### **HBase Monitoring**

#### How do I enable JMX in HBase

Please see HBase Metrics page for instructions.

# Do I need to add a separate SPM Application for each HBase server/node I want to monitor

No, one Application is enough. Think of an SPM "Application" as a "HBase Cluster". Thus, to monitor N HBase servers that belong to the same cluster you would create just a single SPM Application and use its Token in SPM configuration file on all HBase servers that are a part of this cluster.

#### Why don't some HBase metrics graphs have any data

There could be 2 possible reasons:

- 1. Some metrics are for RegionServers (HBase slaves), some for HBase Master. Thus, if you select the Master node in the UI, graphs that contain Slave-specific metrics will be blank and vice-versa.
- 2. Different versions of HBase provide different metrics. Thus, if you have an older version of HBase, it may not be providing all metrics that SPM collects and graphs.

#### Which versions of HBase does SPM support

SPM has been tested with HBase 0.90, 0.92, 0.94, and 0.98, but will work for newer versions, including all CDH versions.

#### Integration

• Instructions: https://apps.sematext.com/ui/howto/HBase/overview

#### Metrics

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Metric Name Key

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Metric Name Key

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Type Description

Metric Name Key Agg Type Description write hbase. Surrequests syrft adoop: service = HBase, name = Region Server, sub = Server # v requests appliedbase. Sumplidation. Upsdqoplicervice=HBase, name=RegionServer, sub=Replication ops appliedbase. Sumplidating. Blatdhep applied = HBase, name = Region Server, sub = Replication batches  $balanc \textbf{\textit{ch}} base. \textbf{\textit{n}} \textbf{\textit{w}} \textbf{\textit{isst}} er. \textbf{\textit{balagnc}} \textbf{\textit{cH}} \textbf{\textit{atd}} \textbf{\textit{nopra}} \textbf{\textit{en}} vice = HBase, name = Master, sub = Balancer \#Balancer \#Ba$  ${\rm time}$ hbase.nAuster.bahanceHaoloop:service=HBase,name=Master,sub=Balancer#Bala ops hbase.nSuster.DalahleHatdnop:service=HBase,name=Master,sub=Balancer#Bala time Bal-

ancer-Cluster\_mean

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Metric Name Key

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Type Description

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hlog
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Metric

Name Key Agg Type Description

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hlog hbase.rAvides.lilogsizeize
files of
size all
HLog
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Files. Hadoop: service = HBase, name = Region Server, sub = Server, su

 $cluster hbase. {\tt Master. Eequges tst} adoop: service = HBase, name = Master, sub = Server \# cluster representation of the service is a service of the service is a service of the servi$ 

quests

 $\label{lem:dead} \begin{tabular}{ll} dead & hbase. \textbf{\textit{Mass}} ter. \textbf{\textit{Revulens} Hagioup cheard} ice=HBase, name=Master, sub=Server\#num Derreter. \\ \end{tabular}$ 

gion servers

 $region\ hbase. \textbf{\textit{Marg}} ter. \textbf{\textit{DevublisHaglioop}}: service = HBase, name = Master, sub = Server \# num Reservers$ 

 $average hose. \textbf{\textit{Maxg}} ter. \textbf{\textit{Dead}} ble Hadoop: service = HBase, name = Master, sub = Server \# average load$ 

#### mutati**hha**se.opsmnu**tatng**.novahber

withof out muwal tations that have been  $\operatorname{sent}$ by clientswith the write ahead logging

off.Hadoop:service=HBase,name=RegionServer,sub=Server

Metric
Name Key Agg Type Description

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Check and Mutate calls that failed the

checks. Hadoop: service = HBase, name = Region Server, sub = Section Section Server, sub = Section Section Server, sub = Section Sec

### $mutate hbase. \textbf{Opsnm} u \textbf{\textit{Lating}}. p \textbf{\textit{Assued}} ber$

passed of Check and Mutate calls

that passed the

ging turned

checks. Hadoop: service = HBase, name = RegionServer, sub = Server, su

### mutatihhase.opsmutatng.nSizel.size

of withdata out wal that size has been sent by clients with the write ahead log-

off. Hadoop: service = HBase, name = Region Server, sub = Server, sub

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hit% hbase.cavge.hItorg.tePercent
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```

