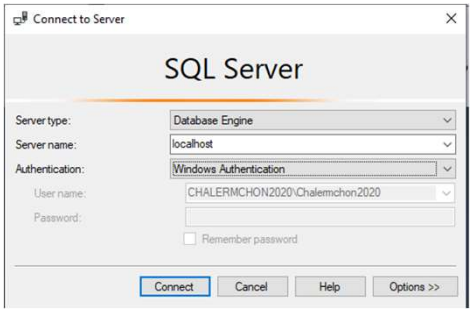
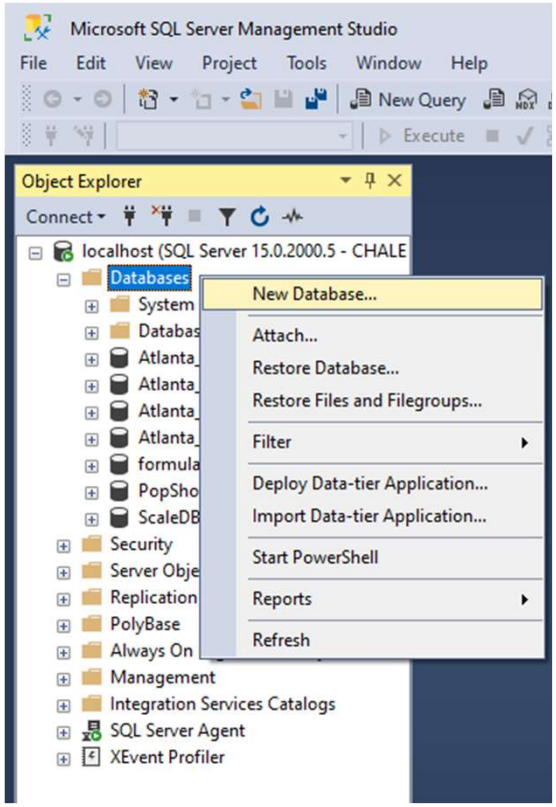
Ms Sql Database for Grafana

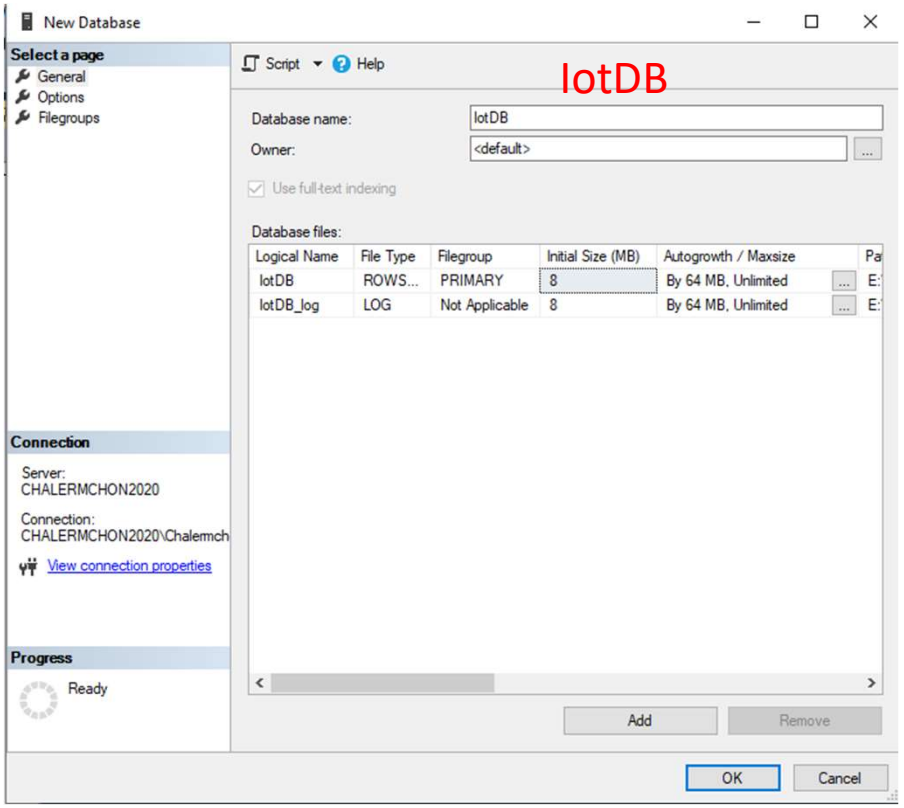
Basic Excel
Create Database
Create Table
Select From Where
Select Group By Having

Youtub MsSql 01 SSMS Create Db and Table

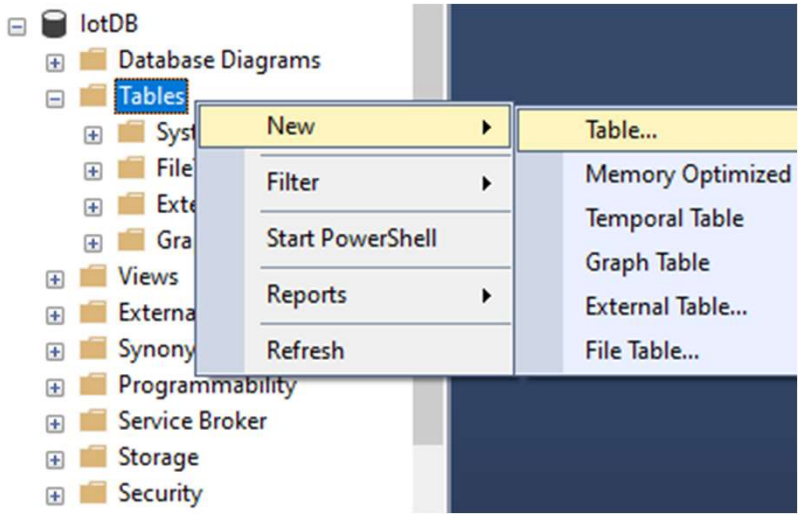
Sql Server Management Studio
Create New Database (IotDB)

