GEUTEBRÜCK

People & Vehicle Counting Solution

GEUTEBRÜCK

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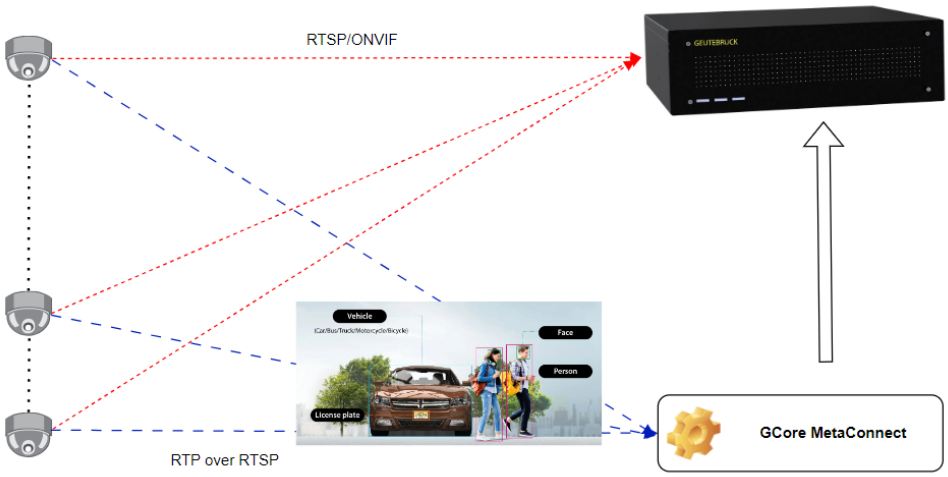
1 Introduction

1.1 Overview

The application will establish a direct connection to the camera to retrieve AI analytics data, which will then generate G-Core actions in accordance with the associated metadata.



1.2 Grafana Dashboard

Grafana is an open-source analytics and interactive visualization web application that allows users to ingest data from various sources, query this data, and display it on customizable charts for easy analysis.


Enter
Leave
Parking
Ramp Traffic
Vehicle Dwell Time for
1
Mininum minutes
340
Average minutes
824
Maximu minutes

2 Application Installation & Configuration

We recommend installing the application on the G-Core machine for automatic configuration. This setup will:

- Automatically populate the camera IP, user ID, and password.
- Use the G-Core database for data management.

If you choose not to use the G-Core machine, you will need to:

- Manually enter the camera IP, user ID, and password.
- Install SQL Express on your machine to handle the database requirements.

2.1 Installation

The application needs a database to store information on people or vehicle counting in order to provide statistical data through Grafana. You can use an existing Gcore database or install SQL Express on your machine.

In this case, we will use the G-Core database. If you prefer to use SQL Express, download and install the software, and then refer to the 'Troubleshooting Guide' at the end.

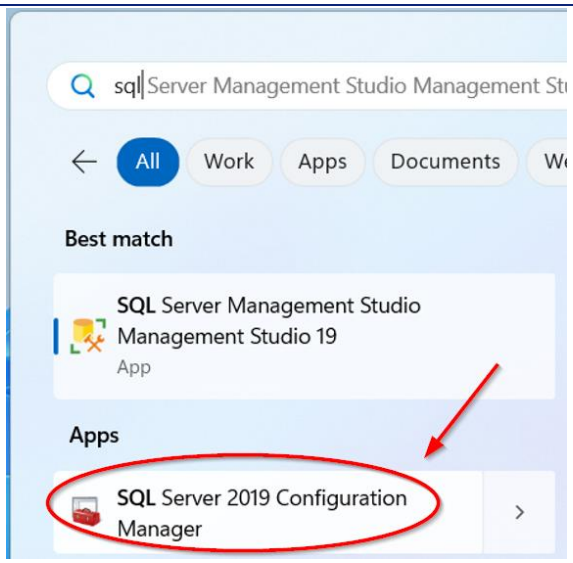
SQL Server 2022 Express is a free edition of SQL server and can be downloaded from the link below.

https://www.microsoft.com/en-au/sql-server/sql-server-downloads

2.1.1 G-Core Database as a data source

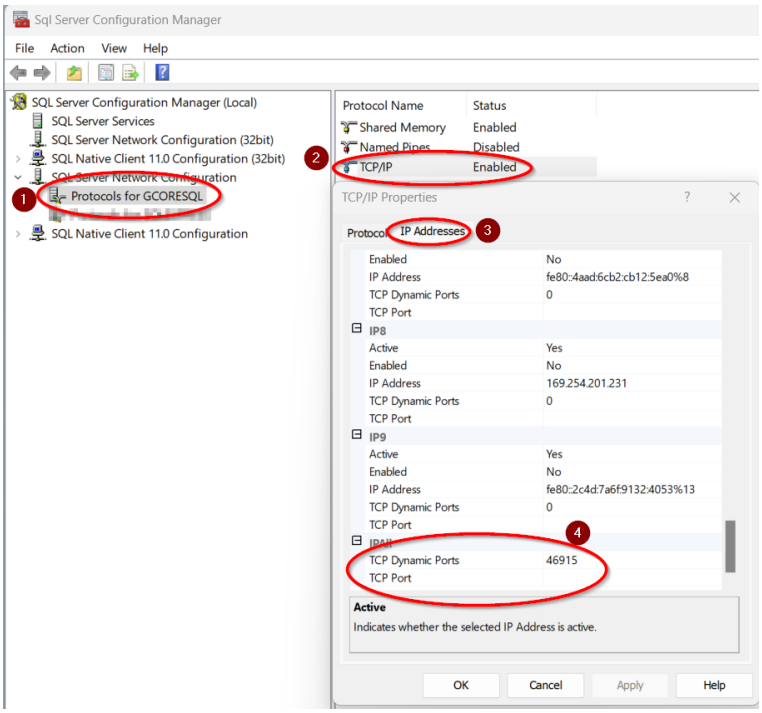
We need to know which port is being used by the G-Core database so that we can configure it for the application.

1) Click Start > Programs > "SQL Server XXXX Configuration" > SQL Configuration Manager.



2) In SQL Server Configuration Manager, expand SQL Server Network Configuration and then select Protocols for GCORESQL on the left panel. To identify the TCP/IP Port used by the SQL Server Instance, right click on TCP/IP and select Properties from the drop down as shown below.

3) In TCP/IP Properties window click on the IP Addresses tab and you will see the Port used by the instance of SQL Server in either TCP Dynamic Ports for a dynamic port or TCP Port for a static port as highlighted in the snippet below.



