



Hewlett Packard
Enterprise

HPE Cloud Optimizer

Software Version: 3.03
Linux operating system

Reference Guide: Metric Definition

Document Release Date: December 2017

Software Release Date: December 2017

Legal Notices

Warranty

The only warranties for Seattle SpinCo, Inc and its subsidiaries (“Seattle”) products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Seattle shall not be liable for technical or editorial errors or omissions contained herein.

The information contained herein is subject to change without notice.

Restricted Rights Legend

Confidential computer software. Except as specifically indicated, valid license from Seattle required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

Copyright Notice

© 2016-2017 EntIT Software LLC, a Micro Focus company

Trademark Notices

Adobe® is a trademark of Adobe Systems Incorporated.

Microsoft® and Windows® are U.S. registered trademarks of the Microsoft group of companies.

UNIX® is a registered trademark of The Open Group.

Acknowledgements

This product includes software developed by the Apache Software Foundation (<http://www.apache.org/>).

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (<http://www.openssl.org/>)

This product includes cryptographic software written by Eric Young (eay@cryptsoft.com)

This product includes software written by Tim Hudson (tjh@cryptsoft.com)

This product includes software developed by the Apache Software Foundation (<http://www.apache.org/>).

Documentation Updates

The title page of this document contains the following identifying information:

- Software Version number, which indicates the software version.
- Document Release Date, which changes each time the document is updated.
- Software Release Date, which indicates the release date of this version of the software.

To check for recent updates or to verify that you are using the most recent edition of a document, go to:

<https://softwaresupport.hp.com>

This site requires that you register for an HP Passport and sign in. To register for an HP Passport ID, go to:

<https://hpp12.passport.hp.com/hppcf/createuser.do>

Or click the **the Register** link at the top of the HP Software Support page.

You will also receive updated or new editions if you subscribe to the appropriate product support service. Contact your HP sales representative for details.

Support

Visit the HP Software Support Online web site at: <https://softwaresupport.hpe.com>

This web site provides contact information and details about the products, services, and support that HPE Software offers.

HPE Software online support provides customer self-solve capabilities. It provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valued support customer, you can benefit by using the support web site to:

- Search for knowledge documents of interest
- Submit and track support cases and enhancement requests
- Download software patches
- Manage support contracts
- Look up HPE support contacts
- Review information about available services
- Enter into discussions with other software customers
- Research and register for software training

Most of the support areas require that you register as an HPE Passport user and sign in. Many also require a support contract. To register for an HPE Passport ID, go to:

<https://hpp12.passport.hpe.com/hppcf/createuser.do>

To find more information about access levels, go to:

<https://softwaresupport.hpe.com/web/softwaresupport/access-levels>

HPE Software Solutions Now accesses the HPSW Solution and Integration Portal Web site. This site enables you to explore HPE Product Solutions to meet your business needs, includes a full list of Integrations between HPE Products, as well as a listing of ITIL Processes. The URL for this Web site is <https://softwaresupport.hpe.com>

Contents

- Chapter 1: Introduction 5
- Chapter 2: Metrics 6
 - KVM 6
 - Xen 13
 - OpenStack 28
 - vCenter 32
 - Hyper-V 66
 - AWS 75
 - Physical Server 77
 - OneView 80

- Send Documentation Feedback 86

Chapter 1: Introduction

HPE Cloud Optimizer is a web-based and visualization tool that analyzes performance trends of elements in virtualized environments. It enables virtualization monitoring by providing an overview of the environment, near-real-time and historical data analysis and triaging using an interactive dashboard. Additionally, it enables monitoring for cloud and hypervisor environments. HPE Cloud Optimizer helps you visualize performance data for elements in the context of each other to rapidly analyze bottlenecks. HPE Cloud Optimizer provides performance monitoring, graphing, and reporting in a single interface. For more information on HPE Cloud Optimizer, visit the HPE Cloud Optimizer home page at www.hpe.com/software/cloudoptimizer.

Chapter 2: Metrics

HPE Cloud Optimizer provides a parameter or a set of parameters called Metrics¹ that you can use to monitor and measure the health, performance, and availability of a monitored resource.

HPE Cloud Optimizer provides Performance Graphing component that helps you to visualize the monitored data in a graphical or tabular format. A drawn graph consists of data points available for the selected metrics. A metric class is a set of related metrics grouped together based on the type of data the metric reports.

HPE Cloud Optimizer provides the following types of metrics:

Domain	Entity
KVM	Host, Guest, Datastore, and NodeDS
Xen	Host and Guest
OpenStack	Host, Guest, Cloud, and Tenant
vCenter	Host, Guest, Datacenter, Cluster, Datastore, Respool, VirtualApp, and BYVM Storage
Hyper-V	Host, Guest, Cluster, Datastore, and NodeDS
Physical Server	Host
AWS	Account and Guest
OneView	Enclosure and Server

KVM

Entity Type	Metric Name	Description
KVM Host	ConnectionState	For a host, this metric indicates current status of the connection. It can have values as - Connected, Disconnected or NotResponding.

¹A metric is a measurement that gives an indication of the operational health and performance of a resource.

Entity Type	Metric Name	Description
	CPUClockSpeed	For a host, this is the clock speed of the CPUs, in MHz, if all of the processors have the same clock speed.
	CPUCycleTotalUsed	For a host, this value is the total time the physical or logical CPUs were utilized per second during the interval, represented in CPU cycles.
	CPUDemandUsed	For a host, this value is same as CPUCycleTotalUsed.
	CPUEntlMax	For a host, this metric is equivalent to total number of cores on the host.
	CPUEntlMin	For a host, the metric is equivalent to total number of cores on the host.
	CPUPhysTotalTime	For a host, this value indicates the time spent, in seconds, on the physical CPU.
	CPUPhysTotalUtil	For a host, the value indicates percentage of total time the physical CPUs were utilized by the host or logical system.
	CPUPhyscUtil	For a host, this metric indicates the number of CPU units utilized.
	CPUTotalUtil	For a host, the value indicates the percentage of total time physical CPUs were not idle during the interval.
	DiskPhysRead	For a host, this metric indicates the number of physical reads during the interval.
	DiskUsed	This is the total space used, in

Entity Type	Metric Name	Description
		MB.
	DiskPhysWrite	For a host, this metric indicates the number of physical writes during the interval.
	MemoryBufferPercentage	For a host, this metric indicates the dynamic memory buffer percentage.
	MemoryDemand	For a host, this metric indicates how much memory the virtual machine needs at this time to meet the requirements of the active processes running in the virtual machine.
	MemoryPressure	For a host, this metric indicates the average pressure in the VM.
	MemActive	For a host, this is the amount of memory, in MB, that is actively used.
	MemAvail	For a host, this metric indicates the amount of physical memory available in the host system, in MBs unless otherwise specified.
	MemEntl	For a host, the value is the physical memory available in the system, in MB.
	MemEntlMin	For a host, this metric indicates the reserved amount of memory configured for a host or a logical system, in MB.
	MemEntlUtil	For a host, the value indicates the percentage of entitled memory in use during the interval.
	MemFree	For a host, this is the amount of memory not allocated, in MB.

Entity Type	Metric Name	Description
	MemPhys	For a host, the value indicates the physical memory available in the system, in MB.
	MemPhysUtil	For a host, this is the percentage of physical memory used during the interval.
	MemShared	For a host, this metric indicates amount of shared memory with other virtual machines, in MB.
	MemSwapped	For a host, this metric indicates the amount of memory that has been transparently swapped to and from the disk, in MB.
	MemUsed	For a host, this is the total memory used in the interval, in MB.
	NumNetif	For a host, this is the number of network interfaces configured.
	NumCPU	For a host, this indicates the number of physical processors available.
	NumCPUCore	For a host, this metric provides the total number of CPU cores on the system.
	NumCPUSocket	For a host, this metric indicates the number of physical CPU sockets on the system.
	NumDisk	For a host, this metric indicates the number of disks configured. Only local disk devices and optical devices present in the system are counted in this metric.
	NumGuests	For a host, this indicates the number of logical systems hosted in the system.

Entity Type	Metric Name	Description
	SystemState	For a host, this metric can have one of the following states for a host: On, Off, or Unknown.
KVM Guest	ConnectionState	For logical systems, this indicates whether or not the entity is available for management. It can have values as - Connected, Disconnected, or NotResponding.
	CPUClockSpeed	For a logical system, this is the clock speed of the CPUs, in MHz, if all of the processors have the same clock speed.
	CPUCycleTotalUsed	For a logical system, this is the total time the physical or logical CPUs were utilized per second during the interval, represented in CPU cycles.
	CPUDemandUsed	For a logical system, this metric indicates the amount of CPU resources the logical system would use, in MHz, if there is no CPU contention or CPU limit. For a host, this value is same as CPUCycleTotalUsed.
	CPUEntlMax	For a logical system, this metrics indicates the maximum CPU units configured for it.
	CPUEntlMin	For a logical system, this metrics indicates the guaranteed minimum CPU units configured for it.
	CPUPhysTotalTime	For a guest, this value indicates the time spent on the physical CPU, in seconds.
	CPUPhysTotalUtil	For a logical system, this value

Entity Type	Metric Name	Description
		indicates percentage of total time the physical CPUs were utilized by the host or logical system.
	CPUTotalUtil	For a logical system, the value indicates the percentage of total time logical CPUs were not idle during the interval.
	DiskUsed	This is the total space used, in MB.
	MemAvail	For a logical system, the amount of physical memory available, in MB, unless otherwise specified.
	MemActive	For a logical system it is the amount of memory, in MB, that is actively being used.
	MemEntl	For a logical system, the value is the total memory configured, in MB.
	MemEntlMin	For a logical system, the minimum amount of memory configured, in MB.
	MemEntlUtil	For a logical system, the value indicates the percentage of entitled memory in use during the interval.
	MemFree	For a logical system, this is the amount of memory not allocated, in MB.
	MemPhys	For a logical system, the value indicates the total memory configured, in MB.
	MemPhysUtil	For a logical system, this is the percentage of physical memory used during the interval.

Entity Type	Metric Name	Description
	MemUsed	For a logical system, this is the total memory used in the interval, in MB.
	NumCPU	For a logical system, this is the number of virtual CPUs configured.
	NumCPUCore	For a logical system, this metric indicates the total number of CPU cores available.
	NumCPUSocket	For a logical system, this metric indicates the number of CPU sockets on the system.
	NumDisk	For a logical system, this indicates the number of disks configured. Only local disk devices and optical devices present in the system are counted in this metric.
	NumNetif	For a logical system, the value is the number of network interfaces configured.
	NumGuests	The number of VMs.
	SystemState	For a logical system, this values can be one of the following: Running, Blocked, Paused, Shutdown, Shutoff, Nostate, Crashed, or Unknown.
KVM Datastore	Capacity	This is the total available capacity, in MB.
	DiskOthersUsed	The datastore space used by other files, in MB.
	DiskReadRate	The rate of disk read from the datastore during the collection interval, in KBps.

