



# **Data Collector Reference - Services**

## **Cloud Insights**

NetApp  
November 07, 2022

This PDF was generated from [https://docs.netapp.com/us-en/cloudinsights/task\\_config\\_telegraf\\_node.html](https://docs.netapp.com/us-en/cloudinsights/task_config_telegraf_node.html) on November 07, 2022. Always check docs.netapp.com for the latest.

# Table of Contents

- Data Collector Reference - Services . . . . . 1
  - Node Data Collection . . . . . 1
  - ActiveMQ Data Collector . . . . . 3
  - Apache Data Collector . . . . . 6
  - Consul Data Collector . . . . . 9
  - Couchbase Data Collector . . . . . 10
  - CouchDB Data Collector . . . . . 12
  - Docker Data Collector . . . . . 14
  - Elasticsearch Data Collector . . . . . 22
  - Flink Data Collector . . . . . 26
  - Hadoop Data Collector . . . . . 33
  - HAProxy Data Collector . . . . . 43
  - JVM Data Collector . . . . . 50
  - Kafka Data Collector . . . . . 54
  - Kibana Data Collector . . . . . 59
  - Memcached Data Collector . . . . . 61
  - MongoDB Data Collector . . . . . 64
  - MySQL Data Collector . . . . . 66
  - Netstat Data Collector . . . . . 71
  - Nginx Data Collector . . . . . 72
  - PostgreSQL Data Collector . . . . . 75
  - Puppet Agent Data Collector . . . . . 77
  - Redis Data Collector . . . . . 79

# Data Collector Reference - Services

## Node Data Collection

Cloud Insights gathers metrics from the node on which you install an agent.

### Installation

1. From **Admin > Data Collectors**, choose an operating system/platform. Note that installing any integration data collector (Kubernetes, Docker, Apache, etc.) will also configure node data collection.
2. Follow the instructions to configure the agent. The instructions vary depending on the type of Operating System or Platform you are using to collect data.

### Objects and Counters

The following objects and their counters are collected as Node metrics:

| Object:         | Identifiers:                        | Attributes:                             | Datapoints:  |
|-----------------|-------------------------------------|---|--|
| Node Filesystem | Node UUID<br>Device<br>Path<br>Type | Node IP<br>Node Name<br>Node OS<br>Mode | Free<br>Inodes Free<br>Inodes Total<br>Inodes Used<br>Total<br>Used Total<br>Used  |
| Node Disk       | Node UUID<br>Disk                   | Node IP<br>Node Name<br>Node OS         | IO Time Total<br>IOPS In Progress<br>Read Bytes (per sec)<br>Read Time Total<br>Reads (per sec)<br>Weighted IO Time Total<br>Write Bytes (per sec)<br>Write Time Total<br>Writes (per sec)<br>Current Disk Queue<br>Length<br>Write Time<br>Read Time<br>IO Time |
| Node CPU        | Node UUID<br>CPU                    | Node IP<br>Node Name<br>Node OS         | System CPU Usage<br>User CPU Usage<br>Idle CPU Usage<br>Processor CPU Usage<br>Interrupt CPU Usage<br>DPC CPU Usage  |

| Object: | Identifiers: | Attributes:                     | Datapoints:  |
|---------|--------------|---------------------------------|--|
| Node    | Node UUID    | Node IP<br>Node Name<br>Node OS | Kernel Boot Time<br>Kernel Context Switches (per sec)<br>Kernel Entropy Available<br>Kernel Interrupts (per sec)<br>Kernel Processes Forked (per sec)<br>Memory Active<br>Memory Available Total<br>Memory Available<br>Memory Buffered<br>Memory Cached<br>Memory Commit Limit<br>Memory Committed As<br>Memory Dirty<br>Memory Free<br>Memory High Free<br>Memory High Total<br>Memory Huge Page Size<br>Memory Huge Pages Free<br>Memory Huge Pages Total<br>Memory Low Free<br>Memory Low Total<br>Memory Mapped<br>Memory Page Tables<br>Memory Shared<br>Memory Slab<br>Memory Swap Cached<br>Memory Swap Free<br>Memory Swap Total<br>Memory Total<br>Memory Used Total<br>Memory Used<br>Memory Vmalloc Chunk<br>Memory Vmalloc Total<br>Memory Vmalloc Used<br>Memory Wired<br>Memory Writeback Total<br>Memory Writeback Tmp<br>Memory Cache Faults<br>Memory Demand Zero Faults<br>Memory Page Faults<br>Memory Pages<br>Memory Nonpaged<br>Memory Paged<br>Memory Cache Core<br>Memory Standby Cache Normal<br>Memory Standby Cache Reserve<br>Memory Transition Faults<br>Processes Blocked<br>Processes Dead |

| Object:      | Identifiers:                   | Attributes:                     | Datapoints:  |
|--------------|--------------------------------|---------------------------------|--|
| Node Network | Network Interface<br>Node UUID | Node Name<br>Node IP<br>Node OS | Bytes Received<br>Bytes Sent<br>Packets Outboud<br>Discarded<br>Packets Outboud Errors<br>Packets Received<br>Discarded<br>Packets Received Errors<br>Packets Received<br>Packets Sent |

## Setup

Setup and Troubleshooting information can be found on the [Configuring an Agent](#) page.

## MacOS Memory Usage

Cloud Insights (via Telegraf) and macOS report different numbers for memory usage. Both Telegraf and the Mac activity monitor use metrics gathered from *vm\_stat*, however the total memory usage is calculated differently for each.

**Telegraf** calculates *Memory Used Total* as follows:

```
Memory Used Total = Memory Total - Memory Available Total
```

Where *Memory Available Total* is derived from the sum of "Pages free" and "Pages inactive" in *vm\_stat*.

**The Mac activity monitor**, on the other hand, calculates Memory Used as follows:

```
Memory Used = App Memory + Wired Memory + Compressed
```

Where:

- *App Memory* is derived from the difference between "Anonymous pages" and "Pages purgeable" in *vm\_stat*,
- *Wired Memory* is derived from "Pages wired down" in *vm\_stat*, and
- *Compressed* is derived from "Pages occupied by compressor" in *vm\_stat*.

## ActiveMQ Data Collector

Cloud Insights uses this data collector to gather metrics from ActiveMQ.

## Installation

1. From **Admin > Data Collectors**, click **+Data Collector**. Under **Services**, choose ActiveMQ.

Select the Operating System or Platform on which the Telegraf agent is installed.

2. If you haven't already installed an Agent for collection, or you wish to install an Agent for a different Operating System or Platform, click *Show Instructions* to expand the [Agent installation](#) instructions.
3. Select the Agent Access Key for use with this data collector. You can add a new Agent Access Key by clicking the **+ Agent Access Key** button. Best practice: Use a different Agent Access Key only when you want to group data collectors, for example, by OS/Platform.
4. Follow the configuration steps to configure the data collector. The instructions vary depending on the type of Operating System or Platform you are using to collect data.



## ActiveMQ Configuration

Gathers ActiveMQ metrics.

### What Operating System or Platform Are You Using?

[Need Help?](#)

Windows

### Select existing Agent Access Key or create a new one

Default (405fb5ec-d4cb-4404-977b-71fa931e1ad3)

+ Agent Access Key

\*Please ensure that you have a Telegraf Agent in you environment before configuring. [Show Instructions](#)

### Follow Configuration Steps

[Need Help?](#)

- 1 Copy the contents below into a new .conf file under the C:\Program Files\telegraf\telegraf.d\ folder. For example, copy the contents to the C:\Program Files\telegraf\telegraf.d\cloudinsights-activemq.conf file.

```
[[inputs.activemq]]
  ## Required ActiveMQ Endpoint, port
  ## USER-ACTION: Provide address of ActiveMQ, HTTP port for ActiveMQ
  server = "<INSERT_ACTIVEMQ_ADDRESS>"
  port = <INSERT_ACTIVEMQ_PORT>
```

- 2 Replace <INSERT\_ACTIVEMQ\_ADDRESS> with the applicable ActiveMQ server address. Please specify a real machine address, and refrain from using a loopback address.
- 3 Replace <INSERT\_ACTIVEMQ\_PORT> with the applicable ActiveMQ server HTTP port.
- 4 Replace <INSERT\_ACTIVEMQ\_USERNAME> and <INSERT\_ACTIVEMQ\_PASSWORD> with the applicable ActiveMQ credentials.
- 5 Modify 'webadmin' if needed (if ActiveMQ server changes web admin root path).
- 6 Modify 'Namespace' if needed for server disambiguation (to avoid name clashes).
- 7 Restart the Telegraf service.

```
Stop-Service -Name telegraf -ErrorAction SilentlyContinue; Start-Service -Name telegraf
```

## Setup

Information may be found in the [ActiveMQ documentation](#)

## Objects and Counters

The following objects and their counters are collected:

| Object:             | Identifiers:  | Attributes:  | Datapoints:   |
|---------------------|---|--|---|
| ActiveMQ Queue      | Namespace<br>Queue<br>Port<br>Server                      | Node Name<br>Node IP<br>Node UUID  | Consumer Count<br>Dequeue Count<br>Enqueue Count<br>Queue Size                                    |
| ActiveMQ Subscriber | Client ID<br>Connection ID<br>Port<br>Server<br>Namespace | Is Active<br>Destination<br>Node Name<br>Node IP<br>Node UUID<br>Node OS<br>Selector<br>Subscription | Dequeue Count<br>Dispatched Count<br>Dispatched Queue Size<br>Enqueue Count<br>Pending Queue Size |
| ActiveMQ Topic      | Topic<br>Port<br>Server<br>Namespace                      | Node Name<br>Node IP<br>Node UUID<br>Node OS   | Consumer Count<br>Dequeue Count<br>Enqueue Count<br>Size  |

## Troubleshooting

Additional information may be found from the [Support](#) page.

## Apache Data Collector

This data collector allows collection of data from Apache servers in your environment.

### Pre-requisites

- You must have your Apache HTTP Server set up and properly running
- You must have sudo or administrator permissions on your agent host/VM
- Typically, the Apache *mod\_status* module is configured to expose a page at the '/server-status?auto' location of the Apache server. The *ExtendedStatus* option must be enabled in order to collect all available fields. For information about how to configure your server, see the Apache module documentation: [https://httpd.apache.org/docs/2.4/mod/mod\\_status.html#enable](https://httpd.apache.org/docs/2.4/mod/mod_status.html#enable)

### Installation

1. From **Admin > Data Collectors**, click **+Data Collector**. Under **Services**, choose Apache.

Select the Operating System or Platform on which the Telegraf agent is installed.

2. If you haven't already installed an Agent for collection, or you wish to install an Agent for a different Operating System or Platform, click *Show Instructions* to expand the [Agent installation](#) instructions.
3. Select the Agent Access Key for use with this data collector. You can add a new Agent Access Key by clicking the **+ Agent Access Key** button. Best practice: Use a different Agent Access Key only when you want to group data collectors, for example, by OS/Platform.



4. Follow the configuration steps to configure the data collector. The instructions vary depending on the type of Operating System or Platform you are using to collect data.



**Apache Configuration**  
Gathers Apache metrics.

**What Operating System or Platform Are You Using?** [Need Help?](#)

Ubuntu & Debian

**Select existing Agent Access Key or create a new one**

Default (405fb5ec-d4cb-4404-977b-71fa931e1ad3)

+ Agent Access Key

\*Please ensure that you have a Telegraf Agent in you environment before configuring. [Show Instructions](#)

**Follow Configuration Steps** [Need Help?](#)

- 1 Ensure that the Apache HTTP Server system you're going to gather metrics on has the 'mod\_status' module enabled and exposed. For details refer to the following [document](#).
- 2 Copy the contents below into a new .conf file under the /etc/telegraf/telegraf.d/ directory. For example, copy the contents to the /etc/telegraf/telegraf.d/cloudinsights-apache.conf file.

```
[[inputs.apache]]
  ## An array of URLs to gather from, must be directed at the machine
  ## readable version of the mod_status page including the auto query string.
  ## USER-ACTION: Provide address of apache server, port for apache server, confirm path for
  server-status.
  ## Please provide actual machine IP address and replace the value of localhost address if -
```

- 3 Replace <INSERT\_APACHE\_ADDRESS> with the applicable Apache server address. Please specify a real machine address, and refrain from using a loopback address.
- 4 Replace <INSERT\_APACHE\_PORT> with the applicable Apache server port.
- 5 Modify the '/server-status' path in accordance to the Apache server configuration.
- 6 Restart the Telegraf service.

```
systemctl restart telegraf
```

## Setup

Telegraf's plugin for Apache's HTTP Server relies on the 'mod\_status' module to be enabled. When this is enabled, Apache's HTTP Server will expose an HTML endpoint that can be viewed on your browser or scraped for extraction of status of all Apache's HTTP Server configuration.

## Compatibility:

Configuration was developed against Apache's HTTP Server version 2.4.38.

## Enabling mod\_status:

Enabling and exposing the 'mod\_status' modules involves two steps:

- Enabling module
- Exposing stats from module

## Enabling module:

The loading of modules is controlled by the config file under '/usr/local/apache/conf/httpd.conf'. Edit the config file and uncomment the following lines:

```
LoadModule status_module modules/mod_status.so
```

```
Include conf/extra/httpd-info.conf
```

## Exposing stats from module:

The exposing of 'mod\_status' is controlled by the config file under '/usr/local/apache2/conf/extra/httpd-info.conf'. Make sure you have the following in that configuration file (at least, other directives will be there):

```
# Allow server status reports generated by mod_status,
# with the URL of http://servername/server-status
<Location /server-status>
    SetHandler server-status
</Location>

#
# ExtendedStatus controls whether Apache will generate "full" status
# information (ExtendedStatus On) or just basic information
(ExtendedStatus
# Off) when the "server-status" handler is called. The default is Off.
#
ExtendedStatus On
```

For detailed instructions on the 'mod\_status' module, see the [Apache documentation](#)

## Objects and Counters

The following objects and their counters are collected:

| Object: | Identifiers:        | Attributes:   | Datapoints:   |
|---------|---------------------|---|---|
| Apache  | Namespace<br>Server | Node IP<br>Node Name<br>Port<br>Parent Server Config<br>Generation<br>Parent Server MPM<br>Generation<br>Server Uptime<br>Is Stopping | Busy Workers<br>Bytes per Request<br>Bytes per Second<br>CPU Children System<br>CPU Children User<br>CPU Load<br>CPU System<br>CPU User<br>Asynchronous<br>Connections Closing<br>Asynchronous<br>Connections Keep Alive<br>Asynchronous<br>Connections Writing<br>Connections Total<br>Duration per Request<br>Idle Workers<br>Load Average (last 1m)<br>Load Average (last 15m)<br>Load Average (last 5m)<br>Processes<br>Requests per Second<br>Total Accesses<br>Total Duration<br>Total KBytes<br>Scoreboard Closing<br>Scoreboard DNS Lookups<br>Scoreboard Finishing<br>Scoreboard Idle Cleanup<br>Scoreboard Keep Alive<br>Scoreboard Logging<br>Scoreboard Open<br>Scoreboard Reading<br>Scoreboard Sending<br>Scoreboard Starting<br>Scoreboard Waiting |

## Troubleshooting

Additional information may be found from the [Support](#) page.

