Deployment and Configuration Guide

Consolidated Mirth Dashboard

VERSION 1.0

CitiusTech

Copyright

Revision History

Document Version #	Revision Date	Prepared By	Approved By	Approval Date	Summary of Changes
1.0	07-10-2020	Suchetana Shetty	Akshaya Subramanian	Click here to enter a date.	First Version
	Click here to enter a date.			Click here to enter a date.	

Contents

1 Introduction

There are multiple Mirth Instances implemented for a client. To monitor multiple instances, monitoring team should go and check separate dashboards of each Mirth instances.

As part of this IAG, a Mirth consolidated dashboard has been created where in all the Mirth instances' data are scraped into a single dashboard.

This document is intended for monitoring team which helps them deploy the application on to the monitoring server.

2 Deployment Pre-requisites

Mirth Connect would be already deployed for this deployment

2.1 Software Requirements

- Windows OS
- Go1.14.2
- Grafana 7.0.4
- Prometheus 2.18.0
- Windows Exporter 0.13.0
- Mirth Exporter

2.2 Hardware Requirements

Minimum Hardware Requirements:

- Processor: 4 cores
- Processor speed: 1 GHz
- Random access memory (RAM): 8 GB
- Hard disk capacity: 500GB

Recommended Hardware Requirements:

- Processor: 8 cores
- Processor speed: 3GHz
- Random access memory (RAM): 16 GB

2.3 Networking Requirements

Default ports:

- Grafana = :3000
- Prometheus = :9090
- Mirth exporter = :9140
- Windows exporter = :9182

2.4 Security Requirements

User's permission to install software is required.

2.5 Dependencies

Mirth Connect should be there with deployed channels.

2.6 Pre-deployment Configuration

1. Admin rights to install software and configure service files is required.
2. Access to ports 3000, 9090, 9140, 9100, 9140 is required.

3 Deployment Procedure

The following section provides the detailed steps to successfully deploy each module of the product.

3.1 Scope

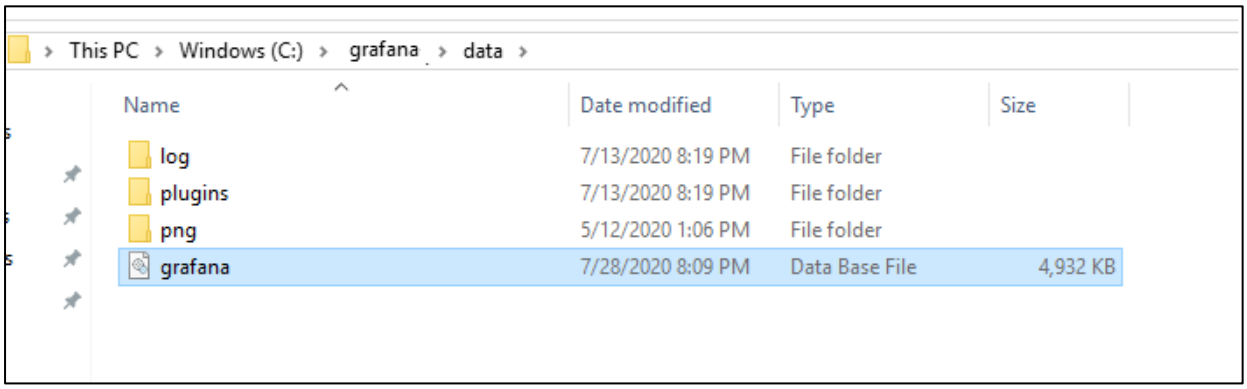
- Deployment of Go compiler
- Grafana set up
- Prometheus set up
- Mirth Exporter configuration
- WMI Exporter configuration

3.2 Environment

Not Applicable

3.3 Backup Procedure

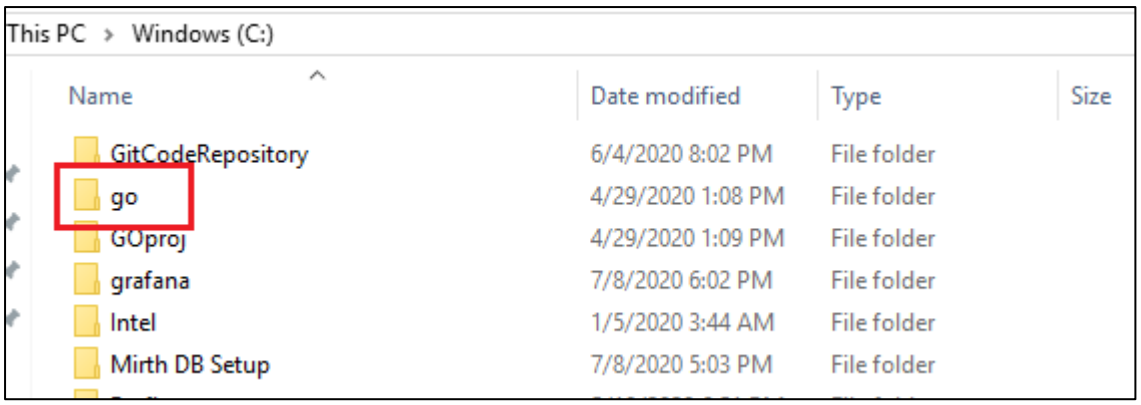
Backup of Grafana database can be taken to ensure that you can always rollback to your previous version. This can be done by taking backup of **grafana.db** file. This is usually located usually in **<grafana_install_dir>/data**:



3.4 Deployment Procedure

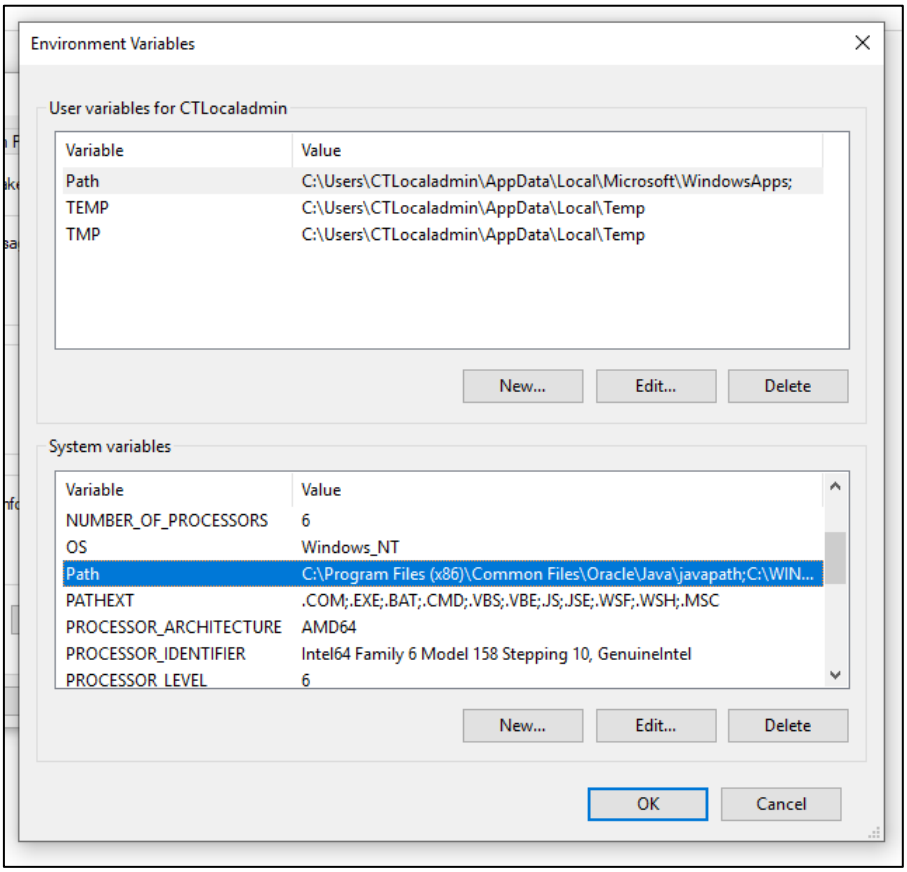
To set up GO, perform the following steps:

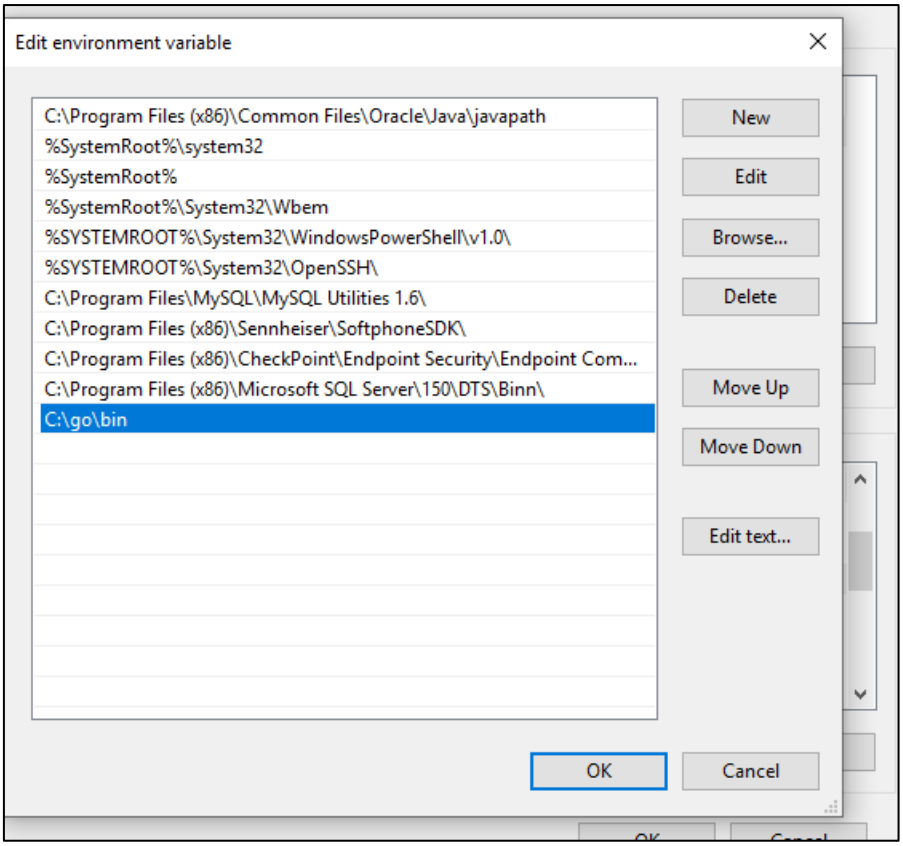
1. Download the GO zip file and extract into the directory **C:\go**:



2. To set the Environment Variables, perform the following steps:

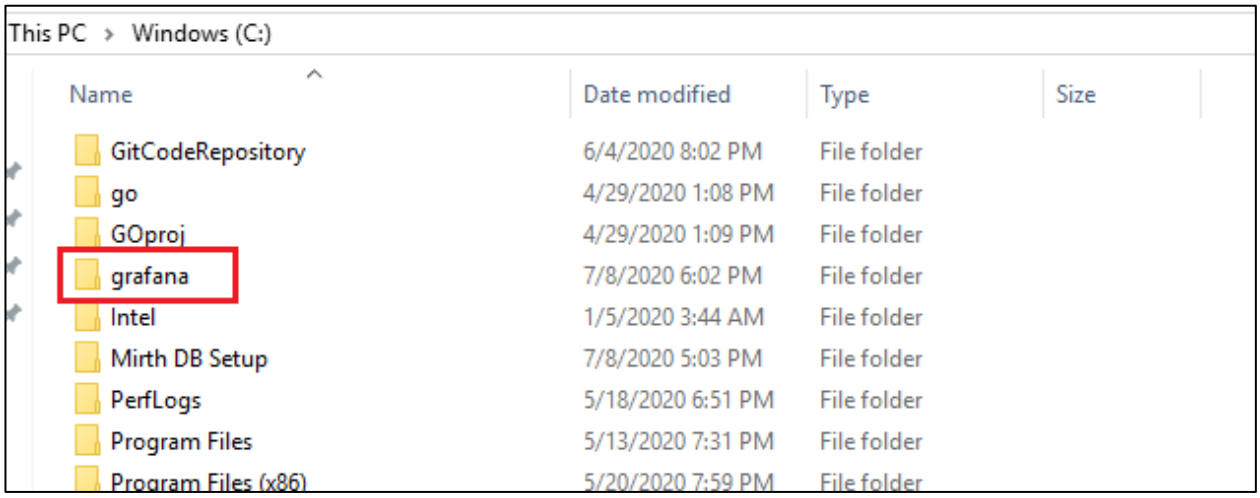
   a. Go to **Environment Variables**
   b. **System variables** --> **Path** --> **Edit** --> **New** --> Add **C:\go\bin** and click **OK**:



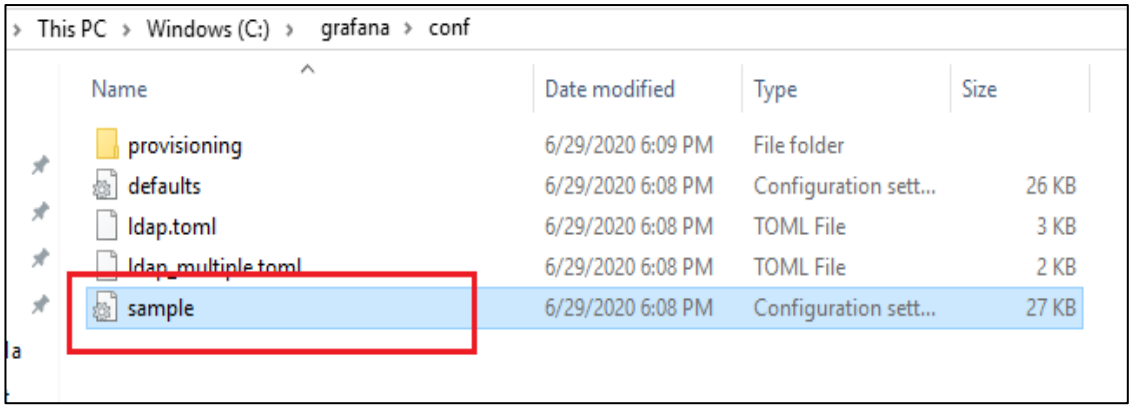


To set up Grafana, perform the following steps:

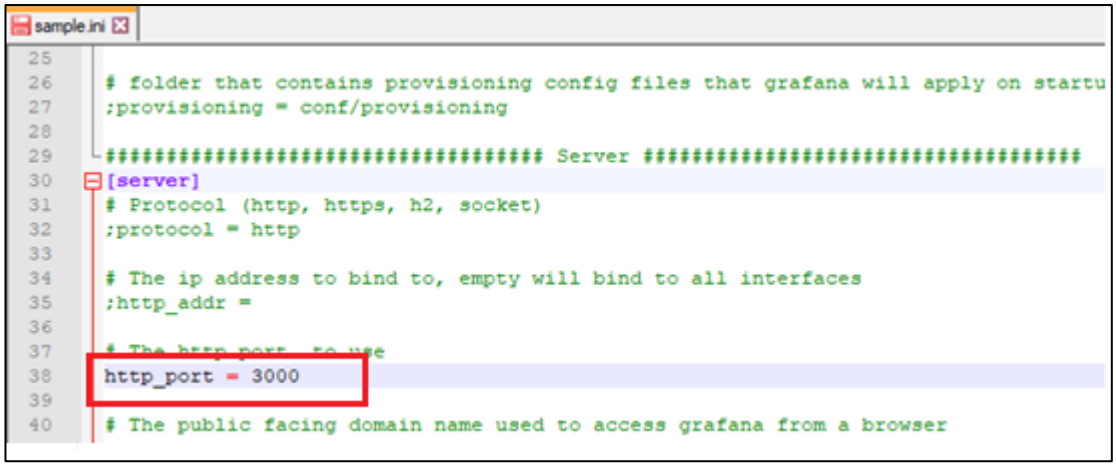
1. Download Grafana zip file and extract into the C:\grafana directory:



2. Go to **C:\grafana\conf\sample.ini** file:



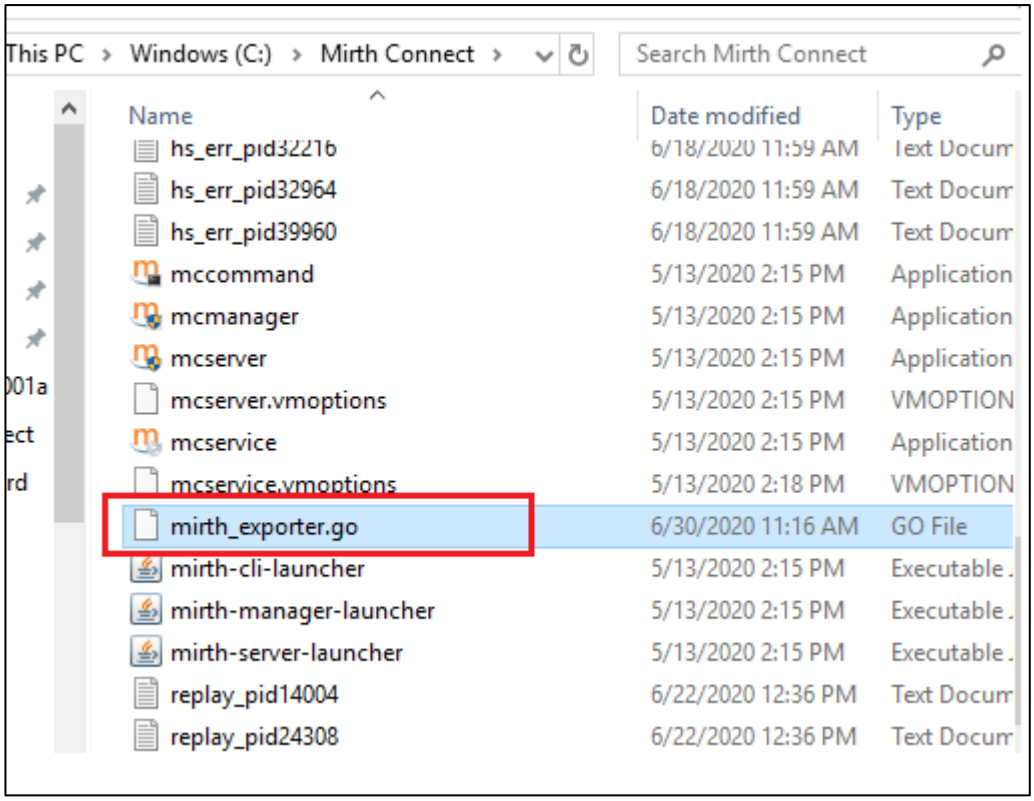
3. Uncomment **http_port = 3000** by removing '**#**' at the beginning of the line and save the file:



To set up Mirth Exporter, perform the following steps:

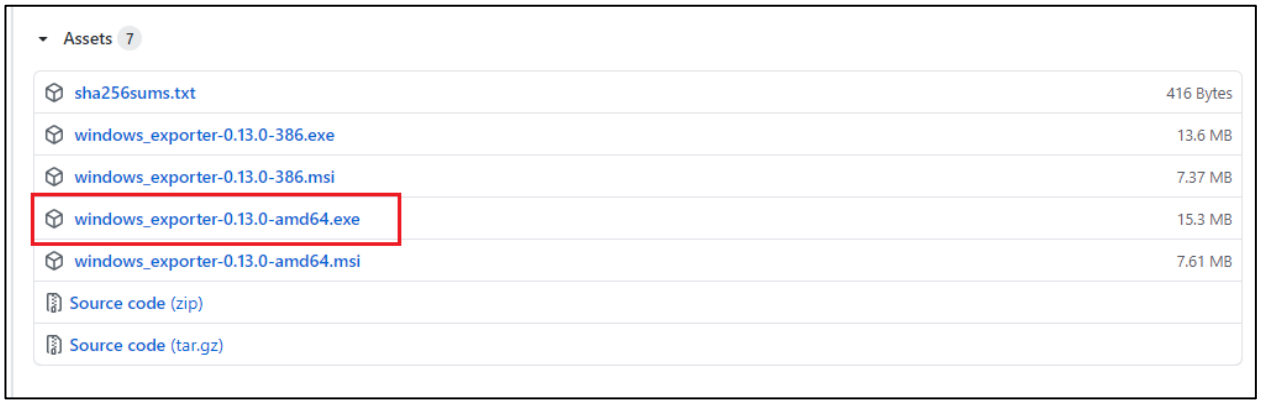
1. Download the file **mirth_exporter.go**:

2. Save **mirth_exporter.go** in the **Mirth Connect** folder:

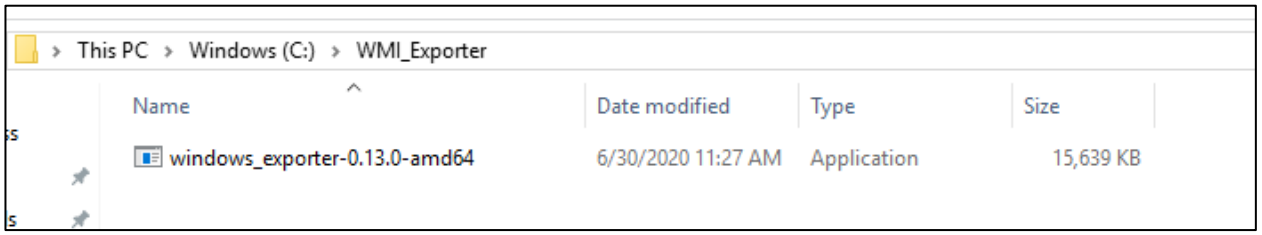


To set up WMI Exporter, perform the following steps:

1. Download the executable file of WMI:

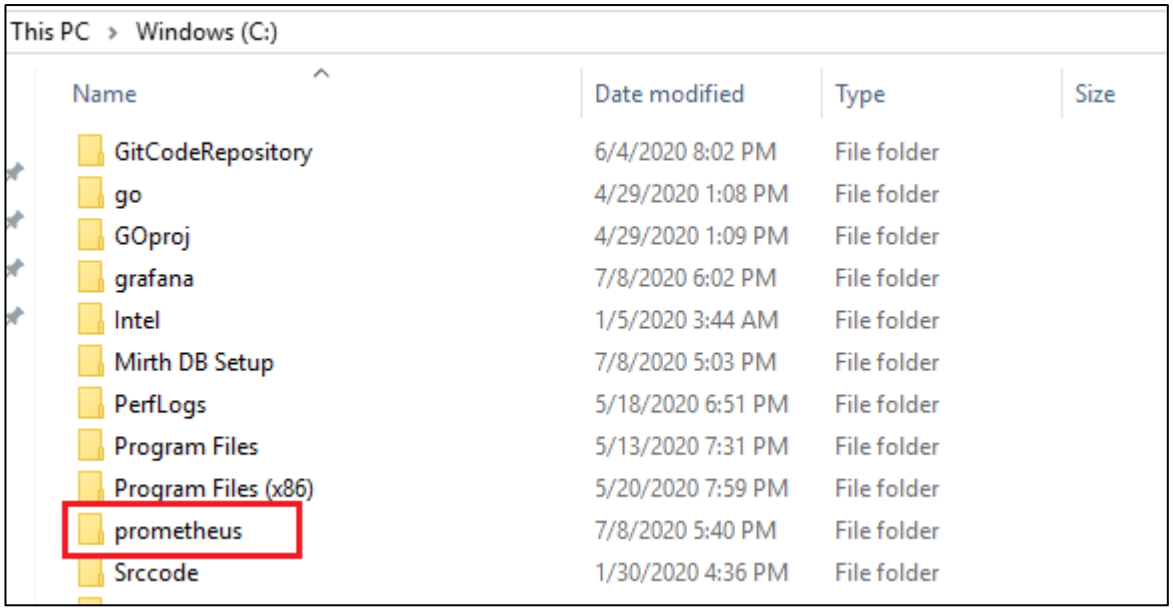


2. Save the executable file into the **C:\WMI_Exporter** directory:

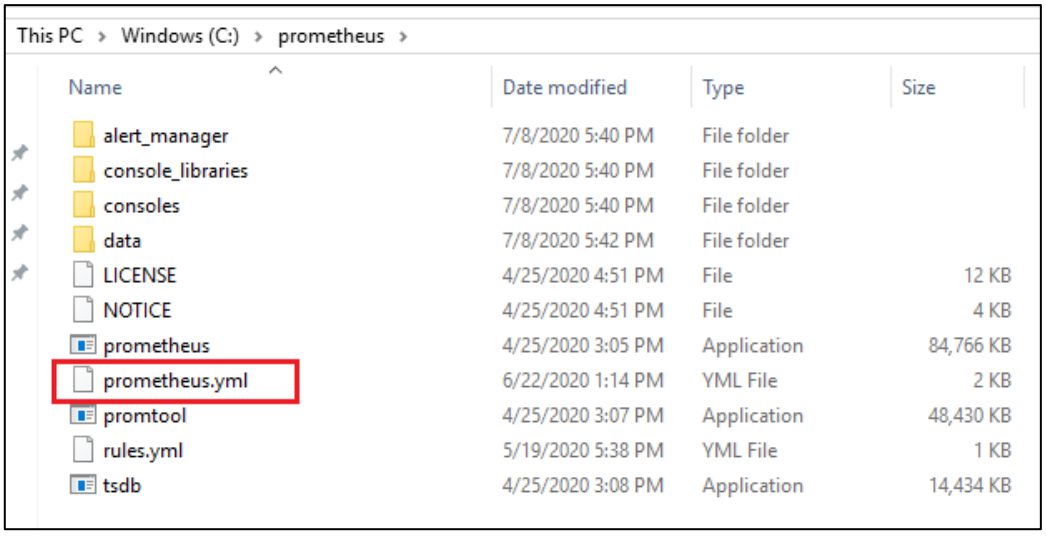


To set up Prometheus, perform the following steps:

1. Download Prometheus zip file and extract into the **C:\prometheus** directory:



2. Open **C:\prometheus\prometheus.yml** file:



3. Start adding targets under **scrape_configs**. (Copy and paste the entire code mentioned as follows):

```
scrape_configs:
  # The job name is added as a label `job=<job_name>` to any timeseries
scraped from this config.
  - job_name: 'prometheus'
    # metrics_path defaults to '/metrics'
    # scheme defaults to 'http'.
```

```
    static_configs:
    - targets: ['localhost:9090']
  - job_name: 'wmi'
```

```
    # metrics_path defaults to '/metrics'
    # scheme defaults to 'http'.
```

```
    static_configs:
    - targets: ['localhost:9182']
  - job_name: 'mirth'
    # metrics_path defaults to '/metrics'
    # scheme defaults to 'http'.
```

```
    static_configs:
    - targets: ['localhost:9140']
```

```
scrape_configs:
  # The job name is added as a label `job=<job_name>` to any timeseries scraped from this config.
  - job_name: 'prometheus'

    # metrics_path defaults to '/metrics'
    # scheme defaults to 'http'.

    static_configs:
    - targets: ['localhost:9090']
  - job_name: 'wmi'

    # metrics_path defaults to '/metrics'
    # scheme defaults to 'http'.

    static_configs:
    - targets: ['localhost:9182']
  - job_name: 'mirth'

    # metrics_path defaults to '/metrics'
    # scheme defaults to 'http'.

    static_configs:
    - targets: ['localhost:9140']
```

4. Save the **prometheus.yml** file.

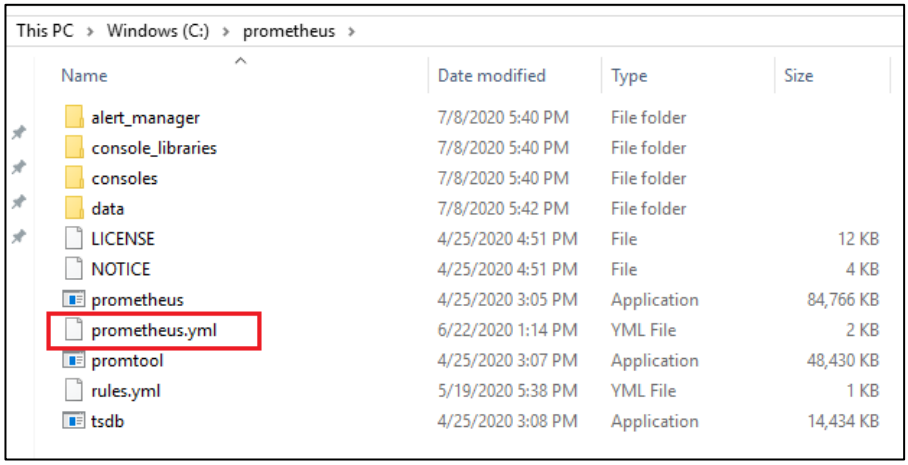
3.5 Incremental Upgrade Procedure

To upgrade Prometheus, perform the following steps:

1. Login to command prompt as administrator and type the following command to stop the service:

```
net stop “mirthdbsetup"
```

2. Take the backup of **prometheus.yml** file:



3. Download Prometheus zip file and extract the files into the C:\prometheus directory.
4. Replace **prometheus.yml** file with the one taken as backup in Step 1.
5. Start the service using the following command:

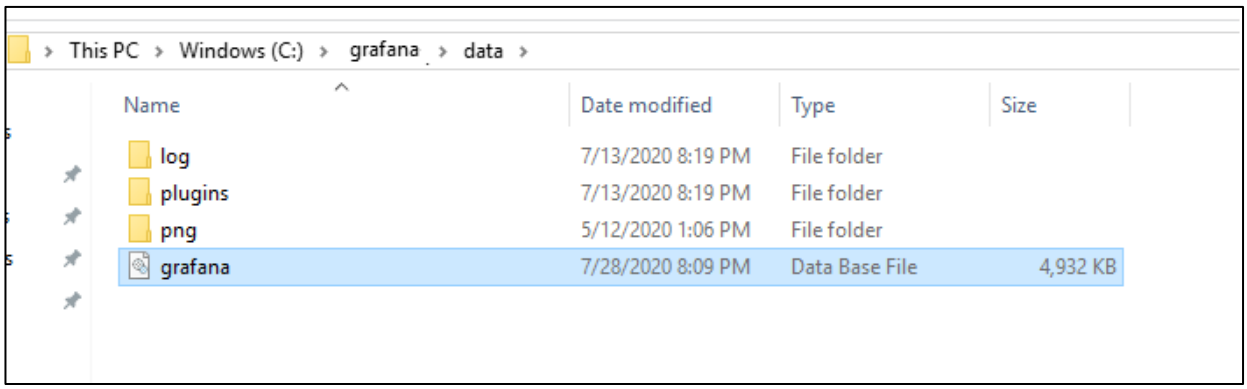
```
net start “mirthdbsetup"
```

To upgrade Grafana, perform the following steps:

1. Login to command prompt as administrator and type the following command to stop the service:

```
net stop “mirthdbsetup"
```

2. Take the backup of Grafana database which is located in **C:\grafana\data** path:



3. Follow the steps mentioned in section 3.4 for setting up Grafana.
4. Copy the Grafana database file which is taken as a backup file in Step 1 to the ‘**C:\grafana\data’** path.
5. Start the service using the following command:

```
net start “mirthdbsetup"
```

