

Foglight for Cassandra

Cartridge Guide

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Description

Complex applications that require storage of a massive amount of data and a flexible data structure require a new form of database. Cassandra database offers scalability and high availability without compromising performance on commodity hardware or cloud infrastructure. This makes it an ideal platform for mission-critical data and for replicating across multiple datacenters. Cassandra is a best-inclass solution, providing low latency for users and peace of mind, with an architectural rigidity designed to survive regional outages.

Business Challenge

Modern NoSQL databases like Cassandra are designed to support massive data processing and provide an equally large storage capability, but hosting Cassandra clusters with a large number of nodes can greatly increase the complexity of your data infrastructure. Understanding the performance of your Cassandra clusters is critical for diagnosing issues and planning capacity.

Foglight for Cassandra provides comprehensive performance monitoring and administration for all nodes in a cluster from a centralized console. You can collect statistical data from all JVMs in a cluster and key performance metrics like memory utilization statistics, task statistics of thread pools, storage statistics, CPU usage, operational performance, latency, and bottlenecking.

Key Features

Foglight for Cassandra provides a consolidated view of all monitored *Cassandra Clusters,* containing information on cluster structure, nodes, health status, and other key metrics. Derived calculations provide insight into the overall cluster workload taking into account activity on each node in the cluster.

View *Cluster Health* at a glance, displaying a topology of the cluster structure or a list of nodes with relevant performance and availability metrics. *Tables* can be viewed by cluster or namespace, aggregating associated metric information across nodes. *Node* Information is granular and includes Node Health and Alerts, Availability, Workload, Statements, Connections and Operations.

Understand every component of Cassandra performance. Granular *performance metrics* such as Reads/Writes, Caches, Bloom Filter, Buffer Pool, Memtables, and Commit Log are collected and stored for historical and trend analysis. JVM information is also collected and analyzed to help ensure optimal configuration and performance.

Understand response times with a breakdown of *Client Requests* to the node by type, showing metric histories for average latency, request counts, and request errors, broken down by error type. Understand the performance and availability between all nodes in your cluster. Foglight for Cassandra monitors all *Connections* including dropped messages, timeouts, and pending messages.

Alerts can be generated based on preset rules and thresholds as well as dynamically, based on situational anomalies. Alerting has been designed to help ensure the performance and availability of your Cassandra environment at all times and to keep it performing optimally.

Cassandra Agent User Permissions

Using a superuser role or a role with user creation permissions, connect via cqlsh to a node on the cluster and create a new user for the Foglight Agent as follows:

For versions of Cassandra >= 2.2 or DSE >= 5.0:

CREATE ROLE IF NOT EXISTS foglightagent WITH PASSWORD = '<your-password>' AND LOGIN = true AND SUPERUSER = false;

GRANT SELECT ON ALL KEYSPACES to foglightagent;

For versions of Cassandra <= 2.1 or DSE <= 4.8:

CREATE USER IF NOT EXISTS foglightagent WITH PASSWORD '<your-password>' NOSUPERUSER;

GRANT SELECT ON ALL KEYSPACES TO foglightagent;

Enable remote JMX authentication as per the instructions here:

For Linux:

http://docs.datastax.com/en/cassandra/3.x/cassandra/configuration/secureJmxAuthentication. html

For Windows:

http://docs.datastax.com/en/cassandra_win/3.x/cassandra/configuration/secureJmxAuthentica tion.html

Installing the Cassandra Cartridge

- 1. Open Foglight Management Console.
- From the navigation pane, select: Dashboards > Administration > Cartridges > Cartridge Inventory. The Cartridge Inventory screen appears. For more information on agents, see the Foglight User Guide.
- 3. Load the *CassandraAgent-xxxx.car* file by browsing to the location where the .car file exists and then clicking on "Install Cartridge". Leave the "Enable on Install" check box checked.
- **4.** Once the installation is completed on the Foglight Management Server, the Cassandra Cartridge will appear in this list below as an installed cartridge.

