



COLLECTD INSTALLATION

CAN 7.0



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REVISION HISTORY

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Collectd and Graphite Installation

1. Collectd

1.1 Introduction

Collectd gathers metrics from various sources, e.g. the operating system, applications, log files and external devices, and stores this information or makes it available over the network. These statistics can be used to monitor systems, find performance bottlenecks (*performance analysis*) and predict future system load (*capacity planning*).

Collectd is a modular daemon. It offers limited functionality at its core and does not provide much value. Plug-ins add value to collectd and enable it to collect and send data. There are more than 100 open-source plug-ins capable of extending collectd's functionality for numerous use cases.

- **Read plug-ins:** These plug-ins enable collectd to gather a wide range of metrics.
- **Write plug-ins:** These plug-ins help write data gathered by collectd to RRD and CSV files and send data to another instance of the collectd daemon or other applications. The RRD tool, Write Graphite, and Write HTTP plug-ins are examples of write plug-ins.

1.2. Installation (RHEL)

```
$ sudo yum install epel-release
```

```
$ sudo yum install collectd
```

```
$ sudo systemctl start collectd.service
```

```
$ sudo systemctl status collectd.service
```

```
ec2-user@ip-172-31-25-155 ~$ sudo systemctl status collectd
collectd.service - Collectd statistics daemon
Loaded: loaded (/usr/lib/systemd/system/collectd.service; enabled; vendor preset: disabled)
Active: active (running) since Wed 2023-08-02 02:30:37 UTC; 6h ago
Docs: man:collectd(1)
      man:collectd.conf(5)
Main PID: 1049 (collectd)
Tasks: 11 (limit: 48739)
Memory: 1.7M
CGroup: /system.slice/collectd.service
└─1049 /usr/sbin/collectd

Aug 02 02:30:37 ip-172-31-25-155.ap-south-1.compute.internal collectd[1049]: plugin_load: plugin "load" successfully loaded.
Aug 02 02:30:37 ip-172-31-25-155.ap-south-1.compute.internal collectd[1049]: plugin_load: plugin "memory" successfully loaded.
Aug 02 02:30:37 ip-172-31-25-155.ap-south-1.compute.internal collectd[1049]: plugin_load: plugin "write_graphite" successfully loaded.
Aug 02 02:30:37 ip-172-31-25-155.ap-south-1.compute.internal collectd[1049]: Systemd detected, trying to signal readiness.
Aug 02 02:30:37 ip-172-31-25-155.ap-south-1.compute.internal systemd[1]: Started Collectd statistics daemon.
Aug 02 02:30:37 ip-172-31-25-155.ap-south-1.compute.internal collectd[1049]: Initialization complete, entering read-loop.
```

1.3. Collectd Configuration

All the collectd configuration are done in the collectd.conf file which is present under the folder /etc/collectd/.

- **Load Plugin Section:** This section specifies the features to be activated. Multiple load plugins can be enabled. For example, to load CPU data, enable LoadPlugin cpu.
- **Plugin Configuration Section:** In this section, configuration stubs for each plugin are provided. For CPU, below plugin configurations are available and can be enabled.

```
#vi /etc/collectd/collectd.conf

LoadPlugin cpu
<Plugin cpu>
ReportByCpu true
ReportByState true
ValuesPercentage false
ReportNumCpu false
ReportGuestState false
SubtractGuestState true

</Plugin>
```

Multiple plugin options available. For memory, diskio etc. which can be enabled and loaded to collectd configuration.

Once all the load plugins are loaded, collectd must be restarted using the command below.

```
$ sudo systemctl restart collectd.service
$ sudo systemctl status collectd.service
```

2. Graphite

2.1 Introduction

Graphite is a free open-source software tool that monitors and graphs numeric time-series data such as the performance of computer systems. Collectd uses graphite as default database for storing the data collected by collectd.

2.2 Running Graphite

Use docker for installing graphite in the server and below command to run graphite using the docker.

```
$ sudo docker run -d --name graphite --restart=always -p 8080:80 -p 2003-2004:2003-2004 -p 2023-2024:2023-2024 -p 8125:8125/udp -p 8126:8126 graphiteapp/graphite-statsd
```

Use the below command to check the status of graphite container.

```
$ sudo docker ps | grep "graphite"
```



```
[ec2-user@ip-172-31-25-155 ~]$
[ec2-user@ip-172-31-25-155 ~]$ sudo docker ps | grep "graphite"
5f14fa0c7fa0  graphiteapp/graphite-statsd  "/entrypoint"        11 days ago  Up 6 hours   0.0.0.0:2003-2004->2003-2004/tcp, 2013-2014/tcp, 8080
/tcp, 0.0.0.0:2023-2024->2023-2024/tcp, 0.0.0.0:8126->8126/tcp, 8125/tcp, 0.0.0.0:8125->8125/udp, 0.0.0.0:8080->80/tcp  graphite
```

2.3 Graphite Configuration

Configure graphite in collectd configuration file for loading the data from server to Graphite. Multiple write plugin options available. We are using graphite write plugin as graphite is widely used with collectd.

```
#vi /etc/collectd/collectd.conf
LoadPlugin "write_graphite"
<Plugin "write_graphite">
  <Node "example">
    Host "localhost"
    Port "2003"
    SeparateInstances true
    StoreRates false
    AlwaysAppendDS false
  </Node>
</Plugin>
```

Specify the IP address of the server on which the graphite is running. Below is the screenshot of configuration for reference.

```
<Plugin write_graphite>
  <Node "graphite">
    Host "172.31.25.155"  #IP Address graphite
    Port "2003"
    Protocol "tcp"
    SeparateInstances true
  </Node>
</Plugin>

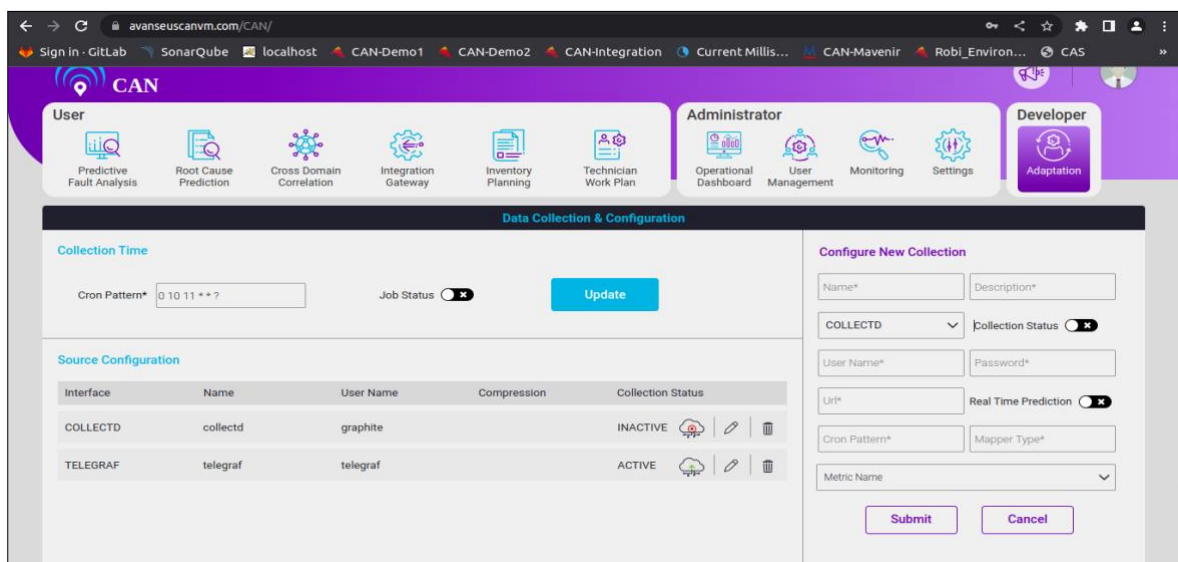
<Plugin cpu>
  ReportByCpu true
  ReportByState true
  ValuesPercentage true
  ReportNumCpu true
</Plugin>
```

After making the changes, restart the collectd with the below command.

```
$ sudo systemctl restart collectd.service
$ sudo systemctl status collectd.service
```

3. Configuration in CAN module

In CAN module, under the Data Collection and Configuration tab, we can configure the collectd to collect the data. Below is the screenshot for reference.



With appropriate details, CAN module can start collecting the data, start Realtime streaming (Anomaly detection), and breach prediction activities.