Entity Type	Metric Name	Description
	DiskSnapshotUsed	The datastore space used by the Virtual Machine snapshots, in MB.
	DiskSwapUsed	The datastore space used by the swap files, in MB.
	DiskThroughputUsage	The throughput usage for the datastore.
	DiskUsed	This is the total space used, in MB.
	DiskVMDKUsed	The datastore space used by Virtual Machine files, in MB.
	DiskWriteRate	The rate of disk write to the datastore during the collection interval, in KBps.
	DiskProvisioned	This is the total space provisioned, in MB.
KVM NodeDS	DiskVMDKUsed	This is the total space consumed by the Virtual Machine vmdk files on the datastore, in MB.
	DiskUsed	This is the total space consumed by the Virtual Machine on the datastore including the vmdk file snapshots and other files, in MB.
	DiskProvisioned	This is the total space provisioned for the Virtual Machine on the datastore, in MB.

Xen

Entity Type	Metric Name	Description
Xen Host	BelongsToDatacenter	For a host, this metric indicates the name of the datacenter to which this machine belongs.

Entity Type	Metric Name	Description
	CPUClockSpeed	For a host, this is the clock speed of the CPUs, in MHz, if all of the processors have the same clock speed.
	ConnectionState	For a host, the status of the connection.
	CPUCycleEntlMax	For a host, this value indicates the maximum processor capacity, in MHz, configured for the entity.
	CPUCycleEntlMin	For a host, this value indicates the minimum processor capacity, in MHz, configured for the entity.
	CPUCycleTotalUsed	For a host, this is the total time the physical CPUs were utilized during the interval, represented in CPU cycles.
	CPUMTEnabled	For a host, this metric indicates whether the CPU hardware threads are enabled or not.
	CPUPhysSysModeUtil	For a host, this metric indicates the percentage of time the physical CPUs were in system mode during the interval for the host or logical system.
	CPUPhysTotalUtil	For a host, this value indicates the percentage of total time the physical CPUs were utilized by logical system.
	CPUPhysUserModeUtil	For a host, this metric indicates the percentage of time the physical CPUs were in user mode during the interval.
	CPUReservedCapacity	For a host, this metric indicates the total CPU capacity, which is shared by all the powered-on Virtual Machines, in MHz.
	CPUSysModeUtil	For a host, this metric indicates the percentage of time the CPU was in system mode during the interval.
	CPUTotalUtil	For a host, this metric is same as CPU_PHYS_TOTAL_UTIL.

Entity Type	Metric Name	Description
	CPUUnreserved	For a host, this is the number of CPU cycles that are available for creating a new logical system.
	CPUUserModeUtil	For a host, this metric indicates the percentage of time the CPU was in user mode during the interval.
	DiskDeviceLatency	For a host, this metric indicates the average amount of time to complete a SCSI command from physical device, in msec.
	DiskKernelLatency	For a host, this metric indicates the average amount of time spent by VMKernel to process each SCSI command, in msec.
	DiskPhysIOByte	For a host, this metric indicates the number of KBs transferred to and from the disks during the interval.
	DiskPhysIOByteRate	For a host, this metric indicates the average number of KBs per second at which data was transferred to and from disks during the interval.
	DiskPhysRead	For a host, this metric indicates the number of physical reads during the interval.
	DiskPhysReadByteRate	For a host, this metric indicates the average number of KBs per second at which data was transferred from disks during the interval.
	DiskPhysReadRate	For a host, this metric indicates the number of physical reads per second during the interval.
	DiskPhysWrite	For a host, this metric indicates the number of physical writes during the interval.
	DiskPhysWriteByteRate	For a host, this metric indicates the average number of KBs per second at which data was transferred to disks during the interval.

Entity Type	Metric Name	Description
	DiskPhysWriteRate	For a host, this metric indicates the number of physical writes per second during the interval.
	DiskQueueLatency	For a host, this metric indicates the average amount of time spent in the VMKernel queue by each SCSI command, in msec.
	DiskUtil	For a host, this is the average percentage of time during the interval (average utilization) that all the disks had I/O in progress.
	DiskUtilPeak	For a host, this is the utilization of the busiest disk during the interval.
	IPAddress	For a host, this metric indicates the IP address for a host and a logical system.
	LSID	For a host, this metric is the unique identifier for a host and a logical system. The value of this metric may change for an instance across collection intervals.
	LSMode	For a host, the value is Capped; for a logical system, the value is Uncapped.
	LSName	For a host, this metric is the unique identifier for that host.
	LSShared	For a host, the value is Dedicated; for a logical system, the value is Shared.
	MemAvail	For a host, this metric indicates the amount of physical memory available in the host system, in MBs, unless otherwise specified.
	MemEntl	For a host, this value is the physical memory available in the system and for a logical system this metric indicates the minimum memory configured, in MB.
	MemEntlMax	For a host, the value is the amount of physical memory available in the system, in

Entity Type	Metric Name	Description
		MB.
	MemEntlMin	For a host, this metric indicates the reserved amount of memory configured for a host or a logical system, in MB.
	MemEntlUtil	For a host, this value indicates the percentage of entitled memory in use during the interval by it.
	MemFree	For a host, this is the amount of memory not allocated, in MB.
	MemFreeUtil	For a host, this metric indicates the percentage of memory that is free at the end of the interval.
	MemGranted	For a host, this metric indicates the amount of host physical memory mapped to it, in MB.
	MemHeap	For a host, this metric indicates the virtual address space dedicated to VMKernel main heap.
	MemHeapFree	For a host, this metric indicates the free address space in the VMKernel main heap, in MB.
	MemOverallHealth	For a host, this is a number that indicates the state of the memory. Low number indicates system is not under memory pressure. 0 - High, indicates free memory is available and no memory pressure. 1 - Soft, 2 - Hard, 3 - Low indicates there is a pressure for free memory.
	MemPhys	For a host, the value is the physical memory available in the system and for a logical system this metric indicates the minimum memory configured, in MB.
	MemPhysUtil	For a host, this metric indicates the percentage of physical memory used

Entity Type	Metric Name	Description
		during the interval.
	MemSharedCommon	For a host, the amount of physical memory shared by all powered-on VMs, in MB.
	MemSwapped	For a host, this metric indicates the amount of memory that has been transparently swapped to and from the disk, in MB.
	MemSysUtil	For a host, this is the percentage of physical memory used by the system during the interval.
	MemUnreserved	For a host, this is the amount of memory that is unreserved, in MB.
	NetByteRate	For a host, this is the sum of the data transmitted and received for all the NIC instances of the host and virtual machine. It is represented in KBps.
	NetInByte	For a host, this is the number of bytes, in MB, received during the interval.
	NetInPacket	For a host, this is the number of successful packets received for all network interfaces during the interval.
	NetInPacketRate	For a host, this is the number of successful packets per second received for all network interfaces during the interval.
	NetOutByte	For a host, this is the number of bytes, in MB, transmitted during the interval.
	NetOutPacket	For a host, this is the number of successful packets sent for all network interfaces during the interval.
	NetOutPacketRate	For a host, this metric indicates the number of successful packets sent through all network interfaces over the cumulative collection time. Successful packets are those that have been processed without

Entity Type	Metric Name	Description
		errors or collisions. This does not include data for loopback interface.
	NetPacketRate	For a host, this is the number of successful packets per second both sent and received for all network interfaces during the interval.
	NumActiveguests	For a host, this indicates the number of logical systems hosted in a system that are active.
	NumCPUCore	For a host, this metric provides the total number of CPU cores on the system.
	NumCPUSocket	For a host, this metric indicates the number of physical CPU sockets on the system.
	Numguests	For a host, this indicates the number of logical systems hosted in a system.
	NumNetif	For a host, this metric is the number of network adapters on the host.
	ParentUUID	For a host, this metric indicates the UUID appended to display_name of the parent entity.
	SystemhostName	For a host, this metric is the Fully Qualified Domain Name.
	SystemMachineModel	For a host, this is the CPU model of the host system.
	SystemName	For a host, this metric indicates the name of the host or logical system.
	SystemOSName	For a host, this metric indicates the name of operating system.
	SystemOSType	For a host, this metric can have the following values: ESX/ESXi followed by version or ESX-Serv (applicable only for a host) Linux, Windows, Solaris, or Unknown.
	SystemPath	For a host, this metric indicates the

Entity Type	Metric Name	Description
		installation path for host or logical system.
	SystemRole	For a host, this metric is host.
	SystemState	For a host, this metric can have one of the following states for a host: On,Off, or Unknown.
	SystemUptimeHours	For a host, this metric is the time, in hours, since the last system reboot.
	SystemUptimeSeconds	For a host, this metric is the time, in seconds, since the last system reboot.
	SystemVirtType	For a host, the value of this metric is XEN.
	VCIPAddress	For a host, the metric indicates the IP address of the Virtual Centre that the host is managed by.
	vMotionEnabled	For a host, this metric indicates whether vMotion is enabled or not.
Xen Guest	BelongsToDatacenter	For a logical system, this metric indicates the name of the datacenter to which this machine belongs.
	ConnectionState	For logical systems, this indicates whether or not the entity is available for management. It can have values as - Connected, Disconnected, or NotResponding.
	CPUClockSpeed	For a logical system, this is the clock speed of the CPUs, in MHz, if all of the processors have the same clock speed.
	CPUCoStopTime	For a logical system, this metric indicates the time the Virtual Machine is ready to run but is unable to run due to co-scheduling constraints, in msec.
	CPUCycleEntlMax	For a logical system, this value indicates the maximum processor capacity, in MHz,

Entity Type	Metric Name	Description
		configured for the entity.
	CPUCycleEntlMin	For a logical system, this value indicates the minimum processor capacity, in MHz, configured for the entity.
	CPUCycleTotalUsed	For a logical system, this is the total time the physical CPUs were utilized during the interval represented in CPU cycles.
	CPUDemandUsed	For a logical system, this metric indicates the amount of CPU resources (MHz) a virtual machine would use if there were no CPU contention or CPU limit.
	CPUEntlMax	For a logical system, this metric is equivalent to total number of cores on the host. For a logical system, this metric indicates the maximum CPU units configured for it.
	CPUEntlMin	For a logical system, this metric indicates the guaranteed minimum CPU units configured for it.
	CPUEntlUtil	For a logical system, this metric indicates the percentage of entitled processing units (guaranteed processing units allocated to this logical system) consumed.
	CPUIidleTime	For a logical system, this metric indicates the total time that the CPU spent in an idle state, in msec.
	CPUIidleUtil	For a logical system, this metric indicates the percentage of time that the CPU spent in an idle state.
	CPUPhyscUtil	For a logical system, this metric indicates the number of CPU units utilized.
	CPUPhysReadyUtil	For a logical system, this is the percentage of time during the interval that the CPU was in ready state.

Entity Type	Metric Name	Description
	CPUPhysTotalTime	For a logical system, the value indicates the time spent, in seconds, on the physical CPU by logical system or host.
	CPUPhysWaitUtil	For a logical system, this is the percentage of time during the interval that the virtual CPU was waiting for the I/Os to complete.
	CPUReadyTime	For a logical system, this metric indicates the time for which the virtual machine was ready but could not get scheduled to run on the physical CPU.
	CPUSharesPrio	For a logical system, this metric indicates the weightage or priority assigned to an Uncapped logical system. This value determines the minimum share of unutilized processing units that this logical system can utilize.
	CPUSysModeUtil	For a logical system, this metric indicates the percentage of time the CPU was in system mode during the interval.
	CPUTotalUtil	For a logical system, the value indicates percentage of total time the logical CPUs were not idle during the interval. For a host, this metric is same as CPU_PHYS_TOTAL_UTIL.
	CPUUsedTime	For a logical system, this metric indicates the total time for which the CPU was used, in msec.
	CPUUserModeUtil	For a logical system, this metric indicates the percentage of time the CPU was in user mode during the interval.
	CPUWaitTime	For a logical system, this metric indicates the total time that the CPU spent in wait state.
	DiskCommandAbortRate	For a logical system, this metric indicates the Disk Command Abort Rate.