2.1.2 G-Core Setting & License Key Setting

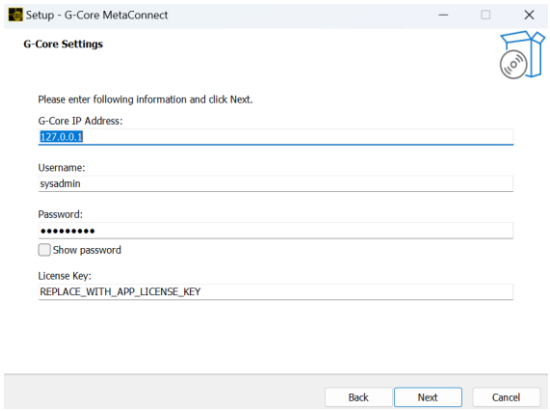
Click the application installation file to start the installation. While you can change the input information after installation, it's recommended to provide accurate details during setup, especially for the database configuration.

1) G-Core IP Address

2) G-Core user name

3) G-Core user password

4) License key



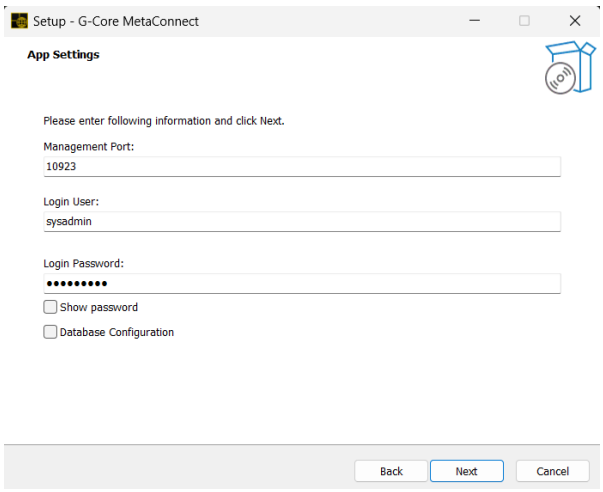
2.1.3 Application Login Setting

1) Application port

2) Application user name

3) Application user password

4) You need to tick “Database Configuration”.



2.1.4 Database Setting

1) Please use the information you got in the previous chapter (i.e : IP-ADDRESS\GCORESQL,46915)

2) Do not change this unless you plan to use custom database

3) Specify the database user ID you want to use, unless you already have one.

4) Specify the database user password you want to use, unless you already have one.

5) If you are connecting to a data source provider that supports Windows authentication or are using a local machine (without a domain account), configure the options as follows

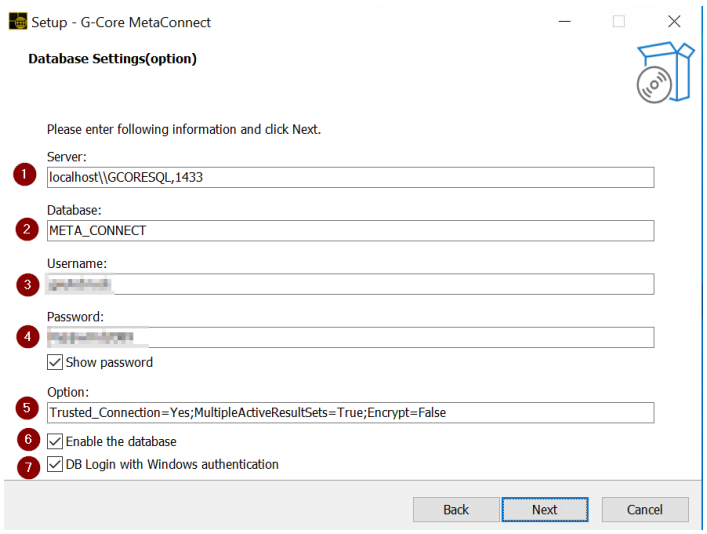
   "**Trusted_Connection=yes;**MultipleActiveResultSets=True;Encrypt=False**".**

   However, if you are using domain login credentials or a remote database, you will need to update them as follows.

   "**Trusted_Connection=No;**MultipleActiveResultSets=True;Encrypt=False**".**

6) N/A

7) Please tick the box ***if you want to connect to a local database without domain login credentials***. Leave the box **unticked if you want to connect to a remote database or domain login credentials**.

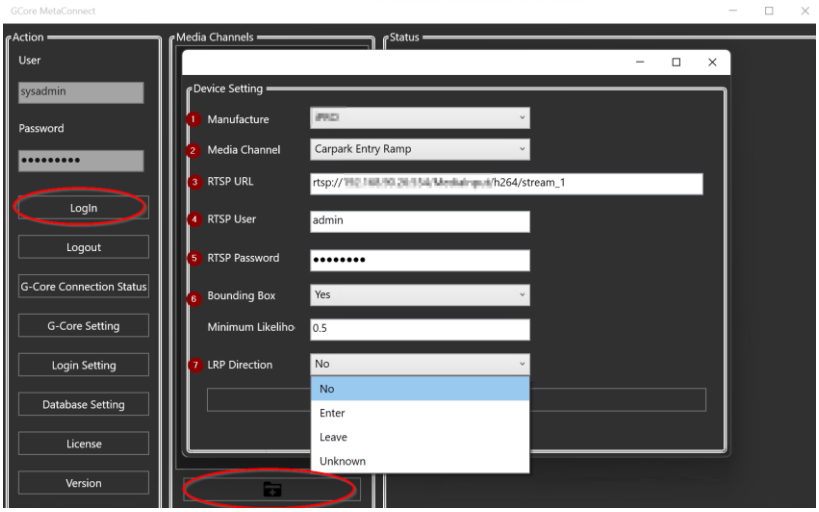


2.2 Configuration

We need to add the camera channels that will be used for counting people or vehicles.

2.2.1 Add camera

Belos is the main screen of the user interface and you can add or delete the camera or update the many of configurations.



1) Camera manufacturers : It will automatically select the appropriate manufacturer when you choose the media channel. However, this may not occur if there is a communication timeout with the camera or if the application was not installed on the G-Core machine.

   Note : ***Please ensure that the correct manufacturer is selected, as this is crucial for proper data parsing by the application. Choosing the wrong manufacturer may cause the application to stop working***.

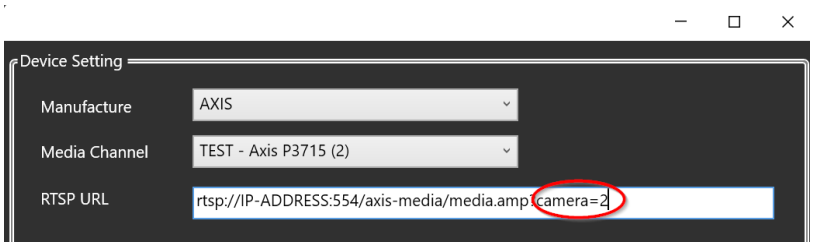
2) Media Channels : Once you select the media channels, No. 1, 3, 4, and 5 will be automatically populated if the application was installed on the G-Core machine. Otherwise, please provide this information manually.