	The Cartridge Inventory dashboard contains controls for installing, enabling, disabling, and uninstalling cartridges, as well as for viewing information a	pout the installed cartridges.	
Ins	nstalled Cartridges Core Cartridges		
	a Install Cartridge 🛛 🗔 Uninstall 🗔 Enable 🗔 Disable		cassandra
	Status Cartridge Name	Ver	sion 👻
	CassandraAgent	1.0.48	
	CassandraAgent	1.0.47	
	CassandraAgent	1.0.32	
	CassandraAgent	1.0.31	
	CassandraAgent	1.0.30	

Creating the Cassandra Agent

When an agent connects to the Foglight Management Server, it is provided a set of properties that is then used to configure its correct running state.

Values for Agent properties are provided by default with the Foglight Cartridge for Cassandra. However, the user will typically edit these properties for their environment. Agent properties may apply only to a specific agent instance, or may be applicable across multiple agents.

For more information about working with agent properties, see the *Foglight Administration and Configuration Guide*.

To create a new agent instance:

- 1. Open the Foglight web console.
- 2. From the navigation pane, select: **Dashboards** > **Administration** > **Agents** > **Agent Status**. The Agent Status screen appears.
- 3. Deploy the Cassandra agent package to the preferred agent managers.
- 4. When the deployment is finished, create a Cassandra agent instance with a name that you will be able to identify as related to the Cassandra Node you intend to monitor.
- 5. Select the checkbox next to the Cassandra agent row. The selected row is highlighted with a yellow background.
- 6. Click Edit, then Edit Properties.
- 7. Select Modify the default properties for this agent.
- 8. Edit the agent properties for the Cassandra agent instance:

DB Connection

The agent requires a connection to the cluster in order to gather information about the cluster and data structure. The agent may be referred to other nodes than the one specified.

- IP or Hostname Host where Cassandra node is running. Default is "localhost". (e.g.<hostname> or <IP address>)
- **Port** The CQL native transport port for the Cassandra node. Default is 9042.
- **Username** User that can connect to the Cassandra node.
- **Password** Password of the user that can connect to the Cassandra node.

JMX Connections

The agent requires JMX access to individual nodes in the cluster to gather most operational metrics.

- **Port** The JMX listening port for the Cassandra node. This value will be used as the default value in the Node Connections list if no other value is provided. Default is 7199.
- **Username** JMX User that can connect to the Cassandra node. This value will be used as the default value in the Node Connections list if no other value is provided.
- **Password** Password of the JMX User that can connect to the Cassandra node. This value will be used as the default value in the Node Connections list if no other value is provided.
- Node Connections IP or Hostnames for each node in the cluster must be added to this list in order for them to be monitored. Port, Username, and Password can be specified for each node. If no value is provided for these, the default values specified previously will be used. Check "Use as Host Alias?" to indicate that the value provided for "IP or Hostname" should be used as an alias for the discovered hostname for the respective node. Secondary Property Lists are global

and can be shared between agents. To create a new property list for a different cluster, clone an existing list and then edit and save it as the selected list for that agent.

Collection Periods

The Collection Interval fields in the agent properties are used to set the sample frequencies. You can turn off a collection by setting the interval to 0. The defaults are set based on the type of data being collected for relevancy. Currently, there is only one configurable collection period. Due to the format of the data being collected, it is important that data samples happen concurrently.

- **Database and JMX** Controls the query interval for the main data collection through both the database connection and the JMX connection.
- Slow Query Controls the query interval for collection of the DSE Slow Query log.
- **Trace** Controls the query interval for collection of the trace log. Note that tracing must be enabled on the Cassandra instance(s) separately for data to be collected.

Options

Aliases

Aliases can optionally be added for Cassandra nodes in case hostnames as discovered by the agent differ from those used for the Hosts monitor. This Secondary Property List is a pairing of the uniquely identifying Host ID (a UUID string) and the desired hostname alias. There are two ways to determine a node's Host ID for use in the Aliases list. For a node that has already been monitored for some time, the Host ID can be found on the Nodes Table of the Cassandra Clusters dashboard (the Host ID column is hidden by default, so it will need to be made visible via the table's "Show columns" dialog). Host IDs can also be queried directly from a specific Cassandra instance with the following CQL:

SELECT host_id FROM system.local WHERE key='local';

