NetApp® Unified Storage Performance Management Using Open Interfaces

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Executive Summary

NetApp unified storage systems support multiprotocol data access and can be configured as SAN, IPSAN and NAS devices at the same time. NetApp storage systems support different type of storage objects like aggregates, volumes, LUNs, qtrees etc. NetApp provides open interfaces like Data ONTAP APIs, SNMP, SMI-S agent for monitoring and managing various components of the NetApp storage system. This document provides the details of how to use NetApp open interfaces for unified storage performance management and how to simplify performance management of NetApp storage systems when multiple protocols are supported and multiple objects are being managed

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1 Introduction

1.1 Background

Performance measurement is important in understanding the usage patterns of storage which can help in catching the performance problems before they impact the users and applications.

Usually IT infrastructures often grow rapidly beyond the initial sizing estimates. To cater to these growths as administrators add workload demand from new users and applications, the storage system latency increases linearly but at certain threshold latency starts to increase exponentially and results in what is known as the 'hockey stick' effect. By monitoring performance and analyzing trends, administrators are able to anticipate the latency curve before it goes up and prevent it from impacting users.

Performance Measurement is useful in the following areas:

1. Capacity planning and sizing
2. Tuning Storage, Platform and Application configurations to achieve the best performance
3. Monitoring health of the system through trending
4. Monitoring thresholds and alerts to avoid the bottlenecks
5. Load balancing for optimal usage of the resources

1.2 Unified Performance Management

Unified Storage capabilities of NetApp storage systems require a different approach in managing the performance of the storage system. The same storage object can be accessed through different protocols. Also there are many different storage objects, both physical and logical, which form the storage hierarchy of the system and thus complicate the performance calculation for the system. Thus a unified view of performance of the system is required to manage the performance of the NetApp storage systems.

1.3 Purpose and Scope

NetApp provides following Open Interfaces to remotely manage the NetApp devices:
>   NetApp Manageability SDK
>   SNMP
>   Data ONTAP SMI-S Agent

This document provides details of different performance management scenarios in the NetApp storage systems and how to use NetApp open interfaces to manage these

scenarios. This document covers only the use of NetApp Manageability SDK interfaces for calculating performance details because among the open interfaces, currently only Data ONTAP APIs provide the interface for reading the performance related data.

2 NetApp Open Interfaces

2.1 Data ONTAP APIs

The ONTAPI interface is a set of foundational APIs for managing NetApp Storage Systems. This interface is developed by NetApp for advance management of NetApp Storage Systems.

ONTAPI interfaces use XML as a format and may be configured to use either HTTP, HTTPS or DCE/RPC as the transport mechanism. HTTP is important when managing devices which may be outside of the corporate firewall, and locked down so that only port 80 is available, and is the default transport configuration. HTTPS can be used for secure communication through ONTAPI.

NetApp Manageability SDK also provides a small set of core interfaces that marshal and un-marshal ONTAP API arguments using XML as the description language. At present, core interfaces are provided in C/C++, Perl and Java.

2.2 SNMP

SNMP (Simple Network Management Protocol) is a well-known standard for network management. NetApp storage systems support the SNMP version 1 compatible agent. This agent supports both MIB-II and the NetApp™ custom MIB. For reasons of security, NetApp supports only monitoring using SNMP which means that SNMP SET operations are not permitted.

If SNMP is enabled in Data ONTAP, SNMP managers can query your storage system's SNMP agent for information (specified in your storage system's MIBs or the MIB-II specification). In response, the SNMP agent gathers information and forwards it to the SNMP managers using the SNMP protocol. The SNMP agent also generates trap notifications whenever specific events occur and sends these traps to the SNMP managers. The SNMP managers can then carry out actions based on information received in the trap notifications.

The latest versions of the Data ONTAP MIB files are available online on the NetApp on the Web (NOW™) site.

2.3 Data ONTAP SMI-S Agent

Data ONTAP SMI-S agent provides standards based storage management interface to discover, monitor, and manage NetApp storage systems. The specifications for SMI-S are developed by SNIA (Storage Networking Industry Association) and DMTF (Distributed Management Task Force) standards organizations.

The SMI-S agent is implemented as a proxy-based management solution. The agent needs to be installed on an external server (i.e. it is not implemented within ONTAP). Currently the supported platforms for SMI-S agent installation are Windows and Linux (Red Hat and SUSE) based hosts.

3 NetApp Performance Management Concepts

3.1 Basics of Performance Analysis

One of the fundamental theories used for Performance Analysis is Little's Law. Following is the mathematical representation of Little's Law:

Queue-Length = Throughput x Latency

> *Throughput* - The rate at which any request coming into the system is served
> *Latency* – The time taken to service a request coming into the system
> *Queue-Length* – Average number of pending requests in the system at any given time

Little's Law can be used to analyze the performance of any system that can be modeled as queues. For example, to analyze how efficiently a Bank is servicing its customers, we need to calculate at what rate the customers are entering the bank for a service (Throughput measurement) and how much time the teller at the counter takes to service each customer (Latency measurement). Once we get Throughput and Latency data, we can calculate the average length of the customer queue which is a direct measure of how efficiently the bank is servicing its customers and this data can be used to take a decision whether the bank needs to open one more counter or the employee at the counter needs to be made more efficient.

Little's Law can be used to understand the performance of any storage component in the customer environment. For each component in the storage system, the queue-length data can be calculated using the I/O rate to the component (gives throughput measurement) and the I/O latency of the component. For each environment, the queue-length numbers need to be monitored and the average queue-length should be bench-marked. The performance hot-spots can be identified in the specific storage environment by tracking the consistent periodic peaks in the queue-length numbers observed over a period of time.

3.2 Performance Monitoring Infrastructure

The following figure shows the overall infrastructure available for applications to monitor the performance statistics of NetApp storage systems.

3rd Party Management Tools

Auto-support

DFM

Windows Perfmon Clients

CLI

Filer Data Archives

SNMP

Data ONTAP APIs

SMB calls

Windows Perfmon Support

Existing Performance Commands

Ontap Counter Manager (CM)

Storage System Performance counters
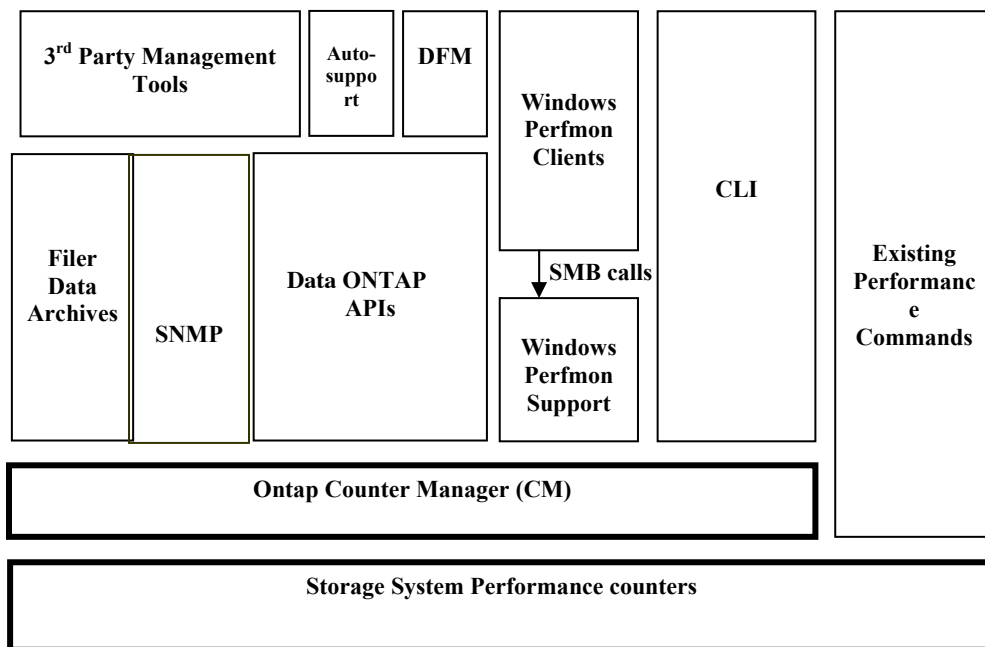
At the base of the performance infrastructure there are a set of performance counters accessible through existing performance commands. Above this set of performance counters, is a thin layer of abstraction called Counter Manager (CM).

Counter Manager provides
> an object abstraction to higher layers
> a single view of ONTAP performance counters
> a standard performance API set for all the clients of CM

The following are the different channels through which performance monitoring applications can access the API set of the CM:
> CLI commands
>> o Stats
>> o Sysstat
>> o statit
> Windows Perfmon clients using SMB calls to Windows Perfmon support
> Data ONTAP APIs
>> o Used for building NetApp management tools like DFM-Performance Analyzer, PerfStat, PerfViewer
>> o Also used by third parties to integrate their performance management tools for NetApp storage systems.
> SNMP

In future we will be adding something called Filer Data Archives. Today, when you read performance counters you get a real-time view of these counters. You can save them but

that responsibility is up to the host or the administrator. With Filer Data Archives, the storage system keeps historical versions of performance counters so that it's easy to do trending and analysis without the host having to save all that information.

3.3   Performance Counters Design

Performance counters are grouped in an ***object-instance-counter*** hierarchy. The object will have a set of well defined counters. Each object could have many instances of it but each of these instances will have its own corresponding values for this well defined counter set. For example, 'Volume' is an Object type. In a particular storage system, there could be many volumes, for instance 'vol0' and 'vol1'. Each of these volumes is an instance of the 'Volume' object. The 'Volume' object has a well defined counter set that includes counters like 'read_ops', 'read_latency' etc. Each instance of the 'Volume' object in this storage system viz. 'vol0' and 'vol1' have its own values for the counters 'read_ops', 'read_latency' etc. The example is illustrated below:
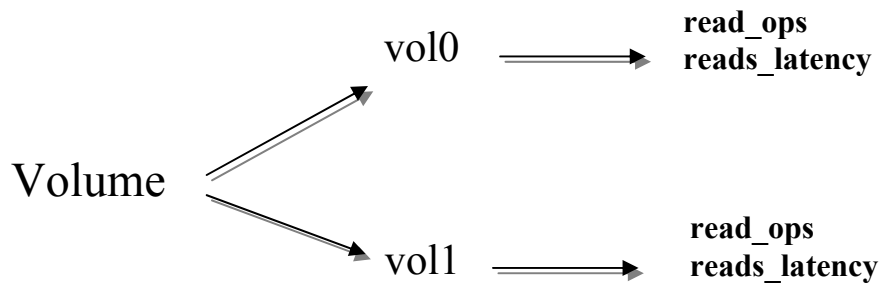
Each counter has a type, unit and priority associated with it. See ***'Appendix 1 - Performance counters in DataONTAP 7.1'*** for the description of the various performance objects and the associated counters supported in DataONTAP 7.1, meaning of the different types and priorities of the counters.

4 Performance Measurement using NetApp Open Interfaces

The following sections describe how the performance counters associated with some of the performance objects can be used in various scenarios that would need performance measurements.

4.1 Using Aggregate counters

Consider the scenario wherein the application needs to know if more disks need to be added to the aggregate to improve the application performance. For this the application needs to do the following:

> Get the number of disks in the aggregate
> Get the total transfer rate of IOPs to the aggregate
> Get the rate of average block/byte transfer rate to the aggregate.

The following table provides details on API calls to get the above data:

Operation	Command Details (Data ONTAP API)	Comments
Get the number of disks in the aggregate	*aggr-list-info*	API returns *aggr_info[]* array. The *disk-count* attribute in the array provides the number of disks in the aggregate.
Get the Total IOP rate and average block transfer rate	*perf-object-get-instances* The input to this command is to be set as below: Object Name : aggregate Instance Name : aggregate name of interest Counter Info : Fill three elements of type '*counter_info*'with the counter names as 'total_transfers', 'user_read_blocks' and 'user_write_blocks' respectively	Make two calls to read the data at two points in time: t1 and t2, and calculate the throughput during the interval

Assuming that the data in the aggregate are striped across all the disks equally and that the benchmark numbers for the FC disks are:

> Throughput: 30 – 50 MB/sec, and   IOPS: 200 – 400

Also assume that the application is using 64K size blocks for read/write operations.

Total_transfers rate = (total_transfers at t2 - total_transfers at t1)/ (t2 – t1)

Total MB/sec of read/write data = ((user_read_blocks + user_write_blocks at t2)

- (user_read_blocks + user_write_blocks at t1))*64/

((t2 – t1)*1024)

IOPS per disk = (total_transfers rate)/(disk_count)

Throughput per disk = (Total MB/sec of read/write data) / (disk_count)

If the IOPS or the throughput per disk is not in the range mentioned above then additional disks should be added to the aggregate to improve the performance of application that is doing IOs to that particular aggregate.

4.2   Using LUN counters

Consider the scenario where an application is sending I/O packets to a LUN and the response time of the I/O is poor. This could be because of one or more of the following reasons:

Poor concurrency design of the application – measured by the number of threads of execution in the application

Slower LUN – measured by the average latency of the LUN

Busy LUN – measured by the number of queue-full messages per second

If the application concurrency is taken care with good multi-threaded design then the bottle-neck is most probably at the LUN.

To diagnose the LUN bottleneck, do the following:

Check the average latency of the LUN. Assuming that the application is running in Oracle/Exchange environment , the threshold latency is around 20 millisecond

Check queue full message rate of the LUN. An unusually high rate of queue full messages indicates the LUN is not able to handle the I/O rates of the application.

The following table provides details on API calls to get the above data:

Operation	Command Details (Data ONTAP API)	Comments
Get the LUN counters 'avg_latency' and 'queue_full'	*perf-object-get-instances* The input to this command is to be set as below: Object Name : lun Instance Name : LUN name of interest Counter Info : Fill three elements of type *'counter_info'* with the counter names	Get the data at two intervals of time t1 and t2

	'avg_latency', 'total_ops' and 'queue_full'	

Queuefull/sec = (queuefull rate at time t2 - queuefull rate at t1) / (t2 – t1)
avg_latency = (avg_latency at time t2 - avg_latency at time t1) /
               (total_ops at time t2 – total_ops at time t1)

From the above calculations, the application can determine if the queuefull rate and average latency are in the acceptable range.

If the queue full rate is not in the acceptable range then the LUN is really busy, add more LUNs and distribute the I/O to different LUNs.

If the average latency is not in the acceptable range, then the LUN is slow. Move the LUN to the volume which is based on a faster disk.

If the latency at the server is much more compared to the average latency of the LUN then increase the queue-depth settings of the SCSI/FC driver on the host.

4.3   Using NFSV3/CIFS counters

Consider the scenario, where an application reading data from NFS/CIFS share is facing timeouts or disconnects. The problem could be due to network latency or storage system latency. Following are the steps to debug this issue:
  Look on storage system for high latencies. The NFS and CIFS read latency can be calculated as shown below:

Operation	Command Details (Data ONTAP API)	Comments
Get the nfsv3 counters 'nfsv3_read_latency' and 'nfsv3_avg_read_latency_base'	*perf-object-get-instances* The input to this command is to be set as below: Object Name : nfsv3 Instance Name : NFS share name of interest Counter Info : Fill two elements of type '*counter_info*' with the counter names as 'nfsv3_read_latency' and 'nfsv3_avg_read_latency_base' respectively	Get the data at two intervals of time t1 and t2
Get the cifs counters 'cifs_latency' and 'cifs_latency_base'	*perf-object-get-instances* The input to this command is to be set as below: Object Name : cifs Instance Name : CIFS share name of interest Counter Info : Fill two elements of type	Get the data at two intervals of time t1 and t2

	'*counter_info*' with the counter names as 'cifs_latency' and 'cifs_latency_base' respectively	

Calculation of the Latencies for NFS and CIFS shares:

NFS read latency = (nfsv3_read_latency at time t2 - nfsv3_read_latency at time t1) / (nfsv3_avg_read_latency_base at time t2 - nfsv3_avg_read_latency_base at time t1)

CIFS latency = (cifs_latency at time t2 - cifs_latency at time t1) / (cifs_latency_base at time t2 - cifs_latency_base at time t1)

The maximum acceptable latencies are:
  60 msecs for NFS
  30 msecs for CIFS
  120 msecs for FCP/iSCSI

If the latencies as calculated above are higher than the maximum acceptable latencies, then the problem lies with the storage system

If storage system doesn't show high latencies, this is probably a network issue.

Compare host view of latencies versus storage system view of latencies. If different, this is probably a network or host I/O driver issue.

4.4   Using Processor/System counters

One of the unique features of NetApp storage systems is, unlike other vendor storage systems, NetApp storage systems have an OS and File System. So CPU of the storage box could also be one of the potential candidates for bottlenecks in the I/O path.

Consider the scenario where there is high latency and application sluggishness. Assume that there are no disk bottlenecks or application concurrency problems. Then the problem could be with the utilization of the CPUs on the storage system. Following are the steps to diagnose the CPU bottleneck problems:
  Look for CPU utilizations of more than > 95% on 1P, >180% on 2P, >350% on 4P
  If the CPU utilization is not high enough (i.e., the utilization is less than the above mentioned ranges), then look for the total domain utilizations of more than 90%. Improper management of storage system could result in all work that needs to be done is in one domain

The CPU and domain utilizations can be calculated as described below. The following table shows how to use APIs to get the required counters to calculate these values:

Operation	Command Details (Data ONTAP API)	Comments
Get the *System* object counters *total_processor_busy, cpu_elapsed_time*	*perf-object-get-instances* The input to this command is to be set as below: Object Name : system Instance Name : system Counter Info : Fill two elements of type *'counter_info'* with the counter names as *'total_processor_busy'* and *'cpu_elapsed_time'* respectively	Get the data at two intervals of time t1 and t2
Get the *Processor* object counters *'domain'* and *'processor_elapsed_time'* for each of the processor instance	*perf-object-get-instances* The input to this command is to be set as below: Object Name : processor Instance Name : (keeping this empty will result in getting the counter values for all of the processors in the system in one shot) Counter Info : Fill two elements of type *'counter_info'* with the counter names as *'processor_elapsed_time'* and *'domain'* respectively	Get the data at two intervals of time t1 and t2 The domain counter will result in multiple arrays of processor time spent in various domains. The number of arrays is equal to the number CPUs in the storage system

% CPU utilization = (*total_processor_busy* at time t2 - *total_processor_busy* at time t1) / (*cpu_elapsed_time* at time t2 - *cpu_elapsed_time* at time t1)

Domain utilization:

For each processor instance, the domain utilization is got as below:

%domain utilization = (domain[cpu-number][domain element] at time t2) – (domain[cpu-number][domain element] at time t1) / (processor_elapsed_time at time t2 - processor_elapsed_time at time t1)

The values may look as below:

Idle Kah   Net Stor Exem Raid Targ Netc Netc2

```
Processor 0: 20%  34%  20%  10%   6%   10%  0%   0%  0%
Processor 1: 23%  60%  10%    5%   1%     1%  0%   0%  0%
```

Total   43% 94% 30% 15% 7%   11% 0%   0% 0%

The total domain utilization is got by adding the corresponding elements in the above arrays.

Once the % CPU utilization and % domain utilization is calculated as above, the solution for the problem could be decided as below:

1. If the CPU utilization is beyond the threshold values as mentioned above, then the CPU bottleneck could be solved by moving to a storage controller with more processors
2. If the CPU utilization is not high enough and one of the domain elements utilization is more than the threshold values as mentioned above, then the bottleneck problem is solved by proper prioritization of the workloads using **flexshare**.

5 Appendix 1 - Performance counters in Data ONTAP 7.3

The following list may not be exhaustive or the most recent. The actual list of Performance counters that is applicable to your storage system can be found by using the ONTAP APIs "*perf-object-list-info*" and "*perf-object-counter-list-info*" on your storage system.

5.1 Counter Types

Type	Meaning
RAW	Means that the counter being exported has no math associated with it.
RATE	Means that two samples of this counter (say C1 and C2) have to be taken at two different points in time (say t1 and t2) and the following math needs to be worked out: **(C2 - C1) / (t2 – t1)**
DELTA	Means that two samples of this counter (say C1 and C2) have to be taken at two different points in time (say t1 and t2) and the following math needs to be worked out: **(C2 - C1)**
AVERAGE	Means that two samples of this counter (say C1 and C2) and two samples of the base counter (say b1 and b2) have to be taken at two different points in time (say t1 and t2) and the following math needs to be worked out: **(C2 - C1)/(b2-b1)**
PERCENT	Means that two samples of this counter (say C1 and C2) and two samples of the base counter (say b1 and b2) have to be taken at two different points in time (say t1 and t2) and the following math needs to be worked out: **100 * (C2 - C1)/(b2-b1)**
TEXT	Means that this counter is a string
NODISP	Typically a base counter that is needed for math associated with other counters. These counters are never exported or displayed

5.2 Counter Priority Levels

Level	Meaning
BASIC	Essential counters for problem diagnosis
ADMIN	Counters for administrative purposes
ADVANCED	Advanced counters – Need not be customer visible
DIAG	Counters that used for diagnosis purposes. Some of these counters can report incorrect data too!
PERFMON_*	Counters that are visible through perfmon.
STATS_*	Counters that are visible through the CLI with 'stats'.
ZAPI_*	Counters that are visible through ZAPI.
ASUP_*	Counters that are visible through autosupport.
SAMPLED	Objects that are automatically sampled.

Note: The legacy counter priority levels (BASIC-DIAG) are by default visible to all consumers. Specific consumers can be included by logically ORing their flag, or excluded by negating their flag. (CM_BASIC | CM_SAMPLED) indicatse an object includes the 'sampled per second bit', while (CM_BASIC | ~CM_PERFMON_BASIC) indicates a counter is not visible for Perfmon. The priority level attached with a counter is just a suggestion to various clients of CM regarding the importance/correctness of a counter. It is up to the clients to do any filtering based on these priorities.

5.3 List of Objects supported

Object Name	Contains
aggregate	CM_BASIC
audit_ng	CM_BASIC
bufcache	CM_DIAG
cacheeject	CM_DIAG
cachequeue	CM_DIAG
CIFS	CM_BASIC
cifs_ops	CM_DIAG
cifs_session_signing	CM_DIAG
cifs_stats	CM_DIAG
cifs_watch	CM_DIAG
cifsdomain	CM_DIAG
cpdump	CM_PRIV_DIAG_ZAPI | CM_CP_DUMP
cpdump_disk	CM_PRIV_DIAG_ZAPI | CM_CP_DUMP
cpdump_fvol	CM_PRIV_DIAG_ZAPI | CM_CP_DUMP
cpdump_rg	CM_PRIV_DIAG_ZAPI | CM_CP_DUMP
cpdump_rvol	CM_PRIV_DIAG_ZAPI | CM_CP_DUMP
disk	CM_BASIC
dump	CM_BASIC|CM_DIAG
ext_cache	CM_BASIC
ext_cache_obj	CM_BASIC
FCP	CM_BASIC
flexcache	CM_DIAG
fpolicy_global	CM_DIAG
fpolicy_stats_policy	CM_DIAG
fpolicy_stats_server	CM_DIAG
hostadapter	CM_BASIC
ifnet	CM_BASIC
incpr_global	CM_BASIC
incpr_sess	CM_DIAG
iomem	CM_DIAG
iSCSI	CM_BASIC
LDAP	CM_DIAG
lmem	CM_DIAG
lmgr_ng	CM_ADVANCED
logical_replication_destination	CM_BASIC
logical_replication_source	CM_BASIC
LUN	CM_BASIC

NDMP	CM_BASIC
nfsv3	CM_BASIC
nfsv4	CM_DIAG
nrv	CM_DIAG
NVRAM	CM_DIAG
partial_file_restore	CM_DIAG
perf	CM_DIAG
priorityqueue	CM_ADVANCED
prisched	CM_ADVANCED
processor	CM_BASIC
qtree	CM_BASIC
quota	CM_BASIC
raid	CM_DIAG
raid_stripe	CM_DIAG
readahead	CM_DIAG
replication	CM_DIAG
rsm_src_global	CM_DIAG
rsm_dst_global	CM_DIAG
rsm_src_relation	CM_DIAG
rsm_dst_relation	CM_DIAG
SIS	CM_DIAG
Sparse	CM_DIAG
Spinhi	CM_BASIC
System	CM_BASIC
tape	CM_DIAG
test	CM_TEST
vfiler	CM_BASIC
volume	CM_BASIC
volume_snapmirror_destination	CM_DIAG
volume_snapmirror_source	CM_DIAG
vscan_server_stat	CM_DIAG
vscan_stats	CM_DIAG
wafl	CM_DIAG
cifs_watch	CM_DIAG
zodiac	CM_DIAG

5.4 List of Counters supported in various Objects

aggregate object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
parent_host	64B	STRING	NONE	Name of parent host	CM_DIAG	
total_transfers	8B	RATE	PER_SEC	Total number of transfers per second serviced by the aggregate	CM_BASIC	
user_reads	8B	RATE	PER_SEC	Number of user reads per second to the aggregate	CM_BASIC	
user_writes	8B	RATE	PER_SEC	Number of user writes per second to the aggregate	CM_BASIC	
cp_reads	8B	RATE	PER_SEC	Number of reads per second done during a CP to the aggregate	CM_BASIC	
user_read_blocks	8B	RATE	PER_SEC	Number of blocks read per second on the aggregate	CM_BASIC	
user_write_blocks	8B	RATE	PER_SEC	Number of blocks written per second to the aggregate	CM_BASIC	
cp_read_blocks	8B	RATE	PER_SEC	Number of blocks read per second during a CP on the aggregate	CM_BASIC	
wv_fsid	16B	STRING	NONE	File system ID for the aggregate	CM_DIAG	
wv_vol_type	16B	STRING	NONE	Volume type for the aggregate	CM_DIAG	
wv_fsinfo_fs_version	4B	RAW	NONE	File system version for the aggregate	CM_DIAG	
wv_volinfo_fs_options	16B	STRING	NONE	File system options for the aggregate	CM_DIAG	
wv_volinfo_fs_flags	16B	STRING	NONE	File system flags for the aggregate	CM_DIAG	
wv_fsinfo_blks_total	8B	RAW	NONE	Total blocks in the aggregate	CM_DIAG	
wv_fsinfo_blks_reserve	8B	RAW	NONE	Reserved blocks in the aggregate	CM_DIAG	
wv_fsinfo_blks_used	8B	RAW	NONE	Used blocks (all planes) in the aggregate	CM_DIAG	
wv_fsinfo_blks_used_by_plane0	8B	RAW	NONE	Used blocks (plane 0) in the aggregate	CM_DIAG	
wv_fsinfo_blks_blks_rsrv_holes_cifs	8B	RAW	NONE	Reserved blocks for CIFS holes in the aggregate	CM_DIAG	
wv_fsinfo_blks_blks	8B	RAW	NONE	Reserved blocks for all holes in	CM_DIAG	

