Omega Enterprise Gateway 2.0

User's Manual

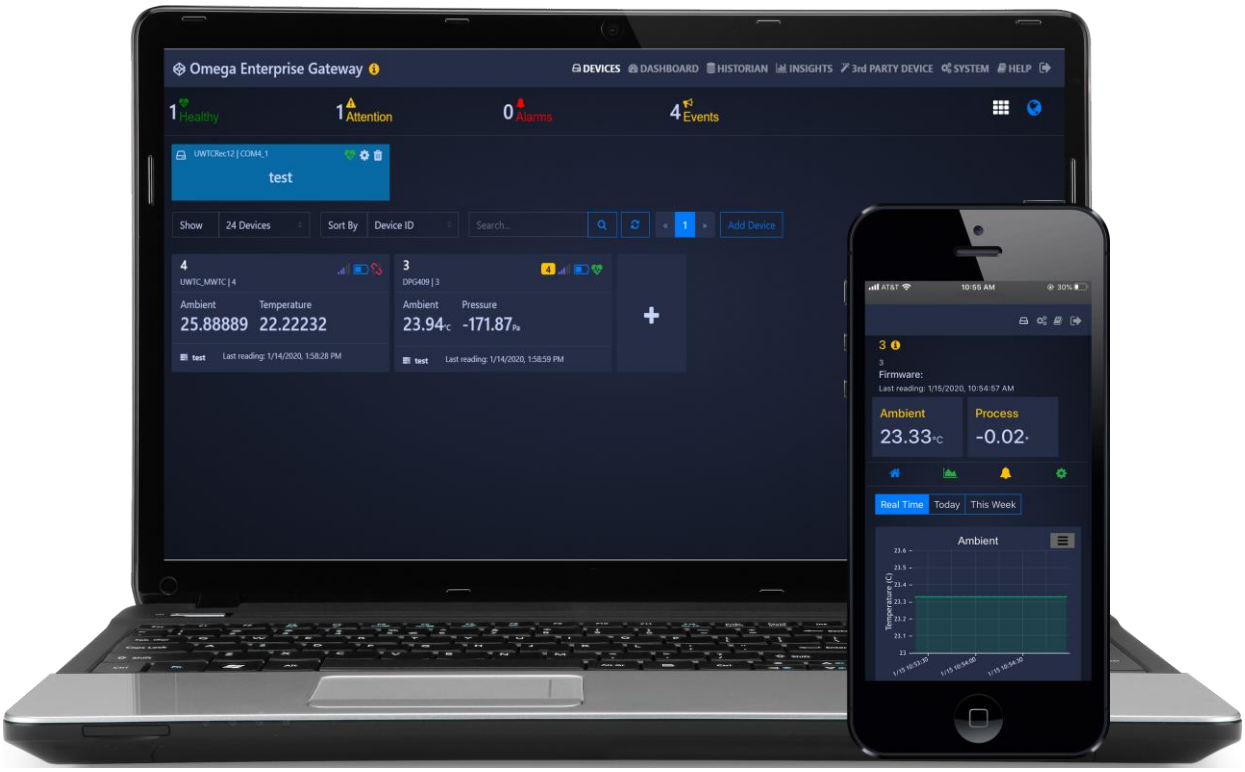

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Table of Contents

1. Introduction 3

1.1 Use Scenarios 3

1.1.1 Integrated with Enterprise Applications 3

1.1.2 Standalone Solution for Sensing, Archiving, and Analytics 3

2. Installation 3

3. Logging In 4

3.1 First Time Log-In 4

4. Device Management 4

4.1 Add Device 4

4.2 Delete Device 4

4.3 Rename Device 4

4.4 Refresh 5

4.5 View 5

4.5.1 Tile View 5

4.5.2 Map View 5

4.6 Device Settings 5

4.6.1 Measurements 5

4.6.2 Historic Alarms and Events 6

4.6.3 Settings 6

5. Dashboard 7

5.1 Create your Monitoring Page 7

6. Historian 8

6.1 Select Data Points 8

6.2 Graph Types 8

7. Insights 9

8. 3rd Party Devices 9

9. System Settings 10

9.1 Profile 10

9.2 Units 11

9.3 Users 12

9.4 Data 12

9.5 License 13

10. Remote Access 13

11. Connecting to Omega Cloud 14

12. Integrating to Another Enterprise Software 16

12.1 OPC UA Server 16

12.2 OPC DA Server 18

CONFIDENTIAL

1. Introduction

OMEGA Enterprise Gateway 2.0 (OEG 2.0) is a replacement software for the OMEGA OPC Server, iCONNECT, iLOG HTTPGet, iPort, Mail Notifier, Virtual Coordinator, and OMEGA Dashboard. If you currently use the aforementioned software, we encourage you to install OEG. OEG supports the following OMEGA products:

1. Legacy OMGEA Probes/Sensors
2. Wireless Transmitters
3. Smart Probes
4. Smart Interfaces

The OEG 2.0 server can be installed on the following OS/Platforms: Windows *7, 8, & 10, Windows Server 2008, 2012, &2016. All OS are 64-bit. OMEGA doesn't recommend 32-bit OS.
The OEG web client is platform independent.
The minimum hardware requirements for server installation are: Dual Core: CPU 2.4 GHz or up; Memory: 4 GB or up; Hard Drive: 250 GB or up.

Disclaimer: Functions described in this document are subject the features outlined in the license tier you have purchased.

1.1 Use Scenarios

OMEGA Enterprise Gateway 2.0 is a bridge between OMEGA sensing devices and industrial applications. It is a standalone IoT sensing software that delivers device provisioning, state and status monitoring, data logging, visualization, and analytics. A variety of OMEGA devices are supported by this Gateway software. Typical application deployment scenarios are shown below:

1.1.1 Integrated with Enterprise Applications

OMEGA Enterprise Gateway can feed sensing data to the OPC UA compliant applications such as SCADA, HMI, MES etc. via OPC US server (licensed). Once the user adds OMEGA devices to the Gateway, the Gateway automatically exposes all sensing data as OPC UA nodes. The Enterprise application can then pull all OPC UA node values and display them on the screen.

1.1.2 Standalone Solution for Sensing, Archiving, and Analytics

In many environment sensing applications such as hotel room temperature monitoring a building temperature/humidity monitoring, OMEGA Enterprise Gateway can provide real-time monitoring, alarms, notifications, archiving, and analytics that are required in these applications.

2. Installation

The OEG2 zip file contains the installer package for the software. Follow these steps to complete the installation process:

Step 1: Unzip and open the Omega Enterprise Gateway file downloaded from the Omega website.

Note: Included in the installer package are the OEG Application Files, .msi installer file, User's Manual, Release Notes, License and Copyright Notice, and End User License Agreement.

Step 2: Click the **OEGOneClickInstall.msi** file and proceed through the setup to launch Omega Enterprise Gateway for the first time.

Note: A desktop shortcut icon of Omega Enterprise Gateway is created after the installation. This shortcut will launch OEG after the initial installation.

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3. Logging In

3.1 First Time Log-In

When logging into OEG for the first time, click **Need Help?** to be presented with your one-time Username and Password.

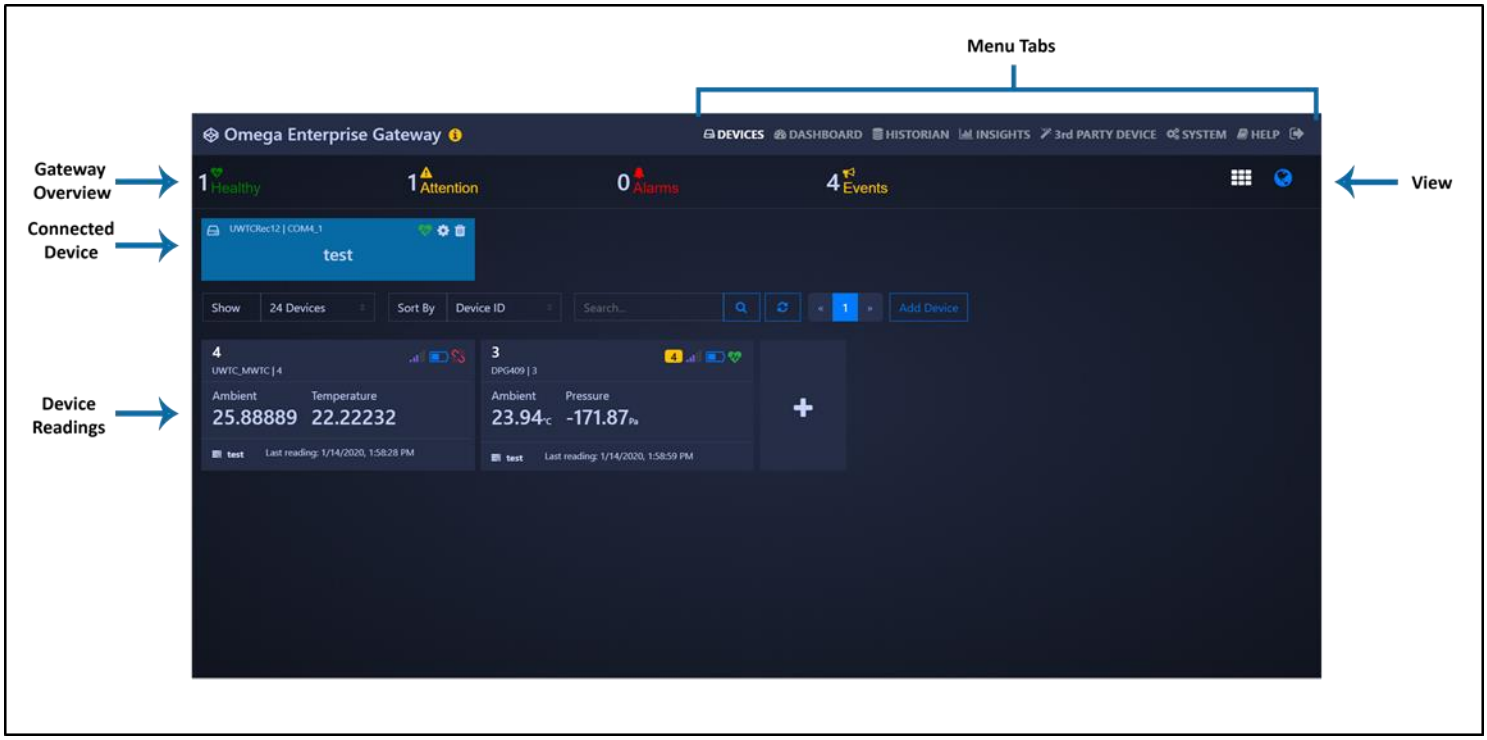
Username: **admin**
Password: **Omega**

Once you have successfully logged in for the first time, you will be prompted to create your own password. You can change your username by navigating to the **System Settings**.

