

# Monitoring node

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Install the following components which constitute the monitoring node:

- InfluxDB - time-series database for collecting the metric data
- Grafana - dashboard visualization layer
- Jmxtrans - Collector to retrieve JMX metrics from remote hosts

## Install and configure InfluxDB

1. Install InfluxDB on the monitoring node:
  - a. Create `/etc/yum.repos.d/influxdb.repo` with the following:

```
[influxdb]
name = InfluxDB Repository - RHEL $releasever
baseurl = https://repos.influxdata.com/rhel/$releasever/$basearch/stable
enabled = 1
gpgcheck = 1
gpgkey = https://repos.influxdata.com/influxdb.key
```

- b. Install with the command:

```
sudo yum install influxdb
```

2. Configuration file is located in `/etc/influxdb/influxdb.conf`
  - a. Locate the section entitled "[[graphite]]"

- i. Set `enabled = true`
- ii. In the templates section, create the following:

```
templates = [
  "*.org.apache.* host.measurement*" ,
  ".*.org.apache.* host.host.measurement*" ,
  ".*.*.org.apache.* host.host.host.measurement*" ,
  ".*.jvm.* host.measurement*",
  ".*.*.jvm.* host.host.measurement*",
  ".*.*.*.jvm.* host.host.host.measurement*" ,
]
```

- b. Open ports 2003 and 8086 on the Linux firewall
  - i. Create a file named `/etc/firewalld/services/influxdb.xml` with the following contents:

```
<?xml version="1.0" encoding="utf-8"?>
<service version="1.0">
<short>influxdb</short>
<description>InfluxDB</description>
<port port="8086" protocol="tcp"/>
<port port="2003" protocol="tcp"/>
</service>
```

- ii. Activate the firewall rule via the command:

```
sudo firewall-cmd --permanent --zone=$FWZONE --add-service=influxdb
```

where **\$FWZONE** is the firewall zone this rule applies to.

**You can check this active firewall rule by issuing the command:**

```
sudo firewall-cmd --list-all
```

- c. Enable the InfluxDB service for startup via the command:

```
sudo systemctl enable influxdb.service
```

- d. Start the InfluxDB via the command:

```
sudo systemctl start influxdb
```

- e. Create the collection databases with a 35-day retention policy:

```
sudo influx -execute "CREATE DATABASE graphite with duration 35d"
sudo influx -execute "CREATE DATABASE telegraf with duration 35d"
sudo influx -execute "CREATE DATABASE twcloud with duration 35d"
sudo influx -execute "CREATE DATABASE webapp with duration 35d"
```

## Install and configure Grafana

To install Grafana on the monitoring node:

1. Install with the command:

```
sudo yum install -y https://s3-us-west-2.amazonaws.com/grafana-releases/release/grafana-5.2.1-1.x86_64.rpm
```

2. Open ports 3000 on the Linux firewall

- a. Create a file named `/etc/firewalld/services/grafana.xml` with the following contents:

```
<?xml version="1.0" encoding="utf-8"?>
<service version="1.0">

    <short>grafana</short>

    <description>Grafana</description>

    <port port="3000" protocol="tcp"/>

</service>
```

- b. Activate the firewall rule via the command:

```
sudo firewall-cmd --permanent --zone=$FWZONE --add-service=grafana
```

where **\$FWZONE** is the firewall zone this rule applies to.

**You can check the active firewall rule by issuing this command**

```
sudo firewall-cmd --list-all
```

3. Reload the firewall rules via the command:

```
sudo firewall-cmd --reload
```

4. Enable the service on startup via the command:

```
sudo systemctl enable grafana-server
```

5. Start the Grafana service via the command:

```
sudo systemctl start grafana-server
```

## Install and configure Jmxtrans

To install Jmxtrans on the monitoring node:

1. Install with the command:

```
sudo yum -y install http://central.maven.org/maven2/org/jmxtrans/jmxtrans/270/jmxtrans-270.rpm
```

2. Delete the Jmxtrans System V service autostart:

```
chkconfig --del jmxtrans
and remove the System V startup script
rm -f /etc/init.d/jmxtrans
```

3. Create a configuration file in `/var/lib/jmxtrans` for each TWCloud node. We recommend naming them **twcloud-hostname.json** where hostname is the hostname of the TWCloud node.


```
{
  "servers": [
    {
      "port": "2468",
      "host": "IP_ADDRESS",
      "queries": [
        {
          "obj": "java.lang:type=Memory",
          "attr": [
            "HeapMemoryUsage",
            "NonHeapMemoryUsage"
          ],
          "resultAlias": "jvmMemory",
          "outputWriters": [
            {
              "@class": "com.googlecode.jmxtrans.model.output.InfluxDbWriterFactory",
              "url": "http://127.0.0.1:8086/",
              "username": "admin",
              "password": "admin",
              "database": "twcloud",
              "tags": {
                "host": "HOST_NAME"
              }
            }
          ]
        }
      ]
    },
    {
      "obj": "java.lang:type=GarbageCollector,*",
      "attr": [
        "CollectionCount",
        "CollectionTime"
      ],
      "resultAlias": "jvmGC",
      "outputWriters": [
        {
          "@class": "com.googlecode.jmxtrans.model.output.InfluxDbWriterFactory",
          "url": "http://127.0.0.1:8086/",
          "username": "admin",
          "password": "admin",
          "database": "twcloud",
```

```

        "tags":{
            "host":"HOST_NAME"
        }
    }
}
],
},
{
    "obj":"TWCloud:type=Metrics,item1=Client,*",
    "attr":[
        "Count",
        "Value",
        "50thPercentile",
        "99thPercentile"
    ],
    "resultAlias":"twc",
    "outputWriters":[
        {
            "@class":"com.googlecode.jmxtrans.model.output.InfluxDbWriterFactory",
            "url":"http://127.0.0.1:8086/",
            "username":"admin",
            "password":"admin",
            "database":"twcloud",
            "tags":{
                "host":"HOST_NAME"
            }
        }
    ]
},
{
    "obj":"TWCloud:type=Metrics,item1=Persistence,*",
    "attr":[
        "Count",
        "Value",
        "50thPercentile",
        "99thPercentile"
    ],
    "resultAlias":"twc",
    "outputWriters":[
        {
            "@class":"com.googlecode.jmxtrans.model.output.InfluxDbWriterFactory",
            "url":"http://127.0.0.1:8086/",
            "username":"admin",
            "password":"admin",
            "database":"twcloud",
            "tags":{
                "host":"HOST_NAME"
            }
        }
    ]
},
{
    "obj":"TWCloud:type=Metrics,item1=ThreadPools,*",
    "attr":[
        "Count",
        "Value",
        "50thPercentile",
        "99thPercentile"
    ],
    "resultAlias":"twc",
    "outputWriters":[
        {
            "@class":"com.googlecode.jmxtrans.model.output.InfluxDbWriterFactory",
            "url":"http://127.0.0.1:8086/",
            "username":"admin",
            "password":"admin",
            "database":"twcloud",
            "tags":{
                "host":"HOST_NAME"
            }
        }
    ]
}
]

```

```
}  
  }  
    }  
      }
```

 Replace **IP\_ADDRESS** with the IP Address of the TWCloud node. If on the local machine you may use 127.0.0.1. Replace **HOST\_NAME** with the hostname of the TWCloud (as per the command "hostname").