_rsrv_holes				the aggregate		
wv_fsinfo_blks_blks_rsrv_overwrite	8B	RAW	NONE	Overwrite reserved blocks in the aggregate	CM_DIAG	
wv_fsinfo_blks_rsrv_absents	8B	RAW	NONE	Absent sparse volume reserved blocks in the aggregate	CM_DIAG	
wv_fsinfo_blks_snap_reserve_pct	4B	RAW	PERCT	Snap reserved percentage for the aggregate	CM_DIAG	
wv_fsinfo_blks_res_state	4B	RAW	NONE	Space reservation state for the aggregate	CM_DIAG	
wv_fsinfo_blks_overwrite_slider_pct	4B	RAW	PERCT	Overwrite slider percentage for the aggregate	CM_DIAG	
wv_fsinfo_inos_total	4B	RAW	NONE	Total inodes in the aggregate	CM_DIAG	
wv_fsinfo_inos_reserve	4B	RAW	NONE	Reserved inodes in the aggregate	CM_DIAG	
wv_fsinfo_inos_used	4B	RAW	NONE	Used inodes in the aggregate	CM_DIAG	
wv_fsinfo_blkr_cp	4B	RAW	NONE	CP when block reallocation first performed	CM_DIAG	
wvblk_past_eof	8B	RAW	NONE	Blocks past EOF in the aggregate	CM_DIAG	
wvblk_snap_reserve	8B	RAW	NONE	Snap reserved blocks in the aggregate	CM_DIAG	
wvblk_zombie_blks	8B	RAW	NONE	Blocks used in zombie files in the aggregate	CM_DIAG	
wvblk_child_delalloc	8B	RAW	NONE	Total delalloc blocks from flexible volumes in the aggregate	CM_DIAG	
wvblk_child_rsrv_delalloc	8B	RAW	NONE	Total reserved delalloc blocks from flexible volumes in the aggregate	CM_DIAG	
wvblk_rsrv_child_holes	8B	RAW	NONE	Total blocks for holes from flexible volumes in the aggregate	CM_DIAG	
wvblk_rsrv_child_overwrite	8B	RAW	NONE	Total blocks for overwrites from flexible volumes in the aggregate	CM_DIAG	
wvblk_rsrv_child_overwrite_always	8B	RAW	NONE	Total blocks for always overwrites from flexible volumes in the aggregate	CM_DIAG	
wvblk_child_indirect_blk_cnt	4B	RAW	NONE	Total indirect blocks of all container files	CM_DIAG	
wvbd_active_frees	8B	RAW	NONE	Active file system freed blocks during CP in the aggregate	CM_DIAG	

wvbd_whole_frees	8B	RAW	NONE	Active file system whole freed blocks during CP in the aggregate	CM_DIAG	
wvbd_active_frees_y	8B	RAW	NONE	Active file system freed blocks (youngest) during CP in the aggregate	CM_DIAG	
wvbd_owner_changed_y	8B	RAW	NONE	Changed ownership blocks (youngest) during CP in the aggregate	CM_DIAG	
wvbd_whole_frees_o	8B	RAW	NONE	Whole freed blocks (oldest) during CP in the aggregate	CM_DIAG	
wvblk_saved_fsinfo_inos_total	4B	RAW	NONE	Total inodes during CP in the aggregate	CM_DIAG	
wvblk_saved_fsinfo_inos_reserve	4B	RAW	NONE	Reserved inodes during CP in the aggregate	CM_DIAG	
wvblk_saved_fsinfo_inos_used	4B	RAW	NONE	Used inodes during CP in the aggregate	CM_DIAG	
wvblk_delalloc	4B	RAW	NONE	Delalloc blocks during CP in the aggregate	CM_DIAG	
wvblk_rsrv_delalloc	4B	RAW	NONE	Reserved delalloc blocks during CP in the aggregate	CM_DIAG	
wvblk_rsrv_holes_cifs	4B	RAW	NONE	Blocks reserved for CIFS holes during CP in the aggregate	CM_DIAG	
wvblk_rsrv_holes	4B	RAW	NONE	Blocks reserved for all holes during CP in the aggregate	CM_DIAG	
wvblk_rsrv_overwrite	4B	RAW	NONE	Blocks reserved for overwrite during CP in the aggregate	CM_DIAG	
disk_type	4B	RAW	NONE	Primary type of disk used for the aggregate	CM_DIAG	
wvdf_num_frees	8B	RAW	NONE	Total number of delayed pvbn frees in the aggregate	CM_DIAG	
wvdf_max_frees	8B	RAW	NONE	Maximum number of delayed pvbn frees in the aggregate	CM_DIAG	
wvblk_child_to_be_reclaimed	8B	RAW	NONE	Total Outstanding delayed pvbn frees in the aggregate	CM_DIAG	
blkr_async_offline	8B	DELTA	NONE	Number of times an async block reallocation call failed due to aggr offline	CM_DIAG	
blkr_async_no_msg	8B	DELTA	NONE	Number of times an async block reallocation call failed due to no message	CM_DIAG	

blkr_async_no_mem	8B	DELTA	NONE	Number of times an async block reallocation call failed due to no memory	CM_DIAG	
blkr_async_launched	8B	DELTA	NONE	Number async block reallocation requests launched	CM_DIAG	
blkr_async_completed	8B	DELTA	NONE	Number async block reallocation requests completed	CM_DIAG	
blkr_blocks_scanned	8B	DELTA	NONE	Total number of blocks scanned for block reallocation	CM_DIAG	
blkr_free_blocks_scanned	8B	DELTA	NONE	Number of free blocks scanned for block reallocation	CM_DIAG	
blkr_super_blocks_scanned	8B	DELTA	NONE	Number of super blocks scanned for block reallocation	CM_DIAG	
blkr_aa_blocks_scanned	8B	DELTA	NONE	Number of blocks scanned in current Allocation Area	CM_DIAG	
blkr_aggrsnap_blocks_scanned	8B	DELTA	NONE	Number of aggregate snapshot blocks scanned for block reallocation	CM_DIAG	
blkr_segments_scanned	8B	DELTA	NONE	Total number of segments scanned	CM_DIAG	
blkr_full_segments_scanned	8B	DELTA	NONE	Number of segments skipped because segment full	CM_DIAG	
blkr_empty_segments_scanned	8B	DELTA	NONE	Number of segments skipped because segment empty	CM_DIAG	
blkr_rejected_segments_scanned	8B	DELTA	NONE	Number of segments skipped because of policy rejection	CM_DIAG	
blkr_rejected_blocks_scanned	8B	DELTA	NONE	Number of blocks skipped because of policy rejection	CM_DIAG	
blkr_reads_launched	8B	DELTA	NONE	Number of read I/Os launched for block reallocation	CM_DIAG	
blkr_blocks_read	8B	DELTA	NONE	Number of blocks read for block reallocation	CM_DIAG	
blkr_blocks_dummy_read	8B	DELTA	NONE	Number of dummy blocks read for block reallocation	CM_DIAG	
blkr_blocks_postfiltered	8B	DELTA	NONE	Number of read blocks postfiltered during block reallocation	CM_DIAG	
blkr_blocks_overwritten	8B	DELTA	NONE	Number of blocks skipped because of overwrite during block reallocation	CM_DIAG	

blkr_blocks_realloca ted	8B	DELTA	NONE	Number of blocks reallocated during block reallocation	CM_DIAG	
blkr_blocks_redirect ed	8B	DELTA	NONE	Number of blocks requiring redirection	CM_DIAG	
blkr_blocks_redirect ed_maybe	8B	DELTA	NONE	Number of blocks with possible pvbn matches (may avoid read)	CM_DIAG	
blkr_blocks_redirect ed_noread	8B	DELTA	NONE	Number of blocks requiring redirection not read because pvbns matched	CM_DIAG	
blkr_blocks_redirect ed_nol1	8B	DELTA	NONE	Number of blocks requiring redirection because container L1 not available	CM_DIAG	
blkr_blocks_redirect ed_noio	8B	DELTA	NONE	Number of blocks requiring redirection because RAIDio not available	CM_DIAG	
blkr_blocks_redirect ed_reread	8B	DELTA	NONE	Number of blocks reread because of no L1 or no RAIDio	CM_DIAG	
blkr_blocks_redirect ed_noverify	8B	DELTA	NONE	Number of blocks read without checksum verification	CM_DIAG	
blkr_redirect_susps	8B	DELTA	NONE	Number of suspensions for redirect scan worker	CM_DIAG	
blkr_redirect_ra_ma p	8B	DELTA	NONE	Number of map blocks read ahead during redirect scan	CM_DIAG	
blkr_redirect_ra_l0	8B	DELTA	NONE	Number of container L0s read ahead during redirect scan	CM_DIAG	
blkr_redirect_kireeti s_scanned	8B	DELTA	NONE	Number of kireeti blocks scanned during redirect scan	CM_DIAG	
blkr_redirect_ra_l1	8B	DELTA	NONE	Number of container L1s read ahead during redirect scan	CM_DIAG	
blkr_redirect_deman d_req	8B	DELTA	NONE	Number of on demand redirect update requests	CM_DIAG	
blkr_redirect_deman d_rereq	8B	DELTA	NONE	Number of on demand redirect update requests for blocks already enqueued	CM_DIAG	
blkr_redirect_deman d_drop	8B	DELTA	NONE	Number of on demand redirect update requests dropped	CM_DIAG	
blkr_redirect_indirec ts_inspected	8B	DELTA	NONE	Number of indirect blocks inspected	CM_DIAG	
blkr_redirect_indirec ts_ok	8B	DELTA	NONE	Number of indirect blocks not needing updated	CM_DIAG	

blkr_redirect_indirects_updated	8B	DELTA	NONE	Number of indirect blocks not needing updated	CM_DIAG	
blkr_redirect_blocks_updated	8B	DELTA	NONE	Number of blocks updated	CM_DIAG	
blkr_redirect_blocks_invalid	8B	DELTA	NONE	Number of blocks invalid (not updated)	CM_DIAG	
blkr_redirect_blocks_ok	8B	DELTA	NONE	Number of blocks ok	CM_DIAG	
blkr_policy1_reject_reasons	8B	DELTA	NONE	Number of segments rejected per reason by policy1	CM_DIAG	
wvzmb_num_zmsgs_inuse	4B	RAW	NONE	Number of zombie/sfsr messages working	CM_DIAG	
wvblk_space_tax	8B	RAW	NONE	Total space tax for all volumes in the aggregate	CM_DIAG	
wvblk_lev0_over_nominal	8B	RAW	NONE	Total count of lev0 container blocks over nominal for all volumes	CM_DIAG	
wvblk_ind_delalloc	8B	RAW	NONE	Count of indirect blocks that are delalloc'd	CM_DIAG	
dlog_blks_total	8B	RAW	NONE	Count of blocks in the delete log	CM_DIAG	
dlog_blks_indirect	8B	RAW	NONE	Count of indirect blocks in the delete log	CM_DIAG	
purge_blks_total	8B	RAW	NONE	Count of blocks in the purge file	CM_DIAG	
purge_blks_indirect	8B	RAW	NONE	Count of indirect blocks in the purge file	CM_DIAG	
wv_fsinfo_containment_version_slc	4B	RAW	NONE	Containment version for SnapLock Compliance volume	CM_DIAG	
wv_fsinfo_containment_version_sle	4B	RAW	NONE	Containment version for SnapLock Enterprise volume	CM_DIAG	
wv_fsinfo_containment_version_spare1	4B	RAW	NONE	Containment version reserved for SnapLock	CM_DIAG	
wv_fsinfo_containment_version_spare2	4B	RAW	NONE	Containment version reserved for SnapLock	CM_DIAG	
wv_fsinfo_containment_version_highest_slc	4B	RAW	NONE	Highest containment version detected for SnapLock Compliance volume	CM_DIAG	
wv_fsinfo_containment_version_highest_sle	4B	RAW	NONE	Highest containment version detected for SnapLock Enterprise volume	CM_DIAG	
wv_fsinfo_containm	4B	RAW	NONE	Highest containment version	CM_DIAG	

ent_version_highest_spare1				reserved for SnapLock		
wv_fsinfo_containment_version_highest_spare2	4B	RAW	NONE	Highest containment version reserved for SnapLock	CM_DIAG	

audit_ng object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
event_throughput	8B	RATE	KB_PER_SEC	Amount of audit information recorded to disk per second	CM_DIAG	
event_latency	8B	AVERAGE	MSECS	Average latency for recording an event to disk	CM_DIAG	events
events	8B	RATE	PER_SEC	Number of events recorded to disk per second	CM_DIAG	
spinnp_determination_latency	8B	AVERAGE	MSECS	Average latency for determining whether or not to audit	CM_DIAG	monitored_spinnp_ops
monitored_spinnp_ops	8B	RAW	NONE	Number of SpinNP operations monitored	CM_DIAG	
recorded_spinnp_ops	8B	RAW	NONE	Number of SpinNP operations recorded to disk	CM_DIAG	
time_since_last_poll	4B	RAW	SECS	Amount of time since the consolidator last polled (vserver only)	CM_DIAG	
staged_data_size	8B	RAW	NONE	Amount of active staged data waiting to be consolidated (vserver only)	CM_DIAG	
consolidation_throughput	8B	RATE	KB_PER_SEC	Amount of active staged data consolidated per second (vserver only)	CM_DIAG	
max_sacl_size	4B	RAW	NONE	Maximum SACL size used during SpinNP	CM_DIAG	

				determination (vserver only)		
max_event_size	4B	RAW	NONE	Maximum event size recorded to disk (vserver only)	CM_DIAG	

bufcache object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
buf_count	4B	RAW	NONE	Buffer cache size	CM_DIAG	
buf_empty	4B	RAW	NONE	Empty (unused) buffers	CM_DIAG	
buf_valid	4B	RAW	NONE	Valid buffers	CM_DIAG	
buf_dirty	4B	RAW	NONE	Buffers with modified data	CM_DIAG	
buf_read	4B	RAW	NONE	Buffers being read	CM_DIAG	
buf_write	4B	RAW	NONE	Buffers being written	CM_DIAG	
buf_cpio	4B	RAW	NONE	Buffers associated with CP IO	CM_DIAG	
buf_recycle	4B	RAW	NONE	Buffers in a recycle queue	CM_DIAG	
buf_norecycle	4B	RAW	NONE	Buffers that must not be recycled	CM_DIAG	
buf_stolen	4B	RAW	NONE	Buffers loaned to other subsystems	CM_DIAG	
buf_ec_inflight	4B	RAW	NONE	Buffers in flight to extended cache	CM_DIAG	
mem_per_buf	4B	RAW	NONE	Memory used per buffer	CM_DIAG	

cacheeject object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
level0	8B	RAW	NONE	Level 0 blocks	CM_DIAG	
level1	8B	RAW	NONE	Level 1 blocks	CM_DIAG	
level2	8B	RAW	NONE	Level 2 blocks	CM_DIAG	
level3	8B	RAW	NONE	Level 3 blocks	CM_DIAG	
level0_rate	8B	RATE	PER_SEC	Level 0 blocks eject rate	CM_DIAG	
level1_rate	8B	RATE	PER_SEC	Level 1 blocks eject rate	CM_DIAG	
level2_rate	8B	RATE	PER_SEC	Level 2 blocks eject rate	CM_DIAG	

level3_rate	8B	RATE	PER_SEC	Level 3 blocks eject rate	CM_DIAG	

cachequeue object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
priority	4B	RAW	NONE	queue priority	CM_DIAG	
buf_count	4B	RAW	NONE	Buffers on queue	CM_DIAG	
count_busy	4B	RAW	NONE	Buffers on queue that are busy	CM_DIAG	
gone	8B	RAW	NONE	Queue was already marked empty in search	CM_DIAG	
scavenge	8B	RAW	NONE	Number of buffers scavenged	CM_DIAG	
vscavenge	8B	RAW	NONE	Number of buffers vscavenged	CM_DIAG	
eject_times	8B	RAW	MSECS	Total eject times when scavenged	CM_DIAG	
age_out	8B	RAW	NONE	Number of buffers aged out	CM_DIAG	
upgrade	8B	RAW	NONE	Number of buffers upgraded	CM_DIAG	
touched	8B	RAW	NONE	Number of buffers touched	CM_DIAG	
added	8B	RAW	NONE	Number of buffers added to queue	CM_DIAG	
removed	8B	RAW	NONE	Number of buffers removed from queue	CM_DIAG	
scavenge_rate	8B	RATE	PER_SEC	Number of blocks scavenge from this queue per second	CM_DIAG	
vscavenge_rate	8B	RATE	PER_SEC	Number of blocks vscavenged from this queue per second	CM_DIAG	

cifs object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
cifs_ops	8B	RATE	PER_SEC	Total number of CIFS operations per second	CM_BASIC	
cifs_op_count	8B	DELTA	NONE	Array of select CIFS operation counts	CM_DIAG	
cifs_op_pct	8B	PERCT	PERCT	Array of select CIFS operation counts as a percentage of total CIFS operations	CM_DIAG	cifs_ops

cifs_latency	8B	AVERAGE	MSECS	Average latency for CIFS operations in milliseconds	CM_BASIC	cifs_latency_base
cifs_latency_base	8B	DELTA NODISP	DELTA NODISP	Total observed CIFS operations to be used as a base counter for CIFS average latency calculation	CM_BASIC	
cifs_latency_hist	8B	DELTA	NONE	Histogram of latency for CIFS operations in milliseconds	CM_DIAG	
cifs_read_ops	8B	RATE	PER_SEC	Total number of CIFS read operations per second	CM_BASIC	
cifs_write_ops	8B	RATE	PER_SEC	Total number of CIFS write operations per second	CM_BASIC	
cifs_read_latency	8B	AVERAGE	MSECS	Average latency for CIFS read operations in milliseconds	CM_DIAG	
cifs_write_latency	8B	AVERAGE	MSECS	Average latency for CIFS write operations in milliseconds	CM_DIAG	
cifs_read_latency_hist	8B	DELTA	NONE	Histogram of latency for CIFS read operations in milliseconds	CM_DIAG	
cifs_write_latency_hist	8B	DELTA	NONE	Histogram of latency for CIFS write operations in milliseconds	CM_DIAG	
cifs_read_size_histo	4B	DELTA	NONE	Histogram of cifs read sizes	CM_DIAG	
cifs_write_size_histo	4B	DELTA	NONE	Histogram of CIFS write sizes	CM_DIAG	

cifsdomain object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
netlogon_latency	8B	AVERAGE	MSECS	Average latency for netlogon operations in milliseconds	CM_DIAG	netlogon_latency_base
netlogon_latency_base	8B	DELTA	NONE	Total time spent waiting for netlogon requests to be used as a base counter for netlogon average latency calculation	CM_DIAG	
lsa_latency	8B	AVERAGE	MSECS	Average latency for	CM_DIAG	lsa_latency_base

Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
				lsa (local security authority) operations in milliseconds		
lsa_latency_base	8B	DELTA	NONE	Total time spent waiting for lsa requests to be used as a base counter for lsa average latency calculation	CM_DIAG	
samr_latency	8B	AVERAGE	MSECS	Average latency for samr (security account manager RPC service) operations in milliseconds	CM_DIAG	samr_latency_base
samr_latency_base	8B	DELTA	NONE	Total time spent waiting for samr requests to be used as a base counter for samr average latency calculation	CM_DIAG	

cifs_ops object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
get_attr_ops	8B	RAW	NONE	Query Information operations (SMB Code = 0x08)	CM_DIAG	
set_attr_ops	8B	RAW	NONE	Set Information operations (SMB Code = 0x09)	CM_DIAG	
get_attr_ext_ops	8B	RAW	NONE	Query Information2 operations (SMB Code = 0x23)	CM_DIAG	
set_attr_ext_ops	8B	RAW	NONE	Set Information2 operations (SMB Code = 0x22)	CM_DIAG	
query_fs_info_ops	8B	RAW	NONE	Query FS Information operations (SMB Code = 0x32SubCode = 0x03)	CM_DIAG	
query_path_info_ops	8B	RAW	NONE	Query Path Information operations (SMB Code = 0x32SubCode = 0x05)	CM_DIAG	

set_path_info_ops	8B	RAW	NONE	Set Path Information operations (SMB Code = 0x32SubCode = 0x06)	CM_DIAG	
query_file_info_ops	8B	RAW	NONE	Query File Information operations (SMB Code = 0x32SubCode = 0x07)	CM_DIAG	
set_file_info_ops	8B	RAW	NONE	Set File Information operations (SMB Code = 0x32SubCode = 0x08)	CM_DIAG	
query_disk_info_ops	8B	RAW	NONE	Query Disk Info operations (SMB Code = 0x80)	CM_DIAG	
query_ntap_ext_attr_ops	8B	RAW	NONE	Query NTAP Extended Attributes Operations (SMB Code = 0x32SubCode = 0x05Info = 0x04)	CM_DIAG	
set_ntap_ext_attr_ops	8B	RAW	NONE	Set NTAP Extended Attributes Operations (SMB Code = 0x32SubCode = 0x06Info = 0x02)	CM_DIAG	
read_ops	8B	RAW	NONE	Read operations (SMB Code = 0x0A)	CM_DIAG	
readx_ops	8B	RAW	NONE	ReadAndX operations (SMB Code = 0x2E)	CM_DIAG	
read_raw_ops	8B	RAW	NONE	Read Raw operations (SMB Code = 0x1A)	CM_DIAG	
write_ops	8B	RAW	NONE	Write operations (SMB Code = 0x0B)	CM_DIAG	
writex_ops	8B	RAW	NONE	WriteAndX operations (SMB Code = 0x2F)	CM_DIAG	
write_raw_ops	8B	RAW	NONE	Write Raw operations (SMB Code = 0x1D)	CM_DIAG	
queued_write_raw_ops	8B	RAW	NONE	Queued Write Raw operations (SMB Code = 0x1D)	CM_DIAG	
flush_ops	8B	RAW	NONE	Flush operations (SMB Code = 0x05)	CM_DIAG	
open_ops	8B	RAW	NONE	Open operations (SMB Code = 0x02)	CM_DIAG	
create_ops	8B	RAW	NONE	Create operations (SMB Code = 0x03)	CM_DIAG	

close_ops	8B	RAW	NONE	Close operations (SMB Code = 0x04)	CM_DIAG	
open_ext_ops	8B	RAW	NONE	Create with extended attributes operations (SMB Code = 0x32SubCode = 0x00)	CM_DIAG	
openx_ops	8B	RAW	NONE	OpenAndX operations (SMB Code = 0x2D)	CM_DIAG	
nt_create_ops	8B	RAW	NONE	NTCreateAndX operations (SMB Code = 0xA2)	CM_DIAG	
nt_trans_create_ops	8B	RAW	NONE	NTTransactCreate operations (SMB Code = 0x25SubCode = 0x01)	CM_DIAG	
create_dir_ops	8B	RAW	NONE	Create Directory operations (SMB Code = 0x00)	CM_DIAG	
delete_dir_ops	8B	RAW	NONE	Delete Directory operations (SMB Code = 0x01)	CM_DIAG	
check_dir_ops	8B	RAW	NONE	Check Directory operations (SMB Code = 0x10)	CM_DIAG	
delete_ops	8B	RAW	NONE	Delete operations (SMB Code = 0x06)	CM_DIAG	
rename_ops	8B	RAW	NONE	Rename operations (SMB Code = 0x07)	CM_DIAG	
nt_rename_ops	8B	RAW	NONE	NT Rename operations (SMB Code = 0xA5)	CM_DIAG	
seek_ops	8B	RAW	NONE	Seek operations (SMB Code = 0x12)	CM_DIAG	
transact_ops	8B	RAW	NONE	Transact operations (SMB Code = 0x25)	CM_DIAG	
find_first_ops	8B	RAW	NONE	Begin search for file operations (SMB Code = 0x32SubCode = 0x01)	CM_DIAG	
find_next_ops	8B	RAW	NONE	Resume search for file operations (SMB Code = 0x32SubCode = 0x02)	CM_DIAG	
create_dir_ext_ops	8B	RAW	NONE	Create Directory with extended attributes operations (SMB Code = 0x32SubCode = 0x0D)	CM_DIAG	
search_ops	8B	RAW	NONE	Search operations (SMB	CM_DIAG	

				Code = 0x81)		
find_close_ops	8B	RAW	NONE	FindClose2 operations (SMB Code = 0x34)	CM_DIAG	
nt_trans_notify_ops	8B	RAW	NONE	Start directory watch operations (SMB Code = 0x25SubCode = 0x04)	CM_DIAG	
lock_byte_range_ops	8B	RAW	NONE	Lock Byte Range operations (SMB Code = 0x0C)	CM_DIAG	
unlock_byte_range_ops	8B	RAW	NONE	Unlock Byte Range operations (SMB Code = 0x0D)	CM_DIAG	
lockx_ops	8B	RAW	NONE	LockingAndX operations (SMB Code = 0x24)	CM_DIAG	
lock_read_ops	8B	RAW	NONE	Lock and Read operations (SMB Code = 0x13)	CM_DIAG	
write_unlock_ops	8B	RAW	NONE	Write and Unlock operations (SMB Code = 0x14)	CM_DIAG	
negotiate_ops	8B	RAW	NONE	Negotiate operations (SMB Code = 0x72)	CM_DIAG	
sess_setup_ops	8B	RAW	NONE	Session Setup operations (SMB Code = 0x73)	CM_DIAG	
sess_logoff_ops	8B	RAW	NONE	Session Logoff operations (SMB Code = 0x74)	CM_DIAG	
set_sec_ops	8B	RAW	NONE	Set Security Descriptor operations (SMB Code = 0x25SubCode = 0x03)	CM_DIAG	
query_sec_ops	8B	RAW	NONE	Query Security Descriptor operations (SMB Code = 0x25SubCode = 0x06)	CM_DIAG	
reject_ops	8B	RAW	NONE	Unrecognized SMB command code	CM_DIAG	
no_support_ops	8B	RAW	NONE	Non supported SMB operations	CM_DIAG	
total_ops	8B	RAW	NONE	Total number of SMB operations since filer was started	CM_DIAG	
dfs_refer_ops	8B	RAW	NONE	Get DFS referral operations (SMB Code = 0x32SubCode	CM_DIAG	

Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
				= 0x10)		
dfs_report_ops	8B	RAW	NONE	Report DFS inconsistency operations (SMB Code = 0x32SubCode = 0x11)	CM_DIAG	
echo_ops	8B	RAW	NONE	Echo operations (SMB Code = 0x2B)	CM_DIAG	
tree_conn_ops	8B	RAW	NONE	Tree Connect operations (SMB Code = 0x70)	CM_DIAG	
tree_disc_ops	8B	RAW	NONE	Tree Disconnect operations (SMB Code = 0x71)	CM_DIAG	
ioctl_ops	8B	RAW	NONE	Device IOCTL operations (SMB Code = 0x25SubCode = 0x02)	CM_DIAG	
cancel_ops	8B	RAW	NONE	Cancel operations (SMB Code = 0xA4)	CM_DIAG	

cifs_session_signing object						
Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
conn_time	8B	RAW	MSECS	Total time of a connection to the filer in milliseconds	CM_DIAG	
time_in	8B	RAW	MSECS	Total time spent calculating security signatures for incoming CIFS requests in milliseconds	CM_DIAG	
time_out	8B	RAW	MSECS	Total time spent calculating security signatures for outgoing CIFS requests in milliseconds	CM_DIAG	

cifs_stats object						
Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
curr_sess_cnt	4B	RAW	NONE	Number of current sessions	CM_DIAG	
max_sess_cnt	4B	RAW	NONE	High water mark for number of sessions	CM_DIAG	
multi_user_sess_cn	8B	RAW	NONE	Number of sessions	CM_DIAG	

t				with more than one user		
sig_sess_cnt	8B	RAW	NONE	Number of sessions with signature signing	CM_DIAG	
client_disc_sess_cnt	8B	RAW	NONE	Number of session terminations initiated by client side	CM_DIAG	
filer_disc_sess_cnt	8B	RAW	NONE	Number of session terminations initiated by filer side	CM_DIAG	
dup_disc_sess_cnt	8B	RAW	NONE	Number of session terminations initiated by both client and filer	CM_DIAG	
max_cred_sess_cnt	4B	RAW	NONE	High water mark for number of credentials attached to a session	CM_DIAG	
max_tree_sess_cnt	4B	RAW	NONE	High water mark for number of trees attached to a session	CM_DIAG	
max_msg_sess_cnt	4B	RAW	NONE	High water mark for number of simultaneous messages attached to a session	CM_DIAG	
curr_conn_user_cnt	4B	RAW	NONE	Number of currently connected users on the filer	CM_DIAG	
logon_cnt	8B	RAW	NONE	Number of logon on the filer	CM_DIAG	
map_null_user_cnt	8B	RAW	NONE	Number of times a 'null' or 'blank' user was successfully mapped	CM_DIAG	
uid_hash_alloc_cnt	8B	RAW	NONE	Number of times a new hash table for UIDs is allocated	CM_DIAG	
curr_share_cnt	4B	RAW	NONE	Number of current shares	CM_DIAG	
max_share_cnt	4B	RAW	NONE	High water mark for number of shares	CM_DIAG	
curr_tree_cnt	4B	RAW	NONE	Number of current trees	CM_DIAG	
max_tree_cnt	8B	RAW	NONE	High water mark for number of trees	CM_DIAG	

max_fid_tree_cnt	8B	RAW	NONE	High water mark for number of FIDs attached to one tree	CM_DIAG	
max_search_tree_c nt	8B	RAW	NONE	High water mark for number of searches attached to one tree	CM_DIAG	
max_core_search_t ree_cnt	8B	RAW	NONE	High water mark for number of core searches attached to one tree	CM_DIAG	
tid_hash_alloc_cnt	8B	RAW	NONE	Number of times a new hash table for TIDs is allocated	CM_DIAG	
curr_open_file_cnt	4B	RAW	NONE	Number of currently open files and directories	CM_DIAG	
max_open_file_cnt	4B	RAW	NONE	High water mark for number of open files and directories	CM_DIAG	
curr_open_dir_cnt	4B	RAW	NONE	Number of currently open directories	CM_DIAG	
max_open_dir_cnt	4B	RAW	NONE	High water mark for number of open directories	CM_DIAG	
curr_watch_dir_cnt	4B	RAW	NONE	Number of currently watched directories	CM_DIAG	
max_watch_dir_cnt	4B	RAW	NONE	High water mark for number of watched directories	CM_DIAG	
fid_hash_alloc_cnt	8B	RAW	NONE	Number of times a new hash table for FIDs is allocated	CM_DIAG	
fold_attempt_cnt	8B	RAW	NONE	Number of times an attempt is made to fold a file with the version in a snapshot	CM_DIAG	
fold_rename_cnt	8B	RAW	NONE	Number of times an entry in the queue of files awaiting folding has to be renamed	CM_DIAG	
fold_rename_failur e_cnt	8B	RAW	NONE	Number of times an attempt to find a rename match on the queue of	CM_DIAG	

				files awaiting folding fails		
fold_overflow_cnt	8B	RAW	NONE	Number of times an entry can't be added to the queue of files awaiting folding due to its length limit	CM_DIAG	
fold_duplicate_cnt	8B	RAW	NONE	Number of times when an entry can't be added to the queue of files awaiting folding due to a duplicate	CM_DIAG	
fold_wafl_too_busy_cnt	8B	RAW	NONE	Number of times the maximum limit of WAFL concurrent folds has been reached	CM_DIAG	
curr_lock_cnt	4B	RAW	NONE	Number of currently allocated locks	CM_DIAG	
max_lock_cnt	4B	RAW	NONE	High water mark for the number of allocated locks	CM_DIAG	
x_or_batch_to_l2_cnt	8B	RAW	NONE	Number of OpLock Break from exclusive or batch to level 2	CM_DIAG	
x_or_batch_to_none_cnt	8B	RAW	NONE	Number of OpLock Break from exclusive or batch to none	CM_DIAG	
l2_to_none_cnt	8B	RAW	NONE	Number of OpLock Break from level 2 to none	CM_DIAG	
no_break_ack_cnt	8B	RAW	NONE	Number of OpLock Break ACK before timeout	CM_DIAG	
no_break_ack_95_cnt	8B	RAW	NONE	Number of OpLock Break ACK before timeout from Win95 clients	CM_DIAG	
no_break_ack_nt_cnt	8B	RAW	NONE	Number of OpLock Break ACK before timeout from WinNT clients	CM_DIAG	