3) LRP Direction : The application will use this information to store data on vehicle direction, even if multiple cameras supply the data. This is important to ensure accuracy and avoid potential errors.

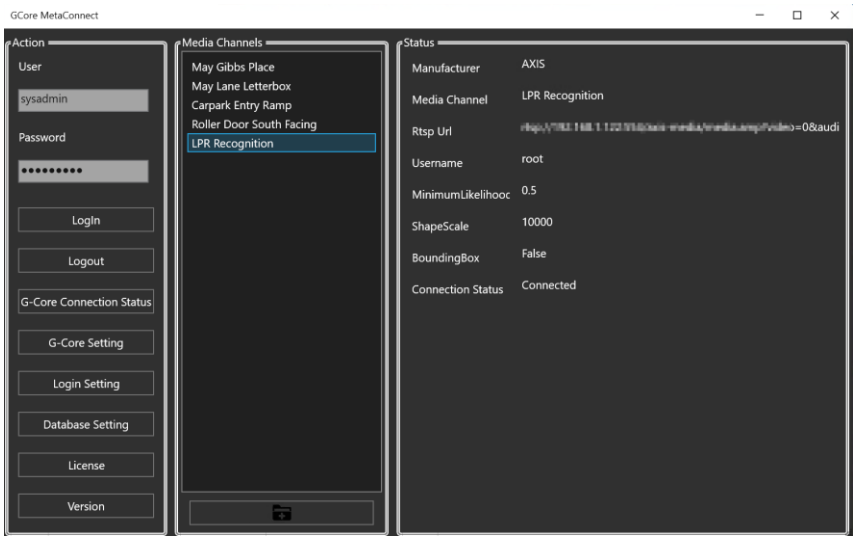
2.2.2 Axis - Multi head camera

Please add the camera number to the RTSP URL if the camera has multiple sensors.

rtsp://x.x.x.x:554/axis-media/media.amp?**camera=2**



2.2.3 Add camera result screen



3 Camera Configuration

3.1 Axis Camera Configuration

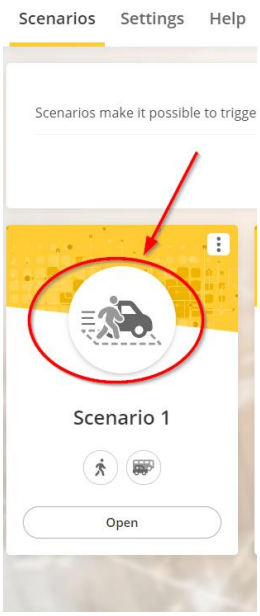
As of firmware 11.3, it is possible to count objects that cross a virtual tripwire in a defined direction using the Crossline counting scenario. An event can be triggered whenever a set number of selected objects have crossed the line.

Since Axis crossline counting does not provide the direction of movement, we need to use two lines: one for inbound and the other for outbound. Additionally, the naming must include specific information such as the floor, camera location, and direction.

3.1.1 Axis Object Detection

1) Open your web browser and go camera web page > App > Axis Object Analytics.

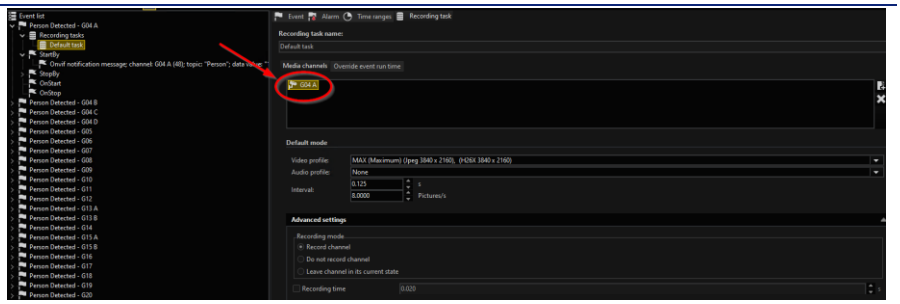
2) Create "**Object in Area"** as like following if you don't have it.



3.1.2 G-Core – Person Detection event(optional)

Loin to G-Set and click on "Event/Alarm settings" in the selection menu, the settings dialog is opened on the left-hand edge and the registers on the right-hand side of the setting area.

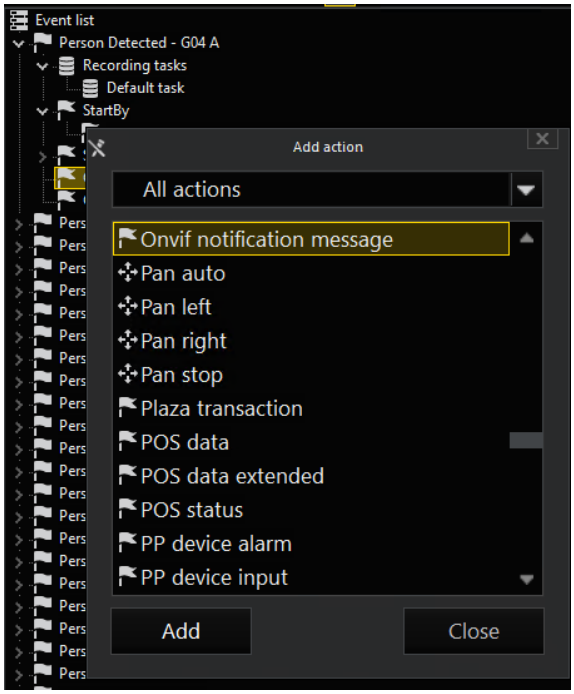
1) Clicking on Recording Task – Default Task opens the settings. > You can only assign a name for the recording tasks when you add one or more new recording tasks to the recording task of the event in the event list.



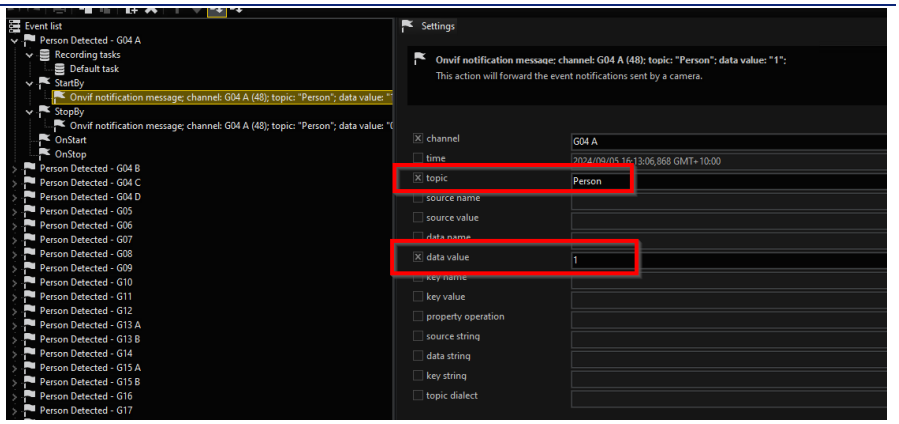
2) Right click the event list and then click ‘Add’ to create an event or click the icon in the toolbar.