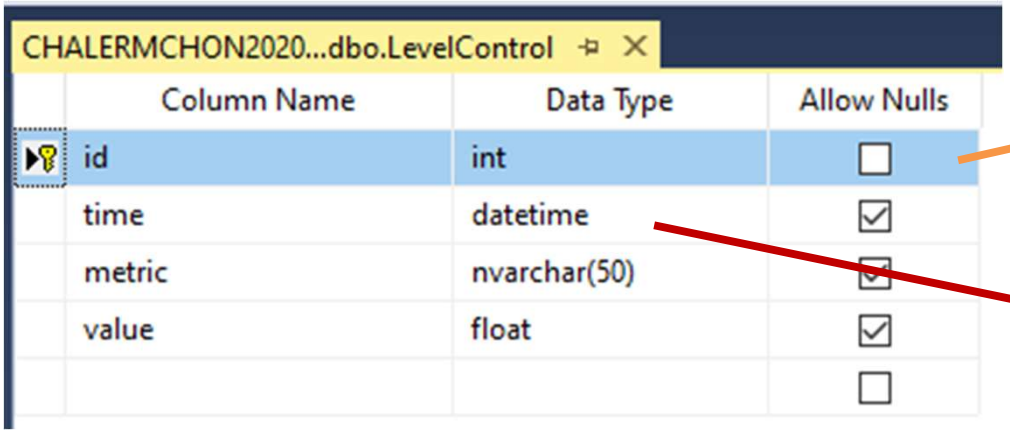


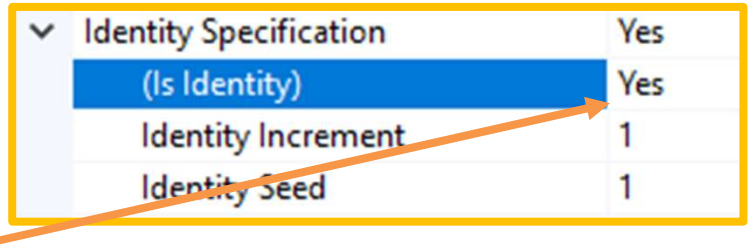


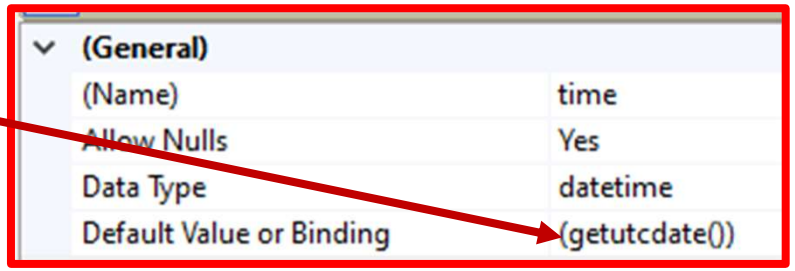


Create LevelControlData Table



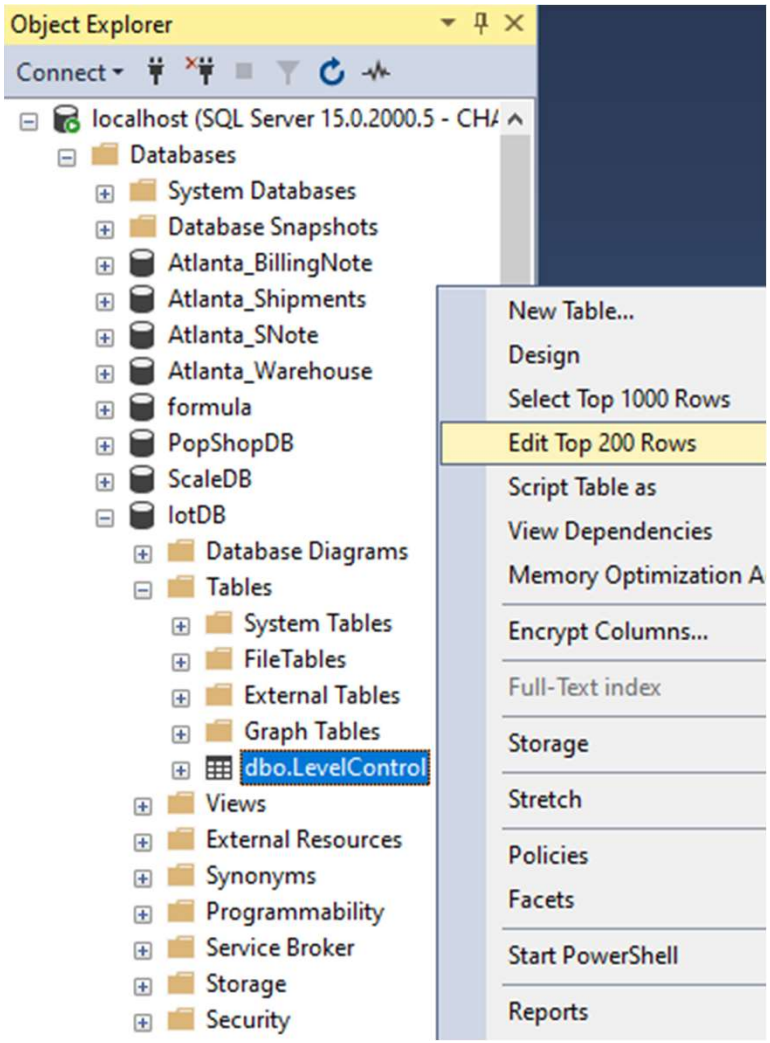


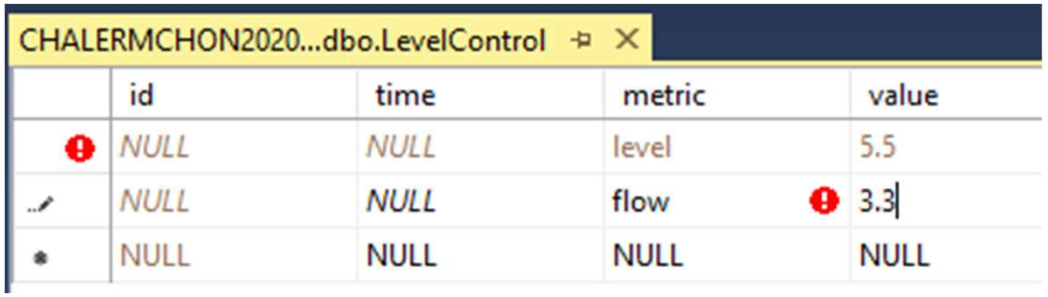




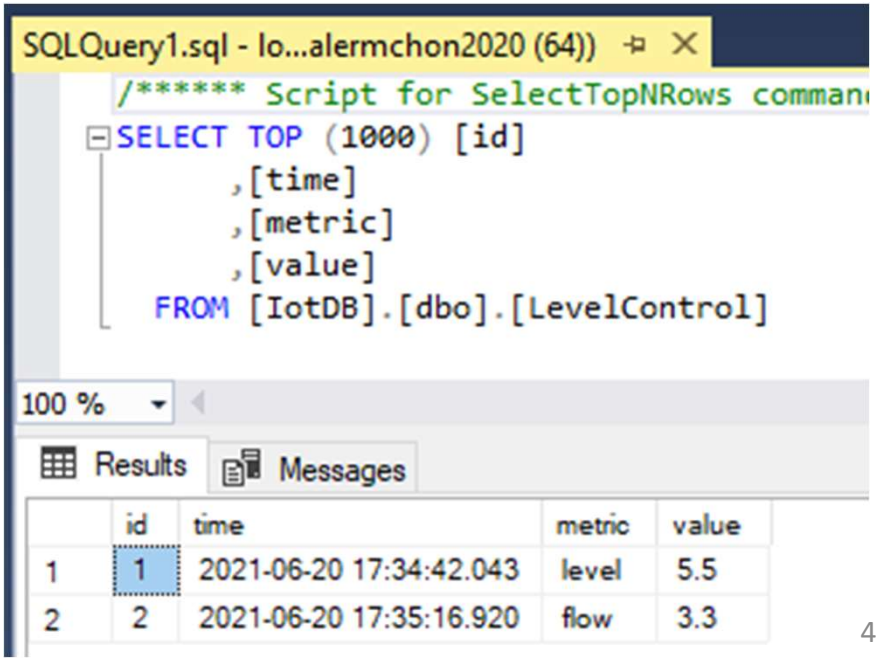
(Getutcdate())

