\_cpu\_usage: INTEGER
- max\_cpu\_usage\_enum: STRING
- max\_memory\_usage: INTEGER
- max\_memory\_usage\_enum: STRING
- memory\_usage: INTEGER
- memory\_usage\_enum: STRING
- node: STRING
- nodeid: STRING
- nodetype: STRING
- overall\_status: STRING
- overall\_status\_enum: STRING
- percent\_cpu\_usage: INTEGER
- percent\_cpu\_usage\_enum: STRING
- percent\_memory\_usage: INTEGER
- percent\_memory\_usage\_enum: STRING
- pool\_name: STRING
- pool\_name\_enum: STRING
- timestamp: STRING

For events that are generated by situations in the Clustered Servers attribute group, events are sent by using the ITM\_KVM\_CLUSTERED\_SERVERS event class. This event class contains the following slots:

- cluster\_name: STRING
- cluster\_name\_enum: STRING
- cpu\_effective\_contribution: INTEGER
- cpu\_effective\_contribution\_enum: STRING
- cpu\_effective\_utilization: INTEGER
- cpu\_effective\_utilization\_enum: STRING
- cpu\_total\_contribution: INTEGER
- cpu\_total\_contribution\_enum: STRING
- cpu\_total\_utilization: INTEGER
- cpu\_total\_utilization\_enum: STRING

- datacenter: STRING
- datacenter\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- include\_data\_in\_summarization\_1: INTEGER
- include\_data\_in\_summarization\_1\_enum: STRING
- include\_data\_in\_summarization\_2: INTEGER
- include\_data\_in\_summarization\_2\_enum: STRING
- include\_data\_in\_summarization\_3: INTEGER
- include\_data\_in\_summarization\_3\_enum: STRING
- memory\_effective\_utilization: INTEGER
- memory\_effective\_utilization\_enum: STRING
- memory\_total\_utilization: INTEGER
- memory\_total\_utilization\_enum: STRING
- mem\_effective\_contribution: INTEGER
- mem\_effective\_contribution\_enum: STRING
- mem\_total\_contribution: INTEGER
- mem\_total\_contribution\_enum: STRING
- msn\_name: STRING
- msn\_name\_enum: STRING
- node: STRING
- nodeid: STRING
- overall\_status: STRING
- overall\_status\_enum: STRING
- server\_cpu\_utilization: INTEGER
- server\_cpu\_utilization\_enum: STRING
- server\_hostname: STRING
- server\_hostname\_enum: STRING
- server\_memory\_utilization: INTEGER
- server\_memory\_utilization\_enum: STRING
- timestamp: STRING

For events that are generated by situations in the Clustered Virtual Apps attribute group, events are sent by using the ITM\_KVM\_CLUSTERED\_VIRTUAL\_APPS event class. This event class contains the following slots:

- cluster\_name: STRING
- cluster\_name\_enum: STRING
- datacenter: STRING
- datacenter\_enum: STRING
- destroy\_with\_parent: INTEGER

- destroy\_with\_parent\_enum: STRING
- moref: STRING
- moref\_enum: STRING
- node: STRING
- nodeid: STRING
- start\_action: STRING
- start\_action\_enum: STRING
- start\_delay: INTEGER
- start\_delay\_enum: STRING
- start\_order: INTEGER
- start\_order\_enum: STRING
- stop\_action: STRING
- stop\_action\_enum: STRING
- stop\_delay: INTEGER
- stop\_delay\_enum: STRING
- timestamp: STRING
- virtual\_app\_name: STRING
- virtual\_app\_name\_enum: STRING
- virtual\_machine\_name: STRING
- virtual\_machine\_name\_enum: STRING
- waiting\_for\_guest: INTEGER
- waiting\_for\_guest\_enum: STRING

For events that are generated by situations in the Clustered Virtual Machines attribute group, events are sent by using the ITM\_KVM\_CLUSTERED\_VIRTUAL\_MACHINES event class. This event class contains the following slots:

- cluster\_moref: STRING
- cluster\_moref\_enum: STRING
- cluster\_name: STRING
- cluster\_name\_enum: STRING
- cpu\_utilization: INTEGER
- cpu\_utilization\_enum: STRING
- datacenter: STRING
- datacenter\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- memory\_utilization: INTEGER
- memory\_utilization\_enum: STRING
- msn\_name: STRING
- msn\_name\_enum: STRING

- node: STRING
- nodeid: STRING
- overall\_status: STRING
- overall\_status\_enum: STRING
- timestamp: STRING
- vm\_name: STRING
- vm\_name\_enum: STRING

For events that are generated by situations in the Clusters attribute group, events are sent by using the ITM\_KVM\_CLUSTERS event class. This event class contains the following slots:

- cluster\_moref: STRING
- cluster\_moref\_enum: STRING
- cluster\_name: STRING
- cluster\_name\_enum: STRING
- cpu\_00\_10: INTEGER
- cpu\_00\_10\_enum: STRING
- cpu\_10\_20: INTEGER
- cpu\_10\_20\_enum: STRING
- cpu\_20\_30: INTEGER
- cpu\_20\_30\_enum: STRING
- cpu\_30\_40: INTEGER
- cpu\_30\_40\_enum: STRING
- cpu\_40\_50: INTEGER
- cpu\_40\_50\_enum: STRING
- cpu\_50\_60: INTEGER
- cpu\_50\_60\_enum: STRING
- cpu\_60\_70: INTEGER
- cpu\_60\_70\_enum: STRING
- cpu\_70\_80: INTEGER
- cpu\_70\_80\_enum: STRING
- cpu\_80\_90: INTEGER
- cpu\_80\_90\_enum: STRING
- cpu\_90\_100: INTEGER
- cpu\_90\_100\_enum: STRING
- cpu\_utilization: REAL
- cpu\_utilization\_enum: STRING
- current\_evc\_mode: STRING
- current\_evc\_mode\_enum: STRING
- datacenter: STRING
- datacenter\_enum: STRING

- datacenter\_moref: STRING
- datacenter\_moref\_enum: STRING
- datastores\_total\_free\_space: INTEGER
- datastores\_total\_free\_space\_enum: STRING
- datastores\_total\_space: INTEGER
- datastores\_total\_space\_enum: STRING
- drs\_enabled: INTEGER
- drs\_enabled\_enum: STRING
- effective\_cpu: REAL
- effective\_cpu\_enum: STRING
- effective\_memory: REAL
- effective\_memory\_enum: STRING
- effective\_servers: INTEGER
- effective\_servers\_enum: STRING
- ha\_enabled: INTEGER
- ha\_enabled\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- include\_data\_in\_summarization\_1: INTEGER
- include\_data\_in\_summarization\_10: INTEGER
- include\_data\_in\_summarization\_10\_enum: STRING
- include\_data\_in\_summarization\_1\_enum: STRING
- include\_data\_in\_summarization\_2: INTEGER
- include\_data\_in\_summarization\_2\_enum: STRING
- include\_data\_in\_summarization\_3: INTEGER
- include\_data\_in\_summarization\_3\_enum: STRING
- include\_data\_in\_summarization\_4: INTEGER
- include\_data\_in\_summarization\_4\_enum: STRING
- include\_data\_in\_summarization\_5: INTEGER
- include\_data\_in\_summarization\_5\_enum: STRING
- include\_data\_in\_summarization\_6: INTEGER
- include\_data\_in\_summarization\_6\_enum: STRING
- include\_data\_in\_summarization\_7: INTEGER
- include\_data\_in\_summarization\_7\_enum: STRING
- include\_data\_in\_summarization\_8: INTEGER
- include\_data\_in\_summarization\_8\_enum: STRING
- include\_data\_in\_summarization\_9: INTEGER
- include\_data\_in\_summarization\_9\_enum: STRING
- memory\_00\_10: INTEGER

- memory\_00\_10\_enum: STRING
- memory\_10\_20: INTEGER
- memory\_10\_20\_enum: STRING
- memory\_20\_30: INTEGER
- memory\_20\_30\_enum: STRING
- memory\_30\_40: INTEGER
- memory\_30\_40\_enum: STRING
- memory\_40\_50: INTEGER
- memory\_40\_50\_enum: STRING
- memory\_50\_60: INTEGER
- memory\_50\_60\_enum: STRING
- memory\_60\_70: INTEGER
- memory\_60\_70\_enum: STRING
- memory\_70\_80: INTEGER
- memory\_70\_80\_enum: STRING
- memory\_80\_90: INTEGER
- memory\_80\_90\_enum: STRING
- memory\_90\_100: INTEGER
- memory\_90\_100\_enum: STRING
- memory\_utilization: REAL
- memory\_utilization\_enum: STRING
- node: STRING
- nodeid: STRING
- number\_cpus: INTEGER
- number\_cpus\_enum: STRING
- number\_servers: INTEGER
- number\_servers\_enum: STRING
- number\_vmotions: INTEGER
- number\_vmotions\_enum: STRING
- number\_vms: INTEGER
- number\_vms\_enum: STRING
- number\_vms\_on: INTEGER
- number\_vms\_on\_enum: STRING
- overall\_status: STRING
- overall\_status\_enum: STRING
- percent\_datastore\_usage: REAL
- percent\_datastore\_usage\_enum: STRING
- percent\_effective\_cpu: INTEGER
- percent\_effective\_cpu\_enum: STRING

- percent\_effective\_memory: INTEGER
- percent\_effective\_memory\_enum: STRING
- percent\_effective\_servers: INTEGER
- percent\_effective\_servers\_enum: STRING
- physical\_nics: INTEGER
- physical\_nics\_down: INTEGER
- physical\_nics\_down\_enum: STRING
- physical\_nics\_enum: STRING
- servers\_in\_maintenance\_mode: INTEGER
- servers\_in\_maintenance\_mode\_enum: STRING
- timestamp: STRING
- total\_cpu: REAL
- total\_cpu\_enum: STRING
- total\_memory: REAL
- total\_memory\_enum: STRING
- total\_vm\_configured\_memory: REAL
- total\_vm\_configured\_memory\_enum: STRING
- total\_vm\_provisioned\_space: REAL
- total\_vm\_provisioned\_space\_enum: STRING

For events that are generated by situations in the Datacenters attribute group, events are sent by using the ITM\_KVM\_DATACENTERS event class. This event class contains the following slots:

- cpu\_utilization: REAL
- cpu\_utilization\_enum: STRING
- datacenter: STRING
- effective\_cpu: INTEGER
- effective\_cpu\_enum: STRING
- effective\_memory: INTEGER
- effective\_memory\_enum: STRING
- effective\_servers: INTEGER
- effective\_servers\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- include\_data\_in\_summarization\_1: INTEGER
- include\_data\_in\_summarization\_1\_enum: STRING
- include\_data\_in\_summarization\_2: INTEGER
- include\_data\_in\_summarization\_2\_enum: STRING
- include\_data\_in\_summarization\_3: INTEGER
- include\_data\_in\_summarization\_3\_enum: STRING
- memory\_utilization: REAL



- memory\_utilization\_enum: STRING
- node: STRING
- nodeid: STRING
- overall\_status: STRING
- overall\_status\_enum: STRING
- percent\_effective\_servers: REAL
- percent\_effective\_servers\_enum: STRING
- timestamp: STRING
- total\_cpu: INTEGER
- total\_cpu\_enum: STRING
- total\_memory: INTEGER
- total\_memory\_enum: STRING
- total\_servers: INTEGER
- total\_servers\_enum: STRING

For events that are generated by situations in the Datastore Cluster attribute group, events are sent by using the ITM\_KVM\_DATASTORE\_CLUSTER event class. This event class contains the following slots:

- capacity: REAL
- capacity\_enum: STRING
- capacity\_used: REAL
- capacity\_used\_enum: STRING
- config\_status: STRING
- config\_status\_enum: STRING
- datacenter: STRING
- datacenter\_enum: STRING
- datastore\_cluster: STRING
- datastore\_cluster\_enum: STRING
- datastore\_count: INTEGER
- datastore\_count\_enum: STRING
- default\_intravm\_affinity: INTEGER
- default\_intravm\_affinity\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- include\_data\_in\_summarization\_1: INTEGER
- include\_data\_in\_summarization\_1\_enum: STRING
- io\_load\_balance\_enabled: INTEGER
- io\_load\_balance\_enabled\_enum: STRING
- load\_balance\_interval: INTEGER
- load\_balance\_interval\_enum: STRING
- node: STRING

- overall\_status: STRING
- overall\_status\_enum: STRING
- percent\_capacity\_free: INTEGER
- percent\_capacity\_free\_enum: STRING
- timestamp: STRING

For events that are generated by situations in the Datastore Host Disks attribute group, events are sent by using the ITM\_KVM\_DATASTORE\_HOST\_DISKS event class. This event class contains the following slots:

- datacenter: STRING
- datacenter\_enum: STRING
- datastore: STRING
- datastore\_enum: STRING
- disk: STRING
- disk\_enum: STRING
- host: STRING
- host\_enum: STRING
- node: STRING
- nodeid: STRING
- timestamp: STRING

For events that are generated by situations in the Datastore Topology attribute group, events are sent by using the ITM\_KVM\_DATASTORE\_TOPOLOGY event class. This event class contains the following slots:

- connectiontype: STRING
- connecttonode: STRING
- datacenter: STRING
- datacenter\_enum: STRING
- msn: STRING
- msn\_enum: STRING
- node: STRING
- nodeid: STRING
- nodename: STRING
- nodestatus: STRING
- nodetype: STRING
- timestamp: STRING

For events that are generated by situations in the Datastores attribute group, events are sent by using the ITM\_KVM\_DATASTORES event class. This event class contains the following slots:

- accessible: INTEGER
- accessible\_enum: STRING
- capacity: INTEGER
- capacity\_enum: STRING
- connected\_clusters: INTEGER
- connected\_clusters\_enum: STRING

- connected\_hosts: INTEGER
- connected\_hosts\_enum: STRING
- connected\_vms: INTEGER
- connected\_vms\_enum: STRING
- datacenter: STRING
- datacenter\_enum: STRING
- datastore\_cluster: STRING
- datastore\_cluster\_enum: STRING
- datastore\_moref: STRING
- datastore\_moref\_enum: STRING
- free\_space: INTEGER
- free\_space\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- include\_data\_in\_summarization\_1: INTEGER
- include\_data\_in\_summarization\_1\_enum: STRING
- include\_data\_in\_summarization\_2: INTEGER
- include\_data\_in\_summarization\_2\_enum: STRING
- include\_data\_in\_summarization\_3: INTEGER
- include\_data\_in\_summarization\_3\_enum: STRING
- include\_data\_in\_summarization\_4: INTEGER
- include\_data\_in\_summarization\_4\_enum: STRING
- include\_data\_in\_summarization\_5: INTEGER
- include\_data\_in\_summarization\_5\_enum: STRING
- maximum\_file\_size: INTEGER
- maximum\_file\_size\_enum: STRING
- msn: STRING
- msn\_enum: STRING
- name: STRING
- name\_enum: STRING
- netapp\_volume\_name: STRING
- netapp\_volume\_name\_enum: STRING
- node: STRING
- nodeid: STRING
- overall\_status: STRING
- overall\_status\_enum: STRING
- overcommitted: INTEGER
- overcommitted\_enum: STRING
- percent\_free: INTEGER

- percent\_free\_enum: STRING
- percent\_overcommitted: REAL
- percent\_overcommitted\_enum: STRING
- percent\_snapshot\_storage\_consumed: REAL
- percent\_snapshot\_storage\_consumed\_enum: STRING
- percent\_used: INTEGER
- percent\_used\_enum: STRING
- remote\_host\_address: STRING
- remote\_host\_address\_enum: STRING
- remote\_path: STRING
- remote\_path\_enum: STRING
- snapshot\_storage\_consumed: REAL
- snapshot\_storage\_consumed\_enum: STRING
- timestamp: STRING
- total\_io\_kbps: INTEGER
- total\_io\_kbps\_enum: STRING
- total\_read\_kbps: INTEGER
- total\_read\_kbps\_enum: STRING
- total\_write\_kbps: INTEGER
- total\_write\_kbps\_enum: STRING
- type: STRING
- type\_enum: STRING
- url: STRING
- url\_enum: STRING
- used\_space: INTEGER
- used\_space\_enum: STRING

For events that are generated by situations in the Director attribute group, events are sent by using the ITM\_KVM\_DIRECTOR event class. This event class contains the following slots:

- directorport: STRING
- directorserver: STRING
- node: STRING
- timestamp: STRING
- usetepcredential: STRING

For events that are generated by situations in the Distributed Virtual Portgroups attribute group, events are sent by using the ITM\_KVM\_DISTRIBUTED\_VIRTUAL\_PORTGROUPS event class. This event class contains the following slots:

- blocked: STRING
- blocked\_enum: STRING
- datacenter: STRING
- datacenter\_enum: STRING

- inbound\_shaping\_average\_bandwidth: INTEGER
- inbound\_shaping\_average\_bandwidth\_enum: STRING
- inbound\_shaping\_burst\_size: INTEGER
- inbound\_shaping\_burst\_size\_enum: STRING
- inbound\_shaping\_enabled: STRING
- inbound\_shaping\_enabled\_enum: STRING
- inbound\_shaping\_peak\_bandwidth: INTEGER
- inbound\_shaping\_peak\_bandwidth\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- include\_data\_in\_summarization\_1: INTEGER
- include\_data\_in\_summarization\_1\_enum: STRING
- node: STRING
- outbound\_shaping\_average\_bandwidth: INTEGER
- outbound\_shaping\_average\_bandwidth\_enum: STRING
- outbound\_shaping\_burst\_size: INTEGER
- outbound\_shaping\_burst\_size\_enum: STRING
- outbound\_shaping\_enabled: STRING
- outbound\_shaping\_enabled\_enum: STRING
- outbound\_shaping\_peak\_bandwidth: INTEGER
- outbound\_shaping\_peak\_bandwidth\_enum: STRING
- overall\_status: STRING
- overall\_status\_enum: STRING
- portgroup\_name: STRING
- portgroup\_name\_enum: STRING
- switch\_name: STRING
- switch\_name\_enum: STRING
- timestamp: STRING
- type: STRING
- type\_enum: STRING
- vlan\_id: INTEGER
- vlan\_id\_enum: STRING
- vlan\_type: STRING
- vlan\_type\_enum: STRING