3) Update the event title to whatever you prefer.

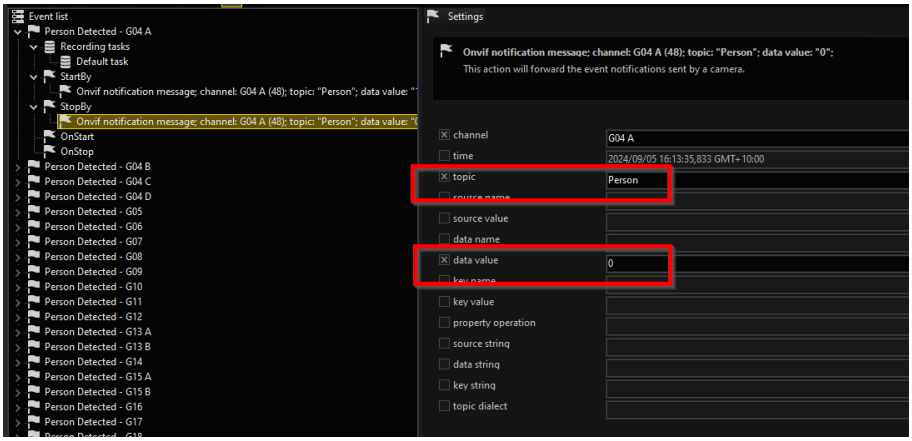
4) Click ‘StartBy’ to add the action, then select the “Onvif notification message”.



5) Update the 'channel' from which you wish to receive an event from the camera. Also, update the 'topic' and 'data value' as shown below.



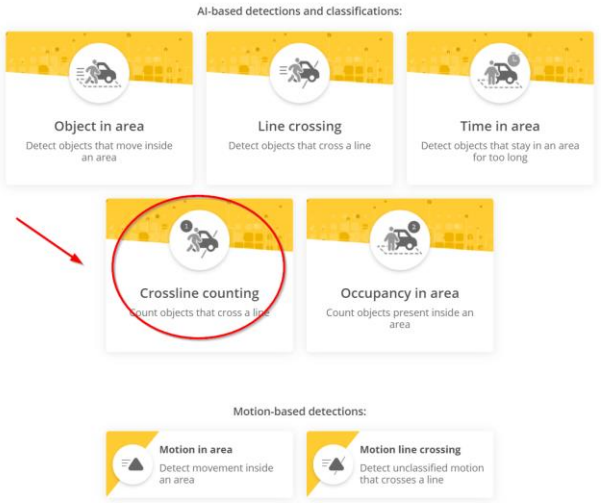
6) Crate ‘StopBy’ and update the 'channel' from which you wish to receive an event from the camera. Also, update the 'topic' and 'data value' as shown below.



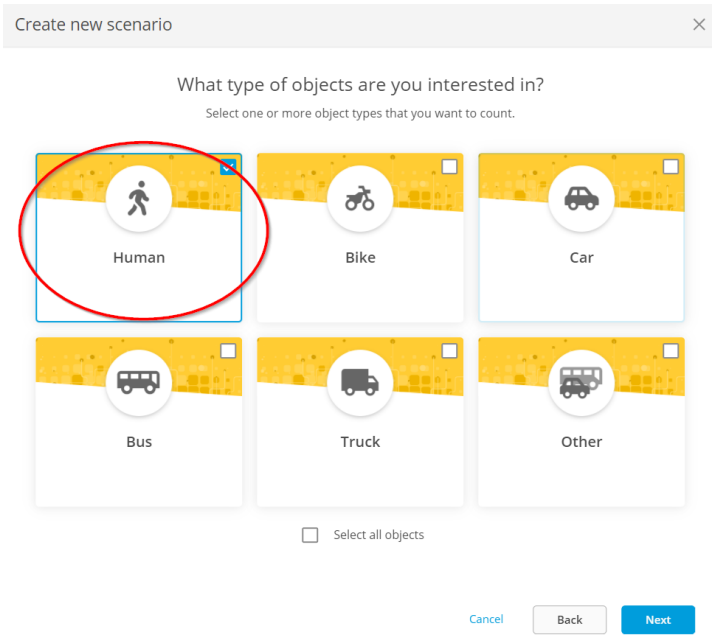
3.1.3 Axis Crossline counting

1) Open your web browser and go camera web page > App > Axis Object Analytics.

2) Add two 'Crossline Counting' configurations as follows. The names should be comma-separated values because the system supports direction-based counting, so we need two configurations to accurately track occupancy.

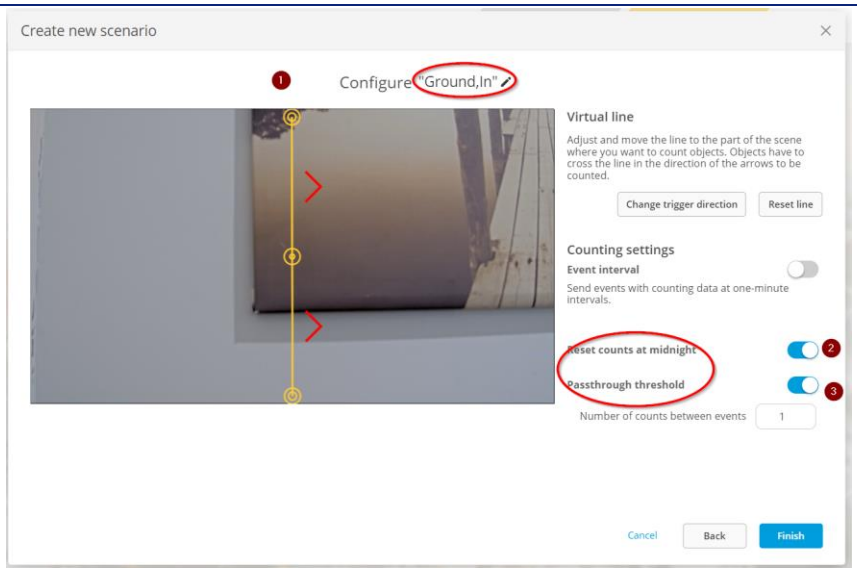


3) Select the 'Human' option to count the people.