4. Device Management

Note: Device Management is available on **all versions** of OEG 2.0.

Once logged in, you will be directed to the **Devices** tab of OEG. From here, you will be able to manage the devices connected to OEG.



4.1 Add Device

To add a device, click the icon to the right of the device readings or click the **Add Device** and fill out the product details, connection parameters, and reading interval of the device you wish to add.

4.2 Delete Device

To delete a device, locate the icon located next to the **Connected Device** you wish to delete.

4.3 Rename Device

Clicking the icon allows you to rename your device.

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4.4 Refresh

To refresh your list of devices, click the icon located near the device search bar.

4.5 View

The View tab offers options on how you would like your data to be displayed.

4.5.1 Tile View

Provides a standard tile view of the interface.

4.5.2 Map View

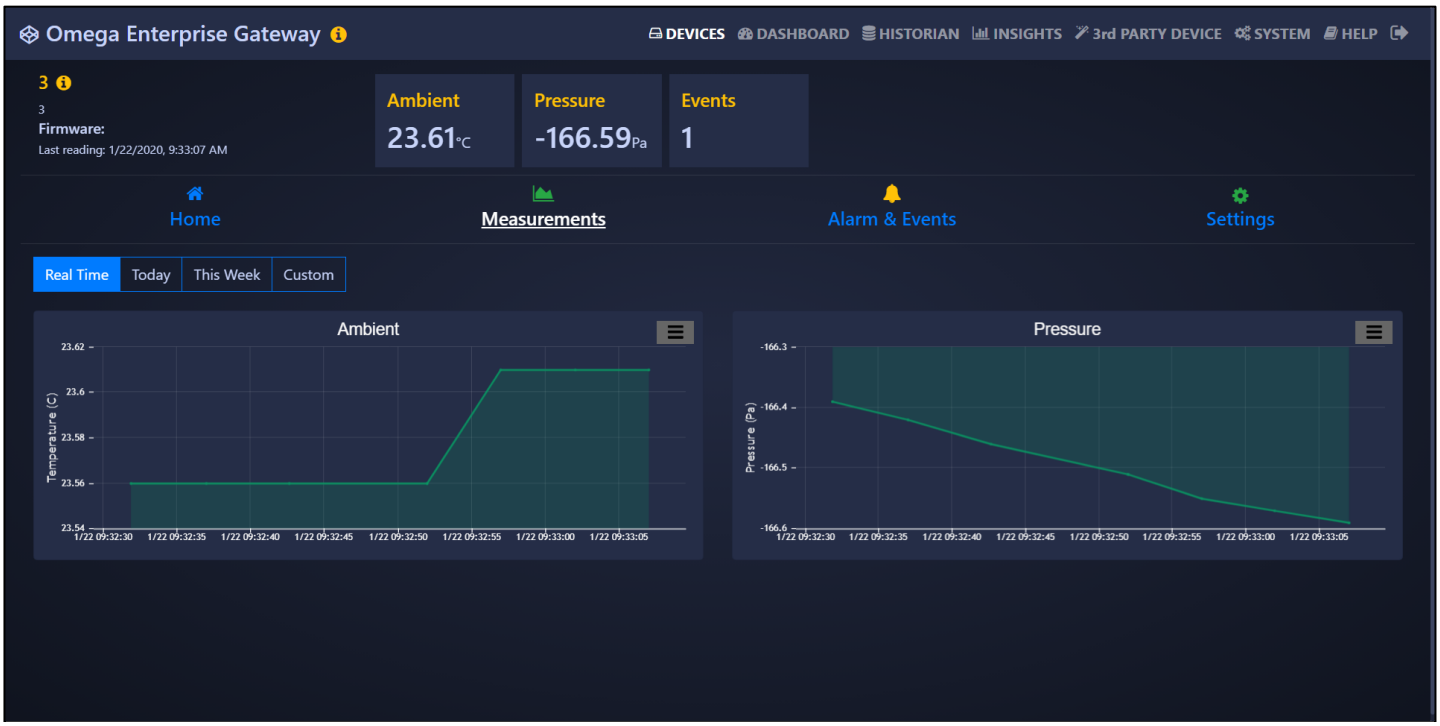
Note: Map View is only available on **OEG Pro**, **OEG Business** and **OEG Business Pro**.

Provides a map view of your devices by displaying their location.

4.6 Device Settings

By clicking on the **Device Readings**, OEG will display live readings, alarms and events, and settings for that device.

4.6.1 Measurements



The Measurements tab displays live readings for your device. It allows user to change from live readings to a specified range of time.

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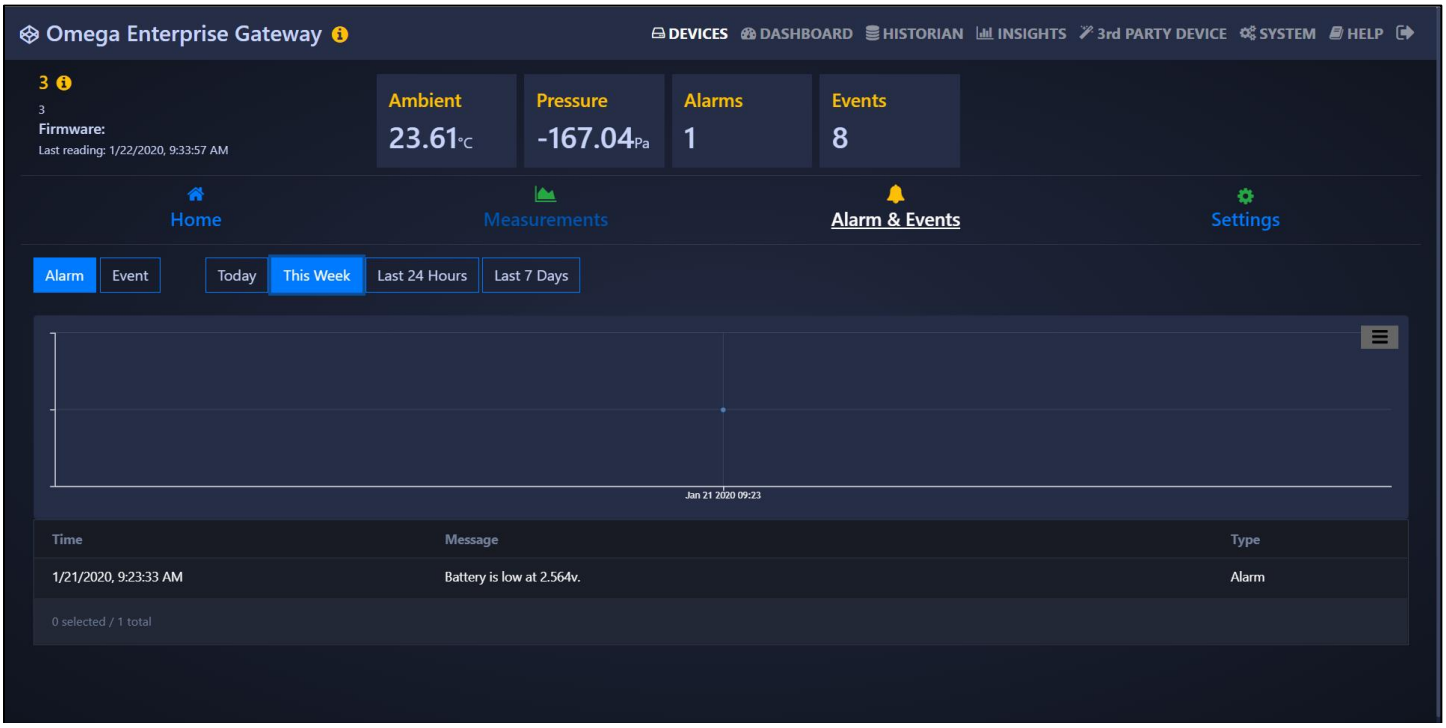
4.6.2 Historic Alarms and Events