For events that are generated by situations in the Distributed Virtual Switch Health attribute group, events are sent by using the ITM\_KVM\_DISTRIBUTED\_VIRTUAL\_SWITCH\_HEALTH event class. This event class contains the following slots:

- datacenter: STRING
- datacenter\_enum: STRING

- dvs\_teaming\_status: STRING
- dvs\_teaming\_status\_enum: STRING
- health\_check\_type: STRING
- health\_check\_type\_enum: STRING
- host: STRING
- host\_enum: STRING
- kvm\_source: STRING
- kvm\_source\_enum: STRING
- mtu\_mismatch: STRING
- mtu\_mismatch\_enum: STRING
- nic\_name: STRING
- nic\_name\_enum: STRING
- node: STRING
- portgroup\_name: STRING
- portgroup\_name\_enum: STRING
- summary: STRING
- summary\_enum: STRING
- switch\_name: STRING
- switch\_name\_enum: STRING
- timestamp: STRING
- uplink\_key: STRING
- uplink\_key\_enum: STRING
- uplink\_name: STRING
- uplink\_name\_enum: STRING

For events that are generated by situations in the Distributed Virtual Switches attribute group, events are sent by using the ITM\_KVM\_DISTRIBUTED\_VIRTUAL\_SWITCHES event class. This event class contains the following slots:

- datacenter: STRING
- datacenter\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- include\_data\_in\_summarization\_1: INTEGER
- include\_data\_in\_summarization\_1\_enum: STRING
- include\_data\_in\_summarization\_2: INTEGER
- include\_data\_in\_summarization\_2\_enum: STRING
- include\_data\_in\_summarization\_3: INTEGER
- include\_data\_in\_summarization\_3\_enum: STRING
- max\_number\_of\_ports: INTEGER
- max\_number\_of\_ports\_enum: STRING

- node: STRING
- number\_of\_hosts: INTEGER
- number\_of\_hosts\_enum: STRING
- number\_of\_portgroups: INTEGER
- number\_of\_portgroups\_enum: STRING
- number\_of\_ports: INTEGER
- number\_of\_ports\_enum: STRING
- number\_of\_uplinks: INTEGER
- number\_of\_uplinks\_enum: STRING
- number\_of\_vms: INTEGER
- number\_of\_vms\_enum: STRING
- overall\_status: STRING
- overall\_status\_enum: STRING
- received: INTEGER
- received\_enum: STRING
- switch\_name: STRING
- switch\_name\_enum: STRING
- timestamp: STRING
- transmitted: INTEGER
- transmitted\_enum: STRING
- usage: INTEGER
- usage\_enum: STRING

For events that are generated by situations in the Distributed Virtual Uplinks attribute group, events are sent by using the ITM\_KVM\_DISTRIBUTED\_VIRTUAL\_UPLINKS event class. This event class contains the following slots:

- component\_state: STRING
- component\_state\_enum: STRING
- datacenter: STRING
- datacenter\_enum: STRING
- duplex: STRING
- duplex\_enum: STRING
- host\_system: STRING
- host\_system\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- include\_data\_in\_summarization\_1: INTEGER
- include\_data\_in\_summarization\_1\_enum: STRING
- include\_data\_in\_summarization\_2: INTEGER
- include\_data\_in\_summarization\_2\_enum: STRING

- link\_speed: INTEGER
- link\_speed\_enum: STRING
- link\_status: STRING
- link\_status\_enum: STRING
- link\_utilization: REAL
- link\_utilization\_enum: STRING
- nic: STRING
- nic\_enum: STRING
- node: STRING
- overall\_status: STRING
- overall\_status\_enum: STRING
- portgroup\_name: STRING
- portgroup\_name\_enum: STRING
- received: INTEGER
- received\_enum: STRING
- subnode\_msn: STRING
- subnode\_msn\_enum: STRING
- switch\_name: STRING
- switch\_name\_enum: STRING
- timestamp: STRING
- transmitted: INTEGER
- transmitted\_enum: STRING
- uplink\_name: STRING
- uplink\_name\_enum: STRING
- usage: INTEGER
- usage\_enum: STRING

For events that are generated by situations in the ESX Performance Object Status attribute group, events are sent by using the ITM\_KVM\_ESX\_PERFORMANCE\_OBJECT\_STATUS event class. This event class contains the following slots:

- average\_collection\_duration: REAL
- average\_collection\_duration\_enum: STRING
- cache\_hits: INTEGER
- cache\_hit\_percent: REAL
- cache\_misses: INTEGER
- error\_code: INTEGER
- error\_code\_enum: STRING
- intervals\_skipped: INTEGER
- last\_collection\_duration: REAL
- last\_collection\_finished: STRING



- last\_collection\_finished\_enum: STRING
- last\_collection\_start: STRING
- last\_collection\_start\_enum: STRING
- node: STRING
- number\_of\_collections: INTEGER
- object\_name: STRING
- object\_status: INTEGER
- object\_status\_enum: STRING
- object\_type: INTEGER
- object\_type\_enum: STRING
- query\_name: STRING
- refresh\_interval: INTEGER
- timestamp: STRING

For events that are generated by situations in the Events attribute group, events are sent by using the ITM\_KVM\_EVENTS event class. This event class contains the following slots:

- category: STRING
- category\_enum: STRING
- compute\_resource: STRING
- compute\_resource\_enum: STRING
- datacenter: STRING
- datacenter\_enum: STRING
- datastore: STRING
- datastore\_enum: STRING
- datastore\_uuid: STRING
- datastore\_uuid\_enum: STRING
- entity\_type: STRING
- entity\_type\_enum: STRING
- event: STRING
- event\_enum: STRING
- event\_seq\_number: INTEGER
- event\_seq\_number\_enum: STRING
- event\_text: STRING
- event\_text\_enum: STRING
- event\_time: STRING
- event\_time\_enum: STRING
- event\_type: STRING
- event\_type\_enum: STRING
- event\_type\_id: STRING
- event\_type\_id\_enum: STRING

- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- node: STRING
- source\_hostname: STRING
- source\_hostname\_enum: STRING
- timestamp: STRING
- userid: STRING
- userid\_enum: STRING
- virtual\_machine: STRING
- virtual\_machine\_enum: STRING
- virtual\_machine\_uuid: STRING
- virtual\_machine\_uuid\_enum: STRING

For events that are generated by situations in the Monitored Servers attribute group, events are sent by using the ITM\_KVM\_MONITORED\_SERVERS event class. This event class contains the following slots:

- node: STRING
- subnode\_affinity: STRING
- subnode\_msn: STRING
- subnode\_resource\_name: STRING
- subnode\_resource\_name\_enhanced: STRING
- subnode\_type: STRING
- subnode\_version: STRING
- timestamp: STRING

For events that are generated by situations in the Networked Servers attribute group, events are sent by using the ITM\_KVM\_NETWORKED\_SERVERS event class. This event class contains the following slots:

- datacenter: STRING
- datacenter\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- network: STRING
- network\_enum: STRING
- node: STRING
- received: INTEGER
- received\_enum: STRING
- server\_hostname: STRING
- server\_hostname\_enum: STRING
- subnode\_msn: STRING
- subnode\_msn\_enum: STRING
- switch: STRING
- switch\_enum: STRING

- timestamp: STRING
- transmitted: INTEGER
- transmitted\_enum: STRING
- usage: INTEGER
- usage\_enum: STRING

For events that are generated by situations in the Networked Virtual Machines attribute group, events are sent by using the ITM\_KVM\_NETWORKED\_VIRTUAL\_MACHINES event class. This event class contains the following slots:

- datacenter: STRING
- datacenter\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- network: STRING
- network\_enum: STRING
- node: STRING
- received: INTEGER
- received\_enum: STRING
- server\_hostname: STRING
- server\_hostname\_enum: STRING
- subnode\_msn: STRING
- subnode\_msn\_enum: STRING
- switch: STRING
- switch\_enum: STRING
- timestamp: STRING
- transmitted: INTEGER
- transmitted\_enum: STRING
- usage: INTEGER
- usage\_enum: STRING
- virtual\_machine: STRING
- virtual\_machine\_enum: STRING
- vm\_nic: STRING
- vm\_nic\_enum: STRING

For events that are generated by situations in the Networked Virtual Switches attribute group, events are sent by using the ITM\_KVM\_NETWORKED\_VIRTUAL\_SWITCHES event class. This event class contains the following slots:

- datacenter: STRING
- datacenter\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- include\_data\_in\_summarization\_1: INTEGER

- include\_data\_in\_summarization\_1\_enum: STRING
- network: STRING
- network\_enum: STRING
- node: STRING
- number\_of\_nics: INTEGER
- number\_of\_nics\_enum: STRING
- received: INTEGER
- received\_enum: STRING
- server\_hostname: STRING
- server\_hostname\_enum: STRING
- subnode\_msn: STRING
- subnode\_msn\_enum: STRING
- switch: STRING
- switch\_enum: STRING
- timestamp: STRING
- transmitted: INTEGER
- transmitted\_enum: STRING
- usage: INTEGER
- usage\_enum: STRING

For events that are generated by situations in the Networks attribute group, events are sent by using the ITM\_KVM\_NETWORKS event class. This event class contains the following slots:

- datacenter: STRING
- datacenter\_enum: STRING
- distributed\_switch: STRING
- distributed\_switch\_enum: STRING
- network: STRING
- network\_enum: STRING
- network\_type: STRING
- network\_type\_enum: STRING
- node: STRING
- number\_of\_hosts: INTEGER
- number\_of\_hosts\_enum: STRING
- number\_of\_vms: INTEGER
- number\_of\_vms\_enum: STRING
- overall\_status: STRING
- overall\_status\_enum: STRING
- timestamp: STRING

For events that are generated by situations in the Performance Object Status attribute group, events are sent by using the ITM\_KVM\_PERFORMANCE\_OBJECT\_STATUS event class. This event class contains the following slots:

- average\_collection\_duration: REAL
- average\_collection\_duration\_enum: STRING
- cache\_hits: INTEGER
- cache\_hit\_percent: REAL
- cache\_misses: INTEGER
- error\_code: INTEGER
- error\_code\_enum: STRING
- intervals\_skipped: INTEGER
- last\_collection\_duration: REAL
- last\_collection\_finished: STRING
- last\_collection\_finished\_enum: STRING
- last\_collection\_start: STRING
- last\_collection\_start\_enum: STRING
- node: STRING
- number\_of\_collections: INTEGER
- object\_name: STRING
- object\_status: INTEGER
- object\_status\_enum: STRING
- object\_type: INTEGER
- object\_type\_enum: STRING
- query\_name: STRING
- refresh\_interval: INTEGER
- timestamp: STRING

For events that are generated by situations in the Resource Pool CPU attribute group, events are sent by using the ITM\_KVM\_RESOURCE\_POOL\_CPU event class. This event class contains the following slots:

- cpu\_usage: INTEGER
- cpu\_usage\_enum: STRING
- expandable: INTEGER
- expandable\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- include\_data\_in\_summarization\_1: INTEGER
- include\_data\_in\_summarization\_1\_enum: STRING
- include\_data\_in\_summarization\_2: INTEGER
- include\_data\_in\_summarization\_2\_enum: STRING
- include\_data\_in\_summarization\_3: INTEGER
- include\_data\_in\_summarization\_3\_enum: STRING
- limit: INTEGER
- limit\_enum: STRING

- max\_usage: INTEGER
- max\_usage\_enum: STRING
- node: STRING
- nodeid: STRING
- parent\_name: STRING
- parent\_name\_enum: STRING
- percent\_overall\_usage: INTEGER
- percent\_overall\_usage\_enum: STRING
- percent\_reserved\_vms: INTEGER
- percent\_reserved\_vms\_enum: STRING
- pool\_name: STRING
- pool\_name\_enum: STRING
- reservation: INTEGER
- reservation\_enum: STRING
- reservation\_used: INTEGER
- reservation\_used\_enum: STRING
- reservation\_used\_vm: INTEGER
- reservation\_used\_vm\_enum: STRING
- server\_hostname: STRING
- server\_hostname\_enum: STRING
- shares: INTEGER
- shares\_enum: STRING
- share\_level: STRING
- share\_level\_enum: STRING
- timestamp: STRING
- unreserved: INTEGER
- unreserved\_enum: STRING
- unreserved\_vm: INTEGER
- unreserved\_vm\_enum: STRING

For events that are generated by situations in the Resource Pool General attribute group, events are sent by using the ITM\_KVM\_RESOURCE\_POOL\_GENERAL event class. This event class contains the following slots:

- cpu\_usage: INTEGER
- cpu\_usage\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- include\_data\_in\_summarization\_1: INTEGER
- include\_data\_in\_summarization\_1\_enum: STRING
- include\_data\_in\_summarization\_2: INTEGER

- include\_data\_in\_summarization\_2\_enum: STRING
- kvm\_status: STRING
- kvm\_status\_enum: STRING
- memory\_usage: INTEGER
- memory\_usage\_enum: STRING
- node: STRING
- nodeid: STRING
- number\_child\_pools: INTEGER
- number\_child\_pools\_enum: STRING
- number\_vms: INTEGER
- number\_vms\_enum: STRING
- number\_vms\_on: INTEGER
- number\_vms\_on\_enum: STRING
- parent\_name: STRING
- parent\_name\_enum: STRING
- pool\_name: STRING
- pool\_name\_enum: STRING
- server\_hostname: STRING
- server\_hostname\_enum: STRING
- timestamp: STRING

For events that are generated by situations in the Resource Pool Memory attribute group, events are sent by using the ITM\_KVM\_RESOURCE\_POOL\_MEMORY event class. This event class contains the following slots:

- expandable: INTEGER
- expandable\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- include\_data\_in\_summarization\_1: INTEGER
- include\_data\_in\_summarization\_1\_enum: STRING
- include\_data\_in\_summarization\_2: INTEGER
- include\_data\_in\_summarization\_2\_enum: STRING
- include\_data\_in\_summarization\_3: INTEGER
- include\_data\_in\_summarization\_3\_enum: STRING
- limit: INTEGER
- limit\_enum: STRING
- max\_usage: INTEGER
- max\_usage\_enum: STRING
- memory\_usage: INTEGER
- memory\_usage\_enum: STRING

- node: STRING
- nodeid: STRING
- parent\_name: STRING
- parent\_name\_enum: STRING
- percent\_overall\_usage: INTEGER
- percent\_overall\_usage\_enum: STRING
- percent\_reserved\_vms: INTEGER
- percent\_reserved\_vms\_enum: STRING
- pool\_name: STRING
- pool\_name\_enum: STRING
- reservation: INTEGER
- reservation\_enum: STRING
- reservation\_used: INTEGER
- reservation\_used\_enum: STRING
- reservation\_used\_vm: INTEGER
- reservation\_used\_vm\_enum: STRING
- server\_hostname: STRING
- server\_hostname\_enum: STRING
- shares: INTEGER
- shares\_enum: STRING
- share\_level: STRING
- share\_level\_enum: STRING
- timestamp: STRING
- unreserved: INTEGER
- unreserved\_enum: STRING
- unreserved\_vm: INTEGER
- unreserved\_vm\_enum: STRING

For events that are generated by situations in the Server attribute group, events are sent by using the ITM\_KVM\_SERVER event class. This event class contains the following slots:

- avg\_vm\_cpu\_percent\_rdy: REAL
- avg\_vm\_cpu\_percent\_rdy\_enum: STRING
- bios\_date: STRING
- bios\_date\_enum: STRING
- build\_number: STRING
- build\_number\_enum: STRING
- cluster: STRING
- cluster\_enum: STRING
- connection\_state: STRING
- connection\_state\_enum: STRING



- cpu\_packages: INTEGER
- cpu\_packages\_enum: STRING
- current\_evc\_mode: STRING
- current\_evc\_mode\_enum: STRING
- datacenter: STRING
- datacenter\_enum: STRING
- datacenter\_moref: STRING
- datacenter\_moref\_enum: STRING
- datastore\_space: INTEGER
- datastore\_space\_enum: STRING
- demand: INTEGER
- demand\_enum: STRING
- energy\_usage: INTEGER
- energy\_usage\_enum: STRING
- fully\_qualified\_name: STRING
- fully\_qualified\_name\_enum: STRING
- hyperthreading\_enabled: INTEGER
- hyperthreading\_enabled\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- include\_data\_in\_summarization\_1: INTEGER
- include\_data\_in\_summarization\_1\_enum: STRING
- include\_data\_in\_summarization\_2: INTEGER
- include\_data\_in\_summarization\_2\_enum: STRING
- include\_data\_in\_summarization\_3: INTEGER
- include\_data\_in\_summarization\_3\_enum: STRING
- include\_data\_in\_summarization\_4: INTEGER
- include\_data\_in\_summarization\_4\_enum: STRING
- include\_data\_in\_summarization\_5: INTEGER
- include\_data\_in\_summarization\_5\_enum: STRING
- include\_data\_in\_summarization\_6: INTEGER
- include\_data\_in\_summarization\_6\_enum: STRING
- include\_data\_in\_summarization\_7: INTEGER
- include\_data\_in\_summarization\_7\_enum: STRING
- include\_data\_in\_summarization\_8: INTEGER
- include\_data\_in\_summarization\_8\_enum: STRING
- include\_data\_in\_summarization\_9: INTEGER
- include\_data\_in\_summarization\_9\_enum: STRING
- ip\_address: STRING

