Beta version 1.0.0.60

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 4.0.

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 VMware Windows Guests running operating systems where the Perflib V2 interface is available. Those 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 WMware 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 a few 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.

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

[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.

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 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 most current information is this reference:

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

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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

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.

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

1.1 VMware.Host.Aggregate[2]

"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.

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[3]	Milliseconds	CPU time that is used (Millisecond)
CPU Idle (milliseconds)*	15/13[4]	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)

[3] "CPU Used" is assigned counter id 14 in ESX 3.5 and id 12 in ESX 4.0.

[4] "CPU Idle" is assigned counter id 15 in ESX 3.5 and id 13 in ESX 4.0.

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

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

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)

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 of receive packets dropped during the collection interval
droppedTx*	196617		Number of transmit packets dropped during the collection interval

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
Resource CPU Usage None (MHz)*	262147[5]	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
Resource CPU active (1 min. average) Percent base*		base	CPU active average over 1 minute of the system resource group base

[5] A counter id 262146 was inserted in ESX 4, label “Disk Usage”, but has not been seen in data yet.

1.6 VMware.Host.Sys (continued)

counter name	Id #	unit	description
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

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

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

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

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 [6]	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[7]		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)

[6] Table correction. "CPU Ready" is written in the counterset

[7] Counter id 14 reassigned in ESX 4.0

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[8]	milliseconds	CPU time spent waiting for swap-in (Millisecond)

[8] Counter id 14 was reassigned in ESX 4

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)

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

3.5 VMware.Guest.Net

"VMware Guest OS virtual network interfaces"

counter name	Id #	unit	description
Network Packets Received (Number)	196612	MHz	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)

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

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

3.7 VMware.Guest.ResCPU" (continued)

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