

Release Candidate Version 1.5.0

Introduction

This document describes the Performance Sentry VM (Sentry VM) Provider performance data objects defined using the VMware performance groups and counters. This version of Performance Sentry VM introduces support for VMware ESX 5.0. Sentry VM supports ESX 3.5, ESX 4.0 and ESX 4.1 and vSphere 5 (ESX 5.0). This document will use the ESX 5.0 designation for consistency.

VMware performance data is obtained from the ESX Host system from three Providers named Host System, Virtual Machine and Resource Pool.¹ Sentry VM, running in a guest Virtual Machine or on a separate monitoring system, collects data from these providers and acts in turn as a Provider to the Microsoft PerflibV2 facility.

Sentry VM objects are defined as Countersets in Perflib V2 form and the two terms are interchangeable. All Sentry VM objects can be collected on Windows operating systems where the Perflib V2 interface is available. Supported operating systems are Server 2008, Vista, and Windows 7.

Objects are defined in a one for one reflection of the VMware provider, group, counter combination. All counter types are large rawcounts (PERF_COUNTER_LARGE_RAWCOUNT) except "CPU Usage (Percentage)" and "Memory Usage (Percent)". These are defined as large raw fractions (PERF_LARGE_RAW_FRACTION) and base counters are defined for them. These usage counters are present in several objects where CPU and memory are reported.

Sentry VM does not modify the data coming from the VMware providers in any way. It simply organizes the data values into appropriate Windows performance object, instances and counters. The usage counters noted above are supplied with base counters for proper calculation and display by PerflibV2 consumers.

The object naming convention is "VMware.provider.object.qualifier." Viewed in Perfmon, the objects are positioned in the list by the VMware prefix.

Counter names are exactly as defined in the VMware object definition except in cases where a unit of measure was appended to the name for clarity. The help, or 'explain text' as seen in Perfmon, is also as defined by VMware, with some changes from Demand Technology for clarity. Some do not add any useful information, and over time better and more complete text may be added by Demand Technology.

¹ In the VMware context "A performance provider is any entity on the system that generates utilization or consumption information."; reference [vSphere Web Services SDK Programming Guide](#), available on VMware.com.

Release Candidate Version 1.5.0

The counter id numbers listed are the VMware numbers to provide a reference for comparing VMware documentation with Sentry VM organization.

Counter ids and names may be used in multiple objects. For example, there are Memory, CPU and Disk counters in Host system and Virtual Machine (Guest) objects. Wherever used, they have the same definition and number.

Note that counter ids are provided for cross reference only and they are not present in data. They are found using the VMware “Managed Object Browser” (MOB). The data providers return buffers containing the counter ids and they are used internally in SentryVM to update PerflibV2 countersets.

VMware performance counters are available in VMware tools, such as the Virtual Infrastructure Client and documented in several places. The current information in this reference has not been updated at the time of this release:

<http://communities.vmware.com/docs/DOC-5600>

VMware providers are named Host System, Virtual Machine and Resource Pool. VMware counters are organized by group, where groups include CPU, Memory, Disk, Network (net), Resource CPU (rescpu), System (sys) Management Agent and Cluster Services. The above reference includes links to other VMware documents for additional information.

ESX 4.0 introduced a number of new counters in CPU, Memory, Disk, Network and System. The new counters are documented in the tables in the following sections.

ESX 4.1 introduced new objects and some new counters in CPU, Memory, Disk and System. The new objects are:

- Host Storage Adapter
- Host Storage Path
- Host Datastore
- Host Power
- Guest Virtual Disk
- Guest Datastore
- Guest Power

ESX 5.0 introduces some 58 new counters in existing objects and one new object, vSphere Replication.

The new objects and counters are documented in the tables in the following sections.

Release Candidate Version 1.5.0

Object design note

Under PerflibV2 rules, each object must have a defined instance, even objects that have only one instance, such as Memory. Most of the VMware data is instanced, but when not, as in the case of the Memory object an internal instance name is assigned to satisfy the rule.

There are some VMware counters that are presented with no instance name in the data. These counters have been defined in a synthetic Windows object named *Aggregate*. The aggregate object is explained below and displayed in the tables that follow.

VMware.Host.Aggregate object

- 'CPU Usage (Percentage)' counter #1 is present in CPU instances and in Aggregate object in the VMware data where it is an average of the instances.
- 'CPU Usage in MHz', counter #5 is present only in the Aggregate object
- The counters 'CPU Reserved Capacity (MHz)', 'Disk Usage KBps' and 'Network Usage (KBps)' are preserved in the host Aggregate object as they are defined as aggregate counters and do not have an instance name in the raw VMware host data.

VMware.Guest.Aggregate object

- 'CPU Usage (Percentage)' counter # 1 is present only in the Aggregate object. It is defined as an aggregate counter and does not have an instance name in the VMware data.
- CPU Usage in MHz (Average) counter #5 is present only in the Aggregate object
- The counters 'CPU Reserved Capacity (MHz)', 'Disk Usage KBps' and 'Network Usage (KBps)' are preserved in the guest Aggregate object as they are defined as aggregate counters and do not have an instance name in the raw VMware guest data.

VMware.Host.ResCPU and VMware.Guest.ResCPU objects

- 'CPU Usage' Active, Running and Throttled 'rollup' counters are percentage counters
- Base values are supplied positioned after each to follow the Microsoft convention for PerflibV2
- The final two counters, number of CPUs and Sample period, are integer counters

Release Candidate Version 1.5.0

Instance Name conventions

It is assumed that the performance data from multiple ESX hosts will be stored in databases for reporting. Therefore, the instance name includes the VMware Host name to preserve this association.

For Guest data records an instance name has the form:

hostName::guestName.objectInstance

and for Host data records:

hostName:: objectInstance

The separator '::' is placed between host and guest names. The '.' character is placed between guest name (when it is present) and object instance name.

Examples from the Demand Technology host, named DtsESXi35, are

DtsESXi35::vmhba0:0:0 (for a host disk object)

DtsESXi35::0 (for a CPU 0 instance)

DtsESXi35::Server64bit2008-R2.0 (for a guest CPU 0 instance)

DtsESXi35::Server64bit2008-R2.Memory (for a guest Memory instance)

ESX 4.0 has not changed the structure of objects but has added more counters. Sentry VM Provider objects and counters are described in the following tables.

Version 4.0.0.10 of the Performance Sentry Collection Service (NTSMF) from Demand Technology Software has enhanced support for VMware objects in its SMF data file. HostName and guestName are split into separate fields in each data record providing for easier queries when loaded into a Performance DataBase (PDB). Contact support@demandtech.com for more information regarding this feature.