## Consul Data Collector

Cloud Insights uses this data collector to gather metrics from Consul.

### Installation

1. From **Admin > Data Collectors**, click **+Data Collector**. Under **Services**, choose Consul.

If you haven't configured an Agent for collection, you are prompted to [install an agent](#) in your environment.

If you have an agent already configured, select the appropriate Operating System or Platform and click **Continue**.

2. Follow the instructions in the Consul Configuration screen to configure the data collector. The instructions vary depending on the type of Operating System or Platform you are using to collect data.

## Setup

Information may be found in the [Consul documentation](#).

## Objects and Counters for consul

The following objects and their counters are collected:

| Object: | Identifiers:                          | Attributes:  | Datapoints:                    |
|---------|---------------------------------------|--|--------------------------------|
| Consul  | Namespace<br>Check ID<br>Service Node | Node IP<br>Node OS<br>Node UUID<br>Node Name<br>Service Name<br>Check Name<br>Service ID<br>Status | Critical<br>Passing<br>Warning |

## Troubleshooting

Additional information may be found from the [Support](#) page.

# Couchbase Data Collector

Cloud Insights uses this data collector to gather metrics from Couchbase.

## Installation

1. From **Admin > Data Collectors**, click **+Data Collector**. Under **Services**, choose Couchbase.

Select the Operating System or Platform on which the Telegraf agent is installed.

2. If you haven't already installed an Agent for collection, or you wish to install an Agent for a different Operating System or Platform, click *Show Instructions* to expand the [Agent installation](#) instructions.
3. Select the Agent Access Key for use with this data collector. You can add a new Agent Access Key by clicking the **+ Agent Access Key** button. Best practice: Use a different Agent Access Key only when you want to group data collectors, for example, by OS/Platform.
4. Follow the configuration steps to configure the data collector. The instructions vary depending on the type of Operating System or Platform you are using to collect data.



## Couchbase Configuration

Gathers Couchbase metrics.

### What Operating System or Platform Are You Using?

[Need Help?](#)

Windows

### Select existing Agent Access Key or create a new one

Default (405fb5ec-d4cb-4404-977b-71fa931e1ad3)

+ Agent Access Key

\*Please ensure that you have a Telegraf Agent in your environment before configuring. [Show Instructions](#)

### Follow Configuration Steps

[Need Help?](#)

- 1 Copy the contents below into a new .conf file under the C:\Program Files\telegraf\telegraf.d\ folder. For example, copy the contents to the C:\Program Files\telegraf\telegraf.d\cloudinsights-couchbase.conf file.

```
## Read metrics from one or many couchbase clusters
[[inputs.couchbase]]
  ## specify servers via a url matching:
  ## [protocol://][:password]@address[:port]
  ## e.g.
  ## http://username:password@127.0.0.1:8090
```

- 2 Replace <INSERT\_USERNAME> and <INSERT\_PASSWORD> with couchbase server account credentials.
- 3 Replace <INSERT\_COUCHBASE\_ADDRESS> with the applicable Couchbase address. Please specify a real machine address, and refrain from using a loopback address.
- 4 Replace <INSERT\_COUCHBASE\_PORT> with the applicable Couchbase port.
- 5 Restart the Telegraf service.

```
Stop-Service -Name telegraf -ErrorAction SilentlyContinue; Start-Service -Name telegraf
```

## Setup

Information may be found in the [Couchbase documentation](#).

## Objects and Counters

The following objects and their counters are collected:

| Object:          | Identifiers:                                       | Attributes:          | Datapoints:  |
|------------------|--|----------------------|--|
| Couchbase Node   | Namespace<br>Cluster<br>Couchbase Node<br>Hostname | Node Name<br>Node IP | Memory Free<br>Memory Total  |
| Couchbase Bucket | Namespace<br>Bucket<br>Cluster                     | Node Name<br>Node IP | Data Used<br>Data Fetches<br>Disk Used<br>Item Count<br>Memory Used<br>Operations Per Second<br>Quota Used |

## Troubleshooting

Additional information may be found from the [Support](#) page.

## CouchDB Data Collector

Cloud Insights uses this data collector to gather metrics from CouchDB.

### Installation

1. From **Admin > Data Collectors**, click **+Data Collector**. Under **Services**, choose CouchDB.  
  
Select the Operating System or Platform on which the Telegraf agent is installed.
2. If you haven't already installed an Agent for collection, or you wish to install an Agent for a different Operating System or Platform, click *Show Instructions* to expand the [Agent installation](#) instructions.
3. Select the Agent Access Key for use with this data collector. You can add a new Agent Access Key by clicking the **+ Agent Access Key** button. Best practice: Use a different Agent Access Key only when you want to group data collectors, for example, by OS/Platform.
4. Follow the configuration steps to configure the data collector. The instructions vary depending on the type of Operating System or Platform you are using to collect data.



## CouchDB Configuration

Gathers CouchDB metrics.

### What Operating System or Platform Are You Using?

[Need Help?](#)

 RHEL & CentOS

### Select existing Agent Access Key or create a new one

Default (405fb5ec-d4cb-4404-977b-71fa931e1ad3)

[+ Agent Access Key](#)

\*Please ensure that you have a Telegraf Agent in you environment before configuring. [Show Instructions](#)

### Follow Configuration Steps

[Need Help?](#)

- 1 Copy the contents below into a new .conf file under the /etc/telegraf/telegraf.d/ directory. For example, copy the contents to the /etc/telegraf/telegraf.d/cloudinsights-couchdb.conf file.

```
## Read CouchDB Stats from one or more servers
[[inputs.couchdb]]
  ## Works with CouchDB stats endpoints out of the box
  ## Multiple Hosts from which to read CouchDB stats:
  ## USER-ACTION: Provide comma-separated list of couchdb IP(s) and port(s).
```

- 2 Replace <INSERT\_COUCHDB\_ADDRESS> with the applicable CouchDB address. Please specify a real machine address, and refrain from using a loopback address.
- 3 Replace <INSERT\_COUCHDB\_PORT> with the applicable CouchDB port.
- 4 Modify the URL if CouchDB monitoring is exposed at different path
- 5 Restart the Telegraf service.

```
systemctl restart telegraf
```

## Setup

Information may be found in the [CouchDB documentation](#).

## Objects and Counters

The following objects and their counters are collected:



| Object: | Identifiers:        | Attributes:          | Datapoints:  |
|---------|---------------------|----------------------|--|
| CouchDB | Namespace<br>Server | Node Name<br>Node IP | Authentication Cache Hits<br>Authentication Cache Miss<br>Database Reads<br>Database Writes<br>Databases Open<br>Open OS Files<br>Max Request Time<br>Min Request Time<br>Httpd Request Methods Copy<br>Httpd Request Methods Delete<br>Httpd Request Methods Get<br>Httpd Request Methods Head<br>Httpd Request Methods Post<br>Httpd Request Methods Put<br>Status Codes 200<br>Status Codes 201<br>Status Codes 202<br>Status Codes 301<br>Status Codes 304<br>Status Codes 400<br>Status Codes 401<br>Status Codes 403<br>Status Codes 404<br>Status Codes 405<br>Status Codes 409<br>Status Codes 412<br>Status Codes 500 |

## Troubleshooting

Additional information may be found from the [Support](#) page.

## Docker Data Collector

Cloud Insights uses this data collector to gather metrics from Docker.

### Installation

1. From **Admin > Data Collectors**, click **+Data Collector**. Under **Services**, choose Docker.

If you haven't configured an Agent for collection, you are prompted to [install an agent](#) in your environment.

If you have an agent already configured, select the appropriate Operating System or Platform and click **Continue**.



2. Follow the instructions in the Docker Configuration screen to configure the data collector. The instructions vary depending on the type of Operating System or Platform you are using to collect data.



**Docker Configuration**  
Gathers Docker metrics.

**What Operating System or Platform Are You Using?** [Need Help?](#)

 RHEL & CentOS

**Select existing Agent Access Key or create a new one**

Default (405fb5ec-d4cb-4404-977b-71fa931e1ad3)

**+ Agent Access Key**

\*Please ensure that you have a Telegraf Agent in you environment before configuring. [Show Instructions](#)

**Follow Configuration Steps** [Need Help?](#)

- 1 Copy the contents below into a new .conf file under the /etc/telegraf/telegraf.d/ directory. For example, copy the contents to the /etc/telegraf/telegraf.d/cloudinsights-docker.conf file.

```
[[inputs.docker]]
  ## Docker Endpoint
  ## To use TCP, set endpoint = "tcp://[ip]:[port]". By default, Docker uses port 2375 for
  unencrypted and 2376 for encrypted
  ## To use environment variables (ie, docker-machine), set endpoint = "ENV"
```
- 2 Replace <INSERT\_DOCKER\_ENDPOINT> with the applicable Docker endpoint.
- 3 Modify 'Namespace' if needed for server disambiguation (to avoid name clashes).
- 4 Restart the Telegraf service.

```
systemctl restart telegraf
```

## Setup

The Telegraf input plugin for Docker collects metrics through a specified UNIX socket or a TCP endpoint.

## Compatibility

Configuration was developed against Docker version 1.12.6.

## Setting Up

## Accessing Docker through a UNIX socket

If the Telegraf agent is running on baremetal, add the telegraf Unix user to the docker Unix group by running the following:

```
sudo usermod -aG docker telegraf
```

If the Telegraf agent is running within a Kubernetes pod, expose the Docker Unix socket by mapping the socket into the pod as a volume and then mounting that volume to `/var/run/docker.sock`. For example, add the following to the PodSpec:

```
volumes:
  ...
  - name: docker-sock
    hostPath:
      path: /var/run/docker.sock
      type: File
```

Then, add the following to the Container:

```
volumeMounts:
  ...
  - name: docker-sock
    mountPath: /var/run/docker.sock
```

Note that the Cloud Insights installer provided for the Kubernetes platform takes care of this mapping automatically.

## Access Docker through a TCP endpoint

By default, Docker uses port 2375 for unencrypted access and port 2376 for encrypted access.

## Objects and Counters

The following objects and their counters are collected:

| Object:       | Identifiers:               | Attributes:  | Datapoints:  |
|---------------|----------------------------|--|--|
| Docker Engine | Namespace<br>Docker Engine | Node Name<br>Node IP<br>Node UUID<br>Node OS<br>Kubernetes Cluster<br>Docker Version<br>Unit | Memory<br>Containers<br>Containers Paused<br>Containers Running<br>Containers Stopped<br>CPUs<br>Go Routines<br>Images<br>Listener Events<br>Used File Descriptors<br>Data Available<br>Data Total<br>Data Used<br>Metadata Available<br>Metadata Total<br>Metadata Used<br>Pool Blocksize |

| Object:          | Identifiers:                                 | Attributes:  | Datapoints:   |
|------------------|--|--|---|
| Docker Container | Namespace<br>Container Name<br>Docker Engine | Kubernetes Container Hash<br>Kubernetes Container Ports<br>Kubernetes Container Restart Count<br>Kubernetes Container Termination Message Path<br>Kubernetes Container Termination Message Policy<br>Kubernetes Pod Termination Grace Period<br>Container Image<br>Container Status<br>Container Version<br>Node Name<br>Kubernetes Container Log Path<br>Kubernetes Container Name<br>Kubernetes Docker Type<br>Kubernetes Pod Name<br>Kubernetes Pod Namespace<br>Kubernetes Pod UID<br>Kubernetes Sandbox ID<br>Node IP<br>Node UUID<br>Docker Version<br>Kubernetes IO Config Seen<br>Kubernetes IO Config Source<br>OpenShift IO SCC<br>Kubernetes Description<br>Kubernetes Display Name<br>OpenShift Tags<br>Kompose Service<br>Pod Template Hash<br>Controller Revision Hash<br>Pod Template Generation<br>License<br>Schema Build Date<br>Schema License<br>Schema Name<br>Schema URL<br>Schema VCS URL<br>Schema Vendor<br>Schema Version<br>Schema Schema Version<br>Maintainer<br>Customer Pod | Memory Active Anonymous<br>Memory Active File<br>Memory Cache<br>Memory Hierarchical Limit<br>Memory Inactive Anonymous<br>Memory Inactive File<br>Memory Limit<br>Memory Mapped File<br>Memory Max Usage<br>Memory Page Fault<br>Memory Page Major Fault<br>Memory Paged In<br>Memory Paged Out<br>Memory Resident Set Size<br>Memory Resident Set Size Huge<br>Memory Total Active Anonymous<br>Memory Total Active File<br>Memory Total Cache<br>Memory Total Inactive Anonymous<br>Memory Total Inactive File<br>Memory Total Mapped File<br>Memory Total Page Fault<br>Memory Total Page Major Fault<br>Memory Total Paged In<br>Memory Total Paged Out<br>Memory Total Resident Set Size<br>Memory Total Resident Set Size Huge<br>Memory Total Unevictable<br>Memory Unevictable<br>Memory Usage<br>Memory Usage Percent<br>Exit Code<br>OOM Killed<br>PID<br>Started At<br>Failing Streak |