ignored_ack_cnt	8B	RAW	NONE	Number of OpLock Break ACK ignored (e.g. late)	CM_DIAG	
delayed_break_cnt	8B	RAW	NONE	Number of OpLock Break which must be delayed	CM_DIAG	
pdc_auth_cnt	8B	RAW	NONE	Number of authentication requests to Domain Controllers	CM_DIAG	
curr_cred_cnt	4B	RAW	NONE	Number of currently active credentials	CM_DIAG	
max_cred_cnt	4B	RAW	NONE	High water mark for number of allocated credentials	CM_DIAG	
max_sid_cred_cnt	4B	RAW	NONE	The most group SIDs found on one credential	CM_DIAG	
built_lgrp_cnt	4B	RAW	NONE	Number of built-in local groups	CM_DIAG	
user_lgrp_cnt	4B	RAW	NONE	Number of user-defined local groups	CM_DIAG	
sid_lgrp_cnt	4B	RAW	NONE	Number of defined SIDs for local groups	CM_DIAG	
curr_mem_ctrl_blk_cnt	4B	RAW	NONE	Number of current memory control blocks	CM_DIAG	
curr_mem_ctrl_blk_reserve_cnt	4B	RAW	NONE	Number of current memory control blocks in the reserve pool	CM_DIAG	
max_mem_ctrl_blk_cnt	4B	RAW	NONE	High water mark for number of memory control blocks	CM_DIAG	
max_mem_ctrl_blk_reserve_cnt	4B	RAW	NONE	High water mark for number of memory control blocks in the reserve pool	CM_DIAG	
exhaust_mem_ctrl_blk_cnt	4B	RAW	NONE	Number of times a request for memory control block can not be granted	CM_DIAG	
exhaust_mem_ctrl_blk_reserve_cnt	4B	RAW	NONE	Number of times a request for memory control block can not be	CM_DIAG	

				granted from the reserve pool		
wait_mem_ctrl_blk_cnt	8B	RAW	NONE	Number of times waiting for the memory control block to be allocated	CM_DIAG	
wait_mem_buf_cnt	8B	RAW	NONE	Number of times waiting for the memory buffer to be allocated	CM_DIAG	
auth_qlength	4B	RAW	NONE	Current number of queued authentication requests	CM_DIAG	
block_qlength	4B	RAW	NONE	Current number of queued blocking worker threads	CM_DIAG	
timer_qlength	4B	RAW	NONE	Current number of queued timer worker threads	CM_DIAG	
alf_qlength	4B	RAW	NONE	Current number of auditing log worker threads	CM_DIAG	
rpc_qlength	4B	RAW	NONE	Current number of queued SMB RPC worker threads	CM_DIAG	
offload_qlength	4B	RAW	NONE	Current number of queued VSCAN worker threads	CM_DIAG	
max_auth_qlength	4B	RAW	NONE	High water mark for number of queued authentication requests	CM_DIAG	
max_block_qlength	4B	RAW	NONE	High water mark for number of blocking worker threads	CM_DIAG	
max_timer_qlength	4B	RAW	NONE	High water mark for number of timer worker threads	CM_DIAG	
max_alf_qlength	4B	RAW	NONE	High water mark for number of auditing log worker threads	CM_DIAG	
max_rpc_qlength	4B	RAW	NONE	High water mark for number of SMB RPC	CM_DIAG	

				worker threads		
max_offload_qleng th	4B	RAW	NONE	High water mark for number of VSCAN worker threads	CM_DIAG	
copy_align_cnt	8B	RAW	NONE	Count of times a buffer is copied for header alignment	CM_DIAG	
small_buffer_align _cnt	8B	RAW	NONE	Count of times a small buffer is used for header alignment	CM_DIAG	
large_buffer_align_ cnt	8B	RAW	NONE	Count of times a large buffer is used for header alignment	CM_DIAG	
read_pipe_busy_err or_cnt	8B	RAW	NONE	Count of read errors due to the 'busy pipe' condition	CM_DIAG	
write_pipe_busy_er ror_cnt	8B	RAW	NONE	Count of write errors due to the 'busy pipe' condition	CM_DIAG	
trans_pipe_busy_er ror_cnt	8B	RAW	NONE	Count of transaction errors due to the 'busy pipe' condition	CM_DIAG	
read_pipe_broken_ error_cnt	8B	RAW	NONE	Count of read errors due to the 'broken pipe' condition	CM_DIAG	
write_pipe_broken _error_cnt	8B	RAW	NONE	Count of write errors due to the 'broken pipe' condition	CM_DIAG	
trans_pipe_broken_ error_cnt	8B	RAW	NONE	Count of transaction errors due to the 'broken pipe' condition	CM_DIAG	

cpdump object					
Counter Name	Size	Type	Display Unit	Description	Priority
cpd_cpcount	4B	RAW	NONE	Free running CP counter since boot up	CM_PRIV_DIAG_ZAPI| CM_CP_DUMP
cpd_why	4B	RAW	NONE	CP reason	CM_PRIV_DIAG_ZAPI|

					CM_CP_DUMP
cpd_alloc_loops	4B	RAW	NONE	iterations to alloc write_allocation files	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_dirty_alloc_blks	4B	RAW	NONE	dirty blks write allocated in CP	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_inofile_blks	4B	RAW	NONE	inofile blks write allocated in CP	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_inodes_cleaned	4B	RAW	NONE	inodes cleaned in CP	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_reads_returned	4B	RAW	NONE	read messages returned in CP	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_water_dirty_buf_susp	4B	RAW	NONE	dirty buf suspend water mark	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_water_dirty_buf_susp_replay	4B	RAW	NONE	dirty buf suspend replay watermark	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_water_dirty_buf_high	4B	RAW	NONE	dirty buf high watermark	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_water_dirty_ino_high	4B	RAW	NONE	dirty inodes high water mark	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_water_avail_buf_low	4B	RAW	NONE	available buffers low watermark	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_water_avail_buf_high	4B	RAW	NONE	available buffers high watermark	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_water_avail_vbuf_low	4B	RAW	NONE	available vbufs low watermark	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_water_avail_vbuf_high	4B	RAW	NONE	avail vbufs high watermark	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_water_trigger_cp_vbufs	4B	RAW	NONE	vbufs watermark to trigger a CP	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_io_buf_miss_cnt	4B	RAW	NONE	wafl_load_buf misses	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_io_buf_load_cnt	4B	RAW	NONE	wafl_load_buf buffers loaded	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_io_blks_read	4B	RAW	NONE	wafl_read_buf read buffers	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_io_blks0_active	4B	RAW	NONE	active file blocks read	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_io_blks0	4B	RAW	NONE	snapmap file blocks	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP

_snapmap				read	
cpd_io_blks0 _summary	4B	RAW	NONE	summary file blocks read	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_io_blks0 _spacemap	4B	RAW	NONE	spacemap file blocks read	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_io_blks0 _kireeti	4B	RAW	NONE	kireeti file blocks read	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_io_blks0 _container	4B	RAW	NONE	container file blocks read	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_io_blks0 _inofile	4B	RAW	NONE	inofile file blocks read	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_io_blks0 _metadata	4B	RAW	NONE	metadata file blocks read	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_io_blks0 _regular	4B	RAW	NONE	regular file blocks read	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_io_blks0 _snapcnt	4B	RAW	NONE	count of snapmap blks read summed over all the snapshots	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_io_blks1 _active	4B	RAW	NONE	active file blocks read	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_io_blks1 _snapmap	4B	RAW	NONE	snapmap file blocks read	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_io_blks1 _summary	4B	RAW	NONE	summary file blocks read	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_io_blks1 _spacemap	4B	RAW	NONE	spacemap file blocks read	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_io_blks1 _kireeti	4B	RAW	NONE	kireeti file blocks read	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_io_blks1 _container	4B	RAW	NONE	container file blocks read	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_io_blks1 _inofile	4B	RAW	NONE	inofile file blocks read	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_io_blks1 _metadata	4B	RAW	NONE	metadata file blocks read	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_io_blks1 _regular	4B	RAW	NONE	regular file blocks read	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_io_blks1 _snapcnt	4B	RAW	NONE	count of snapmap blks read summed	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP

				over all the snapshots	
cpd_ra_reque sted	4B	RAW	NONE	read-ahead blocks requested	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_ra_read	4B	RAW	NONE	r-a blocks actually read	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_ra_incore	4B	RAW	NONE	r-a blocks actually resident	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_ra_past_e of	4B	RAW	NONE	r-a blocks requested past eof	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_ra_holes	4B	RAW	NONE	r-a blocks requested from holes	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_ra_noblk s	4B	RAW	NONE	r-a blocks requested from lev-0	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_ra_noms gs	4B	RAW	NONE	r-a blocks dropped for lack of msgs	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_ra_nobuf s	4B	RAW	NONE	r-a blocks dropped for lack of bufs	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_dbufs_tot al	4B	RAW	NONE	estimated number of dirty bufs	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_dbufs_in coming	4B	RAW	NONE	no. of dirty bufs the CP begins with	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_dbufs_in coming_inofile	4B	RAW	NONE	no. of dirty inofile bufs the CP begins with	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_dbufs_in coming_commi tment	4B	RAW	NONE	no. of bufs the CP knows it will dirty as of CP start	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_dbufs_in ofile	4B	RAW	NONE	no. of blocks dirtied from inofile flush in current CP	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_dbufs_all ocfile	4B	RAW	NONE	no. of blocks dirtied from allocfile flush in current CP	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_dbufs_in direct	4B	RAW	NONE	no. of blocks dirtied from indirect blocks in current CP	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_dbufs_nd x0	4B	RAW	NONE	no. of blocks dirtied from ndx0 file blocks in current CP	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP

cpd_dbufs_w alloc	4B	RAW	NONE	no. of dbufs write_allocated so far	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_dbufs_wr itten	4B	RAW	NONE	no. of dbufs sent to raid so far	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_dbufs_co mmitted	4B	RAW	NONE	no. of dbufs committed to disk so far	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_time_star t	4B	RAW	MSECS	start time of CP in msecs	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_time_end	4B	RAW	MSECS	end time of CP in msecs	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_time_rea d	4B	RAW	MSECS	total time for CP reads in msecs	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_time_nex t_log_nearly_f ull	4B	RAW	MSECS	time in msecs when the next nvlog was nearly full	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_time_nvl og_full_susp	4B	RAW	MSECS	time in msecs when clients suspend for full nvlog	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_time_dirt y_buf_susp	4B	RAW	MSECS	time in msecs when clients suspend for too many dirty bufs	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_cycles_w afl_threads_idl e	8B	RAW	NONE	cpu cycles that wafl threads were idle	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_cycles_w afl_threads_sle eping	8B	RAW	NONE	cpu cycles that wafl threads were sleeping	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_cycles_w afl_threads_run nable	8B	RAW	NONE	cpu cycles that wafl threads were runnable	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_cycles_w afl_threads_mu tex_wait	8B	RAW	NONE	cpu cycles that wafl threads were waiting for mutex	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_cycles_w afl_threads_mu tex_runnable	8B	RAW	NONE	cpu cycles that wafl threads were runnable while holding the mutex	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_cycles_w afl_threads_run	8B	RAW	NONE	cpu cycles that wafl threads were running	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP

Counter Name	Size	Type	Display Unit	Description	Priority
ning					
cpd_cycles_wafl_threads_preempted	8B	RAW	NONE	cpu cycles that wafl threads were preempted	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_phase_time	4B	RAW	MSECS	time taken in CP phases	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP
cpd_total_time	4B	RAW	MSECS	total time taken by CP in msecs	CM_PRIV_DIAG_ZAPI|CM_CP_DUMP

cpdump_rvol object					
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**
cpd_rvol_cpcount	4B	RAW	NONE	Free running CP counter since boot up	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_raidvol_hot_disks	4B	RAW	NONE	number of hot disks avoided during write-alloc	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_raidvol_degraded_disks	4B	RAW	NONE	number of degraded disks avoided during write-alloc	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_phases_vol_setup	4B	RAW	MSECS	time taken for CP setup stage in msecs per vol	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_phases_vol_pre_p0	4B	RAW	MSECS	time taken for CP pre phase0 stage in msecs per vol	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_phases_vol_p0_snap_del	4B	RAW	MSECS	time taken	CM_PRIV_DIAG_ZAPI|CM_CP_D

				for CP phase0 snap delete stage in msecs per vol	
cpd_phases_vol_p1_clean	4B	RAW	MSECS	time taken for CP phase1 clean normal files per vol	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_phases_vol_p1_quota	4B	RAW	MSECS	time taken for CP phase1 clean quota files per vol	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_phases_vol_p2v_refcount	4B	RAW	MSECS	time taken for CP phase2 volume refcount in msecs per vol	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_phases_vol_p2v_inofile	4B	RAW	MSECS	time taken for CP phase2 volume inofile in msecs per vol	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_phases_vol_p2v_ino	4B	RAW	MSECS	time taken for CP phase2 volume inode stage in msecs per vol	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_phases_vol_p2v_bm	4B	RAW	MSECS	time taken for CP phase2 volume bitmap stage in msecs per	CM_PRIV_DIAG_ZAPI|CM_CP_D

				vol	
cpd_phases_vol_p2v_snap	4B	RAW	MSECS	time taken for CP phase2 volume snapmap in msecs per vol	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_phases_vol_p2v_volinfo	4B	RAW	MSECS	time taken for CP phase2 volume volinfo in msecs per vol	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_phases_vol_p2v_cont	4B	RAW	MSECS	time taken for CP phase2 volume container map stage per vol	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_phases_vol_p2a_refcount	4B	RAW	MSECS	time taken for CP phase2 aggr refcount stage in msecs per vol	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_phases_vol_p2a_inofile	4B	RAW	MSECS	time taken for CP phase2 aggr inofile stage in msecs per vol	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_phases_vol_p2a_ino	4B	RAW	MSECS	time taken for CP phase2 aggr inode stage in msecs per vol	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_phases_vol_p2a_bm	4B	RAW	MSECS	time taken for CP	CM_PRIV_DIAG_ZAPI|CM_CP_D

				phase2 aggr bitmap stage in msecs per vol	
cpd_phases_vol_p2a_snap	4B	RAW	MSECS	time taken for CP phase2 aggr snapmap stage in msecs per vol	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_phases_vol_p2a_volinfo	4B	RAW	MSECS	time taken for CP phase2 aggr volinfo stage in msecs per vol	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_phases_vol_p2_flush	4B	RAW	MSECS	time taken for CP phase2 flush stage in msecs per vol	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_phases_vol_p2_finish	4B	RAW	MSECS	time taken for CP phase2 finish stage in msecs per vol	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_phases_vol_p3_wait	4B	RAW	MSECS	time taken for CP phase3 wait stage in msecs per vol	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_phases_vol_p3v_volinfo	4B	RAW	MSECS	time taken for CP phase3 volume volinfo in msecs per vol	CM_PRIV_DIAG_ZAPI|CM_CP_D

Counter Name	Size	Type	Display Unit	Description	Priority
cpd_phases_vol_p3a_volinfo	4B	RAW	MSECS	time taken for CP phase3 aggr volinfo stage in msecs per vol	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_phases_vol_p3_finish	4B	RAW	MSECS	time taken for CP phase3 finish stage in msecs per vol	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_phases_vol_p4_finish	4B	RAW	MSECS	time taken for CP phase4 finish stage in msecs per vol	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_phases_vol_total	4B	RAW	MSECS	total time taken by CP in msecs per volume	CM_PRIV_DIAG_ZAPI|CM_CP_D

cpdump_rg object					
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**
cpd_rg_local_id	4B	RAW	NONE	Local id used for this raid group	CM_PRIV_DIAG_ZAPI|CM_CP_DU
cpd_rg_aa_cache_count	4B	RAW	NONE	AA cache count for the raidgroup	CM_PRIV_DIAG_ZAPI|CM_CP_DU
cpd_rg_aa_rg_mean	4B	RAW	NONE	AA mean for the raidgroup	CM_PRIV_DIAG_ZAPI|CM_CP_DU
cpd_rg_aa_rtg_maxaa	4B	RAW	NONE	max AA for the raidgroup	CM_PRIV_DIAG_ZAPI|CM_CP_DU

Counter Name	Size	Type	Display Unit	Description	Priority
cpd_rg_wcp_ntetrises	4B	RAW	NONE	number of tetrises written in this CP	CM_PRIV_DIAG_ZAPI|CM_CP_DU...
cpd_rg_wcp_nblocks	4B	RAW	NONE	number of blocks written in this CP	CM_PRIV_DIAG_ZAPI|CM_CP_DU...
cpd_rg_wcp_total_ms	4B	RAW	MSECS	total of completion times	CM_PRIV_DIAG_ZAPI|CM_CP_DU...
cpd_rg_wcp_max_ms	4B	RAW	MSECS	max of completion times	CM_PRIV_DIAG_ZAPI|CM_CP_DU...
cpd_rg_wcp_max_ms_nblks	4B	RAW	MSECS	length of the tetris that took max time	CM_PRIV_DIAG_ZAPI|CM_CP_DU...

cpdump_disk object					
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**
cpd_disk_rg	4B	RAW	NONE	raid group id to which the disk belongs	CM_PRIV_DIAG_ZAPI|CM_CP_D...
cpd_disk_walloc_msgs	4B	RAW	NONE	msgs by cleaner for read of a disk	CM_PRIV_DIAG_ZAPI|CM_CP_D...
cpd_disk_walloc_blks	4B	RAW	NONE	blks read by cleaner for a disk	CM_PRIV_DIAG_ZAPI|CM_CP_D...
cpd_disk_walloc_total_ms	4B	RAW	MSECS	total of completion times per disk by cleaner	CM_PRIV_DIAG_ZAPI|CM_CP_D...
cpd_vol_walloc_max_ms	4B	RAW	MSECS	max time taken per	CM_PRIV_DIAG_ZAPI|CM_CP_D...

Counter Name	Size	Type	Display Unit	Description	Priority
				disk by cleaner	
cpd_disk_during_CP_msgs	4B	RAW	NONE	msgs by others during CP for read of a disk	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_disk_during_CP_blks	4B	RAW	NONE	blks read by others during CP for a disk	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_disk_during_CP_total_ms	4B	RAW	MSECS	total of completion times per disk by others during CP	CM_PRIV_DIAG_ZAPI|CM_CP_D
cpd_vol_during_CP_max_ms	4B	RAW	MSECS	max time taken per disk by others during CP	CM_PRIV_DIAG_ZAPI|CM_CP_D

cpdump_fvol object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends**
cpd_fvol_aa_cache_count	4B	RAW	NONE	AA cache count for the raidgroup of flexvol	CM_PRIV_DIAG_ZAPI| CM_CP_DUMP	
cpd_fvol_aa_rg_mean	4B	RAW	NONE	AA mean for the raidgroup of flexvol	CM_PRIV_DIAG_ZAPI| CM_CP_DUMP	
cpd_fvol_aa_rtg_maxaa	4B	RAW	NONE	max AA for the raidgroup of flexvol	CM_PRIV_DIAG_ZAPI| CM_CP_DUMP	

processor object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Dep**
processor_busy	8B	PERCT	PERCT	Percentage of elapsed time that the processor is executing non-idle processes	CM_BASIC	processor_elapsed_
processor_elapse d_time	8B	DELTA NODIS P	DELTA NODISP	Wall-clock time since boot used for calculating processor utilization	CM_BASIC	
sk_switches	4B	RATE	PER_SEC	Number of sk switches per second	CM_DIAG	
hard_switches	4B	RATE	PER_SEC	Number of context switches per second	CM_DIAG	
domain_busy	8B	PERCT	PERCT	Array of processor time in percentage spent in various domains	CM_DIAG|C M_ASUP_HO URLY	processor_elapsed_

sis object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
num_succeeded_ op	4B	RAW	NONE	Number of succeeded operations since reboot	CM_DIAG	
num_deferred_o p	4B	RAW	NONE	Number of deferred operations since reboot	CM_DIAG	
num_stopped_op	4B	RAW	NONE	Number of stopped operations since reboot	CM_DIAG	
num_failed_op	4B	RAW	NONE	Number of failed operations since reboot	CM_DIAG	
total_blk_cnt	8B	RAW	NONE	Total amount of blocks processed in the SIS volume	CM_DIAG	
total_op_time	4B	RAW	NONE	Total operation time of the SIS volume in seconds	CM_DIAG	
blks_used	4B	RAW	NONE	Number of blocks used in the SIS volume	CM_DIAG	
blks_shared	4B	RAW	NONE	Number of shared blocks in the SIS volume	CM_DIAG	
share_saved_blk	4B	RAW	NONE	Number of blocks saved by	CM_DIAG	

				sharing in the SIS volume		
num_sis_files	4B	RAW	NONE	Number of dense files in the SIS volume	CM_DIAG	
max_refcount	4B	RAW	NONE	Max refcount value on each block	CM_DIAG	
num_blks_mism atch	4B	RAW	NONE	Number of blocks which had same fingerprint but failed bcmp check	CM_DIAG	
ref_count_histog ram	4B	RAW	NONE	Histogram of reference counts in the SIS volume	CM_DIAG	

disk object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
display_name	64B	STRING	NONE	Name of the disk	CM_DIAG	
raid_name	64B	STRING	NONE	Name of the disk in raid terminology	CM_DIAG	
raid_type	8B	STRING	NONE	Raid type of this disk	CM_DIAG	
disk_speed	8B	STRING	NONE	Disk RPM	CM_DIAG	
disk_capacity	4B	RAW	MB	Disk capacity in MB	CM_DIAG	
total_transfers	8B	RATE	PER_S EC	Total number of disk operations involving data transfer initiated per second	CM_BASIC	
user_read_chain	8B	AVERA GE	NONE	Average number of blocks transferred in each user read operation	CM_BASIC	user_reads
user_reads	8B	RATE	PER_S EC	Number of disk read operations initiated each second for retrieving data or metadata associated with user requests	CM_BASIC	
user_write_chai n	8B	AVERA GE	NONE	Average number of blocks transferred in each user write operation	CM_BASIC	user_writes
user_writes	8B	RATE	PER_S EC	Number of disk write operations initiated each second for storing data or metadata associated with user	CM_BASIC	

				requests		
user_writes_in_s kip_mask	8B	RATE	PER_S EC	Number of disk write IOs that were executed as part of a skip-mask write	CM_BASIC	
user_skip_write _ios	8B	RATE	PER_S EC	Number of disk skip-write operations initiated each second for storing data or metadata associated with user requests	CM_BASIC	
cp_read_chain	8B	AVERA GE	NONE	Average number of blocks transferred in each consistency point read operation during a CP	CM_BASIC	cp_reads
cp_reads	8B	RATE	PER_S EC	Number of disk read operations initiated each second for consistency point processing	CM_BASIC	
guarenteed_read _chain	8B	AVERA GE	NONE	Average number of blocks transferred in each guaranteed read operation	CM_BASIC	guarenteed_reads
guarenteed_read s	8B	RATE	PER_S EC	Number of disk read operations initiated each second for raid reconstruct or scrubbing activities	CM_BASIC	
guarenteed_writ e_chain	8B	AVERA GE	NONE	Average number of blocks transferred in each guaranteed write operation	CM_BASIC	guarenteed_writes
guarenteed_writ es	8B	RATE	PER_S EC	Number of write read operations initiated each second for raid reconstruct or scrubbing activities	CM_BASIC	
user_read_latenc y	8B	AVERA GE	USECS	Average latency per block in microseconds for user read operations	CM_BASIC	user_read_blocks
user_read_block s	8B	RATE	PER_S EC	Number of blocks transferred for user read operations per second	CM_BASIC	
user_write_laten cy	8B	AVERA GE	USECS	Average latency per block in microseconds for user write operations	CM_BASIC	user_write_blocks
user_write_bloc	8B	RATE	PER_S	Number of blocks trasnferred	CM_BASIC	

			EC	for user write operations per second		
skip_blocks	8B	RATE	PER_SEC	Number of blocks skipped in skip-mask write operations per second	CM_BASIC	
cp_read_latency	8B	AVERAGE	USECS	Average latency per block in microseconds for consistency point read operations	CM_BASIC	cp_read_blocks
cp_read_blocks	8B	RATE	PER_SEC	Number of blocks transferred for consistency point read operations per second	CM_BASIC	
guarenteed_read_latency	8B	AVERAGE	USECS	Average latency per block in microseconds for guaranteed read operations	CM_BASIC	guarenteed_read_blo
guarenteed_read_blocks	8B	RATE	PER_SEC	Number of blocks transferred for guaranteed read operations per second	CM_BASIC	
guarenteed_write_latency	8B	AVERAGE	USECS	Average latency per block in microseconds for guaranteed write operations	CM_BASIC	guarenteed_write_blo
guarenteed_write_blocks	8B	RATE	PER_SEC	Number of blocks transferred for guaranteed write operations per second	CM_BASIC	
disk_busy	8B	PERCT	PERCT	Percentage of time there was at least one outstanding request to the disk	CM_BASIC	base_for_disk_busy
base_for_disk_busy	8B	DELTA NODISP	DELTA NODISP	Time base for disk_busy calculation	CM_BASIC	
io_pending	8B	AVERAGE	NONE	Average number of IOs issued to the diskfor which we have not yet received the response	CM_DIAG	base_for_disk_busy
io_queued	8B	AVERAGE	NONE	Number of IOs queued to the disk but not yet issued	CM_DIAG	base_for_disk_busy
disk_io_latency_histogram	8B	DELTA	NONE	Disk I/O latency histogram	CM_DIAG	

			dump object			
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
p1-ino	8B	RAW	NONE	Number of regular inodes marked to be dumped in Phase 1	CM_BASIC	
p1-dir	8B	RAW	NONE	Number of directories marked to be dumped in Phase 1	CM_BASIC	
p1-str-ino	8B	RAW	NONE	NT stream inodes marked to be dumped in Phase 1	CM_BASIC	
p1-str-dir	8B	RAW	NONE	Number of NT stream directories marked to be dumped in Phase 1	CM_BASIC	
p1-acl	8B	RAW	NONE	Number of acl inodes marked to be dumped in Phase 1	CM_BASIC	
p3-dir	8B	RAW	NONE	Number of directories dumped in Phase 3	CM_BASIC	
p3-write	8B	RAW	NONE	Total amount of data written (KB) to tape in Phase 3	CM_BASIC	
p4-ino	8B	RAW	NONE	Number of regular inodes dumped in Phase 3	CM_BASIC	
p4-write	8B	RAW	NONE	Total amount of data written (KB) to tape in Phase 4	CM_BASIC	
INO-blks	4B	RAW	NONE	1 if dump is in the state of reading the INO blocks; 0 otherwise	CM_DIAG	
ino	4B	RAW	NONE	1 if dump is in the state of reading an inode; 0 otherwise	CM_DIAG	
ino-blks	4B	RAW	NONE	1 if dump is in the state of reading blocks for an inode; 0 otherwise	CM_DIAG	
ra-file	4B	RAW	NONE	1 if dump is in the state of prefetching a file; 0 otherwise	CM_DIAG	
ra-p45	4B	RAW	NONE	1 if dump is in the state of prefetching in Phases 4 or 5; 0 otherwise	CM_DIAG	
tape	4B	RAW	NONE	1 if dump is in the state of writing to tape; 0 otherwise	CM_DIAG	
p3-dirs	8B	RATE	PER_SEC	Directories dumped in Phase 3 (inodes per sec)	CM_DIAG	

Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
p3-read	8B	RATE	KB_PER_SEC	Directory data read from WAFL (KB per sec)	CM_DIAG	
p3-write	8B	RATE	KB_PER_SEC	Directory data written to tape (KB per sec)	CM_DIAG	
p3-ra-inos	8B	RATE	PER_SEC	Number of directories that have completed readahead (inodes per sec)	CM_DIAG	
p3-ra-L0	8B	RATE	PER_SEC	Number of Phase 3 level 0 readaheads (per sec)	CM_DIAG	
p3-ra-L0-blks	8B	RATE	PER_SEC	Number of Phase 3 level 0 readahead blocks (per sec)	CM_DIAG	
p4-inos	8B	RATE	PER_SEC	Inodes dumped (per sec)	CM_DIAG	
p4-read	8B	RATE	KB_PER_SEC	Inode data read from WAFL (KB per sec)	CM_DIAG	
p4-write	8B	RATE	KB_PER_SEC	Inode data written to tape (KB per sec)	CM_DIAG	
p4-ra-inos	8B	RATE	PER_SEC	Number of inodes that have completed readahead (per sec)	CM_DIAG	
p4-ra-L0	8B	RATE	PER_SEC	Number of Phase 4 level 0 readaheads (per sec)	CM_DIAG	
p4-ra-L0-blks	8B	RATE	PER_SEC	Number of Phase 4 level 0 readahead blocks (per sec)	CM_DIAG	

ext_cache object						
Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
state	4B	RAW	NONE	State of external cache	CM_BASIC	
state-string	16B	STRING	NONE	State of external cachetextual representation	CM_BASIC	
cache_objects	4B	RAW	NONE	Number of cache objects available	CM_BASIC	
pvols	4B	RAW	NONE	Number of aggregates or traditional volumes using	CM_DIAG	

				the cache		
doneq_loads	4B	RAW	NONE	Number of times external cache completion queue was reloaded when empty	CM_DIAG	
doneq_flushes	4B	RAW	NONE	Number of times external cache completion queue was flushed after timeout	CM_DIAG	
doneq_bufs	4B	RAW	NONE	Number of buffers currently in cache completion queue	CM_DIAG	
max_qdepth	4B	RAW	NONE	Maximum number of I/O ever concurrently in progress	CM_ADVANCED	
uecc_total	4B	RAW	NONE	Total uncorrectable ECC errors reported	CM_DIAG	
block_checksums	4B	RAW	NONE	Set if block checksums are enabled	CM_BASIC	

ext_cache_obj object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
type	16B	STRING	NONE	Type of external cache	CM_BASIC	
uptime	4B	RAW	NONE	Time in ms since external cache was last enabled	CM_DIAG	
blocks	4B	RAW	NONE	Size of the external cache in 4KB blocks	CM_BASIC	
associativity	4B	RAW	NONE	Cache associativity	CM_DIAG	
sets	4B	RAW	NONE	Number of associative sets in external cache	CM_DIAG	
usage	8B	RAW	PERCT	Percentage of blocks in external cache currently containing valid data	CM_BASIC	
accesses_total	8B	RAW	NONE	Total external cache accesses	CM_ADVANCED	
accesses	8B	DELTA	NONE	External cache accesses per second	CM_BASIC	
accesses_sync	8B	DELTA	NON_ZERO	External cache accesses -	CM_DIAG	

				fast path		
hit	8B	RATE	PER_SEC	Number of wafl buffers served off the external cache	CM_BASIC	
hit_flushq	8B	RATE	PER_SEC	Number of wafl flushq buffers served off the external cache	CM_DIAG	
hit_once	8B	RATE	PER_SEC	Number of wafl once buffers served off the external cache	CM_DIAG	
hit_age	8B	RATE	PER_SEC	Number of wafl age buffers served off the external cache	CM_DIAG	
hit_normal_lev 0	8B	RATE	PER_SEC	Number of normal level 0 wafl buffers served off the external cache	CM_BASIC	
hit_metadata_fi le	8B	RATE	PER_SEC	Number of metadata file buffers served off the external cache	CM_BASIC	
hit_directory	8B	RATE	PER_SEC	Number of directory buffers served off the external cache	CM_BASIC	
hit_redirect	8B	RATE	PER_SEC	Number of redirected buffers served off the external cache	CM_DIAG	
hit_indirect	8B	RATE	PER_SEC	Number of indirect file buffers served off the external cache	CM_BASIC	
hit_type	8B	DELTA	NON_ZERO	block types of hits	CM_DIAG	
hit_partial	8B	RATE	PER_SEC	Number of hits where somenot allchained buffers were found in external cache	CM_DIAG	
hit_sync	8B	RATE	NON_ZERO	Number of wafl buffers served off the external cache - fast path	CM_DIAG	
hit_flushq_sync	8B	RATE	NON_ZERO	Number of wafl flushq buffers served off the external cache - fast path	CM_DIAG	
hit_once_sync	8B	RATE	NON_ZERO	Number of wafl once buffers served off the external cache - fast path	CM_DIAG	
hit_age_sync	8B	RATE	NON_ZERO	Number of wafl age buffers served off the external cache - fast path	CM_DIAG	
hit_normal_lev	8B	RATE	NON_ZERO	Number of normal level 0	CM_DIAG	

0_sync				wafl buffers served off the external cache - fast path		
hit_metadata_file_sync	8B	RATE	NON_ZERO	Number of metadata file buffers served off the external cache - fast path	CM_DIAG	
hit_directory_sync	8B	RATE	NON_ZERO	Number of directory buffers served off the external cache - fast path	CM_DIAG	
hit_redirect_sync	8B	RATE	NON_ZERO	Number of redirect buffers served off the external cache - fast path	CM_DIAG	
miss	8B	RATE	PER_SEC	External cache misses	CM_BASIC	
miss_flushq	8B	RATE	PER_SEC	External cache misses accessing flushq buffers	CM_DIAG	
miss_once	8B	RATE	PER_SEC	External cache misses accessing once buffers	CM_DIAG	
miss_age	8B	RATE	PER_SEC	External cache misses accessing age buffers	CM_DIAG	
miss_normal_lev0	8B	RATE	PER_SEC	External cache misses accessing normal level 0 buffers	CM_DIAG	
miss_metadata_file	8B	RATE	PER_SEC	External cache misses accessing metadata file buffers	CM_BASIC	
miss_directory	8B	RATE	PER_SEC	External cache misses accessing directory buffers	CM_BASIC	
miss_indirect	8B	RATE	PER_SEC	External cache misses accessing indirect file buffers	CM_BASIC	
miss_type	8B	DELTA	NON_ZERO	block types of misses	CM_DIAG	
miss_sync	8B	RATE	NON_ZERO	External cache misses - fast path	CM_DIAG	
miss_flushq_sync	8B	RATE	NON_ZERO	External cache misses accessing flushq buffers - fast path	CM_DIAG	
miss_once_sync	8B	RATE	NON_ZERO	External cache misses accessing once buffers - fast path	CM_DIAG	
miss_age_sync	8B	RATE	NON_ZERO	External cache misses accessing age buffers - fast path	CM_DIAG	

miss_normal_lev0_sync	8B	RATE	NON_ZERO	External cache misses accessing normal level 0 buffers - fast path	CM_DIAG	
miss_metadata_file_sync	8B	RATE	NON_ZERO	External cache misses accessing metadata file buffers - fast path	CM_DIAG	
miss_directory_sync	8B	RATE	NON_ZERO	External cache misses accessing directory buffers - fast path	CM_DIAG	
lookup_reject	8B	RATE	PER_SEC	Number of lookups not done because the buffer came from flushq	CM_DIAG	
lookup_reject_sync	8B	RATE	NON_ZERO	Number of sync lookups not done because the buffer came from flushq - fast path	CM_DIAG	
lookup_reject_normal_l0	8B	RATE	PER_SEC	Number of lookups not done because the buffer is normal L0	CM_DIAG	
lookup_reject_io	8B	RATE	PER_SEC	Number of lookups not done because no I/O were available	CM_ADVANCED	
lookup_reject_lock	8B	RATE	PER_SEC	Number of lookups not done because of lock hierarchy	CM_ADVANCED	
lookup_chains	8B	RATE	PER_SEC	Number of chains looked up in external cache	CM_ADVANCED	
lookup_chain_cnt	8B	RATE	PER_SEC	Number of blocks looked up in chains in external cache	CM_ADVANCED	
lookup_lwr_mismatch	8B	RATE	PER_SEC	Number of lookups not done because lwr context mismatch	CM_DIAG	
hit_percent	8B	PERCT	PERCT	External cache hit rate	CM_BASIC	accesses
hit_percent_sync	8B	PERCT	NON_ZERO	External cache hit rate - fast path	CM_DIAG	accesses_sync
inserts	8B	RATE	PER_SEC	Number of wafl buffers inserted into the external cache	CM_BASIC	
inserts_mbuf	8B	RATE	PER_SEC	Number of mbuf-backed wafl buffers inserted into the external cache	CM_DIAG	
inserts_mbuf_zerocopy	8B	RATE	PER_SEC	Number of zero-copy mbuf-backed wafl buffers inserted into the external cache	CM_DIAG	

inserts_flushq	8B	RATE	PER_SEC	Number of flushq buffers inserted into the external cache	CM_DIAG	
inserts_once	8B	RATE	PER_SEC	Number of once buffers inserted into the external cache	CM_DIAG	
inserts_age	8B	RATE	PER_SEC	Number of age buffers inserted into the external cache	CM_DIAG	
inserts_normal_lev0	8B	RATE	PER_SEC	Number of normal level 0 wafl buffers inserted into the external cache	CM_BASIC	
inserts_metadata_file	8B	RATE	PER_SEC	Number of metadata file buffers inserted into the external cache	CM_BASIC	
inserts_directory	8B	RATE	PER_SEC	Number of directory buffers inserted into the external cache	CM_BASIC	
inserts_indirect	8B	RATE	PER_SEC	Number of indirect blocks inserted into the external cache	CM_BASIC	
insert_rejects_misc	8B	RATE	PER_SEC	Number of buffers not inserted into external cache because they were ineligible	CM_DIAG	
insert_rejects_compressed	8B	RATE	PER_SEC	Number of buffers not inserted into external cache because they were compressed	CM_DIAG	
insert_rejects_present	8B	RATE	PER_SEC	Number of buffers not inserted into external cache because they were already in	CM_ADVANCED	
insert_rejects_flushq	8B	RATE	PER_SEC	Number of buffers not inserted into external cache because they came from flushq	CM_DIAG	
insert_rejects_normal_lev0	8B	RATE	PER_SEC	Number of buffers not inserted into external cache because they are normal level0	CM_DIAG	
insert_rejects_throttle	8B	RATE	PER_SEC	Number of buffers not inserted into external cache due to resource constraints	CM_ADVANCED	

insert_rejects_throttle_io	8B	RATE	PER_SEC	Number of buffers not inserted into external cache because no IOs are available	CM_DIAG	
insert_rejects_throttle_refill	8B	RATE	PER_SEC	Number of buffers not inserted into external cache because no replacement bufs available	CM_DIAG	
insert_rejects_throttle_mem	8B	RATE	PER_SEC	Number of buffers not inserted into external cache because no vbufs available	CM_DIAG	
insert_rejects_cache_reuse	8B	RATE	PER_SEC	Number of buffers not inserted into external cache because cache-reuse set on volume	CM_DIAG	
insert_rejects_vbn_invalid	8B	RATE	PER_SEC	Number of buffers not inserted into external cache because VBN is invalid	CM_DIAG	
insert_rejects_pvbn_aliased	8B	RATE	PER_SEC	Number of buffers not inserted into external cache because PVBN is aliased	CM_DIAG	
insert_rejects_mbuf_nobuf	8B	RATE	PER_SEC	Number of mbuf-backed buffers not inserted into external cache because no buffer is available	CM_DIAG	
insert_rejects_mbuf_low	8B	RATE	PER_SEC	Number of mbuf-backed buffers not inserted into external cache because free mbufs are low	CM_DIAG	
reuse_percent	8B	PERCT	PERCT	Ratio of cache lookup hits to insertsas a percentage	CM_ADVANCED	inserts
evicts	8B	RATE	PER_SEC	Number of blocks evicted from the external cache to make room for new blocks	CM_BASIC	
evicts_ref	8B	RATE	PER_SEC	Number of blocks evicted from the external cache that were used once or more.	CM_BASIC	
readio_solitary	8B	RATE	PER_SEC	Number of single block cache read IOs	CM_BASIC	
readio_chains	8B	RATE	PER_SEC	Number of cache read IOs	CM_BASIC	
readio_blocks	8B	RATE	PER_SEC	Number of blocks in all cache read IOs	CM_BASIC	

readio_in_flight	8B	RAW	NONE	Number of read IOs currently in flight	CM_DIAG	
readio_max_in_flight	8B	RAW	NONE	Maximum number of read IOs ever concurrently in flight	CM_BASIC	
readio_avg_chainlength	8B	AVERAGE	NONE	Average chainlength of read I/Os	CM_BASIC	readio_chains
readio_avg_latency	8B	AVERAGE	MSECS	Average latency of read I/Os	CM_BASIC	readio_chains
readio_latency	4B	DELTA	NON_ZERO	Histogram of latency of issued read I/O	CM_DIAG	
readio_chain_lengths	4B	DELTA	NON_ZERO	Histogram of chain lengths of issued read I/O	CM_DIAG	
writeio_solitary	8B	RATE	PER_SEC	Number of single block cache write IOs	CM_BASIC	
writeio_chains	8B	RATE	PER_SEC	Number of cache write IOs	CM_BASIC	
writeio_blocks	8B	RATE	PER_SEC	Number of blocks in all cache write IOs	CM_BASIC	
writeio_in_flight	8B	RAW	NONE	Number of write IOs currently in flight	CM_DIAG	
writeio_max_in_flight	8B	RAW	NONE	Maximum number of write IOs ever concurrently in flight	CM_BASIC	
writeio_avg_chainlength	8B	AVERAGE	NONE	Average chainlength of write I/Os	CM_BASIC	writeio_chains
writeio_avg_latency	8B	AVERAGE	MSECS	Average latency of write I/Os	CM_BASIC	writeio_chains
writeio_latency	4B	DELTA	NON_ZERO	Histogram of latency issued write I/O	CM_DIAG	
writeio_chain_lengths	4B	DELTA	NON_ZERO	Histogram of chain lengths of issued write I/O	CM_DIAG	
blocks_ref0	8B	RAW	NONE	Number of non-referenced blocks currently in the external cache	CM_ADVANCED	
blocks_ref1	8B	RAW	NONE	Number of blocks currently in the external cache referenced once	CM_ADVANCED	
blocks_ref2	8B	RAW	NONE	Number of blocks currently in the external cache referenced twice	CM_ADVANCED	
blocks_ref3	8B	RAW	NONE	Number of blocks currently	CM_ADVA	

				in the external cache referenced thrice	NCED	
blocks_ref4	8B	RAW	NONE	Number of blocks currently in the external cache referenced four times	CM_ADVANCED	
blocks_ref5	8B	RAW	NONE	Number of blocks currently in the external cache referenced five times	CM_ADVANCED	
blocks_ref6	8B	RAW	NONE	Number of blocks currently in the external cache referenced six times	CM_ADVANCED	
blocks_ref7	8B	RAW	NONE	Number of blocks currently in the external cache referenced seven times or more	CM_ADVANCED	
blocks_ref0_arrivals	8B	RAW	NONE	Number of block transitions to non-referenced state	CM_ADVANCED	
blocks_ref1_arrivals	8B	RAW	NONE	Number of block transitions to once referenced state	CM_ADVANCED	
blocks_ref2_arrivals	8B	RAW	NONE	Number of block transitions to twice referenced state	CM_ADVANCED	
blocks_ref3_arrivals	8B	RAW	NONE	Number of block transitions to thrice referenced state	CM_ADVANCED	
blocks_ref4_arrivals	8B	RAW	NONE	Number of block transitions to four times referenced state	CM_ADVANCED	
blocks_ref5_arrivals	8B	RAW	NONE	Number of block transitions to five times referenced state	CM_ADVANCED	
blocks_ref6_arrivals	8B	RAW	NONE	Number of block transitions to six times referenced state	CM_ADVANCED	
blocks_ref7_arrivals	8B	RAW	NONE	Number of block transitions to seven times or more referenced state	CM_ADVANCED	
lru_ticks	8B	RAW	NONE	Number of times LRU clock ticked	CM_DIAG	
invalidates	8B	RATE	PER_SEC	Number of blocks invalidated in the external cache	CM_BASIC	

flexcache object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
per_ops	8B	DELTA	NONE	Client ops stats on FlexCache volume	CM_DIAG	
per_ops_total	8B	DELTA	NONE	Total ops on FlexCache volume by operation	CM_DIAG	
hit_ops_perct	8B	PERCT	PERCT	Per-op hit rate on FlexCache volume	CM_DIAG	per_ops_total
miss_ops_perct	8B	PERCT	PERCT	Per-op miss rate on FlexCache volume	CM_DIAG	per_ops_total
proxy_ops_perct	8B	PERCT	PERCT	Per-op proxy rate on FlexCache volume	CM_DIAG	per_ops_total
hit_pure_perct	8B	PERCT	PERCT	Hit rate on FlexCache volume without verify	CM_DIAG	total
total	8B	DELTA	NONE	Total ops on FlexCache volume	CM_DIAG	
hit_verify_perct	8B	PERCT	PERCT	Hit rate on FlexCache volume with verify	CM_DIAG	total1
total1	8B	DELTA NODISP	DELTA NODISP	Total ops on FlexCache volume	CM_DIAG	
miss_pure_perct	8B	PERCT	PERCT	Miss rate on FlexCache volume without verify	CM_DIAG	total2
total2	8B	DELTA NODISP	DELTA NODISP	Total ops on FlexCache volume	CM_DIAG	
miss_verify_perct	8B	PERCT	PERCT	Miss rate on FlexCache volume with verify	CM_DIAG	total3
total3	8B	DELTA NODISP	DELTA NODISP	Total ops on FlexCache volume	CM_DIAG	
proxy_perct	8B	PERCT	PERCT	Proxy rate on FlexCache volume	CM_DIAG	total4
total4	8B	DELTA NODISP	DELTA NODISP	Total ops on FlexCache volume	CM_DIAG	
bandwidth_savings _perct	8B	PERCT	PERCT	Bandwidth savings on FlexCache volume	CM_DIAG	bandwidth_to_cl
bandwidth_to_clien ts	8B	RATE	B_PER_S EC	Total traffic on FlexCache volume to clients	CM_DIAG	
bandwidth_to_origi	8B	RATE	B_PER_S	Total traffic on	CM_DIAG	

			EC	FlexCache volume to origin		
inode_type_stats	8B	DELTA	NONE	Inode type stats on FlexCache volume	CM_DIAG	
delegations	8B	RAW	NONE	Delegations on FlexCache volume	CM_DIAG	
delegation_fetches	8B	DELTA	NONE	Delegation fetch results on FlexCache volume	CM_DIAG	
delegation_returns	8B	DELTA	NONE	Delegation return reasons on FlexCache volume	CM_DIAG	
delegation_resets	8B	DELTA	NONE	Delegation resets on FlexCache volume	CM_DIAG	
delegation_lookup_queue_length_hit	8B	DELTA	NONE	Delegation lookup queue length for hits	CM_DIAG	delegation_looku
delegation_lookup_hit_rate	8B	PERCT	PERCT	Delegation lookup hit rate	CM_DIAG	delegation_looku
delegation_lookup_ops	8B	DELTA	NONE	Delegation lookup operations	CM_DIAG	
delegation_lookup_queue_length_miss	8B	DELTA	NONE	Delegation lookup queue length for misses	CM_DIAG	delegation_looku
delegation_lookup_miss_rate	8B	PERCT	PERCT	Delegation lookup miss rate	CM_DIAG	delegation_looku
delegation_lookup_ops1	8B	DELTA NODISP	DELTA NODISP	Delegation lookup operations	CM_DIAG	
inodes_tossed	8B	DELTA	NONE	Inodes tossed during fill	CM_DIAG	
blocks_tossed	8B	DELTA	NONE	Data blocks tossed during fill	CM_DIAG	
trunc_blks_capacity	8B	RAW	NONE	Capacity of sparse volume	CM_DIAG	
trunc_blks_usage	8B	RAW	PERCT	Fullness of sparse volume	CM_DIAG	
trunc_blks_relative_capacity	8B	RAW	NONE	Relative capacity of sparse volume	CM_DIAG	
trunc_blks_relative_usage	8B	RAW	PERCT	Relative fullness of sparse volume	CM_DIAG	
trunc_blks_ideal_avail	8B	RAW	NONE	Ideal # blocks used by volume in aggr rebalancing	CM_DIAG	
trunc_blks_ideal_a	8B	RAW	PERCT	Pct of ideal # blocks used	CM_DIAG	

Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
vail_pct				by volume in aggr rebalancing		
trunc_blks_unreclaimable	8B	RAW	NONE	Number of unreclaimable data blocks in FlexCache volume	CM_DIAG	
trunc_blks_nblks	8B	DELTA	NONE	Number of data blocks reclaimed by the truncator on FlexCache volume	CM_DIAG	
trunc_blks_ninodes	8B	DELTA	NONE	Number of inodes reclaimed by the truncator on FlexCache volume	CM_DIAG	
trunc_inos_max	8B	RAW	NONE	Max number of inodes in sparse volume's inofile	CM_DIAG	
trunc_inos_usage	8B	RAW	PERCT	Fullness of sparse volume's inofile	CM_DIAG	
trunc_inos_unreclaimable	8B	RAW	NONE	Number of unreclaimable inofile blocks on FlexCache volume	CM_DIAG	
trunc_inos_nblks	8B	DELTA	NONE	Number of inofile blocks reclaimed by the truncator for sparseification on FlexCache volume	CM_DIAG	
trunc_inos_ninodes	8B	DELTA	NONE	Number of inodes reclaimed by the truncator for sparseification on FlexCache volume	CM_DIAG	

fpolicy_global object						
Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
cifs_requests	4B	RAW	NONE	Filer-wide number of CIFS requests in FPolicy processing	CM_DIAG	
nfs_requests	4B	RAW	NONE	Filer-wide number of NFS requests in FPolicy processing	CM_DIAG	

fpolicy_stats_policy object						
Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
tlist_len	8B	RAW	NONE	Length of the list of throttled requests	CM_DIAG	
tlist_max	8B	RAW	NONE	Max length of the list of throttled requests	CM_DIAG	
tlist_count	8B	RAW	NONE	Total count of throttled requests	CM_DIAG	
tlist_recount	8B	RAW	NONE	Total count of the requests returned to throttle list due to Servers being busy	CM_DIAG	

fpolicy_stats_server object						
Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
avg_latency	8B	AVERAGE	MSECS	Average latency for file policy operations in milliseconds	CM_DIAG	latency_base
latency_base	8B	DELTA	MSECS	Total time spent waiting for file policy requests to be used as a base counter for file policy average latency calculation	CM_DIAG	
actv_reqs	8B	RAW	NONE	Total no of requests send to server and server is still processing them	CM_DIAG	
secs_since_last_ completion	8B	RAW	SECS	Number of seconds since last screen completion	CM_DIAG	
secs_since_throttle	8B	RAW	SECS	Number of seconds since server was throttled (0 means not throttled)	CM_DIAG	

hostadapter object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
total_reads	8B	RATE	PER_SEC	Total number of reads on Host Adapter	CM_ADVANCED	
total_writes	8B	RATE	PER_SEC	Total number of writes on Host Adapter	CM_ADVANCED	
bytes_read	8B	RATE	PER_SEC	Bytes reads via Host Adapter	CM_ADVANCED	
bytes_written	8B	RATE	PER_SEC	Bytes written via Host Adapter	CM_ADVANCED	

ifnet object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
recv_packets	4B	RATE	PER_SEC	Packets received per second	CM_BASIC	
recv_errors	4B	RATE	PER_SEC	Errors per second while receiving packets	CM_BASIC	
send_packets	4B	RATE	PER_SEC	Packets sent per second	CM_BASIC	
send_errors	4B	RATE	PER_SEC	Errors per second while sending packets	CM_BASIC	
collisions	4B	RATE	PER_SEC	Collisions per second on CSMA interfaces	CM_BASIC	
recv_data	8B	RATE	B_PER_SEC	Total bytes received per second	CM_BASIC	
send_data	8B	RATE	B_PER_SEC	Total bytes sent per second	CM_BASIC	
recv_mcasts	4B	RATE	PER_SEC	Packets received per second via multicast	CM_BASIC	
send_mcasts	4B	RATE	PER_SEC	Packets sent per second via multicast	CM_BASIC	
recv_drop_packets	4B	RATE	PER_SEC	Receive packets dropped per second	CM_BASIC	

incpr_global object						
Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
totalpkts	8B	DELTA	NONE	Total Number of SpinNP packets for incremental copy restorer	CM_BASIC	
committed	8B	RATE	KB_PER_SEC	Total KB committed to disk by incremental copy restorer	CM_BASIC	
inbound	8B	RATE	KB_PER_SEC	Total KB inbound to incremental copy restorer	CM_BASIC	
outbound	8B	RATE	KB_PER_SEC	Total KB outbound from incremental copy restorer	CM_BASIC	
waflwrites	8B	DELTA	NONE	Histogram of time in msec taken by wafl to write blocks sent by incremental copy restorer	CM_BASIC	
turnaround	8B	DELTA	NONE	Histogram of turn-around time in msec from incremental copy restorer	CM_BASIC	
backedup	8B	DELTA	NONE	Histogram of time spent by data packets in the backlog queue of incremental copy restorer	CM_TEST	
active	8B	RAW	NONE	Number of active incremental copy restore sessions	CM_BASIC	
failed	8B	DELTA	NONE	Number of failed incremental copy restore sessions	CM_BASIC	
hitmaxlimit	8B	DELTA	NONE	Number of incremental copy restore session creation failures due to too many sessions in progress	CM_BASIC	

incpr_sess object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
state	4B	RAW	NONE	State of the Incremental Copy Restore Session	CM_DIAG	
vol_op	4B	RAW	NONE	Volume operation for the Incremental Copy Restore Session	CM_DIAG	
xfer_flags	4B	RAW	NONE	Transfer flags for the Incremental Copy Restore Session	CM_DIAG	
elapsed	4B	RAW	MSECS	Time Elapsed since the Incremental Copy Restore started	CM_DIAG	
totalpkts	8B	RATE	PER_SEC	Total packets received by the Incremental Copy Restore Session	CM_DIAG	
kb_committed	8B	RATE	KB_PER_SEC	Total kilobytes committed by the Incremental Copy Restore Session	CM_DIAG	
kb_sent	8B	RATE	KB_PER_SEC	Total kilobytes sent to wafl by the Incremental Copy Restore Session	CM_DIAG	
backlog	4B	DELTA	NONE	Current backlog in the Incremental Copy Restore queue	CM_DIAG	
pool_free	4B	RAW	NONE	Current wafl message pool indicator in Incremental Copy Restore Session	CM_DIAG	
lockpkts	4B	RATE	PER_SEC	Total lock packets in Incremental Copy Restore Session	CM_DIAG	
pre_xfer_phase	4B	RAW	MSECS	Time spent in pre transfer phase for Incremental Copy Restore Session	CM_DIAG	
data_xfer_phase	4B	RAW	MSECS	Time spent in data transfer phase for Incremental Copy Restore Session	CM_DIAG	

Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
post_xfer_phase	4B	RAW	MSECS	Time spent in post transfer phase for Incremental Copy Restore Session	CM_DIAG	
writes	8B	DELTA	NONE	Histogram of time in msec taken by wafl to write blocks sent by Incremental Copy Restorer	CM_BASIC	

iomem object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
cycles	8B	DELTA NODISP	DELTA NODISP	Cycle counter for time base	CM_DIAG	
utilization	8B	PERCT	PERCT	Percentage utilization of the I/O channel	CM_DIAG	cycles
read_ops	8B	RATE	PER_SEC	Number of read operations completed per second	CM_DIAG	
read_chain	8B	AVERAGE	NONE	Average descriptor chain length per read operation	CM_DIAG	read_ops
read_thruput	8B	RATE	MB_PER_SEC	Throughput for read operations per second	CM_DIAG	
read_latency	8B	AVERAGE	USECS	Average read latency per block in microseconds	CM_DIAG	read_ops
lread_ops	8B	RATE	PER_SEC	Number of local read operations completed per second	CM_DIAG	
lread_chain	8B	AVERAGE	NONE	Average descriptor chain length per local read operation	CM_DIAG	lread_ops
lread_thruput	8B	RATE	MB_PER_SEC	Throughput for local read operations per second.	CM_DIAG	
lread_latency	8B	AVERAGE	USECS	Average local read latency per block in	CM_DIAG	lread_ops

				microseconds		
write_ops	8B	RATE	PER_SEC	Number of write operations completed per second	CM_DIAG	
write_chain	8B	AVERAGE	NONE	Average descriptor chain length per write operation	CM_DIAG	write_ops
write_thruput	8B	RATE	MB_PER_SEC	Throughput for write operations per second.	CM_DIAG	
write_latency	8B	AVERAGE	USECS	Average write latency in microseconds	CM_DIAG	write_ops
lwrite_ops	8B	RATE	PER_SEC	Number of local write operations completed per second	CM_DIAG	
lwrite_chain	8B	AVERAGE	NONE	Average descriptor chain length per local write operation	CM_DIAG	lwrite_ops
lwrite_thruput	8B	RATE	MB_PER_SEC	Throughput for local write operations per second.	CM_DIAG	
lwrite_latency	8B	AVERAGE	USECS	Average local write latency per block in microseconds	CM_DIAG	lwrite_ops
dma_errs	8B	RAW	NONE	Total number of unrecoverable DMA errors	CM_DIAG	
desc_crc_errs	8B	RAW	NONE	Total number of descriptor CRC errors	CM_DIAG	
data_crc_errs	8B	RAW	NONE	Total number of data CRC errors	CM_DIAG	
cecc_errs	8B	RAW	NONE	Total number of correctable ECC memory errors	CM_DIAG	
uecc_errs	8B	RAW	NONE	Total number of uncorrectable ECC memory errors	CM_DIAG	
received	8B	RAW	NONE	Total number of I/O operations received	CM_DIAG	
completed	8B	RAW	NONE	Total number of I/O operations completed	CM_DIAG	

ldap object						
Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
avg_latency	8B	AVERAGE	MSECS	Average latency for ldap operations in milliseconds	CM_DIAG	latency_base
latency_base	8B	DELTA	NONE	Total time spent waiting for ldap requests to be used as a base counter for ldap average latency calculation	CM_DIAG	

lmem object						
Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
data_mapped	8B	RAW	NONE	data_mapped	CM_DIAG	
io_data_mapped	8B	RAW	NONE	io_data_mapped	CM_DIAG	
data2_mapped	8B	RAW	NONE	data2_mapped	CM_DIAG	
data_stripped	8B	RAW	NONE	data_stripped	CM_DIAG	
io_data_stripped	8B	RAW	NONE	io_data_stripped	CM_DIAG	
data2_stripped	8B	RAW	NONE	data2_stripped	CM_DIAG	
indirect_stripped	8B	RAW	NONE	indirect_stripped	CM_DIAG	
suspended	8B	RAW	NONE	suspended	CM_DIAG	
suspended_in_scv	8B	RAW	NONE	suspended_in_scv	CM_DIAG	
nosusp_pre_valloc	8B	RAW	NONE	nosusp_pre_valloc	CM_DIAG	
restarted	8B	RAW	NONE	restarted	CM_DIAG	
scavenge_okay	8B	RAW	NONE	scavenge_okay	CM_DIAG	
scavenge_failed	8B	RAW	NONE	scavenge_failed	CM_DIAG	
cp_from_low_vbuf	4B	RAW	NONE	cp_from_low_vbuf	CM_DIAG	
no_surplus_from_cp	8B	RAW	NONE	no_surplus_from_cp	CM_DIAG	
nosusp_no_surplus	8B	RAW	NONE	nosusp_no_surplus	CM_DIAG	
dirty_cnt_sflush	8B	RAW	NONE	dirty_cnt_sflush	CM_DIAG	
dirty_single_flush	8B	RAW	NONE	dirty_single_flush	CM_DIAG	

dirty_batch_flush	8B	RAW	NONE	dirty_batch_flush	CM_DIAG	
dirty_global_flush	8B	RAW	NONE	dirty_global_flush	CM_DIAG	
child_ret_unmapped	8B	RAW	NONE	child_ret_unmapped	CM_DIAG	
child_temp_mapped	8B	RAW	NONE	child_temp_mapped	CM_DIAG	
no_child_buf	8B	RAW	NONE	no_child_buf	CM_DIAG	
no_child_map	8B	RAW	NONE	no_child_map	CM_DIAG	

lmgr_ng object						
Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
locks	4B	RAW	NONE	Number of allocated lock objects in the system	CM_ADVANCED	
locks_max	4B	RAW	NONE	Highest number of lock objects in the system at one time so far	CM_ADVANCED	
locks_limit	4B	RAW	NONE	Upper limit on the number of lock objects in the system	CM_ADVANCED	
locks_byte	4B	RAW	NONE	Number of byte lock objects in the system	CM_ADVANCED	
locks_share	4B	RAW	NONE	Number of share lock objects in the system	CM_ADVANCED	
locks_granted	4B	RAW	NONE	Number of lock objects in the system which are granted	CM_ADVANCED	
locks_waiting	4B	RAW	NONE	Number of lock objects in the system waiting to be granted	CM_ADVANCED	
files	4B	RAW	NONE	Number of allocated file objects in the system	CM_ADVANCED	
files_max	4B	RAW	NONE	Highest number of file objects in the system at one time so far	CM_ADVANCED	
files_limit	4B	RAW	NONE	Upper limit on the number of file objects in the system	CM_ADVANCED	
hosts	4B	RAW	NONE	Number of allocated host objects in the system	CM_ADVANCED	
hosts_max	4B	RAW	NONE	Highest number of host	CM_ADVANCED	

				objects in the system at one time so far		
hosts_limit	4B	RAW	NONE	Upper limit on the number of host objects in the system	CM_ADVANCED	
owners	4B	RAW	NONE	Number of allocated owner objects in the system	CM_ADVANCED	
owners_max	4B	RAW	NONE	Highest number of owner objects in the system at one time so far	CM_ADVANCED	
owners_limit	4B	RAW	NONE	Upper limit on the number of owner objects in the system	CM_ADVANCED	

logical_replication_destination object						
Counter Name	Size	Type	Display Unit	Description	Priority	Dep
num_transfers	4B	RAW	NONE	Number of transfers since reboot	CM_BASIC	
num_success_transfers	4B	RAW	NONE	Number of successful transfers since reboot	CM_BASIC	
num_consecutive_successes	4B	RAW	NONE	Number of consecutive successful transfers since last failure	CM_BASIC	
num_failures	4B	RAW	NONE	Number of transfer failures since reboot	CM_BASIC	
num_consecutive_failures	4B	RAW	NONE	Number of consecutive transfer failures since last success	CM_BASIC	
num_restarts	4B	RAW	NONE	Number of times the transfer was restarted	CM_BASIC	
total_num_files	4B	RAW	NONE	Total number of different types of files processed since reboot	CM_BASIC	
state	32B	STRING	NONE	Current state of the replica	CM_BASIC	
lag_time	4B	RAW	SECS	Current lag time of the replica	CM_BASIC	
last_base_snapshot	160B	STRING	NONE	Name of the base snapshot for the last transfer	CM_BASIC	
last_transfer_type	32B	STRING	NONE	Last transfer type	CM_BASIC	

		G				
last_transfer_size	8B	RAW	NONE	Amount of data transferred during last transfer in bytes	CM_BASIC	
last_transfer_duration	4B	RAW	SECS	Time taken for the last transfer	CM_BASIC	
transfer_status	16B	STRING	NONE	Status of the current transfer	CM_BASIC	
last_transfer_cpu_usage	8B	RAW	PERCT	Percentage of CPU used during last transfer	CM_DIAG	
check_point_num	4B	RAW	NONE	Last checkpoint number	CM_DIAG	
transfer_phase	32B	STRING	NONE	Current phase of the transfer (valid only for active transfer)	CM_DIAG	
num_headers_read	4B	RAW	NONE	Number of header blocks read from network	CM_DIAG	
num_data_blocks_read	8B	RAW	NONE	Number of data blocks read from network	CM_DIAG	
network_data_read	8B	RAW	NONE	Number of bytes read from network	CM_BASIC	
network_read_rate	8B	RATE	KB_PER_SEC	Network read rate during transfer	CM_BASIC	
num_inode_deletes	4B	RAW	NONE	Number of inodes deleted since last transfer	CM_BASIC	
directory_phase_time	8B	RAW	MSECS	Total time spent in directory phase receiving data from source	CM_DIAG	
num_directory_phase_blocks	4B	RAW	NONE	Number of blocks received in directory phase	CM_DIAG	
num_directory_phase_chunks	4B	RAW	NONE	Number of chunks received in directory phase	CM_DIAG	
num_streamdir_chunks	4B	RAW	NONE	Number of stream directory chunks received	CM_DIAG	
num_acldel_chunks	4B	RAW	NONE	Number of acl delete chunks received	CM_DIAG	
num_streamdirdel_chunks	4B	RAW	NONE	Number of stream directory delete chunks received	CM_DIAG	
num_true_delete_chunks	4B	RAW	NONE	Number of inode delete chunks received	CM_DIAG	
num_dir_chunks	4B	RAW	NONE	Number of directory chunks received	CM_DIAG	
num_spcl_file_chunks	4B	RAW	NONE	Number of special files chunks	CM_DIAG	

				received		
num_acl_data_chunks	4B	RAW	NONE	Number of acl chunks received	CM_DIAG	
num_extattr_chunks	4B	RAW	NONE	Number of extended attributes chunks received	CM_DIAG	
num_discard_data_chunks	4B	RAW	NONE	Number of discard data chunks received	CM_DIAG	
num_mid_stream_chunks	4B	RAW	NONE	Number of mid stream chunks received	CM_DIAG	
dir_processing_time	8B	RAW	MSECS	Total time spent in the directory processing phase	CM_DIAG	
num_direntry_deletes	4B	RAW	NONE	Number of directory entries deleted	CM_DIAG	
num_direntry_delete_renames	4B	RAW	NONE	Number of directory entries deleted due to renames	CM_DIAG	
num_direntry_creates	4B	RAW	NONE	Number of directory entries created	CM_DIAG	
num_direntry_create_renames	4B	RAW	NONE	Number of directory entries created due to renames	CM_DIAG	
dir_processing_read_req	4B	RAW	NONE	Number of blocks read from temporary files during directory processing	CM_DIAG	
file_phase_time	8B	RAW	MSECS	Time taken for the file phase	CM_DIAG	
file_phase_blocks	8B	RAW	NONE	Total blocks received in file phase	CM_DIAG	
num_prefetch_q_full	4B	RAW	NONE	Number of times the network read thread waited on full prefetch queue	CM_DIAG	
wait_time_prefetch_q_full	8B	RAW	MSECS	Total time network read thread waited on full prefetch queue	CM_DIAG	
num_prefetch_q_empty	4B	RAW	NONE	Number of times the prefetch thread waited for the network read thread to provide data	CM_DIAG	
wait_time_prefetch_q_empty	8B	RAW	MSECS	Total time prefetch thread waited for the network thread to provide data	CM_DIAG	
num_datawrite_q_empty	4B	RAW	NONE	Number of times datawrite thread waited for the prefetch thread to provide data	CM_DIAG	
wait_time_datawrite_q_e	8B	RAW	MSECS	Total time datawrite thread	CM_DIAG	

mpty				waited for the prefetch thread to provide data	
num_inofile_blocks_prefetched	4B	RAW	NONE	Number of inode file blocks prefetched	CM_DIAG
num_file_blocks_prefetched	8B	RAW	NONE	Number of file blocks prefetched	CM_DIAG
num_file_blocks_written	8B	RAW	NONE	Number of file data blocks written	CM_BASIC
num_inomap_entry_gen_adds	8B	RAW	NONE	Number of generation entries added to inodemap	CM_DIAG
num_inomap_entry_fh_adds	8B	RAW	NONE	Number of inode mapping entries added to inodemap	CM_DIAG
num_inomap_entry_deletes	8B	RAW	NONE	Number of inodemap entries deleted	CM_DIAG
num_inomap_entry_reads	8B	RAW	NONE	Number of inodemap entries read from inodemap	CM_DIAG
num_inomap_strmdir_set	8B	RAW	NONE	Number of streamdir entries set in the inodemap	CM_DIAG
num_inomap_strmdir_clr	8B	RAW	NONE	Number of streamdir entries cleared from inodemap	CM_DIAG
num_inomap_acl_set	8B	RAW	NONE	Number of acl flags set in the inodemap	CM_DIAG
num_inomap_acl_clr	8B	RAW	NONE	Number of acl flags cleared from inodemap	CM_DIAG
total_cpu_time	8B	RAW	MSECS	Total CPU time used by all threads for the last transfer	CM_DIAG
total_time	8B	RAW	MSECS	Total time used by all threads for the last transfer	CM_DIAG
cleantree_process_cpu_time	8B	RAW	MSECS	CPU time used by cleantree threads	CM_DIAG
cleantree_process_time	8B	RAW	MSECS	Total time used by cleantree threads	CM_DIAG
buildtree_process_cpu_time	8B	RAW	MSECS	CPU time used by buildtree threads	CM_DIAG
buildtree_process_time	8B	RAW	MSECS	Total time used by buildtree threads	CM_DIAG
prefetch_process_cpu_time	8B	RAW	MSECS	CPU time used by prefetch threads	CM_DIAG
prefetch_process_time	8B	RAW	MSECS	Total time used by prefetch	CM_DIAG

				threads		
datawrite_process_cpu_time	8B	RAW	MSECS	CPU time used by datawrite threads	CM_DIAG	
datawrite_process_time	8B	RAW	MSECS	Total time used by datawrite threads	CM_DIAG	
main_proc_process_cpu_time	8B	RAW	MSECS	CPU time used by the main process	CM_DIAG	
main_proc_process_time	8B	RAW	MSECS	Total time used by main process	CM_DIAG	
num_files	4B	RAW	NONE	Total number of new or modified files processed during current transfer	CM_BASIC	

logical_replication_source object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
num_transfers	4B	RAW	NONE	Number of transfers since reboot	CM_BASIC	
num_cksum_blk_packed	4B	RAW	NONE	Number of checksum blocks saved by multiple file packing headers	CM_DIAG	
num_success_transfers	4B	RAW	NONE	Number of successful transfers since reboot	CM_BASIC	
num_data_tinyfile_packed	4B	RAW	NONE	Number of blocks saved by tinyfiles packed in headers	CM_DIAG	
num_consecutive_success	4B	RAW	NONE	Number of consecutive successful transfers since last failure	CM_BASIC	
num_data_blocks_written	8B	RAW	NONE	Number of data blocks written to the network	CM_DIAG	
num_failures	4B	RAW	NONE	Number of transfer failures since reboot	CM_BASIC	
network_data_write	8B	RAW	NONE	Number of bytes written to network	CM_BASIC	
num_consecutive_failures	4B	RAW	NONE	Number of consecutive transfer failures since last success	CM_BASIC	
network_write_rate	8B	RATE	KB_PER_SEC	Network write rate during transfer	CM_BASIC	
num_restarts	4B	RAW	NONE	Number of times the transfer was restarted	CM_BASIC	
num_inode_deletes	4B	RAW	NONE	Number of inodes deleted since last transfer	CM_BASIC	
total_num_files	8B	RAW	NONE	Total number of different types of files transferred since reboot	CM_BASIC	
dir_phase_time	8B	RAW	MSECS	Total time taken in directory phase	CM_DIAG	
file_phase_time	8B	RAW	MSECS	Total time taken in file phase	CM_DIAG	
state	32B	STRING	NONE	Current state of the replica	CM_BASIC	
inofile_blocks_prefetched	4B	RAW	NONE	Inode file blocks prefetched	CM_DIAG	
lag_time	4B	RAW	SECS	Current lag time of the replica	CM_BASIC	
inofile_blocks_prefetch_msgs	4B	RAW	NONE	Number of prefetch messages to read inode file blocks	CM_DIAG	
last_base_snapshot	160B	STRING	NONE	Name of the base snapshot for the last transfer	CM_BASIC	
inofile_blocks_processed	4B	RAW	NONE	Number of inode file blocks processed	CM_DIAG	
last_transfer_type	32B	STRING	NONE	Last transfer type	CM_BASIC	
inodes_processed	8B	RAW	NONE	Number of inodes processed	CM_DIAG	
last_transfer_size	8B	RAW	NONE	Amount of data transferred during last transfer in bytes	CM_BASIC	
file_blocks_prefetched	8B	RAW	NONE	Number of blocks prefetched in file phase	CM_DIAG	
last_transfer_duration	4B	RAW	SECS	Time taken for the last transfer	CM_BASIC	
dir_blocks_prefetched	8B	RAW	NONE	Number of blocks prefetched in directory phase	CM_DIAG	
transfer_status	16B	STRING	NONE	Status of the current transfer	CM_BASIC	
acl_blocks_prefetched	4B	RAW	NONE	Number of acl blocks prefetched	CM_DIAG	
last_transfer_cpu_usage	8B	RAW	PERCT	Percentage of CPU usage for the last transfer	CM_DIAG	
num_pass1_empty_wait	4B	RAW	NONE	Number of times worker threads waited on empty pass1 queue	CM_DIAG	
check_point_num	4B	RAW	NONE	Last checkpoint number	CM_DIAG	
transfer_phase	32B	STRING	NONE	Current phase of the transfer (valid only for active transfer)	CM_DIAG	
time_pass1_empty_wait	8B	RAW	MSECS	Total time worker threads waited on empty pass1 queue	CM_DIAG	
num_headers_written	4B	RAW	NONE	Number of header blocks written to the network	CM_DIAG	
num_pass1_full_wait	4B	RAW	NONE	Number of times inode picker thread waited on full pass1 queue	CM_DIAG	
num_headers_packed	4B	RAW	NONE	Number of header blocks saved by multiple file packing in headers	CM_DIAG	
time_pass1_full_wait	8B	RAW	MSECS	Total time inode picker	CM_DIAG	

				thread waited on full pass1 queue		
num_pass2_empty_wait	4B	RAW	NONE	Number of times worker threads waited on empty pass2 queue	CM_DIAG	
time_pass2_empty_wait	8B	RAW	MSECS	Total time worker threads waited on empty pass2 queue	CM_DIAG	
num_pass2_full_wait	4B	RAW	NONE	Number of times inode picker thread waited on full pass2 queue	CM_DIAG	
time_pass2_full_wait	8B	RAW	MSECS	Total time inode picker thread waited on full pass2 queue	CM_DIAG	
num_inofile_blocks_read	8B	RAW	NONE	Number of inode file block reads issued by inode picker	CM_DIAG	
num_new_files	4B	RAW	NONE	Number of new files created since last transfer	CM_DIAG	
num_update_files	4B	RAW	NONE	Number of files modified since last transfer	CM_DIAG	
num_deleted_files	4B	RAW	NONE	Number of regular files deleted since last transfer	CM_DIAG	
num_deleted_dirs	4B	RAW	NONE	Number of directories deleted since last transfer	CM_DIAG	
num_acl_deletes	4B	RAW	NONE	Number of acls deleted since last transfer	CM_DIAG	
num_ntstreamdir_rels	4B	RAW	NONE	Number of NT stream relationships transferred	CM_DIAG	
num_streamdir_deletes	4B	RAW	NONE	Number of stream directory deletes since last transfer	CM_DIAG	
num_maps_processed	4B	RAW	NONE	Number of maps processed	CM_DIAG	
num_holes	8B	RAW	NONE	Number of holes transferred	CM_DIAG	
num_file_blocks_read	8B	RAW	NONE	Number of file blocks read	CM_BASIC	
num_dir_blocks_read	8B	RAW	NONE	Number of directory blocks read	CM_BASIC	
total_cpu_time	8B	RAW	MSECS	Total CPU time used by all threads for the last transfer	CM_DIAG	
total_time	8B	RAW	MSECS	Total time used by all threads for the last transfer	CM_DIAG	
pass1_inode_picker_proc	8B	RAW	MSECS	CPU time used by pass1	CM_DIAG	

Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
ess_cpu_time				inode picker thread		
pass1_inode_picker_process_time	8B	RAW	MSECS	Total time used by pass1 inode picker thread	CM_DIAG	
pass2_inode_picker_process_cpu_time	8B	RAW	MSECS	CPU time used by pass2 inode picker thread	CM_DIAG	
pass2_inode_picker_process_time	8B	RAW	MSECS	Total time used by pass2 inode picker thread	CM_DIAG	
worker_process_cpu_time	8B	RAW	MSECS	CPU time used by worker threads	CM_DIAG	
worker_process_time	8B	RAW	MSECS	Total time used by worker threads	CM_DIAG	
pipeline_process_cpu_time	8B	RAW	MSECS	CPU time used by pipeline thread	CM_DIAG	
pipeline_process_time	8B	RAW	MSECS	Total time used by pipeline thread	CM_DIAG	
BLI_process_cpu_time	8B	RAW	MSECS	CPU time used by block level incremental thread	CM_DIAG	
BLI_process_time	8B	RAW	MSECS	Total time used by block level incremental thread	CM_DIAG	
main_proc_process_cpu_time	8B	RAW	MSECS	CPU time used by the main process	CM_DIAG	
main_proc_process_time	8B	RAW	MSECS	Total time used by the main process	CM_DIAG	
num_files	4B	RAW	NONE	Total number of new or modified files transferred during current transfer	CM_BASIC	

ndmp object						
Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
dir_buffers_sent	4B	RAW	NONE	Number of buffers of DIR file history sent to NDMP	CM_BASIC	
node_buffers_sent	4B	RAW	NONE	Number of buffers of NODE file history sent to NDMP	CM_BASIC	
dir_send_was_blocked	4B	RAW	NONE	Number of times DIR	CM_ADVA	

				file history send to NDMP was blocked	NCED	
node_send_was_blocked	4B	RAW	NONE	Number of times NODE file history send to NDMP was blocked	CM_ADVANCED	
dir_flush_calls	4B	RAW	NONE	Number of DIR file history flush operations	CM_BASIC	
node_flush_calls	4B	RAW	NONE	Number of NODE file history flush operations	CM_BASIC	
num_node_entries	8B	RAW	NONE	Number of NODE file history entries	CM_BASIC	
num_dir_entries	8B	RAW	NONE	Number of DIR file history entries	CM_BASIC	
num_dir_entries_2fh	8B	RAW	NONE	Number of DIR file history entries to FH	CM_BASIC	
dir_entry_2fh_min_latency	8B	RAW	MSECS	Min xmit time for DIR file history entries to FH	CM_ADVANCED	
dir_entry_2fh_max_latency	8B	RAW	MSECS	Max xmit time for DIR file history entries to FH	CM_ADVANCED	
dir_entry_2fh_ave_latency	8B	RAW	MSECS	Average xmit time for DIR file history entries to FH	CM_ADVANCED	
dir_entry_2fh_tot_latency	8B	RAW	MSECS	Total xmit time for DIR file history entries to FH	CM_ADVANCED	
num_node_entries_2fh	8B	RAW	NONE	Number of NODE file history entries to FH	CM_ADVANCED	
node_entry_2fh_min_latency	8B	RAW	MSECS	Min xmit time for NODE file history entries to FH	CM_ADVANCED	
node_entry_2fh_max_latency	8B	RAW	MSECS	Max xmit time for NODE file history entries to FH	CM_ADVANCED	
node_entry_2fh_ave_latency	8B	RAW	MSECS	Average xmit time for NODE file history entries to FH	CM_ADVANCED	
node_entry_2fh_tot_latency	8B	RAW	MSECS	Total xmit time for NODE file history entries to FH	CM_ADVANCED	
num_dir_entries_2ndmp	8B	RAW	NONE	Number of DIR file	CM_BASIC	

Counter Name	Size	Type	Display Unit	Description	Priority	
				history entries to NDMP		
dir_entry_2ndmp_min_latency	8B	RAW	MSECS	Min xmit time for DIR file history entries to NDMP	CM_BASIC	
dir_entry_2ndmp_max_latency	8B	RAW	MSECS	Max xmit time for DIR file history entries to NDMP	CM_BASIC	
dir_entry_2ndmp_ave_latency	8B	RAW	MSECS	Average xmit time for DIR file history entries to NDMP	CM_BASIC	
dir_entry_2ndmp_tot_latency	8B	RAW	MSECS	Total xmit time for DIR file history entries to NDMP	CM_BASIC	
num_node_entries_2ndmp	8B	RAW	NONE	Number of NODE file history entries to NDMP	CM_BASIC	
node_entry_2ndmp_min_latency	8B	RAW	MSECS	Min xmit time for NODE file history entries to NDMP	CM_BASIC	
node_entry_2ndmp_max_latency	8B	RAW	MSECS	Max xmit time for NODE file history entries to NDMP	CM_BASIC	
node_entry_2ndmp_ave_latency	8B	RAW	MSECS	Average xmit time for NODE file history entries to NDMP	CM_BASIC	
node_entry_2ndmp_tot_latency	8B	RAW	MSECS	Total xmit time for NODE file history entries to NDMP	CM_BASIC	
max_queue_depth	4B	RAW	NONE	Max depth for File History queue	CM_ADVANCED	
fh_queue_full_cnt	4B	RAW	NONE	Number of times File History queue was full	CM_ADVANCED	

nfsv3 object						
Counter Name	Size	Type	Display Unit	Description	Priority	Depend
nfsv3_ops	8B	RATE	PER_SEC	Total number of NFS v3 operations per second	CM_BASIC	

nfsv3_read_laten cy	8B	AVERAGE	MSECS	Average latency for NFS v3 read operations in milliseconds	CM_BASIC	nfsv3_avg_read_lat
nfsv3_avg_read_ latency_base	8B	DELTA NODISP	DELTA NODISP	Number of NFS V3 reads for latency calculation	CM_BASIC	
nfsv3_read_ops	8B	RATE	PER_SEC	Total observed NFS V3 read operations per second	CM_BASIC	
nfsv3_read_laten cy_hist	8B	DELTA	NONE	Histogram of latency for NFS V3 read operations in milliseconds	CM_DIAG	
nfsv3_write_late ncy	8B	AVERAGE	MSECS	Average latency for NFS v3 write operations in milliseconds	CM_BASIC	nfsv3_avg_write_la
nfsv3_avg_write _latency_base	8B	DELTA NODISP	DELTA NODISP	Number of NFS V3 writes for latency calculation	CM_BASIC	
nfsv3_write_ops	8B	RATE	PER_SEC	Total observed NFS v3 write operations per second	CM_BASIC	
nfsv3_write_late ncy_hist	8B	DELTA	NONE	Histogram of latency for NFS V3 write operations in milliseconds	CM_DIAG	
nfsv3_op_count	8B	DELTA	NONE	Array of select NFS v3 operation counts	CM_DIAG	
nfsv3_op_latenc y_base	8B	DELTA NODISP	DELTA NODISP	Array of select NFS v3 operation counts for latency calculation	CM_DIAG	
nfsv3_op_percen t	8B	PERCT	PERCT	Array of select NFS v3 operations as a percentage of total NFS v3 operations	CM_DIAG	nfsv3_ops
nfsv3_op_latenc y	8B	AVERAGE	USECS	Array of latencies of select NFS v3 operations	CM_DIAG	nfsv3_op_latency_l
nfsv3_read_size_ histo	4B	DELTA	NONE	Histogram of NFS v3 read sizes	CM_DIAG	
nfsv3_write_size _histo	4B	DELTA	NONE	Histogram of NFS v3 write sizes	CM_DIAG	
nfsv3_avg_op_la tency	8B	AVERAGE	USECS	Average latency of the nfs V3 ops	CM_DIAG	nfsv3_avg_op_later
nfsv3_avg_op_la tency_base	8B	DELTA NODISP	DELTA NODISP	Number of NFS V3 ops for average latency calculation	CM_DIAG	

Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
nfsv3_latency_hist	8B	DELTA	NONE	Histogram of latency for NFS V3 operations in milliseconds	CM_DIAG	

nfsv4 object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
nfsv4_calls	8B	RATE	PER_SEC	Number of NFS v4 calls (null or compound) per second	CM_DIAG	
nfsv4_calls_types	8B	DELTA	NONE	Number of NFSV4 NULL calls and COMPOUND calls	CM_DIAG	
nfsv4_cmpnds	8B	RATE	PER_SEC	Number of NFS v4 compound calls per second	CM_DIAG	
nfsv4_op_count	8B	DELTA	NONE	Array of select NFS v4 operation counts	CM_DIAG	
nfsv4_op_percent	8B	PERCT	PERCT	Array of percent of select NFS v4 operations calculated as \ percent of total nfsv4 operations	CM_DIAG	nfsv4_ops
nfsv4_ops	8B	RATE	PER_SEC	Number of total NFS v4 operations per second	CM_DIAG	
nfsv4_ops_latency	8B	AVERAGE	MSECS	Average latency for NFS v4 operations in milliseconds	CM_BASIC	nfsv4_ops
nfsv4_latency_hist	8B	DELTA	NONE	Histogram of latency for NFS V4 operations in milliseconds	CM_DIAG	
nfsv4_read_ops	8B	RATE	PER_SEC	Number of NFS v4 read operations per second	CM_DIAG	
nfsv4_read_latency	8B	AVERAGE	MSECS	Average latency for NFS v4 Read operations in milliseconds	CM_BASIC	nfsv4_read_ops
nfsv4_read_latency_hist	8B	DELTA	NONE	Histogram of latency for NFS V4 operations in milliseconds	CM_DIAG	
nfsv4_write_ops	8B	RATE	PER_SEC	Number of NFS v4 write operations per second	CM_DIAG	

nfsv4_write_latency	8B	AVERAGE	MSECS	Average latency for NFS v4 Write operations in milliseconds	CM_BASIC	nfsv4_write_ops
nfsv4_write_latency_hist	8B	DELTA	NONE	Histogram of latency for NFS V4 Write operations in milliseconds	CM_DIAG	
nfsv4_nodelegation	4B	DELTA	NONE	Number of times no delegation was handed out to clients \ because of some error	CM_DIAG	
nfsv4_read_delegation	4B	DELTA	NONE	Number of times read delegation was handed out to clients	CM_DIAG	
nfsv4_write_delegation	4B	DELTA	NONE	Number of times write delegation was handed out to clients	CM_DIAG	
nfsv4_reply_cache_opinfo	4B	RAW	NONE	Array of NFS v4 reply cache opinfo	CM_DIAG	
nfsv4_reply_cache_reply	4B	RAW	NONE	Array of V4 reply cache reply	CM_DIAG	
nfsv4_cmpnd_latency	8B	AVERAGE	USECS	Average latency of a compound request	CM_DIAG	nfsv4_cmpnd_latency_base
nfsv4_cmpnd_latency_base	8B	DELTA NODISP	DELTA NODISP	Number of compounds for average latency computation	CM_DIAG	
nfsv4_op_latency	8B	AVERAGE	USECS	Array of latencies of select NFS v4 operations	CM_DIAG	nfsv4_op_latency_base
nfsv4_op_latency_base	8B	DELTA NODISP	DELTA NODISP	Array of select NFS v4 ops counts for latency calculation	CM_DIAG	
nfsv4_read_size_histo	8B	DELTA	NONE	Histogram of NFS v4 read sizes	CM_DIAG	
nfsv4_write_size_histo	8B	DELTA	NONE	Histogram of NFS v4 write sizes	CM_DIAG	
nfsv4_avg_latency	8B	AVERAGE	USECS	Average latency of an NFSv4 request	CM_DIAG	nfsv4_avg_latency_base
nfsv4_avg_latency_base	8B	DELTA NODISP	DELTA NODISP	Number of total NFSv4 ops for average latency computation	CM_DIAG	

nrv object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
reqs_enobufs	8B	DELTA	NONE	Number of failed NRV requests with ENOMEM in nrv server	CM_DIAG	
reqs_needs_init	8B	DELTA	NONE	Number of failed NRV requests which needed initialization in nrv server	CM_DIAG	
reqs_deferred	8B	DELTA	NONE	Total number of NRV requests deferred in nrv server	CM_DIAG	
reqs_deferred_sendbuf	8B	DELTA	NONE	Total number of NRV requests deferred in nrv server due to full send buffer	CM_DIAG	
reqs_entered_read_defer	8B	DELTA	NONE	Total number of times we entered read defer mode in NRV	CM_DIAG	
resp_sent	8B	DELTA	NONE	Total number of NRV responses sent in nrv server	CM_DIAG	
resp_curr_deferred	8B	RAW	NONE	Number of NRV responses currently deferred in nrv server	CM_DIAG	
resp_deferred	8B	DELTA	NONE	Total number of NRV responses deferred in nrv server	CM_DIAG	
htbeat_sent	8B	DELTA	NONE	Number of NRV hearbeats sent in nrv server	CM_DIAG	
htbeat_received	8B	DELTA	NONE	Number of NRV heartbeats received in nrv server	CM_DIAG	
htbeat_connclosed	8B	DELTA	NONE	Number of NRV	CM_DIAG	

				connections closed by heartbeat monitor in nrv server		
conn_active	8B	RAW	NONE	Number of active NRV connections in nrv server	CM_DIAG	
conn_closed	8B	DELTA	NONE	Number of closed NRV connections in nrv server	CM_DIAG	
read_xfers	8B	DELTA	NONE	Number of read transfers requests received in nrv server	CM_DIAG	
read_blocks	8B	DELTA	NONE	Number of blocks that received read requests in nrv server	CM_DIAG	
readahead_xfers	8B	DELTA	NONE	Number of readahead transfer requests received in nrv server	CM_DIAG	
readahead_blocks	8B	DELTA	NONE	Number of blocks that received readhead requests in nrv server	CM_DIAG	

nvram object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
total_nvlog_data	8B	RATE	B_PER_SEC	Total nvlog bytes per second	CM_DIAG	
write_data	8B	RATE	B_PER_SEC	NVRAM data in bytes written per second	CM_DIAG	
total_dma_data	8B	RATE	B_PER_SEC	NVRAM data in bytes DMAed per second	CM_DIAG	
dma_wait_latency	8B	AVERAGE	MSECS	NVRAM DMA wait time per transaction	CM_DIAG	transaction_count

Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
transaction_count	8B	RATE	PER_SEC	NVRAM DMA transactions per second	CM_DIAG	
nvlog_header_array_full	8B	RAW	NONE	NVLOG shadow header full count	CM_DIAG	

partial_file_restore object						
Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
requests	8B	RATE	PER_SEC	Partial file restore requests per second	CM_DIAG	
bytes_restored	8B	RATE	PER_SEC	Partial file restore bytes restored per second	CM_DIAG	

priorityqueue object						
Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
weight	4B	RAW	NONE	Queue scheduling weight	CM_ADVANCED	
usr_weight	4B	RAW	NONE	User request scheduling weight within a queue	CM_ADVANCED	
usr_sched_total	8B	RATE	PER_SEC	Number of scheduling user requests	CM_ADVANCED	
usr_pending	8B	RAW	NONE	Number of pending user requests	CM_ADVANCED	
avg_usr_pending_ms	8B	AVERAGE	MSECS	Average pending time for usr messages in milliseconds	CM_ADVANCED	usr_queued_total
usr_queued_total	8B	RATE	PER_SEC	Number of user requests placed on queue	CM_ADVANCED	
sys_sched_total	8B	RATE	PER_SEC	Number of scheduled system requests	CM_ADVANCED	
sys_pending	8B	RAW	NONE	Number of pending system requests	CM_ADVANCED	
avg_sys_pending_ms	8B	AVERAGE	MSECS	Average pending time for system messages in	CM_ADVANCED	sys_queued_total

				milliseconds		
sys_queued_total	8B	RATE	PER_SEC	Number of requests placed on queue	CM_ADVANCED	
usr_read_limit	4B	RAW	NONE	Limit on user reads outstanding on this queue	CM_ADVANCED	
max_user_reads	4B	RAW	NONE	Maximum number of user reads ever outstanding at one time for this queue	CM_ADVANCED	
sys_read_limit	4B	RAW	NONE	Limit on system reads outstanding on this queue	CM_ADVANCED	
max_sys_reads	4B	RAW	NONE	Maximum number of system read requests ever outstanding at one time for this queue	CM_ADVANCED	
usr_read_limit_hit	8B	DELTA	NONE	Number of times the user read limit was hit	CM_ADVANCED	
sys_read_limit_hit	8B	DELTA	NONE	Number of times the system read limit was hit	CM_ADVANCED	
nvlog_limit	4B	RAW	NONE	Amount of nvlog this queue may use during CP	CM_ADVANCED	
nvlog_used_max	4B	RAW	NONE	Maximum amount of nvlog this queue used during a CP	CM_ADVANCED	
nvlog_limit_full	4B	DELTA	NONE	Number of times the nvlog queue limit was hit during CP	CM_ADVANCED	
queue_not_usable	8B	RAW	NONE	Number of times the queue was not usable during schedule dequeue	CM_DIAG	
queue_maybe_choose	8B	RAW	NONE	Number of times the queue was a candidate for dequeue	CM_DIAG	
sys_delayed	8B	RAW	NONE	Number of times a delayed system message was pushed	CM_DIAG	
usr_delayed	8B	RAW	NONE	Number of times a delayed user message was pushed	CM_DIAG	
first_hit	8B	RAW	NONE	Number of times this	CM_DIAG	

Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
				queue was hit first		
retry_hit	8B	RAW	NONE	Number of times this queue was hit on retry	CM_DIAG	
cand_hit	8B	RAW	NONE	Number of times this queue was used from candidate queues	CM_DIAG	
retry_cand_hit	8B	RAW	NONE	Number of times this queue was a candidate during retry	CM_DIAG	
usr_old	8B	DELTA	NONE	Number of times this queue found a user message that was too oldwhen compared to system messages	CM_DIAG	
sys_old	8B	DELTA	NONE	Number of times this queue found a system message that was too oldwhen compared to user messages	CM_DIAG	

prisched object						
Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
queued	4B	RAW	NONE	Current messages queued	CM_ADVANCED	
queued_max	4B	RAW	NONE	Maximum schduling queue depth	CM_ADVANCED	
wake_on_sig_rate	4B	RATE	PER_SEC	Scheduler wake on signal received rate	CM_DIAG	
wake_on_mesg_rate	4B	RATE	PER_SEC	Scheduler wake on message received rate	CM_DIAG	
preempt_rate	4B	RATE	PER_SEC	Scheduler preemption rate	CM_DIAG	
bypass_rate	4B	RATE	PER_SEC	Rate at which guardrail scheduler is bypassed.	CM_DIAG	
retry_range	4B	RAW	NONE	Number of times a dequeue operation retried due to range	CM_DIAG	

Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
				readjustment		
nvlog_threshold	4B	RAW	NONE	NVLOG used limit before enforcing per-queue limits	CM_DIAG	
schedslow	4B	RAW	NONE	Number of times scheduler was found to be slow.	CM_DIAG	
delayed_messages	4B	RAW	NONE	Number of times a delayed message was found and pushed.	CM_DIAG	
delayed_io_blocked	4B	RAW	NONE	Number of times delayed messages were found and all queues were I/O blocked.	CM_DIAG	
try_send	4B	RAW	NONE	Number of attemped asynchronous dispatches.	CM_DIAG	
try_send_block	4B	RAW	NONE	Number of attemped asynchronous dispatches that would block	CM_DIAG	

qtree object						
Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
parent_vol	64B	STRING	NONE	Name of the parent volume	CM_DIAG	
nfs_ops	8B	RATE	PER_SEC	Number of NFS operations per second to the qtree	CM_BASIC	
cifs_ops	8B	RATE	PER_SEC	Number of CIFS operations per second to the qtree	CM_BASIC	
internal_ops	8B	RATE	PER_SEC	Number of internal operations generated by activites such as snapmirror and backup per second to the qtree	CM_DIAG	

quota object					
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**
quota_state	4B	RAW	NONE	Quota state: 0=off 1=on 2=init	CM_PRIV_DIAG|CM_ASUP_EVENT|CM T
quota_fsi_state	4B	RAW	NONE	Quota state in volinfo: 0=off 1=on 2=init 3=shutdown 4=enable 5=disable 6=maint_off 7=snap_off. See wafl_Quota_state	CM_PRIV_DIAG|CM_ASUP_EVENT|CM T
quota_db_blocks	4B	RAW	NONE	Quota database file size in blocks	CM_PRIV_DIAG|CM_ASUP_EVENT|CM T
quota_name_db_blocks	4B	RAW	NONE	Quota name database file size in blocks	CM_PRIV_DIAG|CM_ASUP_EVENT|CM T
quota_records	4B	RAW	NONE	Quota records in memory	CM_PRIV_DIAG|CM_ASUP_EVENT|CM T
quota_disk_records	4B	RAW	NONE	Quota disk records	CM_PRIV_DIAG|CM_ASUP_EVENT|CM T
quota_types	4B	RAW	NONE	Quota disk record typess	CM_PRIV_DIAG|CM_ASUP_EVENT|CM T
quota_lookups	4B	RAW	NONE	Various stats for Quota lookups	CM_PRIV_DIAG|CM_ASUP_EVENT|CM T

readahead object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
blks_read	8B	DELTA	NONE	Total blocks read	CM_DIAG	
blks_async	8B	DELTA	NONE	Async blocks	CM_DIAG	
blks_ext_cache_hit	8B	DELTA	NONE	Blocks hit in external cache	CM_DIAG	
chains_read_ahead	8B	DELTA	NONE	Chains read via readahead	CM_DIAG	
dummy_reads	8B	DELTA	NONE	Dummy reads in readahead	CM_DIAG	
requested	8B	DELTA	NONE	Blocks of readahead	CM_DIAG	

				requests		
read	8B	DELTA	NONE	Blocks actually read	CM_DIAG	
incore	8B	DELTA	NONE	Blocks already resident	CM_DIAG	
past_eof	8B	DELTA	NONE	Blocks requested past EOF	CM_DIAG	
hole	8B	DELTA	NONE	Blocks requested from holes	CM_DIAG	
absent	8B	DELTA	NONE	Blocks requested from absents	CM_DIAG	
noabsent	8B	DELTA	NONE	Request absent blocks what were skipped	CM_DIAG	
noblocks	8B	DELTA	NONE	Blocks requested from lev-0 inodes	CM_DIAG	
nomsgs	8B	DELTA	NONE	Blocks dropped for lack of messages	CM_DIAG	
nobufs	8B	DELTA	NONE	Blocks dropped for lack of buffers	CM_DIAG	
noraidbufs	8B	DELTA	NONE	Blocks dropped for lack of RAID buffers	CM_DIAG	
speculative	8B	DELTA	NONE	Blocks speculatively read	CM_DIAG	
noreadsets	8B	DELTA	NONE	No readsets available	CM_DIAG	
read_once	8B	DELTA	NONE	Read-once blocks	CM_DIAG	
dir_blocks	8B	DELTA	NONE	Directory blocks read ahead	CM_DIAG	
spanned	8B	DELTA	NONE	Spanned read aheads	CM_DIAG	
readsets_assign	8B	DELTA	NONE	Readsets assigned	CM_DIAG	
readsets_release	8B	DELTA	NONE	Readsets released	CM_DIAG	
readsets_notused	8B	DELTA	NONE	Readsets not used	CM_DIAG	
total_read_reqs	8B	DELTA	NONE	Histogram of total read requests seen by the RA algorithm	CM_DIAG	
seq_read_reqs	8B	PERCT	PERCT	Histogram of sequential read request percentages as seen by the readahead algorithm	CM_DIAG	total_read_reqs

rand_read_reqs	8B	PERCT	PERCT	Histogram of random read request percentages as seen by the readahead algorithm	CM_DIAG	total_read_reqs
chain_lengths	4B	DELTA	NONE	Histogram of readahead chains sent to RAID	CM_DIAG	
rb_rescan	8B	DELTA	NONE	Readahead rescans due to read sequence break	CM_DIAG	
prev_short	8B	DELTA	NONE	Previous readset reused had a short count	CM_DIAG	
rs_max_counts	4B	DELTA	NON_ZERO	Histogram of maximum readset counts when recycled	CM_DIAG	
prefetch_requests	8B	DELTA	NONE	Readahead prefetch requests	CM_DIAG	
prefetch_hit	8B	DELTA	NONE	prefetch buf load hits	CM_DIAG	
prefetch_hit_valid	8B	DELTA	NONE	prefetch buf load hitsvalid buffer	CM_DIAG	
prefetch_ibuf	8B	DELTA	NONE	prefetch buffer in inode	CM_DIAG	
prefetch_noparent	8B	DELTA	NONE	prefetch lacked parent buffer	CM_DIAG	
prefetch_decompress	8B	DELTA	NONE	prefetch buffer is decompressing	CM_DIAG	
prefetch_hole	8B	DELTA	NONE	attempt to prefetch a hole	CM_DIAG	
prefetch_nopvn	8B	DELTA	NONE	attempt to prefetch a buffer when pvbn conversion not available	CM_DIAG	
prefetch_nobufs	8B	DELTA	NONE	attempt to prefetch when no buffers available	CM_DIAG	
prefetch_read	8B	DELTA	NONE	prefetch attempted read	CM_DIAG	
prefetch_ec_hit	8B	DELTA	NONE	prefetch hit in	CM_DIAG	

Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
				extended cache		
prefetch_read_type	8B	DELTA	NON_ZERO	read types of reads	CM_DIAG	
ext_cache_hit	8B	DELTA	NONE	readahead hit in extended cache	CM_DIAG	
cached_read_opt	8B	RATE	PER_SEC	number of times cached read optimization was selected	CM_DIAG	
no_fd_parent	8B	RATE	PER_SEC	Blocks skipped due to fake-dirty parent write	CM_DIAG	
rr_all	8B	DELTA	NONE	Read reallocation requested on all blocks of a readahead	CM_DIAG	
rr_small	8B	DELTA	NONE	Read reallocation requested on some blocks of a readahead	CM_DIAG	
rr_none	8B	DELTA	NONE	Read reallocation requested on no blocks of a readahead	CM_DIAG	

raid object						
Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
tetris_written	8B	RATE	PER_SEC	Tetrises written per second	CM_DIAG	
stripes_written	8B	RATE	PER_SEC	Stripes written per second	CM_DIAG	
partial_stripes	8B	RATE	PER_SEC	Partial stripes written per second	CM_DIAG	
full_stripes	8B	RATE	PER_SEC	Full stripes written per second	CM_DIAG	
blocks_written	8B	RATE	PER_SEC	Blocks written per second	CM_DIAG	
blocks_read	8B	RATE	PER_SEC	Blocks read per second	CM_DIAG	
raid_read_io_latency_histo	8B	DELTA	NONE	Raid Read I/O Latency Histogram	CM_DIAG	
raid_tetris_latency_histo	8B	DELTA	NONE	Raid Tetris Latency Histogram	CM_DIAG	

raid_stripe object						
Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
stripe_size	8B	RAW	NONE	Size of this stripe	CM_DIAG	
stripe_histogram	8B	RATE	PER_SEC	Histogram of blocks per stripe written per second for a given stripe size	CM_DIAG	

replication object						
Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
rsm_rw_ent_allocs	8B	RAW	NONE	Total number of rsm_rw_ents resources allocated in semi-sync mode	CM_DIAG	
rsm_rw_ent_frees	8B	RAW	NONE	Total number of rsm_rw_ents resources free'd in semi-sync mode	CM_DIAG	
src_throughput	8B	RATE	KB_PER_SEC	Total replication source throughput	CM_DIAG	
dst_throughput	8B	RATE	KB_PER_SEC	Total replication destination throughput	CM_DIAG	
src_concurrent_transfers	8B	RAW	SECS	Concurrent transfers duration for source transfers	CM_DIAG	
dst_concurrent_transfers	8B	RAW	SECS	Concurrent transfers duration for destination transfers	CM_DIAG	
vsm_async_msgs_in_use	8B	RAW	NONE	Outstanding RAID/WAFL messages issued by VSM	CM_DIAG	
bkp_rcv_buf_counts_stolen	8B	RAW	NONE	Total number of stolen buffers for subsystems	CM_DIAG	
bkp_rcv_buf_counts_unstolen	8B	RAW	NONE	Total number of unstolen buffers for subsystems	CM_DIAG	
sd_num_inodes_done	8B	RAW	NONE	Total number of inodes processed by SnapDiff	CM_DIAG	

Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
sd_num_inodefile_blocks_done	8B	RAW	NONE	Total number of inodefile blocks processed by SnapDiff	CM_DIAG	
sd_num_files_done	8B	RAW	NONE	Total number of files processed by SnapDiff	CM_DIAG	
sd_num_file_blocks_done	8B	RAW	NONE	Total number of file blocks processed by SnapDiff	CM_DIAG	
sd_num_dirs_done	8B	RAW	NONE	Total number of directory processed by SnapDiff	CM_DIAG	
sd_num_dir_blocks_done	8B	RAW	NONE	Total number of indoes processed by SnapDiff	CM_DIAG	

rsm_src_global object						
Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
outstanding_waflbuf	4B	RAW	NONE	Numuber of RSM pre-allocated WAFL buffers being used for CP sync at RSM source	CM_DIAG	
outstanding_mbuf	4B	RAW	NONE	Numuber of RSM pre-allocated mbufs being used for CP sync at RSM source	CM_DIAG	
outstanding_volio	4B	RAW	NONE	Numuber of in-flight volio messages for CP sync at RSM source	CM_DIAG	
outstanding_plexio	4B	RAW	NONE	Numuber of in-flight plexio messages for CP sync at RSM source	CM_DIAG	
suspend_waflbuf	8B	RAW	NONE	Numuber of suspends of RSM_PLEXIO_START message due to unavailable RSM pre-allocated WAFL buffers at RSM source	CM_DIAG	
suspend_mbuf	8B	RAW	NONE	Numuber of suspends of RSM_PLEXIO_START message due to unavailable RSM pre-allocated mbufs at RSM source	CM_DIAG	
suspend_plexio	8B	RAW	NONE	Numuber of suspends of RSM_VOLIO_START message due	CM_DIAG	

				to unavailable RSM pre-allocated plexio messages at RSM source		

rsm_dst_global object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
outstanding_logrecv_msg	4B	RAW	NONE	Number of in-flight logrecv messages for NVLOG sync at RSM destination	CM_DIAG	
outstanding_wafl_msg	4B	RAW	NONE	Number of in-flight wafl messages for NVLOG sync at RSM destination	CM_DIAG	
outstanding_workio	4B	RAW	NONE	Number of in-flight workio messages for CP sync at RSM destination	CM_DIAG	
outstanding_netadmin_msg	4B	RAW	NONE	Number of netadmin messages un-acked by rsm_netadmin thread for CP sync at RSM destination	CM_DIAG	
suspend_workio	8B	RAW	NONE	Number of suspends due to unavailable workio messages at RSM destination	CM_DIAG	

target object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
read_ops	8B	RATE	PER_SEC	Read operations per second	CM_BASIC	
write_ops	8B	RATE	PER_SEC	Write operations per second	CM_BASIC	
other_ops	8B	RATE	PER_SEC	Other operations per second	CM_BASIC	
read_data	8B	RATE	B_PER_SEC	Read bytes from filer per second	CM_BASIC	
write_data	8B	RATE	B_PER_SEC	Write bytes to filer per	CM_BASIC	

				second		
queue_full	8B	RATE	PER_SEC	SCSI queue full responses per second	CM_BASIC	

lun object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
display_name	64B	STRING	NONE	Name of the lun	CM_DIAG	
read_ops	8B	RATE	PER_SEC	Read operations per second	CM_BASIC	
write_ops	8B	RATE	PER_SEC	Write operations per second	CM_BASIC	
other_ops	8B	RATE	PER_SEC	Other operations per second	CM_BASIC	
read_data	8B	RATE	B_PER_SEC	Read bytes per second	CM_BASIC	
write_data	8B	RATE	B_PER_SEC	Write bytes per second	CM_BASIC	
queue_full	8B	RATE	PER_SEC	Queue full responses per second	CM_BASIC	
avg_latency	8B	AVERAGE	MSECS	Average latency in milliseconds for all operations on the LUN	CM_BASIC	total_ops
total_ops	8B	RATE	PER_SEC	Total number of operations on the LUN per second	CM_BASIC	
scsi_partner_ops	8B	RATE	PER_SEC	SCSI operations per second received from the partner node in a clustered system	CM_DIAG	
scsi_partner_data	8B	RATE	B_PER_SEC	SCSI data in bytes per second read and written from the partner node in a clustered system	CM_DIAG	
read_align_histo	8B	PERCT	PERCT	Histogram of wafl read op alignment (number sectors off wafl block start)	CM_DIAG|CM_ASUP_HOURLY	read_ops
write_align_histo	8B	PERCT	PERCT	Histogram of wafl write op alignment (number of sectors off wafl block start)	CM_DIAG|CM_ASUP_HOURLY	write_ops
read_partial_blocks	8B	PERCT	PERCT	Percent of reads whose size is not a multiple of wafl block size	CM_DIAG|CM_ASUP_HOURLY	read_ops1
read_ops1	8B	RATE NODISP	RATE NODISP	Read operations per second	CM_DIAG|CM_ASUP_HOUR	

					LY	
write_partial_blocks	8B	PERCT	PERCT	Percent of writes whose size is not a multiple of wafl block size	CM_DIAG|CM_ASUP_HOURLY	write_ops1
write_ops1	8B	RATE NODISP	RATE NODISP	Write operations per second	CM_DIAG|CM_ASUP_HOURLY	

fcp object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
fcp_ops	8B	RATE	PER_SEC	FCP operations per second	CM_BASIC	
fcp_latency	8B	AVERAGE	MSECS	Average latency for FCP operations in milliseconds	CM_BASIC	fcp_ops
fcp_latency_hist	8B	DELTA	NONE	Histogram of latency for FCP operations in milliseconds	CM_DIAG	
fcp_write_data	8B	RATE	B_PER_SEC	FCP bytes written per second	CM_BASIC	
fcp_read_data	8B	RATE	B_PER_SEC	FCP bytes read per second	CM_BASIC	
fcp_read_latency	8B	AVERAGE	MSECS	Average latency for read operations observed over all LUNs in the system accessed over FCP in milliseconds	CM_DIAG	fcp_read_ops
fcp_read_latency_hist	8B	DELTA	NONE	Histogram of latency for FCP read operations in milliseconds	CM_DIAG	
fcp_read_ops	8B	RATE	PER_SEC	Total number of read operations per second observed over all the LUNS in the system accessed over FCP	CM_DIAG	
fcp_write_latency	8B	AVERAGE	MSECS	Average latency for write operations observed over all LUNs	CM_DIAG	fcp_write_ops

				in the system accessed over FCP in milliseconds		
fcp_write_latency_hist	8B	DELTA	NONE	Histogram of latency for FCP write operations in milliseconds	CM_DIAG	
fcp_write_ops	8B	RATE	PER_SEC	Total number of write operations per second observed over all LUNs in the system accessed over FCP	CM_DIAG	
fcp_partner_read_latency	8B	AVERAGE	MSECS	Average latency for read operations observed over all LUNs in the partner system accessed over FCP in milliseconds	CM_DIAG	fcp_partner_read_ops
fcp_partner_read_ops	8B	RATE	PER_SEC	Total number of read operations per second observed over all the LUNS in the partner system accessed over FCP	CM_DIAG	
fcp_partner_write_latency	8B	AVERAGE	MSECS	Average latency for write operations observed over all LUNs in the partner system accessed over FCP in milliseconds	CM_DIAG	fcp_partner_write_ops
fcp_partner_write_ops	8B	RATE	PER_SEC	Total number of write operations per second observed over all LUNs in the partner system accessed over FCP	CM_DIAG	
fcp_read_size_histo	4B	DELTA	NONE	Histogram of FCP read sizes	CM_DIAG	
fcp_write_size_histo	4B	DELTA	NONE	Histogram of FCP write sizes	CM_DIAG	

iscsi object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
iscsi_ops	8B	RATE	PER_SEC	iSCSI operations per second	CM_BASIC	
iscsi_latency	8B	AVERAGE	MSECS	Average latency for ISCSI operations in milliseconds	CM_BASIC	iscsi_ops
iscsi_latency_hist	8B	DELTA	NONE	Histogram of latency for ISCSI operations in milliseconds	CM_DIAG	
iscsi_write_data	8B	RATE	B_PER_SEC	iSCSI bytes written per second	CM_BASIC	
iscsi_read_data	8B	RATE	B_PER_SEC	iSCSI bytes read per second	CM_BASIC	
iscsi_read_latency	8B	AVERAGE	MSECS	Average latency of read operations observed over all LUNs in the system accessed over iSCSI in milliseconds	CM_DIAG	iscsi_read_ops
iscsi_read_latency_hist	8B	DELTA	NONE	Histogram of latency for ISCSI read operations in milliseconds	CM_DIAG	
iscsi_read_ops	8B	RATE	PER_SEC	Total number of read operations per second observed over all the LUNs in the system accessed over iSCSI	CM_DIAG	
iscsi_write_latency	8B	AVERAGE	MSECS	Average latency of write operations observed over all LUNs in the system accessed over iSCSI in milliseconds	CM_DIAG	iscsi_write_ops
iscsi_write_latency_hist	8B	DELTA	NONE	Histogram of latency for ISCSI write operations in milliseconds	CM_DIAG	
iscsi_write_ops	8B	RATE	PER_SEC	Total number of write	CM_DIAG	

				operations per second observed over all the LUNs in the system accessed over iSCSI		
iscsi_read_size_histo	4B	DELTA	NONE	Histogram of ISCSI read sizes	CM_DIAG	
iscsi_write_size_histo	4B	DELTA	NONE	Histogram of ISCSI write sizes	CM_DIAG	

sparse object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
sent_ops	8B	DELTA	NONE	Total NRV ops sent from sparse volume	CM_DIAG	
sent_op_count	8B	DELTA	NONE	NRV ops sent from sparse volume	CM_DIAG	
sent_op_percent	8B	PERCT	PERCT	NRV ops sent percentage from sparse volume	CM_DIAG	sent_ops
outstanding_ops	8B	RAW	NONE	Total NRV ops outstanding from sparse volume	CM_DIAG	
outstanding_op_count	8B	RAW	NONE	NRV ops outstanding from sparse volume	CM_DIAG	
failed_ops	8B	DELTA	NONE	Total NRV ops failed from sparse volume	CM_DIAG	
reclaimed_ops	8B	DELTA	NONE	Total NRV ops reclaimed in sparse volume	CM_DIAG	
nrv_op_remote_latency	8B	AVERAGE	MSECS	Average NRV op remote latency in sparse volume	CM_DIAG	response_rcvd_ops
response_rcvd_ops	8B	DELTA	NONE	Total NRV ops received response in sparse volume	CM_DIAG	
callback_rcvd_ops	8B	DELTA	NONE	Total NRV callback ops received for sparse volume	CM_DIAG	
callback_rcvd_op_count	8B	DELTA	NONE	NRV callback ops received for sparse volume	CM_DIAG	
resp_xidmatch	8B	DELTA	NONE	NRV responses with matching xid in sparse volume	CM_DIAG	

resp_xidnomatch	8B	DELTA	NONE	NRV responses with no matching xid in sparse volume	CM_DIAG	
resp_bad	8B	DELTA	NONE	NRV responses/callbacks dropped due to bad contents in sparse volume	CM_DIAG	
resp_nomem	8B	DELTA	NONE	NRV responses/callbacks not processed due to no memory in sparse volume	CM_DIAG	
conn_active	8B	RAW	NONE	Active NRV connections in sparse volume	CM_DIAG	
conn_failure	8B	DELTA	NONE	Failed NRV connections in sparse volume	CM_DIAG	
conn_success	8B	DELTA	NONE	Successful NRV connections in sparse volume	CM_DIAG	
conn_outstanding	8B	RAW	NONE	Outstanding NRV connections in sparse volume	CM_DIAG	
conn_reclaimed	8B	DELTA	NONE	Reclaimed NRV connections in sparse volume	CM_DIAG	
conn_htbeat_closed	8B	DELTA	NONE	NRV connections closed by heartbeat module in sparse volume	CM_DIAG	
nrv_bytes_sent	8B	RATE	B_PER_SEC	Bytes sent from sparse volume	CM_DIAG	
nrv_bytes_received	8B	RATE	B_PER_SEC	Bytes received for sparse volume	CM_DIAG	
read_xfers	8B	DELTA	NONE	NRV read transfers in sparse volume	CM_DIAG	
read_blocks	8B	DELTA	NONE	NRV read blocks in sparse volume	CM_DIAG	
readahead_xfers	8B	DELTA	NONE	NRV readahead transfers in sparse volume	CM_DIAG	
readahead_blocks	8B	DELTA	NONE	NRV readahead blocks in sparse volume	CM_DIAG	
sreq_nomem	8B	DELTA	NONE	Sparse requests denied due to no memory in sparse volume	CM_DIAG	