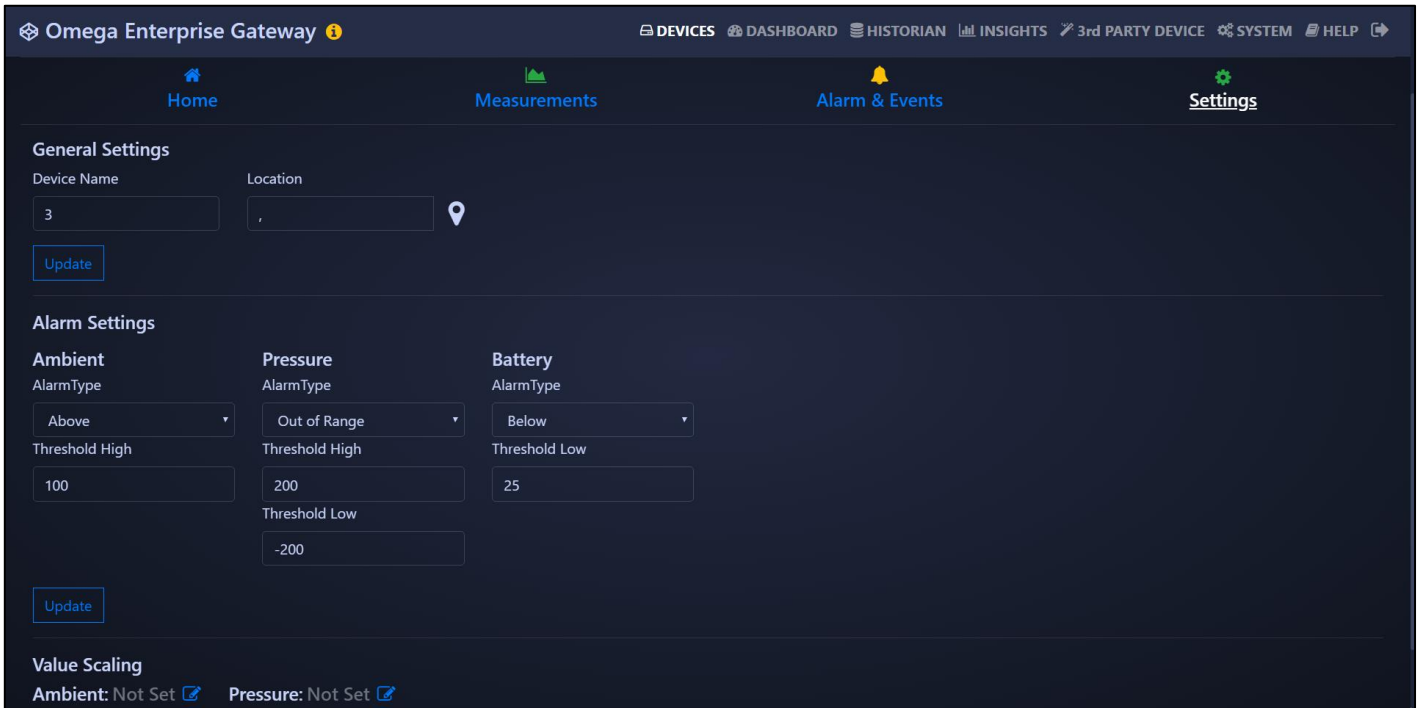
Note: Historic Alarms and Events are only available on **OEG Pro**, **OEG Business Standard**, and **OEG Business Pro**.



The Alarms and Events tab displays all alarms and events that were triggered by this device. It includes a short message describing the nature of the alarm/event.

4.6.3 Settings

Note: Value Scaling is only available on **OEG Pro**, **OEG Business Standard**, and **OEG Business Pro**.



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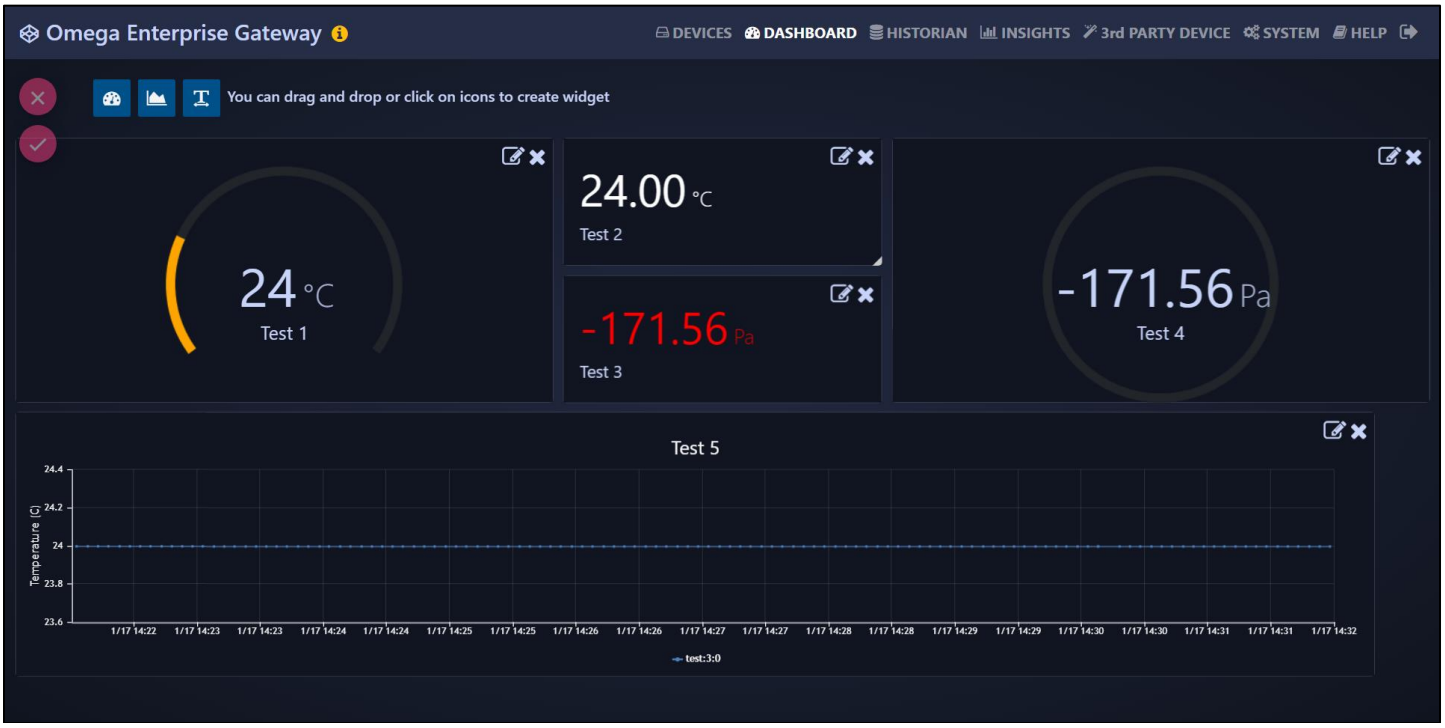
The **Settings** tab allows users to change all settings relevant to how the device interacts with OEG. Users can customize device name, device location, and all settings relevant to alarm and event thresholds.

5. Dashboard

Note: Dashboard features are only available on **OEG Pro**, **OEG Business Standard**, and **OEG Business Pro**.

5.1 Create your Monitoring Page

OEG offers a fully customizable Dashboard to monitor your live device data.



Click the icon to create a new dashboard. Once you've named your dashboard, you can begin to add widget displays that will display your data as a meter, a graph, or as text. You must then assign a device to the widget so that it will begin to display readings from that device. Any combination of widgets and devices can be added and customized to create unique dashboards.

Step 1: Create and name your dashboard
Step 2: Choose the widget you would like to display your data
Step 3: Assign a device to the widget to have it display data.

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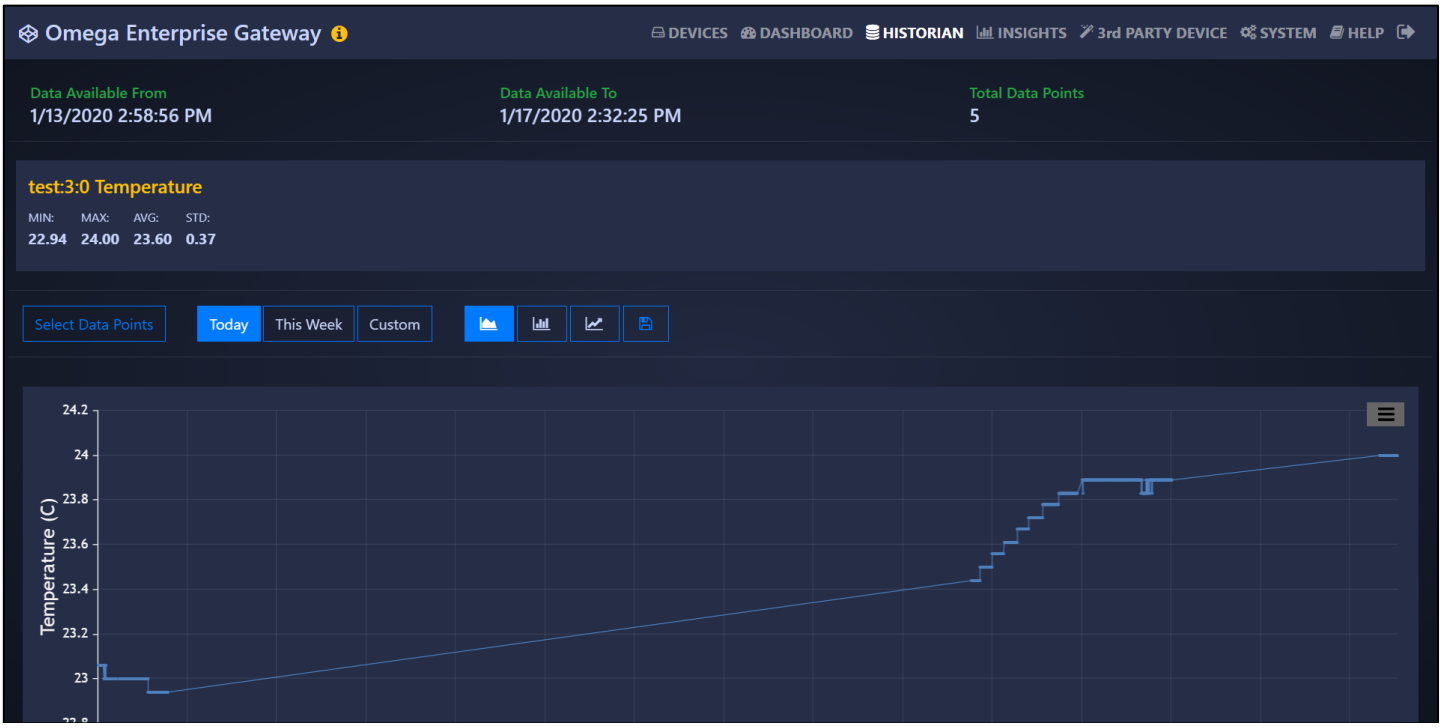
6. Historian

Note: The Historian is only available on **OEG Pro**, **OEG Business Standard**, and **OEG Business Pro**.