| Object:                      | Identifiers:   | Attributes:   | Datapoints:  |
|------------------------------|--|---|--|
| Docker Container Block<br>IO | Namespace<br>Container Name<br>Device<br>Docker Engine | Kubernetes Container Hash<br>Kubernetes Container Ports<br>Kubernetes Container Restart Count<br>Kubernetes Container Termination Message Path<br>Kubernetes Container Termination Message Policy<br>Kubernetes Pod Termination Grace Period<br>Container Image<br>Container Status<br>Container Version<br>Node Name<br>Kubernetes Container Log Path<br>Kubernetes Container Name<br>Kubernetes Docker Type<br>Kubernetes Pod Name<br>Kubernetes Pod Namespace<br>Kubernetes Pod UID<br>Kubernetes Sandbox ID<br>Node IP<br>Node UUID<br>Docker Version<br>Kubernetes Config Seen<br>Kubernetes Config Source<br>OpenShift SCC<br>Kubernetes Description<br>Kubernetes Display Name<br>OpenShift Tags<br>Schema Schema Version<br>Pod Template Hash<br>Controller Revision Hash<br>Pod Template Generation<br>Kompose Service<br>Schema Build Date<br>Schema License<br>Schema Name<br>Schema Vendor<br>Customer Pod<br>Kubernetes StatefulSet<br>Pod Name<br>Tenant<br>Webconsole<br>Build Date<br>License<br>Vendor | IO Service Bytes<br>Recursive Async<br>IO Service Bytes<br>Recursive Read<br>IO Service Bytes<br>Recursive Sync<br>IO Service Bytes<br>Recursive Total<br>IO Service Bytes<br>Recursive Write<br>IO Serviced Recursive Async<br>IO Serviced Recursive Read<br>IO Serviced Recursive Sync<br>IO Serviced Recursive Total<br>IO Serviced Recursive Write |

| Object:                  | Identifiers:  | Attributes:   | Datapoints:  |
|--------------------------|---|---|--|
| Docker Container Network | Namespace<br>Container Name<br>Network<br>Docker Engine | Container Image<br>Container Status<br>Container Version<br>Node Name<br>Node IP<br>Node UUID<br>Node OS<br>K8s Cluster<br>Docker Version<br>Container ID | RX Dropped<br>RX Bytes<br>RX Errors<br>RX Packets<br>TX Dropped<br>TX Bytes<br>TX Errors<br>TX Packets |

| Object:              | Identifiers:  | Attributes:   | Datapoints:   |
|----------------------|---|---|---|
| Docker Container CPU | Namespace<br>Container Name<br>CPU<br>Docker Engine | Kubernetes Container Hash<br>Kubernetes Container Ports<br>Kubernetes Container Restart Count<br>Kubernetes Container Termination Message Path<br>Kubernetes Container Termination Message Policy<br>Kubernetes Pod Termination Grace Period<br>Kubernetes Config Seen<br>Kubernetes Config Source<br>OpenShift SCC<br>Container Image<br>Container Status<br>Container Version<br>Node Name<br>Kubernetes Container Log Path<br>Kubernetes Container name<br>Kubernetes Docker Type<br>Kubernetes Pod Name<br>Kubernetes Pod Namespace<br>Kubernetes Pod UID<br>Kubernetes Sandbox ID<br>Node IP<br>Node UUID<br>Node OS<br>Kubernetes Cluster<br>Docker Version<br>Kubernetes Description<br>Kubernetes Display Name<br>OpenShift Tags<br>Schema Version<br>Pod Template Hash<br>Controller Revision Hash<br>Pod Template Generation<br>Kompose Service<br>Schema Build Date<br>Schema License<br>Schema Name<br>Schema Vendor<br>Customer Pod<br>Kubernetes StatefulSet Pod Name<br>Tenant<br>Webconsole<br>Build Date | Throttling Periods<br>Throttling Throttled Periods<br>Throttling Throttled Time<br>Usage In Kernel Mode<br>Usage In User Mode<br>Usage Percent<br>Usage System<br>Usage Total |

## Troubleshooting

| Problem:   | Try this:  |
|--|--|
| I do not see my Docker metrics in Cloud Insights after following the instructions on the configuration page. | <p>Check the Telegraf agent logs to see if it reports the following error:</p> <p>E! Error in plugin [inputs.docker]: Got permission denied while trying to connect to the Docker daemon socket</p> <p>If it does, take the necessary steps to provide the Telegraf agent access to the Docker Unix socket as specified above.</p> |

Additional information may be found from the [Support](#) page.

## Elasticsearch Data Collector

Cloud Insights uses this data collector to gather metrics from Elasticsearch.

1. From **Admin > Data Collectors**, click **+Data Collector**. Under **Services**, choose Elasticsearch.

Select the Operating System or Platform on which the Telegraf agent is installed.

2. If you haven't already installed an Agent for collection, or you wish to install an Agent for a different Operating System or Platform, click *Show Instructions* to expand the [Agent installation](#) instructions.
3. Select the Agent Access Key for use with this data collector. You can add a new Agent Access Key by clicking the **+ Agent Access Key** button. Best practice: Use a different Agent Access Key only when you want to group data collectors, for example, by OS/Platform.
4. Follow the configuration steps to configure the data collector. The instructions vary depending on the type of Operating System or Platform you are using to collect data.





## Elasticsearch Configuration

Gathers Elasticsearch metrics.

### What Operating System or Platform Are You Using?

[Need Help?](#)

Ubuntu & Debian

### Select existing Agent Access Key or create a new one

Default (405fb5ec-d4cb-4404-977b-71fa931e1ad3)

+ Agent Access Key

\*Please ensure that you have a Telegraf Agent in you environment before configuring. [Show Instructions](#)

### Follow Configuration Steps

[Need Help?](#)

- 1 Copy the contents below into a new .conf file under the /etc/telegraf/telegraf.d/ directory. For example, copy the contents to the /etc/telegraf/telegraf.d/cloudinsights-elasticsearch.conf file.

```
[[inputs.elasticsearch]]
  ## USER-ACTION: Provide comma-separated list of Elasticsearch servers.
  ## Note that for scenarios in which metrics from multiple Elasticsearch clusters are being
  ## sent to Cloud Insights, the Elasticsearch cluster names must be unique.
  ## Please specify actual machine IP address, and refrain from using a loopback address
```

- 2 Replace <INSERT\_ELASTICSEARCH\_ADDRESS> with the applicable Elasticsearch address. Please specify a real machine address, and refrain from using a loopback address.
- 3 Replace <INSERT\_ELASTICSEARCH\_PORT> with the applicable Elasticsearch port.
- 4 Restart the Telegraf service.

```
systemctl restart telegraf
```

## Setup

Information may be found in the [Elasticsearch documentation](#).

## Objects and Counters

The following objects and their counters are collected:

| Object:               | Identifiers:         | Attributes:                            | Datapoints:   |
|-----------------------|----------------------|--|---|
| Elasticsearch Cluster | Namespace<br>Cluster | Node IP<br>Node Name<br>Cluster Status | Master Node Count<br>Total Node Count<br>Filesystem Data Available (bytes)<br>Filesystem Data Free (bytes)<br>Filesystem Data Total (bytes)<br>JVM Threads<br>OS Allocated Proccessors<br>OS Available Processors<br>OS Mem Free (bytes)<br>OS Mem Free<br>OS Mem Total (bytes)<br>OS Mem Used (bytes)<br>OS Mem Used<br>Process CPU<br>Indices Completion Size (bytes)<br>Indices Count<br>Indices Docs Count<br>Indices Docs Deleted<br>Indices Field Data<br>Evictions<br>Indices Field Data<br>Memory Size (bytes)<br>Indices Query Cache Count<br>Indices Cache Size<br>Indices Segments Count<br>Indices Segments Doc Values Memory (bytes)<br>Indices Shards Index Primaries Avg<br>Indices Shards Index Primaries Max<br>Indices Shards Index Primaries Min<br>Indices Shards Index Replication Avg<br>Indices Shards Index Replication Max<br>Indices Shards Index Replication Min<br>Indices Shards Avg<br>Indices Shards Max<br>Indices Shards Primaries<br>Indices Shards Replication<br>Indices Shards Total<br>Indices Store Size (bytes) |

| Object:            | Identifiers:  | Attributes: | Datapoints:   |
|--------------------|---|-------------|---|
| Elasticsearch Node | Namespace<br>Cluster<br>ES Node ID<br>ES Node IP<br>ES Node | Zone ID     | Machine Learning<br>Enabled<br>Machine Learning<br>Memory<br>Machine Learning Max<br>Open Jobs<br>X-Pack Installed<br>Breakers Accounting<br>Estimated Size (bytes)<br>Breakers Accounting Limit<br>Size (bytes)<br>Breakers Accounting<br>Overhead<br>Breakers Accounting<br>Tripped<br>Breakers Field Data<br>Estimated Size (bytes)<br>Breakers Field Data Limit<br>Size (bytes)<br>Breakers Field Data<br>Overhead<br>Breakers Field Data<br>Tripped<br>Breakers In-Flight<br>Sstimated Size (bytes)<br>Breakers In-Flight Limit<br>Size (bytes)<br>Breakers In-Flight<br>Overhead<br>Breakers In-Flight Tripped<br>Breakers Parent<br>Estimated Size (bytes)<br>Breakers Parent Limit<br>Size (bytes)<br>Breakers Parent<br>Overhead<br>Breakers Parent Tripped<br>Breakers Request<br>Estimated Size (bytes)<br>Breakers Request Limit<br>Size (bytes)<br>Breakers Request<br>Overhead<br>Breakers Request Tripped<br>Filesystem Data Available<br>(bytes)<br>Filesystem Data Free<br>(bytes)<br>Filesystem Data Total<br>(bytes)<br>Filesystem IO Stats<br>Devices Ops<br>Filesystem IO Stats<br>Devices Read (kb) |

## Troubleshooting

Additional information may be found from the [Support](#) page.

# Flink Data Collector

Cloud Insights uses this data collector to gather metrics from Flink.

## Installation

1. From **Admin > Data Collectors**, click **+Data Collector**. Under **Services**, choose Flink.

Select the Operating System or Platform on which the Telegraf agent is installed.

2. If you haven't already installed an Agent for collection, or you wish to install an Agent for a different Operating System or Platform, click *Show Instructions* to expand the [Agent installation](#) instructions.
3. Select the Agent Access Key for use with this data collector. You can add a new Agent Access Key by clicking the **+ Agent Access Key** button. Best practice: Use a different Agent Access Key only when you want to group data collectors, for example, by OS/Platform.
4. Follow the configuration steps to configure the data collector. The instructions vary depending on the type of Operating System or Platform you are using to collect data.



## Flink Configuration

Gathers Flink metrics.

### What Operating System or Platform Are You Using?

[Need Help?](#)

Windows

### Select existing Agent Access Key or create a new one

Default (405fb5ec-d4cb-4404-977b-71fa931e1ad3)

[+ Agent Access Key](#)

\*Please ensure that you have a Telegraf Agent in you environment before configuring. [Show Instructions](#)

### Follow Configuration Steps

[Need Help?](#)

- 1 Install Jolokia on your Flink JobManager(s) and Flink Task Manager(s). For details refer to the following [document](#).
- 2 Copy the contents below into a new .conf file under the C:\Program Files\telegraf\telegraf.d\ folder. For example, copy the contents to the C:\Program Files\telegraf\telegraf.d\cloudinsights-flink.conf file.

```
## *****  
## JobManager  
## *****  
[[inputs.jolokia2_agent]]  
  ## USER-ACTION: Provide address(es) of flink Job Manager(s), port for jolokia, add one URL  
  ## for each Job Manager to monitor metrics
```

- 3 Replace <INSERT\_FLINK\_JOBMANAGER\_ADDRESS> with the applicable Flink Job Manager address(es). Please specify a real machine address, and refrain from using a loopback address.
- 4 Replace <INSERT\_FLINK\_TASKMANAGER\_ADDRESS> with the applicable Flink Task Manager address(es). Please specify a real machine address, and refrain from using a loopback address.
- 5 Replace <INSERT\_JOLOKIA\_PORT> with the applicable jolokia port.
- 6 Modify 'Namespace' if needed for server disambiguation (to avoid name clashes).
- 7 Modify 'Cluster' if needed for Flink cluster designation.
- 8 Restart the Telegraf service.

```
Stop-Service -Name telegraf -ErrorAction SilentlyContinue; Start-Service -Name telegraf
```

## Setup

A full Flink deployment involves the following components:

**JobManager:** The Flink primary system. Coordinates a series of TaskManagers. In a High Availability setup, system will have more than one JobManager.

**TaskManager:** This is where Flink operators are executed.

The Flink plugin is based on the telegraf's Jolokia plugin. As such as a requirement to gather info from all Flink components, JMX needs to be configured and exposed via Jolokia on all components.

## Compatibility

Configuration was developed against Flink version 1.7.0.

## Setting Up

### Jolokia Agent Jar

For all individual components, a version the Jolokia agent jar file must be downloaded. The version tested against was [Jolokia agent 1.6.0](#).

Instructions below assume that downloaded jar file (jolokia-jvm-1.6.0-agent.jar) is placed under location '/opt/flink/lib/'.

### JobManager

To configure JobManager to expose the Jolokia API, you can setup the following environment variable on your nodes then restart the JobManager:

```
export FLINK_ENV_JAVA_OPTS="-javaagent:/opt/flink/lib/jolokia-jvm-1.6.0-agent.jar=port=8778,host=0.0.0.0"
```

You can choose a different port for Jolokia (8778). If you have an internal IP to lock Jolokia onto you can replace the "catch all" 0.0.0.0 by your own IP. Notice this IP needs to be accessible from the telegraf plugin.

### TaskManager

To configure TaskManager(s) to expose the Jolokia API, you can setup the following environment variable on your nodes then restart the TaskManager:

```
export FLINK_ENV_JAVA_OPTS="-javaagent:/opt/flink/lib/jolokia-jvm-1.6.0-agent.jar=port=8778,host=0.0.0.0"
```

You can choose a different port for Jolokia (8778). If you have an internal IP to lock Jolokia onto you can replace the "catch all" 0.0.0.0 by your own IP. Notice this IP needs to be accessible from the telegraf plugin.