Metric Name Key Agg Type Description cache hbase.cavlge.blookgfr&ize offree sizethe block cache that isnot occupied. Hadoop: service = HBase, name = Region Server, sub = Server, subblock blase.cavge.blookgsizsize cache of size the block cache.Hadoop:service=HBase,name=RegionServer,sub=Server  ${\rm miss}$ hbase. Suche. misses Number of requests for a block that missed the block cache. Hadoop: service = HBase, name = Region Server, sub = Server, sucache hbase.cavlge.blookgcoNuutmber count block in the block cache. Hadoop: service = HBase, name = Region Server, sub = Server, su Metric Name Key Agg Type Description eviction base. Suche. e Lichigan Count of the number of blocks evicted from the block cache.Hadoop:service=HBase,name=RegionServer,sub=Ser shipped base. Sumplidation. blatdhepskipped HBase, name=RegionServer, sub=Replication batches shippedbase. Sumplidating . Obschippedvice=HBase, name=RegionServer, sub=Replicati ops log hbase. **Sumplidating** n. **Mg. dedity: see ad** ce=HBase, name=RegionServer, sub=Replicati  $\operatorname{ed}$ its read hbase.rAvgplidatingn.lHg.dpropuservice=HBase,name=RegionServer,sub=Replicati log queue shipped base. Sumplidating. Hat dhepshipped St. Base, name=Region Server, sub=Replication bytes hbase. Sumplidation. Illudolits: selt vice: HBase, name=RegionServer, sub=Replication log  $\operatorname{ed}\text{-}$ its filtered  $\log$ hbase. Sumplidating. Illgaddits: seaddeyt EBase, name=RegionServer, sub=Replicati

read bytes Metric Name Key Agg Type Description  $hedged hbase. {\tt nS} {\tt ads}. h{\tt Edgrag} {\tt l.vFins}$  $\operatorname{read}$ numwins ber of  $_{
m times}$ we startedhedged read and hedged read won.Hadoop:service=HBase,name=RegionServer,sub=Serv hedgedhbase. Sads. hedged The reads number of times we started a read.Hadoop:service=HBase,name=RegionServer,sub=Serv stores hbase.sAmges Long flusheshbase.fSushes Long compactions. Sumpactions store hbase.sAvge.file.ong files

store hbase.sAmge.inHengsize

file index size Metric

Name Key Agg Type Description

sync hbase.fMsyxnc.Latingcy.max

read hbase.fMacad.Iatngcy.max

write hbase.fMwxitellotegncy.max

sync hbase.fMsync.Ladngcy.min

read hbase.fMierad.latngcy.min

write hbase.fMinritellotegncy.min

flush hbase.fAsspes.poodusize

queue

max hbase.nWearstdrenfgushes.time.max

min hbase.fMshes.siøngmin

 $flusheshbase. \\ \textbf{Sum} st \\ \textbf{dronfy} \\ \textbf{shes}$ 

max hbase.fMakes.kiøngmax

 $\mathbf{memst} \mathbf{hh} \mathbf{mse}. \mathbf{nAwg} \mathbf{st} \mathbf{dirensig} \mathbf{z} \mathbf{e}$  size

min hbase.nWeimstdrenfgushes.time.min

min hbase.dompadLiongs.time.min

max hbase.dolarpackions.time.max

max hbase.dolanpadLionng.size.max

compactions. Compactions

 $compa \textbf{\textit{chias}} e.c \textbf{\textit{Ang}} pac \textbf{\textit{Elons}} \textbf{\textit{lq}} ueue. size \\ queue$ 

min hbase.dompackiong.size.min

Metric

Name Key Agg Type Description

 $\begin{array}{ll} {\rm cache} & {\rm hbase.c} \\ {\bf Avg} \\ {\rm e.b} \\ {\bf Iookg} \\ {\rm size} \\ \end{array}$ 

 $\begin{array}{ll} miss & hbase. \textbf{Suche}. b \textbf{Lookg} misses \\ count & \end{array}$ 

 ${\it cache hbase.c} \textbf{Avg}e.b \textbf{\textit{Lookg}} free \\ free$ 

hit hbase. Suche. blookghits count

 $\begin{array}{ll} block & hbase.c \c Av \c block \c gcount \\ cache \\ count \end{array}$ 

blockChbhselicARpeibIcorkghits.ratio

 $evicted hbase. {\bf Conche}. b {\bf Lookge} victions \\ count$ 

blockCabhsHitAChellingRectioning.hits.ratio

max hbase.spoliats.tilmengnax

splits hbase. Splits Long

max hbase.spalists.sike.mgax

min hbase.spolints.sike.mgin

splits hbase. Splits Long

regionshbase.rAgionsLong

0.98

 $\begin{array}{cccc} {\rm Metric} \\ {\rm Name~Key} & {\rm Agg} & {\rm Type~Description} \end{array}$ 