Edit Table

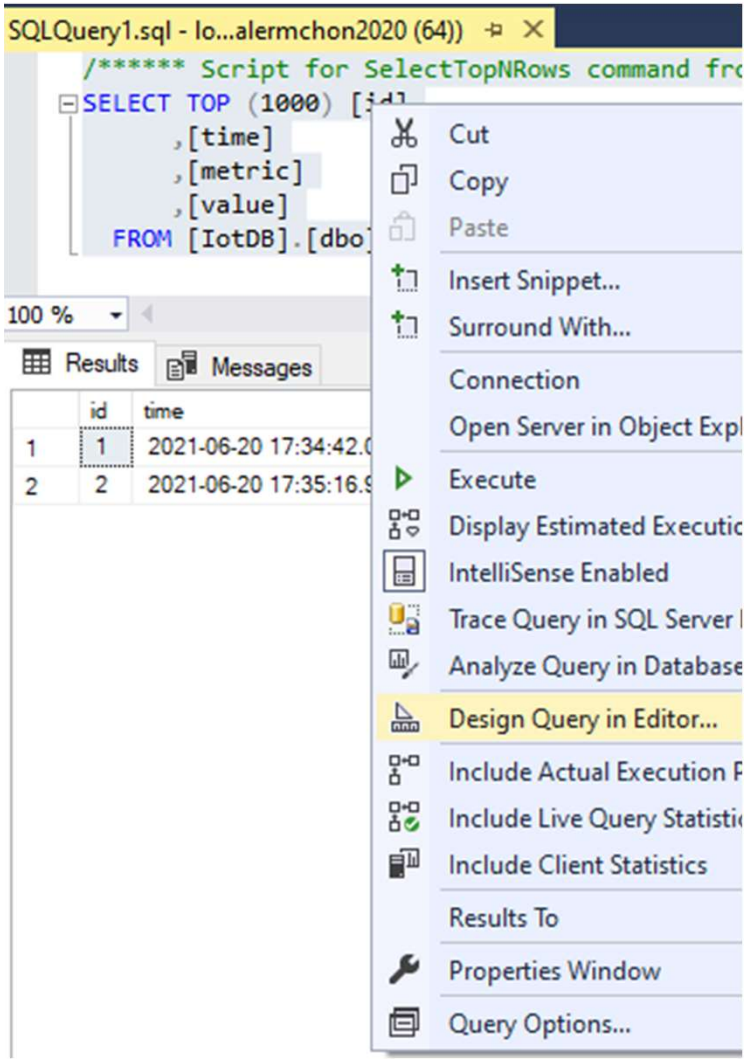

Object Explorer
Connect
localhost (SQL Server 15.0.2000.5 - CHA
Databases
System Databases
Database Snapshots
Atlanta_BillingNote
Atlanta_Shipments
Atlanta_SNote
Atlanta_Warehouse
formula
PopShopDB
ScaleDB
IotDB
Database Diagrams
Tables
System Tables
FileTables
External Tables
Graph Tables
dbo.LevelControl
Views
External Resources
Synonyms
Programmability
Service Broker
Storage
Security
New Table...
Design
Select Top 1000 Rows
Edit Top 200 Rows
Script Table as
View Dependencies
Memory Optimization A
Encrypt Columns...
Full-Text index
Storage
Stretch
Policies
Facets
Start PowerShell
Reports

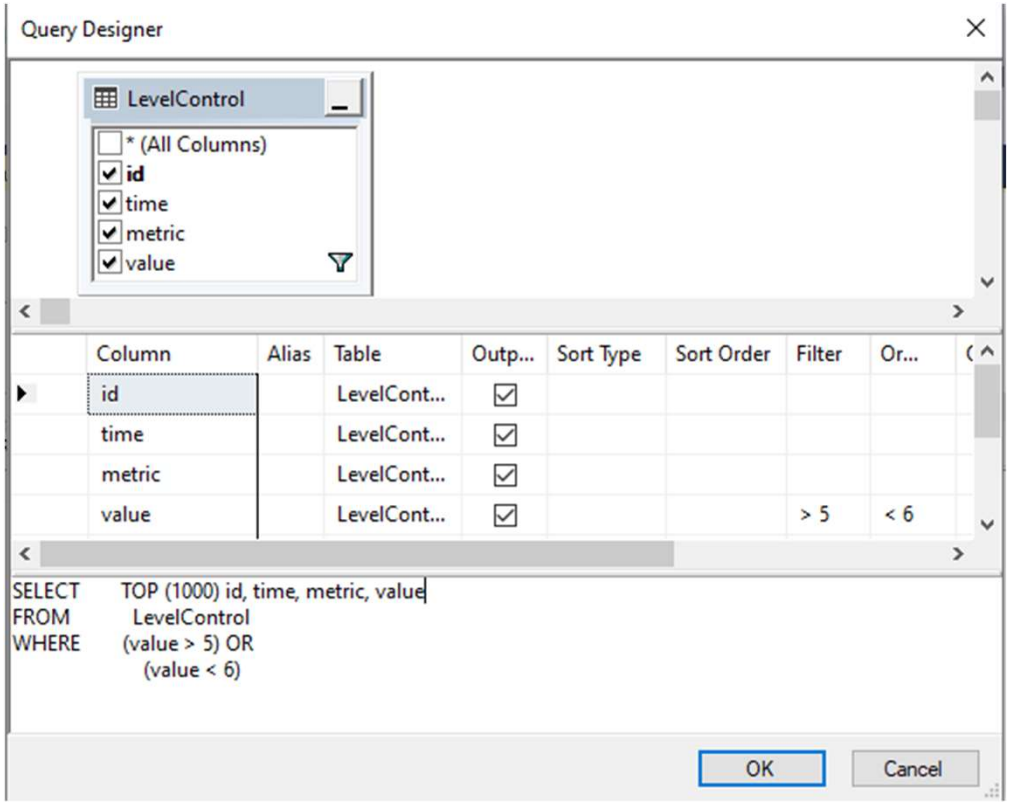

CHALERMCHON2020...dbo.LevelControl
id
time
metric
value
NULL
NULL
level
5.5
NULL
NULL
flow
3.3
NULL
NULL
NULL
NULL

Select Top 1000 Rows


SQLQuery1.sql - lo...alermchon2020 (64))
/****** Script for SelectTopNRows comman
SELECT TOP (1000) [id]
,[time]
,[metric]
,[value]
FROM [IotDB].[dbo].[LevelControl]
100 %
Results
Messages
id
time
metric
value
1
1
2021-06-20 17:34:42.043
level
5.5
2
2
2021-06-20 17:35:16.920
flow
3.3