## Objects and Counters

The following objects and their counters are collected:

| <b>Object:</b>     | <b>Identifiers:</b>                      | <b>Attributes:</b>  | <b>Datapoints:</b>  |
|--------------------|--|---|---|
| Flink Task Manager | Cluster<br>Namespace<br>Server           | Node Name<br>Task Manager ID<br>Node IP   | Network Available<br>Memory Segments<br>Network Total Memory<br>Segments<br>Garbage Collection PS<br>MarkSweep Count<br>Garbage Collection PS<br>MarkSweep Time<br>Garbage Collection PS<br>Scavenge Count<br>Garbage Collection PS<br>Scavenge Time<br>Heap Memory Committed<br>Heap Memory Init<br>Heap Memory Max<br>Heap Memory Used<br>Thread Count Daemon<br>Thread Count Peak<br>Thread Count<br>Thread Count Total<br>Started |
| Flink Job          | Cluster<br>Namespace<br>server<br>Job ID | Node Name<br>Job Name<br>Node IP<br>Last Checkpoint External<br>Path<br>Restarting Time | Downtime<br>Full Restarts<br>Last Checkpoint<br>Alignment Buffered<br>Last Checkpoint Duration<br>Last Checkpoint Size<br>Number of Completed<br>Checkpoints<br>Number of Failed<br>Checkpoints<br>Number of in Progress<br>Checkpoints<br>Number of Checkpoints<br>Uptime  |

| Object:           | Identifiers:                   | Attributes:          | Datapoints:  |
|-------------------|--------------------------------|----------------------|--|
| Flink Job Manager | Cluster<br>Namespace<br>Server | Node Name<br>Node IP | Garbage Collection PS<br>MarkSweep Count<br>Garbage Collection PS<br>MarkSweep Time<br>Garbage Collection PS<br>Scavenge Count<br>Garbage Collection PS<br>Scavenge Time<br>Heap Memory Committed<br>Heap Memory Init<br>Heap Memory Max<br>Heap Memory Used<br>Number Registered Task<br>Managers<br>Number Running Jobs<br>Task Slots Available<br>Task Slots Total<br>Thread Count Daemon<br>Thread Count Peak<br>Thread Count<br>Thread Count Total<br>Started |



| Object:    | Identifiers:                              | Attributes:   | Datapoints:   |
|------------|---|---|---|
| Flink Task | Cluster<br>Namespace<br>Job ID<br>Task ID | Server<br>Node Name<br>Job Name<br>Sub Task Index<br>Task Attempt ID<br>Task Attempt Number<br>Task Name<br>Task Manager ID<br>Node IP<br>Current Input Watermark | Buffers In Pool Usage<br>Buffers In Queue Length<br>Buffers Out Pool Usage<br>Buffers Out Queue Length<br>Number Buffers In Local<br>Number Buffers In Local<br>Per Second Count<br>Number Buffers in Local<br>Per Second Rate<br>Number Buffers In<br>Remote<br>Number Buffers In<br>Remote Per Second<br>Count<br>Number Buffers In<br>Remote Per Second Rate<br>Number Buffers Out<br>Number Buffers Out Per<br>Second Count<br>Number Buffers Out Per<br>Second Rate<br>Number Bytes In Local<br>Number Bytes In Local<br>Per Second Count<br>Number Bytes In Local<br>Per Second Rate<br>Number Bytes In Remote<br>Number Bytes In Remote<br>Per Second Count<br>Number Bytes In Remote<br>Per Second Rate<br>Number Bytes Out<br>Number Bytes Out Per<br>Second Count<br>Number Bytes Out Per<br>Second Rate<br>Number Records In<br>Number Records In Per<br>Second Count<br>Number Records In Per<br>Second Rate<br>Number Records Out<br>Number Records Out Per<br>Second Count<br>Number Records Out Per<br>Second Rate |

| Object:             | Identifiers:   | Attributes:   | Datapoints:   |
|---------------------|--|---|---|
| Flink Task Operator | Cluster<br>Namespace<br>Job ID<br>Operator ID<br>Task ID | Server<br>Node Name<br>Job Name<br>Operator Name<br>Sub Task Index<br>Task Attempt ID<br>Task Attempt Number<br>Task Name<br>Task Manager ID<br>Node IP | Current Input Watermark<br>Current Output Watermark<br>Number Records In<br>Number Records In Per Second Count<br>Number Records In Per Second Rate<br>Number Records Out<br>Number Records Out Per Second Count<br>Number Records Out Per Second Rate<br>Number Late Records Dropped<br>Assigned Partitions<br>Bytes Consumed Rate<br>Commit Latency Avg<br>Commit Latency Max<br>Commit Rate<br>Commits Failed<br>Commits Succeeded<br>Connection Close Rate<br>Connection Count<br>Connection Creation Rate Count<br>Fetch Latency Avg<br>Fetch Latency Max<br>Fetch Rate<br>Fetch Size Avg<br>Fetch Size Max<br>Fetch Throttle Time Avg<br>Fetch Throttle Time Max<br>Heartbeat Rate<br>Incoming Byte Rate<br>IO Ratio<br>IO Time Avg (ns)<br>IO Wait Ratio<br>IO Wait Time Avg (ns)<br>Join Rate<br>Join Time Avg<br>Last Heartbeat Ago<br>Network IO Rate<br>Outgoing Byte Rate<br>Records Consumed Rate<br>Records Lag Max<br>Records per Request Avg<br>Request Rate<br>Request Size Avg<br>Request Size Max<br>Response Rate<br>Select Rate<br>Sync Rate<br>Sync Time Avg<br>Heartbeat Response Time |

## Troubleshooting

Additional information may be found from the [Support](#) page.

# Hadoop Data Collector

Cloud Insights uses this data collector to gather metrics from Hadoop.

## Installation

1. From **Admin > Data Collectors**, click **+Data Collector**. Under **Services**, choose Hadoop.

Select the Operating System or Platform on which the Telegraf agent is installed.

2. If you haven't already installed an Agent for collection, or you wish to install an Agent for a different Operating System or Platform, click *Show Instructions* to expand the [Agent installation](#) instructions.
3. Select the Agent Access Key for use with this data collector. You can add a new Agent Access Key by clicking the **+ Agent Access Key** button. Best practice: Use a different Agent Access Key only when you want to group data collectors, for example, by OS/Platform.
4. Follow the configuration steps to configure the data collector. The instructions vary depending on the type of Operating System or Platform you are using to collect data.



### Hadoop Configuration

Gathers Hadoop metrics.

---

#### What Operating System or Platform Are You Using?

Ubuntu & Debian

[Need Help?](#)

#### Select existing Agent Access Key or create a new one

Default (405fb5ec-d4cb-4404-977b-71fa931e1ad3)

+ Agent Access Key

\*Please ensure that you have a Telegraf Agent in you environment before configuring [Show Instructions](#)

## Follow Configuration Steps

[Need Help?](#)

- 1 Install Jolokia on your Hadoop NameNode, Secondary NameNode, DataNode(s), ResourceManager, NodeManager(s) and JobHistoryServer. For details refer to the following [document](#).
- 2 Copy the contents below into a new .conf file under the /etc/telegraf/telegraf.d/ directory. For example, copy the contents to the /etc/telegraf/telegraf.d/cloudinsights-hadoop.conf file.

```
#####  
# NAMENODE #  
#####  
[[inputs.jolokia2_agent]]  
  ## USER-ACTION: Provide address(es) of Hadoop NameNode, port for jolokia  
  ## Please provide a real address to address and refrain from using a loopback address
```

- 3 Replace <INSERT\_HADOOP\_NAMENODE\_ADDRESS> with the applicable Hadoop NameNode address. Please specify a real machine address, and refrain from using a loopback address. Replace corresponding <INSERT\_JOLOKIA\_PORT> with the NameNode's assigned Jolokia port.
- 4 Replace <INSERT\_HADOOP\_SECONDARYNAMENODE\_ADDRESS> with the applicable Hadoop Secondary NameNode address. Please specify a real machine address, and refrain from using a loopback address. Replace corresponding <INSERT\_JOLOKIA\_PORT> with the Secondary NameNode's assigned Jolokia port.
- 5 Replace <INSERT\_HADOOP\_DATANODE\_ADDRESS> with the applicable Hadoop DataNode address(es). Please specify a real machine address, and refrain from using a loopback address. Replace corresponding <INSERT\_JOLOKIA\_PORT> with the DataNode's assigned Jolokia port.
- 6 Replace <INSERT\_HADOOP\_RESOURCEMANAGER\_ADDRESS> with the applicable Hadoop ResourceManager address. Please specify a real machine address, and refrain from using a loopback address. Replace corresponding <INSERT\_JOLOKIA\_PORT> with the ResourceManager's assigned Jolokia port.
- 7 Replace <INSERT\_HADOOP\_NODEMANAGER\_ADDRESS> with the applicable Hadoop NodeManager address(es). Please specify a real machine address, and refrain from using a loopback address. Replace corresponding <INSERT\_JOLOKIA\_PORT> with the NodeManager's assigned Jolokia port.
- 8 Replace <INSERT\_HADOOP\_JOBHISTORYSERVER\_ADDRESS> with the applicable Hadoop Job History Server address. Please specify a real machine address, and refrain from using a loopback address. Replace corresponding <INSERT\_JOLOKIA\_PORT> with the Job History Server's assigned Jolokia port.
- 9 Modify 'Namespace' if needed for server disambiguation (to avoid name clashes).
- 10 Modify 'Cluster' if needed for Hadoop cluster designation.
- 11 Restart the Telegraf service.

```
systemctl restart telegraf
```

## Setup

A full Hadoop deployment involves the following components:

- NameNode: The Hadoop Distributed File System (HDFS) primary system. Coordinates a series of DataNodes.

- **Secondary NameNode:** a warm failover for the main NameNode. In Hadoop the promotion to NameNode does not occur automatically. Secondary NameNode gathers information from NameNode to be ready to be promoted when needed.
- **DataNode:** Actual owner for data.
- **ResourceManager:** The compute primary system (Yarn). Coordinates a series of NodeManagers.
- **NodeManager:** The resource for compute. Actual location for running of applications.
- **JobHistoryServer:** Responsible for servicing all job history related requests.

The Hadoop plugin is based on the telegraf's Jolokia plugin. As such as a requirement to gather info from all Hadoop components, JMX needs to be configured and exposed via Jolokia on all components.

## Compatibility

Configuration was developed against Hadoop version 2.9.2.

## Setting Up

### Jolokia Agent Jar

For all individual components, a version the Jolokia agent jar file must be downloaded. The version tested against was [Jolokia agent 1.6.0](#).

Instructions below assume that downloaded jar file (jolokia-jvm-1.6.0-agent.jar) is placed under location '/opt/hadoop/lib/"/>.

### NameNode

To configure NameNode to expose the Jolokia API, you can setup the following in <HADOOP\_HOME>/etc/hadoop/hadoop-env.sh:

```
export HADOOP_NAMENODE_OPTS="$HADOOP_NAMENODE_OPTS
-javaagent:/opt/hadoop/lib/jolokia-jvm-1.6.0
-agent.jar=port=7800,host=0.0.0.0 -Dcom.sun.management.jmxremote
-Dcom.sun.management.jmxremote.port=8000
-Dcom.sun.management.jmxremote.ssl=false
-Dcom.sun.management.jmxremote.password.file=$HADOOP_HOME/conf/jmxremote.p
assword"
You can choose a different port for JMX (8000 above) and Jolokia (7800).
If you have an internal IP to lock Jolokia onto you can replace the "catch
all" 0.0.0.0 by your own IP. Notice this IP needs to be accessible from
the telegraf plugin. You can use the option '-
Dcom.sun.management.jmxremote.authenticate=false' if you don't want to
authenticate. Use at your own risk.
```

### Secondary NameNode

To configure the Secondary NameNode to expose the Jolokia API, you can setup the following in <HADOOP\_HOME>/etc/hadoop/hadoop-env.sh:

```
export HADOOP_SECONDARYNAMENODE_OPTS="$HADOOP_SECONDARYNAMENODE_OPTS
-javaagent:/opt/hadoop/lib/jolokia-jvm-1.6.0
-agent.jar=port=7802,host=0.0.0.0 -Dcom.sun.management.jmxremote
-Dcom.sun.management.jmxremote.port=8002
-Dcom.sun.management.jmxremote.ssl=false
-Dcom.sun.management.jmxremote.password.file=$HADOOP_HOME/conf/jmxremote.p
assword"
```

You can choose a different port for JMX (8002 above) and Jolokia (7802). If you have an internal IP to lock Jolokia onto you can replace the "catch all" 0.0.0.0 by your own IP. Notice this IP needs to be accessible from the telegraf plugin. You can use the option '-Dcom.sun.management.jmxremote.authenticate=false' if you don't want to authenticate. Use at your own risk.

### DataNode

To configure the DataNodes to expose the Jolokia API, you can setup the following in <HADOOP\_HOME>/etc/hadoop/hadoop-env.sh:

```
export HADOOP_DATANODE_OPTS="$HADOOP_DATANODE_OPTS
-javaagent:/opt/hadoop/lib/jolokia-jvm-1.6.0
-agent.jar=port=7801,host=0.0.0.0 -Dcom.sun.management.jmxremote
-Dcom.sun.management.jmxremote.port=8001
-Dcom.sun.management.jmxremote.ssl=false
-Dcom.sun.management.jmxremote.password.file=$HADOOP_HOME/conf/jmxremote.p
assword"
```

You can choose a different port for JMX (8001 above) and Jolokia (7801). If you have an internal IP to lock Jolokia onto you can replace the "catch all" 0.0.0.0 by your own IP. Notice this IP needs to be accessible from the telegraf plugin. You can use the option '-Dcom.sun.management.jmxremote.authenticate=false' if you don't want to authenticate. Use at your own risk.

### ResourceManager

To configure the ResourceManager to expose the Jolokia API, you can setup the following in <HADOOP\_HOME>/etc/hadoop/hadoop-env.sh:

```
export YARN_RESOURCEMANAGER_OPTS="$YARN_RESOURCEMANAGER_OPTS
-javaagent:/opt/hadoop/lib/jolokia-jvm-1.6.0
-agent.jar=port=7803,host=0.0.0.0 -Dcom.sun.management.jmxremote
-Dcom.sun.management.jmxremote.port=8003
-Dcom.sun.management.jmxremote.ssl=false
-Dcom.sun.management.jmxremote.password.file=$HADOOP_HOME/conf/jmxremote.p
assword"
```

You can choose a different port for JMX (8003 above) and Jolokia (7803). If you have an internal IP to lock Jolokia onto you can replace the "catch all" 0.0.0.0 by your own IP. Notice this IP needs to be accessible from the telegraf plugin. You can use the option '-Dcom.sun.management.jmxremote.authenticate=false' if you don't want to authenticate. Use at your own risk.

### NodeManager

To configure the NodeManagers to expose the Jolokia API, you can setup the following in <HADOOP\_HOME>/etc/hadoop/hadoop-env.sh:

```
export YARN_NODEMANAGER_OPTS="$YARN_NODEMANAGER_OPTS
-javaagent:/opt/hadoop/lib/jolokia-jvm-1.6.0
-agent.jar=port=7804,host=0.0.0.0 -Dcom.sun.management.jmxremote
-Dcom.sun.management.jmxremote.port=8004
-Dcom.sun.management.jmxremote.ssl=false
-Dcom.sun.management.jmxremote.password.file=$HADOOP_HOME/conf/jmxremote.p
assword"
```

You can choose a different port for JMX (8004 above) and Jolokia (7804). If you have an internal IP to lock Jolokia onto you can replace the "catch all" 0.0.0.0 by your own IP. Notice this IP needs to be accessible from the telegraf plugin. You can use the option '-Dcom.sun.management.jmxremote.authenticate=false' if you don't want to authenticate. Use at your own risk.