T. Agent Status > Edit Properties					G+ Thu	ırsday, June 30, 2016 6:33 PM - 10:33 PM 4
Name					Host	Туре
Cassandra_on_WIN3					win2008x64-2	CassandraAgent
Changes will apply only to this	agent					
changes that apply only to ans	agona					
- DB Connection						
IP or Hostname	WIN2008x64-3					
Port	9042					
Username	foglight					
Password						
1MX Competings						
JPIX Connections						
Port	7199					
Username	cassandra					
Password	•••••					
Node Connections	NodeConnectionsList ~	Edit Clone	Delete	Ochanging Secondary Property lists have global implication	ns	
Collection Periods						
Collection Period (sec)	30					
	L					

Max traces/queries per period - The maximum number of traces or slow query entries to collect per their respective collection periods. Limiting the number here prevents the FMS from being overwhelmed by data (particularly from traces) on very active instances.

Roles

Two roles, Cassandra User and Cassandra Administrator, are installed with the cartridge. Viewing Cassandra dashboards requires that a user be assigned one of these or have the core Administrator role. Currently, there are no added privileges for the Cassandra Administrator role, but future cartridge versions which allow user interaction with the Cassandra cluster will require this role.

Dashboards

Cassandra Clusters

This dashboard lists all monitored Cassandra Clusters and contains high-level information on cluster structure, nodes, health status, and key metrics. The workload metric is used for comparing the amount of work a node is doing. Cluster workload averages the workloads of all nodes in that cluster. Selecting a cluster will update the bottom section of the page and display either a topology view of the cluster structure or a list of nodes with relevant information. In the Topology View tab, hovering over an object will show a health summary, while clicking on a node will drill down to the Node Overview page, as will clicking on a node location in the Nodes Table. In the cluster table, clicking the Keyspace or Table column values will drill down to the Cluster Keyspaces and Cluster Tables pages, respectively. Other column values for metrics will show a time plot when hovered or clicked on.



Cluster Keyspaces

This page lists all keyspaces in the selected cluster, aggregating metric information across nodes. Selecting a keyspace will update the section below, displaying a summary of that keyspace for each node in the cluster. Clicking the node location in the title of each summary will drill down to the Node Tables page for the selected node, filtering for only tables in that keyspace. In the Keyspace table, selecting the Tables column value will drill down to the Cluster Tables page, again filtering for only tables in that keyspace.

																Search	• 9
	Keyspace			Ob)s	ects	Reads		Writes		Dis	k Space		Pending	Ops	Replication		
Health	Name	F	C W	Tables	Views	Avg Latency	Total	Avg Latency	Total	Live Mentable	Live	Total	Compactions	Flushes	Class	Factor	Datacenters
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0	system_auth			4	0	J922.6 us	/118	A0 us	10	0 MB	89.3 KB	89.3 KB	_0	J	org.apache.cassandra.locator.NetworkTopologyStrategy	n/a	dc2=2, dc1=4, dc3=2
0	system_schema			10	0	A0 us	A.o	A0 us	A.o.	0 MB	924.6 KB	924.6 KB	1.0	A.C	org.apache.cassandra.locator.LocalStrategy	n/a	n/a
0	system_traces			2	0	_0 us	_0	_0 us	_0	0 MB	0 MB	0 MB	_0	_0	org.apache.cassandra.locator.SimpleStrategy	2	n/a
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Cluster Tables

This page lists tables in the selected cluster, aggregating metric information across nodes. Selecting a table will update the section below, displaying a summary of that table for each node in the cluster. Clicking the node location in the title of each summary will drill down to the Node Table page for the selected table. To filter the list of tables by keyspace, click the Select Keyspaces button at the top left of the table and select one or more keyspaces for which you wish to view tables.



Traces Sample

The Traces page shows sampled entries from Cassandra's tracing system. Entries with the same query are aggregated and presented by average and maximum sampled duration. Individual query executions, called "sessions", are retrieved along with each execution duration, timestamp, source, consistency level, etc. The internal events generated to process the query are retrievable per session on demand.

Tracing is not enabled by default, but nodetool can be used to enable tracing on a portion of all queries with its subcommand "settraceprobability".