Counter names with an asterisk (*) are new or changed in ESX 4.0.

Counter names with the double dagger symbol (‡) are new in ESX 4.1.

Counter names with the character symbol (†) are new in ESX 5.0

Release Candidate Version 1.5.0

1.1 VMware.Host.Aggregate²

"VMware Host counters defined as aggregates"

counter name	Id #	unit	description
CPU Usage (Percentage)	1	percentage	CPU usage as a percentage over the collected interval (Percent)
CPU Usage Base		base	Base value for percentage calculation
CPU Usage in MHz	5	MHz	CPU usage in MHz over the collected interval. For hosts this can be represented on a per Virtual Machine basis as a stacked graph (MHz)
CPU Reserved Capacity (MHz)	8	MHz	Total CPU capacity reserved by the virtual machines (MHz)
Disk Read Rate (KBps)*	131078	KBps	Average number of kilobytes read from the disk each second during the collection interval
Disk Usage (KBps)	131073	KBps	Aggregated storage performance statistics. For hosts this can be represented on a per Virtual Machine basis as a stacked graph
Disk Write Rate (KBps)*	131079	KBps	Average number of kilobytes written to the disk each second during the collection interval
Highest Disk Latency (millisecond)*	131095	milliseconds	Highest latency value across all disks used by the host
Network Data Receive Rate (KBps)*	196614	KBps	Rate at which data is received (KBps)
Network Data Transmit Rate (KBps)*	196615	KBps	Rate at which data is transmitted (KBps)
Network Usage (KBps)	196609	KBps	Aggregated network performance statistics. For hosts this can be represented on a per Virtual Machine basis as a stacked graph (KBps)

² Objects are not numbered. The number 1.1 and so forth are designations for reference in this document only.

Release Candidate Version 1.5.0

1.1 VMware.Host.Aggregate (continued)³

"VMware Host counters defined as aggregates"

counter name	Id #	unit	description
CPU Utilization (Percentage) ‡	16	percentage	CPU utilization as a percentage during the interval (CPU usage and CPU utilization may be different due to power management technologies or hyper-threading)
CPU Utilization Base‡		base	Base value for percentage calculation
Core utilization (average) ‡	20	Percentage	CPU utilization of the corresponding core (if hyper-threading is enabled) as a percentage during the interval (A core is utilized, if either or both of its logical CPUs are utilized)
CPU Utilization Base ‡		base	Base value for percentage calculation
Total CPU capacity ‡	23	MHz	Total CPU capacity reserved by and available for virtual machines
CPU Latency †	24	Percentage	Percent of time the VM is unable to run because it is contending for access to the physical CPU(s)
CPU Latency Base †		base	Base value for percentage calculation
CPU Demand †	26	MHz	The amount of CPU resources a VM would use if there were no CPU contention or CPU limit (MHz)
CPU CoStop †	27	milliseconds	Time the VM is ready to run, but is unable to due to co-scheduling constraints (milliseconds)
Network Packets Received (Number) †	196612	number	Number of packets received in the period (Number)
Network Packets Transmitted (Number) †	196613	number	Number of packets transmitted in the period (Number)
droppedRx †	196616	number	Number of receive packets dropped during the collection interval
droppedTx †	196617	number	Number of transmit packets dropped during the collection interval

³ Objects are not numbered. The number 1.1 and so forth are designations for reference in this document only.

Release Candidate Version 1.5.0

1.1 VMware.Host.Aggregate (continued)

"VMware Host counters defined as aggregates"

Data receive rate †	196618	KBps	Average amount of data received per second
Data transmit rate †	196619	KBps	Average amount of data transmitted per second
Broadcast receives †	196620	number	Number of broadcast packets received during the sampling interval
Broadcast transmits †	196621	number	Number of broadcast packets transmitted during the sampling interval
Multicast receives †	196622	number	Number of multicast packets received during the sampling interval
Multicast transmits †	196623	number	Number of multicast packets transmitted during the sampling interval
Packet receive errors †	196624	number	Number of packets with errors received during the sampling interval
Packet transmit errors †	196625	number	Number of packets with errors transmitted during the sampling interval
Unknown protocol frames †	196626	number	Number of frames with unknown protocol received during the sampling interval
Datastore Highest latency †	655379	milliseconds	Highest latency value across all datastores used by the host (millisecond)
Storage Path Highest latency †	524295	milliseconds	Highest latency value across all storage paths used by the host (millisecond)
Storage Adapter Highest latency †	458759	milliseconds	Highest latency value across all storage adapters used by the host (millisecond)

Release Candidate Version 1.5.0

1.1 VMware.Host.Aggregate (continued)

"VMware Host counters defined as aggregates"

CPU Wait †	10	milliseconds	CPU time (milliseconds) spent in wait state
CPU Ready †	11	milliseconds	CPU time (milliseconds) spent in ready state
CPU Used †	14	milliseconds	CPU time that is used (Millisecond)
Swap wait time ⁴ †	14	milliseconds	CPU time spent waiting for swap-in (Millisecond)
CPU Idle †	15	milliseconds	CPU time spent in idle state (Millisecond)

⁴ Counter id 14 was reassigned in ESX 4

Release Candidate Version 1.5.0

1.2 VMware.Host.CPU

"HostSystem CPU counters instanced for all physical CPUs"

counter name	Id #	unit	description
CPU Usage (Percentage)	1	percentage	CPU usage as a percentage over the collected interval (Percent)
CPU Usage base		base	Base value for percentage calculation
CPU Used (milliseconds)*	14/12 ⁵	milliseconds	CPU time that is used (Millisecond)
CPU Idle (milliseconds)*	15/13 ⁶	milliseconds	CPU time spent in idle state (Millisecond)
CPU Extra (milliseconds)*	12(3.5)	milliseconds	CPU time that is extra (Millisecond)
CPU Guaranteed (milliseconds)*	13(3.5)	milliseconds	CPU time that is guaranteed (Millisecond)
CPU Utilization (Percentage) ‡	16	percentage	CPU utilization as a percentage during the interval (CPU usage and CPU utilization may be different due to power management technologies or hyper-threading)
CPU Utilization Base‡		base	Base value for percentage calculation
Core utilization (average) ‡	20	Percentage	CPU utilization of the corresponding core (if hyper-threading is enabled) as a percentage during the interval (A core is utilized, if either or both of its logical CPUs are utilized)
CPU Utilization Base ‡		base	Base value for percentage calculation

(no new counters in 5.0)

⁵ "CPU Used" is assigned counter id 14 in ESX 3.5 and id 12 in ESX 4.0.