The Historian creates a report of past readings within a range of time and presents them as a graph. Through the Historian tab, OEG allows users to export their chart data as a .csv file. To view past readings, start by clicking **Select Data Points**.



6.1 Select Data Points

The Select Data Points tab allows you to specify what device(s) you would like to display in the historian. The data will then be displayed in a graph.

6.2 Graph Types

OEG currently offers three standard graph views when displaying data. Of the three, only the graph style can predict future values. To utilize the Predict Future Value feature, enter the date and time of the value you would like to predict and click the **Predict Future Values** button to display the data.

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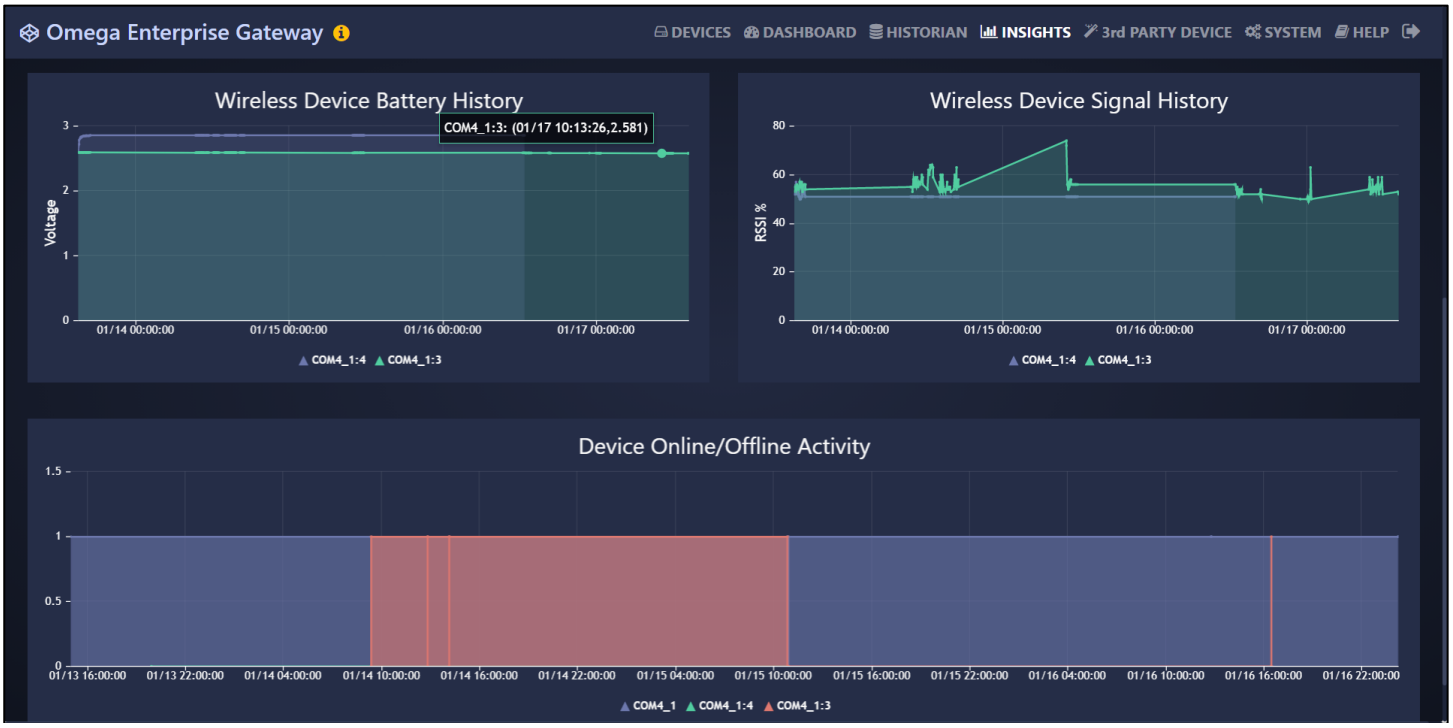
7. Insights

Note: Insights are available on **all versions** of OEG 2.0.

The Insights interface provides analytics on the health and activity of your ecosystem. Analytics include operation activities, measurement alarms, communication errors, battery history, and signal history.



8. 3rd Party Devices

Note: 3rd Party Device integration is only available on **OEG Business Pro**.

Omega Enterprise Gateway allows for 3rd Party Device integration through MODBUS or ASCII. To add a 3rd party device, follow these steps:

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Step 1: Click the icon under **User Registered Devices** and register your device.

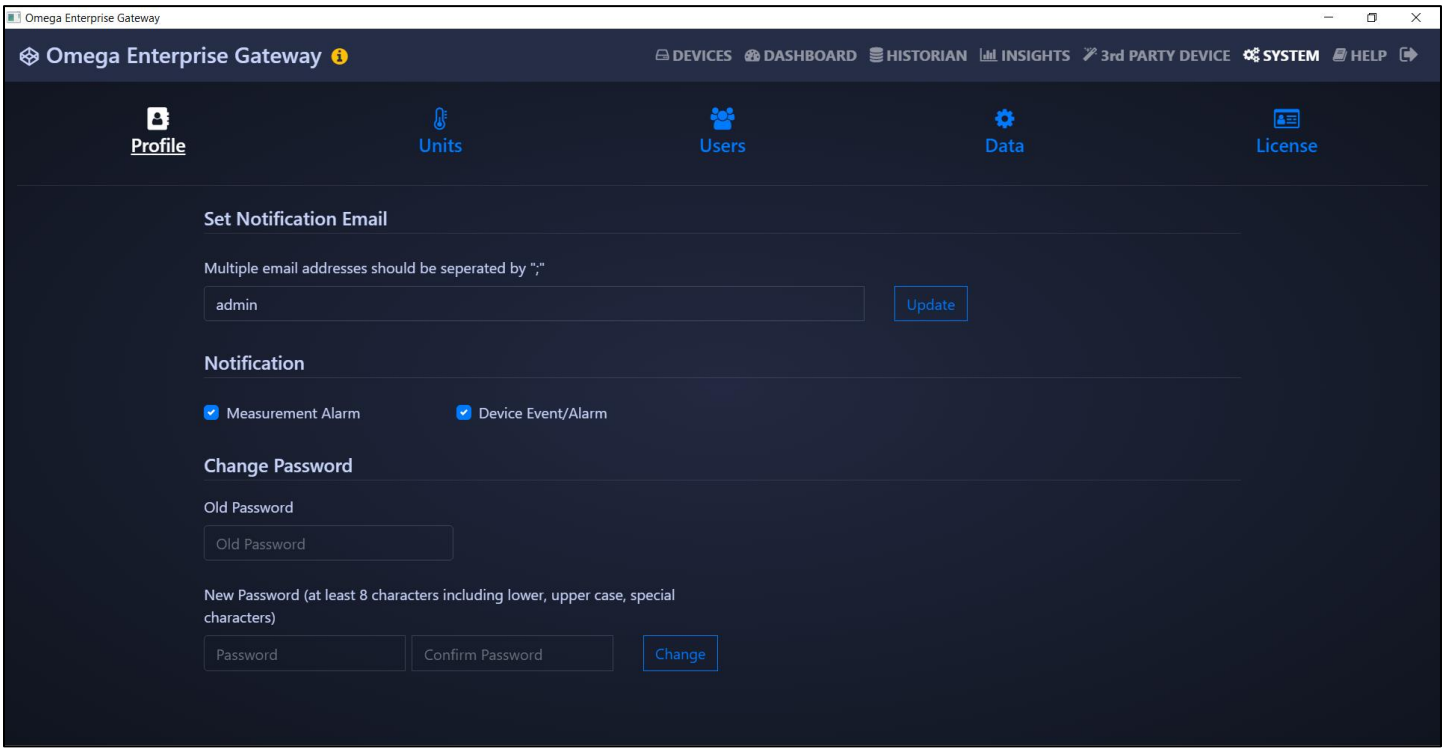
Step 2: Click the icon under **Default Registers** to create and define registers for your device

To delete a 3rd party device or register from OEG, click the device or register to highlight it, and click the icon under User Registered Devices to delete a device or click the icon under Default Registers to delete a register.

9. System Settings

The System Settings for OEG allow you to customize your profile, the units displayed, users who can access and view your Dashboard, data update rate, license status, and firmware management.

9.1 Profile



From the Profile tab, you can create a list of email addresses that will receive notifications when alarms or events are triggered and change your password.