total jvm.me\fary.slikeuhlekladoop:service=HBase,name=JvmMetrics#MemMaxM max jvm.loSinfo Long Hadoop:service=HBase,name=JvmMetrics#LogInfo info jvm.noAlugap.DecodbleHadoop:service=HBase,name=JvmMetrics#MemNonHeap non heap used jvm.lo**Surn**or Long Hadoop:service=HBase,name=JvmMetrics#LogError error heap jvm.heangomhittledHadoop:service=HBase,name=JvmMetrics#MemHeapCon committed  $jvm.he \verb"Afasize Dom" ble Hadoop: service = HBase, name = JvmMetrics \#MemHeapMax + JvmMetrics$ heap max blockedvm.threads.blockedHadoop:service=HBase,name=JvmMetrics#ThreadsBlocked termingsted threads.teminated to proper the service of the service warn jvm.logwarn Long Hadoop:service=HBase,name=JvmMetrics#LogWarn timed jvm.thrægls.wladtigg.ltladdedop:service=HBase,name=JvmMetrics#ThreadsTimed waiting jvm.heAvgsedOoubleHadoop:service=HBase,name=JvmMetrics#MemHeapUse heap used jvm.losfatal Long Hadoop:service=HBase,name=JvmMetrics#LogFatal fatal jvm.noAhgap.DoehleHadoop:service=HBase,name=JvmMetrics#MemNonHeap non heap max waitingvm.thrands.waitingHadoop:service=HBase,name=JvmMetrics#ThreadsWaitin

jvm.thrægls.nbwng Hadoop:service=HBase,name=JvmMetrics#ThreadsNew

new

Metric Name Key Agg Type Description non jvm.noAkgap.Domblittadoop:service=HBase,name=JvmMetrics#MemNonHeap heap commit- $\operatorname{ted}$ runnabjem.threads.rlinngblHadoop:service=HBase,name=JvmMetrics#ThreadsRunna hbase.ugirgroupmgetHadoop:service=HBase,name=UgiMetrics#GetGroupsNum failure hbase. Unitogi D. Gailble H. dathorep: service = HBase, name = UgiMetrics #Login Failure Av Login-FailureNumOps  ${\rm time}$ Login-Success-NumOpsfailure hbase. Sgirlogih ɗajtul Hadoop:service=HBase,name=UgiMetrics#LoginFailureNu ops time hbase. Spingroup suget Haidoop: service = HBase, name = UgiMetrics #v