⁶ "CPU Idle" is assigned counter id 15 in ESX 3.5 and id 13 in ESX 4.0.

Release Candidate Version 1.5.0

1.3 VMware.Host.Memory "VMware Host physical memory"

counter name	Id #	unit	description
Memory Usage (Percent)	65537	percentage	Memory usage as percentage of total configured or available memory (Percent)
Memory Usage base		base	Base value for percentage calculation
Memory Granted (KB)	65541	MHz	Amount of memory granted. For hosts this can be represented on a per Virtual Machine basis as a stacked graph. (KB)
Memory Active (KB)	65545	KB	Amount of memory that is actively used (KB)
Memory Shared (KB)	65549	KB	Amount of memory that is shared (KB)
Memory Zero (KB)	65553	KB	Amount of memory that is zeroed out (KB)
Memory Unreserved (KB)	65557	KB	Amount of memory that is unreserved (KB)
Memory Swap Used (KB)	65561	KB	Amount of memory that is used by swap (KB)
Memory Shared Common (KB)	65569	KB	Amount of memory that is shared by common (KB)
Memory Heap (KB)	65573	KB	Amount of memory allocated for heap (KB)
Memory Heap Free (KB)	65577	KB	Free space in memory heap (KB)
Memory State (Number)	65580	number	Memory state (Number)
Memory Balloon (KB)	65582	KB	Amount of memory used by memory control (KB)
Memory Overhead (KB)	65586	KB	Amount of additional host memory allocated to the virtual machine (KB)
Memory Reserved Capacity (MB)	65589	MB	Amount of memory reserved by the virtual machines (MB)
Memory Swap In (KB)	65599	KB	Amount of memory that is swapped in (KB)
Memory Swap Out (KB)	65603	KB	Amount of memory that is swapped out (KB)
Memory Consumed (KB)	65611	KB	Amount of memory consumed by a virtual machine, host, or cluster (KB)
Memory Used by vmKernel (KB)	65615	KB	Amount of memory used by the vmKernel (KB)
Memory Swap In Rate*	65618	KBps	Rate at which memory is swapped from disk into active memory during the interval
Memory Swap Out Rate*	65619	KBps	Rate at which memory is being swapped from active memory to disk during the current interval

Release Candidate Version 1.5.0

1.3 VMware.Host.Memory (continued) "VMware Host physical memory"

counter name	Id #	unit	description
Active write memory ‡	65620	KB	Amount of memory actively being written to by the VM (KB)
Compressed ‡	65621	KB	Amount of memory compressed by ESX
Compression rate (KBps) ‡	65622	KBps	Rate of memory compression for the VM (KBps)
Decompression rate (KBps) ‡	65623	KBps	Rate of memory decompression for the VM (KBps)
Reserved overhead (KB) ‡	65624	KB	Memory (KB) reserved for use as the virtualization overhead for the VM
Total capacity (MB) ‡	65625	MB	Total amount of memory reservation (MB) used by and available for powered-on virtual machines and vSphere services on the host
Zipped memory ‡	65626	KB	Memory (KB) zipped
Memory saved by zipping (KB) ‡	65627	KB	Memory (KB) saved due to memory zipping
VM Memory Latency †	65628	percentage	Percentage of time the VM is waiting to access swapped or compressed memory
VM Memory Latency †		base	Base value for percentage calculation
Low free threshold (average) †	65630	KB	Threshold of free host physical memory below which ESX will begin reclaiming memory from VMs through ballooning and swapping (average)
Host cache used for swapping †	65631	KB	Space used for caching swapped pages in the host cache (KB)
Swap in rate from host cache (average) †	65632	KBps	Average rate at which memory is being swapped from host cache into active memory (KBps)
Swap out rate to host cache †	65633	KBps	Rate at which memory is being swapped from active memory to host cache (KBps)
Host cache used for swapping (average) †	65635	KB	Average space used for caching swapped pages in the host cache (KB)
Host cache used for swapping (maximum) †	65636	KB	Maximum space used for caching swapped pages in the host cache (KB)
Host cache used for swapping (minimum) †	65637	KB	Minimum space used for caching swapped pages in the host cache (KB)

Release Candidate Version 1.5.0

1.3 VMware.Host.Memory (continued)
 "VMware Host physical memory"

Swap in from host cache †	65638	KB	Amount of memory swapped-in from host cache (KB)
Swap in from host cache (average) †	65639	KB	Average amount of memory swapped-in from host cache (KB)
Swap in from host cache (maximum) †	65640	KB	Maximum amount of memory swapped-in from host cache (KB)
Swap in from host cache (minimum) †	65641	KB	Minimum amount of memory swapped-in from host cache (KB)
Swap out to host cache †	65642	KB	Amount of memory swapped-out to host cache (KB)
Swap out to host cache (average) †	65643	KB	Average amount of memory swapped-out to host cache (KB)
Swap out to host cache (maximum) †	65644	KB	Maximum amount of memory swapped-out to host cache (KB)
Swap out to host cache (minimum) †	65645	KB	Minimum amount of memory swapped-out to host cache (KB)

Release Candidate Version 1.5.0

1.4 VMware.Host.Disk "VMware Host Disk counters"

counter name	Id #	unit	description
Disk Read Requests (Number)	131076	number	Number of disk reads in the period (Number)
Disk Write Requests (Number)	131077	number	Number of disk writes in the period (Number)
Disk Read Rate (KBps)	131078	KBps	Rate of reading data from the disk (KBps)
Disk Write Rate (KBps)	131079	KBps	Rate of writing data to the disk (KBps)
Disk Commands Issued (Number)	131080	number	Number of disk commands issued in the period (Number)
Disk Command Aborts (Number)	131081	number	Number of disk commands aborted in the period (Number)
Disk Bus Resets (Number)	131082	number	Number of bus resets in the period (Number)
Physical Device Read Latency (Millisecond)	131083	milliseconds	he average time taken to complete a read from the physical device. (Millisecond)
Kernel Disk Read Latency (Millisecond)	131084	milliseconds	The average time spent in ESX Server vmKernel per read. (Millisecond)
Disk Read Latency (Millisecond)	131085	milliseconds	The average amount of time taken for a read from the perspective of a Guest OS. This is the sum of Kernel Read Latency and Physical Device
Queue Read Latency (Millisecond)	131086	milliseconds	The average time spent in the ESX Server vmKernel queue per read. (Millisecond)
Physical Device Write Latency (Millisecond)	131087	milliseconds	The average time taken to complete a write from the physical device. (Millisecond)
Kernel Disk Write Latency (Millisecond)	131088	milliseconds	The average time spent in ESX Server vmKernel per write. (Millisecond)
Disk Write Latency (Millisecond)	131089	milliseconds	The average amount of time taken for a write from the perspective of a Guest OS. This is the sum of Kernel Write Latency and Physical Device