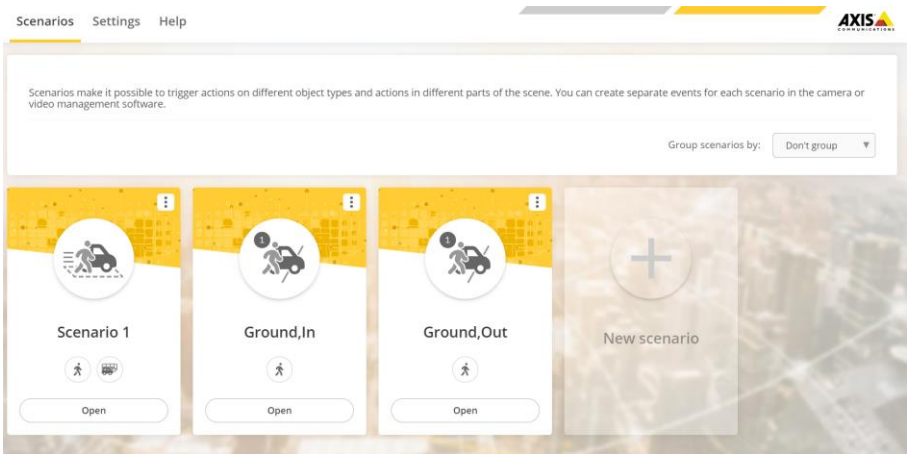


4) Axis allow 16 characters for the naming, and please use comma separate value to use it for Grafana statistics dashboard.

- Ground**,In** : The 'First value (Ground)' indicates the floor level, while selecting 'In' will count the people entering.
- Ground**,Out** : The 'First value (Ground)' indicates the floor level, while selecting 'Out' will count the people leaving.
- Please enable the 'Reset counts at midnight', and 'Passthrough threshold'.



5) Please create a rule for 'Ground, Out.' Below, you'll find the expected screen layout for reference.

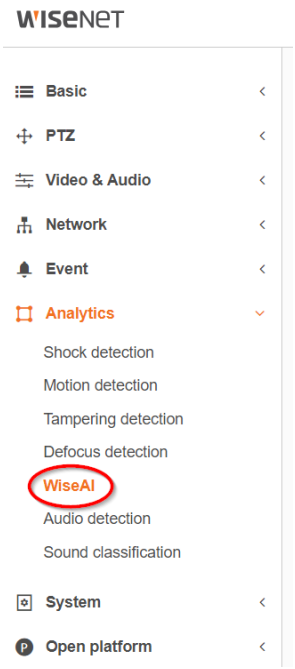


3.2 Hanwha Camera Configuration

The number of people entering and exiting is calculated by setting the people count line and direction. Thus it is possible to manage the appropriate number of people inside.

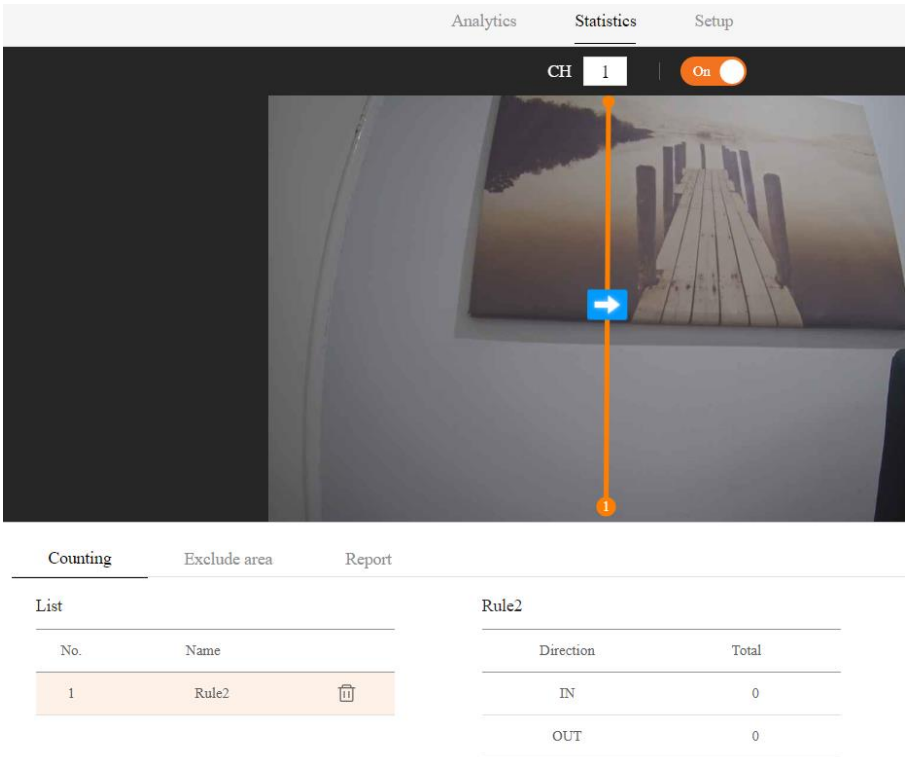
3.2.1 People counting

1) Open your web browser and go camera web page > Analytics > WiseAI



2) Go to Statistics > People counting.

Since Hanwha does not allow the use of commas or any other specific characters as delimiters, the rule name needs to be 'floor level.'



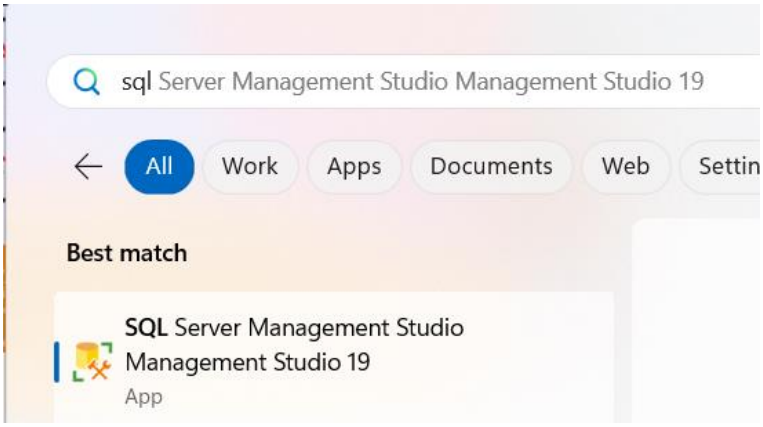
4 Grafana Installation & Configuration

4.1 SQL Server Configuration

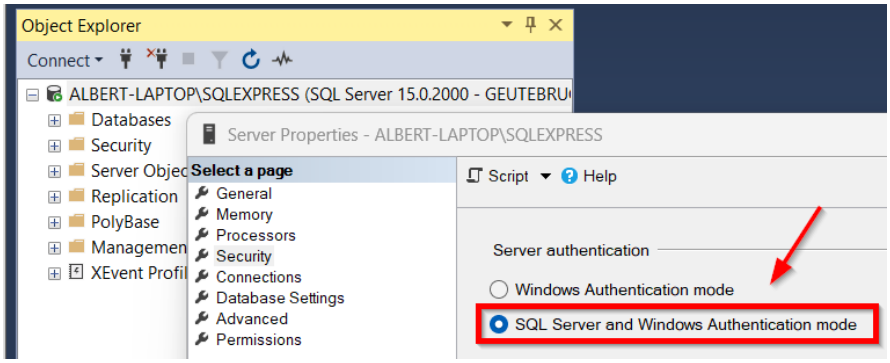
4.1.1 Create Database Login

The database was created by the application, and you need to create a login in SQL Server.