Entity Type	Metric Name	Description
	DiskPhysIOByte	For a logical system, this metric indicates the number of KBs transferred to and from disks during the interval.
	DiskPhysIOByteRate	For a logical system, this metric indicates the average number of KBs per second at which data was transferred to and from disks during the interval.
	DiskPhysRead	For a logical system, this metric indicates the number of physical reads during the interval.
	DiskPhysReadByteRate	For a logical system, this metric indicates the average number of KBs per second at which data was transferred from disks during the interval.
	DiskPhysReadRate	For a logical system, this metric indicates the number of physical reads per second during the interval.
	DiskPhysWrite	For a logical system, this metric indicates the number of physical writes during the interval.
	DiskPhysWriteByteRate	For a logical system, this metric indicates the average number of KBs per second at which data was transferred to disks during the interval.
	DiskPhysWriteRate	For a logical system, this metric indicates the number of physical writes per second during the interval.
	DiskQueueDepthPeak	For a logical system, this metric indicates the disk queue depth.
	DiskReadLatency	For a logical system, this metric indicates the total disk read latency.
	DiskWriteLatency	For a logical system, this metric indicates the total disk write latency.

Entity Type	Metric Name	Description
	GuestToolsStatus	For a logical system, this metric is the current status of guest Integration Tools in the guest operating system if known.
	MemActive	For a logical system, the amount of active memory.
	MemBalloonTarget	For a logical system, this metric indicates the amount of memory, which is set by VMKernel for ballooning.
	MemBalloonUsed	For a logical system, this is the amount of memory held by memory control for ballooning. The value is represented in KB.
	MemBalloonUtil	For a logical system, this is the amount of memory held by memory control for ballooning. It is represented as a percentage of MEM_ENTL.
	MemEntl	For a logical system, this metric indicates the minimum memory configured, in MB.
	MemEntlMax	For a logical system, this metric indicates the maximum amount of memory configured, in MB.
	MemEntlUtil	For a logical system, the value indicates percentage of entitled memory in use during the interval by it.
	MemFree	For a logical system, this is the amount of memory not allocated, in MB.
	MemFreeUtil	For a logical system, this metric indicates the percentage of memory that is free at the end of the interval.
	MemGranted	For a logical system, this metric indicates the amount of host physical memory mapped to it, in MB
	MemOverhead	For a logical system, this metric indicates the amount of memory associated that is

Entity Type	Metric Name	Description
		currently consumed on the host system due to virtualization, in MB.
	MemPhys	For a logical system, this metric indicates the minimum memory configured, in MB.
	MemPhysUtil	For a logical system, this metric indicates the percentage of physical memory used during the interval.
	MemShared	For a logical system, this metric indicates amount of shared memory with other virtual machines, in MB.
	MemSharesPrio	For a logical system, this metric indicates the weightage or priority for memory assigned. This value influences the share of unutilized physical memory that this logical system can utilize.
	MemSwapIn	For a logical system, this value indicates the amount of memory that is swapped in during the interval, in MB.
	MemSwapOut	For a logical system, the value indicates the amount of memory that is swapped out during the interval, in MB.
	MemSwapped	For a logical system, this metric indicates the amount of memory that has been transparently swapped to and from the disk, in MB.
	MemSwapTarget	For a logical system, the value indicates the amount of memory that can be swapped, in MB.
	MemSwapUtil	For a logical system, this is the percentage of swap memory utilized with respect to the amount of swap memory available for a logical system.
	MemUsed	For a logical system, this metric indicates the amount of memory used at the end of

Entity Type	Metric Name	Description
		the interval, in MB.
	NetByteRate	For a logical system, this is the sum of data transmitted and received for all the NIC instances of the host and virtual machine. It is represented in KBps.
	NetInByte	For a logical system, this is the number of bytes, in MB, received during the interval.
	NetInByteRate	For a logical system, this metric indicates the input bytes per second over the network.
	NetInPacket	For a logical system, this is the number of successful packets received for all network interfaces during the interval.
	NetInPacketRate	For a logical system, this is the number of successful packets per second received for all network interfaces during the interval.
	NetOutByte	For a logical system, this is the number of bytes, in MB, transmitted during the interval.
	NetOutByteRate	For a logical system, this metric indicates the output bytes per second over the network.
	NetOutPacket	For a logical system, this is the number of successful packets sent for all network interfaces during the interval.
	NetOutPacketRate	For a logical system, this metric indicates the number of successful packets sent through all network interfaces over the cumulative collection time. Successful packets are those that have been processed without errors or collisions. This does not include data for loopback interface.
	NetPacketRate	For a logical system, this is the number of successful packets per second both sent

Entity Type	Metric Name	Description
		and received for all network interfaces during the interval.
	NumCPU	For a logical system, this metric indicates the number of virtual CPUs configured.
	NumDisk	For a logical system, this metric indicates the number of disks configured. Only local disk devices and optical devices present in the system are counted in this metric.
	NumNetif	For a logical system, the metric is the number of network interfaces configured for the logical system.
	NumSnapshots	For a logical system, this metric is the number of snapshots created for the system.
	ParentType	For a logical system, the metric indicates the type of parent entity. The value is host if the parent is a host.
	ParentUUID	For a logical system, this metric could indicate the UUID appended to display_name of a host as they can be created under a host.
	SystemhosthostName	For a logical system, this is the FQDN of the host on which they are hosted.
	SystemhostName	For logical system, the metric is the Fully Qualified Domain Name.
	SystemID	For a logical system, this metric indicates the UUID. This ID uniquely identifies this logical system across multiple hosts.
	SystemRole	For a logical system, the value is guest.
	SystemState	For a logical system, the values can be - On, Off, Suspended, or Unknown.
	SystemUptimeHours	For a logical system the metric is the time,

Entity Type	Metric Name	Description
		in hours, since the last system reboot.
	SystemUptimeSeconds	For a logical system, the metric is the time, in seconds, since the last system reboot.
	vmVersion	For a logical system, this metric indicates the version of the Virtual Machine.

OpenStack

Entity Type	Metric Name	Description
OpenStack Host	CPUCycleTotalUsed	For a host, this is the total time the physical CPUs were utilized during the interval represented in CPU cycles.
	MemEntlUtil	For a host, this metric indicates the percentage of entitled memory in use during the interval.
	MemPhys	For a host and, this metric indicates the amount of physical memory available, in MB.
	MemPhysUtil	For a host, this metric indicates the percentage of physical memory used during the interval.
	NumCPU	For a host, this metric indicates the number of physical processors available.
	NumCPUCore	For a host, this metric indicates the total number of CPU cores available.
	ParentType	For a host, this metric indicates the type of parent entity. The value is host if the parent is a host. For a host, the value is NA
	SystemID	For a host, this metric indicates the Unique Identifier.
	SystemRole	For a host, this metric is host.
	SystemState	For a host, this metric can have one of the following states for a host: On, Off, or Unknown.

The OpenStack VMs and Hypervisors can belong to various virtualization domains. To view the virtualized entities in the OpenStack domain, from Treemap, you can cross launch into the actual domain of the Hypervisor and the VM.

With the Cross launch feature introduced, you will get an additional set of metrics as follows:

- [For host on KVM](#)
- [For host on VMware](#)

Entity Type	Metric Name	Description
OpenStack Guest	CPUClockSpeed	For a logical system, this is the clock speed of the CPUs, in MHz, if all of the processors have the same clock speed.
	CPUCycleTotalUsed	For a logical system, this is the total time the physical CPUs were utilized during the interval represented in CPU cycles.
	CPUPhysTotalUtil	For a logical system, this metric indicates the percentage of total time the physical CPUs were utilized by the logical system.
	CPUTotalUtil	For a logical system, this metric indicates percentage of total time the logical CPUs were not idle during the interval. For a host, this value is same as CPU_PHYS_TOTAL_UTIL.
	DiskPhysIObyteRate	For a logical system, this metric indicates the average rate at which the data is transferred to and from the disks during the interval, in KBps.
	MemEntl	For a logical system, this metric indicates the amount of memory entitled, in MB.
	MemEntlUtil	For a logical system, this metric indicates the percentage of entitled memory in use during the interval.
	NumCPU	For a logical system, this metric indicates the number of virtual CPUs configured.
	NumCPUCore	For a logical system, this metric indicates the total number of CPU cores available.

Entity Type	Metric Name	Description
	NumDisk	For a logical system, this metric indicates the number of disks configured. Only local disk devices and optical devices present in the system are counted in this metric.
	NumNetif	For a logical system, this metric is the number of network interfaces configured for the logical system.
	ParentType	For a logical system, this metric indicates the type of parent entity.
	ParentUUID	For a logical system, this metric could indicate the UUID appended to display_name of a host as they can be created under a host.
	SystemID	For a logical system, this metric indicates the unique identifier.
	SystemName	For a logical system, this metric indicates the name.
	SystemRole	For a logical system, the value is guest.
	SystemState	For a logical system, the values can be one of the following: On, Off, Suspended, or Unknown.

The OpenStack VMs and Hypervisors can belong to various virtualization domains. To view the virtualized entities in the OpenStack domain, from Treemap, you can cross launch into the actual domain of the Hypervisor and the VM.

With the Cross launch feature introduced, you will get an additional set of metrics as follows:

- [For guest on KVM](#)
- [For guest on VMware](#)

Entity Type	Metric Name	Description
OpenStack Cloud	CPUTotalUtil	The total CPU utilization, in percentage.
	Description	The description of the cloud.

Entity Type	Metric Name	Description
	MemPhys	The amount of physical memory available, in MB.
	MemPhysUtil	The percentage of total physical memory utilization.
	NumCPUCore	The number of CPU cores.
	NumGuests	The number of guests on this cloud.
	NumHosts	The number of hosts on this cloud.
	NumTenants	The number of tenants on this cloud.
	ParentType	The value of this metric is OPENSTACK.
	ParentUUID	The value of this metric is same as the SystemName.
	SystemID	The unique identifier of the cloud.
	SystemName	The name of the cloud.
	SystemRole	The value of this metric is CLOUD for cloud.
	SystemVirtType	The value of this metric is OPENSTACK.

Entity Type	Metric Name	Description
OpenStack Tenant	CPUCycleTotalUsed	The amount of CPU cycles used.
	CPULimit	The max CPU units configured for this tenant.
	CPUTotalUtil	The total CPU utilization, in percentage
	CPUUsageHours	The total hours of CPU usage.
	Description	The description of the tenant.
	DiskSize	The amount of disk entitled for the tenant.
	DiskUsageHours	The total hours of disk usage.