- ip\_address\_enum: STRING
- latency: REAL
- latency\_enum: STRING
- maintenance\_mode: INTEGER
- maintenance\_mode\_enum: STRING
- max\_evc\_mode: STRING
- max\_evc\_mode\_enum: STRING
- nics: INTEGER
- nics\_enum: STRING
- node: STRING
- nodeid: STRING
- number\_vms: INTEGER
- number\_vms\_enum: STRING
- number\_vms\_on: INTEGER
- number\_vms\_on\_enum: STRING
- overall\_cpu\_util: INTEGER
- overall\_cpu\_util\_enum: STRING
- overall\_memory\_util: INTEGER
- overall\_memory\_util\_enum: STRING
- overall\_status: STRING
- overall\_status\_enum: STRING
- performance\_error\_pct: REAL
- performance\_error\_pct\_enum: STRING
- performance\_error\_rate: INTEGER
- performance\_error\_rate\_enum: STRING
- physical\_cpus: INTEGER
- physical\_cpus\_enum: STRING
- physical\_memory: INTEGER
- physical\_memory\_enum: STRING
- power\_capacity: INTEGER
- power\_capacity\_enum: STRING
- power\_state: STRING
- power\_state\_enum: STRING
- power\_usage: INTEGER
- power\_usage\_enum: STRING
- processor\_family: STRING
- processor\_family\_enum: STRING
- product: STRING
- product\_enum: STRING

- serial\_number: STRING
- serial\_number\_enum: STRING
- server\_hostname: STRING
- server\_hostname\_enum: STRING
- ssh\_status: INTEGER
- ssh\_status\_enum: STRING
- storage\_adapter\_max\_latency: INTEGER
- storage\_adapter\_max\_latency\_enum: STRING
- storage\_path\_max\_latency: INTEGER
- storage\_path\_max\_latency\_enum: STRING
- system\_model: STRING
- system\_model\_enum: STRING
- system\_up\_time: INTEGER
- system\_up\_time\_enum: STRING
- system\_vendor: STRING
- system\_vendor\_enum: STRING
- timestamp: STRING
- total\_cpu\_mhz: INTEGER
- total\_cpu\_mhz\_enum: STRING
- total\_vm\_configured\_memory: REAL
- total\_vm\_configured\_memory\_enum: STRING
- total\_vm\_provisioned\_space: REAL
- total\_vm\_provisioned\_space\_enum: STRING
- used\_cpu\_mhz: INTEGER
- used\_cpu\_mhz\_enum: STRING
- used\_datastore: INTEGER
- used\_datastore\_enum: STRING
- uuid: STRING
- uuid\_enum: STRING
- version: STRING
- version\_enum: STRING
- vmotion\_enabled: STRING
- vmotion\_enabled\_enum: STRING

For events that are generated by situations in the Server CPU attribute group, events are sent by using the ITM\_KVM\_SERVER\_CPU event class. This event class contains the following slots:

- core\_utilization: REAL
- core\_utilization\_enum: STRING
- cpu\_number: INTEGER
- cpu\_number\_enum: STRING

- cpu\_utilization: INTEGER
- cpu\_utilization\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- include\_data\_in\_summarization\_1: INTEGER
- include\_data\_in\_summarization\_1\_enum: STRING
- node: STRING
- nodeid: STRING
- server\_hostname: STRING
- server\_hostname\_enum: STRING
- timestamp: STRING

For events that are generated by situations in the Server DataStore attribute group, events are sent by using the ITM\_KVM\_SERVER\_DATASTORE event class. This event class contains the following slots:

- agent\_msn: STRING
- agent\_msn\_enum: STRING
- capacity: INTEGER
- capacity\_enum: STRING
- datacenter: STRING
- datacenter\_enum: STRING
- datastore\_moref: STRING
- datastore\_moref\_enum: STRING
- free\_space: INTEGER
- free\_space\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- include\_data\_in\_summarization\_1: INTEGER
- include\_data\_in\_summarization\_1\_enum: STRING
- maximum\_file\_size: INTEGER
- maximum\_file\_size\_enum: STRING
- name: STRING
- name\_enum: STRING
- node: STRING
- nodeid: STRING
- overall\_status: STRING
- overall\_status\_enum: STRING
- percent\_free: INTEGER
- percent\_free\_enum: STRING
- percent\_used: INTEGER
- percent\_used\_enum: STRING

- read\_latency: INTEGER
- read\_latency\_enum: STRING
- server\_hostname: STRING
- server\_hostname\_enum: STRING
- timestamp: STRING
- type: STRING
- type\_enum: STRING
- used\_space: INTEGER
- used\_space\_enum: STRING
- write\_latency: INTEGER
- write\_latency\_enum: STRING

For events that are generated by situations in the Server Disk attribute group, events are sent by using the ITM\_KVM\_SERVER\_DISK event class. This event class contains the following slots:

- backing\_datastore: STRING
- backing\_datastore\_enum: STRING
- bus\_resets: INTEGER
- bus\_resets\_enum: STRING
- commands: INTEGER
- commands\_aborted: INTEGER
- commands\_aborted\_enum: STRING
- commands\_enum: STRING
- device\_latency: INTEGER
- device\_latency\_enum: STRING
- device\_read\_latency: INTEGER
- device\_read\_latency\_enum: STRING
- device\_total\_latency: INTEGER
- device\_total\_latency\_enum: STRING
- device\_write\_latency: INTEGER
- device\_write\_latency\_enum: STRING
- disk\_name: STRING
- disk\_name\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- include\_data\_in\_summarization\_1: INTEGER
- include\_data\_in\_summarization\_1\_enum: STRING
- include\_data\_in\_summarization\_2: INTEGER
- include\_data\_in\_summarization\_2\_enum: STRING
- include\_data\_in\_summarization\_3: INTEGER
- include\_data\_in\_summarization\_3\_enum: STRING

- include\_data\_in\_summarization\_4: INTEGER
- include\_data\_in\_summarization\_4\_enum: STRING
- include\_data\_in\_summarization\_5: INTEGER
- include\_data\_in\_summarization\_5\_enum: STRING
- include\_data\_in\_summarization\_6: INTEGER
- include\_data\_in\_summarization\_6\_enum: STRING
- include\_data\_in\_summarization\_7: INTEGER
- include\_data\_in\_summarization\_7\_enum: STRING
- kernel\_latency: INTEGER
- kernel\_latency\_enum: STRING
- kernel\_read\_latency: INTEGER
- kernel\_read\_latency\_enum: STRING
- kernel\_total\_latency: INTEGER
- kernel\_total\_latency\_enum: STRING
- kernel\_write\_latency: INTEGER
- kernel\_write\_latency\_enum: STRING
- node: STRING
- nodeid: STRING
- number\_read: INTEGER
- number\_read\_enum: STRING
- number\_write: INTEGER
- number\_write\_enum: STRING
- queue\_latency: INTEGER
- queue\_latency\_enum: STRING
- queue\_read\_latency: INTEGER
- queue\_read\_latency\_enum: STRING
- queue\_total\_latency: INTEGER
- queue\_total\_latency\_enum: STRING
- queue\_write\_latency: INTEGER
- queue\_write\_latency\_enum: STRING
- read: INTEGER
- read\_enum: STRING
- server\_hostname: STRING
- server\_hostname\_enum: STRING
- timestamp: STRING
- total\_latency: INTEGER
- total\_latency\_enum: STRING
- total\_read\_latency: INTEGER
- total\_read\_latency\_enum: STRING

- total\_write\_latency: INTEGER
- total\_write\_latency\_enum: STRING
- write: INTEGER
- write\_enum: STRING

For events that are generated by situations in the Server HBA attribute group, events are sent by using the ITM\_KVM\_SERVER\_HBA event class. This event class contains the following slots:

- bus: INTEGER
- bus\_enum: STRING
- current\_link\_speed: INTEGER
- current\_link\_speed\_enum: STRING
- device: STRING
- device\_enum: STRING
- driver: STRING
- driver\_enum: STRING
- hba\_type: STRING
- hba\_type\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- include\_data\_in\_summarization\_1: INTEGER
- include\_data\_in\_summarization\_1\_enum: STRING
- kvm\_status: STRING
- kvm\_status\_enum: STRING
- max\_link\_speed: INTEGER
- max\_link\_speed\_enum: STRING
- model: STRING
- model\_enum: STRING
- node: STRING
- nodeid: STRING
- pci\_id: STRING
- pci\_id\_enum: STRING
- read: INTEGER
- read\_enum: STRING
- read\_latency: INTEGER
- read\_latency\_enum: STRING
- server\_hostname: STRING
- server\_hostname\_enum: STRING
- speed: INTEGER
- speed\_enum: STRING
- storage\_adapter\_throughput\_usage: INTEGER

- storage\_adapter\_throughput\_usage\_enum: STRING
- timestamp: STRING
- write: INTEGER
- write\_enum: STRING
- write\_latency: INTEGER
- write\_latency\_enum: STRING

For events that are generated by situations in the Server Health attribute group, events are sent by using the ITM\_KVM\_SERVER\_HEALTH event class. This event class contains the following slots:

- node: STRING
- nodeid: STRING
- sensor\_name: STRING
- sensor\_name\_enum: STRING
- sensor\_status: STRING
- sensor\_status\_enum: STRING
- sensor\_type: STRING
- sensor\_type\_enum: STRING
- sensor\_units: STRING
- sensor\_units\_enum: STRING
- sensor\_value: REAL
- sensor\_value\_enum: STRING
- server\_hostname: STRING
- server\_hostname\_enum: STRING
- timestamp: STRING

For events that are generated by situations in the Server Memory attribute group, events are sent by using the ITM\_KVM\_SERVER\_MEMORY event class. This event class contains the following slots:

- active\_memory: INTEGER
- active\_memory\_enum: STRING
- active\_write: INTEGER
- active\_write\_enum: STRING
- balloon\_used: INTEGER
- balloon\_used\_enum: STRING
- free\_memory: INTEGER
- free\_memory\_enum: STRING
- granted\_max\_memory: INTEGER
- granted\_max\_memory\_enum: STRING
- granted\_memory: INTEGER
- granted\_memory\_enum: STRING
- granted\_min\_memory: INTEGER
- granted\_min\_memory\_enum: STRING



- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- include\_data\_in\_summarization\_1: INTEGER
- include\_data\_in\_summarization\_1\_enum: STRING
- include\_data\_in\_summarization\_2: INTEGER
- include\_data\_in\_summarization\_2\_enum: STRING
- include\_data\_in\_summarization\_3: INTEGER
- include\_data\_in\_summarization\_3\_enum: STRING
- include\_data\_in\_summarization\_4: INTEGER
- include\_data\_in\_summarization\_4\_enum: STRING
- low\_free\_threshold: INTEGER
- low\_free\_threshold\_enum: STRING
- memory\_usage: INTEGER
- memory\_usage\_enum: STRING
- memory\_utilization: INTEGER
- memory\_utilization\_enum: STRING
- node: STRING
- nodeid: STRING
- physical\_memory: INTEGER
- physical\_memory\_enum: STRING
- server\_hostname: STRING
- server\_hostname\_enum: STRING
- service\_console: INTEGER
- service\_console\_enum: STRING
- swap\_in\_rate: INTEGER
- swap\_in\_rate\_enum: STRING
- swap\_in\_rate\_host\_cache: INTEGER
- swap\_in\_rate\_host\_cache\_enum: STRING
- swap\_out\_rate: INTEGER
- swap\_out\_rate\_enum: STRING
- swap\_out\_rate\_host\_cache: INTEGER
- swap\_out\_rate\_host\_cache\_enum: STRING
- swap\_total\_rate: INTEGER
- swap\_total\_rate\_enum: STRING
- swap\_used: INTEGER
- swap\_used\_enum: STRING
- timestamp: STRING

For events that are generated by situations in the Server Network attribute group, events are sent by using the ITM\_KVM\_SERVER\_NETWORK event class. This event class contains the following slots:

- cluster: STRING
- cluster\_enum: STRING
- datacenter: STRING
- datacenter\_enum: STRING
- duplex: STRING
- duplex\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- include\_data\_in\_summarization\_1: INTEGER
- include\_data\_in\_summarization\_1\_enum: STRING
- include\_data\_in\_summarization\_2: INTEGER
- include\_data\_in\_summarization\_2\_enum: STRING
- kvm\_status: STRING
- kvm\_status\_enum: STRING
- link\_speed: INTEGER
- link\_speed\_enum: STRING
- link\_utilization: REAL
- link\_utilization\_enum: STRING
- nic\_name: STRING
- nic\_name\_enum: STRING
- node: STRING
- nodeid: STRING
- physical\_addr: STRING
- physical\_addr\_enum: STRING
- pkts\_dropped: INTEGER
- pkts\_dropped\_enum: STRING
- pkts\_received: INTEGER
- pkts\_received\_enum: STRING
- pkts\_transmitted: INTEGER
- pkts\_transmitted\_enum: STRING
- received: INTEGER
- received\_enum: STRING
- receive\_pkts\_dropped: INTEGER
- receive\_pkts\_dropped\_enum: STRING
- server\_hostname: STRING
- server\_hostname\_enum: STRING
- timestamp: STRING
- transmitted: INTEGER
- transmitted\_enum: STRING

- transmit\_pkts\_dropped: INTEGER
- transmit\_pkts\_dropped\_enum: STRING
- usage: INTEGER
- usage\_enum: STRING
- virtual\_switch: STRING
- virtual\_switch\_enum: STRING

For events that are generated by situations in the Server SAN attribute group, events are sent by using the ITM\_KVM\_SERVER\_SAN event class. This event class contains the following slots:

- broken\_paths: INTEGER
- broken\_paths\_enum: STRING
- datastore: STRING
- datastore\_enum: STRING
- disabled\_paths: INTEGER
- disabled\_paths\_enum: STRING
- disk\_name: STRING
- disk\_name\_enum: STRING
- node: STRING
- nodeid: STRING
- paths: INTEGER
- paths\_enum: STRING
- path\_selection\_policy: STRING
- path\_selection\_policy\_enum: STRING
- timestamp: STRING

For events that are generated by situations in the Server Virtual Switches attribute group, events are sent by using the ITM\_KVM\_SERVER\_VIRTUAL\_SWITCHES event class. This event class contains the following slots:

- datacenter: STRING
- datacenter\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- network: STRING
- network\_enum: STRING
- node: STRING
- number\_of\_nics: INTEGER
- number\_of\_nics\_enum: STRING
- received: INTEGER
- received\_enum: STRING
- server\_hostname: STRING
- server\_hostname\_enum: STRING
- switch: STRING

- switch\_enum: STRING
- timestamp: STRING
- transmitted: INTEGER
- transmitted\_enum: STRING
- usage: INTEGER
- usage\_enum: STRING

For events that are generated by situations in the Server VM Datastore Utilization attribute group, events are sent by using the ITM\_KVM\_SERVER\_VM\_DATASTORE\_UTILIZATION event class. This event class contains the following slots:

- committed: REAL
- committed\_enum: STRING
- datacenter: STRING
- datacenter\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- name: STRING
- name\_enum: STRING
- node: STRING
- nodeid: STRING
- percent\_committed: REAL
- percent\_committed\_enum: STRING
- provisioned: REAL
- provisioned\_enum: STRING
- timestamp: STRING
- uncommitted: REAL
- uncommitted\_enum: STRING
- unshared: REAL
- unshared\_enum: STRING
- virtual\_machine: STRING
- virtual\_machine\_enum: STRING
- vmnodeid: STRING

For events that are generated by situations in the SubNode Events attribute group, events are sent by using the ITM\_KVM\_SUBNODE\_EVENTS event class. This event class contains the following slots:

- category: STRING
- category\_enum: STRING
- compute\_resource: STRING
- compute\_resource\_enum: STRING
- datacenter: STRING
- datacenter\_enum: STRING
- entity\_type: STRING

- entity\_type\_enum: STRING
- esx\_server\_uuid: STRING
- esx\_server\_uuid\_enum: STRING
- event: STRING
- event\_enum: STRING
- event\_seq\_number: INTEGER
- event\_seq\_number\_enum: STRING
- event\_text: STRING
- event\_text\_enum: STRING
- event\_time: STRING
- event\_time\_enum: STRING
- event\_type: STRING
- event\_type\_enum: STRING
- event\_type\_id: STRING
- event\_type\_id\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- node: STRING
- server\_hostname: STRING
- server\_hostname\_enum: STRING
- timestamp: STRING
- userid: STRING
- userid\_enum: STRING
- virtual\_machine: STRING
- virtual\_machine\_enum: STRING
- virtual\_machine\_uuid: STRING
- virtual\_machine\_uuid\_enum: STRING

For events that are generated by situations in the Tasks attribute group, events are sent by using the ITM\_KVM\_TASKS event class. This event class contains the following slots:

- completed\_time: STRING
- completed\_time\_enum: STRING
- error\_message: STRING
- error\_message\_enum: STRING
- initiated\_by: STRING
- initiated\_by\_enum: STRING
- kvm\_status: STRING
- kvm\_status\_enum: STRING
- name: STRING
- name\_enum: STRING

- node: STRING
- queue\_time: STRING
- queue\_time\_enum: STRING
- source\_hostname: STRING
- source\_hostname\_enum: STRING
- start\_time: STRING
- start\_time\_enum: STRING
- target\_entity: STRING
- target\_entity\_enum: STRING
- target\_entity\_type: STRING
- target\_entity\_type\_enum: STRING
- timestamp: STRING

For events that are generated by situations in the Thread Pool Status attribute group, events are sent by using the ITM\_KVM\_THREAD\_POOL\_STATUS event class. This event class contains the following slots:

- node: STRING
- thread\_pool\_active\_threads: INTEGER
- thread\_pool\_active\_threads\_enum: STRING
- thread\_pool\_avg\_active\_threads: REAL
- thread\_pool\_avg\_active\_threads\_enum: STRING
- thread\_pool\_avg\_job\_wait: REAL
- thread\_pool\_avg\_job\_wait\_enum: STRING
- thread\_pool\_avg\_queue\_length: REAL
- thread\_pool\_avg\_queue\_length\_enum: STRING
- thread\_pool\_max\_active\_threads: INTEGER
- thread\_pool\_max\_active\_threads\_enum: STRING
- thread\_pool\_max\_queue\_length: INTEGER
- thread\_pool\_max\_queue\_length\_enum: STRING
- thread\_pool\_max\_size: INTEGER
- thread\_pool\_max\_size\_enum: STRING
- thread\_pool\_min\_active\_threads: INTEGER
- thread\_pool\_min\_active\_threads\_enum: STRING
- thread\_pool\_min\_queue\_length: INTEGER
- thread\_pool\_min\_queue\_length\_enum: STRING
- thread\_pool\_queue\_length: INTEGER
- thread\_pool\_queue\_length\_enum: STRING
- thread\_pool\_size: INTEGER
- thread\_pool\_size\_enum: STRING
- thread\_pool\_total\_jobs: INTEGER
- thread\_pool\_total\_jobs\_enum: STRING

- timestamp: STRING

For events that are generated by situations in the Topological Events attribute group, events are sent by using the ITM\_KVM\_TOPOLOGICAL\_EVENTS event class. This event class contains the following slots:

- datastore\_uuid: STRING
- datastore\_uuid\_enum: STRING
- entity\_type: STRING
- entity\_type\_enum: STRING
- event\_type: STRING
- event\_type\_enum: STRING
- host\_uuid: STRING
- host\_uuid\_enum: STRING
- msn: STRING
- msn\_enum: STRING
- name: STRING
- name\_enum: STRING
- node: STRING
- server\_hostname: STRING
- server\_hostname\_enum: STRING
- timestamp: STRING
- vm\_uuid: STRING
- vm\_uuid\_enum: STRING

For events that are generated by situations in the Topology attribute group, events are sent by using the ITM\_KVM\_TOPOLOGY event class. This event class contains the following slots:

- connectiontype: STRING
- connecttonode: STRING
- datacenter: STRING
- datacenter\_enum: STRING
- msn: STRING
- msn\_enum: STRING
- node: STRING
- nodeid: STRING
- nodename: STRING
- nodestatus: STRING
- nodetype: STRING
- timestamp: STRING

For events that are generated by situations in the Triggered Alarms attribute group, events are sent by using the ITM\_KVM\_TRIGGERED\_ALARMS event class. This event class contains the following slots:

- affected\_entity: STRING
- affected\_entity\_enum: STRING
- alarm\_name: STRING

- alarm\_name\_enum: STRING
- alarm\_status: STRING
- alarm\_status\_enum: STRING
- alarm\_triggered\_time: STRING
- alarm\_triggered\_time\_enum: STRING
- datacenter: STRING
- datacenter\_enum: STRING
- description: STRING
- description\_enum: STRING
- node: STRING
- timestamp: STRING
- triggered\_entity: STRING
- triggered\_entity\_enum: STRING

For events that are generated by situations in the vCenters attribute group, events are sent by using the ITM\_KVM\_VCENTERS event class. This event class contains the following slots:

- agent\_connection: INTEGER
- agent\_connection\_enum: STRING
- average\_cu\_execution\_time: REAL
- average\_cu\_execution\_time\_enum: STRING
- average\_cu\_queue\_time: REAL
- average\_cu\_queue\_time\_enum: STRING
- collection\_units: INTEGER
- collection\_units\_enum: STRING
- configured\_address: STRING
- current\_cu\_execution\_time: REAL
- current\_cu\_execution\_time\_enum: STRING
- current\_cu\_queue\_time: REAL
- current\_cu\_queue\_time\_enum: STRING
- executing\_collection\_units: INTEGER
- executing\_collection\_units\_enum: STRING
- fqdn: STRING
- fqdn\_enum: STRING
- inventory\_age: REAL
- inventory\_age\_enum: STRING
- ip\_address: STRING
- ip\_address\_enum: STRING
- node: STRING
- queued\_collection\_units: INTEGER
- queued\_collection\_units\_enum: STRING



- timestamp: STRING
- type: STRING
- type\_enum: STRING
- web\_services\_port: INTEGER
- web\_services\_port\_enum: STRING

For events that are generated by situations in the Virtual Machines attribute group, events are sent by using the ITM\_KVM\_VIRTUAL\_MACHINES event class. This event class contains the following slots:

- cluster: STRING
- cluster\_enum: STRING
- connection\_state: STRING
- connection\_state\_enum: STRING
- consolidationneeded: INTEGER
- consolidationneeded\_enum: STRING
- cpu\_limit: INTEGER
- cpu\_limit\_enum: STRING
- cpu\_reservation: INTEGER
- cpu\_reservation\_enum: STRING
- cpu\_shares: INTEGER
- cpu\_shares\_enum: STRING
- cpu\_utilization: INTEGER
- cpu\_utilization\_enum: STRING
- datacenter: STRING
- datacenter\_enum: STRING
- fault\_tolerance: INTEGER
- fault\_tolerance\_enum: STRING
- ft\_instance\_uuid: STRING
- ft\_instance\_uuid\_enum: STRING
- guestos\_msn: STRING
- guestos\_msn\_enum: STRING
- guestos\_name: STRING
- guestos\_name\_enum: STRING
- guest\_state: STRING
- guest\_state\_enum: STRING
- heartbeats: INTEGER
- heartbeats\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- include\_data\_in\_summarization\_1: INTEGER
- include\_data\_in\_summarization\_1\_enum: STRING

- include\_data\_in\_summarization\_2: INTEGER
- include\_data\_in\_summarization\_2\_enum: STRING
- include\_data\_in\_summarization\_3: INTEGER
- include\_data\_in\_summarization\_3\_enum: STRING
- include\_data\_in\_summarization\_4: INTEGER
- include\_data\_in\_summarization\_4\_enum: STRING
- include\_data\_in\_summarization\_5: INTEGER
- include\_data\_in\_summarization\_5\_enum: STRING
- include\_data\_in\_summarization\_6: INTEGER
- include\_data\_in\_summarization\_6\_enum: STRING
- instance\_uuid: STRING
- instance\_uuid\_enum: STRING
- ip\_address: STRING
- ip\_address\_enum: STRING
- kvm\_hostname: STRING
- kvm\_hostname\_enum: STRING
- memory\_limit: INTEGER
- memory\_limit\_enum: STRING
- memory\_reservation: INTEGER
- memory\_reservation\_enum: STRING
- memory\_shares: INTEGER
- memory\_shares\_enum: STRING
- memory\_size: INTEGER
- memory\_size\_enum: STRING
- moref: STRING
- moref\_enum: STRING
- node: STRING
- nodeid: STRING
- number\_of\_disks: INTEGER
- number\_of\_disks\_enum: STRING
- number\_of\_nics: INTEGER
- number\_of\_nics\_enum: STRING
- number\_of\_snapshots: INTEGER
- number\_of\_snapshots\_enum: STRING
- num\_cpus: INTEGER
- num\_cpus\_enum: STRING
- overall\_status: STRING
- overall\_status\_enum: STRING
- power\_status: STRING

- power\_status\_enum: STRING
- resource\_pool: STRING
- resource\_pool\_enum: STRING
- snapshot\_storage\_consumed: INTEGER
- snapshot\_storage\_consumed\_enum: STRING
- storage\_drs\_enable: INTEGER
- storage\_drs\_enable\_enum: STRING
- template: INTEGER
- template\_enum: STRING
- timestamp: STRING
- tools\_status: STRING
- tools\_status\_enum: STRING
- up\_time: INTEGER
- up\_time\_enum: STRING
- used\_cpu\_mhz: INTEGER
- used\_cpu\_mhz\_enum: STRING
- uuid: STRING
- uuid\_enum: STRING
- version: STRING
- version\_enum: STRING
- vm\_datastorepercent\_utilization: REAL
- vm\_datastorepercent\_utilization\_enum: STRING
- vm\_name: STRING
- vm\_name\_enum: STRING
- vm\_os\_type: INTEGER
- vm\_os\_type\_enum: STRING
- vm\_percent\_rdy: REAL
- vm\_percent\_rdy\_enum: STRING
- vm\_server\_name: STRING
- vm\_server\_name\_enum: STRING

For events that are generated by situations in the Virtual Switches attribute group, events are sent by using the ITM\_KVM\_VIRTUAL\_SWITCHES event class. This event class contains the following slots:

- datacenter: STRING
- datacenter\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- include\_data\_in\_summarization\_1: INTEGER
- include\_data\_in\_summarization\_1\_enum: STRING
- node: STRING

- number\_of\_nics: INTEGER
- number\_of\_nics\_enum: STRING
- received: INTEGER
- received\_enum: STRING
- server\_hostname: STRING
- server\_hostname\_enum: STRING
- subnode\_msn: STRING
- subnode\_msn\_enum: STRING
- switch: STRING
- switch\_enum: STRING
- timestamp: STRING
- transmitted: INTEGER
- transmitted\_enum: STRING
- usage: INTEGER
- usage\_enum: STRING

For events that are generated by situations in the VM CPU attribute group, events are sent by using the ITM\_KVM\_VM\_CPU event class. This event class contains the following slots:

- cpu\_number: INTEGER
- cpu\_number\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- node: STRING
- nodeid: STRING
- percent\_rdy: INTEGER
- percent\_rdy\_enum: STRING
- ready\_time: INTEGER
- ready\_time\_enum: STRING
- sys\_time: INTEGER
- sys\_time\_enum: STRING
- timestamp: STRING
- used\_time: INTEGER
- used\_time\_enum: STRING
- user\_time: INTEGER
- user\_time\_enum: STRING
- utilization: INTEGER
- utilization\_enum: STRING
- vm\_hostname: STRING
- vm\_hostname\_enum: STRING
- vm\_name: STRING

- vm\_name\_cpu\_number: STRING
- vm\_name\_cpu\_number\_enum: STRING
- vm\_name\_enum: STRING
- vm\_os\_type: INTEGER
- vm\_os\_type\_enum: STRING
- vm\_server\_name: STRING
- vm\_server\_name\_enum: STRING
- wait\_time: INTEGER
- wait\_time\_enum: STRING

For events that are generated by situations in the VM Datastore Utilization attribute group, events are sent by using the ITM\_KVM\_VM\_DATASTORE\_UTILIZATION event class. This event class contains the following slots:

- committed: REAL
- committed\_enum: STRING
- datacenter: STRING
- datacenter\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- include\_data\_in\_summarization\_1: INTEGER
- include\_data\_in\_summarization\_1\_enum: STRING
- name: STRING
- name\_enum: STRING
- node: STRING
- nodeid: STRING
- percent\_committed: REAL
- percent\_committed\_enum: STRING
- provisioned: REAL
- provisioned\_enum: STRING
- timestamp: STRING
- total\_io\_kbps: INTEGER
- total\_io\_kbps\_enum: STRING
- total\_read\_kbps: INTEGER
- total\_read\_kbps\_enum: STRING
- total\_write\_kbps: INTEGER
- total\_write\_kbps\_enum: STRING
- uncommitted: REAL
- uncommitted\_enum: STRING
- unshared: REAL
- unshared\_enum: STRING

- uuid: STRING
- virtual\_machine: STRING
- virtual\_machine\_enum: STRING

For events that are generated by situations in the VM Disk attribute group, events are sent by using the ITM\_KVM\_VM\_DISK event class. This event class contains the following slots:

- access: STRING
- access\_enum: STRING
- backing\_datastore: STRING
- backing\_datastore\_enum: STRING
- capacity: INTEGER
- capacity\_enum: STRING
- connected: STRING
- connected\_enum: STRING
- description: STRING
- description\_enum: STRING
- disk\_shares: INTEGER
- disk\_shares\_enum: STRING
- node: STRING
- nodeid: STRING
- removable: STRING
- removable\_enum: STRING
- timestamp: STRING
- vm\_hostname: STRING
- vm\_hostname\_enum: STRING
- vm\_name: STRING
- vm\_name\_enum: STRING
- vm\_os\_type: INTEGER
- vm\_os\_type\_enum: STRING
- vm\_server\_name: STRING
- vm\_server\_name\_enum: STRING

For events that are generated by situations in the VM Disk Performance attribute group, events are sent by using the ITM\_KVM\_VM\_DISK\_PERFORMANCE event class. This event class contains the following slots:

- disk\_name: STRING
- disk\_name\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- moref: STRING
- moref\_enum: STRING
- node: STRING

- number\_read: INTEGER
- number\_read\_enum: STRING
- number\_write: INTEGER
- number\_write\_enum: STRING
- read: INTEGER
- read\_enum: STRING
- timestamp: STRING
- virtual\_machine: STRING
- virtual\_machine\_enum: STRING
- write: INTEGER
- write\_enum: STRING

For events that are generated by situations in the VM Memory attribute group, events are sent by using the ITM\_KVM\_VM\_MEMORY event class. This event class contains the following slots:

- active: INTEGER
- active\_enum: STRING
- balloon\_usage: INTEGER
- balloon\_usage\_enum: STRING
- datacenter: STRING
- datacenter\_enum: STRING
- granted: INTEGER
- granted\_enum: STRING
- guest\_free: INTEGER
- guest\_free\_enum: STRING
- guest\_usage: INTEGER
- guest\_usage\_enum: STRING
- guest\_util: INTEGER
- guest\_util\_enum: STRING
- host\_free: INTEGER
- host\_free\_enum: STRING
- host\_usage: INTEGER
- host\_usage\_enum: STRING
- host\_util: INTEGER
- host\_util\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- include\_data\_in\_summarization\_1: INTEGER
- include\_data\_in\_summarization\_1\_enum: STRING
- include\_data\_in\_summarization\_2: INTEGER
- include\_data\_in\_summarization\_2\_enum: STRING

- max\_alloc: INTEGER
- max\_alloc\_enum: STRING
- min\_alloc: INTEGER
- min\_alloc\_enum: STRING
- node: STRING
- nodeid: STRING
- shared: INTEGER
- shared\_enum: STRING
- swap\_in\_rate: INTEGER
- swap\_in\_rate\_enum: STRING
- swap\_out\_rate: INTEGER
- swap\_out\_rate\_enum: STRING
- swap\_to\_file: INTEGER
- swap\_to\_file\_enum: STRING
- timestamp: STRING
- total\_size: INTEGER
- total\_size\_enum: STRING
- usage: REAL
- usage\_enum: STRING
- vm\_hostname: STRING
- vm\_hostname\_enum: STRING
- vm\_name: STRING
- vm\_name\_enum: STRING
- vm\_os\_type: INTEGER
- vm\_os\_type\_enum: STRING
- vm\_server\_name: STRING
- vm\_server\_name\_enum: STRING

For events that are generated by situations in the VM Network attribute group, events are sent by using the ITM\_KVM\_VM\_NETWORK event class. This event class contains the following slots:

- cluster: STRING
- cluster\_enum: STRING
- datacenter: STRING
- datacenter\_enum: STRING
- description: STRING
- description\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- network\_name: STRING
- network\_name\_enum: STRING



- node: STRING
- nodeid: STRING
- physical\_addr: STRING
- physical\_addr\_enum: STRING
- pkts\_recd: INTEGER
- pkts\_recd\_enum: STRING
- pkts\_trans: INTEGER
- pkts\_trans\_enum: STRING
- received: INTEGER
- received\_enum: STRING
- switch: STRING
- switch\_enum: STRING
- timestamp: STRING
- transmitted: INTEGER
- transmitted\_enum: STRING
- vm\_hostname: STRING
- vm\_hostname\_enum: STRING
- vm\_name: STRING
- vm\_name\_enum: STRING
- vm\_os\_type: INTEGER
- vm\_os\_type\_enum: STRING
- vm\_server\_name: STRING
- vm\_server\_name\_enum: STRING

For events that are generated by situations in the VM Orphaned Disk attribute group, events are sent by using the ITM\_KVM\_VM\_ORPHANED\_DISK event class. This event class contains the following slots:

- datacenter: STRING
- datacenter\_enum: STRING
- datastore: STRING
- datastore\_cluster: STRING
- datastore\_cluster\_enum: STRING
- datastore\_enum: STRING
- file\_path: STRING
- file\_path\_enum: STRING
- file\_size: INTEGER
- file\_size\_enum: STRING
- kvm\_source: STRING
- kvm\_source\_enum: STRING
- last\_modified: STRING
- last\_modified\_enum: STRING

- node: STRING
- owner: STRING
- owner\_enum: STRING
- timestamp: STRING

For events that are generated by situations in the VM Partition attribute group, events are sent by using the ITM\_KVM\_VM\_PARTITION event class. This event class contains the following slots:

- capacity: INTEGER
- capacity\_enum: STRING
- description: STRING
- description\_enum: STRING
- free\_space: INTEGER
- free\_space\_enum: STRING
- include\_data\_in\_summarization\_0: INTEGER
- include\_data\_in\_summarization\_0\_enum: STRING
- node: STRING
- nodeid: STRING
- percent\_free: INTEGER
- percent\_free\_enum: STRING
- percent\_used: INTEGER
- percent\_used\_enum: STRING
- timestamp: STRING
- used\_space: INTEGER
- used\_space\_enum: STRING
- vm\_hostname: STRING
- vm\_hostname\_enum: STRING
- vm\_name: STRING
- vm\_name\_enum: STRING
- vm\_os\_type: INTEGER
- vm\_os\_type\_enum: STRING
- vm\_server\_name: STRING
- vm\_server\_name\_enum: STRING

For events that are generated by situations in the VM Snapshot attribute group, events are sent by using the ITM\_KVM\_VM\_SNAPSHOT event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING

For events that are generated by situations in the VM SnapshotFileLayout attribute group, events are sent by using the ITM\_KVM\_VM\_SNAPSHOTFILELAYOUT event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING

For events that are generated by situations in the VM Snapshots attribute group, events are sent by using the ITM\_KVM\_VM\_SNAPSHOTS event class. This event class contains the following slots:

- creation\_time: STRING
- creation\_timestamp: STRING
- creation\_time\_enum: STRING
- description: STRING
- description\_enum: STRING
- node: STRING
- snapshot\_moref: STRING
- snapshot\_moref\_enum: STRING
- snapshot\_name: STRING
- snapshot\_name\_enum: STRING
- space\_consumed: INTEGER
- space\_consumed\_enum: STRING
- timestamp: STRING
- vm\_name: STRING
- vm\_name\_enum: STRING
- vm\_state: STRING
- vm\_state\_enum: STRING



This information was developed for products and services offered in the U.S.A. IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing  
IBM Corporation  
North Castle Drive  
Armonk, NY 10504-1785 U.S.A.