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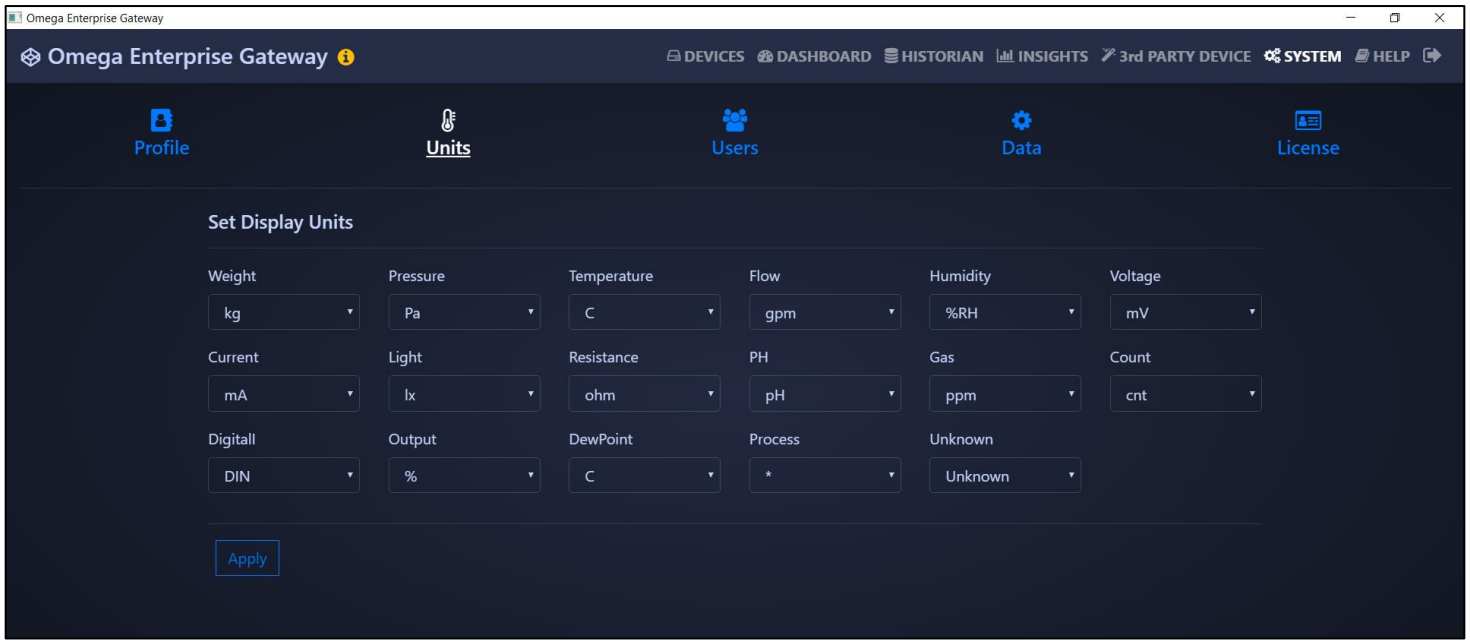
9.2 Units



The Units tab allows you to change the units of measurement that are displayed on OEG.

Note: Changing the units of measurement only affects the readings displayed on Omega Enterprise Gateway. Smart Sensors interpret data in SI.

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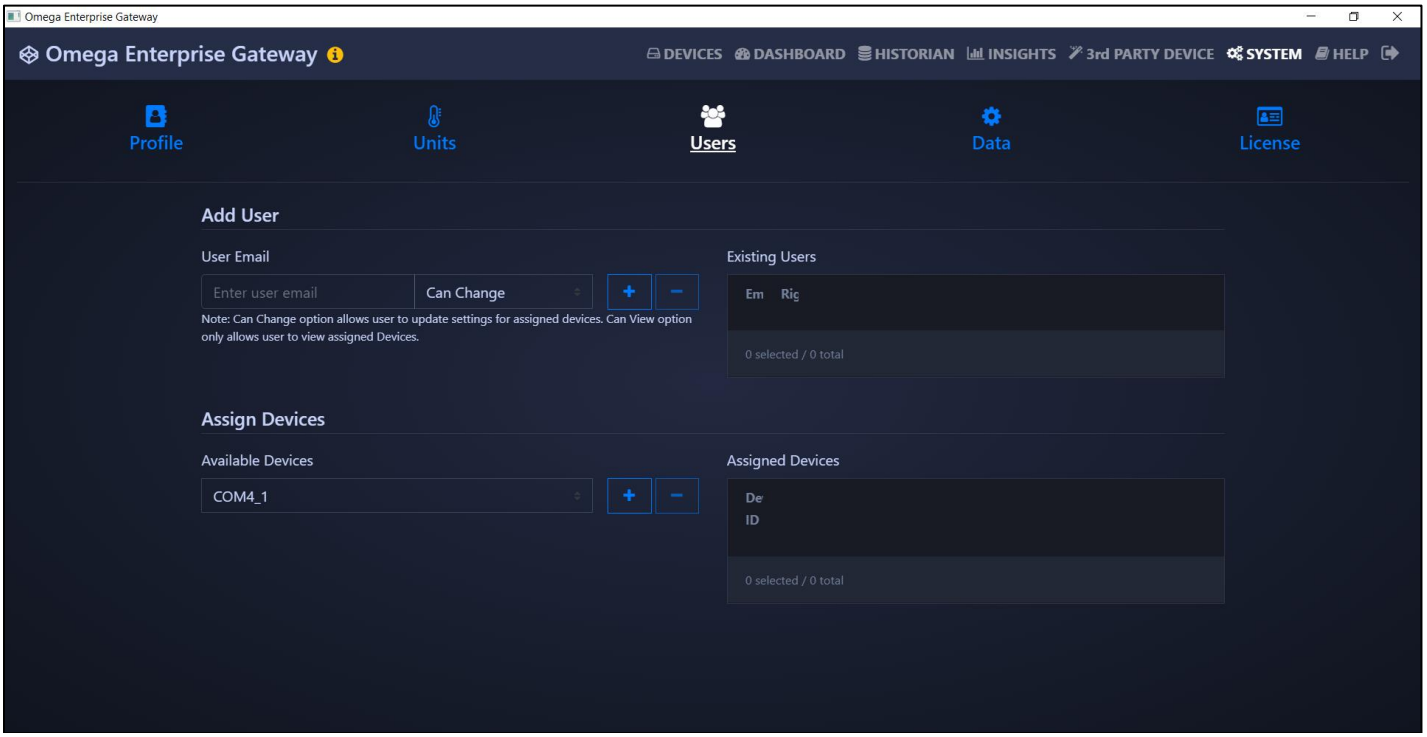
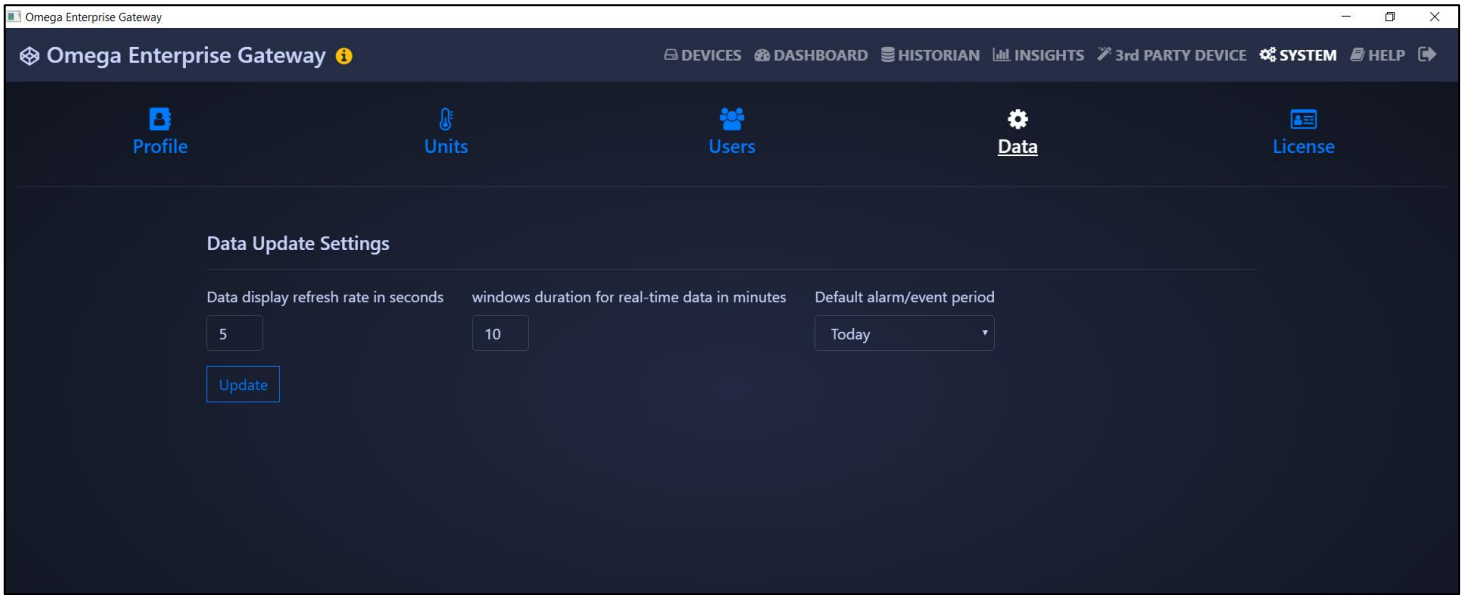
9.3 Users

Note: Multi-Level Access is only available on **OEG Business Pro**.



The Users tab allows you to configure who has access to your dashboard. Users who are added here will only have access to devices that have been added in the **Assigned Devices** section. Additionally, you can restrict access to **View Only** or **Can Change**.

9.4 Data



The Data Tab allows users to configure the frequency at which data is updated within the OEG interface.