Entity Type	Metric Name	Description
	Enabled	The tenant is enabled or not.
	InstanceLimit	The max instances, which can be created on this tenant.
	MemLimit	The max memory configured for this tenant, in MB.
	MemPhys	The amount of physical memory available, in MB.
	MemPhysUtil	The percentage of total physical memory utilization..
	MemUsageHours	The total hours of memory usage.
	MemUsed	The amount of physical memory used, in MB.
	NumCPUCore	The number of CPU cores.
	NumGuests	The number of guests on this tenant.
	NumHosts	The number of hosts on this tenant.
	ParentType	The role of the parent of the tenant.
	ParentUUID	The UUID of the cloud to which this tenant belongs.
	SystemID	The unique identifier of the tenant.
	SystemName	The name of the tenant.
	SystemRole	The value of this metric is TENANT for tenants.
	SystemVirtType	The value of this metric is OPENSTACK.

vCenter

Entity Type	Metric Name	Description
vCenter Host	Annotations	For a host, this metric indicates the

Entity Type	Metric Name	Description
		additional notes and comments in the Notes section.
	BelongsToDatacenter	For a host, this metric indicates the name of the Datacenter to which this machine belongs.
	BootTime	For a host, this metric indicates the Boot Time.
	ClusterName	For a host, this is the name of the cluster to which the host belongs to when it is managed by virtual center.
	ConnectionState	For a host, this metric is the current status of the connection. This can have values as - Connected, Disconnected, or NotResponding.
	CPUClockSpeed	For a host, this is the clock speed of the CPUs, in MHz, if all of the processors have the same clock speed.
	CPUCycleEntlMax	For a host, this value indicates the maximum processor capacity, in MHz, configured for the entity.
	CPUCycleEntlMin	For a host, this value indicates the minimum processor capacity, in MHz, configured for the entity.
	CPUEntlMax	This metric indicates the maximum CPU units configured.
	CPUEntlMin	This metric indicates the minimum CPU units configured.
	CPUEntlUtil	This metric indicates the percentage of entitled processing units consumed by the resource pool.
	CPUMTEabled	For a host, this metric indicates whether the CPU hardware threads

Entity Type	Metric Name	Description
		are enabled or not.
	CPUPhysSysModeUtil	For a host, the metric indicates the percentage of time the physical CPUs were in system mode.
	CPUPhysTotalUtil	For a host, the value indicates percentage of total time the physical CPUs were utilized by logical system.
	CPUPhysTotalTime	This metric indicates the total time spent by the logical system on the physical CPUs, in seconds.
	CPUPhyscUtil	This metric indicates the percentage of physical processing units consumed by the resource pool.
	CPUPhysUserModeUtil	For a host, the metric indicates the percentage of time the physical CPUs were in user mode during the interval for the host or logical system.
	CPUReservedCapacity	For a host, this metric indicates the CPU capacity, which is shared by all the powered-on Virtual Machines, in MHz.
	CPUSysModeUtil	For a host, this metric indicates the percentage of time the CPU was in system mode during the interval, in percent.
	CPUTotalUtil	For a host, this value is same as CPU_PHYS_TOTAL_UTIL.
	CPUUnreserved	For a host, this is the number of CPU cycles that are available for creating a new logical system.
	CPUUserModeUtil	For a host, this metric indicates the percentage of time the CPU was in user mode during the interval, in percent.

Entity Type	Metric Name	Description
	DiskCommandAbortRate	For a host, the value is NA. For a guest, this metric indicates the Disk Command Abort Rate for the logical System, Per Second.
	DiskPhysWrite	For a host, this metric indicates the number of physical writes during the interval.
	DiskQueueDepthPeak	For a host, the value is NA. For a guest, this metric indicates the disk queue depth.
	DiskReadLatency	For a host, the value is NA. For a guest, this metric indicates the total disk read latency, msec .
	DiskWriteLatency	For a host, the value is NA. For a guest, this metric indicates the total disk write latency for this logical system, in msec.
	DiskDeviceLatency	For a host, this metric indicates the average amount of time to complete a SCSI command from physical device, in msec.
	DiskKernelLatency	For a host, this metric indicates the average amount of time spent by VMKernel to process each SCSI command, in msec.
	DiskPhysIOByte	For a host, this metric indicates the number of KBs transferred to and from disks during the interval.
	DiskPhysIOByteRate	For a host, this metric indicates the average number of KBs per second at which data was transferred to and from disks during the interval.
	DiskPhysRead	For a host, this metric indicates the number of physical reads during the interval.

Entity Type	Metric Name	Description
	DiskPhysReadByteRate	For a host, this metric indicates the average number of KBs per second at which data was transferred from disks during the interval.
	DiskPhysReadRate	For a host, this metric indicates the number of physical writes during the interval.
	DiskPhysWriteByteRate	For a host, this metric indicates the average number of KBs per second at which data was transferred to disks during the interval.
	DiskPhysWriteRate	For a host, this metric indicates the number of physical writes per second during the interval.
	DiskQueueLatency	For a host, this metric indicates the average amount of time spent in the VMKernel queue by each SCSI command, in msec.
	DiskUtil	For a host, this is the average percentage of time during the interval (average utilization) that all the disks had I/O in progress.
	DiskUtilPeak	For a host, this is the utilization of the busiest disk during the interval, in percent.
	IPAddress	For a host, this metric indicates the IP Address for a host and a logical system.
	LSID	For a host, this metric is a unique identifier for a host and a logical system. The value of this metric may change for an instance across collection intervals.
	LSMode	For a host, the value is Capped; for a logical system the value is Uncapped.

Entity Type	Metric Name	Description
	LSName	For a host, this metric is a unique identifier for host and a logical system.
	LSShared	For a host, the value is Dedicated; for a logical system the value is Shared.
	MemOverHead	This metric indicates the amount of memory associated with a logical system that is currently consumed on the host system due to virtualization, in MB.
	MemShared	For a host, this metric indicates the amount of shared memory with other virtual machines, in MB.
	MemSwapIn	For a host, the value indicates the amount of memory that is swapped in during the interval, in MB.
	MemSwapOut	For a host, the value indicates the amount of memory that is swapped out during the interval, in MB.
	MemUsed	This metric indicates the amount of memory used at the end of the interval, in MB.
	MaxCPUPhysReadyUtil	For a host, this is the max CPUPhysReadyUtil of all the guests hosted on it.
	MaxReadyUtilVMID	For a host, this is the UUID of the guest for which the CPUPhysReadyUtil is max of all the guests hosted on it.
	MemAvail	For a host, the amount of physical memory available in the host system, in MBs unless otherwise specified.
	MemEntl	For a host, the value is the physical memory available in the system and for a logical system this metric

Entity Type	Metric Name	Description
		indicates the minimum memory configured, in MB.
	MemEntlMax	For a host, the value is the amount of physical memory available in the system, in MB.
	MemEntlMin	For a host, this metric indicates the reserved amount of memory configured for a host or a logical system, in MB.
	MemEntlUtil	For a host, the value indicates percentage of entitled memory in use during the interval by it.
	MemFree	For a host, this is the amount of memory not allocated, in MB.
	MemFreeUtil	For a host, this metric indicates the percentage of memory that is free at the end of the interval.
	MemGranted	For a host, this metric indicates the amount of host physical memory mapped to it, in MB.
	MemHeap	For a host, this metric indicates the virtual address space dedicated to VMKernel main heap, in MB.
	MemHeapFree	For a host, this metric indicates the free address space in the VMKernel main heap, in MB.
	MemOverallHealth	For a host, this is a number that indicates the state of the memory. Low number indicates system is not under memory pressure. 0 - High, indicates free memory is available and there is no memory pressure. 1 - Soft, 2 - Hard, 3 - Low indicates there is a pressure for free memory.

Entity Type	Metric Name	Description
	MemPhys	For a host, the value is the physical memory available in the system and for a logical system this metric indicates the minimum memory configured, in MB.
	MemPhysUtil	For a host, this metric indicates the percentage of physical memory used during the interval.
	MemSharedCommon	For a host, this metric indicates the amount of physical memory, which is shared by all the powered-on Virtual Machines , in MB.
	MemSwapped	For a host, this metric indicates the amount of memory that has been transparently swapped to and from the disk, in MB.
	MemSysUtil	For a host, this is the percentage of physical memory used by the system during the interval.
	MemUnreserved	For a host, this is the amount of memory that is unreserved, in MB.
	NetByteRate	For a host, this is the sum of data transmitted and received for all the NIC instances of the host and virtual machine. It is represented in KBps.
	NetInByteRate	For a host, this metric indicates the input bytes per second over the network, in KBps.
	NetOutByteRate	For a host, this metric indicates the output bytes per second over the network, in KBps.
	NumCPU	For a host, this metric indicates the number of CPUs.
	CPUCycleTotalUsed	For a host, this is the total time the

Entity Type	Metric Name	Description
		physical CPUs were utilized during the interval, represented in CPU cycles.
	NumDisk	For a host, this metric indicates the number of disks configured. Only local disk devices and optical devices present in the system are counted in this metric.
	NetInByte	For a host, this is the number of bytes, in MB, received during the interval.
	NetInPacket	For a host, this is the number of successful packets per second received for all network interfaces during the interval.
	NetInPacketRate	For a host, this is the number of successful packets received for all network interfaces during the interval.
	NetOutByte	For a host, this is number of bytes, in MB, transmitted during the interval.
	NetOutPacket	For a host, this is the number of successful packets sent for all network interfaces during the interval.
	NetOutPacketRate	For a host, this is the number of successful packets sent through all network interfaces over the cumulative collection time. Successful packets are those that have been processed without errors or collisions. This does not include data for loopback interface.
	NetPacketRate	For a host, this is the number of successful packets per second both sent and received for all network interfaces during the interval.
	NumActiveGuests	For a host, this indicates the number of

Entity Type	Metric Name	Description
		logical systems hosted in a system that are active.
	NumCPUCore	For a host, this metric provides the total number of CPU cores on the system.
	NumCPUSocket	For a host, this metric indicates the number of physical CPU sockets on the system.
	NumGuests	For a host, this metric indicates the number of logical systems hosted in a system.
	NumNetif	For a host, this metric is the number of network adapters on the host.
	ParentUUID	For a host, the metric indicates the UUID appended to display_name of the parent entity.
	SystemHostName	For a host, this metric is the Fully Qualified Domain Name.
	SystemMachineModel	For a host, this is the CPU model of the host system.
	SystemName	For a host, this metric indicates the name of the host or logical system.
	SystemOSName	For a host, the metric indicates the name of operating system.
	SystemOSType	For a host, the metric can have the following values: ESX/ESXi followed by version or ESX-Serv (applicable only for a host) Linux, Windows, Solaris, or Unknown.
	SystemPath	For a host, the metric indicates the installation path for host or logical system.

Entity Type	Metric Name	Description
	SystemRole	For a host the metric is host.
	SystemState	For a host, this metric can have one of the following states: On, Off, or Unknown.
	SystemUptimeHours	For a host, this metric is the time, in hours, since the last system reboot.
	SystemUptimeSeconds	For a host, the metric is the time, in seconds, since the last system reboot.
	SystemVirtType	For a host, the value of this metric is VMWARE.
	VCIPAddress	For a host, the metric indicates the IP address of the Virtual Center that the host is managed by.
	vMotionEnabled	For a host, this metric indicates whether vMotion is enabled or not.
vCenter Guest	Annotations	For a logical system, this metric indicates the additional notes and comments.
	BelongsToDatacenter	For a logical system, this metric indicates the name of the Datacenter to which this machine belongs.
	BootTime	For a logical system, this metric indicates the Boot Time.
	ConnectionState	For a logical systems, this indicates whether or not the entity is available for management. It can have values as - Connected, Disconnected, or NotResponding.
	CPUClockSpeed	For a logical system, this is the clock speed of the CPUs, in MHz, if all of the processors have the same clock speed.