For license inquiries regarding double-byte (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

Intellectual Property Licensing  
Legal and Intellectual Property Law  
IBM Japan Ltd.  
19-21, Nihonbashi-Hakozakicho, Chuo-ku  
Tokyo 103-8510, Japan

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law:

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement might not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

IBM Corporation  
224A/101  
11400 Burnet Road  
Austin, TX 78758 U.S.A.

Such information may be available, subject to appropriate terms and conditions, including in some cases payment of a fee.

The licensed program described in this document and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement or any equivalent agreement between us.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurement may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

All statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

All IBM prices shown are IBM's suggested retail prices, are current and are subject to change without notice. Dealer prices may vary.

This information is for planning purposes only. The information herein is subject to change before the products described become available.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

#### COPYRIGHT LICENSE:

This information contains sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs. You may copy, modify, and distribute these sample programs in any form without payment to IBM for the purposes of developing, using, marketing, or distributing application programs conforming to IBM's application programming interfaces.

Each copy or any portion of these sample programs or any derivative work, must include a copyright notice as follows:

© IBM 2009. Portions of this code are derived from IBM Corp. Sample Programs. © Copyright IBM Corp. 2009. All rights reserved.

If you are viewing this information in softcopy form, the photographs and color illustrations might not be displayed.

## Trademarks

[Edit online](#)

IBM, the IBM logo, and [ibm.com](http://ibm.com)® are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the web at [Copyright and trademark information \(www.ibm.com/legal/copytrade.shtml\)](http://www.ibm.com/legal/copytrade.shtml).

Intel, Intel logo, and Intel Xeon, are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.



Java™ and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.

Linux® is a registered trademark of Linus Torvalds in the United States, other countries, or both.

Microsoft and Windows are trademarks of Microsoft Corporation in the United States, other countries, or both.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Other company, product, or service names may be trademarks or service marks of others.

## Privacy policy considerations

[Edit online](#)

IBM Software products, including software as a service solutions, ("Software Offerings") may use cookies or other technologies to collect product usage information, to help improve the end user experience, to tailor interactions with the end user or for other purposes. In many cases no personally identifiable information is collected by the Software Offerings. Some of our Software Offerings can help enable you to collect personally identifiable information. If this Software Offering uses cookies to collect personally identifiable information, specific information about this offering's use of cookies is set forth below.

Depending upon the configurations deployed, this Software Offering may use session cookies that collect each user's user name for purposes of session management, authentication, and single sign-on configuration. These cookies cannot be disabled.

If the configurations deployed for this Software Offering provide you as customer the ability to collect personally identifiable information from end users via cookies and other technologies, you should seek your own legal advice about any laws applicable to such data collection, including any requirements for notice and consent.

For more information about the use of various technologies, including cookies, for these purposes, See IBM's Privacy Policy at <http://www.ibm.com/privacy> and IBM's Online Privacy Statement at <http://www.ibm.com/privacy/details> the section entitled "Cookies, Web Beacons and Other Technologies" and the "IBM Software Products and Software-as-a-Service Privacy Statement" at <http://www.ibm.com/software/info/product-privacy>.





---

# Index

## A

- Access attribute [157](#)
- Accessible attribute [27](#), [55](#)
- Active attribute [160](#)
- Active Memory attribute [119](#)
- Active Tasks attribute group [22](#)
- Active Write attribute [119](#)
- activities [213](#)
- additional information
  - attributes [17](#)
  - situations [177](#)
  - Take Action commands [207](#)
  - Workspaces [1](#)
- Affected Entity attribute [139](#)
- Agent Connection attribute [141](#)
- Agent Events attribute group [24](#)
- Agent MSN attribute [107](#)
- Alarm Name attribute [140](#)
- Alarm Status attribute [140](#)
- Alarm Triggered Time attribute [140](#)
- attribute group
  - attributes [22](#)
- attribute groups
  - Active Tasks [22](#)
  - Agent Events [24](#)
  - Cluster DRS Faults [25](#)
  - Clustered Datastores [27](#)
  - Clustered Resource Pools [29](#)
  - Clustered Servers [31](#)
  - Clustered Virtual Apps [35](#)
  - Clustered Virtual Machines [37](#)
  - Clusters [38](#)
  - Datacenters [48](#)
  - Datastore Cluster [50](#)
  - Datastore Host Disks [52](#)
  - Datastore Topology [53](#)
  - Datastores [55](#)
  - Director [60](#)
  - Distributed Virtual Portgroups [61](#)
  - Distributed Virtual Switch Health [64](#)
  - Distributed Virtual Switches [65](#)
  - Distributed Virtual Uplinks [68](#)
  - ESX Performance Object Status [71](#)
  - Events [74](#)
  - list of all [17](#)
  - Monitored Servers [76](#)
  - Networked Servers [77](#)
  - Networked Virtual Machines [79](#)
  - Networked Virtual Switches [81](#)
  - Networks [83](#)
  - overview [17](#)
  - Performance Object Status [84](#)
  - Resource Pool CPU [87](#)
  - Resource Pool General [90](#)
  - Resource Pool Memory [92](#)
  - Server [96](#)

- attribute groups (*continued*)
  - Server CPU [105](#)
  - Server DataStore [106](#)
  - Server Disk [109](#)
  - Server HBA [114](#)
  - Server Health [117](#)
  - Server Memory [119](#)
  - Server Network [123](#)
  - Server SAN [126](#)
  - Server Virtual Switches [127](#)
  - Server VM Datastore Utilization [129](#)
  - SubNode Events [130](#)
  - Tasks [133](#)
  - Thread Pool Status [134](#)
  - Topological Events [137](#)
  - Topology [138](#)
  - Triggered Alarms [139](#)
  - vCenters [141](#)
  - Virtual Machines [143](#)
  - Virtual Switches [150](#)
  - VM CPU [152](#)
  - VM Datastore Utilization [154](#)
  - VM Disk [157](#)
  - VM Disk Performance [159](#)
  - VM Memory [160](#)
  - VM Network [164](#)
  - VM Orphaned Disk [166](#)
  - VM Partition [168](#)
  - VM Snapshot [170](#)
  - VM SnapshotFileLayout [170](#)
  - VM Snapshots [171](#)
- attributes
  - Access [157](#)
  - Accessible [27](#), [55](#)
  - Active [160](#)
  - Active Memory [119](#)
  - Active Tasks [22](#)
  - Active Write [119](#)
  - additional information [17](#)
  - Affected Entity [139](#)
  - Agent Connection [141](#)
  - Agent Events [24](#)
  - Agent MSN [107](#)
  - Alarm Name [140](#)
  - Alarm Status [140](#)
  - Alarm Triggered Time [140](#)
  - Average Collection Duration [71](#), [84](#)
  - Average CU Execution Time [141](#)
  - Average CU Queue Time [141](#)
  - Average VM CPU Percent Ready [96](#)
  - Backing data store [157](#)
  - Backing Datastore [109](#), [159](#)
  - Balloon Usage [161](#)
  - Balloon Used [119](#)
  - BIOS Date [96](#)
  - Blocked [61](#)
  - Broken Paths [126](#)

attributes (*continued*)

- Build number [96](#)
- Bus [115](#)
- BUS Resets [110](#)
- Cache Hit Percent [72, 84](#)
- Cache Hits [72, 85](#)
- Cache Misses [72, 85](#)
- Cancelable [22](#)
- capacity [96](#)
- Capacity [27, 55, 107, 157, 168](#)
- Capacity For Vm Cache [96](#)
- Capacity Used [50](#)
- Category [74, 131](#)
- CloneFrom Snapshot Supported [97](#)
- Cluster [25, 27, 97, 123, 143, 164](#)
- Cluster DRS Faults [25](#)
- Cluster MORef [27, 37, 39](#)
- Cluster Name [29, 32, 35, 37, 39](#)
- Clustered Datastores [27](#)
- Clustered Resource Pools [29](#)
- Clustered Servers [32](#)
- Clustered Virtual Apps [35](#)
- Clustered Virtual Machines [37](#)
- Clusters [39](#)
- Collection Units [141](#)
- Commands [110](#)
- Commands Aborted [110](#)
- Committed [129, 154](#)
- Completed Time [133](#)
- Component State [68](#)
- Compute Resource [74, 131](#)
- Config Status [50](#)
- Configured Address [141](#)
- Connected [157](#)
- Connected Clusters [55](#)
- Connected Hosts [27, 55](#)
- Connected VMs [27, 55](#)
- Connection State [97, 143](#)
- ConnectionType [54, 138](#)
- ConnectToNode [54, 138](#)
- Consolidation Needed [143](#)
- Core Utilization [105](#)
- CPU 00 10 [39](#)
- CPU 10 20 [39](#)
- CPU 20 30 [39](#)
- CPU 30 40 [39](#)
- CPU 40 50 [39](#)
- CPU 50 60 [40](#)
- CPU 60 70 [40](#)
- CPU 70 80 [40](#)
- CPU 80 90 [40](#)
- CPU 90 100 [40](#)
- CPU Effective Contribution [32](#)
- CPU Effective Utilization [32](#)
- CPU Limit [144](#)
- CPU Number [105, 152](#)
- CPU Packages [97](#)
- CPU Reservation [144](#)
- CPU Shares [144](#)
- CPU Total Contribution [32](#)
- CPU Total Utilization [32](#)
- CPU Usage [29, 87, 90](#)
- CPU Utilization [37, 40, 48, 106, 144](#)
- Creation Time(Deprecated) [171](#)

attributes (*continued*)

- Creation Timestamp [171](#)
- Current CU Execution Time [142](#)
- Current CU Queue Time [142](#)
- Current EVC Mode [40, 97](#)
- Current Link Speed [115](#)
- Datacenter [28, 35, 48, 54, 55, 61, 64, 66, 68, 74, 78, 79, 81, 83, 97, 107, 123, 127, 131, 138, 140, 144, 150, 161, 164](#)
- DataCenter [25, 30, 32, 37, 40, 51, 53, 129, 155, 167](#)
- Datacenter MORef [41, 97](#)
- Datacenters [48](#)
- Datastore [28, 53, 74, 126, 167](#)
- Datastore Cluster [50, 51, 56, 167](#)
- Datastore Count [51](#)
- Datastore Host Disks [53](#)
- Datastore MORef [56, 107](#)
- Datastore Percent Utilization [144](#)
- Datastore Space [97](#)
- Datastore Topology [54](#)
- Datastore Used [98](#)
- Datastore UUID [75](#)
- DATASTORE UUID [137](#)
- Datastores [55](#)
- Datastores Total Free Space [41](#)
- Datastores Total Space [41](#)
- Default IntraVm Affinity [51](#)
- Demand [98](#)
- Description [140, 157, 165, 168, 171](#)
- Destroy With Parent [35](#)
- Device [115](#)
- Device Latency [110](#)
- Device Read Latency [110](#)
- Device Total Latency [110](#)
- Device Write Latency [110](#)
- Director [60](#)
- DirectorPort [60](#)
- DirectorServer [60](#)
- Disabled Paths [126](#)
- Disk [53](#)
- Disk Name [110, 126, 159](#)
- Disk Shares [157](#)
- Distributed Switch [83](#)
- Distributed Virtual Portgroups [61](#)
- Distributed Virtual Switch Health [64](#)
- Distributed Virtual Switches [66](#)
- Distributed Virtual Uplinks [68](#)
- Driver [115](#)
- DRS Enabled [41](#)
- DRS Type [25](#)
- Duplex [69, 123](#)
- DVS Teaming Status [64](#)
- Effective CPU [41, 48](#)
- Effective Memory [41, 48](#)
- Effective Servers [41, 48](#)
- Energy Usage [98](#)
- Entity Type [75, 131, 137](#)
- Error Code [72, 85](#)
- Error Message [133](#)
- ESX Performance Object Status [71](#)
- ESX Server UUID [131](#)
- Event [75, 131](#)
- Event Seq Number [75, 131](#)
- Event Text [75, 131](#)

attributes (*continued*)

[Event Time 75, 132](#)  
[Event Type 75, 132, 137](#)  
[Event Type ID 75, 132](#)  
[Events 74](#)  
[Executing Collection Units 142](#)  
[Expandable 87, 93](#)  
[Fault Message 25](#)  
[Fault Name 25](#)  
[Fault Tolerance 144](#)  
[Fault Tolerance Supported 98](#)  
[File Path 167](#)  
[File Size 167](#)  
[FQDN 142, 145](#)  
[Free Memory 119](#)  
[Free Space 56, 107, 168](#)  
[FT Instance UUID 145](#)  
[FT Virtual Machine 26](#)  
[Fully Qualified Name 98](#)  
[Granted 161](#)  
[Granted Max Memory 119](#)  
[Granted Memory 120](#)  
[Granted Min Memory 120](#)  
[Guest Free 161](#)  
[Guest OS Managed System Name 145](#)  
[Guest State 145](#)  
[Guest Usage 161](#)  
[Guest Util 161](#)  
[GuestOS Name 145](#)  
[HA Enabled 42](#)  
[HBA Count 98](#)  
[HBA Type 115](#)  
[Health Check Type 64](#)  
[Heartbeats 145](#)  
[Host 53, 64](#)  
[Host Free 161](#)  
[Host Usage 161](#)  
[Host Util 162](#)  
[Host UUID 137](#)  
[Hostname 145](#)  
[HyperThreading Enabled 98](#)  
[Inbound Shaping Average Bandwidth 61](#)  
[Inbound Shaping Burst Size 61](#)  
[Inbound Shaping Enabled 61](#)  
[Inbound Shaping Peak Bandwidth 61](#)  
[Include Data In Summarization 0 28, 30, 32, 38, 42, 48, 51, 56, 62, 66, 69, 76, 78, 79, 81, 87, 91, 93, 99, 106, 107, 111, 115, 120, 123, 127, 129, 132, 145, 151, 152, 155, 159, 162, 165, 168](#)  
[Include Data In Summarization 1 30, 33, 42, 49, 51, 56, 62, 66, 69, 81, 87, 91, 93, 99, 106, 108, 111, 116, 120, 123, 146, 151, 155, 162](#)  
[Include Data In Summarization 10 42](#)  
[Include Data In Summarization 2 33, 42, 49, 56, 66, 69, 88, 91, 93, 99, 111, 120, 123, 146, 162](#)  
[Include Data In Summarization 3 33, 42, 49, 56, 66, 88, 93, 99, 111, 120, 146](#)  
[Include Data In Summarization 4 43, 57, 99, 111, 121, 146](#)  
[Include Data In Summarization 5 43, 57, 99, 111, 146](#)  
[Include Data In Summarization 6 43, 100, 112, 146](#)  
[Include Data In Summarization 7 43, 100, 112](#)  
[Include Data In Summarization 8 43, 100](#)  
[Include Data In Summarization 9 43, 100](#)

attributes (*continued*)

[Initiated By 22, 133](#)  
[Instance UUID 147](#)  
[Intervals Skipped 72, 85](#)  
[Inventory Age 142](#)  
[IO Load Balance Enabled 51](#)  
[IP Address 100, 142, 147](#)  
[Kernel Latency 112](#)  
[Kernel Read Latency 112](#)  
[Kernel Total Latency 112](#)  
[Kernel Write Latency 112](#)  
[Last Collection Duration 73, 85](#)  
[Last Collection Finished 73, 86](#)  
[Last Collection Start 73, 86](#)  
[Last Modified 167](#)  
[Latency 100](#)  
[Limit 88, 93](#)  
[Link Speed 69, 124](#)  
[Link Utilization 69, 124](#)  
[Load Balance Interval 52](#)  
[Low Free Threshold 121](#)  
[Maintenance Mode 101](#)  
[Managed System 24](#)  
[Managed System Name 28, 54, 57, 69, 78, 80, 82, 137, 139, 151](#)  
[Max Alloc 162](#)  
[Max CPU Usage 30](#)  
[Max EVC Mode 101](#)  
[Max Link Speed 116](#)  
[Max Memory Usage 30](#)  
[Max Number Ports 67](#)  
[Max Usage 88, 94](#)  
[Maximum File Size 57, 108](#)  
[Mem Effective Contribution 33](#)  
[Mem Total Contribution 33](#)  
[Memory 00 10 44](#)  
[Memory 10 20 44](#)  
[Memory 20 30 44](#)  
[Memory 30 40 44](#)  
[Memory 40 50 44](#)  
[Memory 50 60 44](#)  
[Memory 60 70 44](#)  
[Memory 70 80 44](#)  
[Memory 80 90 45](#)  
[Memory 90 100 45](#)  
[Memory Effective Utilization 33](#)  
[Memory Limit 147](#)  
[Memory Reservation 147](#)  
[Memory Shares 147](#)  
[Memory Size 147](#)  
[Memory Total Utilization 34](#)  
[Memory Usage 30, 91, 94, 121](#)  
[Memory Utilization 38, 45, 49, 121](#)  
[Message 24](#)  
[Min Alloc 162](#)  
[Model 116](#)  
[Monitored Servers 77](#)  
[MSN Name 34, 38](#)  
[MTU Mismatch 64](#)  
[Name 23, 57, 108, 129, 133, 137, 155](#)  
[NetApp Volume Name 57](#)  
[Network 78, 80, 82, 83, 127, 165](#)  
[Networked Servers 78](#)  
[Networked Virtual Machines 79](#)

attributes (*continued*)