Design Query In Editor





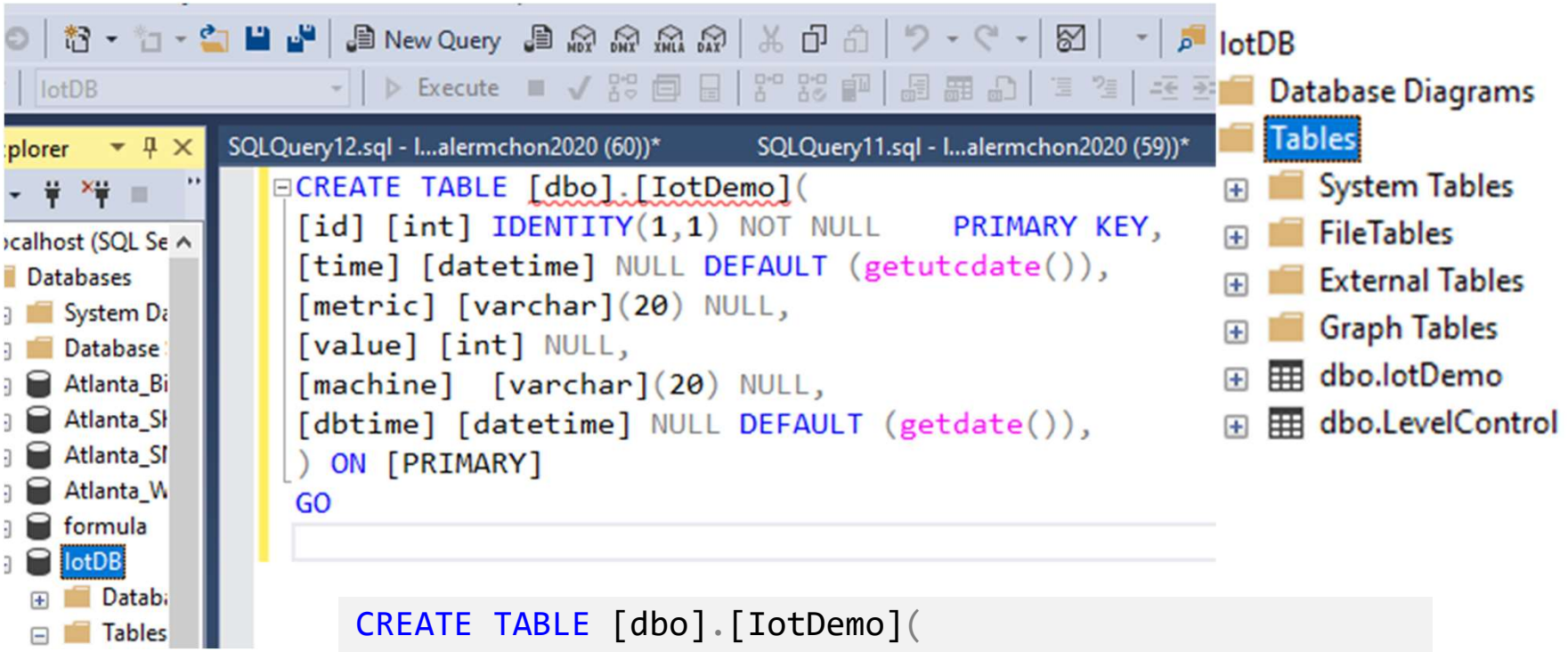

```
SELECT TOP (100) id, time, metric,value
FROM    LevelControl
WHERE (value > 5) OR (value < 6)
```

```
SELECT TOP (1000) [id]
      ,[time]
      ,[metric]
      ,[value]
            ,dateadd(HOUR, 7 , [time])
  FROM [IotDB].[dbo].[LevelControl]
```

Basic SQL Language

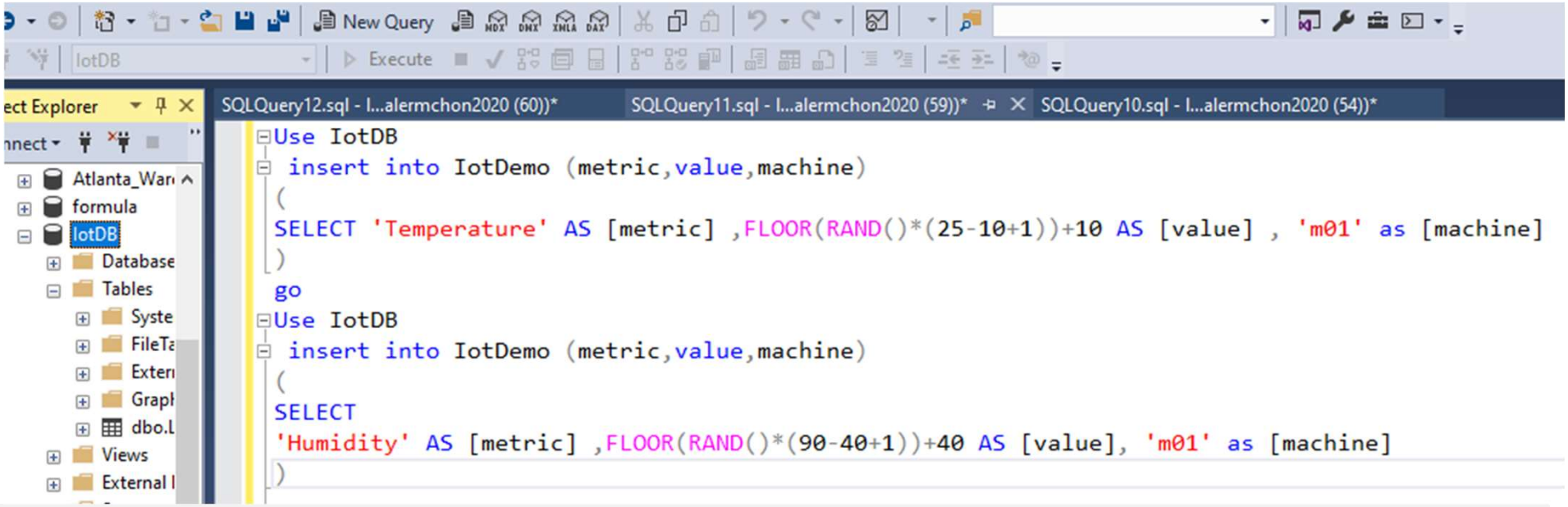
- SELECT -- Column names
- FROM -- Table or View name
- WHERE -- Filter criteria
- GROUP BY -- Logic to roll-up records
- HAVING -- Criteria for GROUP BY logic
- ORDER BY – Sort column name data either
  - ASC (ascending) or
  - DESC (descending)

Create Table (SQL Scribe)




```
CREATE TABLE [dbo].[IotDemo](
[id] [int] IDENTITY(1,1) NOT NULL    PRIMARY KEY,
[time] [datetime] NULL DEFAULT (getutcdate()),
[metric] [varchar](20) NULL,
[value] [int] NULL,
[machine]  [varchar](20) NULL,
[dbtime] [datetime] NULL DEFAULT (getdate()),
) ON [PRIMARY]
GO
```