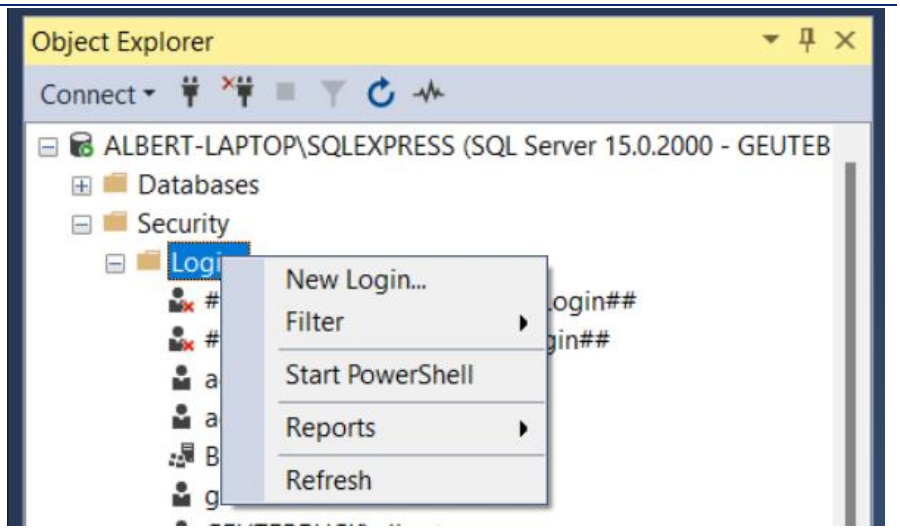
1) Click Start > Programs > “SQL Server Management Studio”



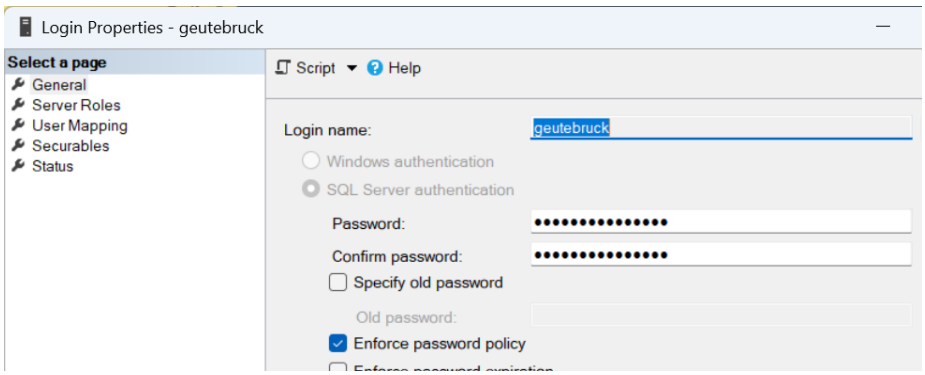
2) Ensure the administrator has selected server Properties with Securities authentication before creating New Login Account.



3) Right-click on Security in Object Explorer and choose New Login

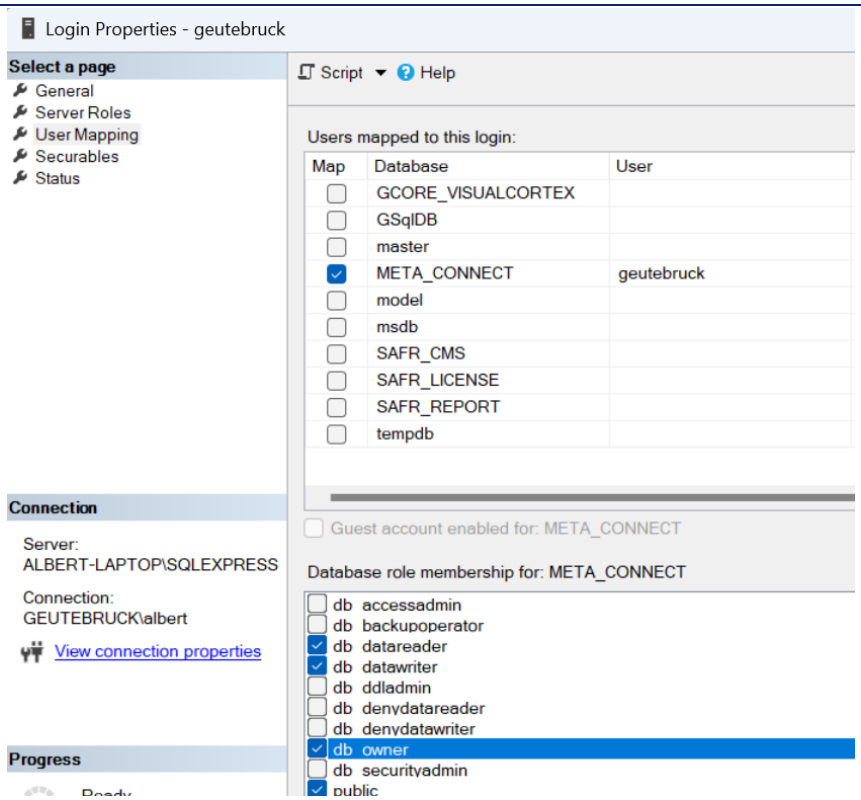


4) In the General option of the Login-New window: Provide the New User Login account Name and login authentication. Click OK (If the window is closed, select your new account name in the Security option of your Object explorer and double-click on it).



5) In Server Roles Option: Server-wide security privileges. Select the lists of all possible schemas that the new database user can own.By default, the login will be assigned to the public role. It means the object is available to all users.

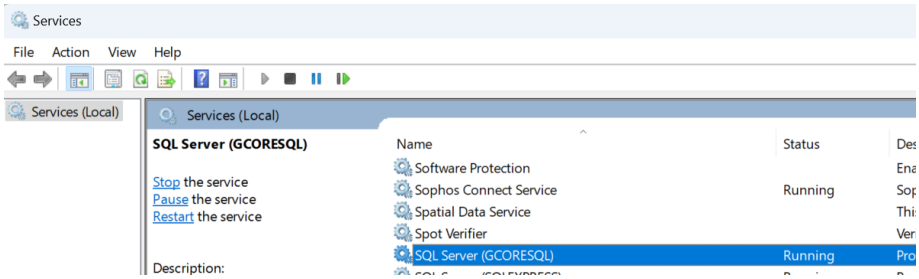
6) In User Mapping Option: In this, specify databases that the user account can access if the login needs more access in one or other databases. In the Membership, select the lists of all possible database membership roles the new database user can own.