Release Candidate Version 1.5.0

1.4 VMware.Host.Disk (continued)

counter name	Id #	unit	description
Queue Write Latency (Millisecond)	131090	milliseconds	The average time spent in the ESX Server vmKernel queue per write. (Millisecond)
Physical Device Command Latency (Millisecond)	131091	milliseconds	The average time taken to complete a command from the physical device. (Millisecond)
Kernel Disk Command Latency (Millisecond)	131092	milliseconds	The average time spent in ESX Server vmKernel per command. (Millisecond)
Disk Command Latency (Millisecond)	131093	milliseconds	The average amount of time taken for a command from the perspective of a Guest OS. This is the sum of Kernel Command Latency and Physical
Queue Command Latency (Millisecond)	131094	milliseconds	The average time spent in the ESX Server vmKernel queue per command. (Millisecond)
Maximum queue depth ‡	131096	number	Maximum queue depth (number)
Average read requests per second ‡	131097	second	Average number of disk reads per second during the collection interval
Average write requests per second ‡	131098	seconds	Average number of disk writes per second during the collection interval
Average commands issued per second ‡	131099	seconds	Average number of SCSI commands issued per second during the collection interval

(no new counters in 5.0)

Release Candidate Version 1.5.0

1.5 VMware.Host.Net
 "VMware Host System physical network interfaces"

counter name	Id #	unit	description
Network Packets Received (Number)	196612	number	Number of packets received in the period (Number)
Network Packets Transmitted (Number)	196613	number	Number of packets transmitted in the period (Number)
Network Data Receive Rate (KBps)	196614	KBps	Rate at which data is received (KBps)
Network Data Transmit Rate (KBps)	196615	KBps	Rate at which data is transmitted (KBps)
droppedRx*	196616	number	Number of receive packets dropped during the collection interval
droppedTx*	196617	number	Number of transmit packets dropped during the collection interval
Network Usage (KBps) †	196609	KBps	Aggregated network performance statistics. For hosts this can be represented on a per Virtual Machine basis as a stacked graph (KBps)
Data receive rate †	196618	KBps	Average amount of data received per second
Data transmit rate †	196619	KBps	Average amount of data transmitted per second
Broadcast receives †	196620	number	Number of broadcast packets received during the sampling interval
Broadcast transmits †	196621	number	Number of broadcast packets transmitted during the sampling interval
Multicast receives †	196622	number	Number of multicast packets received during the sampling interval
Multicast transmits †	196623	number	Number of multicast packets transmitted during the sampling interval
Packet receive errors †	196624	number	Number of packets with errors received during the sampling interval
Packet transmit errors †	196625	number	Number of packets with errors transmitted during the sampling interval
Unknown protocol frames †	196626	number	Number of frames with unknown protocol received during the sampling interval

Release Candidate Version 1.5.0

1.6 VMware.Host.Sys "VMware Host System information"

counter name	Id #	unit	description
Uptime	262144	seconds	Total time in seconds elapsed since last startup
Heartbeat	262145	number	Number of heartbeats in this period
Disk Usage (Percent) ‡	262146	percent	Percent amount of disk space usage for each mount point
Disk Usage (Percent) base ‡		base	Percent amount of disk space usage for each mount point base
Resource CPU Usage None (MHz)*	262147 ⁷	MHz	Amount of CPU used during the interval by the Service Console and other applications
Resource CPU Usage Average (MHz)*	262148	MHz	Average amount of CPU used during the interval by the Service Console and other applications (MHz)
Resource memory touched (KB)*	262151	KB	Memory touched by the system resource group in KB
Resource memory mapped (KB)*	262152	KB	Memory mapped by the system resource group in KB
Resource memory share saved (KB)*	262153	KB	Memory saved due to sharing by the system resource group in KB
Resource memory swapped (KB)*	262154	KB	Memory swapped out by the system resource group in KB
Resource memory overhead (KB)*	262155	KB	Overhead memory consumed by the system resource group in KB
Resource memory shared (KB)*	262156	KB	Memory shared by the system resource group in KB
Resource memory zero (KB)*	262157	KB	Zero filled memory used by the system resource group in KB
Resource CPU running (1 min. average) Percent*	262158	Percent	CPU active average over 1 minute of the system resource group
Resource CPU running (1 min. average) Percent Base*		base	CPU active average over 1 minute of the system resource group base
Resource CPU active (1 min. average) Percent*	262159	Percent	CPU active average over 1 minute of the system resource group

⁷ A counter id 262146 was inserted in ESX 4, label "Disk Usage", but has not been seen in data yet.

Release Candidate Version 1.5.0

1.6 VMware.Host.Sys (continued)

counter name	Id #	unit	description
Resource CPU active (1 min. average) Percent base*		base	CPU active average over 1 minute of the system resource group base
Resource CPU maximum limited (1 min.) Percent*	262160	percent	CPU maximum limited over 1 minute of the system resource group
Resource CPU maximum limited (1 min.) Percent base*		base	CPU maximum limited over 1 minute of the system resource group base
Resource CPU running (5 min. average) Percent*	262161	percent	CPU running average over 5 minutes of the system resource group
Resource CPU running (5 min. average) Percent base*		base	CPU running average over 5 minutes of the system resource group base
Resource CPU active (5 min. average) Percent*	262162	percent	CPU active average over 5 minutes of the system resource group
Resource CPU active (5 min. average) Percent base*		base	CPU active average over 5 minutes of the system resource group base
Resource CPU maximum limited (5 min.) Percent*	262163	percent	CPU maximum limited over 5 minutes of the system resource group
Resource CPU maximum limited (5 min.) Percent base*		base	CPU maximum limited over 5 minutes of the system resource group base
Resource CPU allocation minimum (in MHZ)*	262164	MHz	CPU allocation reservation (in MHZ) of the system resource group
Resource CPU allocation maximum (in MHZ)*	262165	MHz	CPU allocation limit (in MHZ) of the system resource group
Resource CPU allocation shares*	262166	number	CPU allocation shares of the system resource group
Resource memory allocation minimum (in KB)*	262167	KB	Memory allocation reservation (in KB) of the system resource group
Resource memory allocation maximum (in KB)*	262168	KB	Memory allocation limit (in KB) of the system resource group
Resource memory allocation shares*	262169	number	Memory allocation shares of the system resource group

(no new counters in 5.0)