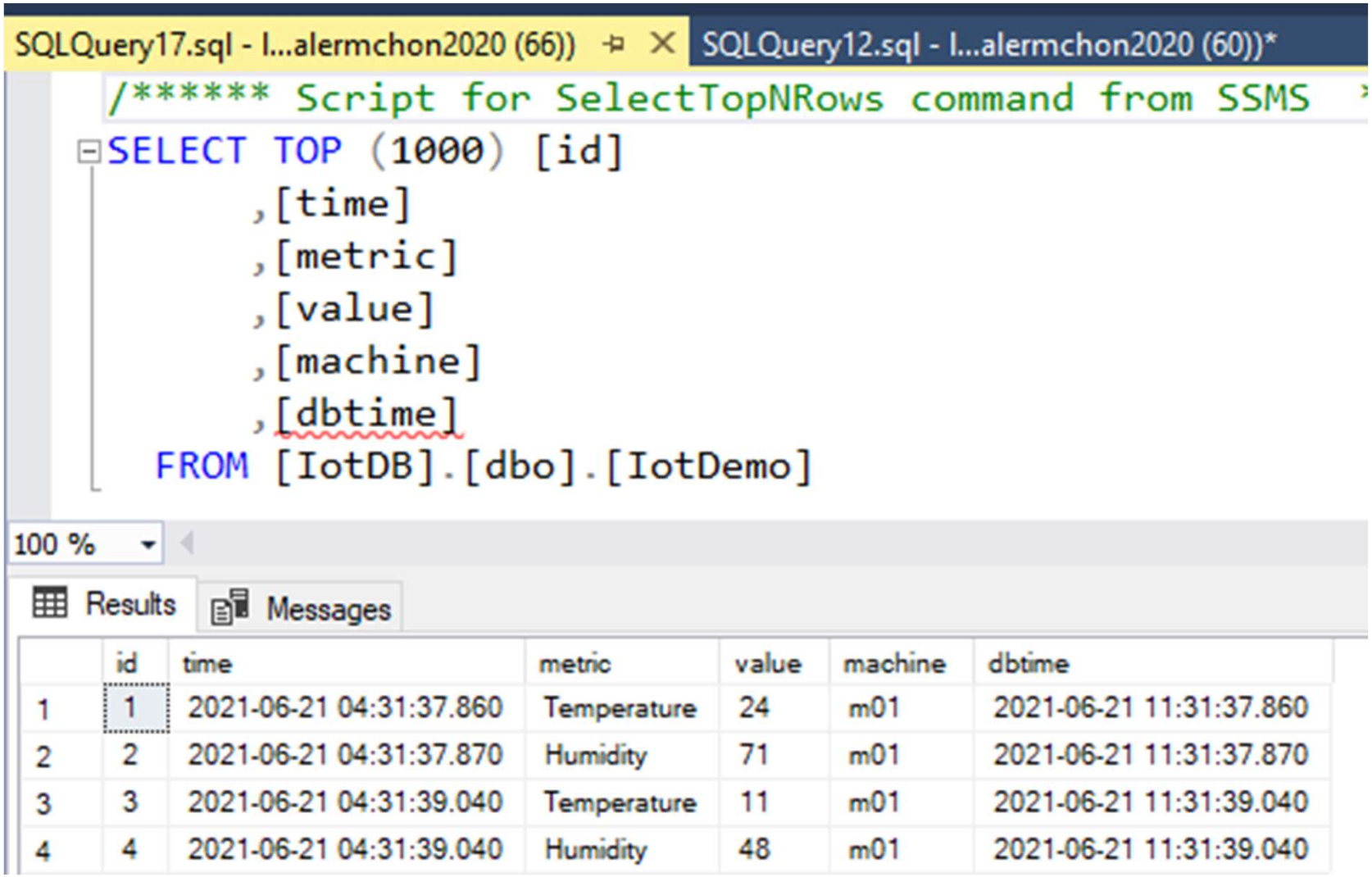
Insert IotDemo Table (SQL Scribe)




```
Use IotDB

insert into IotDemo (metric,value,machine)
VALUES
     ('Temperature', FLOOR(RAND()*(25-15+1))+15 , 'm01')
    ,('Humidity' , FLOOR(RAND()*(90-40+1))+40 , 'm01')
    ,('Counter1' , FLOOR(RAND()*(50-30+1))+30 , 'm01')
    ,('Counter2' , FLOOR(RAND()*(50-30+1))+30 , 'm02')
    ,('Counter3' , FLOOR(RAND()*(50-30+1))+30 , 'm03')

go
insert into IotDemo (metric,value,machine)
(SELECT 'Temperature' AS [metric] ,FLOOR(RAND()*(25-15+1))+15 AS [value] , 'm01' as [machine])
```



	id	time	metric	value	machine	dbtime
1	1	2021-06-21 04:31:37.860	Temperature	24	m01	2021-06-21 11:31:37.860
2	2	2021-06-21 04:31:37.870	Humidity	71	m01	2021-06-21 11:31:37.870
3	3	2021-06-21 04:31:39.040	Temperature	11	m01	2021-06-21 11:31:39.040
4	4	2021-06-21 04:31:39.040	Humidity	48	m01	2021-06-21 11:31:39.040

Update Scribe (SQL)

```
UPDATE  IotDemo
SET    machine = 'm01'
```

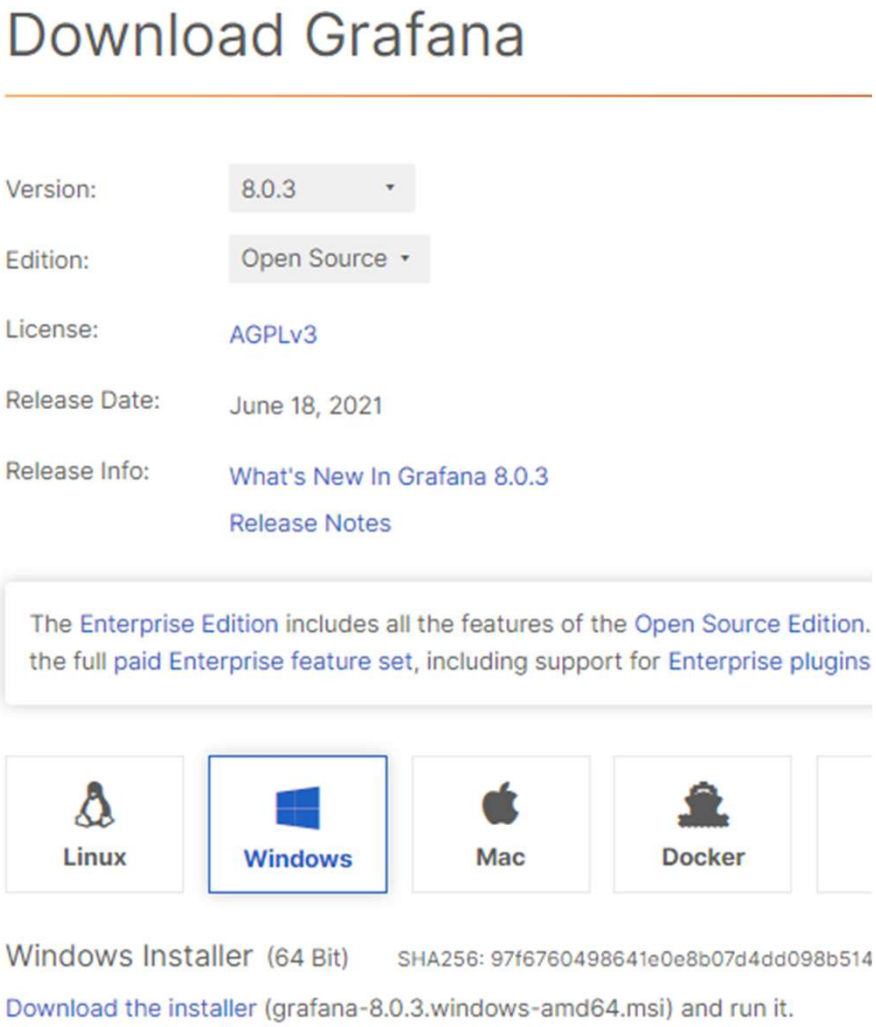
```
UPDATE  IotDemo
SET    machine = ‘m02’
Where metric = ‘level’
```