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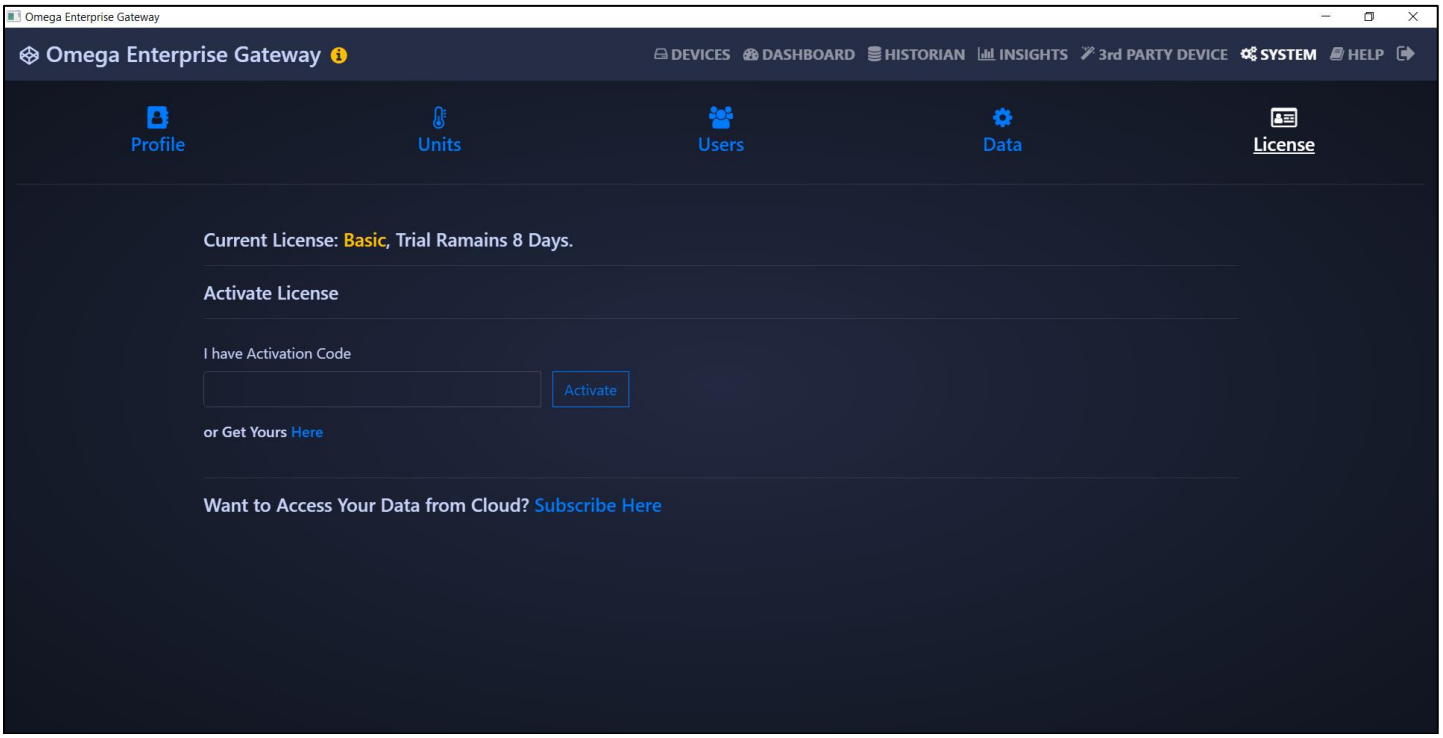
9.5 License



The License tab displays information regarding your current OEG license. From this section, you can enter an activation code to begin using OEG. You may also subscribe to Omega Cloud from this section to have access to your data anywhere.

10. Remote Access

Note: Remote Access is available on **all versions** of OEG 2.0.

OEG allows you to access your data from any device connected to your internet network with web browser access. To access your data remotely, click on the automatically generated URL at the bottom of the OEG interface. The URL will begin with HTTP:// and will be based off your network settings. By navigating to the URL on a separate device that is connected to the same network, you will be able to access your data.

Note: Only devices with web browsers on the same network as the one hosting the OEG data will be able to access the data remotely. You cannot access your OEG data if your web browser is on a different network.

Alternatively, you can set the parameters for **Remote Access** by closing the OEG software application, right clicking the desktop shortcut for OEG, and clicking **Run as Administrator**. There are two parameters that can be set for web server access:

1. The web server port number. The default HTTP port for OMEGA Enterprise Gateway is 8080. Users can change it to any port.
2. The option to turn on/off the HTTPS connection.

Note: A server has multiple usages, therefore the default HTTP port 80 might be occupied.

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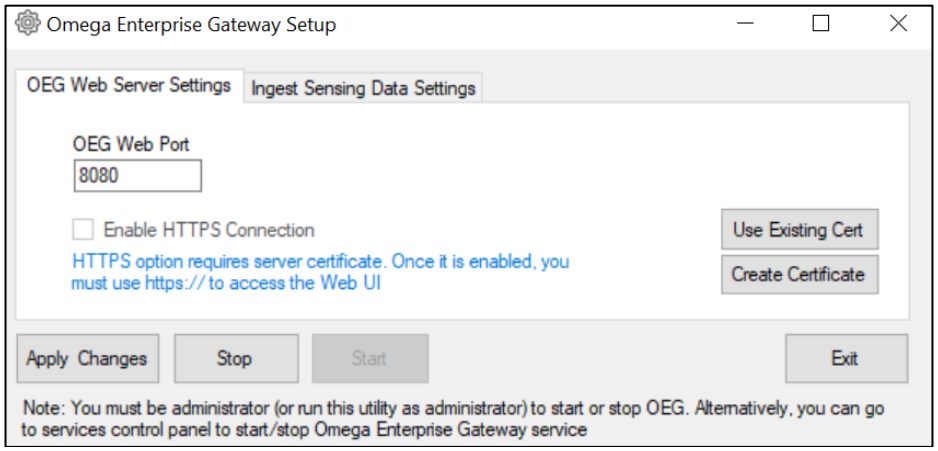


If users want to use a secure connection for web browsing or calling APIs, they can turn on the HTTPS connection by selecting the checkbox **Enable HTTPS Connection**. To secure the connection, a certificate must be provided. You can use the default self-signed certificate by clicking **Create Certificate** or you can select an existing certificate. When you select an existing certificate, ensure that the certificate is used for remote machine authentication. If you want to create a certificate on your own, be aware that you will need to use the IP address (of the selected) to access the Gateway web page.

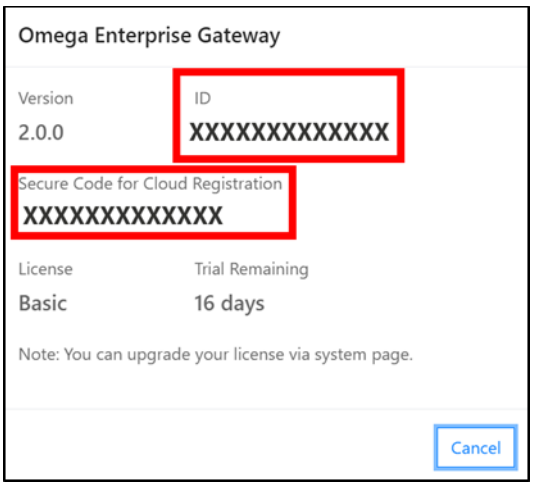
Note: If the utility detects a user created certificate on a local machine, the **Create Certificate** button will be grayed out to prevent duplicated creation.

11. Connecting to Omega Cloud

Note: The following section will outline how to connect Omega Enterprise Gateway to Omega Cloud. An active, registered Omega Cloud account is necessary to connect the two accounts.

To connect your OEG account to your Omega Cloud account, follow these steps:

Step 1: Click the icon at the top right of the OEG interface.
Step 2: Take note of your unique **ID** and your **Secure Code for Cloud Registration** that appears in the pop-up.



Step 3: Open a web browser and navigate to **cloud.omega.com**.
Step 4: Sign in to your Omega Cloud account.

Note: If you do not have an Omega Cloud account, click Sign Up to create an account.

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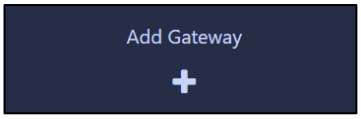
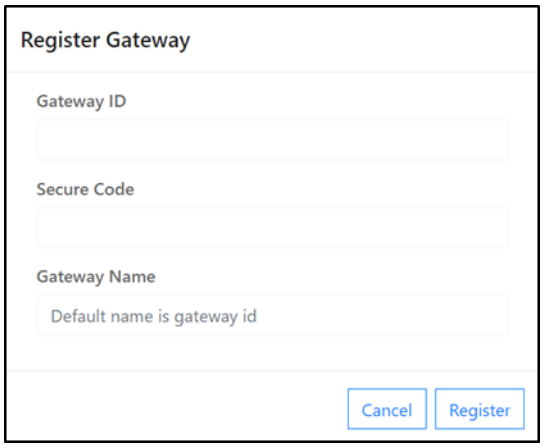
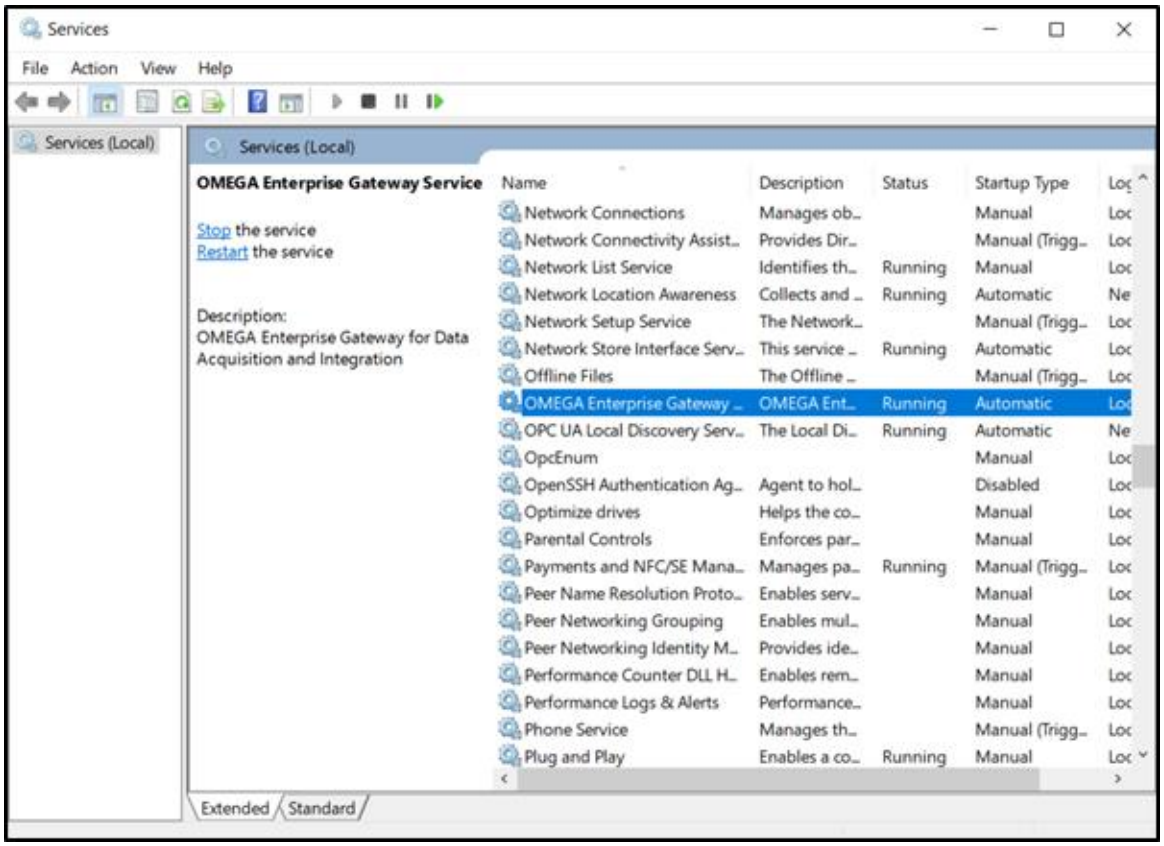
Step 5: Once you've accessed the Omega Cloud interface, click **Add Gateway**.