4.1.2 Restart SQL Server

You may need to restart SQL Server if you change the server authentication settings.

The following screen capture shows a view of the Windows Service Manager on a server with a single instance of SQL Server as the default instance (GCORESQL)



4.2 Grafana Installation & Configuration

4.2.1 Grafana Installation

1) Navigate to the Grafnana download page https://grafana.com/grafana/download

2) Select the Grafana version you want to install.

3) Select 'Enterprise' edition.

4) Click Windows

5) To use the Windows installer, complete the following steps

    a. Click Download the installer.

    b. Open and run the installer.

4.2.2 Sign in to Grafana

To sign in to Grafana for the first time, follow these steps:

1) Open your web browser and go to root URL specified in Grafana configuration file. Unless you have configured Grafana differently, it is set to use http://localhost:3000 by default.

2) On the sign-in page, enter admin for username and password.

3) Click Sign in.

4) If successful, you will see a prompt to change the password.

5) Click OK on the prompt and change your password.

4.2.3 Microsoft SQL Server data source

To configure basic settings for the data source, complete the following steps.

1) Click Connections in the left-side menu.

2) Under Your connections, click Data sources.

3) Enter Microsoft SQL Server in the search bar.

4) Select Microsoft SQL Server. The Settings tab of the data source is displayed.

5) Set the data source's basic configuration options.

Field	Value	Description
Name	META_CONNECT_DB	
Host	IP-ADDRESS\GCORESQL,46915	Port might be different
Database	META_CONNECT	

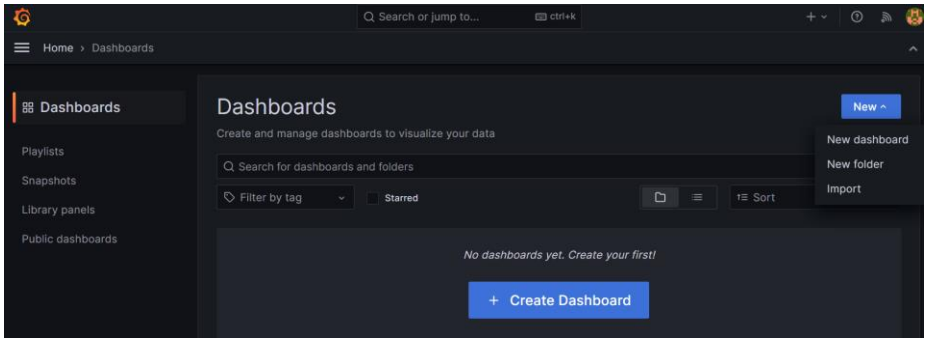
Username		
Password		

4.3 Import Dashboard

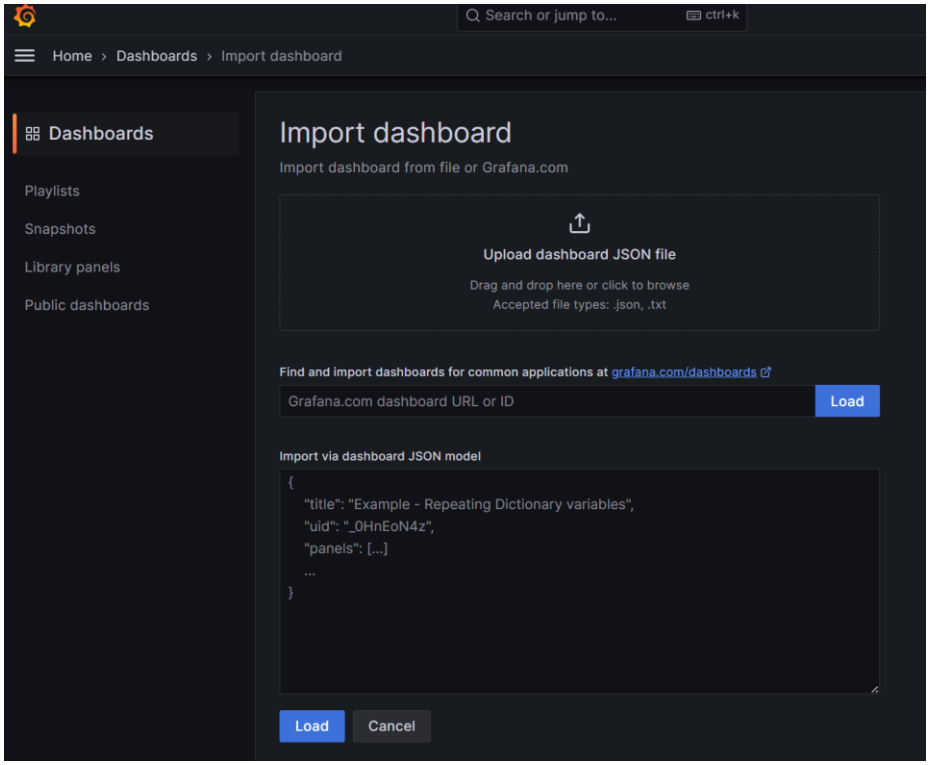
To import a dashboard, follow these steps:

1) Click Dashboards in the primary menu.

2) Click New and select Import in the drop-down menu.

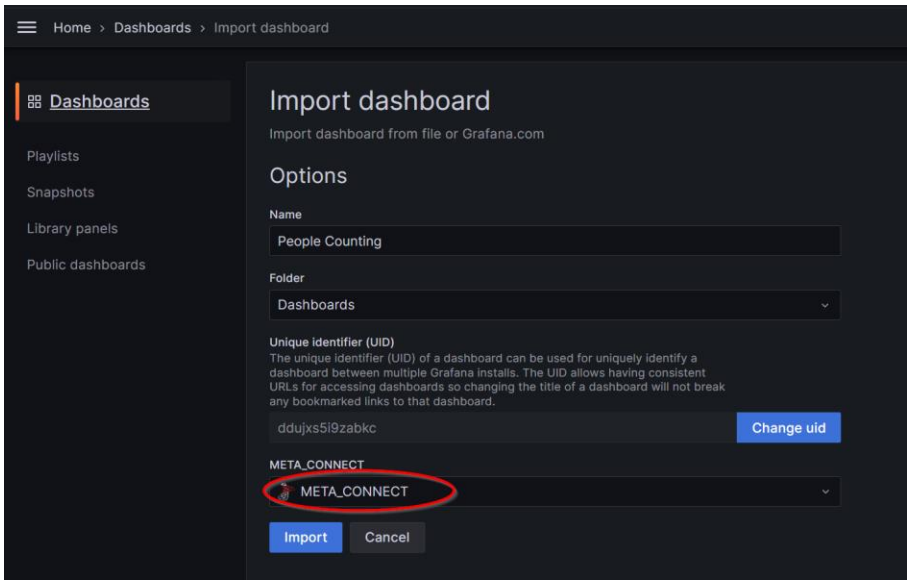


3) Upload a dashboard JSON file.