					Search	Ø -
Sessions Sample	Request	Command	Query	Duration Avg	Duration Max	Sample Count -
View 👸	Execute CQL3 query	QUERY	SELECT host_id FROM system.local;	13.18 ms	657.3 ms	519
View 👸	Execute CQL3 query	QUERY	SELECT * FROM system.local WHERE key='local'	12.52 ms	334.81 ms	211
View 👸	Execute CQL3 query	QUERY	SELECT key FROM system.local;	11.15 ms	194.98 ms	210
View 👸	Execute CQL3 query	QUERY	SELECT keyspace_name,table_name,bloom_filter_fp_chance,caching,comment,compaction,compression	32.82 ms	813.02 ms	210
View 👸	Execute CQL3 query	QUERY	SELECT * FROM system_auth.roles;	69.9 ms	910.27 ms	159
View 👸	Execute CQL3 query	QUERY	SELECT * FROM system_traces.sessions	823.48 ms	2.27 sec	88
View 👸	Execute CQL3 query	QUERY	DELETE FROM tuna.skipjack WHERE sample=?;	18.64 ms	186.11 ms	31
View 👸	Execute CQL3 query	QUERY	INSERT INTO salmon.sockeye (word,letter,time) VALUES (?,?,?);	18.31 ms	82.44 ms	19
View 👸	Execute CQL3 query	QUERY	INSERT INTO tuna.bigeye (sample,country,river) VALUES (?,?,?);	58.65 ms	487.06 ms	12
View 👸	Execute CQL3 query	QUERY	DELETE FROM tuna.albacore WHERE sample=?;	16.44 ms	60.15 ms	9
View 👸	Execute CQL3 query	QUERY	INSERT INTO salmon.atlantic (sample,country,river) VALUES (?,?,?);	14.67 ms	35.53 ms	9
View 👸	Execute CQL3 query	QUERY	DELETE FROM tuna.bigeye WHERE sample=?;	38.25 ms	134.67 ms	9
View 👸	Execute CQL3 query	QUERY	INSERT INTO tuna.skipjack (sample,country,river) VALUES (?,?,?);	59.36 ms	167.34 ms	7
View 👸	Execute CQL3 query	QUERY	INSERT INTO salmon.coho (sample,country,river) VALUES (?,?,?);	22.92 ms	65.45 ms	7
View 👸	Execute CQL3 query	QUERY	DELETE FROM salmon.atlantic WHERE sample=?;	47.32 ms	205.16 ms	7
View 200	Execute CQL3 query	QUERY	INSERT INTO tuna.albacore (sample,country,river) VALUES (?,?,?);	14.78 ms	27.49 ms	7
View 🙀	Execute CQL3 query	QUERY	DELETE FROM salmon.chinook WHERE sample=?;	10.62 ms	29 ms	6