Get-GroupsNumOps

```
Metric
Name Key
                                                                                                         Agg
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appendibase. Sumal. appendistime
time
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appendbase. \textbf{n} \textbf{M} \textbf{wal}. \textbf{alppneg} d \textbf{H} \textbf{alucopnser} vice = HBase, name = Region Server, sub = WAL\#ABASE (Server, Sub = WAL\#ABASE) (Server, Sub = WALABASE) (Ser
max
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                                                       hbase.iSuwal.sDoorsbienhe
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                                                                                                                                                                                                                                   HLog
                                                                                                                                                                                                                                   {\tt HDFS.Hadoop:service=HBase,name=RegionServer,sub=W}
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Metric
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Metric
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{\rm time}
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size
                             hbase.rMiwal.slynnegtiHuedniup:service=HBase,name=RegionServer,sub=WAL#S
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{\rm time}
                             hbase. 15 uwal. alponend Nalowber
slow
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Metric
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bytes.Hadoop:service=HBase,name=RegionServer,sub=Ser

Metric

Type Description Name Key Agg

 $update base. {\tt iSupdatengloNeenbine}$ 

blocked of  ${\rm time}$ MSupdates

have been blocked so that the memstorecan be

flushed. Hadoop: service = HBase, name = RegionServer, sub = State =

major hbase. Sucomplaction Thejor.cells

comnumpacted ber cells of

 ${\it cells}$ pro- $\operatorname{cessed}$ during major com-

pactions. Hadoop: service = HBase, name = RegionServer, sub = Re

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Metric
                                                                                                                       Type Description
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flush \quad hbase.r \textbf{Avcg} mp \textbf{Iaothig} on \textbf{Icorregate} h size
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 $\min_{\rm time}$ 

Metric Name Key Agg Type Description hbase. rSups. gDownbind adoop: service = HBase, name = Region Server, sub = Server # Galler + Region Server + Region Sget  ${\rm time}$  $\operatorname{Get}$ \_mean incrementase.rementase.inlenegneHtadtionesenaxice=HBase,name=RegionServer,sub=Server#I max  ${\rm time}$ hbase.rSunps.alponeg.dsTslow slow apnumpends ber of Appends that took over  $1000 \mathrm{ms}$ to complete.Hadoop:service=HBase,name=RegionServer,sub=Ser mutatehbase.rNaps.nhotagesHanbooppservice=HBase,name=RegionServer,sub=Server#1 max time hbase.rNiops.getntimHadiop:service=HBase,name=RegionServer,sub=Server#C get min time incrementations.incrementation:service=HBase,name=RegionServer,sub=Server#I replay hbase.rMaps.replays.Hadonpaservice=HBase,name=RegionServer,sub=Server#I max time delete hbase. Sups. delete time  $Delete\_mean$ 

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Metric
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Metric Name Key

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Type Description

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Type Description

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Metric Name Key Agg Type Description queue hbase.isumantilousbiquiautocquisetivinee=HBase,name=IPC,sub=IPC#QueueCallT  $\operatorname{call}$  ${\rm time}$ Queue-Call- $Time\_num\_ops$  $queue\ hbase. \textbf{ipfique} \textbf{Leng} ll. \textbf{Hadromiss} ervice = HBase, name = IPC, sub = IPC\#QueueCallTarrow and the substitution of the substitution$ call  $\min$ time queue hbase.iMaqueLeangll.Hadoppixervice=HBase,name=IPC,sub=IPC#QueueCallT callmax  ${\rm time}$ queue hbase.iAvgueLeabyteNumber size of bytes inthe call  ${\tt queues. Hadoop:service=HBase, name=IPC, sub=IPC\# queues.}$ authen biloas é cife un aut lle maige a Num faitures failof ures authentication failures.Hadoop:service=HBase,name=IPC,sub=IPC#authent

queue hbase.isumantherg.qttautocqttservice=HBase,name=IPC,sub=IPC#QueueCallT

calls

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Metric Name Key

Agg

Type Description

Metric Name Key Agg Type Description write hbase. Surrequests syrft adoop: service = HBase, name = Region Server, sub = Server # v requests appliedbase. Sumplidation. Upsdqoplicervice=HBase, name=RegionServer, sub=Replication ops appliedbase. Sumplidating. Blatdhep applied = HBase, name = Region Server, sub = Replication batches  $balanc \textbf{\textit{ch}} base. \textbf{\textit{n}} \textbf{\textit{w}} \textbf{\textit{isst}} er. \textbf{\textit{balagnc}} \textbf{\textit{cH}} \textbf{\textit{atd}} \textbf{\textit{nopra}} \textbf{\textit{en}} vice = HBase, name = Master, sub = Balancer \#Balancer \#Ba$  ${\rm time}$ hbase.nAuster.bahanceHaoloop:service=HBase,name=Master,sub=Balancer#Bala ops hbase.nSuster.DalahleHatdnop:service=HBase,name=Master,sub=Balancer#Bala time