4) (Optional) Change the dashboard name, folder, or UID, and specify metric prefixes, if the dashboard uses any.

5) Select a data source, if required.



6) Click Import.

7) Save the dashboard.

5 Troubleshooting

5.1 Error creating database and table

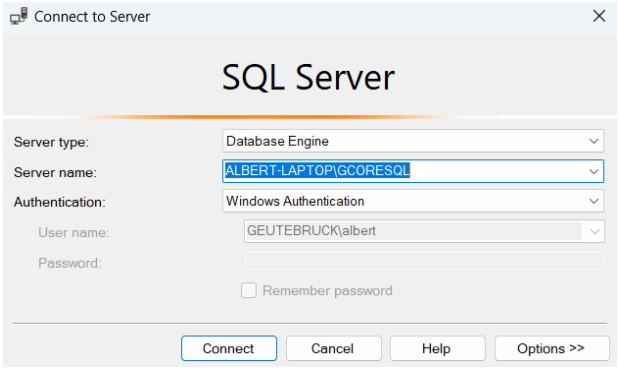
You might encounter a 'database and table creation error' when you start the application.

It might be related to the privileges of your Windows account or domain.

5.1.1 Verify that the database and tables exists

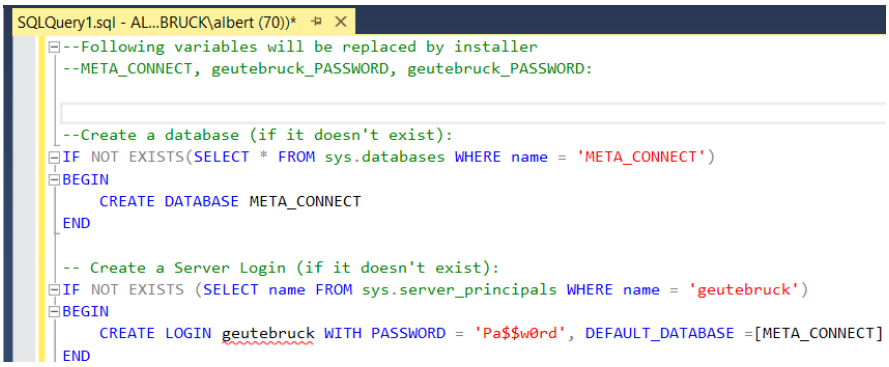
1) Start “SQL Server Management Studio Management Studio XX” as an Administrator.

2) Connect to the database using Windows Authentication.



3) Database script files exist in “C:\Program Files\Geutebruck Pacific\G-Core MetaConnect\database”

4) Open a “INSTALLER-DRIVEN-CREATE-DATABASE.sql", and Open a query window, paste the query from the file into it, and execute the query.



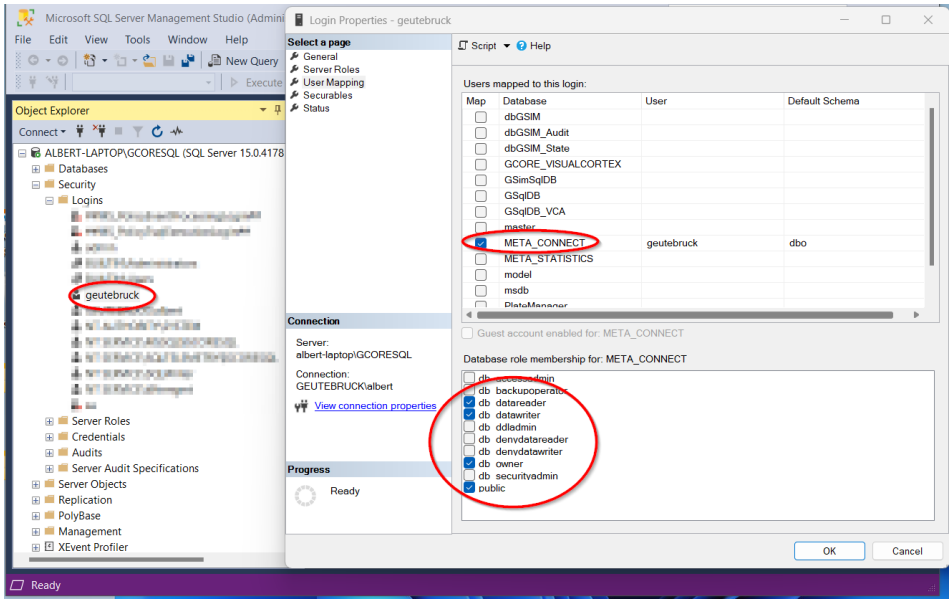
5) Open a “INSTALLER-DRIVEN-CREATE-LOGIN-ROLL.sql", and Open a query window, paste the query from the file into it, and execute the query.

6) Open a “INSTALLER-DRIVEN-CREATE-TABLE.sql", and Open a query window, paste the query from the file into it, and execute the query.

5.1.2 Verify the User mapping

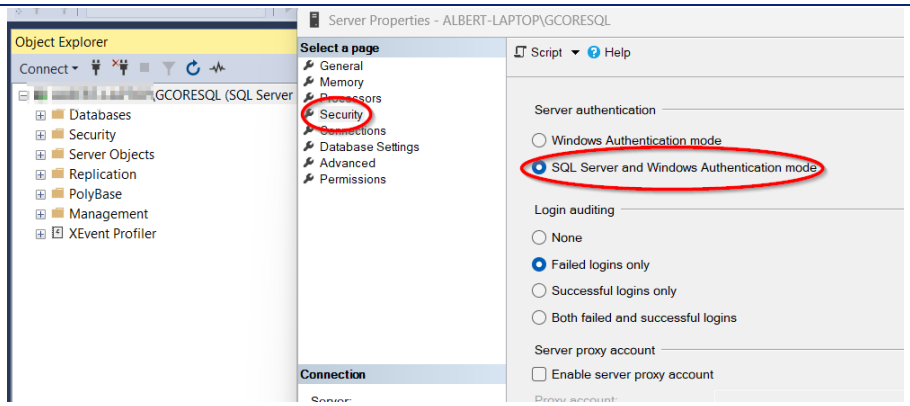
1) Expand the " Security" and "Logins" sections in the Object Explorer panel, then right-click on the user and choose "Properties".

2) Click the " User Mapping", select the “META_CONNECT” database, and set the database role membership to "db_owner", "db_datareader","db_datawriter" and “db_owner”, and “public”.



5.1.3 Server Authentication mode

You can check to see which authentication method is configured in several ways.



Then, go to the Connections page and ensure that "Allow remote connections to this server" is checked, and click OK.