Entity Type	Metric Name	Description
	CPUCoStopTime	For a logical system, this metric indicates the time the virtual machine is ready to run but is unable to run due to co-scheduling constraints , in msec.
	CPUCycleEntlMax	For a logical system, this value indicates the maximum processor capacity, in MHz, configured for the entity.
	CPUCycleEntlMin	For a logical system, this value indicates the minimum processor capacity, in MHz, configured for the entity.
	CPUCycleTotalUsed	For a logical system, this is the total time the physical CPUs were utilized during the interval, represented in CPU cycles.
	CPUPhysTotalUtil	The percentage of total time, the physical CPUs were utilized by this logical system during the interval.
	CPUDemandUsed	For a logical system, this metric indicates the amount of CPU resources a Virtual Machine would use if there were no CPU contention or CPU limit, in MHz.
	CPUEntlMax	For a logical system, this metric indicates the maximum CPU units configured for it.
	CPUEntlMin	For a logical system, this metrics indicates the guaranteed minimum CPU units configured for it.
	CPUEntlUtil	For a logical system, this metric indicates the percentage of entitled processing units (guaranteed processing units allocated to this logical system) consumed by it.

Entity Type	Metric Name	Description
	CPUIdeTime	For a logical system, this metric indicates the total time that the CPU spent in an idle state, msec.
	CPUIdeUtil	For a logical system, this metric indicates the percentage of time that the CPU spent in an idle state.
	CPUPhyscUtil	For a logical system, this metric indicates the number of CPU units utilized by the logical system.
	CPUPhysReadyUtil	For a logical system, this is the percentage of time during the interval that the CPU was in ready state.
	CPUPhysTotalTime	For a logical system, the value indicates the time spent in seconds on the physical CPU by logical system or host, in seconds
	CPUPhysWaitUtil	For a logical system, this is the percentage of time during the interval that the virtual CPU was waiting for the I/Os to complete.
	CPUReadyTime	For a logical system, this metric indicates the time for which the virtual machine was ready but could not get scheduled to run on the physical CPU, in seconds.
	CPUSharesPrio	For a logical system, this metric indicates the weightage or priority assigned to an Uncapped logical system. This value determines the minimum share of unutilized processing units that this logical system can utilize.
	CPUSysModeUtil	For a logical system, this metric indicates the percentage of time the CPU was in system mode during the

Entity Type	Metric Name	Description
		interval, in percent.
	CPUTotalUtil	For a logical system, the value indicates percentage of total time the logical CPUs were not idle during the interval. For a host, this metric value is same as CPU_PHYS_TOTAL_UTIL.
	CPUUsedTime	For a logical system, this metric indicates the total time for which the CPU was used, in msec.
	CPUUserModeUtil	For a logical system, this metric indicates the percentage of time the CPU was in user mode during the interval, in percent.
	CPUWaitTime	For a guest, this metric indicates the total time that the CPU spent in wait state, in msec.
	DiskCommandAbortRate	For a guest, the value indicates the disk command abort rate for the logical system.
	DiskPhysIOByte	For a logical system, this metric indicates the number of KBs transferred to and from disks during the interval.
	DiskPhysIOByteRate	For a logical system, this metric indicates the average number of KBs per second at which data was transferred to and from disks during the interval.
	DiskPhysRead	For a logical system, this metric indicates the number of physical reads during the interval.
	DiskPhysReadByteRate	For a logical system, this metric indicates the average number of KBs per second at which data was

Entity Type	Metric Name	Description
		transferred from disks during the interval.
	DiskPhysReadRate	For a logical system, this metric indicates the number of physical reads per second during the interval.
	DiskPhysWrite	For a logical system, this metric indicates the number of physical writes during the interval.
	DiskPhysWriteByteRate	For a logical system, this metric indicates the average number of KBs per second at which data was transferred to disks during the interval.
	DiskPhysWriteRate	For a logical system, this metric indicates the number of physical writes per second during the interval.
	DiskQueueDepthPeak	For a logical system, this metric indicates the disk queue depth.
	DiskReadLatency	For a logical system, this metric indicates the total disk read latency, in msec.
	DiskWriteLatency	For a logical system, this metric indicates the total disk write latency for this logical system in msec.
	GuestToolsStatus	For a logical system, this metric is the current status of guest Integration Tools in the guest operating system if known.
	HBPStatus	For a logical system, this metric indicates the HPCS Heart beat poll status. It can have values as 0 or 1.
	HPCSPort	For a logical system, this metric indicates the port from CS.
	HPCSProtocol	For a logical system, this metric

Entity Type	Metric Name	Description
		indicates the scheme from CS.
	MacAddress	For a logical system, this contains comma separated mac addresses.
	ManagementIP	For a logical system, this metric indicates the IP from CS.
	ManagementUpdatedTime	For a logical system, this metric indicates the HPCS Sync time. (Epochtime)
	MemActive	For a logical system, this is the amount of memory that is actively used.
	MemBallooningTarget	For a logical system, this metric indicates the amount of memory, which is set by VMKernel for ballooning, in MB.
	MemBallooningUsed	For a logical system, this is the amount of memory held by memory control for ballooning. The value is represented in KB.
	MemBallooningUtil	For a logical system, this is the amount of memory held by memory control for ballooning. It is represented as a percentage of MEM_ENTL.
	MemEntl	For a logical system this metric indicates the minimum memory configured, in MB.
	MemEntlMin	The minimum amount of memory configured for the logical system, in MB.
	MemEntlMax	For a logical system, this metric indicates the maximum amount of memory configured, in MB.
	MemEntlUtil	For a logical system, the value indicates percentage of entitled

Entity Type	Metric Name	Description
		memory in use during the interval by it.
	MemFreeUtil	For a logical system, this metric indicates the percentage of memory that is free at the end of the interval.
	MemGranted	For a logical system, this metric indicates the amount of host physical memory mapped to it, in MB.
	MemOverhead	For a logical system, this metric indicates the amount of memory associated with a logical system that is currently consumed on the host system due to virtualization, in MB.
	MemPhys	For a logical system, this metric indicates the minimum memory configured, in MB.
	MemPhysUtil	For a logical system, this metric indicates the percentage of physical memory used during the interval.
	MemShared	For a logical system, this metric indicates amount of shared memory with other virtual machines, in MB.
	MemSharesPrio	For a logical system, this metric indicates the weightage or priority for memory assigned to it. This value influences the share of unutilized physical Memory that this logical system can utilize.
	MemSwapIn	For a logical system, the value indicates the amount of memory that is swapped in during the interval, in MB.
	MemSwapOut	For a logical system, the value indicates the amount of memory that is swapped in during the interval, in MB.
	MemSwapped	For a logical system, this metric

Entity Type	Metric Name	Description
		indicates the amount of memory that has been transparently swapped to and from the disk, in MB.
	MemSwapTarget	For a logical system, the value indicates the amount of memory that can be swapped, in MB.
	MemSwapUtil	For a logical system, this is the percentage of swap memory utilized with respect to the amount of swap memory available.
	MemUsed	For a logical system, this value indicates the amount of memory used by it at the end of the interval, in MB.
	NetByteRate	For a logical system, this is the sum of data transmitted and received for all the NIC instances of the host and virtual machine. It is represented in KBps.
	NetInByte	For a logical system, this is number of bytes, in MB, received during the interval.
	NetInByteRate	For a logical system, this metric indicates the input bytes per second over the network, in KBps.
	NetInPacket	For a logical system, this is the number of successful packets per second received for all network interfaces during the interval.
	NetInPacketRate	For a logical system, this is the number of successful packets received for all network interfaces during the interval.
	NetOutByte	For a logical system, this is the number of bytes, in MB, transmitted during the interval.

Entity Type	Metric Name	Description
	NetOutByteRate	For a logical system, this metric indicates the output bytes per second over the network, in KBps.
	NetOutPacket	For a logical system, this is the number of successful packets, sent for all network interfaces during the interval.
	NetOutPacketRate	For a logical system, this is the number of successful packets sent through all network interfaces over the cumulative collection time. Successful packets are those that have been processed without errors or collisions. This does not include data for loopback interface.
	NetPacketRate	For a logical system, this is the number of successful packets per second both sent and received for all network interfaces during the interval.
	NumCPU	For a logical system, this metric indicates the number of virtual CPUs configured.
	NumCPUCore	The number of CPU Cores.
	NumDisk	For a logical system, this metric indicates the number of disks configured. Only local disk devices and optical devices present in the system are counted in this metric.
	NumNetif	For a logical system, the metric is the number of network interfaces configured for the logical system.
	NumSnapshots	For a logical system, the metric is the number of snapshots created for the system.

Entity Type	Metric Name	Description
	NumVMotions	For a logical system, the number of vmotions occurred at a particular collection time.
	ParentType	For a logical system, this metric indicates the type of parent entity. The value is HOST if the parent is a host.
	ParentUUID	For a logical system, this metric could indicate the UUID appended to display_name of a host as they can be created under a host.
	StateChangeTime	For a logical system, the metric is the epoch time when the last state change was observed.
	SystemHostHostName	For a logical system, this is the FQDN of the host on which they are hosted.
	SystemHostName	For a logical system, the metric is the Fully Qualified Domain Name.
	SystemID	For a logical system, this metric indicates the UUID. This ID uniquely identifies this logical system across multiple hosts.
	SystemParentHostName	For a logical system, this is the FQDN of the host on which they are hosted.
	SystemRole	For a logical system, the value is guest.
	SystemState	For a logical system, the value can be one of the following: On, Off, Suspended, or Unknown.
	SystemUptimeHours	For a logical system, this metrics is the time, in hours, since the last system reboot.
	SystemUptimeSeconds	For a logical system, this metrics is the time, in seconds, since the last system

Entity Type	Metric Name	Description
		reboot.
	SystemVirtType	For a logical system, the value of this metric is VMWARE.
	vmVersion	For a logical system, this metric indicates the version of the Virtual Machine.
	MemFree	For a logical system, this is the amount of memory not allocated, in MB.

Entity Type	Metric Name	Description
vCenter Datacenter	NumActiveGuests	The number of logical systems hosted in the system that are active.
	NumChangedDS	The number of datastore change operations for powered-off and suspended Virtual Machines.
	MemPhysUtil	The percentage of physical memory used.
	CPUTotalUtil	The total CPU utilization, in percent.
	LSName	The unique identifier of the datacenter.
	NumChangeHost	The number of host change operations for powered-off and suspended Virtual Machines.
	NumChangeHostDS	The number of host and datastore change operations for powered-off and suspended Virtual Machines.
	NumClones	The number of virtual machine clone operations.
	NumClusters	The number of clusters on the datacenter.
	NumCreate	The number of virtual machine create

Entity Type	Metric Name	Description
		operations.
	NumDeploy	The number of virtual machine template deploy operations.
	NumDestroy	The number of virtual machine delete operations.
	NumGuests	The number of VMs under this datacenter.
	NumHosts	The number of hosts under this datacenter
	NumPowerOff	The number of Virtual Machine power-off operations.
	NumPowerOn	The number of Virtual Machine power-on operations.
	NumRebootGuest	The number of Virtual Machine guest reboot operations.
	NumReconfigure	The number of Virtual Machine reconfigure operations.
	NumRegister	The number of Virtual Machine register operations.
	NumReset	The number of Virtual Machine reset operations.
	NumResourcePools	The number of resource pools on the datacenter.
	NumShutDownGuest	The number of Virtual Machine guest shutdown operations.
	NumStandByGuest	The number of Virtual Machine standby guest operations.
	NumSuspend	The number of Virtual Machine suspend operations.
	NumUnRegister	The number of Virtual Machine

Entity Type	Metric Name	Description
		unregister operations.
	ParentType	The type of the parent entity.
	ParentUUID	The name of the vCenter to which this datacenter belongs.
	SystemID	The UUID of the datacenter. This is the display_name.
	SystemName	The name of the datacenter.
	SystemRole	For a datacenter, the value of this metric is DATACENTER.
	SystemVirtType	The value of this metric is VMware.
	TotalSvMotions	The number of migrations with Storage VMotion (datastore change operations for powered-on VMs).
	TotalVmMotions	The number of migrations with VMotion (host change operations for powered-on VMs).