[Networked Virtual Switches 81](#)  
[Networks 83](#)  
[NIC 64, 70](#)  
[NIC Name 124](#)  
[NICs 101](#)  
[Node 23, 24, 26, 28, 31, 34, 35, 38, 45, 49, 52–54, 57, 60, 62, 65, 67, 70, 73, 76–78, 80, 82, 83, 86, 88, 91, 94, 101, 106, 108, 112, 116, 118, 121, 124, 126, 128, 129, 132, 133, 135, 138–140, 142, 147, 151, 152, 155, 158, 159, 162, 165, 167, 169–171](#)  
[NodeID 28, 31, 34, 35, 38, 45, 49, 53, 54, 58, 88, 91, 94, 101, 106, 108, 113, 116, 118, 121, 124, 127, 129, 139, 147, 153, 155, 158, 163, 165, 169](#)  
[NodeName 54, 139](#)  
[NodeStatus 54, 139](#)  
[NodeType 31, 54, 139](#)  
[Num CPUs 148](#)  
[Number Child Pools 91](#)  
[Number CPUs 45](#)  
[Number Disks 148](#)  
[Number Hosts 67, 83](#)  
[Number NICs 82, 128, 148, 151](#)  
[Number of Collections 73, 86](#)  
[Number Of Portgroups 67](#)  
[Number Of Snapshots 148](#)  
[Number Ports 67](#)  
[Number Read 113, 159](#)  
[Number Servers 45](#)  
[Number Uplinks 67](#)  
[Number vMotions 45](#)  
[Number VMs 46, 67, 84, 91, 101](#)  
[Number VMs On 46, 92, 101](#)  
[Number Write 113, 159](#)  
[Object Name 73, 86](#)  
[Object Status 73, 86](#)  
[Object Type 73, 86](#)  
[Outbound Shaping Average Bandwidth 62](#)  
[Outbound Shaping Burst Size 62](#)  
[Outbound Shaping Enabled 62](#)  
[Outbound Shaping Peak Bandwidth 63](#)  
[Overall CPU Util 101](#)  
[Overall Memory Util 101](#)  
[Overall Status 28, 31, 34, 38, 46, 49, 52, 58, 63, 67, 70, 84, 92, 102, 108, 148](#)  
[Overcommitted 58](#)  
[overview 17](#)  
[Owner 168](#)  
[Parent Name 89, 92, 94](#)  
[Path Selection Policy 127](#)  
[Paths 127](#)  
[PCI ID 116](#)  
[Percent Capacity Free 52](#)  
[Percent Committed 129, 155](#)  
[Percent CPU Usage 31](#)  
[Percent Datastore Usage 46](#)  
[Percent Effective CPU 46](#)  
[Percent Effective Memory 46](#)  
[Percent Effective Servers 46, 50](#)  
[Percent Free 58, 108, 169](#)  
[Percent Memory Usage 31](#)  
[Percent Overall Usage 89, 94](#)  
[Percent Overcommitted 28, 58](#)  
[Percent Ready 153](#)

attributes (*continued*)

[Percent Reserved VMs 89, 94](#)  
[Percent Snapshot Storage Consumed 58](#)  
[Percent Used 29, 58, 108, 169](#)  
[Performance Error Pct 102](#)  
[Performance Error Rate 102](#)  
[Performance Object Status 84](#)  
[Physical Address 124, 165](#)  
[Physical CPUs 102](#)  
[Physical Memory 102, 121](#)  
[Physical NICs 46](#)  
[Physical NICs Down 47](#)  
[Pkts Dropped 124](#)  
[Pkts Received 124, 165](#)  
[Pkts Transmitted 125, 165](#)  
[Pool Name 31, 89, 92, 94](#)  
[Portgroup 63, 65, 70](#)  
[Power Capacity 102](#)  
[Power State 102](#)  
[Power Status 148](#)  
[Power Usage 103](#)  
[Processor Family 103](#)  
[Product 103](#)  
[Provisioned 130, 156](#)  
[Query Name 74, 87](#)  
[Queue Latency 113](#)  
[Queue Read Latency 113](#)  
[Queue Time 23, 134](#)  
[Queue Total Latency 113](#)  
[Queue Write Latency 113](#)  
[Queued Collection Units 143](#)  
[Read 114, 116, 160](#)  
[Read Latency 109, 116](#)  
[Ready Time 153](#)  
[Reason 26](#)  
[Receive Pkts Dropped 125](#)  
[Received 68, 70, 78, 80, 82, 125, 128, 151, 166](#)  
[Refresh Interval 74, 87](#)  
[Remote Host Address 29, 59](#)  
[Remote Path 29, 59](#)  
[Removable 158](#)  
[Reservation 89, 95](#)  
[Reservation Used 89, 95](#)  
[Reservation Used VM 89, 95](#)  
[Resource Pool 148](#)  
[Resource Pool CPU 87](#)  
[Resource Pool General 90](#)  
[Resource Pool Memory 92](#)  
[Sensor Name 118](#)  
[Sensor Status 118](#)  
[Sensor Type 118](#)  
[Sensor Units 118](#)  
[Sensor Value 118](#)  
[Serial Number 103](#)  
[Server 96](#)  
[Server CPU 105](#)  
[Server CPU Utilization 34](#)  
[Server DataStore 107](#)  
[Server Disk 109](#)  
[Server HBA 115](#)  
[Server Health 118](#)  
[Server Hostname 34, 70, 78, 80, 82, 89, 92, 95, 103, 106, 109, 114, 117, 119, 121, 125, 128, 132, 138, 151](#)  
[Server Memory 119](#)

attributes (*continued*)

- Server Memory Utilization [34](#)
- Server Network [123](#)
- Server SAN [126](#)
- Server Virtual Switches [127](#)
- Server VM Datastore Utilization [129](#)
- Servers In Maintenance Mode [47](#)
- Service Console [122](#)
- Severity [24](#)
- Share Level [90](#), [95](#)
- Shared [163](#)
- Shares [90](#), [95](#)
- Snapshot Age [171](#)
- Snapshot MORef [172](#)
- Snapshot Name [172](#)
- Snapshot State [172](#)
- Snapshot Storage Consumed [59](#), [148](#)
- Source [24](#), [26](#), [65](#), [168](#)
- Source Hostname [23](#), [26](#), [76](#), [134](#)
- Space Consumed [172](#)
- Speed [117](#)
- SSH Status [103](#)
- Start Action [36](#)
- Start Delay [36](#)
- Start Order [36](#)
- Start Time [23](#), [134](#)
- Status [23](#), [70](#), [117](#), [125](#), [134](#)
- Stop Action [36](#)
- Stop Delay [36](#)
- Storage Adapter Max Latency [103](#)
- Storage Adapter Throughput Usage [117](#)
- Storage DRS Enable [149](#)
- Storage Path Max Latency [103](#)
- Subnode Affinity [77](#)
- SubNode Events [130](#)
- Subnode MSN [77](#)
- Subnode Resource Name [77](#)
- Subnode Resource Name Enhanced [77](#)
- Subnode Type [77](#)
- Subnode Version [77](#)
- Subsystem [25](#)
- Summary [65](#)
- Swap In Rate [122](#), [163](#)
- Swap In Rate From Host Cache [122](#)
- Swap Out Rate [122](#), [163](#)
- Swap Out Rate From Host Cache [122](#)
- Swap To File [163](#)
- Swap Total Rate [122](#)
- Swap Used [122](#)
- Switch [63](#), [65](#), [68](#), [70](#), [79](#), [80](#), [82](#), [125](#), [128](#), [151](#), [166](#)
- Sys Time [153](#)
- System Model [104](#)
- System Up Time [104](#)
- System Vendor [104](#)
- Target Entity [23](#), [134](#)
- Target Entity Type [23](#), [134](#)
- Target Hostname [26](#)
- Tasks [133](#)
- Thread Pool Active Threads [135](#)
- Thread Pool Avg Active Threads [135](#)
- Thread Pool Avg Job Wait [135](#)
- Thread Pool Avg Queue Length [135](#)
- Thread Pool Max Active Threads [135](#)
- Thread Pool Max Queue Length [136](#)

attributes (*continued*)

- Thread Pool Max Size [136](#)
- Thread Pool Min Active Threads [136](#)
- Thread Pool Min Queue Length [136](#)
- Thread Pool Queue Length [136](#)
- Thread Pool Size [136](#)
- Thread Pool Status [135](#)
- Thread Pool Total Jobs [136](#)
- Timestamp [24–26](#), [29](#), [31](#), [35](#), [36](#), [38](#), [47](#), [50](#), [52](#), [53](#), [55](#), [59](#), [60](#), [63](#), [65](#), [68](#), [71](#), [74](#), [76](#), [77](#), [79](#), [80](#), [82](#), [84](#), [87](#), [90](#), [92](#), [95](#), [104](#), [106](#), [109](#), [114](#), [117](#), [119](#), [122](#), [125](#), [127](#), [128](#), [130](#), [132](#), [134](#), [136](#), [138–140](#), [143](#), [149](#), [152](#), [153](#), [156](#), [158](#), [160](#), [163](#), [166](#), [168–172](#)
- Tools Status [149](#)
- Topological Events [137](#)
- Topology [138](#)
- Total Capacity [52](#)
- Total CPU [47](#), [50](#)
- Total CPU MHz [104](#)
- Total IO [59](#), [156](#)
- Total Latency [114](#)
- Total Memory [47](#), [50](#)
- Total Read [59](#), [156](#)
- Total Read Latency [114](#)
- Total Servers [50](#)
- Total Size [163](#)
- Total VM Configured Memory [47](#), [104](#)
- Total VM Provisioned Space [47](#), [104](#)
- Total Write [59](#), [156](#)
- Total Write Latency [114](#)
- Transmit Pkts Dropped [125](#)
- Transmitted [68](#), [71](#), [79](#), [80](#), [83](#), [126](#), [128](#), [152](#), [166](#)
- Triggered Alarms [139](#)
- Triggered Entity [140](#)
- Triggered Entity Type [141](#)
- Type [29](#), [59](#), [63](#), [84](#), [109](#), [143](#)
- Uncommitted [130](#), [156](#)
- Universally Unique Identifier [149](#)
- Unreserved [90](#), [95](#)
- Unreserved VM [90](#), [96](#)
- Unshared [130](#), [156](#)
- Up Time [149](#)
- Uplink [65](#), [71](#)
- Uplink Key [65](#)
- URL [60](#)
- usage [105](#)
- Usage [68](#), [71](#), [79](#), [81](#), [83](#), [126](#), [128](#), [152](#), [163](#)
- Used CPU MHz [105](#), [149](#)
- Used Space [60](#), [109](#), [169](#)
- Used Time [153](#)
- User Time [153](#)
- UserId [76](#), [132](#)
- UseTEPCredential [60](#)
- Utilization [153](#)
- UUID [105](#), [156](#)
- vCenters [141](#)
- Version [105](#), [149](#)
- Virtual App Name [36](#)
- Virtual Machine [26](#), [76](#), [81](#), [130](#), [133](#), [157](#)
- Virtual Machine Name [36](#), [160](#)
- Virtual Machine UUID [76](#), [133](#)
- Virtual Machines [143](#)
- Virtual Switches [150](#)
- VLAN ID [63](#)

## attributes (*continued*)

- VLAN Type [63](#)
- VM CPU [152](#)
- VM Datastore Utilization [154](#)
- VM Disk [157](#)
- VM Disk Performance [159](#)
- VM HostName [154](#), [158](#), [164](#), [166](#), [169](#)
- VM Memory [160](#)
- VM MOREf [37](#), [149](#), [160](#)
- VM Name [38](#), [150](#), [154](#), [158](#), [164](#), [166](#), [169](#), [172](#)
- VM Name CPU Number [154](#)
- VM Network [164](#)
- VM NIC [81](#)
- VM Orphaned Disk [167](#)
- VM OS Type [150](#), [154](#), [158](#), [164](#), [166](#), [170](#)
- VM Partition [168](#)
- VM Percent Ready [150](#)
- VM Server Name [150](#), [154](#), [158](#), [164](#), [166](#), [170](#)
- VM Snapshot [170](#)
- VM SnapshotFileLayout [170](#)
- VM Snapshots [171](#)
- VM State [172](#)
- VM Template [150](#)
- VM UUID [138](#)
- VMNodeID [130](#), [160](#)
- vMotion enabled [105](#)
- Wait Time [154](#)
- Waiting for Guest [37](#)
- Web Services Port [143](#)
- Write [114](#), [117](#), [160](#)
- Write Latency [109](#), [117](#)
- Average Collection Duration attribute [71](#), [84](#)
- Average CU Execution Time attribute [141](#)
- Average CU Queue Time attribute [141](#)
- Average VM CPU Percent Ready attribute [96](#)

## B

- Backing data store attribute [157](#)
- Backing Datastore attribute [109](#), [159](#)
- Balloon Usage attribute [161](#)
- Balloon Used attribute [119](#)
- BIOS Date attribute [96](#)
- Blocked attribute [61](#)
- Broken Paths attribute [126](#)
- Build number attribute [96](#)
- Bus attribute [115](#)
- BUS Resets attribute [110](#)

## C

- Cache Hit Percent attribute [72](#), [84](#)
- Cache Hits attribute [72](#), [85](#)
- Cache Misses attribute [72](#), [85](#)
- calculate historical data disk space [173](#)
- Cancelable attribute [22](#)
- capacity attribute [96](#)
- Capacity attribute [27](#), [55](#), [107](#), [157](#), [168](#)
- Capacity For Vm Cache attribute [96](#)
- capacity planning for historical data [173](#)
- Capacity Used attribute [50](#)
- Category attribute [74](#), [131](#)
- CloneFrom Snapshot Supported attribute [97](#)

- Cluster attribute [25](#), [27](#), [97](#), [123](#), [143](#), [164](#)
- Cluster Detail workspace [4](#)
- Cluster DRS Faults attribute group [25](#)
- Cluster MOREf attribute [27](#), [37](#), [39](#)
- Cluster Name attribute [29](#), [32](#), [35](#), [37](#), [39](#)
- Cluster Performance workspace [4](#)
- Cluster Summary workspace [5](#)
- Clustered Datastores attribute group [27](#)
- Clustered Resource Pools attribute group [29](#)
- Clustered Servers attribute group [31](#)
- Clustered Virtual Apps attribute group [35](#)
- Clustered Virtual Machines attribute group [37](#)
- Clusters
  - situations [180](#)
  - workspaces
    - descriptions [4](#)
- Clusters attribute group [38](#)
- Clusters workspace [5](#)
- Collection Units attribute [141](#)
- commands
  - Take Action [207](#)
- Commands Aborted attribute [110](#)
- Commands attribute [110](#)
- Committed attribute [129](#), [154](#)
- Completed Time attribute [133](#)
- Component State attribute [68](#)
- Compute Resource attribute [74](#), [131](#)
- Config Status attribute [50](#)
- Configured Address attribute [141](#)
- Connected attribute [157](#)
- Connected Clusters attribute [55](#)
- Connected Hosts attribute [27](#), [55](#)
- Connected VMs attribute [27](#), [55](#)
- Connection State attribute [97](#), [143](#)
- ConnectionType attribute [54](#), [138](#)
- ConnectToNode attribute [54](#), [138](#)
- Consolidation Needed attribute [143](#)
- cookies [271](#)
- Core Utilization attribute [105](#)
- CPU
  - situations [193](#)
- CPU 00 10 attribute [39](#)
- CPU 10 20 attribute [39](#)
- CPU 20 30 attribute [39](#)
- CPU 30 40 attribute [39](#)
- CPU 40 50 attribute [39](#)
- CPU 50 60 attribute [40](#)
- CPU 60 70 attribute [40](#)
- CPU 70 80 attribute [40](#)
- CPU 80 90 attribute [40](#)
- CPU 90 100 attribute [40](#)
- CPU Effective Contribution attribute [32](#)
- CPU Effective Utilization attribute [32](#)
- CPU Limit attribute [144](#)
- CPU Number attribute [105](#), [152](#)
- CPU Packages attribute [97](#)
- CPU Reservation attribute [144](#)
- CPU Shares attribute [144](#)
- CPU Total Contribution attribute [32](#)
- CPU Total Utilization attribute [32](#)
- CPU Usage attribute [29](#), [87](#), [90](#)
- CPU Utilization attribute [37](#), [40](#), [48](#), [106](#), [144](#)
- Creation Time(Deprecated) attribute [171](#)
- Creation Timestamp attribute [171](#)



Current CU Execution Time attribute [142](#)  
Current CU Queue Time attribute [142](#)  
Current EVC Mode attribute [40](#), [97](#)  
Current Link Speed attribute [115](#)