sreq_enqueued	8B	DELTA	NONE	Sparse requests enqueued in sparse volume	CM_DIAG	
sreq_dequeued	8B	DELTA	NONE	Sparse requests dequeued to active state in sparse volume	CM_DIAG	
sreq_done	8B	DELTA	NONE	Sparse requests completed in sparse volume	CM_DIAG	
sreq_overdemand	8B	DELTA	NONE	Sparse requests denied due to exceeding demand limit in sparse volume	CM_DIAG	
sreq_overspecra	8B	DELTA	NONE	Sparse requests denied due to excedding speculative read-ahead limit in sparse volume	CM_DIAG	
sreq_curr_waiting	8B	DELTA	NONE	Sparse requests currently waiting to be dequeued in sparse volume	CM_DIAG	
sreq_curr_active	8B	DELTA	NONE	Sparse requests currently active in sparse volume	CM_DIAG	
sreq_curr_free	8B	DELTA	NONE	Sparse requests currently free in sparse volume	CM_DIAG	
coalesce_lookups	8B	DELTA	NONE	Sparse coalesce lookups in sparse volume	CM_DIAG	
coalesce_comparisons	8B	DELTA	NONE	Sparse coalesce comparisons in sparse volume	CM_DIAG	
coalesce_hits	8B	DELTA	NONE	Sparse coalesce hits in sparse volume	CM_DIAG	
coalesce_partials	8B	DELTA	NONE	Sparse coalesce partials in sparse volume	CM_DIAG	
sreq_pump_curr_nproc	8B	DELTA	NONE	Number of sparse processe for sparse volumes	CM_DIAG	
sreq_pump_nomem	8B	DELTA	NONE	Number of sparse process allocations that failed due to no memor for sparse volumey	CM_DIAG	
sreq_exit_nproc	8B	DELTA	NONE	Number of sparse processes exited for sparse volume	CM_DIAG	

				spinhi object			
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
spinhi_fileops	8B	RATE	PER_SEC	Total number of spinhi file operations per second	CM_BASIC	
spinhi_filecbs	8B	RATE	PER_SEC	Total number of spinhi callback operations per second	CM_ADMIN	
spinhi_read_latency	8B	AVERAGE	USECS	Average latency for spinhi read operations in microseconds	CM_BASIC	spinhi_avg_read_latenc
spinhi_avg_read_latency_base	8B	DELTA NODISP	DELTA NODISP	Number of spinhi reads for latency calculation	CM_BASIC	
spinhi_read_ops	8B	RATE	PER_SEC	Total observed spinhi read operations per second	CM_BASIC	
spinhi_write_latency	8B	AVERAGE	USECS	Average latency for spinhi write operations in microseconds	CM_BASIC	spinhi_avg_write_laten
spinhi_avg_write_latency_base	8B	DELTA NODISP	DELTA NODISP	Number of spinhi writes for latency calculation	CM_BASIC	
spinhi_write_ops	8B	RATE	PER_SEC	Total observed spinhi write operations per second	CM_BASIC	
spinhi_fileop_count	8B	DELTA	NONE	Array of select spinhi file operation counts	CM_DIAG	
spinhi_filecb_count	8B	DELTA	NONE	Array of select spinhi callback operation counts	CM_DIAG	
spinhi_fileop_latency_base	8B	DELTA NODISP	DELTA NODISP	Array of select spinhi file operation counts for latency calculations	CM_DIAG	
spinhi_fileop_cputime_base	8B	DELTA NODISP	DELTA NODISP	Array of select spinhi file operation counts for cputime calculations	CM_DIAG	
spinhi_filecb_latency_base	8B	DELTA NODISP	DELTA NODISP	Array of select spinhi callback operation counts for latency calculations	CM_DIAG	
spinhi_filecb_cputime_base	8B	DELTA NODISP	DELTA NODISP	Array of select spinhi callback operation counts for cputime calculations	CM_DIAG	

spinhi_fileop_latency	8B	AVERAGE	USECS	Array of latencies of select spinhi file operations	CM_DIAG	spinhi_fileop_latency_b
spinhi_fileop_cputime	8B	AVERAGE	USECS	Array of cputimes of select spinhi file operations	CM_DIAG	spinhi_fileop_cputime_
spinhi_filecb_latency	8B	AVERAGE	USECS	Array of latencies of select spinhi callback operations	CM_DIAG	spinhi_filecb_latency_b
spinhi_filecb_cputime	8B	AVERAGE	USECS	Array of cputimes of select spinhi callback operations	CM_DIAG	spinhi_filecb_cputime_
spinhi_avg_fileop_latency	8B	AVERAGE	USECS	Average latency of the spinhi file ops	CM_DIAG	spinhi_avg_fileop_laten
spinhi_avg_fileop_latency_base	8B	DELTA NODISP	DELTA NODISP	Number of spinhi file ops for average latency calculation	CM_DIAG	
spinhi_avg_fileop_cputime	8B	AVERAGE	USECS	Average cputime of the spinhi file ops	CM_DIAG	spinhi_avg_fileop_cput
spinhi_avg_fileop_cputime_base	8B	DELTA NODISP	DELTA NODISP	Number of spinhi file ops for average cputime calculation	CM_DIAG	
spinhi_avg_filecb_latency	8B	AVERAGE	USECS	Average latency of the spinhi callback ops	CM_DIAG	spinhi_avg_filecb_laten
spinhi_avg_filecb_latency_base	8B	DELTA NODISP	DELTA NODISP	Number of spinhi callback ops for average latency calculation	CM_DIAG	
spinhi_avg_filecb_cputime	8B	AVERAGE	USECS	Average cputime of the spinhi callback ops	CM_DIAG	spinhi_avg_filecb_cput
spinhi_avg_filecb_cputime_base	8B	DELTA NODISP	DELTA NODISP	Number of spinhi callback ops for average cputime calculation	CM_DIAG	
spinhi_fileops_current	4B	RAW	NONE	Number of spinhi file operations in progress	CM_DIAG	
spinhi_filecb_current	4B	RAW	NONE	Number of spinhi callback operations in progress	CM_DIAG	
spinhi_read_kbytes	8B	RATE	KB_PER_SEC	Number of kbytes read by clients	CM_DIAG	
spinhi_write_kbytes	8B	RATE	KB_PER_SEC	Number of kbytes written by clients	CM_DIAG	

system object					
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**
system_model	16B	STRING	NONE	Name of the system model	CM_DIAG
ontap_version	252B	STRING	NONE	ONTAP version	CM_DIAG
serial_no	16B	STRING	NONE	System serial number	CM_DIAG
system_id	64B	STRING	NONE	System ID	CM_DIAG
hostname	64B	STRING	NONE	Hostname	CM_DIAG
nfs_ops	8B	RATE	PER_SEC	NFS operations per second	CM_BASIC
cifs_ops	8B	RATE	PER_SEC	CIFS operations per second	CM_BASIC
http_ops	8B	RATE	PER_SEC	HTTP operations per second	CM_BASIC&~CM_GX
fcp_ops	8B	RATE	PER_SEC	FCP operations per second	CM_BASIC&~CM_GX
iscsi_ops	8B	RATE	PER_SEC	iSCSI operations per second	CM_BASIC&~CM_GX
read_ops	8B	RATE	PER_SEC	Read operations per second	CM_BASIC
sys_read_latency	8B	AVERAGE	MSECS	Average latency for all read operations in the system in milliseconds	CM_DIAG
sys_read_latency_hist	8B	DELTA	NONE	Histogram of latency for all read operations in milliseconds	CM_DIAG
write_ops	8B	RATE	PER_SEC	Write operations per second	CM_BASIC
sys_write_latency	8B	AVERAGE	MSECS	Average latency for all write operations in the system in milliseconds	CM_DIAG
sys_write_latency_hist	8B	DELTA	NONE	Histogram of latency for all write operations in milliseconds	CM_DIAG
total_ops	8B	RATE	PER_SEC	Total operations per second	CM_DIAG
sys_avg_latency	8B	AVERAGE	MSECS	Average latency for all write operations in the system in milliseconds	CM_DIAG
sys_latency_hist	8B	DELTA	NONE	Histogram of latency for all operations in milliseconds	CM_DIAG
net_data_recv	8B	RATE	KB_PER_SEC	Network KB received per second	CM_BASIC&~CM_GX
net_data_sent	8B	RATE	KB_PER_SEC	Network KB sent per second	CM_BASIC&~CM_GX

disk_data_read	8B	RATE	KB_PER_SEC	Disk KB read per second	CM_BASIC
disk_data_written	8B	RATE	KB_PER_SEC	Disk KB written per second	CM_BASIC
cpu_busy	8B	PERCT	PERCT	System CPU resource utilization	CM_BASIC
cpu_elapsed_time	8B	DELTA NODISP	DELTA NODISP	Elapsed time since boot	CM_BASIC
avg_processor_busy	8B	PERCT	PERCT	Average processor utilization across all processors in the system	CM_ADMIN
cpu_elapsed_time1	8B	DELTA NODISP	DELTA NODISP	Elapsed time since boot	CM_BASIC
total_processor_busy	8B	PERCT	PERCT	Total processor utilization of all processors in the system	CM_ADMIN
cpu_elapsed_time2	8B	DELTA NODISP	DELTA NODISP	Elapsed time since boot	CM_BASIC
num_processors	8B	RAW	NONE	Number of active processors in the system	CM_ADMIN
time	8B	RAW	SECS	Time in seconds since the Epoch (00:00:00 UTCJanuary 11970)	CM_STATS|CM_TEST
uptime	8B	RAW	SECS	Time in seconds that the system has been up	CM_STATS|CM_TEST

				perf object		

Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
ops_per_sec_histo	8B	DELTA	NONE	Histogram of operations per second handled by the appliance	CM_DIAG	
data_disk_util_percnt_histo	8B	DELTA	NONE	Histogram of data disk utilization percentage	CM_DIAG	
parity_disk_util_percnt_histo	8B	DELTA	NONE	Histogram of parity disk utilization percentage	CM_DIAG	
disk_read_MB_per_sec_histo	8B	DELTA	NONE	Histogram of disk read megabytes per second	CM_DIAG	
disk_write_MB_per_sec_histo	8B	DELTA	NONE	Histogram of disk write megabytes per second	CM_DIAG	
netin_per_sec_histo	8B	DELTA	NONE	Histogram of network data per second coming in to the appliance	CM_DIAG	
netout_per_sec_histo	8B	DELTA	NONE	Histogram of network data per second going out of the appliance	CM_DIAG	
cpu_disk_util_matrix	8B	DELTA	NONE	Matrix of per second correlation between CPU utilization and disk utilization	CM_DIAG|CM_ASUP_HOURLY	
domain_switches	4B	RATE	PER_SEC	Matrix of CSMP domain switches	CM_DIAG	
domain_usecs	8B	DELTA	USECS	domain utilization	CM_DIAG|CM_ASUP_HOURLY	
shared_domain_usecs	8B	DELTA	USECS	shared domain utilization	CM_DIAG|CM_ASUP_HOURLY	
cp_rupt_usecs	8B	DELTA	USECS	CP interrupt utilization	CM_DIAG|CM_ASUP_HOURLY	
noncp_rupt_usecs	8B	DELTA	USECS	non-CP interrupt utilization	CM_DIAG|CM_ASUP_HOURLY	
disk_cp_reads_latency_histogram	8B	DELTA	NONE	Disk CP reads latency histogram	CM_DIAG	
disk_user_reads_latency_histogram	8B	DELTA	NONE	Disk user reads latency histogram	CM_DIAG	
disk_user_writes_latency_histogram	8B	DELTA	NONE	Disk user writes latency histogram	CM_DIAG	

tape object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
aliases	252B	STRING	NONE	Alias names of the tape drive	CM_DIAG	
bytes_read	8B	DELTA	NONE	Total number of bytes read from tape	CM_DIAG	
bytes_written	8B	DELTA	NONE	Total number of bytes written to tape	CM_DIAG	
write_commands_hist	8B	DELTA	NONE	Array of number of write commands of various record size ranges	CM_DIAG	
write_rate_hist	8B	AVERAGE	KB_PER_SEC	Array of average data rates of writes of various record size ranges	CM_DIAG	write_time_hist
write_latency_hist	8B	AVERAGE	MSECS	Array of average latencies of writes of various record size ranges	CM_DIAG	write_commands_hist
write_time_hist	8B	DELTA NODISP	DELTA NODISP	Array of command execution times of writes of various record size ranges	CM_DIAG	
read_commands_hist	8B	DELTA	NONE	Array of number of read commands of various record size ranges	CM_DIAG	
read_rate_hist	8B	AVERAGE	KB_PER_SEC	Array of average data rates of reads of various record size ranges	CM_DIAG	read_time_hist
read_latency_hist	8B	AVERAGE	MSECS	Array of average latencies of reads of various record size ranges	CM_DIAG	read_commands_hist
read_time_hist	8B	DELTA NODIS	DELTA NODISP	Array of command execution times for	CM_DIAG	

		P		reads of various record size ranges		

<table>

			test object			

Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
counter_0	4B	RAW	PER_SEC	4 bytehex valueraw	CM_TEST	
counter_1	8B	RAW	PER_SEC	8 bytehex valueraw	CM_TEST	
counter_2	4B	RAW	PER_SEC	4 bytehex valueraw	CM_TEST	
counter_3	8B	RAW	PER_SEC	8 bytehex valueraw	CM_TEST	
counter_4	4B	RAW	PER_SEC	4 bytedecimal valueraw	CM_TEST	
counter_5	8B	RAW	PER_SEC	8 bytedecimal valueraw	CM_TEST	
counter_6	4B	RAW	PER_SEC	4 bytedecimal valueraw	CM_TEST	
counter_7	8B	RAW	PER_SEC	8 bytedecimal valueraw	CM_TEST	
counter_8	4B	RATE	PER_SEC	4 bytehex valuerate	CM_TEST	
counter_9	4B	DELTA	PER_SEC	4 bytehex valuedelta	CM_TEST	
counter_10	4B	RATE	PER_SEC	4 bytedecimal valuerate	CM_TEST	
counter_11	4B	DELTA	PER_SEC	4 bytedecimal valuedelta	CM_TEST	
test_histo_0	4B	RAW	NONE	Test Histogramhex value	CM_TEST	

			vfiler object			

Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
vfiler_cpu_busy	8B	PERCT	PERCT	Percentage CPU time used by the vfiler	CM_BASIC	vfiler_cpu_busy_base
vfiler_cpu_busy_base	8B	DELTA NODISP	DELTA NODISP	Base for percentage CPU time used by the vfiler	CM_BASIC	
vfiler_net_data_recv	8B	RATE	KB_PER_SEC	Network KB received per second by the vfiler	CM_BASIC	
vfiler_net_data_sent	8B	RATE	KB_PER_SEC	Network KB sent per second by the	CM_BASIC	

				vfiler		
vfiler_read_ops	8B	RATE	PER_SEC	Number of read ops for the vfiler	CM_BASIC	
vfiler_write_ops	8B	RATE	PER_SEC	Number of write ops for the vfiler	CM_BASIC	
vfiler_misc_ops	8B	RATE	PER_SEC	Number of other miscellaneous ops for the vfiler	CM_BASIC	
vfiler_read_bytes	8B	RATE	KB_PER_SEC	Number of bytes read by the vfiler	CM_BASIC	
vfiler_write_bytes	8B	RATE	KB_PER_SEC	Number of bytes written by the vfiler	CM_BASIC	

volume object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	
parent_aggr	64B	STRING	NONE	Name of hosting aggregate	CM_DIAG	
avg_latency	8B	AVERAGE	USECS	Average latency in microseconds for all operations on the volume	CM_BASIC	
total_ops	8B	RATE	PER_SEC	Number of operations per second serviced by the volume	CM_BASIC	
read_data	8B	RATE	B_PER_SEC	Bytes read per second from the volume	CM_BASIC	
read_latency	8B	AVERAGE	USECS	Average time for reads to the volume	CM_BASIC	
read_ops	8B	RATE	PER_SEC	Number of reads per second to the volume	CM_BASIC	
write_data	8B	RATE	B_PER_SEC	Bytes written per second to the volume	CM_BASIC	
write_latency	8B	AVERAGE	USECS	Average time for writes to the volume	CM_BASIC	
write_ops	8B	RATE	PER_SEC	Number of writes per second to the volume	CM_BASIC	
other_latency	8B	AVERAGE	USECS	Average time for other operations to the volume	CM_BASIC	
other_ops	8B	RATE	PER_SEC	Number of other operations per second to the volume	CM_BASIC	
internal_msgs	8B	RATE	PER_SEC	Number of internal backdoor	CM_DIAG	

				messages per second to the volume	
read_blocks	8B	RATE	PER_SEC	Number of blocks read per second from the volume	CM_DIAG&~CM_G X
write_blocks	8B	RATE	PER_SEC	Number of blocks written per second to the volume	CM_DIAG&~CM_G X
synchronous_frees	8B	RATE	PER_SEC	Number of synchronous frees per second to the volume	CM_DIAG
asynchronous_frees	8B	RATE	PER_SEC	Number of asynchronous frees per second to the volume	CM_DIAG
df_worker	8B	RATE	PER_SEC	Number of times per second delayed free worker called on the volume	CM_DIAG
nfs_read_data	8B	RATE	B_PER_SE C	Bytes read per second via NFS from the volume	CM_ADVANCED
nfs_read_latency	8B	AVERAGE	USECS	Average time for NFS reads to the volume	CM_ADVANCED
nfs_read_ops	8B	RATE	PER_SEC	Number of NFS reads per second to the volume	CM_ADVANCED
nfs_write_data	8B	RATE	B_PER_SE C	Bytes written per second via NFS to the volume	CM_DIAG&~CM_G X
nfs_write_latency	8B	AVERAGE	USECS	Average time for NFS writes to the volume	CM_ADVANCED
nfs_write_ops	8B	RATE	PER_SEC	Number of NFS writes per second to the volume	CM_ADVANCED
nfs_other_latency	8B	AVERAGE	USECS	Average time for other NFS operations to the volume	CM_ADVANCED
nfs_other_ops	8B	RATE	PER_SEC	Number of other NFS operations per second to the volume	CM_ADVANCED
cifs_read_data	8B	RATE	B_PER_SE C	Bytes read per second via cifs from the volume	CM_ADVANCED
cifs_read_latency	8B	AVERAGE	USECS	Average time for cifs reads to the volume	CM_ADVANCED
cifs_read_ops	8B	RATE	PER_SEC	Number of cifs reads per second to the volume	CM_ADVANCED
cifs_write_data	8B	RATE	B_PER_SE C	Bytes written per second via cifs to the volume	CM_ADVANCED
cifs_write_latency	8B	AVERAGE	USECS	Average time for cifs writes to the volume	CM_ADVANCED
cifs_write_ops	8B	RATE	PER_SEC	Number of cifs writes per second to	CM_ADVANCED

				the volume	
cifs_other_latency	8B	AVERAGE	USECS	Average time for other cifs operations to the volume	CM_ADVANCED
cifs_other_ops	8B	RATE	PER_SEC	Number of other cifs operations per second to the volume	CM_ADVANCED
san_read_data	8B	RATE	B_PER_SEC	Bytes read per second via block protocol from the volume	CM_DIAG&~CM_G X
san_read_latency	8B	AVERAGE	MSECS	Average time for block protocol reads to the volume	CM_DIAG&~CM_G X
san_read_ops	8B	RATE	PER_SEC	Number of block protocol reads per second to the volume	CM_DIAG&~CM_G X
san_write_data	8B	RATE	B_PER_SEC	Bytes written per second via block protocol to the volume	CM_DIAG&~CM_G X
san_write_latency	8B	AVERAGE	MSECS	Average time for block protocol writes to the volume	CM_DIAG&~CM_G X
san_write_ops	8B	RATE	PER_SEC	Number of block protocol writes per second to the volume	CM_DIAG&~CM_G X
san_other_latency	8B	AVERAGE	MSECS	Average time for other block protocol operations to the volume	CM_DIAG&~CM_G X
san_other_ops	8B	RATE	PER_SEC	Number of other block protocol operations per second to the volume	CM_DIAG&~CM_G X
fcp_read_data	8B	RATE	B_PER_SEC	Bytes read per second via block protocol from the volume	CM_DIAG&~CM_G X
fcp_read_latency	8B	AVERAGE	MSECS	Average time for block protocol reads to the volume	CM_DIAG&~CM_G X
fcp_read_ops	8B	RATE	PER_SEC	Number of block protocol reads per second to the volume	CM_DIAG&~CM_G X
fcp_write_data	8B	RATE	B_PER_SEC	Bytes written per second via block protocol to the volume	CM_DIAG&~CM_G X
fcp_write_latency	8B	AVERAGE	MSECS	Average time for block protocol writes to the volume	CM_DIAG&~CM_G X
fcp_write_ops	8B	RATE	PER_SEC	Number of block protocol writes per second to the volume	CM_DIAG&~CM_G X
fcp_other_latency	8B	AVERAGE	MSECS	Average time for other block protocol operations to the volume	CM_DIAG&~CM_G X
fcp_other_ops	8B	RATE	PER_SEC	Number of other block protocol operations per second to the volume	CM_DIAG&~CM_G X
iscsi_read_data	8B	RATE	B_PER_SEC	Bytes read per second via block protocol from the volume	CM_DIAG&~CM_G X

iscsi_read_latency	8B	AVERAGE	MSECS	Average time for block protocol reads to the volume	CM_DIAG&~CM_G X
iscsi_read_ops	8B	RATE	PER_SEC	Number of block protocol reads per second to the volume	CM_DIAG&~CM_G X
iscsi_write_data	8B	RATE	B_PER_SE C	Bytes written per second via block protocol to the volume	CM_DIAG&~CM_G X
iscsi_write_latency	8B	AVERAGE	MSECS	Average time for block protocol writes to the volume	CM_DIAG&~CM_G X
iscsi_write_ops	8B	RATE	PER_SEC	Number of block protocol writes per second to the volume	CM_DIAG&~CM_G X
iscsi_other_latency	8B	AVERAGE	MSECS	Average time for other block protocol operations to the volume	CM_DIAG&~CM_G X
iscsi_other_ops	8B	RATE	PER_SEC	Number of other block protocol operations per second to the volume	CM_DIAG&~CM_G X
flexcache_read_dat a	8B	RATE	B_PER_SE C	Bytes read per second via FlexCache from the volume	CM_DIAG&~CM_G X
flexcache_read_ops	8B	RATE	PER_SEC	Number of FlexCache read operations per second from the volume	CM_DIAG&~CM_G X
flexcache_write_dat a	8B	RATE	B_PER_SE C	Bytes written per second via FlexCache to the volume	CM_DIAG&~CM_G X
flexcache_write_op s	8B	RATE	PER_SEC	Number of FlexCache write operations per second to the volume	CM_DIAG&~CM_G X
flexcache_other_op s	8B	RATE	PER_SEC	Number of other FlexCache operations per second to the volume	CM_DIAG&~CM_G X
flexcache_send_dat a	8B	RATE	B_PER_SE C	Bytes sent per second via FlexCache from the volume	CM_DIAG&~CM_G X
flexcache_receive_ data	8B	RATE	B_PER_SE C	Bytes received per second via FlexCache to the volume	CM_DIAG&~CM_G X
wv_fsid	16B	STRING	NONE	File system ID for the volume	CM_DIAG
wv_vol_type	16B	STRING	NONE	Volume type for the volume	CM_DIAG
wv_fsinfo_fs_versi on	4B	RAW	NONE	File system version for the volume	CM_DIAG
wv_volinfo_fs_opti ons	16B	STRING	NONE	File system options for the volume	CM_DIAG
wv_volinfo_fs_flag s	16B	STRING	NONE	File system flags for the volume	CM_DIAG
wv_fsinfo_blks_tot al	8B	RAW	NONE	Total blocks in the volume	CM_DIAG

wv_fsinfo_blks_reserve	8B	RAW	NONE	Reserved blocks in the volume	CM_DIAG
wv_fsinfo_blks_used	8B	RAW	NONE	Used blocks (all planes) in the volume	CM_DIAG
wv_fsinfo_blks_used_by_plane0	8B	RAW	NONE	Used blocks (plane 0) in the volume	CM_DIAG
wv_fsinfo_blks_blks_rsrv_holes_cifs	8B	RAW	NONE	Reserved blocks for CIFS holes in the volume	CM_DIAG
wv_fsinfo_blks_blks_rsrv_holes	8B	RAW	NONE	Reserved blocks for all holes in the volume	CM_DIAG
wv_fsinfo_blks_blks_rsrv_overwrite	8B	RAW	NONE	Overwrite reserved blocks in the volume	CM_DIAG
wv_fsinfo_blks_rsrv_absents	8B	RAW	NONE	Absent sparse volume reserved blocks in the volume	CM_DIAG
wv_fsinfo_blks_snap_reserve_pct	4B	RAW	PERCT	Snap reserved percentage for the volume	CM_DIAG
wv_fsinfo_blks_res_state	4B	RAW	NONE	Space reservation state for the volume	CM_DIAG
wv_fsinfo_blks_overwrite_slider_pct	4B	RAW	PERCT	Overwrite slider percentage for the volume	CM_DIAG
wv_fsinfo_inos_total	4B	RAW	NONE	Total inodes in the volume	CM_DIAG
wv_fsinfo_inos_reserve	4B	RAW	NONE	Reserved inodes in the volume	CM_DIAG
wv_fsinfo_inos_used	4B	RAW	NONE	Used inodes in the volume	CM_DIAG
wv_fsinfo_blkr_cp	4B	RAW	NONE	CP when block reallocation first performed	CM_DIAG
wvblk_past_eof	8B	RAW	NONE	Blocks past EOF in the volume	CM_DIAG
wvblk_snap_reserve	8B	RAW	NONE	Snap reserved blocks in the volume	CM_DIAG
wvblk_zombie_blks	8B	RAW	NONE	Blocks used in zombie files in the volume	CM_DIAG
wv_fsinfo_blks_rsrv_parent	8B	RAW	NONE	Partial space reservation blocks charged to the aggregate for the volume	CM_DIAG
wvblk_spcres_in_parent	4B	RAW	NONE	Whether space reservation charges are made to the aggregate for the volume	CM_DIAG

wvblk_rsrv_parent_holes	8B	RAW	NONE	Blocks charged to the aggregate for holes in the volume	CM_DIAG
wvblk_rsrv_parent_overwrite	8B	RAW	NONE	Blocks charged to the aggregate for overwrites in the volume	CM_DIAG
wvblk_rsrv_parent_overwrite_always	8B	RAW	NONE	Blocks charged to the aggregate for always overwrites in the volume	CM_DIAG
wvbd_active_frees	8B	RAW	NONE	Active file system freed blocks during CP in the volume	CM_DIAG
wvbd_whole_frees	8B	RAW	NONE	Active file system whole freed blocks during CP in the volume	CM_DIAG
wvbd_active_frees_y	8B	RAW	NONE	Active file system freed blocks (youngest) during CP in the volume	CM_DIAG
wvbd_owner_changed_y	8B	RAW	NONE	Changed ownership blocks (youngest) during CP in the volume	CM_DIAG
wvbd_whole_frees_o	8B	RAW	NONE	Whole freed blocks (oldest) during CP in the volume	CM_DIAG
wvblk_saved_fsinfo_inos_total	4B	RAW	NONE	Total inodes during CP in the volume	CM_DIAG
wvblk_saved_fsinfo_inos_reserve	4B	RAW	NONE	Reserved inodes during CP in the volume	CM_DIAG
wvblk_saved_fsinfo_inos_used	4B	RAW	NONE	Used inodes during CP in the volume	CM_DIAG
wvblk_delalloc	8B	RAW	NONE	Delalloc blocks during CP in the volume	CM_DIAG
wvblk_rsrv_delalloc	8B	RAW	NONE	Reserved delalloc blocks during CP in the volume	CM_DIAG
wvblk_rsrv_holes_cifs	8B	RAW	NONE	Blocks reserved for CIFS holes during CP in the volume	CM_DIAG
wvblk_rsrv_holes	8B	RAW	NONE	Blocks reserved for all holes during CP in the volume	CM_DIAG
wvblk_rsrv_overwrite	8B	RAW	NONE	Blocks reserved for overwrite during CP in the volume	CM_DIAG
wvblk_rsrv_absents	8B	RAW	NONE	Absent sparse volume reserved blocks during CP in the volume	CM_DIAG
extent_size	4B	RAW	NONE	Extent size	CM_DIAG
wvblk_rsrv_clone_parent	8B	RAW	NONE	Blocks from a clone volume associated with the parent volume	CM_DIAG
wvdf_enabled	4B	RAW	NONE	Delayed frees are enabled for this volume	CM_DIAG

wvdf_last_fbn	8B	RAW	NONE	Last active map block from which we freed a pvbn	CM_DIAG
wvdf_num_frees	8B	RAW	NONE	Number of delayed pvbn frees from the flex volume	CM_DIAG
wvdf_water_mark	8B	RAW	NONE	pvbn frees start when wvdf_num_frees passes this limit	CM_DIAG
wvdf_max_frees	8B	RAW	NONE	Maximum number of delayed pvbn frees	CM_DIAG
wvdf_total_score	4B	RAW	NONE	Total delayed free score across entire active map	CM_DIAG
wvblk_parent_to_be_reclaimed	8B	RAW	NONE	Outstanding delayed pvbn freesindependent of score cap in the flex volume	CM_DIAG
wvip_vvol_container_wi_fileid	4B	RAW	NONE	Container file fileid	CM_TEST
wvip_vvol_container_wi_blk_cnt	8B	RAW	NONE	Container blocks in the flex volume	CM_DIAG
wvip_vvol_container_wi_size	8B	RAW	NONE	Container size	CM_DIAG
wvip_vvol_container_indirects	8B	RAW	NONE	Indirect blocks in the container file of the flex volumes	CM_DIAG
wvol_number_suspended	4B	RATE	NONE	Average number of requests suspended on volume	CM_DIAG
clone_storage_blocks	8B	RAW	NONE	For a clone volume an estimate of the storage directly used by clone	CM_DIAG
wvblk_reclaim_time_start	8B	RAW	NONE	Last start time of the block reclamation scanner	CM_DIAG
wvblk_reclaim_time_reset	8B	RAW	NONE	Last reset time of the block reclamation scanner	CM_DIAG
wvblk_reclaim_time_done	8B	RAW	NONE	Last completion time of the block reclamation scanner	CM_DIAG
wvblk_reclaim_time_abort	8B	RAW	NONE	Last abort time of the block reclamation scanner	CM_DIAG
wvzmb_num_zmsgs_inuse	4B	RAW	NONE	Number of zombie/sfsr messages working	CM_DIAG
wvblk_ind_delalloc	8B	RAW	NONE	Delalloc blocks during CP in the volume	CM_DIAG
wvsblk_vvrd_last_fbn	4B	RAW	NONE	Last FBN till which indirects have been counted	CM_DIAG

