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*GemStone*®



# Visual Statistics Display (VSD) Release Notes

**Version 5.1.1**

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## PATENTS

GemStone software is covered by U.S. Patent Number 6,256,637 "Transactional virtual machine architecture", Patent Number 6,360,219 "Object queues with concurrent updating", Patent Number 6,567,905 "Generational garbage collector with persistent object cache", and Patent Number 6,681,226 "Selective pessimistic locking for a concurrently updateable database". GemStone software may also be covered by one or more pending United States patent applications.

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# VSD 5.1.1 Release Notes

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## Overview

Visual Statistics Display (VSD) version 5.1.1 is a new version of the VSD product. This release includes changes that affect charting behavior.

This version of VSD, like previous versions, supports statmonitor files generated from:

- ▶ All versions of GemStone/S 64 Bit
- ▶ All versions of 32-bit GemStone/S
- ▶ All versions of GBS

## Supported Platforms

VSD version 5.1.1 is supported on the following platforms:

- ▶ Windows 7, Windows 2008 R2, and Windows 8
- ▶ Solaris 10 and 11 on SPARC
- ▶ Solaris 10 on x86
- ▶ AIX 6.1, TL1, SP1, and AIX 7.1
- ▶ Red Hat Linux ES 6.1, 6.4, and 6.5; Ubuntu 12.04 and 14.04; SUSE Linux Enterprise 11 Service Pack 3, and SUSE Linux Enterprise 12, on x86
- ▶ Mac OSX 10.6.8 (Snow Leopard), with Darwin 10.8.0 kernel, and OS X 10.9.5 (Mavericks), with Darwin 13.4.0 kernel, on x86

# Changes in this Release

## Changes in statistic types, affecting graphs for combined processes

A number of statistics have changed type and are now of type counter. This impacts the way VSD generates graphs when multiple values are combined, e.g. when looking at such statistics for all Gems in the repository.

The following statistics are affected:

CacheScanCount	NewOopRequests	StnAioSuspendTimeoutCount
CleanSlotsRecoveredCount	NewPagesRequests	StnAioTotalSleepCount
CodeGenFullCount	NumberOfMarkSweeps	StnAioWriteFailures
CommitRecordReleases	NumberOfScavenges	StnLoopCount
ContinueTransactionCount	ObjectsReadInBytes	StnLoopNetPollBeforeSleepCount
CrashedSlotsRecoveredCount	OldGenFullCount	SystemClockStuckCount
DataIoOps	OtherIoOps	SystemFsReads
DiskXfers	PageCycles	SystemFsWrites
ExtentGrowTotal	PageManagerStarvedCount	SystemNfsBytesRead
ForcedDisconnects	PageScans	SystemNfsBytesWritten
InterruptDev	PageSteals	SystemNfsReads
InterruptSoft	PermGenFullCount	SystemNfsWrites
LocalCachePceReclaimCount	ReadIoOps	SystemSelects
LoginLogFlushes	RejectedProcsCount	TotalNewObjectsCommitted
LoginLogThreadOperations	ReturnOopRequests	TotalNewSymbolsCommitted
MIClearAllCount	ReturnPagesRequests	TotalObjectsCommitted
MIFullLookupCount	SamplesSkipped	TotalSigLostOtRootsSent
MILuCacheGrowCount	ScavsPromToMkSwCount	TotalSigStopSessionsSent
MILuCacheLargeCount	StnAioCompleted1Suspend	TotalSigTermsSentToGems
MILuCacheResetCount	StnAioCompletedNoSleep	TotalSigTermsSentToPageServers
MIPolyCacheCreateCount	StnAioCompletedNoSuspend	VoteOnDeadCount
MIPolyCacheFullCount	StnAioFsyncCount	WriteIoOps
MIPolyCacheGrowCount	StnAioLastSuspendCount	

Note that there is no change in how VSD handles counter types in this release. The following discussion describes the way that statistic type affects combining values, to clarify the impact of the change in statistic type.

The type of a statistic is an internal variable in VSD, and may be, for example, counter, counter64, uvalue, or svalue64. The type of a statistic has several affects, including the default filter, which is per-second for counter types and none for uvalue.

The statistic type "counter" is designed for statistics that are written based on the current value of a server variable which is continuously incremented during GemStone operation. The raw data for these values generally start from 0 at the beginning of the process's lifetime, monotonically increase, and never decrease. For this type of statistic, the value itself is not interesting, it is the changes in value between records that is used for analysis.

Since the changes in value rather than the value itself are of interest, the way these numbers are combined is different between counters and non-counter statistic types, for the case in which there are multiple processes that do not have exactly the same lifetime.

For non-counter types, adding or combining is a simple sum, in which the values for each process that includes a sample value at the given time are added together. If this method

was used for counters, it would produce invalid decreases for the total after a process ended; since, for example, the per-second time spent waiting for IO is not actually decreased when a process ends. To avoid this, the algorithm VSD uses to combine values is different for counter type statistics and non-counter types. For counter types, on a chart that shows combined values, for processes that ended before the end of the chart display, the lines continue to include the value of the final sample for process/es that ended. This keeps the per-second graphs correct, but makes the unfiltered combined data higher than would be intuitive.