T. Traces Sample - OCM_3.7_Ubuntu-02 > Sessions Sample

G+ Tuesday, October 17, 2017 7:00 AM - 11:00 AM 4 hours 👻 🛛 🔂 Reports 👻

		Request		Execute C	QL3 query	Query					
	2	Command		QUERY		SELECT keyspac _chance,caching t_time_to_live,g system_schema	e_name,table_),comment,com c_grace_secon .tables;	name, pactic ds,me	bloom_filter_f n,compression mtable_flush_j	p ,,dclocal_read_r period_in_ms,re	repair_chance,defaul aad_repair_chance FROM
5essions									Events		
						Search	P-	÷			Search 🔎 🔻
Timestamp	Session ID	Client	Coordinator	Duration -	Consistency	Serial Consistency	Load Events		Elapsed 🔺	Source	
10/17/17 10:18 AM	1741565	172.31.52.138	172.31.8.201	819.15 ms	LOCAL_ONE	SERIAL	Load >	-	355 us	172.31.8.201	Parsing SELECT keyspace_name,table_name,bloom_filter_fp_ch
10/17/17 10:08 AM	b195ebf	172.31.52.138	172.31.8.201	582.55 ms	LOCAL_ONE	SERIAL	Load 📏		384 us	172.31.8.201	Preparing statement
10/17/17 10:48 AM	3037e21	100.35.217.41	172.31.8.201	435.89 ms	LOCAL_ONE	SERIAL	Load >		442 us	172.31.8.201	Computing ranges to query
10/17/17 9:38 AM	68da5f3	100.35.217.41	172.31.8.201	222.33 ms	LOCAL_ONE	SERIAL	Load >		1,255 us	172.31.8.201	Submitting range requests on 1 ranges with a concurrency of 1
10/17/17 10:44 AM	a71b53e	172.31.52.138	172.31.8.201	182.32 ms	LOCAL_ONE	SERIAL	Load >		1,272 us	172.31.8.201	Submitted 1 concurrent range requests
10/17/17 9:14 AM	2071b7f	100.35.217.41	172.31.8.201	177.13 ms	LOCAL_ONE	SERIAL	Load >		1,300 us	172.31.8.201	Executing seq scan across 3 sstables for (min(-9223372036854)
10/17/17 10:25 AM	0b8ed75	100.35.217.41	172.31.8.201	172.67 ms	LOCAL_ONE	SERIAL	Load >		181,660 us	172.31.8.201	Read 41 live and 0 tombstone cells
10/17/17 9:25 AM	afbb956	172.31.52.138	172.31.8.201	150.07 ms	LOCAL_ONE	SERIAL	Load >				
10/17/17 9:54 AM	a50ee64	100.35.217.41	172.31.8.201	139.43 ms	LOCAL_ONE	SERIAL	Load >				
10/17/17 9:16 AM	67f2ecc	100.35.217.41	172.31.8.201	117.37 ms	LOCAL_ONE	SERIAL	Load >				
10/17/17 10:38 AM	dc76cd4	100.35.217.41	172.31.8.201	109.71 ms	LOCAL_ONE	SERIAL	Load >				

Node Overview

This page provides a comprehensive view of the Cassandra Node, with health and alarms and configuration information at the top left and metrics grouped into relevant categories on the rest of the page. Once in the node section of the dashboards, the navigation bar at the top of the page can be used to navigate between different pages containing more information on the selected node. The Node Selector in the action panel on the right can also be used to switch between nodes in the same cluster.

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Node Keyspaces

This page lists all keyspaces on the selected node, with metric information on reads and writes, latency timing, disk space, and pending operations. Clicking the Keyspace Name or Tables column value will drill down to the Node Tables page, filtering for only tables in that keyspace. The "Go to Cluster Keyspaces" link above the table will link to that page for the same cluster, where you can compare keyspaces across different nodes by selecting a keyspace row.

E Caucha Cubres / Hadr Conview > 192168222L19542 Represent														O+ Friday, July 8, 20	16 9:24 AM - 1:24 PM 4 hours	w Reports w		
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	Keyspac	e				Reads		Writes			Cassandra Latencies		Dis	k Space		Pending Ops		
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0	system_traces				2	0 us	_0	0 us	_0	_0 us	_0 us	0 us	0 B	0 B	0 B	_0	_0 *	
0	system				22	∆ 3.3 ms	1 1	\0 us	10	_0 us	_0 us	_0 us	279 KB	275.5 KB	275.5 KB	_0	_0_	
0	system_distributed				2	0 us	_0_	_0 us	_0	0 us	_0 us	0 us	0.8	0 B	0 B	_0	_0	
0	system_schema				10	∆ 0 us	10	No us	10	_0 us	_0 us	0 us	0 B	133 KB	133 KB	Lo	10	
0	system_auth				4	_0 us	_0_	10 us	10	_0 us	_0 us	_0 us	0 B	4.9 KB	4.9 KB	_0	_0	
0	widekeys				2	0 us	_0	_0 us	_0	_0 us	_0 us	_0 us	0 B	0 B	0 B	_0	_0	

Node Tables

This page lists tables on the selected node, aggregating metric information across nodes, with metric information on reads and writes, latency timing, disk space, and pending operations. Clicking the Table Name column value will drill down to the Node Table page for more information on that table. The "Go to Cluster Tables" link above the table will link to that page for the same cluster, where you can compare tables across different nodes by selecting a table row. To filter the list of tables by keyspace, click the Select Keyspaces button at the top left of the table and select one or more keyspaces for which you wish to view tables.