Release Candidate Version 1.5.0

1.7 VMware.Host.ResCPU

"VMware Host System Resource CPU average usage"

counter name	Id #	unit	description
CPU Active (1 min. average)	327680	percent	CPU active average over 1 minute
CPU Active (1 min. average) Base		base	Base value for calculation
CPU Active (1 min. peak)	327681	percent	CPU active peak over 1 minute
CPU Active (1 min. peak) Base		base	Base value for calculation
CPU Running (1 min. average)	327682	percent	CPU running average over 1 minute
CPU Running (1 min. average) Base		base	Base value for calculation
CPU Active (5 min. average)	327683	percent	CPU active average over 5 minutes
CPU Active (5 min. average) Base		base	Base value for calculation
CPU Active (5 min. peak)	327684	percent	CPU active peak over 5 minutes
CPU Active (5 min. peak) Base		base	Base value for calculation
CPU Running (5 min. average)	327685	percent	CPU running average over 5 minutes
CPU Running (5 min. average) Base		base	Base value for calculation
CPU Active (15 min. average)	327686	percent	CPU active average over 15 minutes
CPU Active (15 min. average) Base		base	Base value for calculation
CPU Active (15 min. peak)	327687	percent	CPU active peak over 15 minutes
CPU Active (15 min. peak) Base			Base value for calculation
CPU Running (15 min. average)	327688	percent	CPU running average over 15 minutes
CPU Running (15 min. average) Base		base	Base value for calculation

Release Candidate Version 1.5.0

1.7 VMware.Host.ResCPU (continued)

counter name	Id #	unit	description
CPU Running (1 min. peak)	327689	percent	CPU running peak over 1 minute
CPU Running (1 min. peak) Base		base	Base value for calculation
CPU Throttled (1 min. average)	327690	percent	Amount of CPU resources over the limit that were refused, average over 1 minute
CPU Throttled (1 min. average) Base		base	Base value for calculation
CPU Running (5 min. peak)	327691	percent	CPU running peak over 5 minutes
CPU Running (5 min. peak) Base		base	Base value for calculation
CPU Throttled (5 min. average)	327692	percent	Amount of CPU resources over the limit that were refused, average over 5 minutes
CPU Throttled (5 min. average) Base		base	Base value for calculation
CPU Running (15 min. peak)	327693	percent	CPU running peak over 15 minutes
CPU Running (15 min. peak) Base		base	Base value for calculation
CPU Throttled (15 min. average)	327694	percent	Amount of CPU resources over the limit that were refused, average over 15 minutes
CPU Throttled (15 min. average) Base		base	Base value for calculation
Group Number of CPU Sample Count	327695	number	Group number of CPUs sample count
Group CPU Sample Period (milliseconds)	327696	milliseconds	Group CPU Sample Period in milliseconds

(no new counters in 5.0)

Release Candidate Version 1.5.0

1.8 VMware.Host.StorageAdapter

"VMware Host System Storage Adapter (HBA) metrics"

counter name	Id #	unit	description
Average commands issued per second ‡	458752	number	Average number of commands issued per second by the storage adapter during the collection interval
Average read requests per second ‡	458753	number	Average number of read commands issued per second by the storage adapter during the collection interval
Average write requests per second ‡	458754	number	Average number of write commands issued per second by the storage adapter during the collection interval
Read rate (KBps) ‡	458755	KBps	Rate of reading data by the storage adapter (KBps)
Write rate (KBps) ‡	458756	KBps	Rate of writing data by the storage adapter (KBps)
Read latency (milliseconds) ‡	458757	milliseconds	The average time a read by the storage adapter takes (milliseconds)
Write latency (milliseconds) ‡	458758	milliseconds	The average time a write by the storage adapter takes (milliseconds)

(no new counters in 5.0)

Release Candidate Version 1.5.0

1.9 VMware.Host.StoragePath

"VMware Host System Storage Adapter (HBA) metrics"

counter name	Id #	unit	description
Average commands issued per second ‡	524288	number	Average number of commands issued per second by the storage adapter during the collection interval
Average read requests per second ‡	524289	number	Average number of read commands issued per second by the storage adapter during the collection interval
Average write requests per second ‡	524290	number	Average number of write commands issued per second by the storage adapter during the collection interval
Read rate (KBps) ‡	524291	KBps	Rate of reading data by the storage adapter (KBps)
Write rate (KBps) ‡	524292	KBps	Rate of writing data by the storage adapter (KBps)
Read latency (milliseconds) ‡	524293	milliseconds	The average time a read by the storage adapter takes (milliseconds)
Write latency (milliseconds) ‡	524294	milliseconds	The average time a write by the storage adapter takes (milliseconds)

(no new counters in 5.0)

Release Candidate Version 1.5.0

1.10 VMware.Host.Datastore

"VMware Host Datastore metrics"

counter name	Id #	unit	description
Average read requests per second ‡	655360	number	Average number of read commands issued per second to the datastore during the collection interval
Average write requests per second ‡	655361	number	Average number of write commands issued per second by the storage adapter during the collection interval
Read rate (KBps) ‡	655362	KBps	Rate of reading data from the datastore (KBps)
Write rate (KBps) ‡	655363	KBps	Rate of writing data by the storage adapter (KBps)
Read latency (milliseconds) ‡	655364	milliseconds	The average time a read from the datastore takes (milliseconds)
Write latency (milliseconds) ‡	655365	milliseconds	The average time a write from the datastore takes (milliseconds)
Storage I/O Control normalized latency (microseconds) ‡	655366	microseconds	Storage I/O Control size-normalized I/O latency (microseconds)
Storage I/O Control aggregated IOPS ‡	655367	number	Storage I/O Control aggregated IOPS
Storage DRS datastore bytes read †	655368	number	Storage DRS datastore bytes read
Storage DRS datastore bytes written †	655369	number	Storage DRS datastore bytes written
Storage DRS datastore read I/O rate †	655370	number	Storage DRS datastore read I/O rate
Storage DRS datastore write I/O rate †	655371	number	Storage DRS datastore write I/O rate
Storage DRS datastore normalized read latency †	655372	number	Storage DRS datastore normalized read latency

Release Candidate Version 1.5.0

1.10 VMware.Host.Datastore (continued)

"VMware Host Datastore metrics"

Storage DRS datastore normalized write latency †	655373	number	Storage DRS datastore normalized write latency
Storage DRS datastore outstanding read requests †	655374	number	Storage DRS datastore outstanding read requests
Storage DRS datastore outstanding write requests †	655375	number	Storage DRS datastore outstanding write requests
Storage I/O Control datastore maximum queue depth †	655376	number	Storage I/O Control datastore maximum queue depth
Storage DRS datastore read workload metric †	655377	number	Storage DRS datastore read workload metric
Storage DRS datastore write workload metric †	655378	number	Storage DRS datastore write workload metric