### JobHistoryServer

To configure the JobHistoryServer to expose the Jolokia API, you can setup the following in <HADOOP\_HOME>/etc/hadoop/hadoop-env.sh:

```
export HADOOP_JOB_HISTORYSERVER_OPTS="$HADOOP_JOB_HISTORYSERVER_OPTS
-javaagent:/opt/hadoop/lib/jolokia-jvm-1.6.0
-agent.jar=port=7805,host=0.0.0.0 -Dcom.sun.management.jmxremote
-Dcom.sun.management.jmxremote.port=8005
-Dcom.sun.management.jmxremote.password.file=$HADOOP_HOME/conf/jmxremote.p
assword"
```

You can choose a different port for JMX (8005 above) and Jolokia (7805). If you have an internal IP to lock Jolokia onto you can replace the "catch all" 0.0.0.0 by your own IP. Notice this IP needs to be accessible from the telegraf plugin. You can use the option '-Dcom.sun.management.jmxremote.authenticate=false' if you don't want to authenticate. Use at your own risk.

## Objects and Counters

The following objects and their counters are collected:

| Object:                      | Identifiers:                   | Attributes:                                     | Datapoints:  |
|------------------------------|--------------------------------|---|--|
| Hadoop Secondary<br>NameNode | Cluster<br>Namespace<br>Server | Node Name<br>Node IP<br>Compile Info<br>Version | GC Count<br>GC Copies Count<br>GC Marks Sweep<br>Compact Count<br>GC Number Info<br>Threshold Exceeded<br>GC Number Warning<br>Threshold Exceeded<br>GC Time<br>GC Copy Time<br>GC Marks Sweep<br>Compact Time<br>GC Total Extra Sleep Time<br>Logs Error Count<br>Logs Fatal Count<br>Logs Info Count<br>Logs Warn Count<br>Memory Heap Committed<br>Memory Heap Max<br>Memory Heap Used<br>Memory Max<br>Memory Non Heap<br>Committed<br>Memory Non Heap Max<br>Memory Non Heap Used<br>Threads Blocked<br>Threads New<br>Threads Runnable<br>Threads Terminated<br>Threads Timed Waiting<br>Threads Waiting |



| Object:            | Identifiers:                   | Attributes:          | Datapoints:  |
|--------------------|--------------------------------|----------------------|--|
| Hadoop NodeManager | Cluster<br>Namespace<br>Server | Node Name<br>Node IP | Containers Allocated<br>Memory Allocate<br>Memory Allocated<br>Opportunistic<br>Virtual Cores Allocated<br>Opportunistic<br>Virtual Cores Allocated<br>Memory Available<br>Virtual Cores Available<br>Directories Bad Local<br>Directories Bad Log<br>Cache Size Before Clean<br>Container Launch<br>Duration Avg Time<br>Container Launch<br>Duration Number Of<br>Operations<br>Containers Completed<br>Containers Failed<br>Containers Initiating<br>Containers Killed<br>Containers Launched<br>Containers Reinitiating<br>Containers Rolled Back<br>on Failure<br>Containers Running<br>Disk Utilization Good<br>Local Directories<br>Disk Utilization Good Log<br>Directories<br>Bytes Deleted Private<br>Bytes Deleted Public<br>Containers Running<br>Opportunistic<br>Bytes Deleted Total<br>Shuffle Connections<br>Shuffle Output Bytes<br>Shuffle Outputs Failed<br>Shuffle Outputs Ok<br>GC Count<br>GC Copies Count<br>GC Marks Sweep<br>Compact Count<br>GC Number Info<br>Threshold Exceeded<br>GC Number Warning<br>Threshold Exceeded<br>GC Time<br>GC Copy Time<br>GC Marks Sweep<br>Compact Time<br>GC Total Extra Sleep Time<br>Logs Error Count<br>Logs Fatal Count |

| Object:                   | Identifiers:                   | Attributes:          | Datapoints:  |
|---------------------------|--------------------------------|----------------------|--|
| Hadoop<br>ResourceManager | Cluster<br>Namespace<br>Server | Node Name<br>Node IP | ApplicationMaster Launch<br>Delay Avg<br>ApplicationMaster Launch<br>Delay Number<br>ApplicationMaster<br>Register Delay Avg<br>ApplicationMaster<br>Register Delay Number<br>NodeManager Active<br>Number<br>NodeManager<br>Decomissioned Number<br>NodeManager<br>Decomissioning Number<br>NodeManager Lost<br>Number<br>NodeManager Rebooted<br>Number<br>NodeManager Shutdown<br>Number<br>NodeManager Healthy<br>Number<br>NodeManager Memory<br>Limit<br>NodeManager Virtual<br>Cores Limit<br>Used Capacity<br>Active Applications<br>Active Users<br>Aggregate Containers<br>Allocated<br>Aggregate Containers<br>Preempted<br>Aggregate Containers<br>Released<br>Aggregate Memory<br>Seconds Preempted<br>Aggregate Node Local<br>Containers Allocated<br>Aggregate Off Switch<br>Containers Allocated<br>Aggregate Ack Local<br>Containers Allocated<br>Aggregate Virtual Cores<br>Seconds Preempted<br>Containers Allocated<br>Memory Allocated<br>Virtual Cores Allocated<br>Application Attempt First<br>Container Allocation Delay<br>Avg Time<br>Application Attempt First<br>Container Allocation Delay<br>Number |

| Object:         | Identifiers:                   | Attributes:                                   | Datapoints:   |
|-----------------|--------------------------------|---|---|
| Hadoop DataNode | Cluster<br>Namespace<br>Server | Node Name<br>Node IP<br>Cluster ID<br>Version | Transceiver Count<br>Transmits in Progress<br>Cache Capacity<br>Cache Used<br>Capacity<br>DFS Used<br>Estimated Capacity Lost<br>Total<br>Last Volume Failure Rate<br>Blocks Number Cached<br>Blocks Number Failed to<br>Cache<br>Blocks Number Failed to<br>Uncache<br>Volumes Number Failed<br>Capacity Remaining<br>GC Count<br>GC Copies Count<br>GC Marks Sweep<br>Compact Count<br>GC Number Info<br>Threshold Exceeded<br>GC Number Warning<br>Threshold Exceeded<br>GC Time<br>GC Copy Time<br>GC Marks Sweep<br>Compact Time<br>GC Total Extra Sleep Time<br>Logs Error Count<br>Logs Fatal Count<br>Logs Info Count<br>Logs Warn Count<br>Memory Heap Committed<br>Memory Heap Max<br>Memory Heap Used<br>Memory Max<br>Memory Non Heap<br>Committed<br>Memory Non Heap Max<br>Memory Non Heap Used<br>Threads Blocked<br>Threads New<br>Threads Runnable<br>Threads Terminated<br>Threads Timed Waiting<br>Threads Waiting |

| Object:         | Identifiers:                   | Attributes:  | Datapoints:   |
|-----------------|--------------------------------|--|---|
| Hadoop NameNode | Cluster<br>Namespace<br>Server | Node Name<br>Node IP<br>Transaction ID Last<br>Written<br>Time Since Last Loaded<br>Edits<br>HA State<br>File System State<br>Block Pool ID<br>Cluster ID<br>Compile Info<br>Distinct Version Count<br>Version | Block Capacity<br>Blocks Total<br>Capacity Total<br>Capacity Used<br>Capacity Used Non DFS<br>Blocks Corrupt<br>Estimated Capacity Lost<br>Total<br>Blocks Excess<br>Heartbeats Expired<br>Files Total<br>File System Lock Queue<br>Length<br>Blocks Missing<br>Blocks Missing<br>Replication with Factor<br>One<br>Clients Active<br>Data Nodes Dead<br>Data Nodes<br>Decommissioning Dead<br>Data Nodes<br>Decommissioning Live<br>Data Nodes<br>Decommissioning<br>Encryption Zones Number<br>Data Nodes Entering<br>Maintenance<br>Files Under Construction<br>Data Nodes Dead in<br>Maintenance<br>Data Nodes Live in<br>Maintenance<br>Data Nodes Live<br>Storages Stale<br>Replication Pending<br>Timeouts<br>Data Node Message<br>Pending<br>Blocks Pending Deletion<br>Blocks Pending<br>Replication<br>Blocks Misreplicated<br>Postponed<br>Blocks Scheduled<br>Replication<br>Snapshots<br>Snapshottable Directories<br>Data Nodes Stale<br>Files Total<br>Load Total<br>Sync Count Total<br>Transactions Since Last<br>Checkpoint |

| Object:                 | Identifiers:                   | Attributes:          | Datapoints:  |
|-------------------------|--------------------------------|----------------------|--|
| Hadoop JobHistoryServer | Cluster<br>Namespace<br>Server | Node Name<br>Node IP | GC Count<br>GC Copies Count<br>GC Marks Sweep<br>Compact Count<br>GC Number Info<br>Threshold Exceeded<br>GC Number Warning<br>Threshold Exceeded<br>GC Time<br>GC Copy Time<br>GC Marks Sweep<br>Compact Time<br>GC Total Extra Sleep Time<br>Logs Error Count<br>Logs Fatal Count<br>Logs Info Count<br>Logs Warn Count<br>Memory Heap Committed<br>Memory Heap Max<br>Memory Heap Used<br>Memory Max<br>Memory Non Heap<br>Committed<br>Memory Non Heap Max<br>Memory Non Heap Used<br>Threads Blocked<br>Threads New<br>Threads Runnable<br>Threads Terminated<br>Threads Timed Waiting<br>Threads Waiting |

## Troubleshooting

Additional information may be found from the [Support](#) page.

## HAProxy Data Collector

Cloud Insights uses this data collector to gather metrics from HAProxy.

### Installation

1. From **Admin > Data Collectors**, click **+Data Collector**. Under **Services**, choose HAProxy.

Select the Operating System or Platform on which the Telegraf agent is installed.

2. If you haven't already installed an Agent for collection, or you wish to install an Agent for a different Operating System or Platform, click *Show Instructions* to expand the [Agent installation](#) instructions.
3. Select the Agent Access Key for use with this data collector. You can add a new Agent Access Key by clicking the **+ Agent Access Key** button. Best practice: Use a different Agent Access Key only when you

want to group data collectors, for example, by OS/Platform.

4. Follow the configuration steps to configure the data collector. The instructions vary depending on the type of Operating System or Platform you are using to collect data.



## HAProxy Configuration

Gathers HAProxy metrics.

---

### What Operating System or Platform Are You Using?

[Need Help?](#)

Ubuntu & Debian

### Select existing Agent Access Key or create a new one

Default (405fb5ec-d4cb-4404-977b-71fa931e1ad3)

+ Agent Access Key

\*Please ensure that you have a Telegraf Agent in you environment before configuring [Show Instructions](#)

### Follow Configuration Steps

[Need Help?](#)

- 1 Ensure that the HAProxy system you're going to gather metrics on has 'stats enable' option. For details refer to the following [document](#).
- 2 Copy the contents below into a new .conf file under the /etc/telegraf/telegraf.d/ directory. For example, copy the contents to the /etc/telegraf/telegraf.d/cloudinsights-haproxy.conf file.

```
# Read metrics of HAProxy, via socket or HTTP stats page
[[inputs.haproxy]]
  ## An array of address to gather stats about. Specify an ip on hostname
  ## with optional port, ie localhost, 10.10.3.33:1936, etc.
  ## Make sure you specify the complete path to the stats endpoint
  ## including the protocol, ie http://10.10.3.33:1936/haproxy?stats
```
- 3 Replace <INSERT\_HAPROXY\_ADDRESS> with the applicable HAProxy server address. Please specify a real machine address, and refrain from using a loopback address.
- 4 Replace <INSERT\_HAPROXY\_PORT> with the applicable HAProxy server port.
- 5 Modify the 'haproxy?stats' path in accordance to the HAProxy server configuration.
- 6 Modify 'username' and 'password' in accordance to the HAProxy server configuration (if credentials are required).
- 7 Modify 'Namespace' if needed for server disambiguation (to avoid name clashes).
- 8 Restart the Telegraf service.

systemctl restart telegraf

## Setup

Telegraf's plugin for HAProxy relies on HAProxy Stats enablement. This is a configuration built into HAProxy but it is not enabled out of the box. When enabled, HAProxy will expose an HTML endpoint that can be viewed on your browser or scraped for extraction of status of all HAProxy configurations.

### Compatibility:

Configuration was developed against HAProxy version 1.9.4.

### Setting Up:

To enable stats, edit your haproxy configuration file and add the the following lines after the 'defaults' section, using your own user/password and/or haproxy URL:

```
stats enable
stats auth myuser:mypassword
stats uri /haproxy?stats
```

The following is a simplified example configuration file with stats enabled:

```
global
    daemon
    maxconn 256

defaults
    mode http
    stats enable
    stats uri /haproxy?stats
    stats auth myuser:mypassword
    timeout connect 5000ms
    timeout client 50000ms
    timeout server 50000ms

frontend http-in
    bind *:80
    default_backend servers

frontend http-in9080
    bind *:9080
    default_backend servers_2

backend servers
    server server1 10.128.0.55:8080 check ssl verify none
    server server2 10.128.0.56:8080 check ssl verify none

backend servers_2
    server server3 10.128.0.57:8080 check ssl verify none
    server server4 10.128.0.58:8080 check ssl verify none
```

For complete and up to date instructions, see the [HAProxy documentation](#).

## Objects and Counters

The following objects and their counters are collected:



| Object:          | Identifiers:                  | Attributes:  | Datapoints:  |
|------------------|-------------------------------|--|--|
| HAProxy Frontend | Namespace<br>Address<br>Proxy | Node IP<br>Node Name<br>Proxy ID<br>Mode<br>Process id<br>Sessions Rate Limit<br>Server id<br>Sessions Limit<br>Status | Bytes In<br>Bytes Out<br>Cache Hits<br>Cache Lookups<br>Compression Bytes<br>Bypassed<br>Compression Bytes In<br>Compression Bytes Out<br>Compression Responses<br>Connection Rate<br>Connection Rate Max<br>Connections Total<br>Requests Denied by<br>Connection Rule<br>Requests Denied by<br>Security Concerns<br>Responses Denied by<br>Security Concerns<br>Requests Denied by<br>Session Rule<br>Requests Errors<br>Responses 1xx<br>Responses 2xx<br>Responses 3xx<br>Responses 4xx<br>Responses 5xx<br>Responses Other<br>Requests Intercepted<br>Sessions Rate<br>Sessions Rate Max<br>Requests Rate<br>Requests Rate Max<br>Requests Total<br>Sessions<br>Sessions Max<br>Sessions Total<br>Requests Rewrites |

| Object:        | Identifiers:                            | Attributes:  | Datapoints:  |
|----------------|---|--|--|
| HAProxy Server | Namespace<br>Address<br>Proxy<br>Server | Node IP<br>Node Name<br>Check Time to Finish<br>Check Fall Configuration<br>Check Health Value<br>Check Rise Configuration<br>Check Status<br>Proxy ID<br>Last Change Time<br>Last Session Time<br>Mode<br>Process id<br>Server id<br>Status<br>Weight | Active Servers<br>Backup Servers<br>Bytes In<br>Bytes Out<br>Check Downs<br>Check Fails<br>Client Aborts<br>Connections<br>Connection Average Time<br>Downtime Total<br>Denied Responses<br>Connection Errors<br>Response Errors<br>Responses 1xx<br>Responses 2xx<br>Responses 3xx<br>Responses 4xx<br>Responses 5xx<br>Responses Other<br>Server Selected Total<br>Queue Current<br>Queue Max<br>Queue Average Time<br>Sessions per Second<br>Sessions per Second Max<br>Connection Reuse<br>Response Time Average<br>Sessions<br>Sessions Max<br>Server Transfer Aborts<br>Sessions Total<br>Sessions Total Time<br>Average<br>Requests Redispatches<br>Requests Retries<br>Requests Rewrites |

| Object:         | Identifiers:                  | Attributes:  | Datapoints:  |
|-----------------|-------------------------------|--|--|
| HAProxy Backend | Namespace<br>Address<br>Proxy | Node IP<br>Node Name<br>Proxy ID<br>Last Change Time<br>Last Session Time<br>Mode<br>Process id<br>Server id<br>Sessions Limit<br>Status<br>Weight | Active Servers<br>Backup Servers<br>Bytes In<br>Bytes Out<br>Cache Hits<br>Cache Lookups<br>Check Downs<br>Client Aborts<br>Compression Bytes<br>Bypassed<br>Compression Bytes In<br>Compression Bytes Out<br>Compression Responses<br>Connections<br>Connection Average Time<br>Downtime Total<br>Requests Denied by<br>Security Concerns<br>Responses Denied by<br>Security Concerns<br>Connection Errors<br>Response Errors<br>Responses 1xx<br>Responses 2xx<br>Responses 3xx<br>Responses 4xx<br>Responses 5xx<br>Responses Other<br>Server Selected Total<br>Queue Current<br>Queue Max<br>Queue Average Time<br>Sessions per Second<br>Sessions per Second Max<br>Requests Total<br>Connection Reuse<br>Response Time Average<br>Sessions<br>Sessions Max<br>Server Transfer Aborts<br>Sessions Total<br>Sessions Total Time<br>Average<br>Requests Redispatches<br>Requests Retries<br>Requests Rewrites |

## Troubleshooting

Additional information may be found from the [Support](#) page.

# JVM Data Collector

Cloud Insights uses this data collector to gather metrics from JVM.

## Installation

1. From **Admin > Data Collectors**, click **+Data Collector**. Under **Services**, choose JVM.

Select the Operating System or Platform on which the Telegraf agent is installed.

2. If you haven't already installed an Agent for collection, or you wish to install an Agent for a different Operating System or Platform, click *Show Instructions* to expand the [Agent installation](#) instructions.
3. Select the Agent Access Key for use with this data collector. You can add a new Agent Access Key by clicking the **+ Agent Access Key** button. Best practice: Use a different Agent Access Key only when you want to group data collectors, for example, by OS/Platform.
4. Follow the configuration steps to configure the data collector. The instructions vary depending on the type of Operating System or Platform you are using to collect data.



## Java Configuration

Gathers JVM metrics.

### What Operating System or Platform Are You Using?

[Need Help?](#)

RHEL & CentOS

### Select existing Agent Access Key or create a new one

Default (405fb5ec-d4cb-4404-977b-71fa931e1ad3)

[+ Agent Access Key](#)

\*Please ensure that you have a Telegraf Agent in you environment before configuring. [Show Instructions](#)

### Follow Configuration Steps

[Need Help?](#)

- 1 Install Jolokia on your JVMs. For details refer to the following [document](#).
- 2 Copy the contents below into a new .conf file under the /etc/telegraf/telegraf.d/ directory. For example, copy the contents to the /etc/telegraf/telegraf.d/cloudinsights-jvm.conf file.

```
# Read JMX metrics through Jolokia
[[inputs.jolokia2_agent]]
  # USER-ACTION: Provide address(es) of JVM, port for jolokia, add one URL for each JVM in
  # your cluster
  # Please specify actual machine IP address, and refrain from using a loopback address (i.e.
  # 192.168.1.1 or 127.0.0.1)
```

- 3 Replace <INSERT\_JVM\_ADDRESS> with the applicable JVM address. Please specify a real machine address, and refrain from using a loopback address.
- 4 Replace <INSERT\_JOLOKIA\_PORT> with the applicable JVM jolokia port.
- 5 Modify 'Namespace' if needed for server disambiguation (to avoid name clashes).
- 6 Restart the Telegraf service.

```
systemctl restart telegraf
```

## Setup

Information may be found in [JVM documentation](#).

## Objects and Counters

The following objects and their counters are collected:



| Object: | Identifiers:     | Attributes:  | Datapoints:  |
|---------|------------------|--|--|
| JVM     | Namespace<br>JVM | OS Architecture<br>OS Name<br>OS Version<br>Runtime Specification<br>Runtime Specification<br>Vendor<br>Runtime Specification<br>Version<br>Uptime<br>Runtime VM Name<br>Runtime VM Vendor<br>Runtime VM Version<br>Node Name<br>Node IP | Class Loaded<br>Class Loaded Total<br>Class Unloaded<br>Memory Heap Committed<br>Memory Heap Init<br>Memory Heap Used Max<br>Memory Heap Used<br>Memory Non Heap<br>Committed<br>Memory Non Heap Init<br>Memory Non Heap Max<br>Memory Non Heap Used<br>Memory Objects Pending<br>Finalization<br>OS Processors Available<br>OS Committed Virtual<br>Memory Size<br>OS Free Physical Memory<br>Size<br>OS Free Swap Space<br>Size<br>OS Max File Descriptor<br>Count<br>OS Open File Descriptors<br>Count<br>OS Processor CPU Load<br>OS Processor CPU Time<br>OS System CPU Load<br>OS System Load Average<br>OS Total Physical Memory<br>Size<br>OS Total Swap Space<br>Size<br>Thread Daemon Count<br>Thread Peak Count<br>Thread Count<br>Thread Total Started<br>Count<br>Garbage Collector Copy<br>Collection Count<br>Garbage Collector Copy<br>Collection Time<br>Garbage Collector Mark-<br>sweep Collection Count<br>Garbage Collector Mark-<br>sweep Collection Time<br>Garbage Collector G1 Old<br>Generation Collection<br>Count<br>Garbage Collector G1 Old<br>Generation Collection<br>Time<br>Garbage Collector G1<br>Young Generation |

## Troubleshooting

Additional information may be found from the [Support](#) page.

# Kafka Data Collector

Cloud Insights uses this data collector to gather metrics from Kafka.

## Installation

1. From **Admin > Data Collectors**, click **+Data Collector**. Under **Services**, choose Kafka.

Select the Operating System or Platform on which the Telegraf agent is installed.

2. If you haven't already installed an Agent for collection, or you wish to install an Agent for a different Operating System or Platform, click *Show Instructions* to expand the [Agent installation](#) instructions.
3. Select the Agent Access Key for use with this data collector. You can add a new Agent Access Key by clicking the **+ Agent Access Key** button. Best practice: Use a different Agent Access Key only when you want to group data collectors, for example, by OS/Platform.
4. Follow the configuration steps to configure the data collector. The instructions vary depending on the type of Operating System or Platform you are using to collect data.





## Kafka Configuration

Gathers Kafka metrics.

### What Operating System or Platform Are You Using?

[Need Help?](#)

Windows

### Select existing Agent Access Key or create a new one

Default (405fb5ec-d4cb-4404-977b-71fa931e1ad3)

[+ Agent Access Key](#)

\*Please ensure that you have a Telegraf Agent in you environment before configuring. [Show Instructions](#)

### Follow Configuration Steps

[Need Help?](#)

- 1 Install Jolokia on your Kafka brokers. For details refer to the following [document](#).
- 2 Copy the contents below into a new .conf file under the C:\Program Files\telegraf\telegraf.d\ folder. For example, copy the contents to the C:\Program Files\telegraf\telegraf.d\cloudinsights-kafka.conf file.

```
# Read JMX metrics through Jolokia
[[inputs.jolokia2_agent]]
  ## USER-ACTION: Provide address(es) of kafka broker(s), port for jolokia, add one URL for
  ## each broker in your cluster
  ## Please specify actual machine IP address, and refrain from using a loopback address (i.e.
  ## 127.0.0.1)
```

- 3 Replace <INSERT\_KAFKA\_BROKER\_ADDRESS> with the applicable Kafka broker address. Please specify a real machine address, and refrain from using a loopback address.
- 4 Replace <INSERT\_JOLOKIA\_PORT> with the applicable Kafka broker jolokia port.
- 5 Modify 'Namespace' if needed for server disambiguation (to avoid name clashes).
- 6 Modify 'Cluster' if needed for Kafka cluster designation.
- 7 Restart the Telegraf service.

```
Stop-Service -Name telegraf -ErrorAction SilentlyContinue; Start-Service -Name telegraf
```

## Setup

The Kafka plugin is based on the telegraf's Jolokia plugin. As such as a requirement to gather info from all Kafka brokers, JMX needs to be configured and exposed via Jolokia on all components.

## Compatibility

Configuration was developed against Kafka version 0.11.0.2.

## Setting up

All the instructions below assume your install location for kafka is '/opt/kafka'. You can adapt instructions below to reflect your install location.

### Jolokia Agent Jar

A version the Jolokia agent jar file must be [downloaded](#). The version tested against was Jolokia agent 1.6.0.

Instructions below assume that the downloaded jar file (jolokia-jvm-1.6.0-agent.jar) is placed under the location '/opt/kafka/libs/'.

### Kafka Brokers

To configure Kafka Brokers to expose the Jolokia API, you can add the following in <KAFKA\_HOME>/bin/kafka-server-start.sh, just before the 'kafka-run-class.sh' call:

```
export JMX_PORT=9999
export RMI_HOSTNAME=`hostname -I`
export KAFKA_JMX_OPTS="-javaagent:/opt/kafka/libs/jolokia-jvm-1.6.0-
agent.jar=port=8778,host=0.0.0.0
-Dcom.sun.management.jmxremote.password.file=/opt/kafka/config/jmxremote.p
assword -Dcom.sun.management.jmxremote.ssl=false
-Djava.rmi.server.hostname=$RMI_HOSTNAME
-Dcom.sun.management.jmxremote.rmi.port=$JMX_PORT"
```

Note that example above is using 'hostname -I' to setup the 'RMI\_HOSTNAME' environment variable. In multiple IP machines, this will need to be tweaked to gather the IP you care about for RMI connections.

You can choose a different port for JMX (9999 above) and Jolokia (8778). If you have an internal IP to lock Jolokia onto you can replace the "catch all" 0.0.0.0 by your own IP. Notice this IP needs to be accessible from the telegraf plugin. You can use the option '-Dcom.sun.management.jmxremote.authenticate=false' if you don't want to authenticate. Use at your own risk.

## Objects and Counters

The following objects and their counters are collected:



| Object:      | Identifiers:                   | Attributes:          | Datapoints:   |
|--------------|--------------------------------|----------------------|---|
| Kafka Broker | Cluster<br>Namespace<br>Broker | Node Name<br>Node IP | Replica Manager Fetcher<br>Max Lag<br>Zookeeper Client<br>Connections<br>Zookeeper Client<br>Connections (15m rate)<br>Zookeeper Client<br>Connections (5m rate)<br>Zookeeper Client<br>Connections (mean rate)<br>Zookeeper Client<br>Connections (1m rate)<br>Replica Manager Partition<br>Count<br>Thread Count Daemon<br>Thread Count Peak<br>Thread Count Current<br>Thread Count Total<br>Started<br>Offline Partitions<br>Produce Requests Total<br>Time (50th Percentile)<br>Produce Requests Total<br>Time (75th Percentile)<br>Produce Requests Total<br>Time (95th Percentile)<br>Produce Requests Total<br>Time (98 Percentile)<br>Produce Requests Total<br>Time (999th Percentile)<br>Produce Requests Total<br>Time (99th Percentile)<br>Produce Requests Total<br>Time<br>Produce Requests Total<br>Time Max<br>Produce Requests Total<br>Time Mean<br>Produce Requests Total<br>Time Min<br>Produce Requests Total<br>Time Stddev<br>Replica Manager ISR<br>Shrinks<br>Replica Manager ISR<br>Shrinks (15m rate)<br>Replica Manager ISR<br>Shrinks (5m rate)<br>Replica Manager ISR<br>Shrinks (mean rate)<br>Replica Manager ISR<br>Shrinks (1m rate)<br>Request Handler Avg Idle<br>Request Handler Avg Idle |

## Troubleshooting

Additional information may be found from the [Support](#) page.

# Kibana Data Collector

Cloud Insights uses this data collector to gather metrics from Kibana.

## Installation

1. From **Admin > Data Collectors**, click **+Data Collector**. Under **Services**, choose Kibana.

Select the Operating System or Platform on which the Telegraf agent is installed.

2. If you haven't already installed an Agent for collection, or you wish to install an Agent for a different Operating System or Platform, click *Show Instructions* to expand the [Agent installation](#) instructions.
3. Select the Agent Access Key for use with this data collector. You can add a new Agent Access Key by clicking the **+ Agent Access Key** button. Best practice: Use a different Agent Access Key only when you want to group data collectors, for example, by OS/Platform.
4. Follow the configuration steps to configure the data collector. The instructions vary depending on the type of Operating System or Platform you are using to collect data.



## Kibana Configuration

Gathers Kibana metrics.

### What Operating System or Platform Are You Using?

[Need Help?](#)

Ubuntu & Debian

### Select existing Agent Access Key or create a new one

Default (405fb5ec-d4cb-4404-977b-71fa931e1ad3)

+ Agent Access Key

\*Please ensure that you have a Telegraf Agent in you environment before configuring. [Show Instructions](#)

### Follow Configuration Steps

[Need Help?](#)

- 1 Copy the contents below into a new `.conf` file under the `/etc/telegraf/telegraf.d/` directory. For example, copy the contents to the `/etc/telegraf/telegraf.d/cloudinsights-kibana.conf` file.

```
[[inputs.kibana]]
  ## specify a list of one or more Kibana servers
  ## USER-ACTION: Provide address of kibana server(s), port(s) for kibana server
  ## Please specify actual machine IP address, and refrain from using a loopback address (i.e.
  localhost or 127.0.0.1).
```

- 2 Replace `<INSERT_KIBANA_ADDRESS>` with the applicable Kibana server address. Please specify a real machine address, and refrain from using a loopback address.
- 3 Replace `<INSERT_KIBANA_PORT>` with the applicable Kibana server port.
- 4 Replace 'username' and 'password' with the applicable Kibana server authentication credentials as needed, and uncomment the lines.
- 5 Modify 'Namespace' if needed for server disambiguation (to avoid name clashes).
- 6 Restart the Telegraf service.

```
systemctl restart telegraf
```

## Setup

Information may be found in the [Kibana documentation](#).

## Objects and Counters

The following objects and their counters are collected:

| Object: | Identifiers:         | Attributes:                               | Datapoints:  |
|---------|----------------------|---|--|
| Kibana  | Namespace<br>Address | Node IP<br>Node Name<br>Version<br>Status | Concurrent Connections<br>Heap Max<br>Heap Used<br>Requests per Second<br>Response Time Average<br>Response Time Max<br>Uptime |

## Troubleshooting

Additional information may be found from the [Support](#) page.

## Memcached Data Collector

Cloud Insights uses this data collector to gather metrics from Memcached.

### Installation

1. From **Admin > Data Collectors**, click **+Data Collector**. Under **Services**, choose Memcached.

Select the Operating System or Platform on which the Telegraf agent is installed.

2. If you haven't already installed an Agent for collection, or you wish to install an Agent for a different Operating System or Platform, click *Show Instructions* to expand the [Agent installation](#) instructions.
3. Select the Agent Access Key for use with this data collector. You can add a new Agent Access Key by clicking the **+ Agent Access Key** button. Best practice: Use a different Agent Access Key only when you want to group data collectors, for example, by OS/Platform.
4. Follow the configuration steps to configure the data collector. The instructions vary depending on the type of Operating System or Platform you are using to collect data.



## Memcached Configuration

Gathers Memcached metrics.

### What Operating System or Platform Are You Using?

[Need Help?](#)

Windows

### Select existing Agent Access Key or create a new one

Default (405fb5ec-d4cb-4404-977b-71fa931e1ad3)

+ Agent Access Key

\*Please ensure that you have a Telegraf Agent in you environment before configuring. [Show Instructions](#)

### Follow Configuration Steps

[Need Help?](#)

- 1 Copy the contents below into a new .conf file under the C:\Program Files\telegraf\telegraf.d\ folder. For example, copy the contents to the C:\Program Files\telegraf\telegraf.d\cloudinsights-memcached.conf file.

```
[[inputs.memcached]]
  ## USER-ACTION: Provide comma-separated list of Memcached IP(s) and port(s).
  ## Please specify actual machine IP address, and refrain from using a loopback address
  (i.e. localhost or 127.0.0.1).
  ## When configuring with multiple Memcached servers, enter them in the format ["server1"
```

- 2 Replace <INSERT\_MEMCACHED\_ADDRESS> with the applicable Memcached server address. Please specify a real machine address, and refrain from using a loopback address.
- 3 Replace <INSERT\_MEMCACHED\_PORT> with the applicable Memcached server port.
- 4 Restart the Telegraf service.

```
Stop-Service -Name telegraf -ErrorAction SilentlyContinue; Start-Service -Name telegraf
```

## Setup

Information may be found in the [Memcached wiki](#).

## Objects and Counters

The following objects and their counters are collected:



| Object:   | Identifiers:        | Attributes:          | Datapoints:   |
|-----------|---------------------|----------------------|---|
| Memcached | Namespace<br>Server | Node IP<br>Node Name | Accepting Connections<br>Handled Authentication Requests<br>Failed Authentications<br>Bytes Used<br>Bytes Read (per sec)<br>Bytes Written (per sec)<br>CAS Badval<br>CAS Hits<br>CAS Misses<br>Flush Reqs (per sec)<br>Get Reqs (per sec)<br>Set Reqs (per sec)<br>Touch Reqs (per sec)<br>Connection Yields (per sec)<br>Connection Structures<br>Open Connections<br>Current Stored Items<br>Decr Requests Hits (per sec)<br>Decr Requests Misses (per sec)<br>Delete Requests Hits (per sec)<br>Delete Requests Misses (per sec)<br>Items Evicted<br>Valid Evictions<br>Expired Items<br>Get Hits (per sec)<br>Get Misses (per sec)<br>Used Hash Bytes<br>Hash Is Expanding<br>Hash Power Level<br>Incr Requests Hits (per sec)<br>Incr Requests Misses (per sec)<br>Server Max Bytes<br>Listen Disabled Num<br>Reclaimed<br>Worker Threads Count<br>Total Opened Connections<br>Total Items Stored<br>Touch Hits<br>Touch Misses<br>Server Uptime |

## Troubleshooting

Additional information may be found from the [Support](#) page.

# MongoDB Data Collector

Cloud Insights uses this data collector to gather metrics from MongoDB.

## Installation

1. From **Admin > Data Collectors**, click **+Data Collector**. Under **Services**, choose MongoDB.

Select the Operating System or Platform on which the Telegraf agent is installed.

2. If you haven't already installed an Agent for collection, or you wish to install an Agent for a different Operating System or Platform, click *Show Instructions* to expand the [Agent installation](#) instructions.
3. Select the Agent Access Key for use with this data collector. You can add a new Agent Access Key by clicking the **+ Agent Access Key** button. Best practice: Use a different Agent Access Key only when you want to group data collectors, for example, by OS/Platform.
4. Follow the configuration steps to configure the data collector. The instructions vary depending on the type of Operating System or Platform you are using to collect data.



## MongoDB Configuration

Gathers MongoDB metrics.

### What Operating System or Platform Are You Using?

[Need Help?](#)

 RHEL & CentOS

### Select existing Agent Access Key or create a new one

Default (405fb5ec-d4cb-4404-977b-71fa931e1ad3)

[+ Agent Access Key](#)

\*Please ensure that you have a Telegraf Agent in your environment before configuring. [Show Instructions](#)

### Follow Configuration Steps

[Need Help?](#)

- 1 Open mongod.conf. Locate the line beginning with "bindIp", and append the address of the node on which the Telegraf agent resides. After saving the change, restart the MongoDB server.
- 2 Copy the contents below into a new .conf file under the /etc/telegraf/telegraf.d/ directory. For example, copy the contents to the /etc/telegraf/telegraf.d/cloudinsights-mongodb.conf file.

```
[[inputs.mongodb]]
  ## An array of URLs of the form:
  ## "mongodb://" [user ":" pass "@"] host [ ":" port]
  ## For example:
  ## mongodb://user:auth_key@10.10.3.30:27017,
  ## mongodb://10.10.3.30:27017
```

- 3 Replace <INSERT\_MONGODB\_ADDRESS> with the applicable MongoDB server address. Please specify a real machine address, and refrain from using a loopback address.
- 4 Replace <INSERT\_MONGODB\_PORT> with the applicable MongoDB port.
- 5 Restart the Telegraf service.

```
systemctl restart telegraf
```

## Setup

Information may be found in the [MongoDB documentation](#).

## Objects and Counters

The following objects and their counters are collected:

| Object:          | Identifiers:                           | Attributes: | Datapoints: |
|------------------|--|-------------|-------------|
| MongoDB          | Namespace<br>Hostname                  |             |             |
| MongoDB Database | Namespace<br>Hostname<br>Database name |             |             |

## Troubleshooting

Information may be found from the [Support](#) page.

## MySQL Data Collector

Cloud Insights uses this data collector to gather metrics from MySQL.

### Installation

1. From **Admin > Data Collectors**, click **+Data Collector**. Under **Services**, choose MySQL.

Select the Operating System or Platform on which the Telegraf agent is installed.

2. If you haven't already installed an Agent for collection, or you wish to install an Agent for a different Operating System or Platform, click *Show Instructions* to expand the [Agent installation](#) instructions.
3. Select the Agent Access Key for use with this data collector. You can add a new Agent Access Key by clicking the **+ Agent Access Key** button. Best practice: Use a different Agent Access Key only when you want to group data collectors, for example, by OS/Platform.
4. Follow the configuration steps to configure the data collector. The instructions vary depending on the type of Operating System or Platform you are using to collect data.



## MySQL Configuration

Gathers MySQL metrics.

### What Operating System or Platform Are You Using?

[Need Help?](#)

Windows

### Select existing Agent Access Key or create a new one

Default (405fb5ec-d4cb-4404-977b-71fa931e1ad3)

+ Agent Access Key

\*Please ensure that you have a Telegraf Agent in you environment before configuring. [Show Instructions](#)

### Follow Configuration Steps

[Need Help?](#)

- 1 Copy the contents below into a new .conf file under the C:\Program Files\telegraf\telegraf.d\ folder. For example, copy the contents to the C:\Program Files\telegraf\telegraf.d\cloudinsights-mysql.conf file.

```
[[inputs.mysql]]
  ## USER-ACTION: Provide comma-separated list of mysql credentials, IP(s), and port(s)
  ## e.g. servers = ["user:passwd@tcp(127.0.0.1:3306)?tls=false"]
  ## Please specify actual machine IP address, and refrain from using a loopback address
  (i.e. localhost or 127.0.0.1).
```

- 2 Review and verify the contents of the configuration file.
- 3 Replace <INSERT\_USERNAME> and <INSERT\_PASSWORD> with the applicable MySQL credentials.
- 4 Replace <INSERT\_PROTOCOL> with the applicable MySQL connection protocol. The typical protocol is tcp.
- 5 Replace <INSERT\_MYSQL\_ADDRESS> with the applicable MySQL server address. Please specify a real machine address, and refrain from using a loopback address.
- 6 Replace <INSERT\_MYSQL\_PORT> with the applicable MySQL server port. The typical port is 3306.
- 7 Modify the 'tls' parameter in accordance to the MySQL server configuration.
- 8 Restart the Telegraf service.

```
Stop-Service -Name telegraf -ErrorAction SilentlyContinue; Start-Service -Name telegraf
```

## Setup

Information may be found in the [MySQL documentation](#).

## Objects and Counters

The following objects and their counters are collected:



| Object: | Identifiers:              | Attributes:          | Datapoints:  |
|---------|---------------------------|----------------------|--|
| MySQL   | Namespace<br>MySQL Server | Node IP<br>Node Name | Aborted Clients (per sec)<br>Aborted Connects (per sec)<br>RX Bytes (per sec)<br>TX Bytes (per sec)<br>Commands Admin (per sec)<br>Commands Alter Event<br>Commands Alter Function<br>Commands Alter Instance<br>Commands Alter Procedure<br>Commands Alter Server<br>Commands Alter Table<br>Commands Alter Tablespace<br>Commands Alter User<br>Commands Analyze<br>Commands Assign To Keycache<br>Commands Begin<br>Commands Binlog<br>Commands Call Procedure<br>Commands Change DB<br>Commands Change Master<br>Commands Change Repl Filter<br>Commands Check<br>Commands Checksum<br>Commands Commit<br>Commands Create DB<br>Commands Create Event<br>Commands Create Function<br>Commands Create Index<br>Commands Create Procedure<br>Commands Create Server<br>Commands Create Table<br>Commands Create Trigger<br>Commands Create UDF<br>Commands Create User<br>Commands Create View<br>Commands Dealloc SQL<br>Connection Errors Accept<br>Created Tmp Disk Tables<br>Delayed Errors<br>Flush Commands<br>Handler Commit<br>Innodb Buffer Pool Bytes Data<br>Key Blocks Not Flushed |



## Troubleshooting

Additional information may be found from the [Support](#) page.

# Netstat Data Collector

Cloud Insights uses this data collector to gather Netstat metrics.

## Installation

1. From **Admin > Data Collectors**, click **+Data Collector**. Under **Services**, choose Netstat.

Select the Operating System or Platform on which the Telegraf agent is installed.

2. If you haven't already installed an Agent for collection, or you wish to install an Agent for a different Operating System or Platform, click *Show Instructions* to expand the [Agent installation](#) instructions.
3. Select the Agent Access Key for use with this data collector. You can add a new Agent Access Key by clicking the **+ Agent Access Key** button. Best practice: Use a different Agent Access Key only when you want to group data collectors, for example, by OS/Platform.
4. Follow the configuration steps to configure the data collector. The instructions vary depending on the type of Operating System or Platform you are using to collect data.

## Netstat Configuration

Gathers netstat metrics of the host where telegraf agent is installed.

---

### What Operating System or Platform Are You Using?

[Need Help?](#)

Windows

### Select existing Agent Access Key or create a new one

Default (405fb5ec-d4cb-4404-977b-71fa931e1ad3)
+ Agent Access Key

\*Please ensure that you have a Telegraf Agent in you environment before configuring [Show Instructions](#)

### Follow Configuration Steps

[Need Help?](#)

- Copy the contents below into a new .conf file under the C:\Program Files\telegraf\telegraf.d\ folder. For example, copy the contents to the C:\Program Files\telegraf\telegraf.d\cloudinsights-netstat.conf file.

```
# Read TCP metrics such as established, time wait and sockets counts.
[[inputs.netstat]]
# no configuration
[inputs.netstat.tags]
  CloudInsights = "true"
```
- Restart the Telegraf service.

```
Stop-Service -Name telegraf -ErrorAction SilentlyContinue; Start-Service -Name telegraf
```

## Setup

### Objects and Counters

The following objects and their counters are collected:

| Object: | Identifiers: | Attributes:          | Datapoints: |
|---------|--------------|----------------------|-------------|
| Netstat | Node UUID    | Node IP<br>Node Name |             |

### Troubleshooting

Additional information may be found from the [Support](#) page.

## Nginx Data Collector

Cloud Insights uses this data collector to gather metrics from Nginx.

## Installation

1. From **Admin > Data Collectors**, click **+Data Collector**. Under **Services**, choose Nginx.

Select the Operating System or Platform on which the Telegraf agent is installed.

2. If you haven't already installed an Agent for collection, or you wish to install an Agent for a different Operating System or Platform, click *Show Instructions* to expand the [Agent installation](#) instructions.
3. Select the Agent Access Key for use with this data collector. You can add a new Agent Access Key by clicking the **+ Agent Access Key** button. Best practice: Use a different Agent Access Key only when you want to group data collectors, for example, by OS/Platform.
4. Follow the configuration steps to configure the data collector. The instructions vary depending on the type of Operating System or Platform you are using to collect data.



**Nginx Configuration**  
Gathers Nginx metrics.

---

**What Operating System or Platform Are You Using?**[Need Help?](#)

Ubuntu & Debian

**Select existing Agent Access Key or create a new one**

Default (405fb5ec-d4cb-4404-977b-71fa931e1ad3)

**+ Agent Access Key**

\*Please ensure that you have a Telegraf Agent in you environment before configuring [Show Instructions](#)

## Follow Configuration Steps

[Need Help?](#)

- 1 If you already have a URL enabled to provide Nginx metrics, go directly to the plugin configuration.
- 2 Nginx metrics are available through a status page when the HTTP stub status module is enabled. Refer to the below link for verifying/enabling `http_stub_status_module`.

```
http://nginx.org/en/docs/http/nginx_http_stub_status_module.html
```

- 3 After verifying the module is enabled, modify the Nginx configuration to set up a locally-accessible URL for the status page:

```
server {  
    listen    <PORT NUMBER>;  
    Please specify actual machine IP address, and refrain from using a loopback address (i.e.  
    localhost or 127.0.0.1)  
    server_name <IP ADDRESS>;  
    location /nginx_status {  
        stub_status on;  
    }  
}
```

- 4 Reload the configuration:

```
nginx -s reload
```

- 5 Copy the contents below into a new `.conf` file under the `/etc/telegraf/telegraf.d/` directory. For example, copy the contents to the `/etc/telegraf/telegraf.d/cloudinsights-nginx.conf` file.

```
[[inputs.nginx]]  
  ## USER-ACTION: Provide Nginx status url  
  ## Please specify actual machine IP address where nginx_status is enabled, and refrain from  
  using a loopback address (i.e. localhost or 127.0.0.1).  
  ## When configuring with multiple Nginx servers, enter them in the format ["url1", "url2",  
  "url3"]
```

- 6 Replace `<INSERT_NGINX_ADDRESS>` with the applicable Nginx address. Please specify a real machine address, and refrain from using a loopback address.
- 7 Replace `<INSERT_NGINX_PORT>` with the applicable Nginx port.
- 8 Restart the Telegraf service.

```
systemctl restart telegraf
```

## Setup

Nginx metric collection requires that Nginx [http\\_stub\\_status\\_module](#) be enabled.

Additional information may be found in the [Nginx documentation](#).

## Objects and Counters

The following objects and their counters are collected:

| Object: | Identifiers:        | Attributes:                  | Datapoints:   |
|---------|---------------------|------------------------------|---|
| Nginx   | Namespace<br>Server | Node IP<br>Node Name<br>Port | Accepts<br>Active<br>Handled<br>Reading<br>Requests<br>Waiting<br>Writing |

## Troubleshooting

Additional information may be found from the [Support](#) page.

# PostgreSQL Data Collector

Cloud Insights uses this data collector to gather metrics from PostgreSQL.

## Installation

1. From **Admin > Data Collectors**, click **+Data Collector**. Under **Services**, choose PostgreSQL.

Select the Operating System or Platform on which the Telegraf agent is installed.

2. If you haven't already installed an Agent for collection, or you wish to install an Agent for a different Operating System or Platform, click *Show Instructions* to expand the [Agent installation](#) instructions.
3. Select the Agent Access Key for use with this data collector. You can add a new Agent Access Key by clicking the **+ Agent Access Key** button. Best practice: Use a different Agent Access Key only when you want to group data collectors, for example, by OS/Platform.
4. Follow the configuration steps to configure the data collector. The instructions vary depending on the type of Operating System or Platform you are using to collect data.



## PostgreSQL Configuration

Gathers PostgreSQL metrics.

### What Operating System or Platform Are You Using?

[Need Help?](#)

RHEL & CentOS

### Select existing Agent Access Key or create a new one

Default (405fb5ec-d4cb-4404-977b-71fa931e1ad3)

[+ Agent Access Key](#)

\*Please ensure that you have a Telegraf Agent in you environment before configuring [Show Instructions](#)

### Follow Configuration Steps

[Need Help?](#)

- 1 Copy the contents below into a new .conf file under the /etc/telegraf/telegraf.d/ directory. For example, copy the contents to the /etc/telegraf/telegraf.d/cloudinsights-postgresql.conf file.

```
[[inputs.postgresql]]
# USER-ACTION: Provide credentials for access, address of PostgreSQL server, port for
PostgreSQL server, one DB for access
address = "postgres://<INSERT_USERNAME>:<INSERT_PASSWORD>@<INSERT_POSTGRESQL_ADDRESS>:
<INSERT_POSTGRESQL_PORT>/<INSERT_DB>"
```

- 2 Replace <INSERT\_USERNAME> and <INSERT\_PASSWORD> with the applicable PostgreSQL credentials.
- 3 Replace <INSERT\_POSTGRESQL\_ADDRESS> with the applicable PostgreSQL address. Please specify a real machine address, and refrain from using a loopback address.
- 4 Replace <INSERT\_POSTGRESQL\_PORT> with the applicable PostgreSQL port.
- 5 Replace <INSERT\_DB> with the applicable PostgreSQL database.
- 6 Modify 'Namespace' if needed for server disambiguation (to avoid name clashes).
- 7 Restart the Telegraf service.

```
systemctl restart telegraf
```

## Setup

Information may be found in the [PostgreSQL documentation](#).

## Objects and Counters

The following objects and their counters are collected:

| Object:             | Identifiers:                    | Attributes:                          | Datapoints:   |
|---------------------|---------------------------------|--------------------------------------|---|
| PostgreSQL Server   | Namespace<br>Database<br>Server | Node Name<br>Node IP                 | Buffers Allocated<br>Buffers Backend<br>Buffers Backend File Sync<br>Buffers Checkpoint<br>Buffers Clean<br>Checkpoints Sync Time<br>Checkpoints Write Time<br>Checkpoints Requests<br>Checkpoints Timed<br>Max Written Clean   |
| PostgreSQL Database | Namespace<br>Database<br>Server | Database OID<br>Node Name<br>Node IP | Blocks Read Time<br>Blocks Write Time<br>Blocks Hits<br>Blocks Reads<br>Conflicts<br>Deadlocks<br>Client Number<br>Temp Files Bytes<br>Temp Files Number<br>Rows Deleted<br>Rows Fetched<br>Rows Inserted<br>Rows Returned<br>Rows Updated<br>Transactions Committed<br>Transactions Rolledback |

## Troubleshooting

Additional information may be found from the [Support](#) page.

# Puppet Agent Data Collector

Cloud Insights uses this data collector to gather metrics from Puppet Agent.

## Installation

1. From **Admin > Data Collectors**, click **+Data Collector**. Under **Services**, choose Puppet.

Select the Operating System or Platform on which the Telegraf agent is installed.

2. If you haven't already installed an Agent for collection, or you wish to install an Agent for a different Operating System or Platform, click *Show Instructions* to expand the [Agent installation](#) instructions.
3. Select the Agent Access Key for use with this data collector. You can add a new Agent Access Key by clicking the **+ Agent Access Key** button. Best practice: Use a different Agent Access Key only when you want to group data collectors, for example, by OS/Platform.
4. Follow the configuration steps to configure the data collector. The instructions vary depending on the type of Operating System or Platform you are using to collect data.





## Puppet Agent Configuration

Gathers Puppet agent metrics.

### What Operating System or Platform Are You Using?

[Need Help?](#)

Windows

### Select existing Agent Access Key or create a new one

Default (405fb5ec-d4cb-4404-977b-71fa931e1ad3)

+ Agent Access Key

\*Please ensure that you have a Telegraf Agent in you environment before configuring [Show Instructions](#)

### Follow Configuration Steps

[Need Help?](#)

- 1 Copy the contents below into a new .conf file under the C:\Program Files\telegraf\telegraf.d\ folder. For example, copy the contents to the C:\Program Files\telegraf\telegraf.d\cloudinsights-puppetagent.conf file.

```
## Reads last_run_summary.yaml file and converts to measurements
[[inputs.puppetagent]]
  ## Location of puppet last run summary file
  ## USER-ACTION: Modify the location if last_run_summary.yaml is on different path
  location = "/var/lib/puppet/state/last_run_summary.yaml"
```

- 2 Modify 'location' if last\_run\_summary.yaml is on different path
- 3 Modify 'Namespace' if needed for puppet agent disambiguation (to avoid name clashes).
- 4 Restart the Telegraf service.

```
Stop-Service -Name telegraf -ErrorAction SilentlyContinue; Start-Service -Name telegraf
```

## Setup

Information may be found in the [Puppet documentation](#)

## Objects and Counters

The following objects and their counters are collected:

| Object: | Identifiers: | Attributes: | Datapoints: |
|---------|--------------|-------------|-------------|
|---------|--------------|-------------|-------------|



|              |                        |  |  |
|--------------|------------------------|--|--|
| Puppet Agent | Namespace<br>Node UUID | Node Name<br>Location<br>Node IP<br>Version Configstring<br>Version Puppet | Changes Total<br>Events Failure<br>Events Success<br>Events Total<br>Resources Changed<br>Resources Failed<br>Resources Failed To Restart<br>Resources Outofsync<br>Resources Restarted<br>Resources Scheduled<br>Resources Skipped<br>Resources Total<br>Time Anchor<br>Time Configretrieval<br>Time Cron<br>Time Exec<br>Time File<br>Time Filebucket<br>Time Lastrun<br>Time Package<br>Time Schedule<br>Time Service<br>Time Sshauthorizedkey<br>Time Total<br>Time User |
|--------------|------------------------|--|--|

## Troubleshooting

Additional information may be found from the [Support](#) page.

## Redis Data Collector

Cloud Insights uses this data collector to gather metrics from Redis. Redis is an open source, in-memory data structure store used as a database, cache, and message broker, supporting the following data structures: strings, hashes, lists, sets, and more.

### Installation

1. From **Admin > Data Collectors**, click **+Data Collector**. Under **Services**, choose Redis.

Select the Operating System or Platform on which the Telegraf agent is installed.

2. If you haven't already installed an Agent for collection, or you wish to install an Agent for a different Operating System or Platform, click *Show Instructions* to expand the [Agent installation](#) instructions.
3. Select the Agent Access Key for use with this data collector. You can add a new Agent Access Key by clicking the **+ Agent Access Key** button. Best practice: Use a different Agent Access Key only when you want to group data collectors, for example, by OS/Platform.
4. Follow the configuration steps to configure the data collector. The instructions vary depending on the type of Operating System or Platform you are using to collect data.



## Redis Configuration

Gathers Redis metrics.

### What Operating System or Platform Are You Using?

[Need Help?](#)

Windows

### Select existing Agent Access Key or create a new one

Default (405fb5ec-d4cb-4404-977b-71fa931e1ad3)

+ Agent Access Key

\*Please ensure that you have a Telegraf Agent in you environment before configuring. [Show Instructions](#)

### Follow Configuration Steps

[Need Help?](#)

- 1 Configure Redis to accept connections from the address of the node on which the Telegraf agent resides. Open the Redis configuration file.

```
vi /etc/redis.conf
```

- 2 Locate the line that begins with 'bind 127.0.0.1', and append the address of the node on which the Telegraf agent resides

```
bind 127.0.0.1 <NODE_IP_ADDRESS>
```

- 3 Copy the contents below into a new .conf file under the C:\Program Files\telegraf\telegraf.d\ folder. For example, copy the contents to the C:\Program Files\telegraf\telegraf.d\cloudinsights-redis.conf file.

```
# Read metrics from one or many redis servers
[[inputs.redis]]
  ## specify servers via a url matching:
  ## [protocol://][:password]@address[:port]
  ## e.g.
  ## http://username:password@127.0.0.1:6379
```

- 4 Replace <INSERT\_REDIS\_ADDRESS> with the applicable Redis address. Please specify a real machine address, and refrain from using a loopback address.

- 5 Replace <INSERT\_REDIS\_PORT> with the applicable Redis port.

- 6 Restart the Telegraf service.

```
Stop-Service -Name telegraf -ErrorAction SilentlyContinue; Start-Service -Name telegraf
```

## Setup

Information may be found in the [Redis documentation](#).

## Objects and Counters

The following objects and their counters are collected:

| Object: | Identifiers:        | Attributes: | Datapoints: |
|---------|---------------------|-------------|-------------|
| Redis   | Namespace<br>Server |             |             |

## Troubleshooting

Additional information may be found from the [Support](#) page.

## Copyright information

Copyright © 2022 NetApp, Inc. All Rights Reserved. Printed in the U.S. No part of this document covered by copyright may be reproduced in any form or by any means—graphic, electronic, or mechanical, including photocopying, recording, taping, or storage in an electronic retrieval system—without prior written permission of the copyright owner.

Software derived from copyrighted NetApp material is subject to the following license and disclaimer:

THIS SOFTWARE IS PROVIDED BY NETAPP “AS IS” AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL NETAPP BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

NetApp reserves the right to change any products described herein at any time, and without notice. NetApp assumes no responsibility or liability arising from the use of products described herein, except as expressly agreed to in writing by NetApp. The use or purchase of this product does not convey a license under any patent rights, trademark rights, or any other intellectual property rights of NetApp.

The product described in this manual may be protected by one or more U.S. patents, foreign patents, or pending applications.

LIMITED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (b)(3) of the Rights in Technical Data -Noncommercial Items at DFARS 252.227-7013 (FEB 2014) and FAR 52.227-19 (DEC 2007).

Data contained herein pertains to a commercial product and/or commercial service (as defined in FAR 2.101) and is proprietary to NetApp, Inc. All NetApp technical data and computer software provided under this Agreement is commercial in nature and developed solely at private expense. The U.S. Government has a non-exclusive, non-transferrable, nonsublicensable, worldwide, limited irrevocable license to use the Data only in connection with and in support of the U.S. Government contract under which the Data was delivered. Except as provided herein, the Data may not be used, disclosed, reproduced, modified, performed, or displayed without the prior written approval of NetApp, Inc. United States Government license rights for the Department of Defense are limited to those rights identified in DFARS clause 252.227-7015(b) (FEB 2014).

## Trademark information

NETAPP, the NETAPP logo, and the marks listed at <http://www.netapp.com/TM> are trademarks of NetApp, Inc. Other company and product names may be trademarks of their respective owners.