Entity Type	Metric Name	Description
vCenter Datastore	BelongsToDatacenter	The datacenter to which this datastore belongs.
	Capacity	The datastore capacity, in MB.
	ClusterName	The cluster to which this datastore belongs.
	ConnectionState	Whether the datastore is accessible or not.
	DiskOthersUsed	The datastore space used by other files, in MB.
	DiskProvisioned	The amount of storage set aside for use by a datastore, in MB.

Entity Type	Metric Name	Description
	DiskReadRate	The rate of disk read from the datastore during the collection interval, in KBps.
	DiskSnapshotUsed	The datastore space used by the Virtual Machine snapshots, in MB.
	DiskSwapUsed	The datastore space used by the swap files, in MB.
	DiskThroughputUsage	The throughput usage for the datastore.
	DiskUsed	The datastore space used, in MB.
	DiskVMDKUsed	The datastore space used by Virtual Machine files, in MB.
	DiskWriteRate	The rate of disk write to the datastore during the collection interval, in KBps.
	DiskThroughputContention	The throughput contention for the datastore.
	IORMEnabled	The IORM enabled.
	IORMThreshold	The IORM threshold.
	LSName	The unique identifier of the datastore.
	MountedOn	The display name of the parent of the datastore.
	NumDiskReads	The number of disk reads during the collection interval.
	NumDiskWrites	The number of disk writes during the collection interval.
	NumReadCommands	The average number of read commands issued per second to the datastore during the collection interval.

Entity Type	Metric Name	Description
	NumWriteCommands	The average number of write commands issued per second to the datastore during the collection interval.
	ParentType	The type of the parent of the datastore.
	ParentUUID	The UUID of the host to which this datastore belongs.
	SharePriority	The shared priority.
	SystemID	The ID of the datastore.
	SystemName	The name of the datastore.
	SystemRole	For a datastore, the value is DATASTORE.
	SystemVirtType	The value of this metric is VMware.
	Type	The datastore type.

Entity Type	Metric Name	Description
vCenter Respool	BelongsToDatacenter	This is the name of the datacenter to which Resource Pool is part of.
	ClusterName	This is the name of the cluster to which Resource Pool is part of.
	CPUCycleEntlMax	This value indicates the maximum processor capacity, in MHz, configured for the entity.
	CPUCycleEntlMin	This value indicates the minimum processor capacity, in MHz, configured for the entity.
	CPUCycleTotalUsed	The total time the physical CPUs were utilized during the interval represented in CPU cycles.

Entity Type	Metric Name	Description
	CPUEntlMax	The maximum CPU units configured for this Resource Pool, in percent.
	CPUEntlMin	The minimum CPU units configured for this Resource Pool, in percent.
	CPUEntlUtil	The percentage of entitled processing units consumed by the Resource Pool, in percent.
	CPUPhyscUtil	The percentage of physical processing units consumed by the Resource Pool, in percent.
	CPUPhysTotalTime	The total time, in seconds, spent by the logical system on the physical CPUs.
	CPUPhysTotalUtil	The percentage of total time the physical CPUs were utilized by this logical system during the interval.
	CPUSharesPrio	This value determines the minimum share of unutilized processing units that this logical system can utilize.
	HostedOn	This is the name of the ESX host on which Resource Pool is hosted.
	LSMode	This metric indicates whether the CPU entitlement for the Resource Pool is Capped or Uncapped.
	LSName	The unique identifier of the Resource Pool.
	MemEntlMax	The maximum amount of memory configured for the logical system, in MB.
	MemEntlMin	The minimum amount of memory configured for the logical system, in MB.
	MemEntlUtil	The amount of memory utilized for the

Entity Type	Metric Name	Description
		logical system, in MB.
	MemOverhead	The amount of memory associated with a logical system that is currently consumed on the host system due to Virtualization, in MB.
	MemPhys	The total physical memory available, MB.
	MemSharesPrio	The weightage or priority for memory assigned to this logical system.
	MemSwapped	This metric indicates the amount of memory that has been transparently swapped to and from the disk, in MB.
	MemUsed	The amount of memory used at the end of the interval, in MB.
	NumGuests	The number of VMs.
	ParentType	The parent type of the Resource Pool.
	ParentUUID	The UUID of the parent of this Resource Pool.
	SystemID	This value is name of the cluster where Resource Pool is hosted followed by the unique ID.
	SystemName	The Resource Pool display name.
	SystemRole	For a Resource Pool, the value is RESPOOL.
	SystemVirtType	The value of this metric is VMware.

Entity Type	Metric Name	Description
vCenter VirtualApp	BelongsToDatacenter	This is the name of the datacenter to which Virtual App is part of.

Entity Type	Metric Name	Description
	ClusterName	This is the name of the cluster to which Virtual App is part of.
	CPUCycleEntlMax	This value indicates the maximum processor capacity, in MHz, configured for the entity.
	CPUCycleEntlMin	This value indicates the minimum processor capacity, in MHz, configured for the entity.
	CPUCycleTotalUsed	The total time the physical CPUs were utilized during the interval represented in CPU cycles.
	CPUEntlMax	The maximum CPU units configured.
	CPUEntlMin	The minimum CPU units configured.
	CPUEntlUtil	The percentage of entitled processing units consumed by the Virtual App, in percent.
	CPUPhyscUtil	The percentage of physical processing units consumed by the Virtual App, in percent.
	CPUPhysTotalTime	The total time, in seconds, spent by the logical system on the physical CPUs.
	CPUPhysTotalUtil	The percentage of total time the physical CPUs were utilized by this logical system during the interval in percent.
	CPUSharesPrio	This value determines the minimum share of unutilized processing units that this logical system can utilize.
	HostedOn	This is the name of the ESX host on which Virtual App is hosted.
	LSMode	This metric indicates whether the CPU entitlement for the Virtual App is

Entity Type	Metric Name	Description
		Capped or Uncapped.
	LSName	The unique identifier of the Virtual App.
	MemEntlMin	The minimum amount of memory configured for the logical system, in MB.
	MemEntlUtil	The amount of memory utilized for the logical system, in MB.
	MemOverhead	The amount of memory associated with a logical system that is currently consumed on the host system due to Virtualization, in MB.
	MemSharesPrio	The weightage or priority for memory assigned to this logical system.
	MemSwapped	This metric indicates the amount of memory that has been transparently swapped to and from the disk, in MB.
	MemUsed	The amount of memory used at the end of the interval, in MB.
	NumGuests	The number of VMs.
	ParentType	The parent type of the Virtual App.
	ParentUUID	The UUID of the parent of this Virtual App.
	SystemID	This value is the name of the cluster where Virtual App is hosted followed by the unique ID.
	SystemName	The Virtual App display name.
	SystemRole	On a Host, the metric is HOST. For a logical system, the value is GUEST and for a Resource Pool the value is RESPOOL. For datacenter, this is DATACENTER. For cluster, this is

Entity Type	Metric Name	Description
		CLUSTER. For datastore, this is DATASTORE.
	SystemVirtType	The value of this metric is VMware.
	MemEntlMax	The maximum amount of memory configured for the logical system, in MB.

Entity Type	Metric Name	Description
vCenter BYVM Storage	DatastoreName	The name of the datastore
	DiskProvisioned	This is the total space provisioned for the Virtual Machine on the datastore, in MB.
	DiskReadRate	The rate of reading from the datastore, in KBps.
	DiskSnapshotUsed	This is the space consumed by the Virtual Machine snapshot files on the datastore, in MB.
	DiskUsed	This is the total space consumed by the Virtual Machine on the datastore including the vmdk file snapshots and other files, in MB.
	DiskVMDKUsed	This is the total space consumed by the Virtual Machine vmdk files on the datastore, in MB.
	DiskWriteRate	The rate of writing to the datastore, in KBps.
	DatastoreID	The UUID of the datastore.
	MaxQueueDepth	This is the maximum queue depth.
	NumReadCommands	The average number of read commands issued per second to the datastore during the collection interval.
	NumWriteCommands	The average number of write commands issued per second to the datastore during the collection

Entity Type	Metric Name	Description
		interval.
	ParentType	The type of the parent of the node.
	ParentUUID	The UUID of the datastore to which this entity belongs.
	ReadLatency	The total read latency experienced by the entity on this datastore.
	SystemID	The UUID of the entity, which mounts this datastore.
	SystemName	For a shared datastore, this value is the name of the node.
	SystemRole	For a shared datastore, this value is the type of the entity associated with datastore.
	WriteLatency	The total write latency experienced by the entity on this datastore.
	SystemVirtType	For vmware, this value is VMWARE.

Entity Type	Metric Name	Description
vCenter Cluster	CPUEffectiveUtil	The utilization of total available CPU resources of all hosts within that cluster, in percent.
	CPUCycleEntlMax	This value indicates the maximum processor capacity configured for the entity, MHz.
	CPUEntlUtil	The CPU entitlement Utilization, in percent.
	CPUFailover	The VMware HA number of failures that can be tolerated, in percent.
	CPUFailoverReservation	The percentage of CPU

Entity Type	Metric Name	Description
		resources in the cluster to reserve for failover. You can specify up to 100% of CPU resources for failover.
	CPUTotalUtil	The total CPU utilization, in percent.
	DasConfigEnabled	HA is enabled or not on the cluster.
	DrsConfigEnabled	DRS is enabled or not on the cluster.
	LSName	The unique identifier of the cluster.
	MemBalloonUsed	The amount of memory held by memory control for ballooning, in KB.
	MemEffectiveUtil	The utilization of total amount of machine memory of all hosts in the cluster that is available for use for virtual machine memory (physical memory for use by the Guest OS) and virtual machine overhead memory.
	MemEntl	The effective memory available, in MB.
	MemEntlUtil	The memory entitlement utilization, in percent.
	MemFailoverReservation	The percentage of memory resources in the cluster to reserve for failover. You can specify up to 100% of memory resources for failover.
	MemOverhead	The amount of memory associated with a logical system, that is currently

Entity Type	Metric Name	Description
		consumed on the host system, due to virtualization, in MB.
	MemPhys	The total physical memory available, in MB.
	MemPhysUtil	The total memory utilization, in percent.
	MemUsed	The amount of physical memory used, in MB.
	NumChangedDS	The number of datastore change operations for powered-off and suspended Virtual Machines.
	NumChangeHost	The number of host change operations for powered-off and suspended Virtual Machines.
	NumChangeHostDS	The number of host and datastore change operations for powered-off and suspended Virtual Machines.
	NumCPU	The number of CPUs.
	NumCPUCore	The number of CPU cores.
	NumClones	The number of Virtual Machine clone operations.
	NumCreate	The number of Virtual Machine create operations.
	NumDeploy	The number of Virtual Machine template deploy operations.
	NumDestroy	The number of Virtual Machine delete operations.
	NumHosts	The number of hosts on this cluster.