Delete Scribe (SQL)

```
DELETE FROM  IotDemo
       WHERE    (id = 1)
```

Download Grafana

https://grafana.com/grafana/download?edition=oss&platform=windows



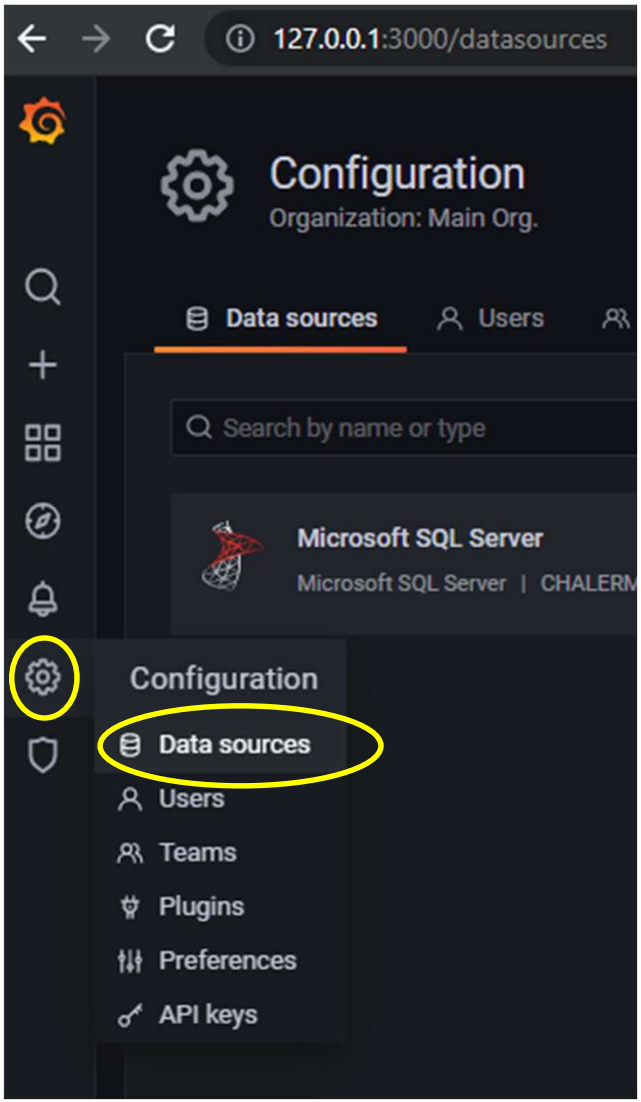
Grafana

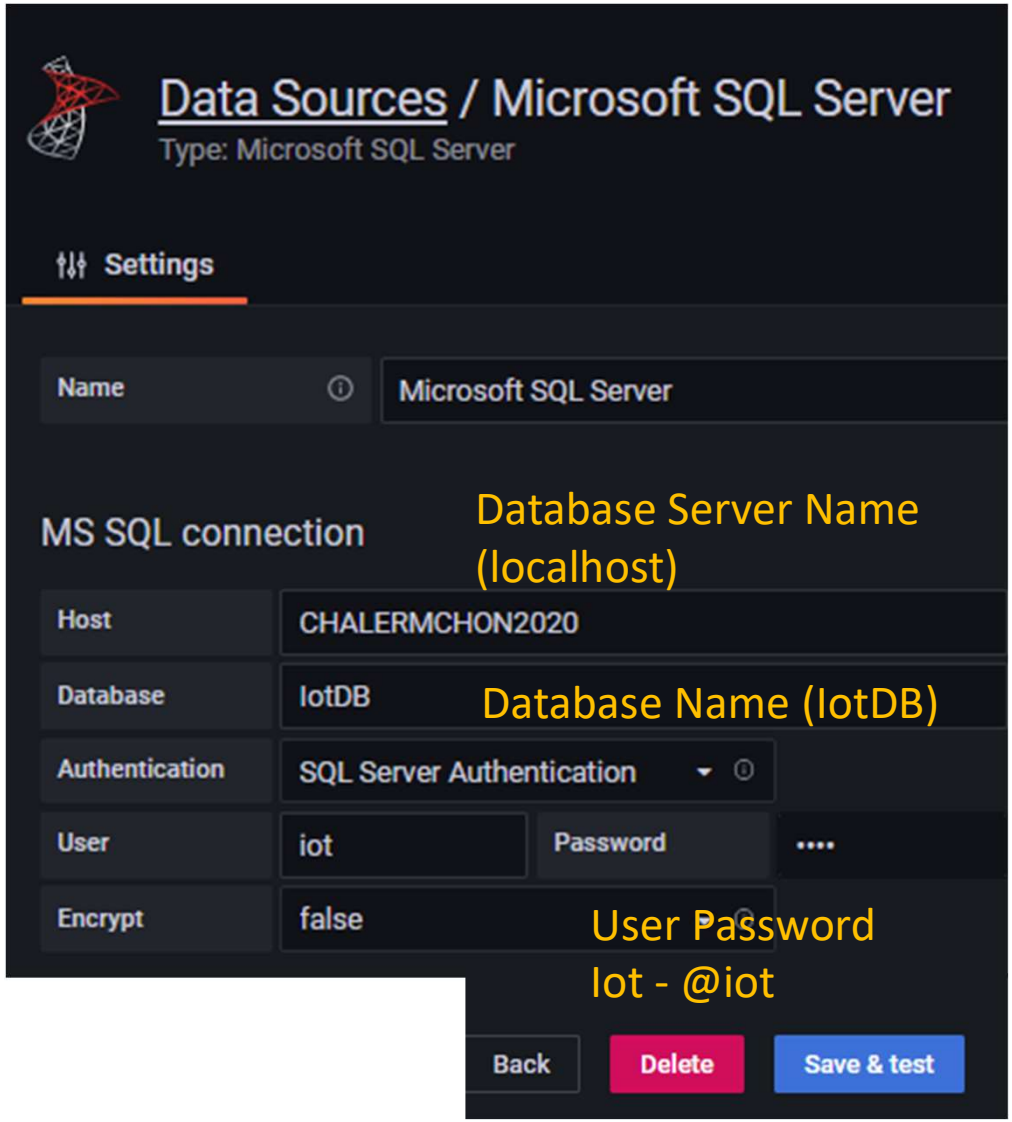
- Data Source (Any Database)

	id	metric	value	time	machine
1	1	Temperature	39	2021-06-20 12:05:40.220	m01
2	2	Humidity	67	2021-06-20 12:05:40.220	m01
3	3	Temperature	72	2021-06-20 12:05:54.083	m01
4	4	Humidity	56	2021-06-20 12:05:54.083	m01
5	5	Temperature	43	2021-06-20 12:06:00.280	m01
6	6	Humidity	41	2021-06-20 12:06:00.280	m01
7	7	Temperature	37	2021-06-20 12:09:50.193	m01
8	8	Humidity	47	2021-06-20 12:09:50.193	m01

- Dashboard (SQL)

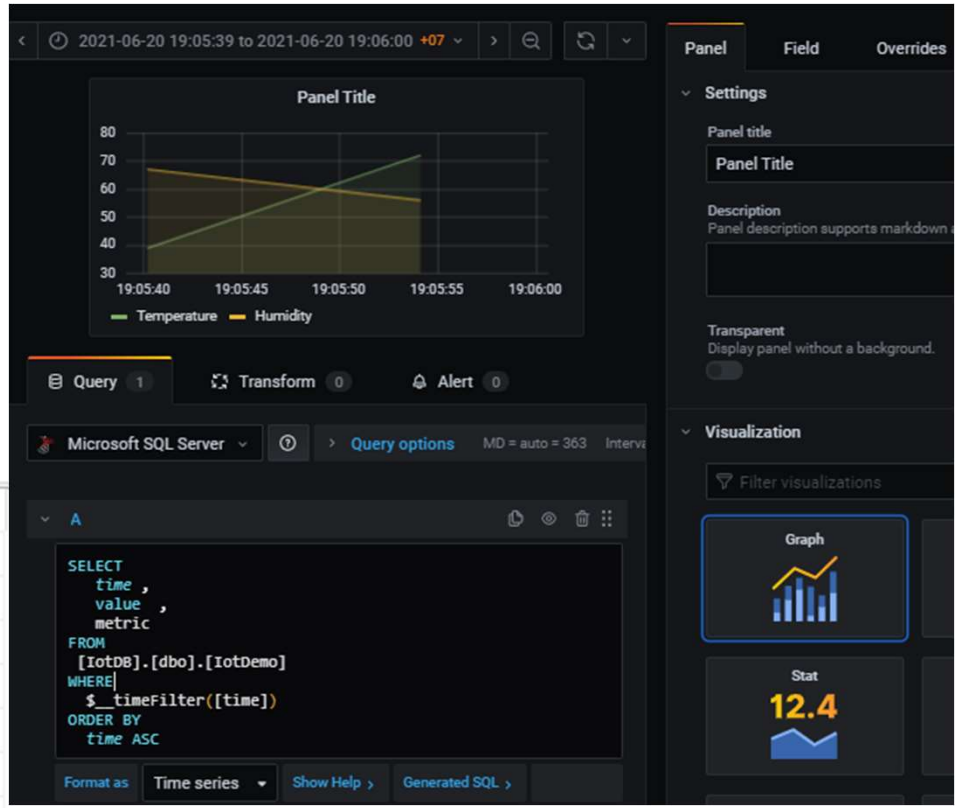
```
SELECT
  [time] ,  [value]  ,  [metric]
FROM [IotDB].[dbo].[IotDemo]
WHERE  $__timeFilter([time])
ORDER BY  time ASC
```