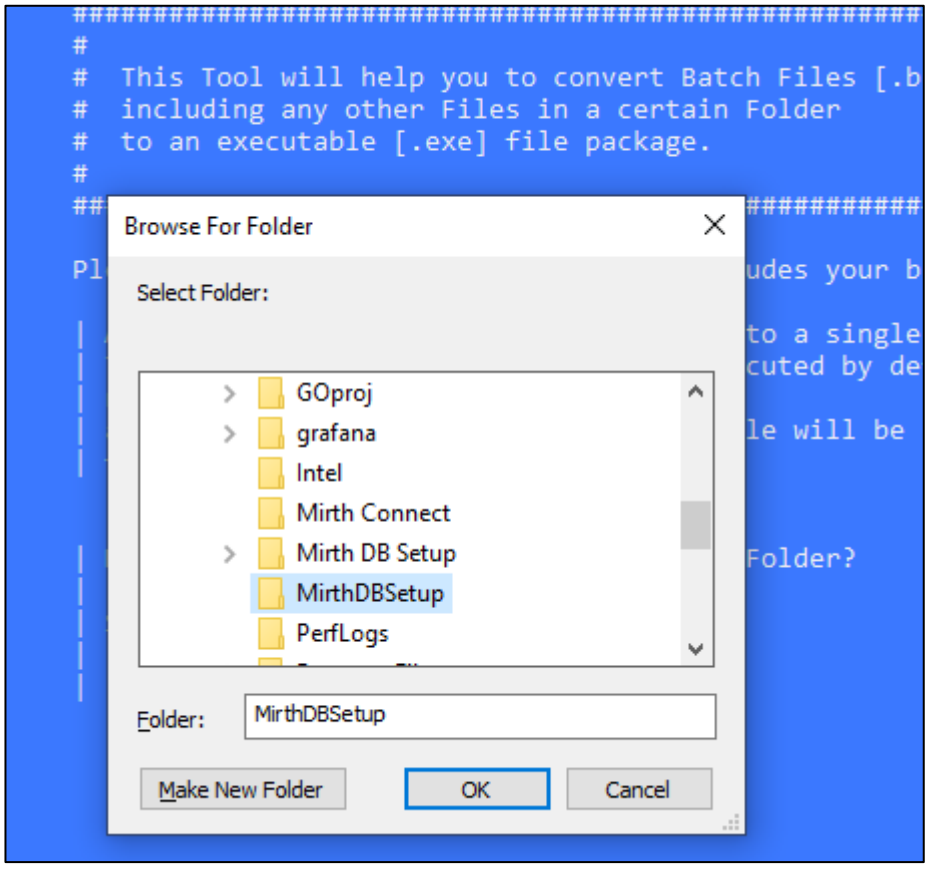
4 Post Deployment

To register the application as Windows service, perform the following steps:

1. Create a batch file using the following commands:

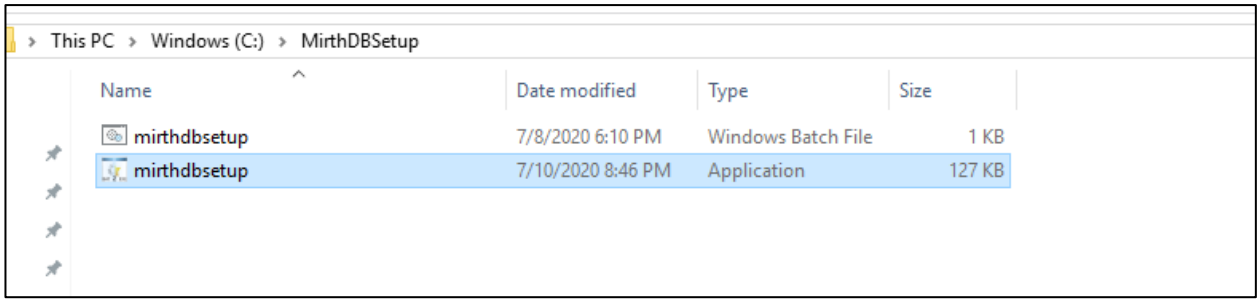
```
cd C:\prometheus
start prometheus.exe
cd C:\grafana\bin
start grafana-server.exe
cd C:\WMI_Exporter
start windows_exporter-0.13.0-amd64.exe
cd  C:\Mirth Connect
start go run mirth_exporter.go
```

2. Save the file as **mirthdbsetup.bat** under the **C:\MirthDBSetup** directory.
3. Convert **mirthdbsetup.bat** to **mirthdbsetup.exe** using bat2exe application (bat2exe application can be downloaded from here)
4. Select source folder as **C:\MirthDBSetup** where **mirthdbsetup.bat** is present

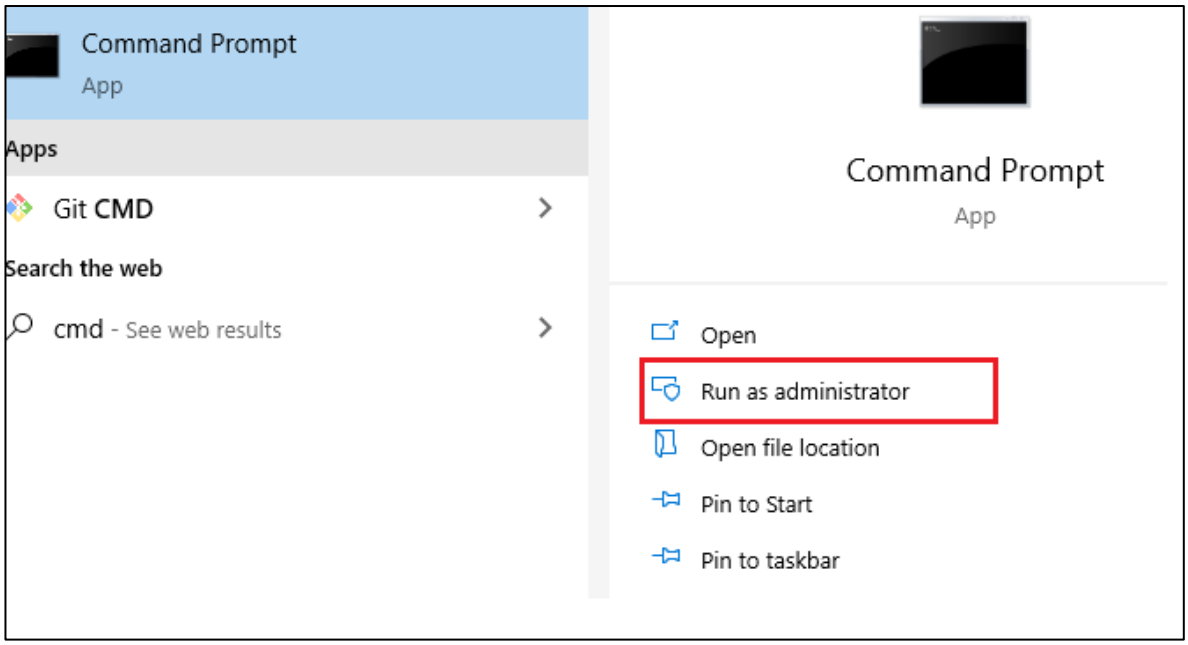


5. Select target folder as **C:\MirthDBSetup** where **mirthdbsetup.exe** will be saved (same as Step 4)

mirthdbsetup.exe will be created under **C:\MirthDBSetup**:



6. Search for command prompt and right-click to select **Run as administrator**:

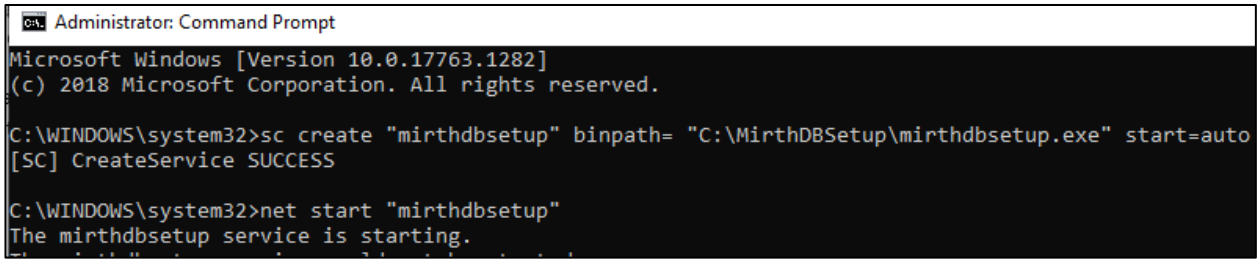


7. Register service using the following command:

```
sc create "mirthdbsetup" binpath= "C:\MirthDBSetup\mirthdbsetup.exe"
start=auto
```

8. Start service using the following command:

```
net start “mirthdbsetup"
```



4.1 Configuration

Prometheus Configuration:

To scrape metrics from Mirth Exporter and Node Exporter, configure **prometheus.yml** file using the following steps:

1. Open **prometheus.yml** file.
2. Add the following lines to **prometheus.yml** file:

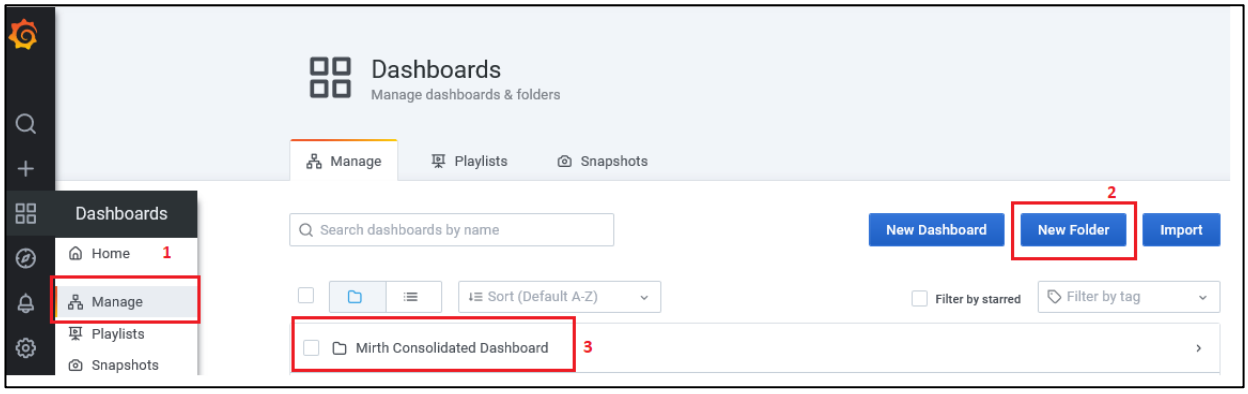
```
- job_name: 'mirth'
static_configs:
- targets: ['localhost:9140']
- job_name: 'node exporter'
static_configs:
- targets: ['localhost:9100']
```

3. Save the file.

Mirth Dashboard Configuration on Grafana:

To configure Mirth Dashboard, perform the following steps:

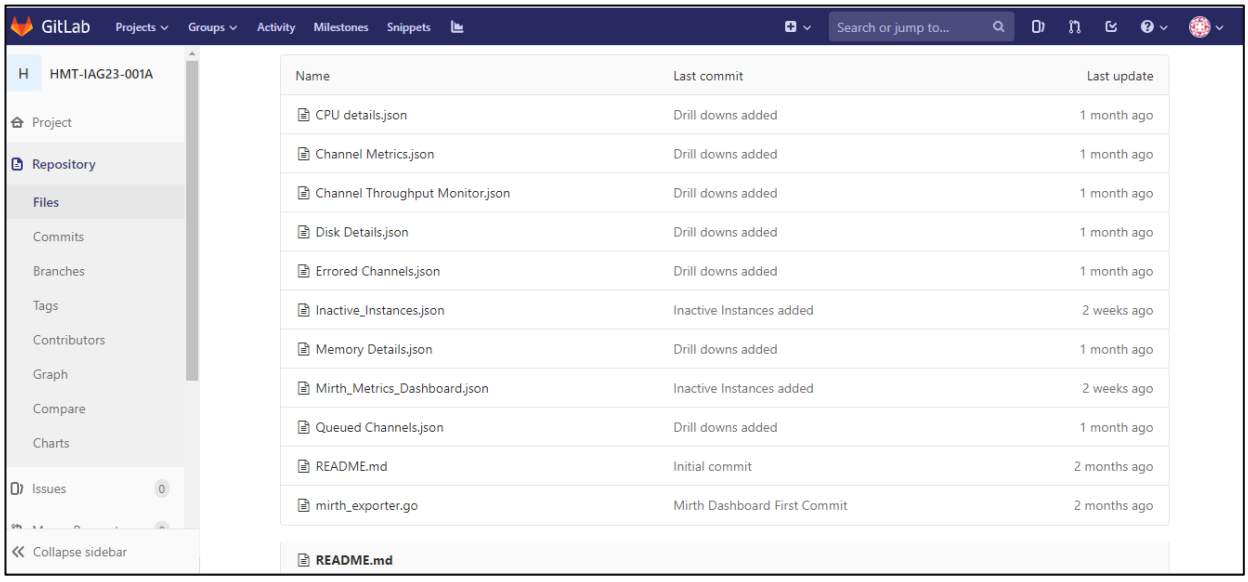
1. Login to Grafana using the URL http://localhost:3000 or http://<server ip, where Grafana is installed>:3000.
2. Default username and password is admin, login using the same credentials.
3. Go to **Dashboard → Manage**. Click **New folder** and name it as **Mirth Consolidated Dashboard**:



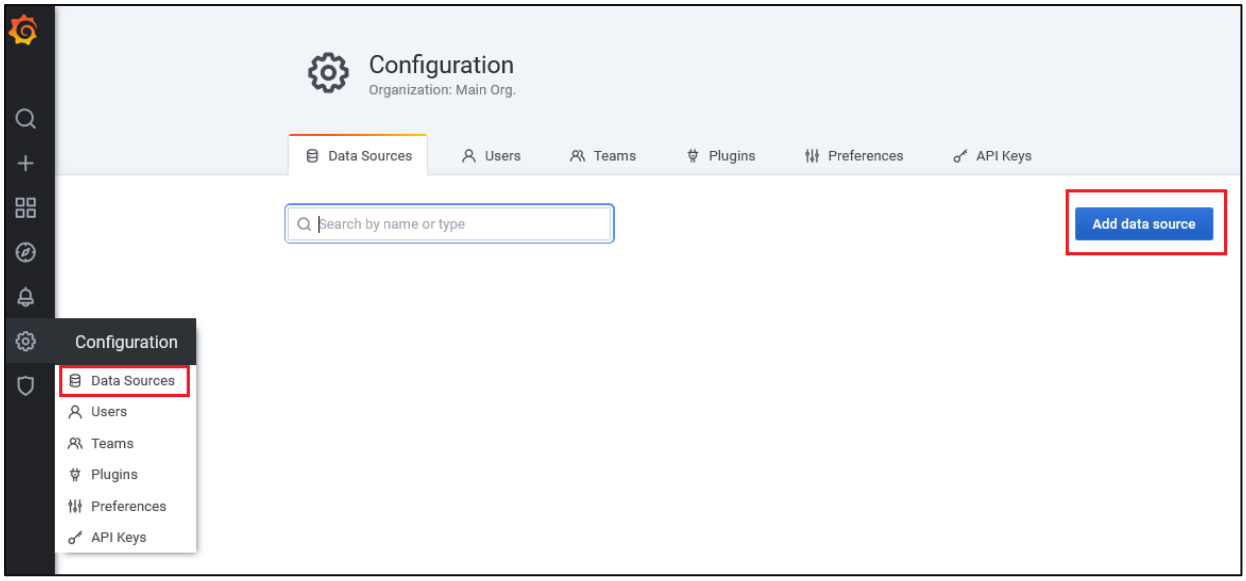
4. Download all JSON files which are under the following URL and save the files:

   https://github.com/SalmanCitiustech/MirthDashboard/tree/MirthDashboard_Windows

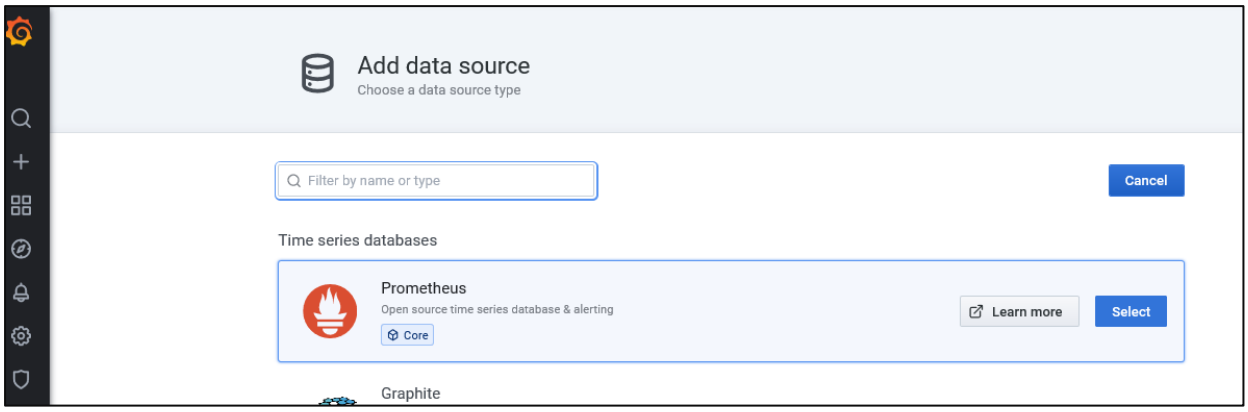
   There is one summary page '**Mirth_Metrics_Dashboard.json**' and 8 drill down pages present as shown in the following screenshot:



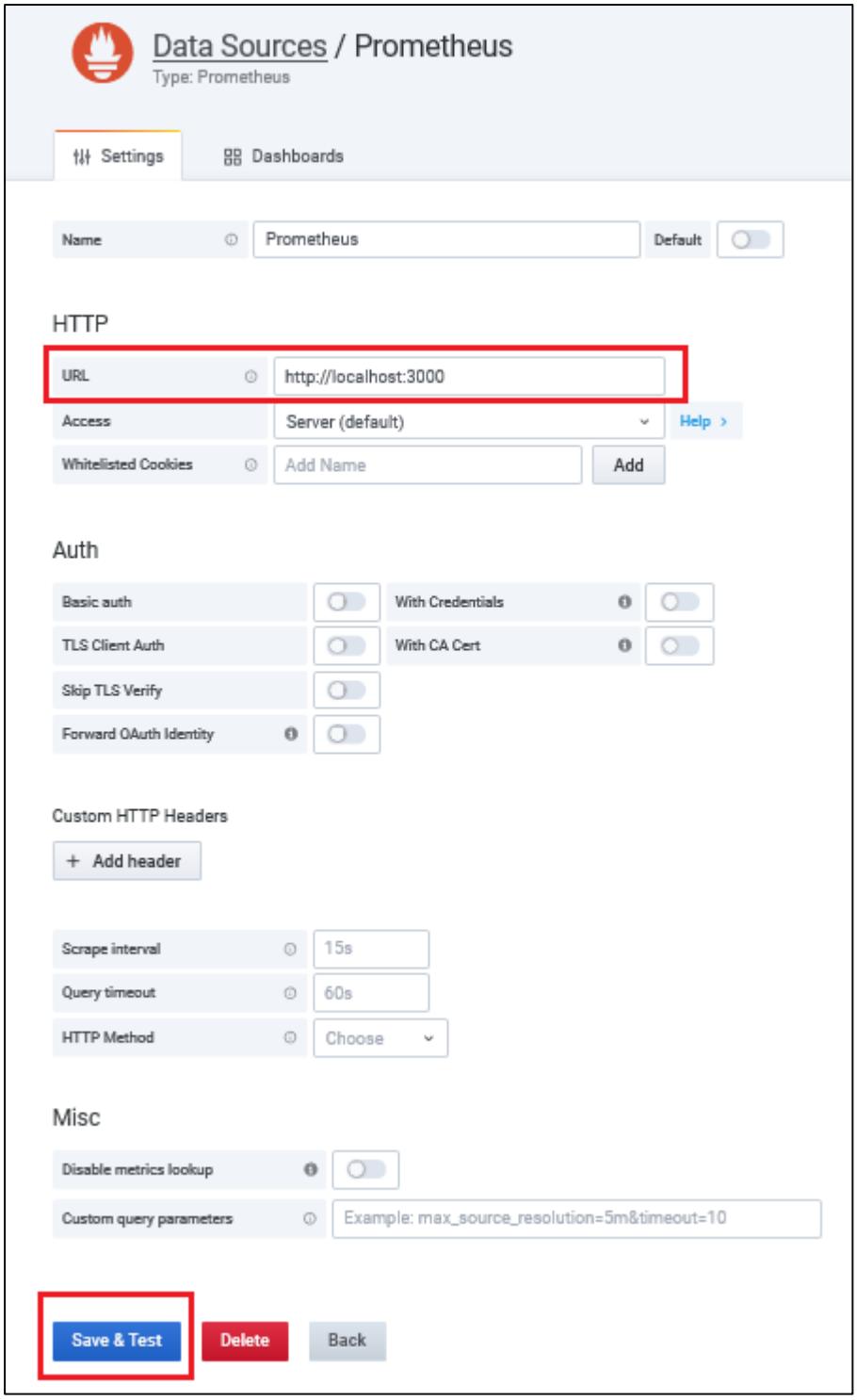
5. On Grafana, go to **Configuration → Data Sources** and click **Add data source**:



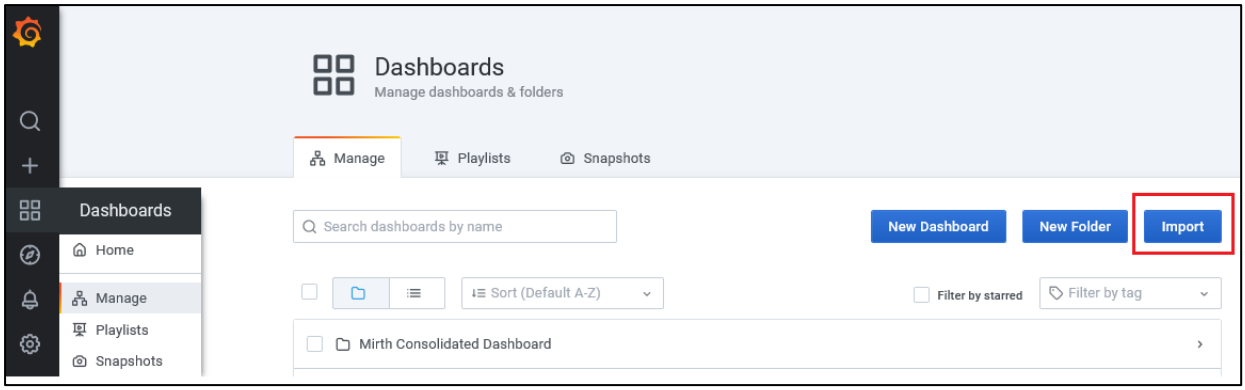
6. Select **Prometheus**:



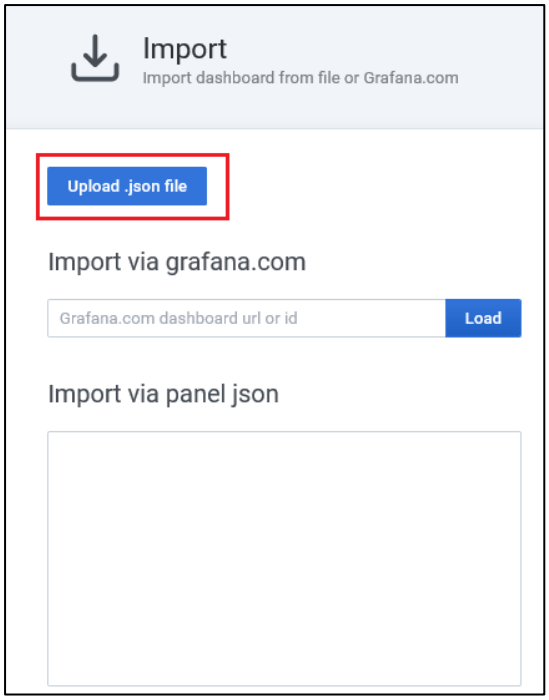
7. Mention name for datasource. Provide URL http://localhost:3000 as URL then click **Save & Test**



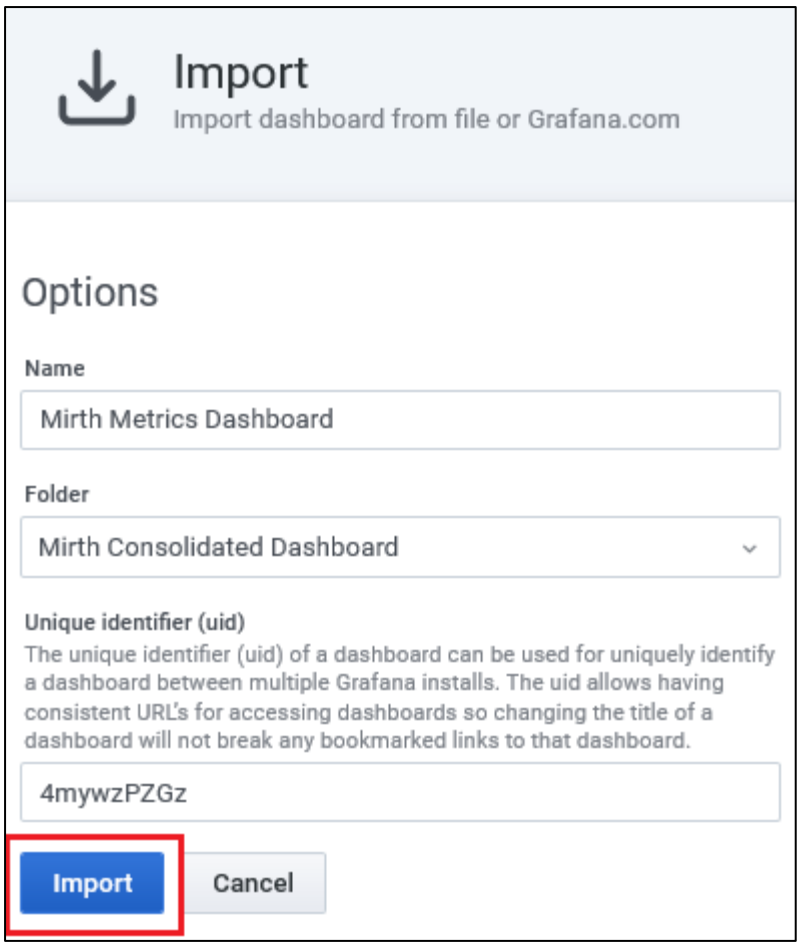
8. On Grafana, go to **Dashboard** → **Manage** and click **Import**:



9. Click **Upload .json file:**



10. Browse to the downloaded .json file mentioned in Step 4. Choose folder name as **Mirth Consolidated Dashboard** as shown in the following window and click **Import**:

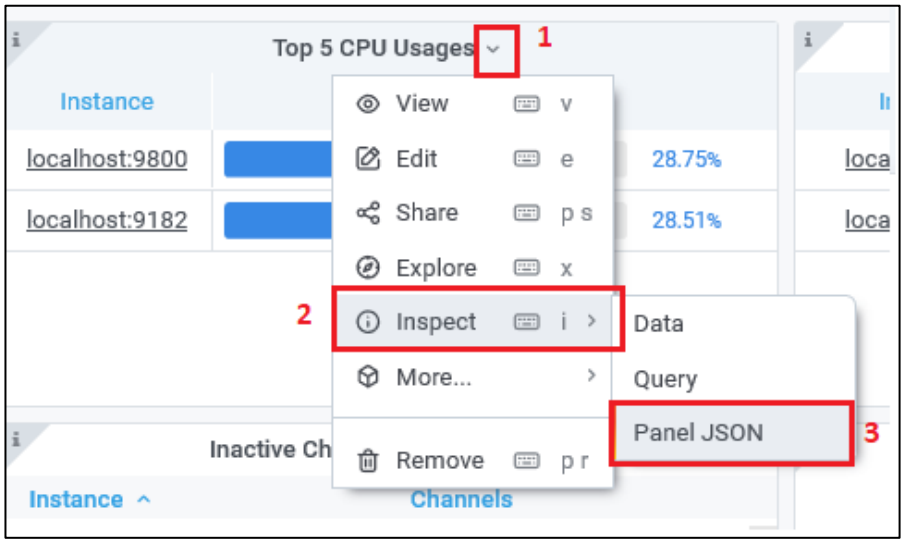


11. Repeat steps 5 and 6 for all downloaded .json files.

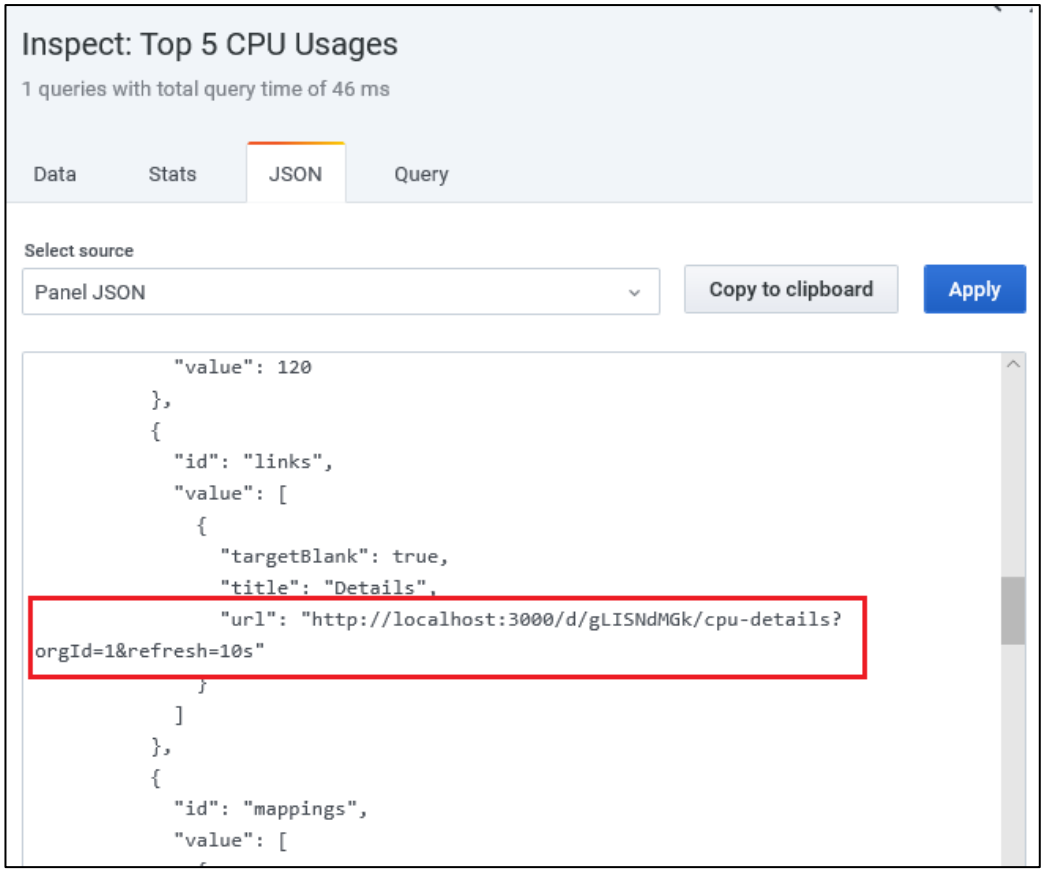
Updating URLs of Grafana Dashboard and drill down pages:

To update URLs, present in panels of dashboard, perform the following steps:

1. Click the accordion which is next to the title of the panel and go to **Inspect** → **Panel JSON**. This will open the JSON panel:



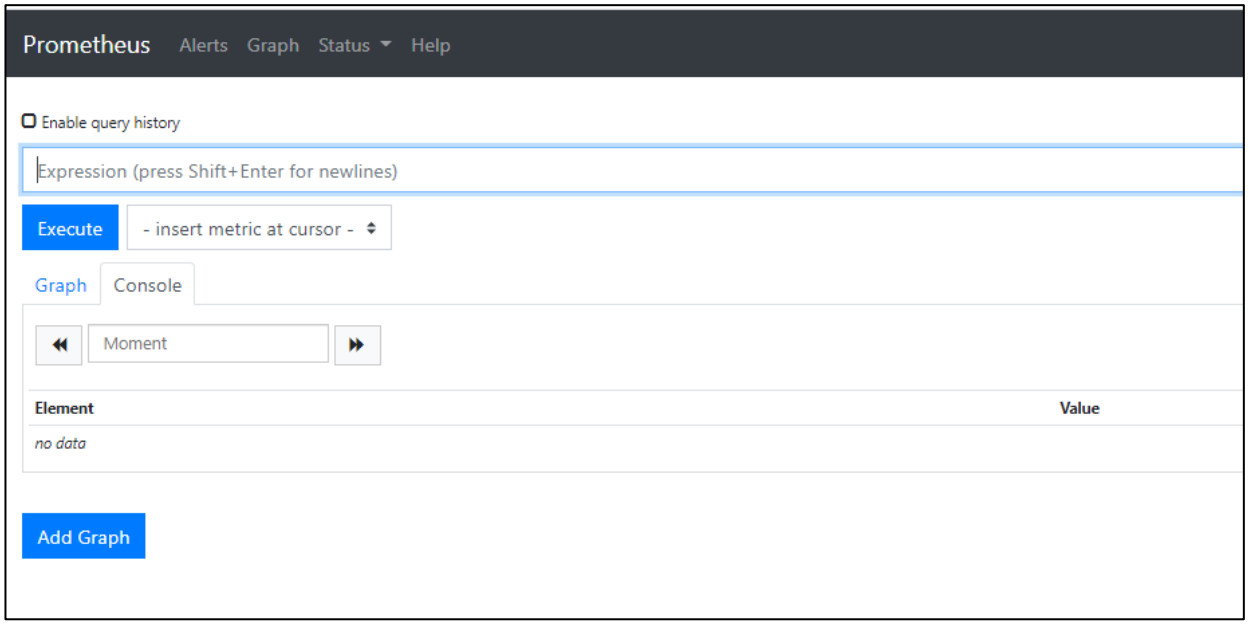
2. Search for **url**:



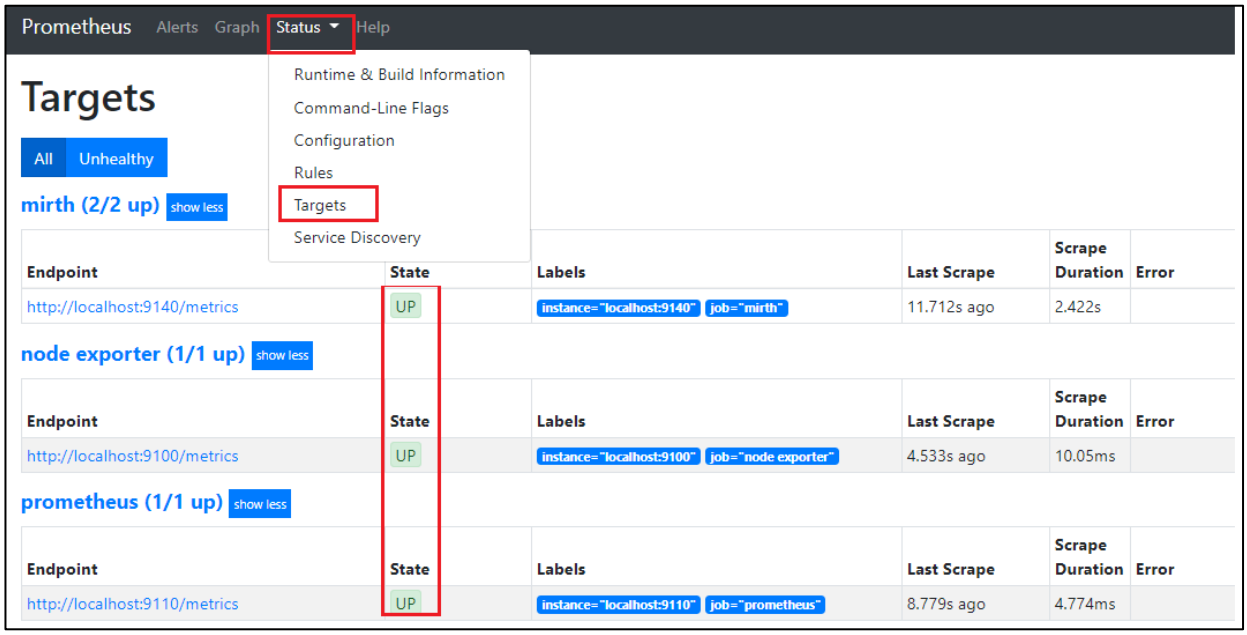
3. Replace **http://localhost:3000** with the server IP or server name where your Grafana is installed and save the file.
4. Repeat the preceding 3 steps for all the panels of dashboard and drill down pages.

4.2 Validation

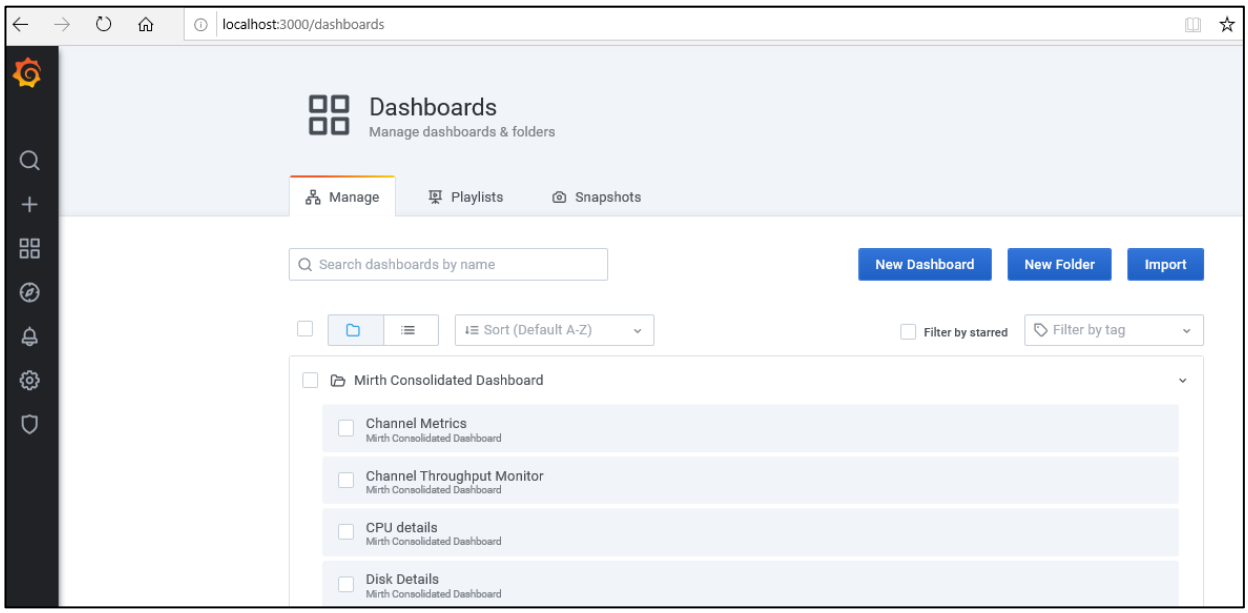
1. **Validation of Prometheus**: Access the port 9090 of the server where Prometheus is installed and following screen should appear:



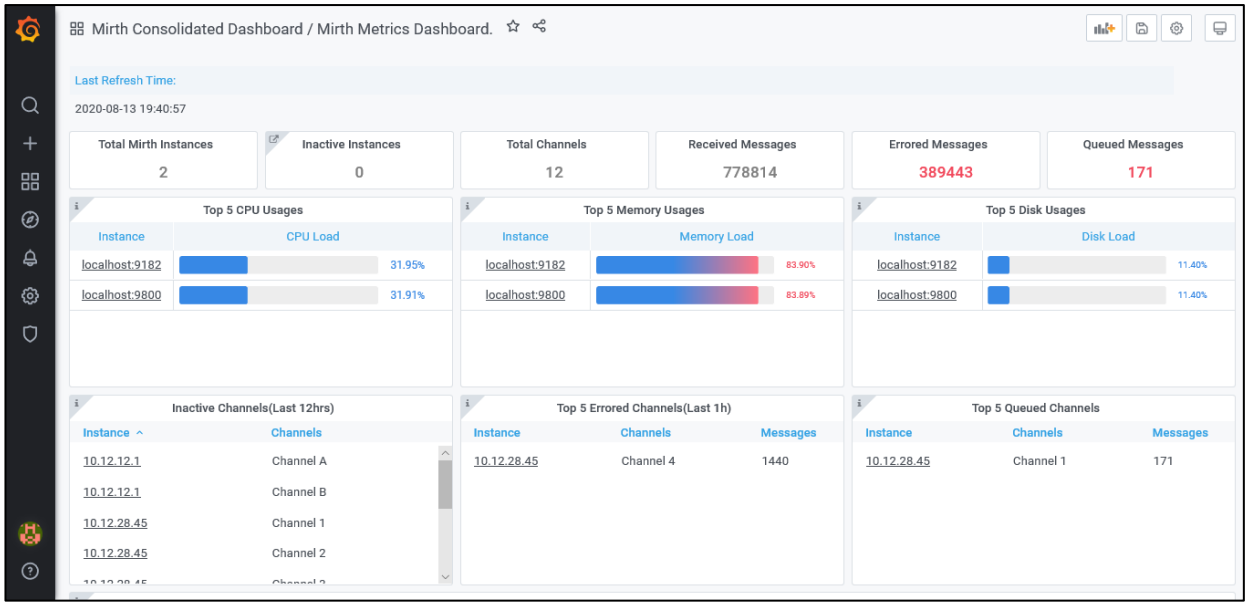
2. **Validation of exporters**: Check the **Targets** under **Status** tab of Prometheus. All the status of exporters should be **UP**:



3. **Validation of Grafana**: Access **http://<server ip where Grafana is installed>/dashboards** and following screen should appear:



4. Select **Mirth Metrics Dashboard** under **Mirth Consolidated Dashboard** folder and the following screen should appear:



5. Check for all the drill downs by clicking **Instance** from all the panels containing **Instance** column.

5 Troubleshooting and Support

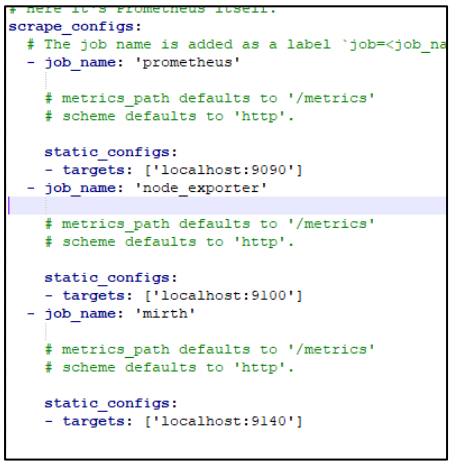
The following section describes a list of problems that may appear during or post installation of the system and how to resolve them:

5.1 Problem

Situation: Prometheus service is inactive.

Consequences: Prometheus is not able to access and not able to scrape any metrics.