Entity Type	Metric Name	Description
	NumPowerOff	The number of Virtual Machine power-off operations.
	NumPowerOn	The number of Virtual Machine power-on operations.
	NumRebootGuest	The number of Virtual Machine guest reboot operations.
	NumReconfigure	The number of Virtual Machine reconfigure operations.
	NumRegister	The number of Virtual Machine register operations.
	NumReset	The number of Virtual Machine reset operations.
	NumResourcePools	The number of resource pool on the cluster.
	NumShutDownGuest	The number of Virtual Machine guest shutdown operations.
	NumStandByGuest	The number of Virtual Machine standby guest operations.
	NumSuspend	The number of Virtual Machine suspend operations.
	NumUnRegister	The number of Virtual Machine unregistered operations.
	ParentType	The metric indicates the type of parent entity.
	ParentUUID	The name of the datacenter to which this cluster belongs.
	SystemID	The UUID of the cluster. This is the display_name:datacenter name.
	SystemName	The name of the cluster.

Entity Type	Metric Name	Description
	SystemRole	For cluster, the value of the metric is CLUSTER.
	SystemVirtType	The value of this metric is VMware.
	TotalSvMotions	The number of migrations with Storage VMotion (datastore change operations for powered-on VMs).
	TotalVmMotions	The number of migrations with VMotion (host change operations for powered-on VMs).
	Type	The type of the cluster.
	BelongsToDatacenter	The datacenter to which this cluster belongs.
	CPUCycleTotalUsed	The amount of CPU cycles used, in MHz.

Hyper-V

Entity Type	Metric Name	Description
Hyper-V Host	AvailableStorageCapacity	This metric indicates the total free space available on the logical disks, in MB.
	CPUClockSpeed	For a host, this is the clock speed of the CPUs, in MHz, if all of the processors have the same clock speed.
	CPUCycleEntlMax	For a host, this value indicates the maximum processor capacity, in MHz, configured for the entity.
	CPUCycleEntlMin	For a host, this value indicates the

Entity Type	Metric Name	Description
		minimum processor capacity, in MHz, configured for the entity.
	CPUCycleTotalUsed	For a host, this is the total time the physical CPUs were utilized during the interval, represented in CPU cycles.
	CPUEntlMax	For a host, this metric is CPU capacity.
	CPUPhysTotalUtil	For a host, this value indicates percentage of total time the physical CPUs were utilized.
	CPUSysModeUtil	For a host, this metric indicates the percentage of time the CPU was in system mode during the interval.
	CPUTotalUtil	For a host, this metric is same as CPU_PHYS_TOTAL_UTIL.
	DiskPhysReadByteRate	For a host, this metric indicates the average number of KBs per read at which data was transferred from disks during the interval.
	DiskPhysWriteByteRate	For a host, this metric indicates the average number of KBs per write at which data was transferred to disks during the interval.
	DiskReadLatency	This metric indicates the average time, in seconds, per read of data from the disk.
	DiskTotalIORate	For a host, this metric indicates the average number of KBs transferred to or from the disk during per write or read operations .
	DiskWriteLatency	This metric indicates the average time, in seconds, per write of data from the disk.

Entity Type	Metric Name	Description
	MemAvail	For a host, the amount of physical memory available in the host system, in MB, unless otherwise specified.
	MemEntl	For a host, the value is the physical memory available in the system, in MB.
	MemEntlMax	For a host, this value is the amount of physical memory available in the system, in MB.
	MemEntlMin	For a host, this metric indicates the reserved amount of memory configured, in MB.
	MemPhys	For a host, this value is the physical memory available in the system, in MB.
	MemPhysUtil	For a host, this metric indicates the percentage of physical memory used during the interval.
	MemUsed	This metric indicates the amount of physical memory used, in MB.
	NetworkIORate	For a host, this metric indicates the rate at which bytes are sent and received over each network adapter including framing characters, in KBps.
	NumCPU	For a host, this metric provides the total number of CPU cores on the system.
	NumCPUCore	For a host, this metric provides the total number of CPU cores on the system.
	NumCPUSocket	For a host, this metric indicates the number of physical CPU sockets on the system.

Entity Type	Metric Name	Description
	SystemUptimeSeconds	For a host, this metric is the time, in seconds, since the last system reboot.

Entity Type	Metric Name	Description
Hyper-V Guest	CPUClockSpeed	For a logical system, this is the clock speed of the CPUs, in MHz, if all of the processors have the same clock speed.
	CPUEntlMax	For a logical system, this metric indicates the maximum CPU units configured for it.
	CPUEntlMin	For a logical system, this metric indicates the guaranteed minimum CPU units configured for it.
	CPUEntlUtil	For a logical system, this metric indicates the percentage of entitled processing units (guaranteed processing units allocated to this logical system) consumed.
	CPUPhysTotalUtil	For a logical system, this metric indicates percentage of total time the physical CPUs were utilized.
	CPUCycleEntlMax	For a logical system, this metric indicates the maximum processor capacity, in MHz, configured for the entity.
	CPUCycleEntlMin	For a logical system, this metric indicates the minimum processor capacity, in MHz, configured for the entity.
	CPUCycleTotalUsed	For a logical system, this is the total time the physical CPUs were utilized during the interval, represented in CPU cycles.

Entity Type	Metric Name	Description
	CPUPhysReadyUtil	For a logical system, this is the percentage of time during the interval that the CPU was in a ready state.
	CPUReadyTime	For a logical system, this metric indicates the time for which the virtual machine was ready, but could not get scheduled to run on the physical CPU.
	CPUSharesPrio	For a logical system, this metric indicates the weightage or priority assigned to an Uncapped logical system. This value determines the minimum share of not utilized processing units that this logical system can utilize.
	CPUTotalUtil	For a logical system, this metric indicates the percentage of total time the logical CPUs were not idle during the interval.
	CPUUserModeUtil	For a logical system, this metric indicates the percentage of time the CPU was in user mode during the interval.
	DiskPhysIORate	This metric indicates the physical disk throughput.
	DiskPhysReadByteRate	For a logical system, this metric indicates the average number of KBs per second at which data was transferred from disks during the interval.
	DiskPhysWriteByteRate	For a logical system, this metric indicates the average number of KBs per second at which data was transferred to disks during the interval.
	DiskReadLatency	For a logical system, this metric

Entity Type	Metric Name	Description
		indicates the total disk read latency.
	DiskWriteLatency	For a logical system, this metric indicates the total disk write latency.
	DynamicMemoryMaximum	For a logical system, this metric indicates the maximum amount of memory that this Virtual Machine is allowed to use, in MB.
	MemActive	For a logical system, this is the amount of memory that is actively used, in MB.
	MemoryDemand	For a logical system, this metric indicates how much memory the virtual machine needs at this time to meet the requirements of the active processes running in the virtual machine.
	MemEntl	For a logical system, this metric indicates the minimum memory configured, in MB.
	MemEntlMax	This metric indicates the maximum amount of memory configured for a logical system, in MB.
	MemEntlMin	For a logical system, this metric indicates the reserved amount of memory configured for a host or a logical system, in MB.
	MemEntlUtil	For a logical system, this metric indicates the percentage of entitled memory in use during the interval.
	MemoryBufferPercentage	This metric indicates the dynamic memory buffer percentage.
	MemoryPressure	This metric indicates the average pressure in the VM.

Entity Type	Metric Name	Description
	MemPhysUtil	For a logical system, this metric indicates the percentage of physical memory used during the interval.
	MemSharesPrio	For a logical system, this metric indicates the weightage or priority for memory assigned. This value influences the share of unutilized physical memory that this logical system can utilize.
	MemUsed	For a logical system, this metric indicates the amount of memory used at the end of the interval, in MB.
	NetInByteRate	For a logical system, this metric indicates the input bytes per second over the network.
	NetOutByteRate	For a logical system, this metric indicates the output bytes per second over the network.
	NetworkUtil	This metric indicates the network utilization percentage.
	NumCPU	For a logical system, this metric indicates the number of virtual CPUs configured.
	TotalDiskCapacity	This metric indicates the total disk capacity, in MB.

Entity Type	Metric Name	Description
Hyper-V Cluster	CPUTotalUtil	The total CPU utilization.
	DiskTotalIORate	The average number of bytes transferred to or from the disk during read or write operations.

Entity Type	Metric Name	Description
	MemPhys	The total physical memory available, in MB.
	MemPhysUtil	The percentage of memory utilization.
	NetworkIORate	This metric indicated the average number of bytes transferred to or from the network.
	NumCPU	The number of virtual CPUs configured for this logical system.
	NumGuests	The number of VMs under this cluster.
	NumHosts	The number of hosts on this cluster.

Entity Type	Metric Name	Description
Hyper-V Nodeds	DiskProvisioned	This is the total space provisioned for the Virtual Machine on the datastore, in MB.
	DiskReadRate	The rate of reading from the datastore.
	DiskSnapshotUsed	This is the space consumed by the Virtual Machine snapshot files on the datastore.
	DiskUsed	This is the total space consumed by the Virtual Machine on the datastore including the vmdk file, snapshots, and other files, in MB.
	DiskVMDKUsed	This is the total space consumed by the Virtual Machine vmdk files on the datastore.
	DiskWriteRate	The rate of writing to the datastore.
	QueueLength	The average number of read and write requests that were queued for the selected disk during the sample interval.
	ReadLatency	The total read latency experienced by the entity on this datastore.

Entity Type	Metric Name	Description
	WriteLatency	The total write latency experienced by the entity on this datastore.

Entity Type	Metric Name	Description
Hyper-V Datastore	Capacity	The Datastore capacity, in MB.
	DiskOthersUsed	The Datastore space used by other files, in MB.
	DiskProvisioned	The amount of storage set-aside for use by a Datastore, in MB.
	DiskReadLatency	This metric indicates the total disk read latency for a logical system.
	DiskReadRate	The rate at which bytes are transferred from the disk during read operations.
	DiskSnapshotUsed	The Datastore space used by the virtual machine snapshots, in MB.
	DiskUsed	This is the total space consumed by the Virtual Machine on the Datastore, which includes vmdk file, snapshots, and other files, in MB.
	DiskVMDKUsed	The Datastore space used by VM files, in MB.
	DiskWriteLatency	This metric indicates the total disk write latency for a logical system.
	DiskWriteRate	The rate at which bytes are transferred from the disk during write operations.
	NumDiskReads	The number of disk reads during the collection interval.
	NumDiskWrites	The number of disk writes during the collection interval.

Entity Type	Metric Name	Description
	QueueLength	Average number of read and write requests that were queued for the selected disk during the sample interval.