Release Candidate Version 1.5.0

1.11 VMware.Host.Power

"VMware Host System Power metrics"

counter name	Id #	unit	description
Usage (watts) ‡	720896	number	Current power usage (watts)
cap (watts) ‡	720897	number	Maximum allowed power usage (watts)
Energy usage (joules) ‡	720898	KBps	Total energy used since last stats reset (joules)

(no new counters in 5.0)

1.12 VMware.Management Agent

" VMware Management Agent metrics"

counter name	Id #	unit	description
Memory Used (average) †	393216	KB	Memory Used as percentage of total configured or available memory (KB)
Memory swap used (KB) †	393217	KB	Amount of memory that is used by swap (KB)
Memory swap in (Average KBps) †	393218	KBps	Amount of memory that is swapped in KBps
Memory swap out (Average KBps) †	393219	KBps	Amount of memory that is swapped out KBps
CPU Usage †	393220	MHz	Amount of Service Console CPU usage (MHz)

Release Candidate Version 1.5.0

1.13 VMware.vSphere.Replication

" VMware vSphere Replication metrics"

counter name	Id #	unit	description
vSphere Replication VM Count †	786432	number	Current Number of Replicated VMs
Replication Data Receive Rate †	786433	KBps	Average amount of data received per second
Replication Data Transmit Rate †	786434	KBps	Average amount of data transmitted per second

Release Candidate Version 1.5.0

2. VMware.ResourcePool

"The ResourcePool is used to partition CPU and memory resources for use by virtual machines."

counter name	Id #	unit	description
CPU Usage in MHz	5	percentage	CPU usage in MHz over the collected interval. For hosts this can be represented on a per Virtual Machine basis as a stacked graph (MHz)
Memory Granted (KB)	65541	MHz	Amount of memory granted. For hosts this can be represented on a per Virtual Machine basis as a stacked graph. (KB)
Memory Active (KB)	65545	KB	Amount of memory that is actively used (KB)
Memory Shared (KB)	65549	KB	Amount of memory that is shared (KB)
Memory Zero (KB)	65553	KB	Amount of memory that is zeroed out (KB)
Memory Balloon (KB)	65582	KB	Amount of memory used by memory control (KB)
Memory Overhead (KB)	65586	KB	Amount of additional host memory allocated to the virtual machine (KB)
Memory Swapped (KB)	65591	KB	Amount of memory (in KB) that is swapped

(no new counters in 5.0)

Release Candidate Version 1.5.0

3.1 VMware.Guest.Aggregate "VirtualMachine Guest counters defined as Aggregates"

counter name	Id #	unit	description
CPU Usage (Percentage)	1	percentage	CPU usage as a percentage over the collected interval (Percent)
CPU Usage base		base	Base value for percentage calculation
CPU Usage in MHz	5	MHz	CPU usage in MHz over the collected interval. For hosts this can be represented on a per Virtual Machine basis as a stacked graph (MHz)
CPU Ready ⁸	11	millisecond	Percentage of time that the virtual machine was ready, but could not get scheduled to run on the physical CPU
Disk Usage KBps	131073	KBps	Aggregated storage performance statistics. For hosts this can be represented on a per Virtual Machine basis as a stacked graph
Network Usage (KBps)	196609	KBps	Aggregated network performance statistics. For hosts this can be represented on a per Virtual Machine basis as a stacked graph (KBps)
Swap wait time (Millisecond)*	14 ⁹		CPU time spent waiting for swap-in (Millisecond)
Disk Read Rate (KBps)*	131078	KBps	Rate of reading data from the disk (KBps)
Disk Write Rate (KBps)*	131079	KBps	Rate of writing data to the disk (KBps)
Network Data Receive Rate (KBps)*	196614	KBps	Rate at which data is received (KBps)
Network Data Transmit Rate (KBps)*	196615	KBps	Rate at which data is transmitted (KBps)

⁸ Table correction. "CPU Ready" is written in the counterset

⁹ Counter id 14 reassigned in ESX 4.0

Release Candidate Version 1.5.0

3.1 VMware.Guest.Aggregate (continued) "Virtual Machine Guest counters defined as Aggregates"

CPU System (milliseconds) †	9	millisecond	CPU time (milliseconds) spent on system processes
CPU Wait (milliseconds) †	10	millisecond	CPU time (milliseconds) spent in wait state
CPU Used (milliseconds) †	14	millisecond	CPU time that is used (Millisecond)
CPU Idle (milliseconds) †	15	millisecond	CPU time spent in idle state (Millisecond)
CPU Latency †	24	percentage	Percent of time the VM is unable to run because it is contending for access to the physical CPU(s)
CPU Latency base †		base	Base value for calculation
CPU Entitlement †	25	MHz	CPU resources devoted by the ESX scheduler (MHz)
CPU Demand †	26	MHz	The amount of CPU resources a VM would use if there were no CPU contention or CPU limit (MHz)
CPU CoStop †	27	millisecond	Time the VM is ready to run, but is unable to due to co-scheduling constraints (milliseconds)
VM CPU MaxLimited †	28	millisecond	Time the VM is ready to run, but is not run due to maxing out its CPU limit setting (milliseconds)
VM CPU Overlap †	29	millisecond	Time the VM was interrupted to perform system services on behalf of that VM or other VMs (milliseconds)
VM CPU Run †	30	millisecond	Time the VM is scheduled to run (milliseconds)
VM Memory Entitlement †	65629	KB	Amount of host physical memory the VM is entitled to, as determined by the ESX scheduler
Highest Disk Latency (Millisecond) †	131095	millisecond	Highest latency value across all disks used by the host (Millisecond)

Release Candidate Version 1.5.0

3.1 VMware.Guest.Aggregate (continued)

"Virtual Machine Guest counters defined as Aggregates"

Network Packets Received (Number) †	196612	number	Number of packets received in the period (Number)
Network Packets Transmitted (Number) †	196613	number	Number of packets transmitted in the period (Number)
droppedRx †	196616	number	Number of receive packets dropped during the collection interval
droppedTx †	196617	number	Number of transmit packets dropped during the collection interval
Data receive rate †	196618	KBps	Average amount of data received per second
Data transmit rate †	196619	KBps	Average amount of data transmitted per second
Broadcast receives †	196620	number	Number of broadcast packets received during the sampling interval
Broadcast transmits †	196621	number	Number of broadcast packets transmitted during the sampling interval
Multicast receives †	196622	number	Number of multicast packets received during the sampling interval
Multicast transmits †	196623	number	Number of multicast packets transmitted during the sampling interval
Datastore Highest latency †	655379	milliseconds	Highest latency value across all datastores used by the host (millisecond)