## D

Datacenter attribute [28](#), [35](#), [48](#), [54](#), [55](#), [61](#), [64](#), [66](#), [68](#), [74](#), [78](#), [79](#), [81](#), [83](#), [97](#), [107](#), [123](#), [127](#), [131](#), [138](#), [140](#), [144](#), [150](#), [161](#), [164](#)  
DataCenter attribute [25](#), [30](#), [32](#), [37](#), [40](#), [51](#), [53](#), [129](#), [155](#), [167](#)  
Datacenter MORef attribute [41](#), [97](#)  
Datacenters attribute group [48](#)  
Datastore and Volumes workspace [6](#)  
Datastore attribute [28](#), [53](#), [74](#), [126](#), [167](#)  
Datastore Cluster attribute [51](#), [56](#), [167](#)  
Datastore Cluster attribute group [50](#)  
Datastore Count attribute [51](#)  
Datastore Detail - NAS workspace [6](#)  
Datastore Detail - VMFS workspace [7](#)  
Datastore Host Disks attribute group [52](#)  
Datastore MORef attribute [56](#), [107](#)  
Datastore Percent Utilization attribute [144](#)  
Datastore Space attribute [97](#)  
Datastore Topology attribute group [53](#)  
Datastore Used attribute [98](#)  
Datastore UUID attribute [75](#)  
DATASTORE UUID attribute [137](#)  
Datastores  
    situations [183](#)  
    workspaces  
        descriptions [6](#)  
Datastores attribute group [55](#)  
Datastores Total Free Space attribute [41](#)  
Datastores Total Space attribute [41](#)  
Datastores workspace [7](#)  
Default IntraVm Affinity attribute [51](#)  
Demand attribute [98](#)  
Description attribute [140](#), [157](#), [165](#), [168](#), [171](#)  
descriptions [179](#)  
Destroy With Parent attribute [35](#)  
Device attribute [115](#)  
Device Latency attribute [110](#)  
Device Read Latency attribute [110](#)  
Device Total Latency attribute [110](#)  
Device Write Latency attribute [110](#)  
Director attribute group [60](#)  
DirectorPort attribute [60](#)  
DirectorServer attribute [60](#)  
Disabled Paths attribute [126](#)  
Disk  
    situations [194](#)  
Disk attribute [53](#)  
disk capacity planning for historical data [173](#)  
Disk Name attribute [110](#), [126](#), [159](#)  
Disk Shares attribute [157](#)  
Distributed Network Detail workspace [10](#)  
Distributed Resource Scheduler workspace [6](#)  
Distributed Switch attribute [83](#)  
Distributed Virtual Portgroups attribute group [61](#)  
Distributed Virtual Switch Detail workspace [10](#)  
Distributed Virtual Switch Health attribute group [64](#)  
Distributed Virtual Switches attribute group [65](#)

Distributed Virtual Uplinks attribute group [68](#)  
Driver attribute [115](#)  
DRS Enabled attribute [41](#)  
DRS Type attribute [25](#)  
Duplex attribute [69](#), [123](#)  
DVS Teaming Status attribute [64](#)

## E

Effective CPU attribute [41](#), [48](#)  
Effective Memory attribute [41](#), [48](#)  
Effective Servers attribute [41](#), [48](#)  
Energy Usage attribute [98](#)  
Entity Type attribute [75](#), [131](#), [137](#)  
Error Code attribute [72](#), [85](#)  
Error Message attribute [133](#)  
ESX Performance Object Status attribute group [71](#)  
ESX Server  
    situations [196](#)  
ESX Server UUID attribute [131](#)  
event  
    mapping [215](#)  
Event attribute [75](#), [131](#)  
Event Seq Number attribute [75](#), [131](#)  
Event Text attribute [75](#), [131](#)  
Event Time attribute [75](#), [132](#)  
Event Type attribute [75](#), [132](#), [137](#)  
Event Type ID attribute [75](#), [132](#)  
Events  
    situations [184](#)  
    workspaces  
        descriptions [8](#)  
Events attribute group [74](#)  
Events workspace [8](#)  
Executing Collection Units attribute [142](#)  
Expandable attribute [87](#), [93](#)

## F

Fault Message attribute [25](#)  
Fault Name attribute [25](#)  
Fault Tolerance attribute [144](#)  
Fault Tolerance Supported attribute [98](#)  
File Path attribute [167](#)  
File Size attribute [167](#)  
FQDN attribute [142](#), [145](#)  
Free Memory attribute [119](#)  
Free Space attribute [56](#), [107](#), [168](#)  
FT Instance UUID attribute [145](#)  
FT Virtual Machine attribute [26](#)  
Fully Qualified Name attribute [98](#)

## G

Granted attribute [161](#)  
Granted Max Memory attribute [119](#)  
Granted Memory attribute [120](#)  
Granted Min Memory attribute [120](#)  
Guest Free attribute [161](#)  
Guest OS Managed System Name attribute [145](#)  
Guest State attribute [145](#)  
Guest Usage attribute [161](#)  
Guest Util attribute [161](#)

GuestOS Name attribute [145](#)

## H

HA Enabled attribute [42](#)

HBA Count attribute [98](#)

HBA Type attribute [115](#)

Health Check Type attribute [64](#)

Heartbeats attribute [145](#)

historical data

    calculate disk space [173](#)

    disk capacity planning [173](#)

Host attribute [53](#), [64](#)

Host Free attribute [161](#)

Host Usage attribute [161](#)

Host Util attribute [162](#)

Host UUID attribute [137](#)

Hostname attribute [145](#)

HyperThreading Enabled attribute [98](#)

## I

IBM Systems Director workspace [4](#)

Inbound Shaping Average Bandwidth attribute [61](#)

Inbound Shaping Burst Size attribute [61](#)

Inbound Shaping Enabled attribute [61](#)

Inbound Shaping Peak Bandwidth attribute [61](#)

Include Data In Summarization 0 attribute [28](#), [30](#), [32](#), [38](#),  
[42](#), [48](#), [51](#), [56](#), [62](#), [66](#), [69](#), [76](#), [78](#), [79](#), [81](#), [87](#), [91](#), [93](#), [99](#),  
[106](#), [107](#), [111](#), [115](#), [120](#), [123](#), [127](#), [129](#), [132](#), [145](#), [151](#),  
[152](#), [155](#), [159](#), [162](#), [165](#), [168](#)

Include Data In Summarization 1 attribute [30](#), [33](#), [42](#), [49](#),  
[51](#), [56](#), [62](#), [66](#), [69](#), [81](#), [87](#), [91](#), [93](#), [99](#), [106](#), [108](#), [111](#), [116](#),  
[120](#), [123](#), [146](#), [151](#), [155](#), [162](#)

Include Data In Summarization 10 attribute [42](#)

Include Data In Summarization 2 attribute [33](#), [42](#), [49](#), [56](#),  
[66](#), [69](#), [88](#), [91](#), [93](#), [99](#), [111](#), [120](#), [123](#), [146](#), [162](#)

Include Data In Summarization 3 attribute [33](#), [42](#), [49](#), [56](#),  
[66](#), [88](#), [93](#), [99](#), [111](#), [120](#), [146](#)

Include Data In Summarization 4 attribute [43](#), [57](#), [99](#), [111](#),  
[121](#), [146](#)

Include Data In Summarization 5 attribute [43](#), [57](#), [99](#), [111](#),  
[146](#)

Include Data In Summarization 6 attribute [43](#), [100](#), [112](#), [146](#)

Include Data In Summarization 7 attribute [43](#), [100](#), [112](#)

Include Data In Summarization 8 attribute [43](#), [100](#)

Include Data In Summarization 9 attribute [43](#), [100](#)

Initiated By attribute [22](#), [133](#)

Instance UUID attribute [147](#)

Intervals Skipped attribute [72](#), [85](#)

Inventory Age attribute [142](#)

IO Load Balance Enabled attribute [51](#)

IP Address attribute [100](#), [142](#), [147](#)

## K

Kernel Latency attribute [112](#)

Kernel Read Latency attribute [112](#)

Kernel Total Latency attribute [112](#)

Kernel Write Latency attribute [112](#)

KVM\_Cluster\_Bad\_Status situation [180](#)

KVM\_Cluster\_CPU\_Util\_High situation [180](#)

KVM\_Cluster\_Critical\_Event situation [184](#)

KVM\_Cluster\_Effective\_CPU\_Low situation [181](#)

KVM\_Cluster\_Effective\_Mem\_Low situation [181](#)

KVM\_Cluster\_Effective\_Svrs\_Low situation [182](#)

KVM\_Cluster\_Memory\_Util\_High situation [182](#)

KVM\_Collection\_Error situation [186](#)

KVM\_Collection\_Time\_Excessive situation [186](#)

KVM\_Connection\_Failure situation [187](#)

KVM\_Datastore\_Bad\_Status situation [183](#)

KVM\_Datastore\_Critical\_Event situation [185](#)

KVM\_Datastore\_Inaccessible situation [183](#)

KVM\_Datastore\_Usage\_High situation [184](#)

KVM\_ESX\_Server\_Disconnected situation [196](#)

KVM\_Host\_Server\_Bad\_Status situation [196](#)

KVM\_Host\_System\_Created situation [187](#)

KVM\_Host\_System\_Created2 situation [188](#)

KVM\_Host\_System\_Destroyed situation [188](#)

KVM\_Host\_System\_Destroyed2 situation [189](#)

KVM\_Inventory\_Out\_Of\_Date situation [189](#)

KVM\_Resource\_Pool\_CPU\_High situation [203](#)

KVM\_Resource\_Pool\_Memory\_High situation [204](#)

KVM\_Server\_CPU\_Util\_High situation [197](#)

KVM\_Server\_Critical\_Event situation [197](#)

KVM\_Server\_Datastore\_Free\_Low situation [198](#)

KVM\_Server\_Disk\_Reads\_High situation [194](#)

KVM\_Server\_Disk\_Writes\_High situation [195](#)

KVM\_Server\_HBA\_Fault situation [198](#)

KVM\_Server\_Memory\_Util\_High situation [199](#)

KVM\_Server\_NIC\_Down situation [201](#)

KVM\_Server\_Receive\_Rate\_High situation [201](#)

KVM\_Server\_Transmit\_Rate\_High situation [202](#)

KVM\_Server\_VM\_Critical\_Event situation [199](#)

KVM\_Server\_VMotion\_Event situation [199](#)

KVM\_Snapshots\_High situation [204](#)

KVM\_Take\_Action\_Failure situation [190](#)

KVM\_Virtual\_Machine\_Created situation [190](#)

KVM\_Virtual\_Machine\_Created2 situation [191](#)

KVM\_Virtual\_Machine\_Destroyed situation [191](#)

KVM\_Virtual\_Machine\_Destroyed2 situation [191](#)

KVM\_Virtual\_Machine\_Relocated situation [192](#)

KVM\_Virtual\_Machine\_Relocated2 situation [192](#)

KVM\_VM\_Bad\_Status situation [205](#)

KVM\_VM\_CPU\_Ready\_High situation [193](#)

KVM\_VM\_CPU\_Util\_High situation [194](#)

KVM\_VM\_Created [213](#)

KVM\_VM\_Critical\_Event situation [185](#)

KVM\_VM\_Disk\_Free\_Low situation [195](#)

KVM\_VM\_Guest\_Memory\_Util\_High situation [200](#)

KVM\_VM\_Host\_Memory\_Util\_High situation [200](#)

KVM\_VM\_Powered\_Off situation [205](#)

KVM\_VM\_Receive\_Rate\_High situation [202](#)

KVM\_VM\_Transmit\_Rate\_High situation [203](#)

## L

Last Collection Duration attribute [73](#), [85](#)

Last Collection Finished attribute [73](#), [86](#)

Last Collection Start attribute [73](#), [86](#)

Last Modified attribute [167](#)

Latency attribute [100](#)

Limit attribute [88](#), [93](#)

Link Speed attribute [69](#), [124](#)

Link Utilization attribute [69](#), [124](#)

Load Balance Interval attribute [52](#)

Low Free Threshold attribute [121](#)



## M

Maintenance Mode attribute [101](#)  
Managed System attribute [24](#)  
Managed System Name attribute [28](#), [54](#), [57](#), [69](#), [78](#), [80](#), [82](#), [137](#), [139](#), [151](#)  
Max Alloc attribute [162](#)  
Max CPU Usage attribute [30](#)  
Max EVC Mode attribute [101](#)  
Max Link Speed attribute [116](#)  
Max Memory Usage attribute [30](#)  
Max Number Ports attribute [67](#)  
Max Usage attribute [88](#), [94](#)  
Maximum File Size attribute [57](#), [108](#)  
Mem Effective Contribution attribute [33](#)  
Mem Total Contribution attribute [33](#)  
Memory  
    situations [200](#)  
Memory 00 10 attribute [44](#)  
Memory 10 20 attribute [44](#)  
Memory 20 30 attribute [44](#)  
Memory 30 40 attribute [44](#)  
Memory 40 50 attribute [44](#)  
Memory 50 60 attribute [44](#)  
Memory 60 70 attribute [44](#)  
Memory 70 80 attribute [44](#)  
Memory 80 90 attribute [45](#)  
Memory 90 100 attribute [45](#)  
Memory Effective Utilization attribute [33](#)  
Memory Limit attribute [147](#)  
Memory Reservation attribute [147](#)  
Memory Shares attribute [147](#)  
Memory Size attribute [147](#)  
Memory Total Utilization attribute [34](#)  
Memory Usage attribute [30](#), [91](#), [94](#), [121](#)  
Memory Utilization attribute [38](#), [45](#), [49](#), [121](#)  
Message attribute [24](#)  
Min Alloc attribute [162](#)  
Model attribute [116](#)  
Monitored Servers  
    situations [186](#)  
    workspaces  
        descriptions [9](#)  
Monitored Servers attribute group [76](#)  
Monitored Servers workspace [9](#)  
MSN Name attribute [34](#), [38](#)  
MTU Mismatch attribute [64](#)

## N

Name attribute [23](#), [57](#), [108](#), [129](#), [133](#), [137](#), [155](#)  
NetApp Volume Name attribute [57](#)  
Network  
    situations [201](#)  
Network attribute [78](#), [80](#), [82](#), [83](#), [127](#), [165](#)  
Network Detail workspace [10](#)  
Network NIC Detail workspace [10](#)  
Networked Servers attribute group [77](#)  
Networked Virtual Machines attribute group [79](#)  
Networked Virtual Switches attribute group [81](#)  
Networks  
    situations [193](#)  
    workspaces  
        descriptions [9](#)

Networks attribute group [83](#)  
Networks workspace [11](#)  
NIC attribute [64](#), [70](#)  
NIC Name attribute [124](#)  
NICs attribute [101](#)  
Node attribute [23](#), [24](#), [26](#), [28](#), [31](#), [34](#), [35](#), [38](#), [45](#), [49](#), [52–54](#), [57](#), [60](#), [62](#), [65](#), [67](#), [70](#), [73](#), [76–78](#), [80](#), [82](#), [83](#), [86](#), [88](#), [91](#), [94](#), [101](#), [106](#), [108](#), [112](#), [116](#), [118](#), [121](#), [124](#), [126](#), [128](#), [129](#), [132](#), [133](#), [135](#), [138–140](#), [142](#), [147](#), [151](#), [152](#), [155](#), [158](#), [159](#), [162](#), [165](#), [167](#), [169–171](#)  
NodeID attribute [28](#), [31](#), [34](#), [35](#), [38](#), [45](#), [49](#), [53](#), [54](#), [58](#), [88](#), [91](#), [94](#), [101](#), [106](#), [108](#), [113](#), [116](#), [118](#), [121](#), [124](#), [127](#), [129](#), [139](#), [147](#), [153](#), [155](#), [158](#), [163](#), [165](#), [169](#)  
NodeName attribute [54](#), [139](#)  
NodeStatus attribute [54](#), [139](#)  
NodeType attribute [31](#), [54](#), [139](#)  
Num CPUs attribute [148](#)  
Number Child Pools attribute [91](#)  
Number CPUs attribute [45](#)  
Number Disks attribute [148](#)  
Number Hosts attribute [67](#), [83](#)  
Number NICs attribute [82](#), [128](#), [148](#), [151](#)  
Number of Collections attribute [73](#), [86](#)  
Number Of Portgroups attribute [67](#)  
Number Of Snapshots attribute [148](#)  
Number Ports attribute [67](#)  
Number Read attribute [113](#), [159](#)  
Number Servers attribute [45](#)  
Number Uplinks attribute [67](#)  
Number vMotions attribute [45](#)  
Number VMs attribute [46](#), [67](#), [84](#), [91](#), [101](#)  
Number VMs On attribute [46](#), [92](#), [101](#)  
Number Write attribute [113](#), [159](#)

## O

Object Name attribute [73](#), [86](#)  
Object Status attribute [73](#), [86](#)  
Object Type attribute [73](#), [86](#)  
Outbound Shaping Average Bandwidth attribute [62](#)  
Outbound Shaping Burst Size attribute [62](#)  
Outbound Shaping Enabled attribute [62](#)  
Outbound Shaping Peak Bandwidth attribute [63](#)  
Overall CPU Util attribute [101](#)  
Overall Memory Util attribute [101](#)  
Overall Status attribute [28](#), [31](#), [34](#), [38](#), [46](#), [49](#), [52](#), [58](#), [63](#), [67](#), [70](#), [84](#), [92](#), [102](#), [108](#), [148](#)  
Overcommitted attribute [58](#)  
Owner attribute [168](#)

## P

Parent Name attribute [89](#), [92](#), [94](#)  
Path Selection Policy attribute [127](#)  
Paths attribute [127](#)  
PCI ID attribute [116](#)  
Percent Capacity Free attribute [52](#)  
Percent Committed attribute [129](#), [155](#)  
Percent CPU Usage attribute [31](#)  
Percent Datastore Usage attribute [46](#)  
Percent Effective CPU attribute [46](#)  
Percent Effective Memory attribute [46](#)  
Percent Effective Servers attribute [46](#), [50](#)

- Percent Free attribute [58](#), [108](#), [169](#)
- Percent Memory Usage attribute [31](#)
- Percent Overall Usage attribute [89](#), [94](#)
- Percent Overcommitted attribute [28](#), [58](#)
- Percent Ready attribute [153](#)
- Percent Reserved VMs attribute [89](#), [94](#)
- Percent Snapshot Storage Consumed attribute [58](#)
- Percent Used attribute [29](#), [58](#), [108](#), [169](#)
- Performance Error Pct attribute [102](#)
- Performance Error Rate attribute [102](#)
- Performance Object Status attribute group [84](#)
- Physical Address attribute [124](#), [165](#)
- Physical CPUs attribute [102](#)
- Physical Memory attribute [102](#), [121](#)
- Physical NICs attribute [46](#)
- Physical NICs Down attribute [47](#)
- Pkts Dropped attribute [124](#)
- Pkts Received attribute [124](#), [165](#)
- Pkts Transmitted attribute [125](#), [165](#)
- policies [213](#)
- Policies
  - KVM\_VM\_Created [213](#)
- Pool Name attribute [31](#), [89](#), [92](#), [94](#)
- Portgroup attribute [63](#), [65](#), [70](#)
- Power Capacity attribute [102](#)
- Power State attribute [102](#)
- Power Status attribute [148](#)
- Power Usage attribute [103](#)
- PowerOffVM action [208](#)
- PowerOnVM action [209](#)
- privacy policy [271](#)
- Processor Family attribute [103](#)
- Product attribute [103](#)
- Provisioned attribute [130](#), [156](#)