AWS

Entity Type	Metric Name	Description
AWS_ACCOUNT	NumGuests	For AWS account, this indicates the number of instances for this account.
	CPUTotalUtil	For AWS account, this indicates the percentage of total time logical CPUs were not idle during the interval.
	Target	For AWS account, this indicates the name of the account. This name uniquely identifies this account.
	Domain	For AWS account, the value is AWS.
AWS_GUEST	BelongsToDatacenter	For AWS instance, this is the name of the target.
	CPUClockSpeed	For AWS instance, this is the clock speed of the CPUs, in MHz, if all of the processors have the same clock speed.
	CPUCycleTotalUsed	For AWS instance, this is the total time the physical or logical CPUs were utilized per second during the interval. This is represented in CPU cycles.
	CPUTotalUtil	For AWS instance, this value indicates the percentage of total time the logical CPUs were not idle during the interval.
	DiskPhysRead	For AWS instance, this metric

Entity Type	Metric Name	Description
		indicates the number of physical reads during the interval.
	DiskPhysReadByte	For AWS instance, this indicates the amount of data transferred from the disks during the interval, in KB.
	DiskPhysWrite	For AWS instance, this metric indicates the number of physical writes during the interval.
	DiskPhysWriteByte	For AWS instance, this metric indicates the amount of data, which is transferred to the disks during the interval, in KB.
	IPAddress	For AWS instance, this metric indicates the IP address of the logical system.
	NetInByte	For AWS instance, this is the number of bytes received during the interval, in MB.
	NetOutByte	For AWS instance, this is the number of bytes transmitted during the interval, in MB.
	NumCPU	For AWS instance, this is the number of virtual CPUs configured.
	ParentType	For AWS instance, the value is ACCOUNT.
	ParentUUID	For AWS instance, this metric indicates the name of the account.
	Region	For AWS instance, this metric indicates the region of the instance.
	SystemHostName	For AWS instance, this metric is the Fully Qualified Domain Name.
	SystemID	For AWS instance, this indicates the

Entity Type	Metric Name	Description
		UUID of the instance. This ID uniquely identifies this instance.
	SystemName	For AWS instance, this metric indicates the display name of the instance.
	SystemRole	For AWS instance, the value is GUEST.
	SystemState	For AWS instance, the metric can have one of the following: Running, Blocked, Paused, Shutdown, Shutoff, Nostate, Crashed, and Unknown.
	SystemVirtType	For AWS instance, the value is AWS.
	Type	For AWS instance, this metric indicates the type of the instance.

Physical Server

Entity Type	Metric Name	Description
Host	CPUClockSpeed	This metric indicates the clock speed of the CPUs, in MHz, if all of the processors have the same clock speed.
	CPUCycleTotalUsed	This metric indicates the total time the physical CPUs were utilized during the interval, represented in CPU cycles.
	CPUIidleTime	This metric indicates the total time that the CPU spent in an idle state, in msec.
	CPUTotalTime	This metric indicates the total time, in seconds, that the CPU was not idle in the interval.
	CPUTotalUtil	This metric indicates the number of CPU units utilized by the system.
	DiskIOByte	This metric indicates the number of KBs

Entity Type	Metric Name	Description
		transferred to and from the disks during the interval.
	MemEntl	This metric indicates the amount of memory entitled.
	MemEntlUtil	This metric indicates the percentage of entitled memory in use during the interval.
	MemPageoutRate	This metric indicates the total number of page outs to the disk per second during the interval.
	MemPhys	This metric indicates the amount of physical memory available.
	MemPhysUtil	This metric indicates the percentage of physical memory used during the interval.
	SystemID	This metric indicates the unique identifier of the host or the logical system.
	MemUsed	This metric indicates the amount of memory used at the end of the interval.
	IPAddress	This metric indicates the IP address for a host.
	SystemName	This metric indicates the name of the host.
	SystemOSName	This metric indicates the name of the operating system.
	NetInPacketPhys	This metric indicates the number of successful packets per second received for all network interfaces during the interval.
	SystemOSVersion	This metric indicates the version of the operating system.
	SystemRole	This metric indicates the HOST.
	SystemVirtType	The value of this metric is PHYSICAL.
	NetOutPacketPhys	This metric indicates the number of successful packets sent for all network interfaces during the

Entity Type	Metric Name	Description
		interval.
	SystemOSRelease	This metric indicates the release version of the operating system.
	StatTime	This metric indicates an ASCII string representing the time at the end of the interval based on local time.
	NumActiveCPU	This metric indicates the number of CPUs online.
	NumCPU	This metric indicates the number of CPUs configured.
	NumDisk	This metric indicates the number of disks attached.
	NumNetif	This metric is the number of network adapters on the Physical Server.
	RunQueue	This metric indicates the average number of threads waiting in the run queue over the interval for a Physical Server on UNIX systems except Linux.
	SwapSpaceAvail	This metric indicates the total amount of potential swap space, in MB.
	SwapSpaceUsed	This metric indicates the amount of swap space used, in MB.
	SwapSpaceUtil	This metric indicates the percent of available swap space that was being used by running processes in the interval.
	SystemLoadAvg	This metric indicates <i>1 minute load average</i> of the system obtained at the time of logging.
	SystemMachineModel	This metric indicates the CPU model of the host.
	SystemOSType	This metric indicates the type of the operating system.

OneView

Entity Type	Metric Name	Description
OneView Enclosure	AmbientTemperature	For an Enclosure, this metric indicates the ambient temperature.
	AssetSerialNumber	For an Enclosure, this metric indicates the serial number.
	ConfigurationStatus	For an Enclosure, this metric indicates the current status of the configuration.
	ConnectionState	For an Enclosure, this metric indicates the current status of the connection. It can have values as - Connected, Disconnected, or Not Responding.
	CreatedTime	For an Enclosure, this metric indicates the created time.
	EnclosureGrpId	For an Enclosure, this metric indicates the name of the enclosure group ID of the enclosure.
	EnclosureGrpName	For an Enclosure, this metric indicates the name of the enclosure group.
	Location	For an Enclosure, this metric indicates the rack number.
	MPIPAddress	For an Enclosure, this metric indicates the enclosure IP address.
	NumAvailableDeviceBays	For an Enclosure, this metric indicates the number of available device bays.

Entity Type	Metric Name	Description
	NumAvailableFullHeightDeviceBays	For an Enclosure, this metric indicates the no. of available full height device bays.
	NumAvailableInterconnectBays	For an Enclosure, this metric indicates the number of available interconnect bays.
	NumDeviceBays	For an Enclosure, this metric indicates the number of server blades.
	NumFullHeightDeviceBays	For an Enclosure, this metric indicates the number of full height device bays.
	NumInterconnectBays	For an Enclosure, this metric indicates the number of interconnect bays.
	NumServerBlades	For an Enclosure, this metric indicates the number of server blades.
	ParentName	For an Enclosure, the value of the metric is vcmDomainName.
	ParentType	For an Enclosure, the value of the metric is OneView Domain.
	ParentUUID	For an Enclosure, the value of the metric is vcmDomainId.
	PowerAllocation	For an Enclosure, this metric indicates the power allocation, in watts.
	PowerUsagePercent	For an Enclosure, this metric indicates the $(\text{PowerUtilization}/\text{PowerAllocation}) * 100$.
	PowerUtilization	For an Enclosure, this metric

Entity Type	Metric Name	Description
		indicates the power utilization in watts.
	SubType	For an Enclosure, the value of this metric is Server.
	SystemID	For an Enclosure, this metric indicates the name of the enclosure.
	SystemName	For an Enclosure, this metric indicates the enclosure display name.
	SystemRole	For an Enclosure, the value of this metric is ENCLOSURE.
	SystemState	For an Enclosure, this metric indicates the system state. It can have one of the following states for an enclosure: On, Off, or Unknown.
	SystemVirtType	For an Enclosure, the value of this metric is ONEVIEW.
	TargetName	For an Enclosure, this metric indicates the name of the OneView target, which the enclosure hardware belongs to.
OneView Server	AmbientTemperature	For a Server, this metric indicates the ambient temperature.
	AssetSerialNumber	For a Server, this metric indicates the serial number.
	ConfigurationStatus	For a Server, this metric indicates the current status of the configuration. It can have values as - On, Off, or Unknown.
	ConnectionState	For a Server, this metric indicates

Entity Type	Metric Name	Description
		the current status of the connection. It can have values as - Connected, Disconnected, or NotResponding.
	CPUClockSpeed	For a Server, this metric indicates the clock speed of the CPUs, in MHz, if all of the processors have the same clock speed.
	CPUCycleTotalUsed	For a Server, this metric indicates the total time the physical CPUs utilized during the interval. It is represented in CPU cycles.
	CPUPhycUtil	For a Server, this metric indicates the number of CPU units utilized.
	CPUTotalUtil	For a Server, this metric indicates the percentage of total time the logical CPUs were not idle during the interval.
	CPUVendor	For a Server, this metric indicates the name of the CPU vendor.
	CreatedTime	For a Server, this metric indicates the created time.
	FirmwareVersion	For a Server, this metric indicates the Firmware version.
	IPAddress	For a Server, this metric indicates the IP address.
	Location	For a Server, this metric indicates the location of the servers.
	MaxCPUClockSpeed	For a Server, this metric indicates the clock speed of the CPUs, in MHz, if all of the processors have the same clock speed.

Entity Type	Metric Name	Description
	MemPhys	For a Server, this metric indicates the physical memory available in the system.
	MPIPAddress	For a Server, this metric indicates the IP address.
	NumCPU	For a Server, this metric indicates the number of virtual CPUs configured.
	NumCPUCore	For a Server, this metric indicates the total number of CPU cores available on the system.
	NumCPUSocket	For a server, this metric indicates the number of physical CPU sockets in the system.
	ParentType	For a Server, this metric indicates the type of parent entity.
	ParentUUID	For a Server, this metric indicates the UUID appended to display_name of the parent entity, which is Enclosure.
	PowerAllocation	For a Server, this metric indicates the allocated power.
	PowerUsagePercent	For a Server, this metric indicates the power used by allocation.
	PowerUtilization	For a Server, this metric indicates the power utilization, in watt.
	ResourceUri	For a Server, this metric indicates the path of resource.
	ServerFormFactor	For a Server, this metric indicates the form factor of server.
	SystemHostName	For a Server, this metric indicates

Entity Type	Metric Name	Description
		the Fully Qualified Domain Name.
	SystemID	For a Server, this metric indicates the UUID.
	SystemMachineModel	For a Server, this metric indicates the CPU model.
	SystemName	For a Server, this metric indicates the name of the server.
	SystemOSName	For a Server, this metric indicates the OS name.
	SystemOSType	For a Server, this metric indicates the OS type.
	SystemOSVersion	For a Server, this metric indicates the OS version.
	SystemRole	For a Server, the value of this metric is BLADESERVER.
	SystemState	For a Server, this metric indicates the system state. It can have one of the following states for a server: On, Off, or Unknown.
	SystemVirtType	For a Server, this metric indicates the virtualization type of server. It is ONEVIEW for server.
	TargetName	For a Server, this metric indicates the name of the OneView target, which the server hardware belongs to.

Send Documentation Feedback

If you have comments about this document, you can [contact the documentation team](#) by email. If an email client is configured on this system, click the link above and an email window opens with the following information in the subject line:

Feedback on Reference Guide: Metric Definition (Cloud Optimizer 3.03)

Just add your feedback to the email and click send.

If no email client is available, copy the information above to a new message in a web mail client, and send your feedback to docfeedback@hpe.com.

We appreciate your feedback!