Release Candidate Version 1.5.0

3.2 VMware.Guest.CPU

"VirtualMachine Guest CPU counters instanced for Virtual CPUs"

counter name	Id #	unit	description
CPU Usage in MHz	5	MHz	CPU usage in MHz over the collected interval. For hosts this can be represented on a per Virtual Machine basis as a stacked graph (MHz)
CPU System (milliseconds)	9	milliseconds	CPU time (milliseconds) spent on system processes virtual machines (MHz)
CPU Wait (milliseconds)	10	milliseconds	CPU time (milliseconds) spent in wait state
CPU Ready (milliseconds)	11	milliseconds	CPU time (milliseconds) spent in ready state
CPU Extra (milliseconds)	12	milliseconds	CPU time (milliseconds) that is extra
CPU Guaranteed (milliseconds)	13	milliseconds	CPU time (milliseconds) that is guaranteed
CPU Used (milliseconds)	14	milliseconds	CPU time that is used (Millisecond)
Swap wait time (Millisecond)*	14 ¹⁰	milliseconds	CPU time spent waiting for swap-in (Millisecond)
CPU Idle †	15	millisecond	CPU time spent in idle state (Millisecond)
CPU CoStop †	27	millisecond	Time the VM is ready to run, but is unable to due to co-scheduling constraints (milliseconds)
VM CPU MaxLimited †	28	millisecond	Time the VM is ready to run, but is not run due to maxing out its CPU limit setting (milliseconds)
VM CPU Overlap †	29	millisecond	Time the VM was interrupted to perform system services on behalf of that VM or other VMs (milliseconds)
VM CPU Run †	30	millisecond	Time the VM is scheduled to run (milliseconds)

¹⁰ Counter id 14 was reassigned in ESX 4

Release Candidate Version 1.5.0

3.3 VMware.Guest.Disk "VMware Virtual Machine Guest Disk counters"

counter name	Id #	unit	description
Disk Read Requests (Number)	131076	number	Number of disk reads in the period (Number)
Disk Write Requests (Number)	131077	number	Number of disk writes in the period (Number)
Disk Read Rate (KBps)	131078	KBps	Rate of reading data from the disk (KBps)
Disk Write Rate (KBps)	131079	KBps	Rate of writing data to the disk (KBps)
Disk Commands Issued (Number)	131080	number	Number of disk commands issued in the period (Number)
Disk Command Aborts (Number)	131081	number	Number of disk commands aborted in the period (Number)
Disk Bus Resets (Number)	131082	number	Number of bus resets in the period (Number)
Maximum queue depth †	131096	number	Maximum queue depth (number)
Average read requests per second †	131097	second	Average number of disk reads per second during the collection interval
Average write requests per second †	131098	seconds	Average number of disk writes per second during the collection interval
Average commands issued per second †	131099	seconds	Average number of SCSI commands issued per second during the collection interval

Release Candidate Version 1.5.0

3.4 VMware.Guest.Memory

"VMware Guest virtual memory"

counter name	Id #	unit	description
Memory Usage (Percent)	65537	percentage	Memory usage as percentage of total configured or available memory (Percent)
Memory Usage base		base	Base value for percentage calculation
Memory Granted (KB)	65541	MHz	Amount of memory granted. For hosts this can be represented on a per Virtual Machine basis as a stacked graph. (KB)
Memory Active (KB)	65545	KB	Amount of memory that is actively used (KB)
Memory Shared (KB)	65549	KB	Amount of memory that is shared (KB)
Memory Zero (KB)	65553	KB	Amount of memory that is zeroed out (KB)
Memory Balloon (KB)	65582	KB	Amount of memory used by memory control (KB)
Memory Overhead (KB)	65586	KB	Amount of additional host memory allocated to the virtual machine (KB)
Memory Swapped (KB)	65591	KB	Amount of memory (in KB) that is swapped
"Memory Swap Target (KB)	65595	KB	Amount of memory (in KB) that can be swapped
Memory Swap In (KB)	65599	KB	Amount of memory that is swapped in (KB)
Memory Swap Out (KB)	65603	KB	Amount of memory that is swapped out (KB)
Memory Balloon Target (KB)	65607	KB	Amount of memory (in KB) that can be used by memory control
Memory Consumed (KB)	65611	KB	Amount of host memory consumed by the virtual machine for guest memory (KB)
Memory Swap In Rate (KBps)*	65618	KBps	Rate at which memory is swapped from disk into active memory during the interval in KBps
Memory Swap Out Rate (KBps)*	65619	KBps	Rate at which memory is being swapped from active memory to disk during the current interval in KBps

Release Candidate Version 1.5.0

3.4 VMware.Guest.Memory (continued)

"VMware Guest virtual memory"

counter name	Id #	unit	description
Active write memory ‡	65620	KB	Amount of memory actively being written to by the VM (KB)
Compressed ‡	65621	KB	Amount of memory compressed by ESX
Compression rate (KBps) ‡	65622	KBps	Rate of memory compression for the VM (KBps)
Decompression rate (KBps) ‡	65623	KBps	Rate of memory decompression for the VM (KBps)
Reserved overhead (KB) †	65624	KB	Memory (KB) reserved for use as the virtualization overhead for the VM
Zipped memory ‡	65626	KB	Memory (KB) zipped
Memory saved by zipping (KB) †	65627	KB	Memory (KB) saved due to memory zipping
VM Memory Latency †	65628	percentage	Percentage of time the VM is waiting to access swapped or compressed memory
VM Memory Latency †		base	Base value for percentage calculation
VM Memory Entitlement †	65629	KB	Amount of host physical memory the VM is entitled to, as determined by the ESX scheduler
Swap in rate from host cache (average) †	65632	KBps	Average rate at which memory is being swapped from host cache into active memory (KBps)
Swap out rate to host cache †	65633	KBps	Rate at which memory is being swapped from active memory to host cache (KBps)
Host cache used for swapping (average) †	65635	KB	Average space used for caching swapped pages in the host cache (KB)
Swap in rate from host cache (average) †	65632	KBps	Average rate at which memory is being swapped from host cache into active memory (KBps)