wvsblk_vvrd_spcfla gs	4B	RAW	NONE	Space management scanner flags	CM_DIAG
wvsblk_vvrd_spc_c lone_inherited	8B	RAW	NONE	Inherited block count for the clone	CM_DIAG
wvsblk_space_tax	8B	RAW	NONE	Space management tax for volume	CM_DIAG
wvsblk_lev0_over_ nominal	8B	RAW	NONE	Count of level0 container blocks over nominal size	CM_DIAG
wvsblk_vvrd_vol_si ze	4B	RAW	NONE	Nominal size stored in the raid label	CM_DIAG
wvsblk_vvrd_flags	4B	RAW	NONE	Volume flags stored in the raid label	CM_DIAG
wv_fsinfo_contain ment_version_slc	4B	RAW	NONE	Containment version for SnapLock Compliance volume	CM_DIAG
wv_fsinfo_contain ment_version_sle	4B	RAW	NONE	Containment version for SnapLock Enterprise volume	CM_DIAG
wv_fsinfo_contain ment_version_spare1	4B	RAW	NONE	Containment version reserved for SnapLock	CM_DIAG
wv_fsinfo_contain ment_version_spare2	4B	RAW	NONE	Containment version reserved for SnapLock	CM_DIAG
wv_fsinfo_contain ment_version_highes t_slc	4B	RAW	NONE	Highest containment version detected for SnapLock Compliance volume	CM_DIAG
wv_fsinfo_contain ment_version_highes t_sle	4B	RAW	NONE	Highest containment version detected for SnapLock Enterprise volume	CM_DIAG
wv_fsinfo_contain ment_version_highes t_spare1	4B	RAW	NONE	Highest containment version reserved for SnapLock	CM_DIAG
wv_fsinfo_contain ment_version_highes t_spare2	4B	RAW	NONE	Highest containment version reserved for SnapLock	CM_DIAG

volume_snapmirror_destination object						
Counter Name	Size	Type	Display Unit	Description	Priority	Depends on
num_async_xfer	4B	RAW	NONE	Number of asynchronous transfers initiated since reboot	CM_DIAG	

num_succ_async_xfer	4B	RAW	NONE	Number of successful asynchronous transfers since reboot	CM_DIAG	
num_restarts	4B	RAW	NONE	Number of restarts in this relationship since reboot	CM_DIAG	
total_blocks_recvd	4B	RAW	NONE	Total number of blocks received in async transfer mode since reboot	CM_DIAG	
blocks_recvd	4B	RAW	NONE	Number of raid(trad)/wafl(flex) read requests for current (or last) async transfer	CM_DIAG	
blocks_write_request	4B	RAW	NONE	Number of block write requests to raid(trad)/wafl(flex) for current (or last) async transfer	CM_DIAG	
blocks_write_done	4B	RAW	NONE	Number of blocks written to raid(trad)/wafl(flex) for current (or last) async transfer	CM_DIAG	
checkpoint_slice	4B	RAW	NONE	Slice number of the latest restart checkpoint	CM_DIAG	
fix_logblks_sent	4B	RAW	NONE	Number of verify log blocks sent during fix opeation	CM_DIAG	
vrf_num_xfer	4B	RAW	NONE	Number of verify transfers initiated since reboot	CM_DIAG	
vrf_num_succ_xfer	4B	RAW	NONE	Number of successful verify transfers since reboot	CM_DIAG	
vrf_blocks_recvd	4B	RAW	NONE	Number of raid(trad)/wafl(flex) read requests for current (or last) verify transfer	CM_DIAG	
vrf_blocks_read_request	4B	RAW	NONE	Number of block read requests to raid(trad)/wafl(flex) for current (or last) verify	CM_DIAG	

				transfer		
vrf_blocks_read_done	4B	RAW	NONE	Number of blocks read from raid(trad)/wafl(flex) for current (or last) verify transfer	CM_DIAG	
vrf_mismatches_found	4B	RAW	NONE	Number of mismatches for current (or last) verify transfer	CM_DIAG	
vrf_mismatches_logged	4B	RAW	NONE	Number of mismatches logged for current (or last) verify transfer	CM_DIAG	
vrf_indir_blocks	4B	RAW	NONE	Number of indirect blocks logged for current (or last) verify transfer	CM_DIAG	
late_writes	8B	RAW	NONE	Number of late writes received	CM_DIAG	
write_tetris_size	8B	RAW	NONE	Number of blocks in a write sent to WAFL/RAID	CM_DIAG	
avg_write_tetris_size	8B	AVERAGE	NONE	Average number of blocks in a write req	CM_DIAG	write_tetris_cnt
write_tetris_cnt	8B	RAW	NONE	Number of writes sent to WAFL/RAID	CM_DIAG	
write_req_time	8B	RAW	NONE	Histogram of time taken for a write request to complete	CM_DIAG	
num_write_req_susp	8B	RAW	NONE	Number of message suspensions during a write request	CM_DIAG	
write_req_susp_rate	8B	RATE	PER_SEC	Rate of message suspensions during a write request	CM_DIAG	
num_async_msg_susp	8B	RAW	NONE	Number of times suspended during async message allocations	CM_DIAG	
jumpahead_time	8B	RAW	NONE	Histogram of time taken for jumpahead	CM_DIAG	

volume_snapmirror_source object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	
num_async_xfer	4B	RAW	NONE	Number of asynchronous transfers initiated since reboot	CM_DIAG	
num_succ_async_xfer	4B	RAW	NONE	Number of successful asynchronous transfers since reboot	CM_DIAG	
num_restarts	4B	RAW	NONE	Number of restarts in this relationship since reboot	CM_DIAG	
total_blocks_sent	8B	RAW	NONE	Total number of blocks sent in async transfer mode since reboot	CM_DIAG	
blocks_read_request	8B	RAW	NONE	Number of raid(trad)/wafl(flex) read requests for current (or last) async transfer	CM_DIAG	
blocks_read_done	8B	RAW	NONE	Number of blocks read from raid(trad)/wafl(flex) for current (or last) async transfer	CM_DIAG	
blocks_sent	8B	RAW	NONE	Number of blocks sent over network for current (or last) async transfer	CM_DIAG	
slice_in_progress	8B	RAW	NONE	Slice of current (or last) asynchronous transfer	CM_DIAG	
idiff_num_snapmap_blks_examined	8B	RAW	NONE	number of snapmap blocks examined by inode differ	CM_DIAG	
idiff_run_time	8B	RAW	USECS	Time spent in inode differ	CM_DIAG	
bmb_wait_time_for_bufs_to_free	8B	RAW	USECS	Time bmb spent waiting for bufs to free up	CM_DIAG	
num_flush_messages_recvd	8B	RAW	NONE	number of flush messages received by idmp_proc	CM_DIAG	
num_restore_messages_recvd	8B	RAW	NONE	number of restore messages received by idmp_proc	CM_DIAG	
idmp_proc_flush_wait_time	8B	RAW	USECS	Time idmp_proc spent waiting for flush	CM_DIAG	
num_flush_done	8B	RAW	NONE	number of times flush done by idmp_proc	CM_DIAG	
fix_logblks_recvd	4B	RAW	NONE	Number of verify logblks received during fix operation	CM_DIAG	

vrf_num_xfer	4B	RAW	NONE	Number of verify transfers initiated since reboot	CM_DIAG	
vrf_num_succ_xfer	4B	RAW	NONE	Number of successful verify transfers since reboot	CM_DIAG	
vrf_blocks_read_request	8B	RAW	NONE	Number of raid(trad)/wafl(flex) read requests for current (or last) async transfer	CM_DIAG	
vrf_blocks_read_done	8B	RAW	NONE	Number of blocks read from raid(trad)/wafl(flex) for current verify transfer	CM_DIAG	
vrf_blocks_sent	8B	RAW	NONE	Number of blocks sent over network for current verify transfer	CM_DIAG	
vrf_slice_in_progress	8B	RAW	NONE	Slice of current verify transfer	CM_DIAG	
activemap_bkdoor_time	8B	RAW	USECS	Total time in backdoor calls for activemap blks	CM_DIAG	
avg_activemap_bkdoor_time	8B	AVERAGE	USECS	Average activemap block backdoor time	CM_DIAG	num_ac
num_activemap_bkdoors	8B	RAW	NONE	Number of activemap block backdoor calls	CM_DIAG	
kireeti_blk_time	8B	RAW	USECS	Total number of usecs taken to read a kireeti block	CM_DIAG	
avg_kireeti_time	8B	AVERAGE	USECS	Average kireeti block read time	CM_DIAG	num_kir
num_kireeti_blk	8B	RAW	NONE	Number of kireeti blocks read for this transfer	CM_DIAG	
blk_write_time	8B	RAW	USECS	Total number of usecs taken to send blocks to network	CM_DIAG	
avg_blk_write_time	8B	AVERAGE	USECS	Average network block write time	CM_DIAG	blk_wri
blk_write_cnt	8B	RAW	NONE	Number of blocks sent to network	CM_DIAG	
read_req_len	8B	RAW	NONE	Number of data blocks read per WAFL/RAID request since beginning	CM_DIAG	
avg_read_req_len	8B	AVERAGE	NONE	Average number of data blocks per read request	CM_DIAG	read_rec
read_req_time_ctr	8B	RAW	MSECS	Total time taken for a chain of data blocks to be read	CM_DIAG	

Counter Name	Size	Type	Display Unit	Description	Priority	Depe
avg_read_req_time_ctr	8B	AVERAGE	MSECS	Avg time taken for a chain of data blocks to be read	CM_DIAG	read_re
read_req_cnt	8B	RAW	NONE	Number of WAFL/RAID data read requests	CM_DIAG	
num_async_msg_waits	8B	RAW	NONE	Number of times suspended during async message allocations	CM_DIAG	
cached_answer_hits	8B	RAW	NONE	Number of hits in answers stored in cache	CM_DIAG	
cached_answer_misses	8B	RAW	NONE	Number of misses in answers stored in cache	CM_DIAG	
read_req_time	8B	RAW	NONE	Histogram of time (msecs) taken for a chain of data blocks to be read	CM_DIAG	
activemap_susp	8B	RAW	NONE	Number of times wafl suspends on activemap blk reads	CM_DIAG	
kireeti_susp	8B	RAW	NONE	Number of times wafl suspends on kireeti blk reads	CM_DIAG	
num_wafl_req_susp	8B	RAW	NONE	Histogram of number of message suspensions during a read request	CM_DIAG	
num_blocked_q1_full	4B	RAW	NONE	Number of times idmp_recv blocked due to full queue	CM_DIAG	
num_blocked_q2_full	4B	RAW	NONE	Number of times idmp_assem blocked due to full queue	CM_DIAG	
cpu_bmb_time	8B	RAW	MSECS	CPU run time taken by bmb_main	CM_DIAG	
cpu_pipe_time	8B	RAW	MSECS	CPU run time taken by pipeline threads	CM_DIAG	
incr_snaps	8B	RAW	NONE	Histogram of number of incremental snapshots present in every transfer	CM_DIAG	

vscan_server_stat object						
Counter Name	Size	Type	Display Unit	Description	Priority	Depe
vscan_ops_server_latency	8B	AVERAGE	MSECS	Average latency for virus scan operations in	CM_DIAG	vscan_ops_server_latenc

				milliseconds		
vscan_ops_server_latency_base	8B	DELTA	NONE	Total time spent waiting for virus scan requests to be used as a base counter for vscan average latency calculation	CM_DIAG	
scanrequests_total_server	8B	RAW	NONE	Count of scan request RPCs issued to the vscan server	CM_DIAG	
scanrequests_to_server_rate	8B	RATE	PER_SEC	Rate of scan requests issued to the vscan server	CM_DIAG	
scancompletions_from_server_rate	8B	RATE	PER_SEC	Rate of scan completions received from the vscan server	CM_DIAG	
scanfailures_total_server	8B	RAW	NONE	Count of scan requests which did not successfully conclude	CM_DIAG	
virus_detections_total_server	8B	RAW	NONE	Count of scan completions which reported viruses	CM_DIAG	
scanrequest_timeout_inquiries_server	8B	RAW	NONE	Count of status RPCs issued for requests which timed out	CM_DIAG	
scanrequest_timeout_abort_server	8B	RAW	NONE	Count of requests which timed out	CM_DIAG	
scanrequests_max_server	8B	RAW	NONE	Most simultaneous scan requests to this vscan server	CM_DIAG	
scanrequests_current_server	8B	RAW	NONE	Count of scan requests in progress to this vscan server	CM_DIAG	
scanrequests_oldest_server	8B	RAW	MSECS	Age of oldest request in progress to this vscan server	CM_DIAG	
scantime_total_server	8B	RAW	MSECS	Total time spent for virus scans in milliseconds	CM_DIAG	
scantime_count_server	8B	RAW	NONE	Count of virus scans for scan_time_total	CM_DIAG	

vscan_server_latency	8B	AVERAGE	MSECS	Average latency for virus scans in milliseconds	CM_DIAG	vscan_server_latency_ba
vscan_server_latency_base	8B	DELTA	NONE	Base counter for scantime latency calculation	CM_DIAG	

vscan_stats object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
scanrequests_total	8B	RAW	NONE	Count of scan requests issued	CM_DIAG	
scanrequests_started	8B	RATE	PER_SEC	Rate of scan requests issued by the filer	CM_DIAG	
scanrequests_completed	8B	RATE	PER_SEC	Rate of scan completions received from the vscan server	CM_DIAG	
scanfailures_total	8B	RAW	NONE	Count of scan requests which did not successfully conclude	CM_DIAG	
virus_detections_total	8B	RAW	NONE	Count of scan completions which reported viruses	CM_DIAG	
scanrequests_needed_total	8B	RAW	NONE	Count of client accesses which might cause a virus scan	CM_DIAG	
scanrequest_timeout_inquiries	8B	RAW	NONE	Count of status RPCs issued for requests which timed out	CM_DIAG	
request_timeout_inquiries_unique	8B	RAW	NONE	Count of requests with at least one status RPCs issued for timeout	CM_DIAG	
scanrequest_timeout_abort	8B	RAW	NONE	Count of requests which timed out	CM_DIAG	
scanrequests_already	8B	RAW	NONE	Count of scans avoided because file is marked already scanned	CM_DIAG	
scanrequests_already_reset	8B	RAW	NONE	Count of files whose already scanned status was cleared	CM_DIAG	

scanrequests_duplicate	8B	RAW	NONE	Count of files accessed while a scan was already in progress	CM_DIAG	
scanrequests_noscan	8B	RAW	NONE	No scan for file access that would normally cause a scan	CM_DIAG	
scanrequests_noscan_deny	8B	RAW	NONE	Client request denied because no scan could be performed	CM_DIAG	
scanrequests_throttled_max	8B	RAW	NONE	Most simultaneous scan requests delayed because all vscan servers are busy	CM_DIAG	
scanrequests_throttled_total	8B	RAW	NONE	Total scan requests delayed because all vscan servers are busy	CM_DIAG	
scanrequests_throttled_again	8B	RAW	NONE	Total scan requests returned to the delay list a second time because all vscan servers are busy	CM_DIAG	
disconnect_by_vscanserver	8B	RAW	NONE	Count of disconnections initiated by vscan server	CM_DIAG	
disconnect_by_filer	8B	RAW	NONE	Count of disconnections initiated by filer	CM_DIAG	
scantime_total	8B	RAW	MSECS	Total time spent for virus scans in milliseconds	CM_DIAG	
scantime_count	8B	RAW	NONE	Count of virus scans for scan_time_total	CM_DIAG	
scanrequests_current	8B	RAW	NONE	Count of scan requests in progress	CM_DIAG	
scanrequests_oldest	8B	RAW	MSECS	Age of oldest request in progress	CM_DIAG	
scanrequests_throttled_current	8B	RAW	NONE	Active scan requests delayed because all vscan servers are busy	CM_DIAG	
scanrequests_throttled_oldest	8B	RAW	MSECS	Age of oldest active scan request delayed because all vscan servers are busy	CM_DIAG	
scantime_avg_latency	8B	AVERAGE	MSECS	Average latency for virus scans in milliseconds	CM_DIAG	scantime_latency_base
scantime_latency_base	8B	DELT	NONE	Base counter for vscan	CM_DIAG	

		A		scantime latency calculation		

wafl object

Counter Name	Size	Type	Display Unit	Description		Prior
name_cache_hit	8B	RATE	PER_SEC	Name cache hits per second	CM_DIAG	
name_cache_miss	8B	RATE	PER_SEC	Name cache misses per second	CM_DIAG	
name_cache_miss_long	8B	RATE	PER_SEC	Name cache misses per second due to long path names	CM_DIAG	
name_cache_miss_snapdir	8B	RATE	PER_SEC	Name cache misses per second due to snapdir	CM_DIAG	
find_dir_hit	8B	RATE	PER_SEC	Directory find hit per second	CM_DIAG	
find_dir_miss	8B	RATE	PER_SEC	Directory find misses per second	CM_DIAG	
buf_hash_hit	8B	RATE	PER_SEC	Buffer hash hits per second	CM_DIAG	
buf_hash_miss	8B	RATE	PER_SEC	Buffer hash misses per second	CM_DIAG	
inode_cache_hit	8B	RATE	PER_SEC	Inode cache hit count per second	CM_DIAG	
inode_cache_miss	8B	RATE	PER_SEC	Inode cache miss count per second	CM_DIAG	
inode_cache_hit_nodes	8B	RATE	PER_SEC	Inode cache hit nodes count per second	CM_DIAG	
inode_cache_miss_nodes	8B	RATE	PER_SEC	Inode cache miss nodes count per second	CM_DIAG	
inode_cache_hit_tohead	8B	RATE	PER_SEC	Inode cache hit moved to head count per second	CM_DIAG	
inode_eject_time	8B	RAW	MSECS	Instantaneous residence time of the last inode ejected in milliseconds	CM_DIAG	
inode_list_cnt	4B	RAW	NONE	inode list counts	CM_DIAG	
buf_load_cnt	8B	RATE	PER_SEC	Buffer cache hit count per second	CM_DIAG	
buf_miss_cnt	8B	RATE	PER_SEC	Buffer cache miss count per second	CM_DIAG	
buf_eject_time	8B	RAW	MSECS	Instantaneous residence time of the last buffer ejected in milliseconds	CM_DIAG	
wafl_bufs_total	4B	RAW	NONE	wafl_bufs_total	CM_DIAG	
wafl_bufs_dirty	4B	RAW	NONE	wafl_bufs_dirty	CM_DIAG	
wafl_bufs_recycle	4B	RAW	NONE	wafl_bufs_recycle	CM_DIAG	
wafl_bufs_free_bdata	4B	RAW	NONE	wafl_bufs_free_bdata	CM_DIAG	

wafl_bufs_empty	4B	RAW	NONE	wafl_bufs_empty	CM_DIAG
wafl_bufs_available	4B	RAW	NONE	wafl_bufs_available	CM_DIAG
wafl_bufs_available_for_cp	4B	RAW	NONE	wafl_bufs_available_for_cp	CM_DIAG
wafl_vbufs_total	4B	RAW	NONE	wafl_vbufs_total	CM_DIAG
wafl_vbufs_dirty	4B	RAW	NONE	wafl_vbufs_dirty	CM_DIAG
wafl_vbufs_recycle	4B	RAW	NONE	wafl_vbufs_recycle	CM_DIAG
wafl_vbufs_free	4B	RAW	NONE	wafl_vbufs_free	CM_DIAG
wafl_vbufs_unuseable	4B	RAW	NONE	wafl_vbufs_unuseable	CM_DIAG
wafl_vbufs_available	4B	RAW	NONE	wafl_vbufs_available	CM_DIAG
bufs_kmem	4B	RAW	NONE	bufs_kmem	CM_DIAG
bufs_raid	4B	RAW	NONE	bufs_raid	CM_DIAG
bufs_stolen_by_backup	4B	RAW	NONE	bufs stolen by backup	CM_DIAG
cp_count	8B	DELTA	NONE	Array of counts of different types of CPs	CM_DIAG
total_cp_msecs	8B	DELTA	MSECS	Milliseconds spent in CP	CM_DIAG
cp_phase_times	8B	PERCT	PERCT	Array of percentage time spent in different phases of CP	CM_DIAG
write_alloc_nwips	8B	DELTA	NONE	Total number of wips cleaned	CM_DIAG
write_alloc_nbufs	8B	DELTA	NONE	Total number of bufs cleaned during xphase	CM_DIAG
write_alloc_nbufs_other	8B	DELTA	NONE	Total number of bufs cleaned outside xphase	CM_DIAG
wafl_total_blk_reads	8B	RATE	PER_SEC	Total blocks read per second	CM_DIAG
wafl_blk_reads	8B	PERCT	PERCT	Array of percentage of wafl blocks read by type	CM_DIAG
wafl_total_blk_readaheads	8B	RATE	PER_SEC	Total blocks readahead per second	CM_DIAG
wafl_blk_readaheads	8B	PERCT	PERCT	Array of percentage of wafl blocks readahead by type	CM_DIAG
wafl_total_blk_writes	8B	RATE	PER_SEC	Total blocks written per second	CM_DIAG
wafl_blk_writes	8B	PERCT	PERCT	Array of percentage of wafl blocks written by type	CM_DIAG
hda_avoidance_interval	8B	RAW	NONE	Hotdisk avoidance interval	CM_DIAG
hda_hot_rg	8B	RAW	NONE	Number of hot RGs at the start CP that will be skipped	CM_DIAG
hda_deg_rg	8B	RAW	NONE	Number of degraded RGs in CP that	CM_DIAG

				will be skipped	
hda_hot_skip_count	8B	RAW	NONE	Number of times HDA code ran for hot disk	CM_DIAG
hda_deg_skip_count	8B	RAW	NONE	Number of times HDA code ran for degraded disk	CM_DIAG
markers_dyn_alloc	8B	RAW	NONE	Number of markers dynamically allocated	CM_DIAG
markers_freed	8B	RAW	NONE	Number of markers freed	CM_DIAG
markers_mr_alloc	8B	RAW	NONE	Number of markers dyn alloc'ed in the walloc/requeue path	CM_DIAG
wrsv_rgs_full_low	8B	RAW	NONE	Number of times a raid group has hit full_low for walloc	CM_DIAG
wrsv_rgs_full_high	8B	RAW	NONE	Number of times a raid group has hit full_high for walloc	CM_DIAG
wrsv_rgs_full	8B	RAW	NONE	Number of times a raid group has been full for walloc	CM_DIAG
wrsv_vol_full_low	8B	RAW	NONE	Number of times a volume has hit full_low	CM_DIAG
wrsv_vol_full_high	8B	RAW	NONE	Number of times a volume has hit full_high	CM_DIAG
wrsv_vol_resets	8B	RAW	NONE	Number of times a volume has reset its walloc thresholds	CM_DIAG
avg_wafl_msg_latency	8B	AVERAGE	MSECS	Average turnaround time for wafl messages in milliseconds	CM_DIAG
wafl_msg_total	8B	RATE	PER_SEC	Total number of wafl messages per second	CM_DIAG
avg_non_wafl_msg_latency	8B	AVERAGE	MSECS	Average turnaround time for non-wafl messages in milliseconds	CM_DIAG
non_wafl_msg_total	8B	RATE	PER_SEC	Total number of non-wafl messages per second	CM_DIAG
suspend_because	4B	DELTA	NON_ZERO	Suspend Reason counts per message type	CM_DIAG
new_msg_cnt	8B	DELTA	NONE	New Message Counts per message type	CM_DIAG|CM_ASU
restart_msg_cnt	8B	DELTA	NONE	Message Restart Counts per message type	CM_DIAG|CM_ASU
complete_in_waffi_cnt	8B	DELTA	NON_ZERO	Completions in Waffinity per message type	CM_DIAG|CM_ASU

extent-alloc-fail	8B	DELTA	NONE	Number of faillures allocating extent messages	CM_DIAG
extent-async-load	8B	DELTA	NONE	Number of async extent loads	CM_DIAG
extent-async-load-read-reallocate	8B	DELTA	NONE	Number of async extent read reallocate loads	CM_DIAG
extent-max-messages-load	8B	RAW	NONE	Maximum number of outstanding extent messages	CM_DIAG
extent-max-saved-messages	8B	RAW	NONE	Maximum number of saved extent messages	CM_DIAG
extent-cp-old	8B	DELTA	NONE	Number of extent loads associated with an old CP	CM_DIAG
extent-message-limit	8B	DELTA	NONE	Number of extent reads skipped due to message limit	CM_DIAG
extent-max-readers	8B	RAW	NONE	Number of extent concurrent readers	CM_DIAG
extent-reader-limit	8B	DELTA	NONE	Number of extent messages suspended due to reader limit	CM_DIAG
extent-no-readahead-suspend	8B	DELTA	NONE	Number of extent messages suspended due to no readahead	CM_DIAG
extent-no-readahead-fail	8B	DELTA	NONE	Number of extent messages failed due to no readahead	CM_DIAG
extent-no-space-fail	8B	DELTA	NONE	Number of extent messages failed due to no disk space	CM_DIAG
extent-modify	8B	DELTA	NONE	Number of normal block modifies	CM_DIAG
extent-modify-keep-vvbn	8B	DELTA	NONE	Number of keep_vvbn block modifies	CM_DIAG
pvbn-alias	8B	DELTA	NONE	Number of cache blocks with significant duplicate PVBN	CM_DIAG
keep_vvbn_requested	8B	DELTA	NONE	Number of keep-vvbn block writes requested	CM_DIAG
keep_vvbn_done	8B	DELTA	NONE	Number of keep-vvbn block writes completed	CM_DIAG
keep_vvbn_to_real	8B	DELTA	NONE	Number of keep-vvbn block writes converted to real writes	CM_DIAG
quota_stats	4B	RAW	NONE	Global Quota stats	CM_PRIV_DIAG|CM_TEST
quota_pool_buf_count	4B	RAW	NONE	Global Quota pool buffer count	CM_PRIV_DIAG|CM_TEST
quota_calls	4B	RAW	NONE	Number of Quota	CM_PRIV_DIAG|CM

				(SNMP/ZAPI/other) calls		M_TEST

cifs_watch object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
watch_cache_hits	8B	RAW	NONE	Number of times an inode watch cache was valid	CM_DIAG	
watch_cache_updates	8B	RAW	NONE	Number of times an inode watch cache was updated	CM_DIAG	
watch_cache_creates	8B	RAW	NONE	Number of times an inode watch cache was created	CM_DIAG	
watch_ancestor_root_walks	8B	RAW	NONE	Number of times watch ancestor walks to the root were performed	CM_DIAG	
watch_ancestor_onelevel_walks	8B	RAW	NONE	Number of times single level watch ancestor walks were performed	CM_DIAG	
watch_ancestor_path_walks	8B	RAW	NONE	Number of ancestor walks to compute watch paths	CM_DIAG	
watch_ancestor_path_cache_hits	8B	RAW	NONE	Number of times cached watch paths were good	CM_DIAG	
watch_ancestor_path_length_average	8B	RAW	NONE	Average path lengths of watch paths	CM_DIAG	
watch_post_cache_hits	8B	RAW	NONE	Number of times watch post processing was averted because of cache hits	CM_DIAG	
watch_post_walks	8B	RAW	NONE	Number of walks to compute watch posts	CM_DIAG	
watch_posts	8B	RAW	NONE	Number of watch posts	CM_DIAG	
watch_dirs	4B	RAW	NONE	Number of directories	CM_DIAG	

				currently watched		

zodiac object						
Counter Name	**Size**	**Type**	**Display Unit**	**Description**	**Priority**	**Depends on**
cycles	8B	DELTA NODISP	DELTA NODISP	Cycle counter for time base	CM_DIAG	
utilization	8B	PERCT	PERCT	Percentage utilization of the I/O channel	CM_DIAG	cycles
read_ops	8B	RATE	PER_SEC	Number of read operations completed per second	CM_DIAG	
read_chain	8B	AVERAGE	NONE	Average descriptors per read operation	CM_DIAG	read_ops
read_thruput	8B	RATE	MB_PER_SEC	Throughput for read operations per second	CM_DIAG	
read_latency	8B	AVERAGE	USECS	Average read latency per operation in microseconds	CM_DIAG	read_ops
read_errors	8B	RAW	NONE	Total number of read errors	CM_DIAG	
write_ops	8B	RATE	PER_SEC	Number of write operations completed per second	CM_DIAG	
write_chain	8B	AVERAGE	NONE	Average descriptors per write operation	CM_DIAG	write_ops
write_thruput	8B	RATE	MB_PER_SEC	Thruoughput for write operations per second	CM_DIAG	
write_latency	8B	AVERAGE	USECS	Average write latency per operation in microseconds	CM_DIAG	write_ops
write_errors	8B	RAW	NONE	Total number of write errors	CM_DIAG	
received	8B	RAW	NONE	Total number of operations received	CM_DIAG	
completed	8B	RAW	NONE	Total number of operations completed	CM_DIAG	