Balancer-Cluster\_mean

 $\label{eq:misc_halos} \begin{tabular}{ll} misc & hbase. \emph{Massiver}. \textbf{balagnce} \textit{Haidhoop asteronisce} = HBase, name = Master, sub = Balancer \# misc & involved &$ 

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Metric Name Key

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Metric

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Files.Hadoop:service=HBase,name=RegionServer,sub=Service=HBase,name=RegionService=HBase,name=

 $cluster hbase. \textbf{\textit{Master.Leapgests}} adoop: service = HBase, name = Master, sub = Server \# cluster heave + Server \# cl$ 

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gion

servers

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 $average hose. \textbf{\textit{Marg}} ter. \textbf{\textit{Dout}} ble Hadoop: service = HBase, name = Master, sub = Server \# average load$ 

## mutati**hha**se.opsmnu**tatng**.novahber

withof out muwal tations that have been  $\operatorname{sent}$ by clientswith the write ahead logging

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Metric Name Key Agg Type Description  $mutate hbase. \textbf{\textit{Cpsnm}} u \textbf{\textit{Lates}}. fa \textbf{\textit{Ned}} nber$ failed of Check ops and Mutate  ${\rm calls}$ that failed the checks. Hadoop: service = HBase, name = Region Server, sub = Section Section Server, sub = Section Section Server, sub = Section Sec $mutate hbase. \textbf{Opsnm} u \textbf{\textit{Lating}}. p \textbf{\textit{Assued}} ber$ passed of  $\operatorname{Check}$ ops and Mutate  ${\rm calls}$ that passed the checks. Hadoop: service = HBase, name = RegionServer, sub = Server, sumutatihhase.opsmutatng.nSizel.size of withdata out wal that size has been sent by clients with the write ahead log-

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Metric Name Key Agg Type Description cache hbase.cavlge.blookgfr&ize offree sizethe block cache that isnot occupied. Hadoop: service = HBase, name = Region Server, sub = Server, subblock blase.cavge.blookgsizsize cache of size the block cache.Hadoop:service=HBase,name=RegionServer,sub=Ser  ${\rm miss}$ hbase. Suche. misses Number of requests for a block that missed the block cache. Hadoop: service = HBase, name = Region Server, sub = Server, sucache hbase.cavlge.blookgcoNuutmber count block in the block cache. Hadoop: service = HBase, name = Region Server, sub = Server, su Metric Name Key Agg Type Description eviction base. Suche. e Lichigan Count of the number of blocks evicted from the block cache.Hadoop:service=HBase,name=RegionServer,sub=Ser shipped base. Sumplidation. blatdhepskipped HBase, name=RegionServer, sub=Replication batches shippedbase. Sumplidating . Obschippedvice=HBase, name=RegionServer, sub=Replicati ops log hbase. **Sumplidating** n. **Mg. dedity: see ad** ce=HBase, name=RegionServer, sub=Replicati  $\operatorname{ed}$ its read hbase.rAvgplidatingn.lHg.dpropuservice=HBase,name=RegionServer,sub=Replicati log queue shipped base. Sumplidating. Hat dhepshipped St. Base, name=Region Server, sub=Replication bytes hbase. Sumplidation. Illudoloty: subtrice HBase, name=RegionServer, sub=Replication log  $\operatorname{ed}\text{-}$ its filtered  $\log$ hbase. Sumplidating. Illgaddits: seaddeyt EBase, name=RegionServer, sub=Replicati

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## 0.94

Metric Name	Key	Agg	Type	Description
stores	hbase.stores	Avg	Long	
flushes	hbase.flushes	$\operatorname{Sum}$	Long	
compactions	hbase.compactions	$\operatorname{Sum}$	Long	
store files	hbase.store.files	$\operatorname{Avg}$	Long	
store file index size	hbase.store.index.size	Avg	Long	
sync	hbase.fs.sync.latency.max	Max	Long	
read	hbase.fs.read.latency.max	Max	Long	
write	hbase.fs.write.latency.max	Max	Long	
svnc	hbase.fs.svnc.latencv.min	$\operatorname{Min}$	Long	

Metric Name	Key	Agg	Type	Description
read	hbase.fs.read.latency.min	Min	Long	
write	hbase.fs.write.latency.min	Min	Long	
flush queue	hbase.flushes.queue.size	Avg	Double	
max	hbase.memstore.flushes.time.max	Max	Long	
min	hbase.flushes.size.min	Min	Long	
flushes	hbase.memstore.flushes	$\operatorname{Sum}$	Long	
max	hbase.flushes.size.max	Max	Long	
memstore size	hbase.memstore.size	Avg	Long	
min	hbase.memstore.flushes.time.min	Min	Long	
min	hbase.compactions.time.min	Min	Long	
max	hbase.compactions.time.max	Max	Long	
max	hbase.compactions.size.max	Max	Long	
compactions	hbase.compactions	$\operatorname{Sum}$	Long	
compaction queue	hbase.compactions.queue.size	Avg	Double	
min	hbase.compactions.size.min	Min	Long	
cache size	hbase.cache.block.size	Avg	Long	
miss count	hbase.cache.block.misses	$\operatorname{Sum}$	Long	
cache free	hbase.cache.block.free	Avg	Long	
hit count	hbase.cache.block.hits	$\operatorname{Sum}$	Long	
block cache count	hbase.cache.block.count	Avg	Long	
blockCacheHitRatio	hbase.cache.block.hits.ratio	Avg	Long	
evicted count	hbase.cache.block.evictions	$\operatorname{Sum}$	Long	
block Cache Hit Caching Ratio	hbase.cache.block.caching.hits.ratio	Avg	Long	
max	hbase.splits.time.max	Max	Long	
splits	hbase.splits	$\operatorname{Sum}$	Long	
max	hbase.splits.size.max	Max	Long	
min	hbase.splits.size.min	Min	Long	
splits	hbase.splits	$\operatorname{Sum}$	Long	
regions	hbase.regions	Avg	Long	