Release Candidate Version 1.5.0

3.5 VMware.Guest.Net

"VMware Guest OS virtual network interfaces"

counter name	Id #	unit	description
Network Packets Received (Number)	196612	number	Number of packets received in the period (Number)
Network Packets Transmitted (Number)	196613	number	Number of packets transmitted in the period (Number)
Network Data Receive Rate (KBps)	196614	KBps	Rate at which data is received (KBps)
Network Data Transmit Rate (KBps)	196615	KBps	Rate at which data is transmitted (KBps)
Network Usage (KBps) †	196609	KBps	Aggregated network performance statistics. For hosts this can be represented on a per Virtual Machine basis as a stacked graph (KBps)
droppedRx †	196616	number	Number of receive packets dropped during the collection interval
droppedTx †	196617	number	Number of transmit packets dropped during the collection interval
Data receive rate †	196618	KBps	Average amount of data received per second
Data transmit rate †	196619	KBps	Average amount of data transmitted per second
Broadcast receives †	196620	number	Number of broadcast packets received during the sampling interval
Broadcast transmits †	196621	number	Number of broadcast packets transmitted during the sampling interval
Multicast receives †	196622	number	Number of multicast packets received during the sampling interval
Multicast transmits †	196623	number	Number of multicast packets transmitted during the sampling interval

Release Candidate Version 1.5.0

3.6 VMware.Guest.Sys "VMware Guest System information"

counter name	Id #	unit	description
Uptime	262144	seconds	Total time in seconds elapsed since last startup
Heartbeat	262145	number	Number of heartbeats in this period
OS Uptime †	262170	seconds	Total time elapsed, in seconds, since last operating system boot-up

Release Candidate Version 1.5.0

3.7 VMware.Guest.ResCPU "VMware Guest System Resource CPU average usage"

counter name	Id #	unit	description
CPU Active (1 min. average)	327680	percent	CPU active average over 1 minute
CPU Active (1 min. average) Base		base	Base value for calculation
CPU Active (1 min. peak)	327681	percent	CPU active peak over 1 minute
CPU Active (1 min. peak) Base		base	Base value for calculation
CPU Running (1 min. average)	327682	percent	CPU running average over 1 minute
CPU Running (1 min. average) Base		base	Base value for calculation
CPU Active (5 min. average)	327683	percent	CPU active average over 5 minutes
CPU Active (5 min. average) Base		base	Base value for calculation
CPU Active (5 min. peak)	327684	percent	CPU active peak over 5 minutes
CPU Active (5 min. peak) Base		base	Base value for calculation
CPU Running (5 min. average)	327685	percent	CPU running average over 5 minutes
CPU Running (5 min. average) Base		base	Base value for calculation
CPU Active (15 min. average)	327686	percent	CPU active average over 15 minutes
CPU Active (15 min. average) Base		base	Base value for calculation
CPU Active (15 min. peak)	327687	percent	CPU active peak over 15 minutes
CPU Active (15 min. peak) Base		base	Base value for calculation

Release Candidate Version 1.5.0

3.7 VMware.Guest.ResCPU (continued)

counter name	Id #	unit	description
CPU Running (15 min. average)	327688	percent	CPU running average over 15 minutes
CPU Running (15 min. average) Base		base	Base value for calculation
CPU Running (1 min. peak)	327689	percent	CPU running peak over 1 minute
CPU Running (1 min. peak) Base		base	Base value for calculation
CPU Throttled (1 min. average)	327690	percent	Amount of CPU resources over the limit that were refused, average over 1 minute
CPU Throttled (1 min. average) Base		base	Base value for calculation
CPU Running (5 min. peak)	327691	percent	CPU running peak over 5 minutes
CPU Running (5 min. peak) Base		base	Base value for calculation
CPU Throttled (5 min. average)	327692	percent	Amount of CPU resources over the limit that were refused, average over 5 minutes
CPU Throttled (5 min. average) Base		base	Base value for calculation
CPU Running (15 min. peak)	327693	percent	CPU running peak over 15 minutes
CPU Running (15 min. peak) Base		base	Base value for calculation
CPU Throttled (15 min. average)	327694	percent	Amount of CPU resources over the limit that were refused, average over 15 minutes
CPU Throttled (15 min. average) Base		base	Base value for calculation
Group Number of CPU Sample Count	327695	number	Group number of CPUs sample count
Group CPU Sample Period (milliseconds)	327696	milliseconds	Group CPU Sample Period in milliseconds

(no new counters in 5.0)

Release Candidate Version 1.5.0

3.8 VMware.Guest.VirtualDisk

"VMware Virtual Machine Virtual Disk metrics"

counter name	Id #	unit	description
Average read requests per second ‡	589524	number	Average number of read commands issued per second to the virtual disk during the collection interval
Average write requests per second ‡	589825	number	Average number of write commands issued per second to the virtual disk during the collection interval
Read rate (KBps) ‡	589826	KBps	Rate of reading data from the virtual disk (KBps)
Write rate (KBps) ‡	589827	KBps	Rate of writing data by the virtual disk (KBps)
Read latency (milliseconds) ‡	589828	milliseconds	The average time a read from the virtual disk takes (milliseconds)
Write latency (milliseconds) ‡	589829	milliseconds	The average time a write from the virtual disk takes (milliseconds)
Average number of outstanding read requests †	589830	number	Average number of outstanding read requests to the virtual disk during the collection interval
Average number of outstanding write requests †	589831	number	Average number of outstanding write requests to the virtual disk during the collection interval
Read workload metric †	589832	number	Storage DRS virtual disk metric for the read workload model
Write workload metric †	589833	number	Storage DRS virtual disk metric for the write workload model

Release Candidate Version 1.5.0

3.9 VMware.Guest.Datastore

"VMware Virtual Machine Datastore metrics"

counter name	Id #	unit	description
Average read requests per second ‡	655360	number	Average number of read commands issued per second to the datastore during the collection interval
Average write requests per second ‡	655361	number	Average number of write commands issued per second by the storage adapter during the collection interval
Read rate (KBps) ‡	655362	KBps	Rate of reading data from the datastore (KBps)
Write rate (KBps) ‡	655363	KBps	Rate of writing data by the storage adapter (KBps)
Read latency (milliseconds) ‡	655364	milliseconds	The average time a read from the datastore takes (milliseconds)
Write latency (milliseconds) ‡	655365	milliseconds	The average time a write from the datastore takes (milliseconds)

(no new counters in 5.0)

3.10 VMware.Guest.Power

"VMware Virtual Machine System Power metrics"

counter name	Id #	unit	description
Usage (watts) ‡	720896	number	Current power usage (watts)
cap (watts) ‡	720897	number	Maximum allowed power usage (watts)
Energy usage (joules) ‡	720898	KBps	Total energy used since last stats reset (joules)

(no new counters in 5.0)