## Q

- queries, using attributes [17](#)
- Query Name attribute [74](#), [87](#)
- Queue Latency attribute [113](#)
- Queue Read Latency attribute [113](#)
- Queue Time attribute [23](#), [134](#)
- Queue Total Latency attribute [113](#)
- Queue Write Latency attribute [113](#)
- Queued Collection Units attribute [143](#)

## R

- Read attribute [114](#), [116](#), [160](#)
- Read Latency attribute [109](#), [116](#)
- Ready Time attribute [153](#)
- Reason attribute [26](#)
- Receive Pkts Dropped attribute [125](#)
- Received attribute [68](#), [70](#), [78](#), [80](#), [82](#), [125](#), [128](#), [151](#), [166](#)
- Refresh Interval attribute [74](#), [87](#)
- Remote Host Address attribute [29](#), [59](#)
- Remote Path attribute [29](#), [59](#)
- Removable attribute [158](#)
- Reservation attribute [89](#), [95](#)
- Reservation Used attribute [89](#), [95](#)
- Reservation Used VM attribute [89](#), [95](#)
- Resource Pool attribute [148](#)
- Resource Pool CPU attribute group [87](#)

- Resource Pool General attribute group [90](#)
- Resource Pool Memory attribute group [92](#)
- Resource Pools
  - situations [203](#)

## S

- Sensor Name attribute [118](#)
- Sensor Status attribute [118](#)
- Sensor Type attribute [118](#)
- Sensor Units attribute [118](#)
- Sensor Value attribute [118](#)
- Serial Number attribute [103](#)
- Server attribute group [96](#)
- Server CPU attribute group [105](#)
- Server CPU Utilization attribute [34](#)
- Server DataStore attribute group [106](#)
- Server Disk attribute group [109](#)
- Server HBA attribute group [114](#)
- Server Health attribute group [117](#)
- Server Hostname attribute [34](#), [70](#), [78](#), [80](#), [82](#), [89](#), [92](#), [95](#), [103](#), [106](#), [109](#), [114](#), [117](#), [119](#), [121](#), [125](#), [128](#), [132](#), [138](#), [151](#)
- Server Memory attribute group [119](#)
- Server Memory Utilization attribute [34](#)
- Server Network attribute group [123](#)
- Server SAN attribute group [126](#)
- Server Virtual Switches attribute group [127](#)
- Server VM Datastore Utilization attribute group [129](#)
- Servers In Maintenance Mode attribute [47](#)
- Service Console attribute [122](#)
- Severity attribute [24](#)
- Share Level attribute [90](#), [95](#)
- Shared attribute [163](#)
- Shares attribute [90](#), [95](#)
- situations
  - additional information
    - predefined, defined [177](#)
  - KVM\_Cluster\_Bad\_Status [180](#)
  - KVM\_Cluster\_CPU\_Util\_High [180](#)
  - KVM\_Cluster\_Critical\_Event [184](#)
  - KVM\_Cluster\_Effective\_CPU\_Low [181](#)
  - KVM\_Cluster\_Effective\_Mem\_Low [181](#)
  - KVM\_Cluster\_Effective\_Svrs\_Low [182](#)
  - KVM\_Cluster\_Memory\_Util\_High [182](#)
  - KVM\_Collection\_Error [186](#)
  - KVM\_Collection\_Time\_Excessive [186](#)
  - KVM\_Connection\_Failure [187](#)
  - KVM\_Datastore\_Bad\_Status [183](#)
  - KVM\_Datastore\_Critical\_Event [185](#)
  - KVM\_Datastore\_Inaccessible [183](#)
  - KVM\_Datastore\_Usage\_High [184](#)
  - KVM\_ESX\_Server\_Disconnected [196](#)
  - KVM\_Host\_Server\_Bad\_Status [196](#)
  - KVM\_Host\_System\_Created [187](#)
  - KVM\_Host\_System\_Created2 [188](#)
  - KVM\_Host\_System\_Destroyed [188](#)
  - KVM\_Host\_System\_Destroyed2 [189](#)
  - KVM\_Inventory\_Out\_Of\_Date [189](#)
  - KVM\_Resource\_Pool\_CPU\_High [203](#)
  - KVM\_Resource\_Pool\_Memory\_High [204](#)
  - KVM\_Server\_CPU\_Util\_High [197](#)
  - KVM\_Server\_Critical\_Event [197](#)
  - KVM\_Server\_Datastore\_Free\_Low [198](#)
  - KVM\_Server\_Disk\_Reads\_High [194](#)

situations (*continued*)

- KVM\_Server\_Disk\_Writes\_High [195](#)
- KVM\_Server\_HBA\_Fault [198](#)
- KVM\_Server\_Memory\_Util\_High [199](#)
- KVM\_Server\_NIC\_Down [201](#)
- KVM\_Server\_Receive\_Rate\_High [201](#)
- KVM\_Server\_Transmit\_Rate\_High [202](#)
- KVM\_Server\_VM\_Critical\_Event [199](#)
- KVM\_Server\_VMotion\_Event [199](#)
- KVM\_Snapshots\_High [204](#)
- KVM\_Take\_Action\_Failure [190](#)
- KVM\_Virtual\_Machine\_Created [190](#)
- KVM\_Virtual\_Machine\_Created2 [191](#)
- KVM\_Virtual\_Machine\_Destroyed [191](#)
- KVM\_Virtual\_Machine\_Destroyed2 [191](#)
- KVM\_Virtual\_Machine\_Relocated [192](#)
- KVM\_Virtual\_Machine\_Relocated2 [192](#)
- KVM\_VM\_Bad\_Status [205](#)
- KVM\_VM\_CPU\_Ready\_High [193](#)
- KVM\_VM\_CPU\_Util\_High [194](#)
- KVM\_VM\_Critical\_Event [185](#)
- KVM\_VM\_Disk\_Free\_Low [195](#)
- KVM\_VM\_Guest\_Memory\_Util\_High [200](#)
- KVM\_VM\_Host\_Memory\_Util\_High [200](#)
- KVM\_VM\_Powered\_Off [205](#)
- KVM\_VM\_Receive\_Rate\_High [202](#)
- KVM\_VM\_Transmit\_Rate\_High [203](#)
- overview [177](#)
- predefined [177](#)
- Situation Editor [177](#)
- situations, using attributes [17](#)
- Snapshot Age attribute [171](#)
- Snapshot MORef attribute [172](#)
- Snapshot Name attribute [172](#)
- Snapshot State attribute [172](#)
- Snapshot Storage Consumed attribute [59](#), [148](#)
- Source attribute [24](#), [26](#), [65](#), [168](#)
- Source Hostname attribute [23](#), [26](#), [76](#), [134](#)
- Space Consumed attribute [172](#)
- Speed attribute [117](#)
- SSH Status attribute [103](#)
- Start Action attribute [36](#)
- Start Delay attribute [36](#)
- Start Order attribute [36](#)
- Start Time attribute [23](#), [134](#)
- Status attribute [23](#), [70](#), [117](#), [125](#), [134](#)
- Stop Action attribute [36](#)
- Stop Delay attribute [36](#)
- Storage Adapter Max Latency attribute [103](#)
- Storage Adapter Throughput Usage attribute [117](#)
- Storage DRS Enable attribute [149](#)
- Storage Path Max Latency attribute [103](#)
- Subnode Affinity attribute [77](#)
- SubNode Events attribute group [130](#)
- Subnode MSN attribute [77](#)
- Subnode Resource Name attribute [77](#)
- Subnode Resource Name Enhanced attribute [77](#)
- Subnode Type attribute [77](#)
- Subnode Version attribute [77](#)
- Subsystem attribute [25](#)
- Summary attribute [65](#)
- Swap In Rate attribute [122](#), [163](#)
- Swap In Rate From Host Cache attribute [122](#)
- Swap Out Rate attribute [122](#), [163](#)

- Swap Out Rate From Host Cache attribute [122](#)
- Swap To File attribute [163](#)
- Swap Total Rate attribute [122](#)
- Swap Used attribute [122](#)
- Switch attribute [63](#), [65](#), [68](#), [70](#), [79](#), [80](#), [82](#), [125](#), [128](#), [151](#), [166](#)
- Sys Time attribute [153](#)
- System Model attribute [104](#)
- System Up Time attribute [104](#)
- System Vendor attribute [104](#)

## T

- Take Action commands
  - additional information [207](#)
  - overview [207](#)
  - PowerOffVM [208](#)
  - PowerOnVM [209](#)
  - predefined [207](#), [213](#)
- take actions
  - descriptions [207](#)
- Target Entity attribute [23](#), [134](#)
- Target Entity Type attribute [23](#), [134](#)
- Target Hostname attribute [26](#)
- Tasks attribute group [133](#)
- Thread Pool Active Threads attribute [135](#)
- Thread Pool Avg Active Threads attribute [135](#)
- Thread Pool Avg Job Wait attribute [135](#)
- Thread Pool Avg Queue Length attribute [135](#)
- Thread Pool Max Active Threads attribute [135](#)
- Thread Pool Max Queue Length attribute [136](#)
- Thread Pool Max Size attribute [136](#)
- Thread Pool Min Active Threads attribute [136](#)
- Thread Pool Min Queue Length attribute [136](#)
- Thread Pool Queue Length attribute [136](#)
- Thread Pool Size attribute [136](#)
- Thread Pool Status attribute group [134](#)
- Thread Pool Total Jobs attribute [136](#)
- Timestamp attribute [24](#)–[26](#), [29](#), [31](#), [35](#), [36](#), [38](#), [47](#), [50](#), [52](#), [53](#), [55](#), [59](#), [60](#), [63](#), [65](#), [68](#), [71](#), [74](#), [76](#), [77](#), [79](#), [80](#), [82](#), [84](#), [87](#), [90](#), [92](#), [95](#), [104](#), [106](#), [109](#), [114](#), [117](#), [119](#), [122](#), [125](#), [127](#), [128](#), [130](#), [132](#), [134](#), [136](#), [138](#)–[140](#), [143](#), [149](#), [152](#), [153](#), [156](#), [158](#), [160](#), [163](#), [166](#), [168](#)–[172](#)
- Tivoli Enterprise Console
  - event mapping [215](#)
- Tools Status attribute [149](#)
- Topological Events attribute group [137](#)
- Topology - Datastore workspace [7](#)
- Topology - Monitored Servers workspace [9](#)
- Topology attribute group [138](#)
- Total Capacity attribute [52](#)
- Total CPU attribute [47](#), [50](#)
- Total CPU MHz attribute [104](#)
- Total IO attribute [59](#), [156](#)
- Total Latency attribute [114](#)
- Total Memory attribute [47](#), [50](#)
- Total Read attribute [59](#), [156](#)
- Total Read Latency attribute [114](#)
- Total Servers attribute [50](#)
- Total Size attribute [163](#)
- Total VM Configured Memory attribute [47](#), [104](#)
- Total VM Provisioned Space attribute [47](#), [104](#)
- Total Write attribute [59](#), [156](#)
- Total Write Latency attribute [114](#)

- Transmit Pkts Dropped attribute [125](#)
- Transmitted attribute [68](#), [71](#), [79](#), [80](#), [83](#), [126](#), [128](#), [152](#), [166](#)
- Triggered Alarms attribute group [139](#)
- Triggered Alarms workspace [9](#)
- Triggered Entity attribute [140](#)
- Triggered Entity Type attribute [141](#)
- Type attribute [29](#), [59](#), [63](#), [84](#), [109](#), [143](#)

## U

- Uncommitted attribute [130](#), [156](#)
- Universally Unique Identifier attribute [149](#)
- Unreserved attribute [90](#), [95](#)
- Unreserved VM attribute [90](#), [96](#)
- Unshared attribute [130](#), [156](#)
- Up Time attribute [149](#)
- Uplink attribute [65](#), [71](#)
- Uplink Key attribute [65](#)
- URL attribute [60](#)
- usage attribute [105](#)
- Usage attribute [68](#), [71](#), [79](#), [81](#), [83](#), [126](#), [128](#), [152](#), [163](#)
- Used CPU MHz attribute [105](#), [149](#)
- Used Space attribute [60](#), [109](#), [169](#)
- Used Time attribute [153](#)
- User Time attribute [153](#)
- UserId attribute [76](#), [132](#)
- UseTEPCredential attribute [60](#)
- Utilization attribute [153](#)
- UUID attribute [105](#), [156](#)

## V

- vCenters attribute group [141](#)
- Version attribute [105](#), [149](#)
- views
  - Cluster Detail workspace [4](#)
  - Cluster Performance workspace [4](#)
  - Cluster Summary workspace [5](#)
  - Clusters workspace [5](#)
  - Datastore and Volumes workspace [6](#)
  - Datastore Detail - NAS workspace [6](#)
  - Datastore Detail - VMFS workspace [7](#)
  - Datastores workspace [7](#)
  - Distributed Network Detail workspace [10](#)
  - Distributed Resource Scheduler workspace [6](#)
  - Distributed Virtual Switch Detail workspace [10](#)
  - Events workspace [8](#)
  - IBM Systems Director workspace [4](#)
  - Monitored Servers workspace [9](#)
  - Network Detail workspace [10](#)
  - Network NIC Detail workspace [10](#)
  - Networks workspace [11](#)
  - Topology - Datastore workspace [7](#)
  - Topology - Monitored Servers workspace [9](#)
  - Triggered Alarms workspace [9](#)
  - Virtual App workspace [6](#)
  - Virtual Enterprise workspace [4](#)
  - Virtual Machines - Monitored Servers workspace [9](#)
  - Virtual Machines Topology workspace [8](#)
  - VM Datastore Utilization workspace [8](#)
  - VM Orphaned Disk workspace [8](#)
  - VMware VI workspace [3](#)
- Virtual App Name attribute [36](#)

- Virtual App workspace [6](#)
- Virtual Enterprise workspace [4](#)
- Virtual Machine attribute [26](#), [76](#), [81](#), [130](#), [133](#), [157](#)
- Virtual Machine Name attribute [36](#), [160](#)
- Virtual Machine UUID attribute [76](#), [133](#)
- Virtual Machines
  - situations [204](#)
- Virtual Machines - Monitored Servers workspace [9](#)
- Virtual Machines attribute group [143](#)
- Virtual Machines Topology workspace [8](#)
- Virtual Switches attribute group [150](#)
- VLAN ID attribute [63](#)
- VLAN Type attribute [63](#)
- VM CPU attribute group [152](#)
- VM Datastore Utilization attribute group [154](#)
- VM Datastore Utilization workspace [8](#)
- VM Disk attribute group [157](#)
- VM Disk Performance attribute group [159](#)
- VM HostName attribute [154](#), [158](#), [164](#), [166](#), [169](#)
- VM Memory attribute group [160](#)
- VM MOREf attribute [37](#), [149](#), [160](#)
- VM Name attribute [38](#), [150](#), [154](#), [158](#), [164](#), [166](#), [169](#), [172](#)
- VM Name CPU Number attribute [154](#)
- VM Network attribute group [164](#)
- VM NIC attribute [81](#)
- VM Orphaned Disk attribute group [166](#)
- VM Orphaned Disk workspace [8](#)
- VM OS Type attribute [150](#), [154](#), [158](#), [164](#), [166](#), [170](#)
- VM Partition attribute group [168](#)
- VM Percent Ready attribute [150](#)
- VM Server Name attribute [150](#), [154](#), [158](#), [164](#), [166](#), [170](#)
- VM Snapshot attribute group [170](#)
- VM SnapshotFileLayout attribute group [170](#)
- VM Snapshots attribute group [171](#)
- VM State attribute [172](#)
- VM Template attribute [150](#)
- VM UUID attribute [138](#)
- VMNodeID attribute [130](#), [160](#)
- vMotion enabled attribute [105](#)
- VMware VI
  - situations [180](#), [193](#)
  - workspaces
    - descriptions [3](#), [11](#)
- VMware VI workspace [3](#)

## W

- Wait Time attribute [154](#)
- Waiting for Guest attribute [37](#)
- Web Services Port attribute [143](#)
- Workflow Editor [213](#)
- workspaces
  - Cluster Detail [4](#)
  - Cluster Performance [4](#)
  - Cluster Summary [5](#)
  - Clusters [4](#), [5](#)
  - Datastore and Volumes [6](#)
  - Datastore Detail - NAS [6](#)
  - Datastore Detail - VMFS [7](#)
  - Datastores [6](#), [7](#)
  - descriptions [3](#)
  - Distributed Network Detail [10](#)
  - Distributed Resource Scheduler [6](#)
  - Distributed Virtual Switch Detail [10](#)

workspaces (*continued*)

Events [8](#)

IBM Systems Director [4](#)

Monitored Servers [9](#)

Network Detail [10](#)

Network NIC Detail [10](#)

Networks [9](#), [11](#)

predefined [1](#)

Topology - Datastore [7](#)

Topology - Monitored Servers [9](#)

Triggered Alarms [9](#)

Virtual App [6](#)

Virtual Enterprise [4](#)

Virtual Machines - Monitored Servers [9](#)

Virtual Machines Topology [8](#)

VM Datastore Utilization [8](#)

VM Orphaned Disk [8](#)

VMware VI [3](#), [11](#)

Workspaces

additional information [1](#)

overview [1](#)

Write attribute [114](#), [117](#), [160](#)

Write Latency attribute [109](#), [117](#)