Step 6: Enter the ID and Secure Code for Cloud Registration that you took note of from OEG and assign a name to your gateway.



Important: Once you have registered your OEG ID to your Omega Cloud account, you must power cycle your OEG software. To power cycle your OEG Software, navigate to the **Services** application on your computer, locate **Omega Enterprise Gateway** in the list of items, right-click Omega Enterprise Gateway, and click **Restart**.



Congratulations! You have successfully connected your Omega Enterprise Gateway to Omega Cloud.

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12. Integrating to Another Enterprise Software

Note: OPC UA/DA integration is only available on **OEG Enterprise Standard** and **OEG Enterprise Pro**.

Omega Enterprise Gateway provides two ways to integrate sensing data into another enterprise applications.

1. OPC UA Server (requires license)
2. OPC DA Server (requires license)

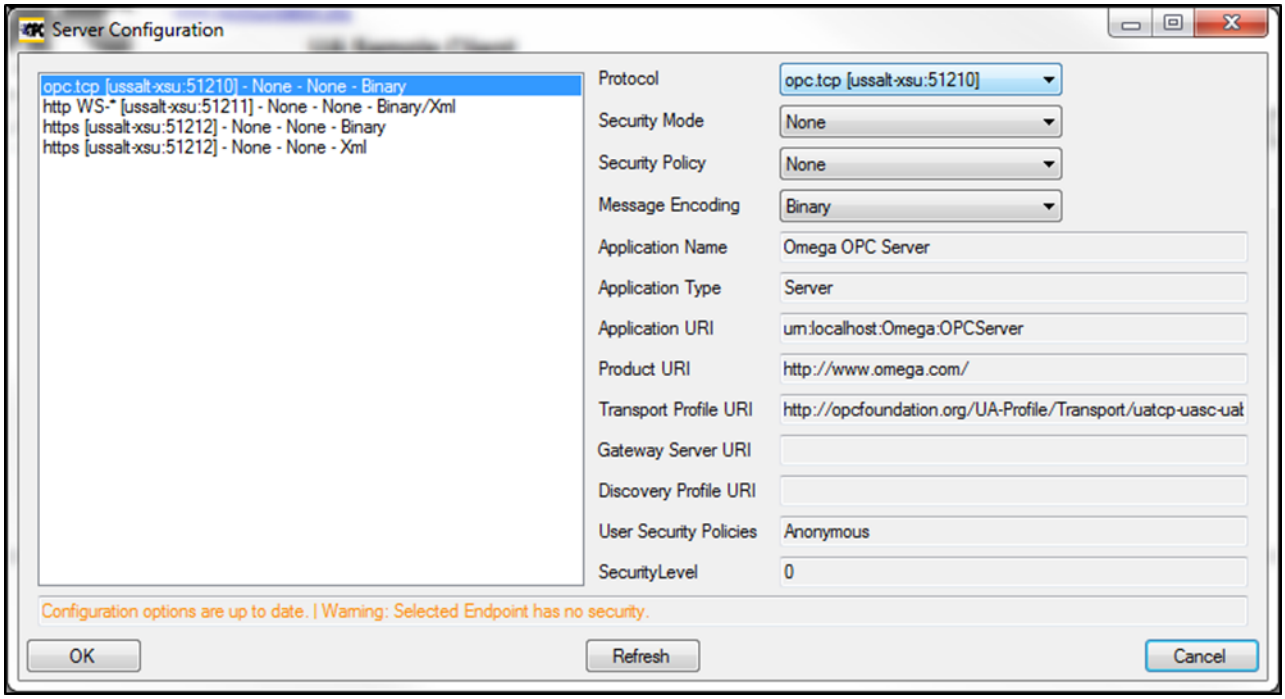
12.1 OPC UA Server

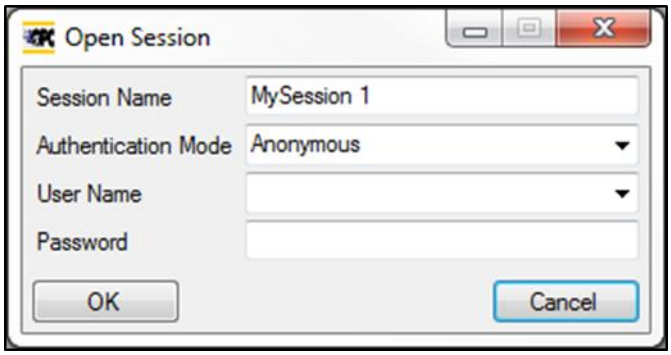
Omega Enterprise Gateway comes with an embedded OPC UA server. This OPC UA server allows the OPC UA compliant enterprise application to connect to OEG and retrieve sensing data. Once OEG is running, the OPC UA server will also run and become exposed through the following URL:

opc.tcp://hostname:51210/OMEGA/OPCServer

Note: The host name will either be the DNS name or IP Address of the machine that the Gateway is installed on.

For example, using OPC UA Foundation's sample client tool, browse supported protocols in the server configuration dialog and select one to connect to. Click **OK** and use an anonymous login.





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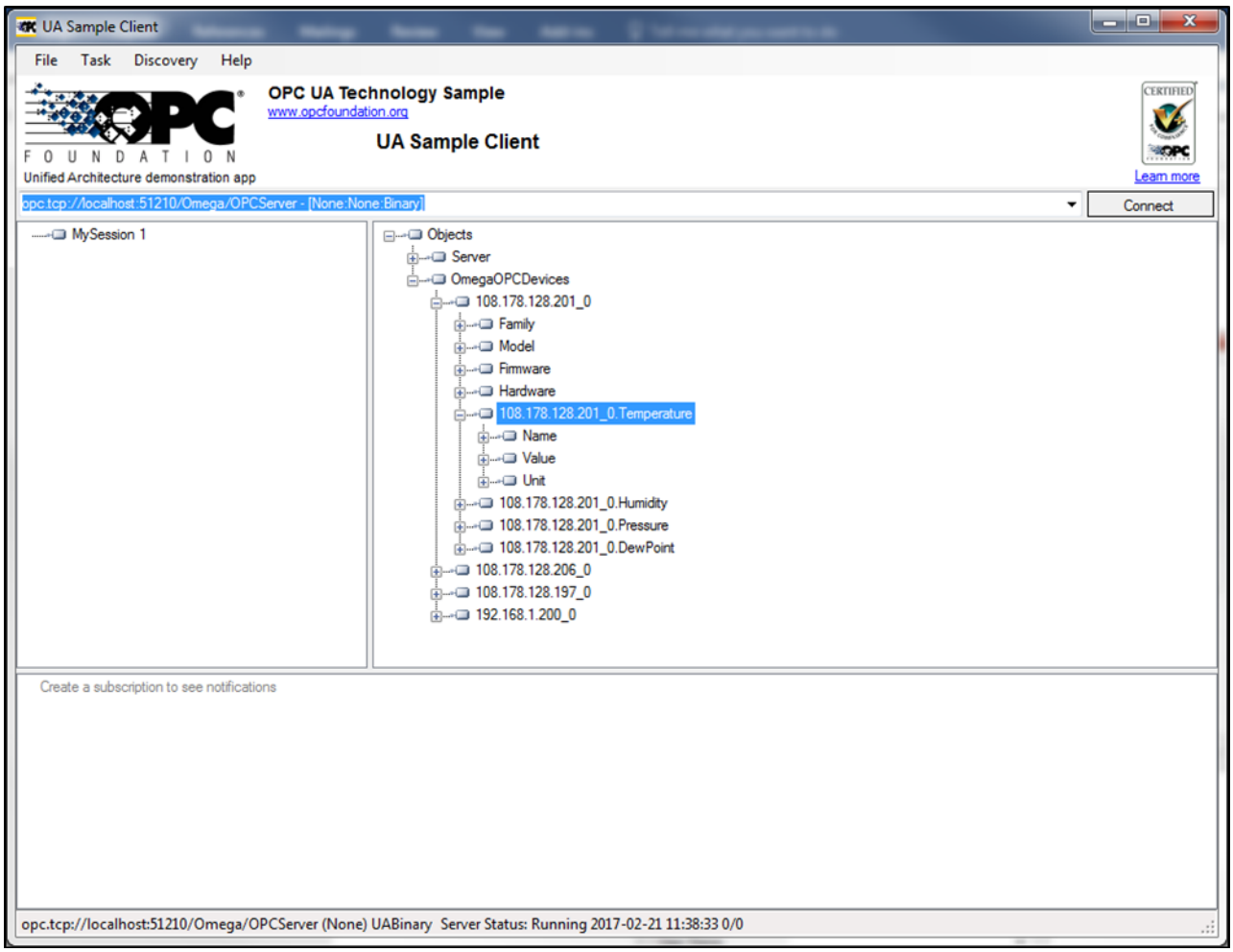
Once you are signed in, you can browse the measurements in the tree structure.



Each measurement is presented as a tree node and has three attributes: Name, Value, and Unit. If you right-click the measurement node and click “Browse” in the pop-up menu, you will see the most current readings of the measurement.