127.0.0.1:3000/datasources
Configuration
Organization: Main Org.
Data sources
Users
Search by name or type
Microsoft SQL Server
Microsoft SQL Server | CHALERM
Configuration
Data sources
Users
Teams
Plugins
Preferences
API keys


Data Sources / Microsoft SQL Server
Type: Microsoft SQL Server
Settings
Name
Microsoft SQL Server
MS SQL connection
Database Server Name (localhost)
Host
CHALERMCHON2020
Database
IotDB
Database Name (IotDB)
Authentication
SQL Server Authentication
User
iot
Password
Encrypt
false
User Password
Iot - @iot
Back
Delete
Save & test

Grafana Code

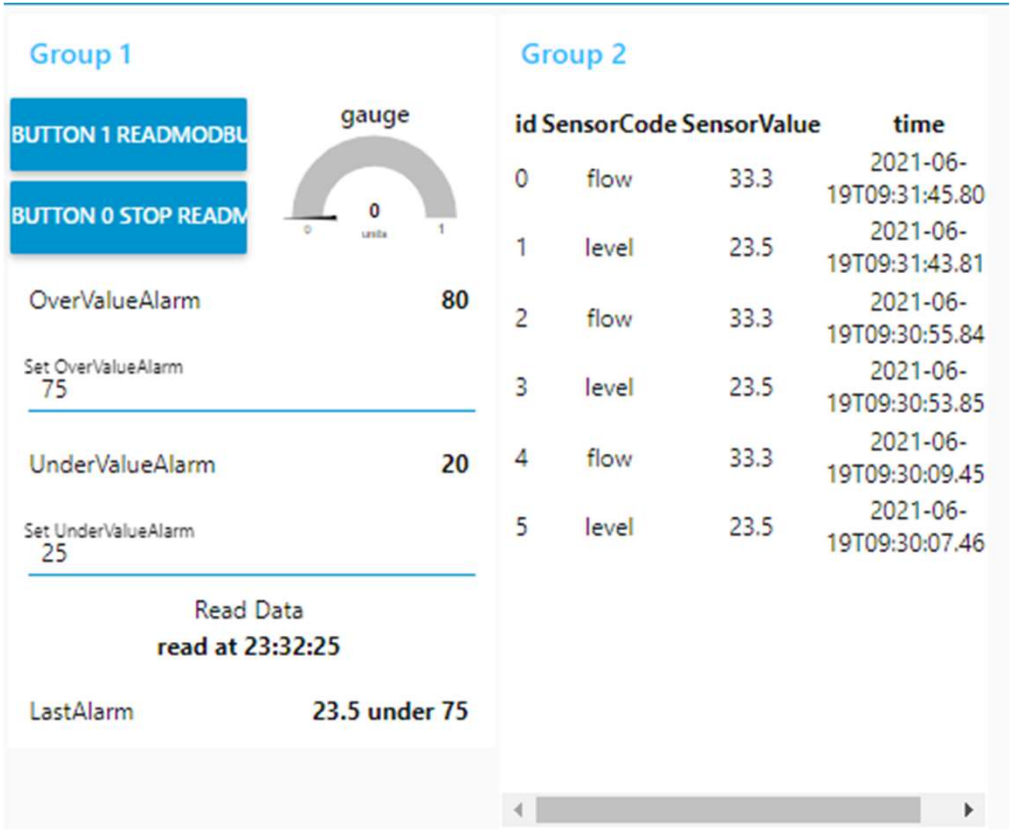
```
SELECT [time] , [value] , [metric]
FROM [IotDB].[dbo].[IotDemo]
WHERE $__timeFilter([time])
ORDER BY time ASC
```



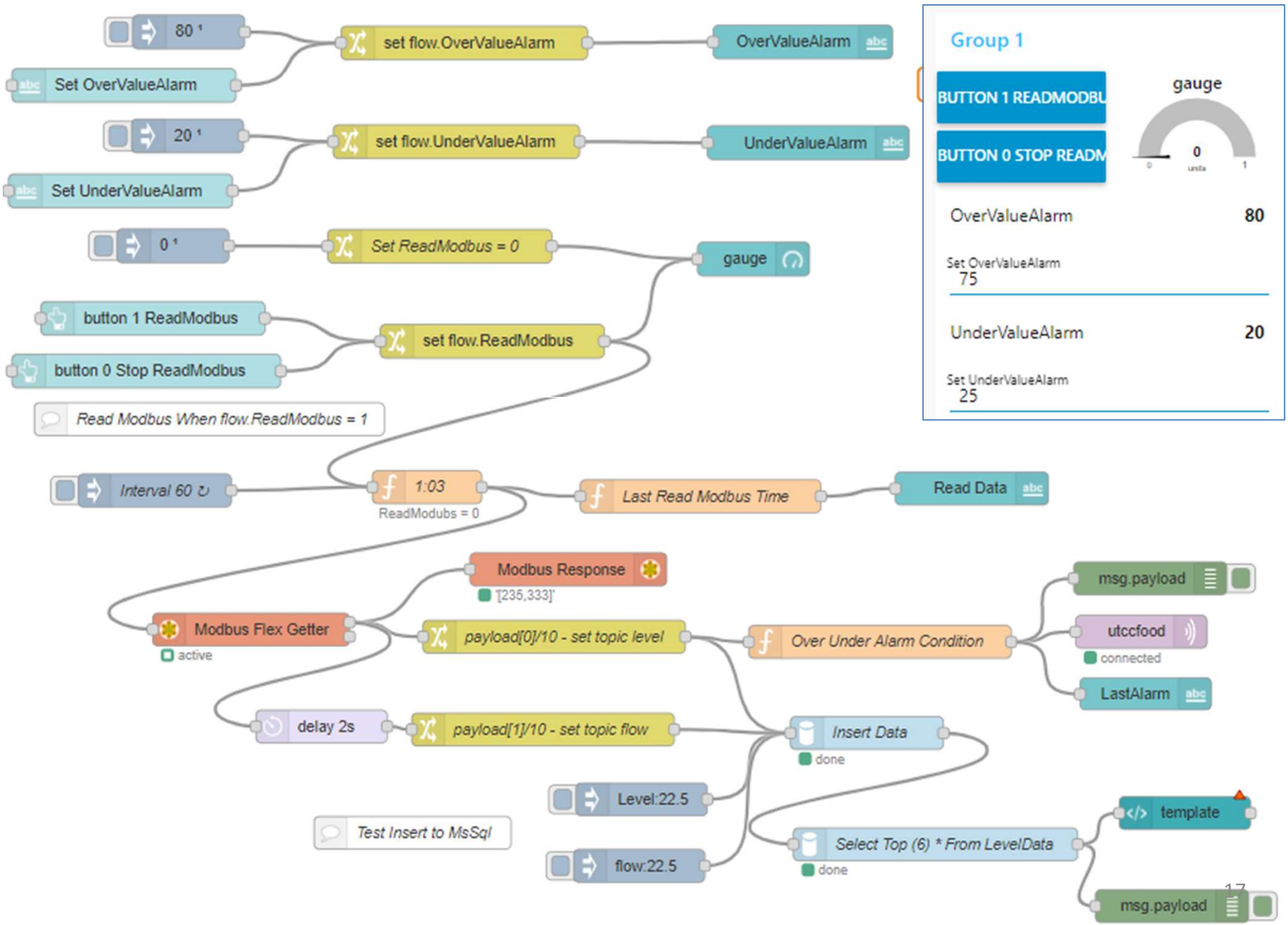
	id	metric	value	time	machine
1	1	Temperature	39	2021-06-20 12:05:40.220	m01
2	2	Humidity	67	2021-06-20 12:05:40.220	m01
3	3	Temperature	72	2021-06-20 12:05:54.083	m01
4	4	Humidity	56	2021-06-20 12:05:54.083	m01
5	5	Temperature	43	2021-06-20 12:06:00.280	m01
6	6	Humidity	41	2021-06-20 12:06:00.280	m01
7	7	Temperature	37	2021-06-20 12:09:50.193	m01
8	8	Humidity	47	2021-06-20 12:09:50.193	m01