t. Cassand	ra Clusters > Node Overview > 192.168.221.11:9042	Tables												G+ Pri	day, July 8, 2016	9:27 AM - 1:27 PM 4 hours	w Reports w
					Overv	iew Ke	yspaces Tables	Client Red	uests Connect	tions JVM	Cache Thr	ead Pools					
<< <g01< th=""><th>o Cluster Tables</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></g01<>	o Cluster Tables																
Select	Keyspaces															Search	p - 8
	Table				Obje	rcts	Reads		Writes		Cache Hit	Rates	Di	sk Space		Pending	Ops
Health	Name	Keyspace	F I	C W	Indexes	Views	Avg Latency	Total	Avg Latency	Total	Key Cache	Row Cache	Live Memtable	Live	Total	Compactions	Flushes
0	local	system			0	0	∧ 1.4 ms	11	A0 us	10	_1 %	_0 %	0 B	0 B	25 KB	_0	_0 -
0	schema_columnfamilies	system			0	0	0 us	n/a	0 us	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
0	schema_usertypes	system			0	0	_0 us	n/a	0 us	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
0	peers	system			0	0	_0 us	_0	10 us	10	_0 %	_0 %	0 B	0 B	119.4 KB	_0	_0
0	size_estimates	system			6	0	0 us	0	10 us	10	_0 %	_0 %	278.9 KB	278.9 KB	87.8 KB	_0	_0
0	range_xfers	system			0	0	_0 us	0	_0 us	_0	_0 %	_0 %	0 B	0 B	0 B	_0	_0
0	compaction_history	system			0	0	0 us	0	A0 us	٨o	_0 %	_0 %	0 B	0 B	13 KB	_0_	_0

Node Table

This page provides a comprehensive view of the table, with configuration information at the top left and metrics grouped into relevant categories on the rest of the page.

		Reads		
Name	Deers	* Read Repair Chance: 0 DC Read Repair Chance: 0		
evspace	system	Average Read Latency	Read Operations	Read Ops Distribution
xde	192.168.221.11:9042		,0 T	
uster	wide16			192.108.221.11:
mment	information about known peers in the cluster	120	0 S Some Data is Unavailable	192,169,221,16 192,169,221,16 192,169,221,16
afault TTL	0.00 sec		· · · · · · · · · · · · · · · · · · ·	192.169.221.175
artition Key	peer	09:30 10:00 10:30 11:00 12:00 12:30 13:00 — Table on 192:188:221.11:9042	09:30 10:00 10:30 11:30 11:30 12:30 12:30 13:30	192.168.221.13
ustering Columns		Table on all nodes	same on the role as it and	-
ing Operations		Writes		
Pending Compaction	ns	Average Write Latency	Write Operations	Write Ops Distribution
r30 10:30 11:30 12:1 pendingCompacti	0 00:00 10:00 11:00 12:00 inspendingTlushes	00-30 10:00 10:30 11:30 12:30 12:30 13:30 Table on 102:109 22:1:13:042 Table on all nodes	09:30 10:00 10:30 11:30 11:20 12:30 12:30 13:80 Table on IRC: 101:221.11:6042 Table on all nodes	192-196-2211 192-196-2211 192-196-2211
085		Disk		
	Index Off-Heap Memory	Compaction Class: org.apache.cassandra.db.compaction.StzeTieredCompactionSt SSTable Count	trategy GC Grace Seconds: 0.00 sec Live vs Total Disk Space	Live Disk Space Used %
00:30 10:00 10:30 Name	11:00 11:30 12:00 12:30 13:00 index Summary OffHeapNemory Used Kind Options	u	00 g	5
Name	11.00 11.30 12.00 23.01 13.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 05/30 10:00 10:20 11:00 11:00 12:00 12:00 12:00 12:00 10:00 00 00:00 1	00 00 70 10 00 19 70 11 00 11 70 12 70 12 70 10 10 0 0 70 10 00 19 70 11 00 11 70 12 70 10 10 70 10 0 0 10 10 10 10 10 10 10 10 10 10 10 10 10	5 06:30 10:00 10:30 11:00 11:30 12:00 12:30 13:00
Name	11.00 11.30 12.00 12.00 19.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	12 06-25 10:09 10:26 11:09 11:20 12:09 12:20 17:09 10:511did Cover	002 00200 1000 1000 1100 1100 1200 1200	06:50 10:50 11:50 11:50 12:50 12:50 12:50 - Table on 10: 21:10:92 - Table on 10: cells:
Ables Rables Flush Period: 3,600,1	1100 1102 1200 1200 100 Intel Samory Otherapkenovy Used Sind Options Normal Data To Desplay 200 ms	12 06:30 10:00 10:30 11:00 11:00 12:00 12:00 10:00 @hvi3TabiCover	00 10-20 10-20 11-20 11-20 12-20 12-00 10-20 10-20 10-20 11-20 12-20 1	5 06:30 10:00 10:00 11:00 11:00 12:00 12:00 12:00

Client Requests

This page displays client requests to the node by type, showing metric histories for average latency, request counts, and request errors, broken down by error type.



Connections

The Connections page shows connections between the selected node and other nodes in the cluster. At the top of the page, three bar graphs show nodes with the most gossip, large, and dropped messages. The below table lists all connections, showing timeouts and result status of messages by task type.

192.168.221.114 192.168.221.17											Prove Series 1	i opped encourges			
192.168.221.17					192.168 221.114	E.					192.168	221.114			
					192.168.221.17						192.168	.221.17			
192.168.221.12					192.168.221.12						192.168	.221.12			
192.168.221.14					192.168.221.14						192.168	.221.14			
192.168.221.13					192.168.221.13						192.168	.221.13			
0		count		1	0			iount			1		60	+	
unnections															
														Search	p -
	Conne	stion				Gossip Tasks				Lar	rge Message Tasks			Small Message Tasks	
Health Address	F	C	W	Timeouts	Pending	Completed +		Dropped	Pending	0	Completed	Dropped	Pending	Completed	Dropped
192.100.221.15				O count	_0	10	Count			_0	_0	-	10	50	
192.100.221.19				0 count	0	10	counc					-	00	00	
192.100.221.12				0 count	0	1	s count				_0_	-	00	10	
V 192.100.221.1/				_0 count		4	* count			_0	_0_	-	_00	V2B	
192.100.221.114				0 count	0	Lo	a count	-		_0_	_0	-	_0	10	

JVM

This page features information on the JVM that Cassandra runs on. The top row contains JVM properties, uptime, and information on memory and threading. The second row displays OS information and memory and CPU metrics. The final row features operational metrics for the various buffer pools, garbage collectors, and memory pools maintained by the JVM.

JVM

(6) Saturday, June 4, 2016 1:08 PM - 5:08 PM 4 hours 👻 📋 🖪 Reports 👻



Cache The Cac

The Cache page features cache-related metrics including hit rate, hits, size and number of entries for the counter cache, key cache, and row cache.



Overview | Keyspaces | Tables | Client Requests | Connections | JVM | Cache | Thread Pools

Foglight for Cassandra – Cartridge Guide

Thread Pools

This page displays active and completed task statuses for every thread pool type in the Cassandra node, grouped into Request, Transport, and Internal categories. The page also features a table of dropped messages by stage and includes metrics for number of dropped messages and latencies for internal and cross node dropped messages.



Slow Query Log

The slow query log dashboard displays information on long running queries for DSE Cassandra servers. Slow query logging is enabled by default. The slow query threshold can be raised or lowered with the dsetool "perf cqlslowlog" subcommand.

	Overview Keyspaces Tables Client Req				sts Connections JVM Cache Thread Pools Slow Queries
					Search 🔎 🗸
Timestamp 👻	Source IP	Username	Duration	Tables	Command(s)
10/17/17 9:17 AM	172.31.8.201	root	20 ms	slowspace.place	SELECT * FROM slowspace.place;
10/17/17 9:17 AM	172.31.8.201	root	2 ms	slowspace.place	SELECT * FROM slowspace.place;
10/17/17 9:17 AM	172.31.8.201	root	20 ms	slowspace.place	SELECT * FROM slowspace.place;
10/17/17 9:17 AM	172.31.8.201	root	2 ms	slowspace.place	INSERT INTO slowspace.place(id, ts, info, note) VALUES(uuid(), dateof(now()), 'some info', 'a note');
10/17/17 9:17 AM	172.31.8.201	root	31 ms	slowspace.place	INSERT INTO slowspace.place(id, ts, info, note) VALUES(uuid(), dateof(now()), 'some info', 'a note');
10/17/17 9:17 AM	172.31.8.201	root	86 ms	slowspace.place	INSERT INTO slowspace.place(id, ts, info, note) VALUES(uuid(), dateof(now()), 'some info', 'a note');

Rules

Cassandra Cache KeyCache HitRate

Alert if the key cache hit rate is too low.

Cassandra ClientRequest SpikeRate

Alert if the current rate of failures, timeouts, or unavailables for client request reads and writes is high relative to recent averages.

Cassandra CommitLog PendingTasks

Alert if the number of commit log pending tasks is too high.

Cassandra CommitLog WaitingOn

Alert if the number of commit log waiting on segment allocation and/or waiting on commit is too high.

Cassandra Compaction PendingTasks

Alert if the number of compaction pending tasks is too high.

Cassandra Datacenter Availability

Alert if the percent of available nodes in a datacenter is too low.

Cassandra DroppedMessage MutationDropped

Alert if there were any dropped mutation messages.

Cassandra JVM Memory HeapMemoryRatio

Alert if the JVM heap memory ratio of used memory to max memory is high.

Cassandra JVM OS SystemCPULoad

Alert if the JVM operating system used physical memory size percent is too high.

Cassandra JVM OS UsedPhysicalMemSizePct

Alert if the JVM operating system used physical memory size percent is too high.

Cassandra JVM OS UsedSwapSpaceSizePct

Alert if the JVM operating system used swap space size percent is too high.

Cassandra Node Availability

Alert if node availability is less than 100%.

Cassandra Node AvgReadLatency

Alert if average read latency for a node is high.

Cassandra Node AvgWriteLatency

Alert if the average write latency on a node is too high.

Cassandra Node LiveDiskSpaceUsedPercent

Alert if the used percent of live disk space on a node is too low.

Cassandra Node PendingCompactions

Alert if the number of pending compactions on a node is too high.

Cassandra Node PendingFlushes

Alert if the number of pending flushes on a node is too high.

Cassandra Node RowCacheMissRate

Alert if the row cache miss rate on a node is too high.

Cassandra SchemaVersion

Alert if schema version is not identical for all nodes.

Cassandra Storage Exceptions

Alert if there are storage exceptions on a node.

Cassandra Storage Load

Alert if the available disc space on a node is small relative to current storage load. This rule is only available in conjunction with the Infrastructure cartridge.

Cassandra Storage TotalHints

Alert if the number of storage total hints on a node is too high.

Cassandra Storage TotalHintsInProgress

Alert if the number of storage total hints in progress on a node is too high.

Cassandra Table AvgKeyCacheHitRate

Alert if the average key cache hit rate for a table across all nodes is low.

Cassandra Table AvgReadLatency

Alert if the average read latency on a table is too high.

Cassandra Table AvgRowCacheHitRate

Alert if the average row cache hit rate for a table across all nodes is low.

Cassandra ThreadPools PendingTasks

Alert if the number of thread pool pending tasks is high.

Cassandra ThreadPools TotalBlockedTasks

Alert if the number of thread pool total blocked tasks is high.

Reports

Cassandra Cluster Summary

Summary of a Cassandra Cluster with availability, disk space, operations, nodes, and largest keyspaces.

Cassandra Cluster Tables

Top Cassandra Cluster Tables by reads, writes, avg read/write latency, or disk space.

Cassandra Node Executive Summary

Executive summary of a Cassandra node with availability and connection info, workload and JVM resource usage, and top alarms.

Cassandra Node Health Check

Health check report for a Cassandra node with availability and connection info, workload and JVM resource usage, and top statements, alarms, and tables.