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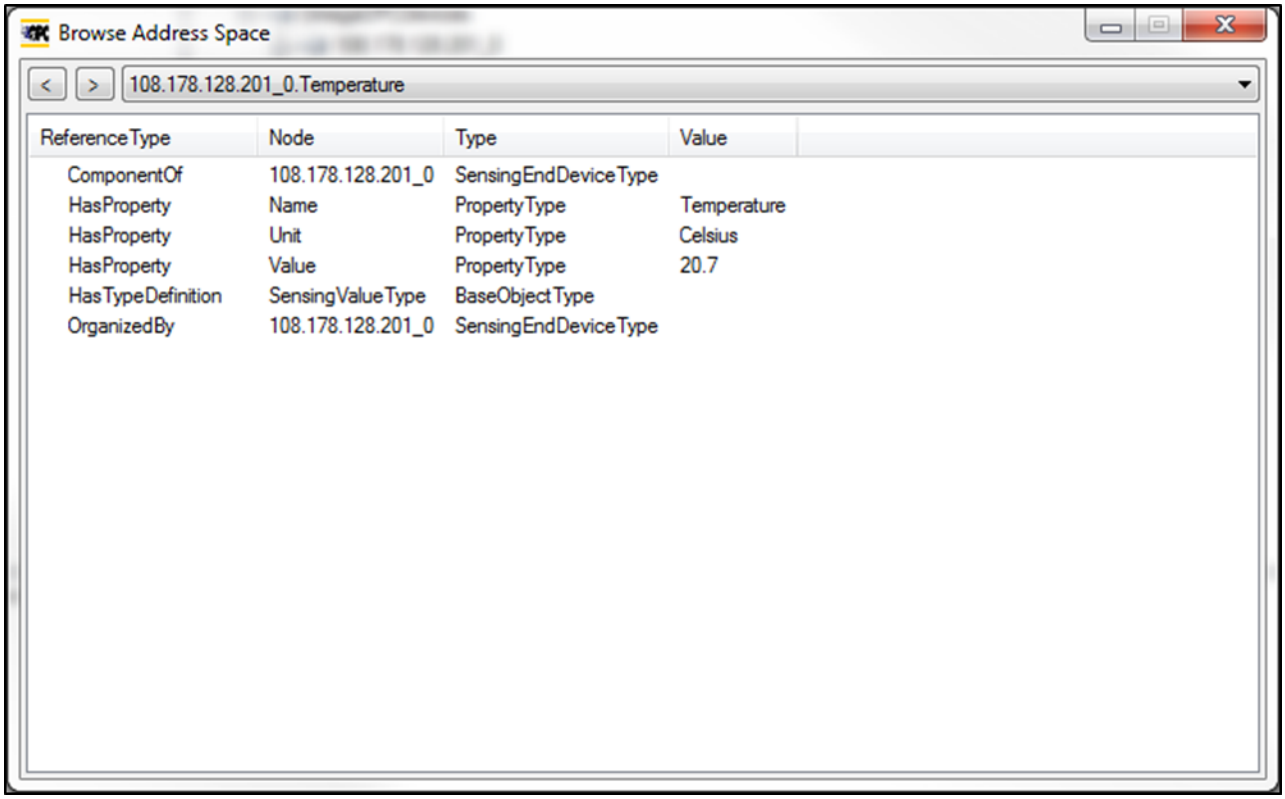

Different OPC client applications, such as Enterprise application, have a different UI to access the OPC server. Please refer to the user manual of the software you are using.

12.2 OPC DA Server

Omega Enterprise Gateway exposes the OPC DA 2.0 and 3.0 compatible server that allows the OPC DA client to connect. Below is an example of using Matrikon's free OPC DA Explorer to test the OPC Server. You can download the OPC Explorer here:

https://www.matrikonopc.com/downloads/176/software/index.aspx

Once the software is started, you can navigate to OMEGA Enterprise Gateway DA OPC Server and click the **Connect** button to connect to the OPC server.

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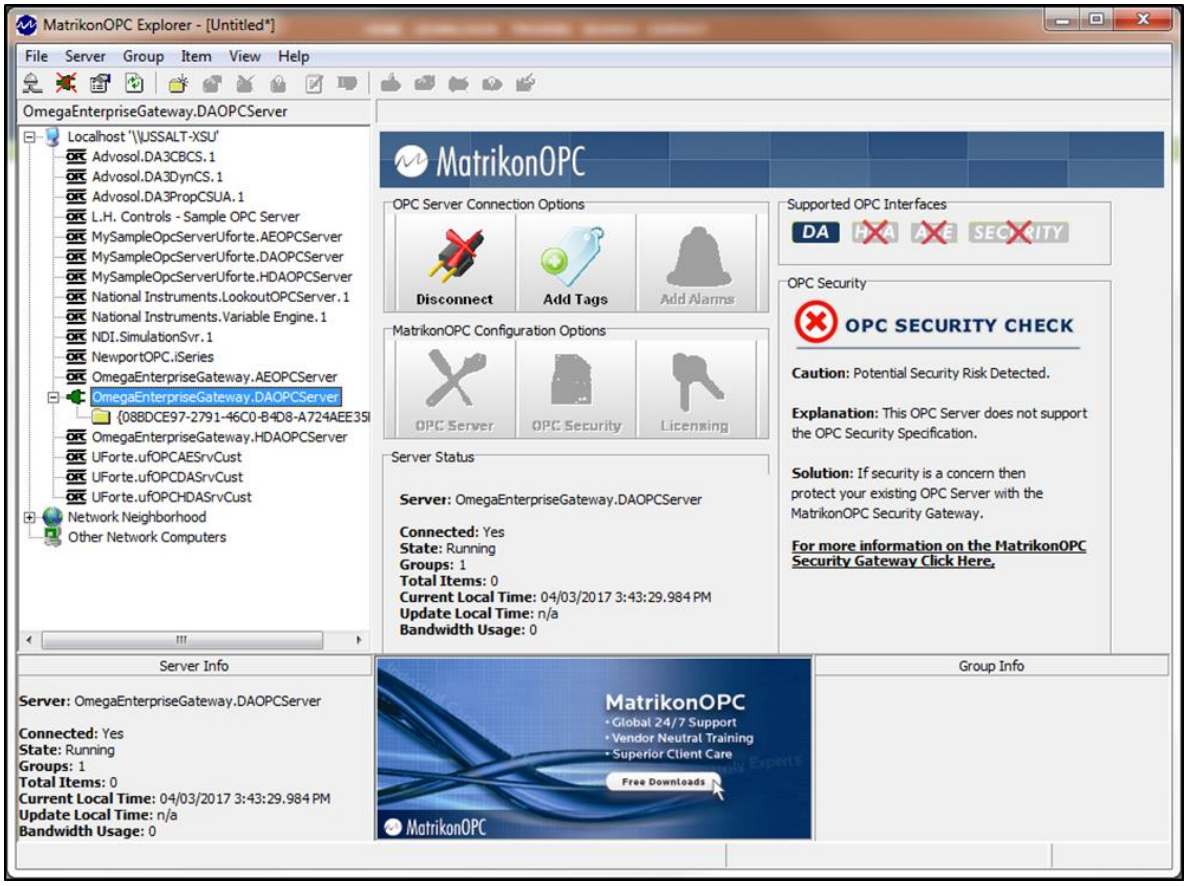
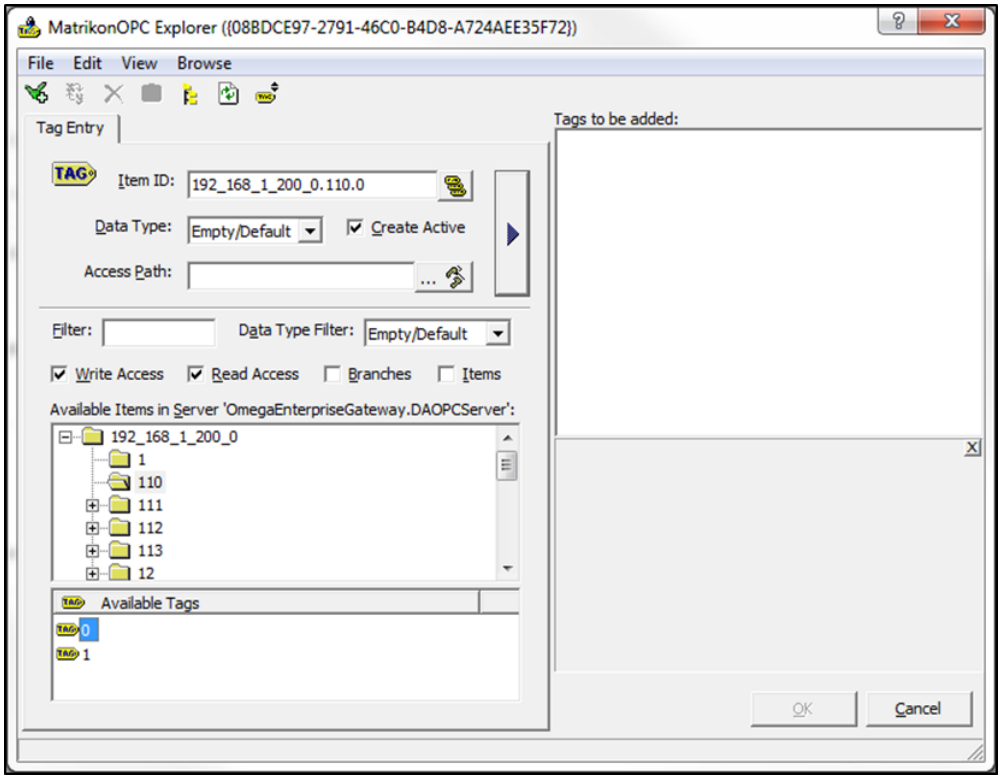


Once it is connected, you can browse the items from the available items list box. Items are automatically populated once you have added a device to the Omega Enterprise Gateway.



Congratulations! You have successfully connected your Omega Enterprise Gateway to another enterprise software.

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