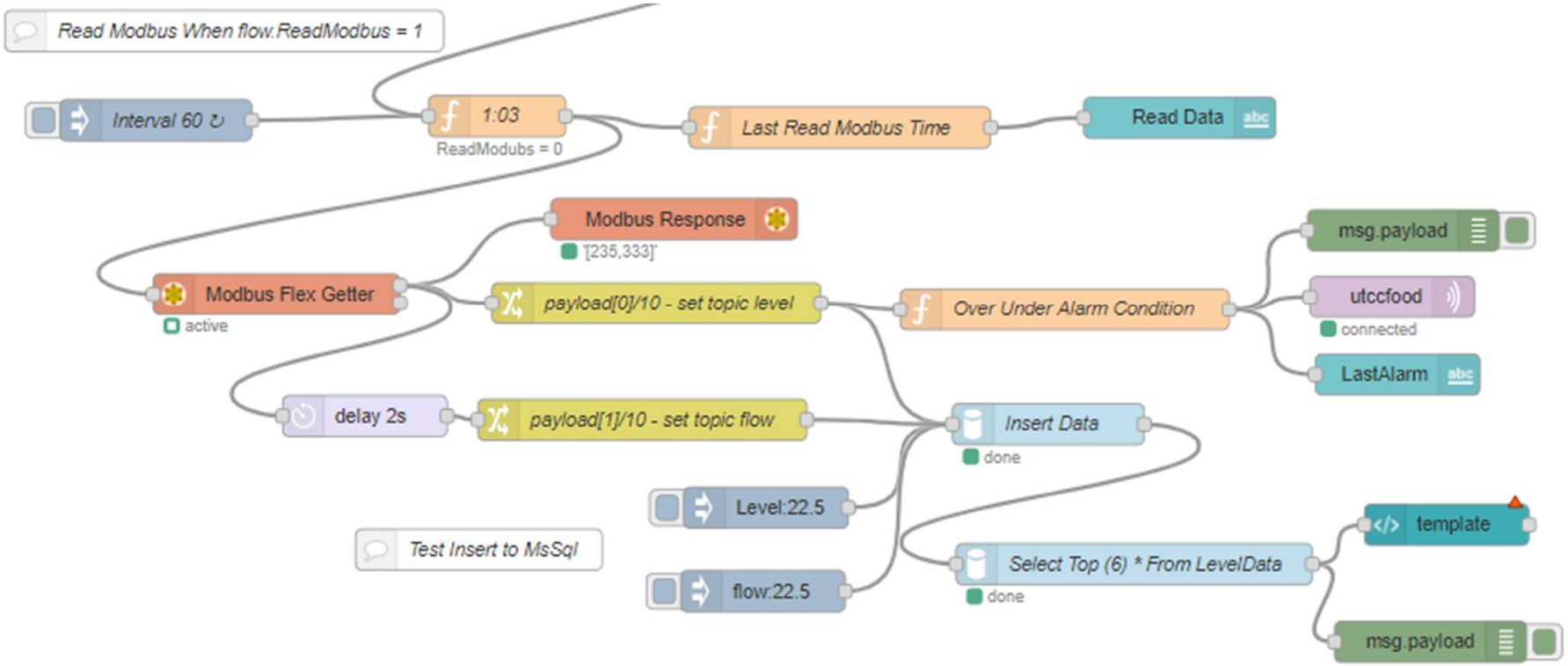
```
SELECT TOP (1000) *  FROM [IotDB].[dbo].[IotDemo]
```

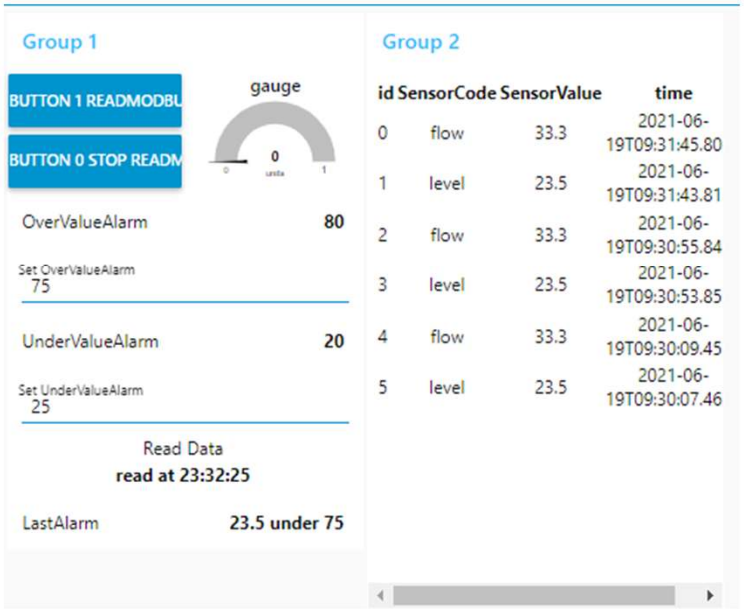
Node-Red Control FactoryIO
(Advanced Level Control Dashboard)



Node-Red Level Control








```
<table style="width:100%">
  <tr>
    <th>id</th>
    <th>SensorCode</th>
    <th>SensorValue</th>
    <th>time</th>
  </tr>
  <tr ng-repeat="x in msg.payload | limitTo:20">
    <td>{{$index}}</td>
    <td align="center">{{msg.payload[$index].SensorCode}}</td>
    <td align="center">{{msg.payload[$index].SensorValue}}</td>
    <td align="center">{{msg.payload[$index].time}}</td>
  </tr>
</table>
```