Action: Add all the required targets following proper spacings and syntaxes. A single misspacing causes **prometheus.yml** to fail to execute and stops Prometheus service:



6 Roll Back Procedure

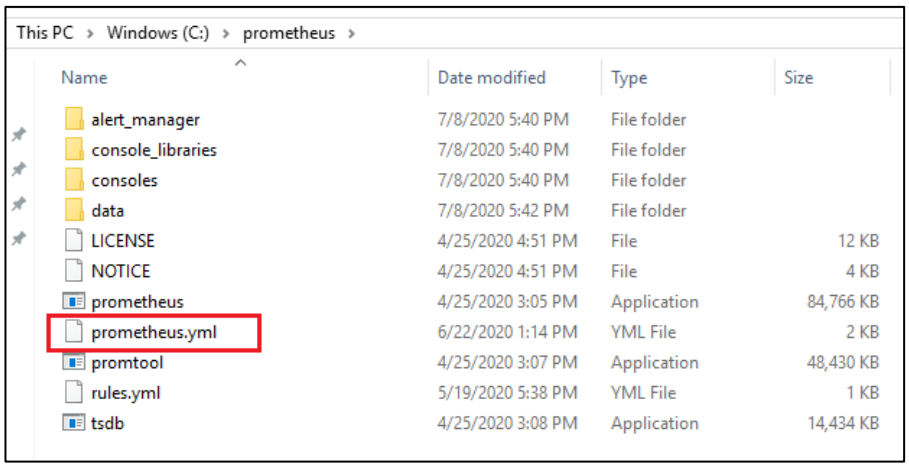
This section describes the set of steps to be performed to roll back the system to an older or pervious version.

To rollback Prometheus, perform the following steps:

1. Login to command prompt as administrator and type the following command to stop the service:

```
net stop “mirthdbsetup"
```

2. Take the backup of **prometheus.yml** file:



3. Place the older Prometheus unzipped folder into C:\prometheus directory.
4. Replace **prometheus.yml** file with the one taken as backup in Step 1.
5. Start the service using the following command:

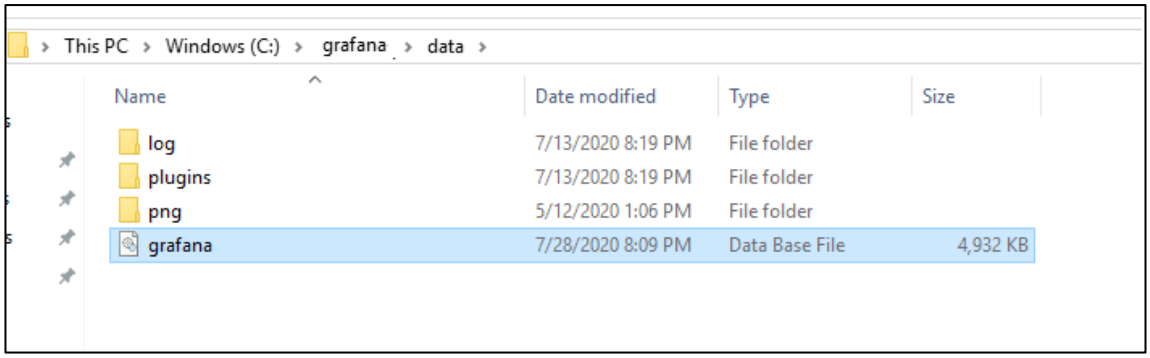
```
net start “mirthdbsetup"
```

To upgrade Grafana, perform the following steps:

1. Login to command prompt as administrator and type below command to stop the service

```
net stop “mirthdbsetup"
```

2. Take the backup of Grafana database which is located in ‘**C:\grafana\data**’ path:



3. Place the older Grafana unzipped folder into the C:\grafana directory.
4. Copy the Grafana database file which is taken as backup file in Step 1 to the path ‘**C:\grafana\data**’.
5. Start the service using the following command:

```
net start “mirthdbsetup"
```

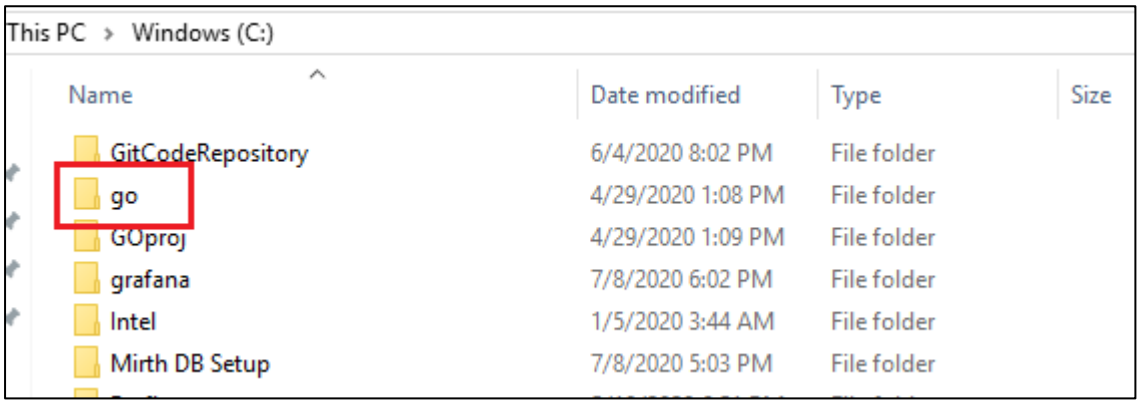
7 Uninstallation Procedure

To uninstall the installed applications, perform the following steps:

1. Login to command prompt as administrator and type the following command to stop the service:
   ```
   net stop “mirthdbsetup"
   ```
2. Delete **mirthdbsetup** service file using the following command:
   ```
   sc delete “mirthdbsetup”
   ```

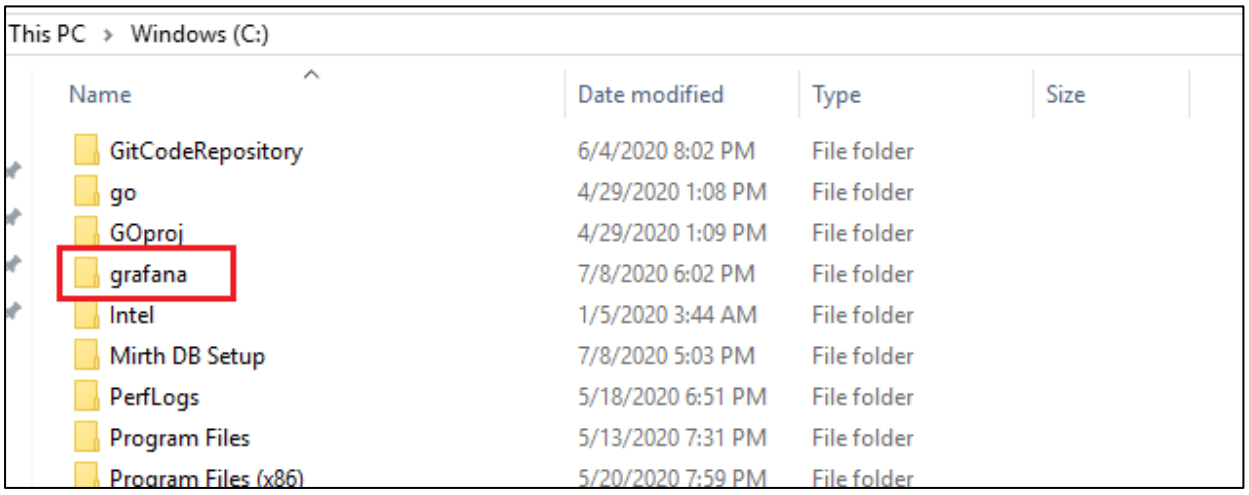
Uninstallation of GO:

Delete **go** unzipped folder from C directory:



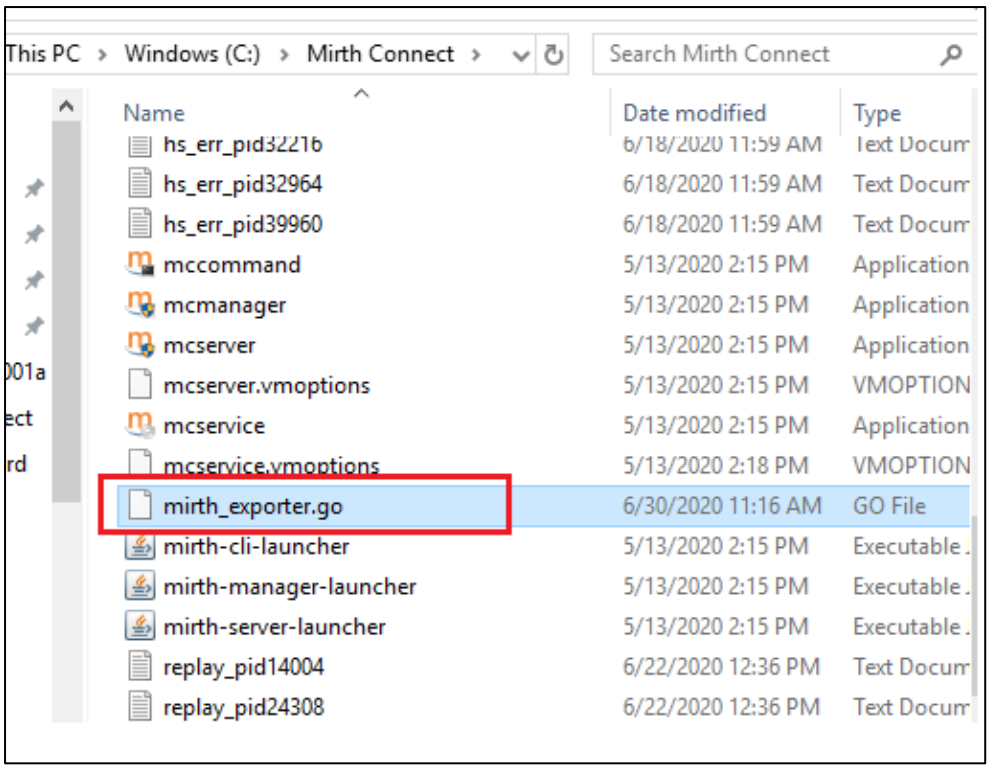
Uninstallation of Grafana:

Delete **grafana** unzipped folder from C directory:



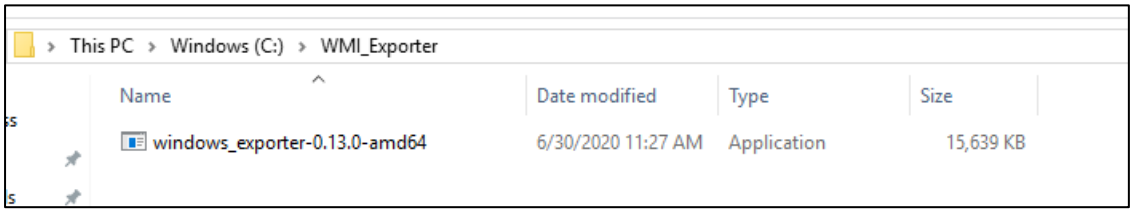
Uninstallation of Mirth Exporter:

Delete the **mirth_exporter.go** file from **Mirth Connect** folder:



Uninstallation of Windows Exporter:

Delete **windows_exporter** application file from the **C:\WMI_Exporter** directory:



Also, delete **WMI_Exporter** folder from **C** directory.

Uninstallation of Prometheus:

Delete **prometheus** unzipped folder from C directory: