

# Enterprise Gateway Software



## User Manual

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## 1 Introduction

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

1. Controller: PLATINUM™, iSeries, iTH, CN616
2. Wireless receivers: ZW-REC, zCDR, UWTC-REC3, WW-ED
3. Wireless end devices: Depends on the receiver
4. iServer Series: iBTX, iBTHX-W, iBTX-SD, iTHX-W, iTHX-SD, iTCX, iPTX, iSD-TH, iSD-TC, EIT
5. DAQ: OM-DAQ-USB, OM-DAQ-XL, OM240
6. Pressure: PX409-USBH/485, IN-USBH
7. Meter: DP612, DP606

The OEG 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.

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.

### 1.1 Licensing

OMEGA Enterprise Gateway comes two edition: Standard, Full.

1. Standard – this version allows users to manage OMEGA devices, monitor real-time readings, review historic data. It also supports MQTT client that allows OEG to connect to MQTT compatible cloud/mobile application. This version is provided to the customer without an additional cost.
2. Full – this version has an embedded OPC UA server. It has all the features that the standard version has. Device information and readings are automatically populated and exposed by an OPC UA server that allows Enterprise applications such as SCADA, Historian, and HMI etc. to retrieve.

This manual covers all functions of Omega Enterprise Gateway regardless of the version.

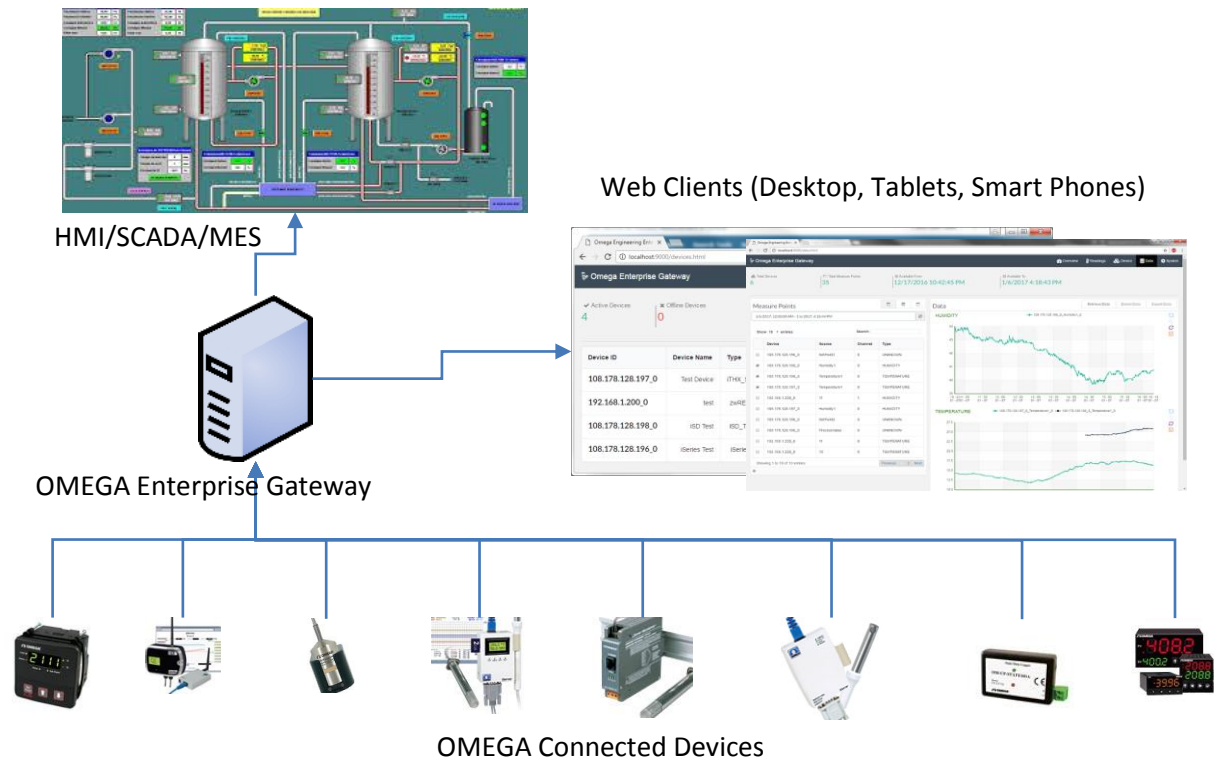
### 1.2 Use Scenarios

OMEGA Enterprise Gateway is a bridge between OMEGA sensing devices and the rest of the world. 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.

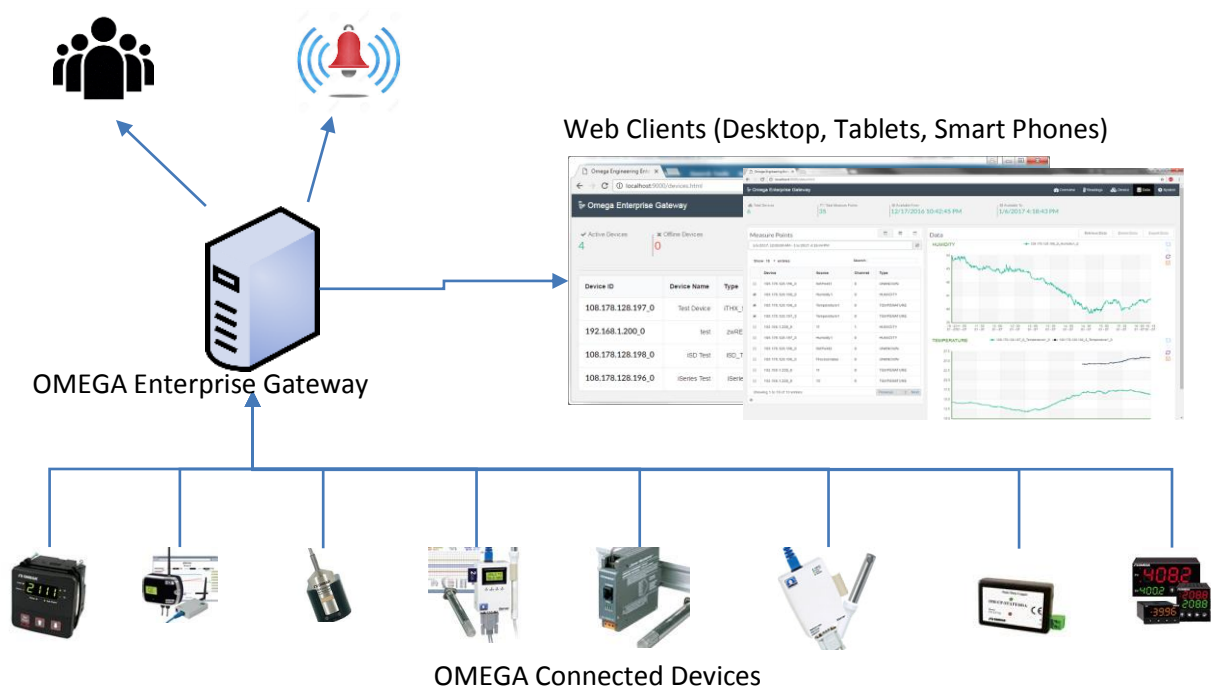
### 1.2.1 Integrate with Enterprise Applications

OMEGA Enterprise Gateway can feed sensing data to the OPC UA compliant Enterprise application via OPC UA 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.



### 1.2.2 Standalone Solution for Sensing, Archiving, and Analytics

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



## 2 Dependencies

OMEGA Enterprise Gateway is built on Microsoft .Net framework 4.5. The .Net framework 4.5 comes with Windows 7 or up. It is not necessary to install .Net framework separately. If a user runs into a .Net framework issue, they can always download the framework from the Microsoft website.

OMEGA Enterprise Gateway uses MongoDB for data storing. Users will be asked to install it if MongoDB has not yet been installed on the machine where the OMEGA Enterprise Gateway has been installed. Users can also ignore the installation if they have a remote machine with MongoDB that can be used.

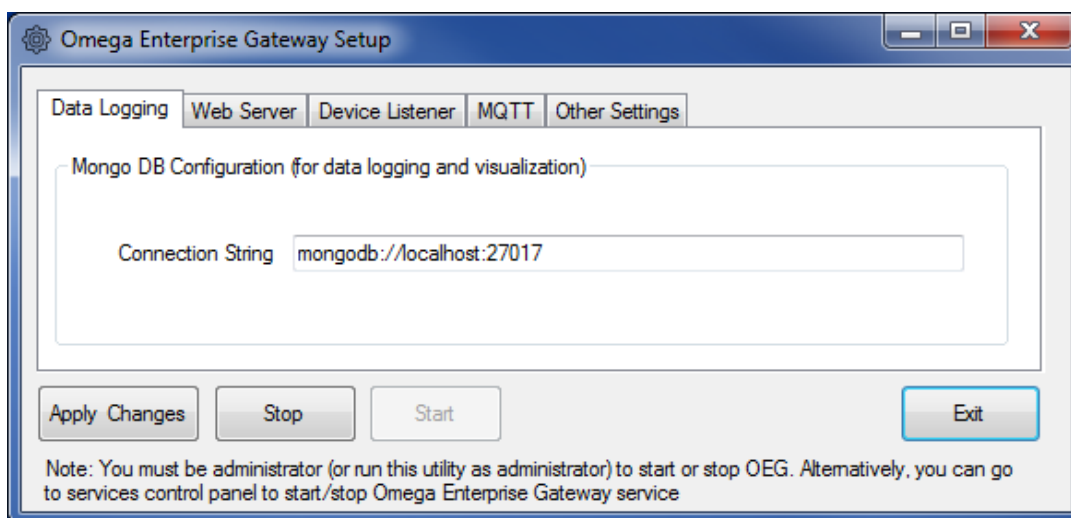
## 3 System Configuration

The User can use OEG setup utility to change system configuration. However, it is not required to change these parameters to run OEG with the exception that you must have MongoDB installed.

Using system configuration, a user can:

- Change the MongoDB connection
- Change the web server port number (in case the default port number 9000 is occupied by other application).
- Turn on/off the HTTPS connection (in case users want to secure the connection).
- Change passive data receiver port and protocol.

To configure OMEGA Enterprise Gateway, you can launch OMEGA Enterprise Gateway Setup utility via, Start → Program → OMEGA Engineering → OMEGA Enterprise Gateway Setup.



### 3.1 Setup Data Logging

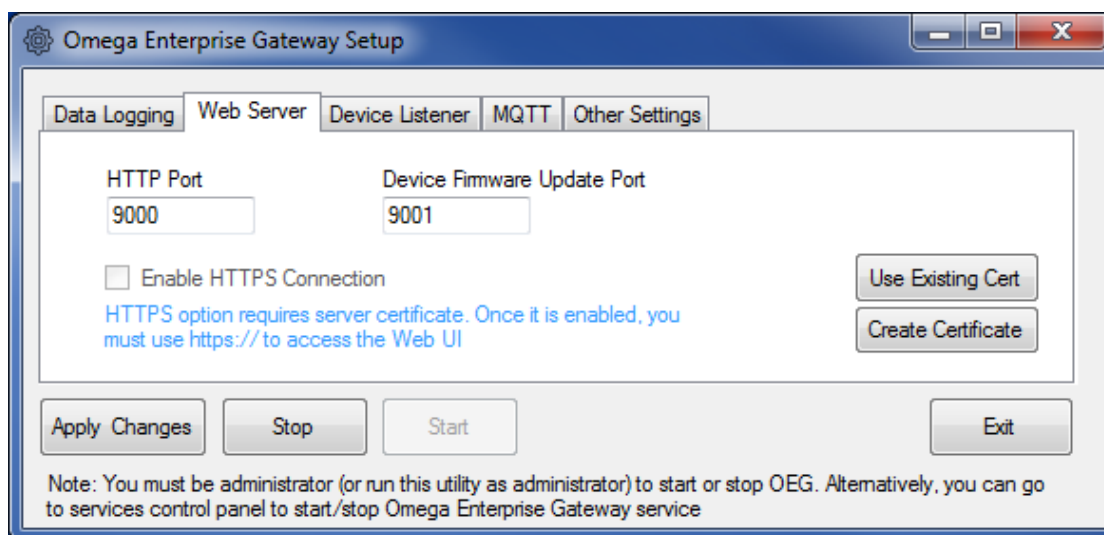
OEG use MongoDB for data logging. MongoDB is installed along with the OEG.

By default, the connection string is mongodb://localhost:27017 for local MongoDB. If you want to connect remotely to MongoDB, you can change the localhost to an IP address or the host name of the computer where the MongoDB is installed.

### 3.2 Configure Web Server

There are two parameters for web server: 1. The web server port number. The default HTTP port for OMEGA Enterprise Gateway is 9000. Users can change it to any port. 2. The option to turn on/off the HTTPS connection.

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

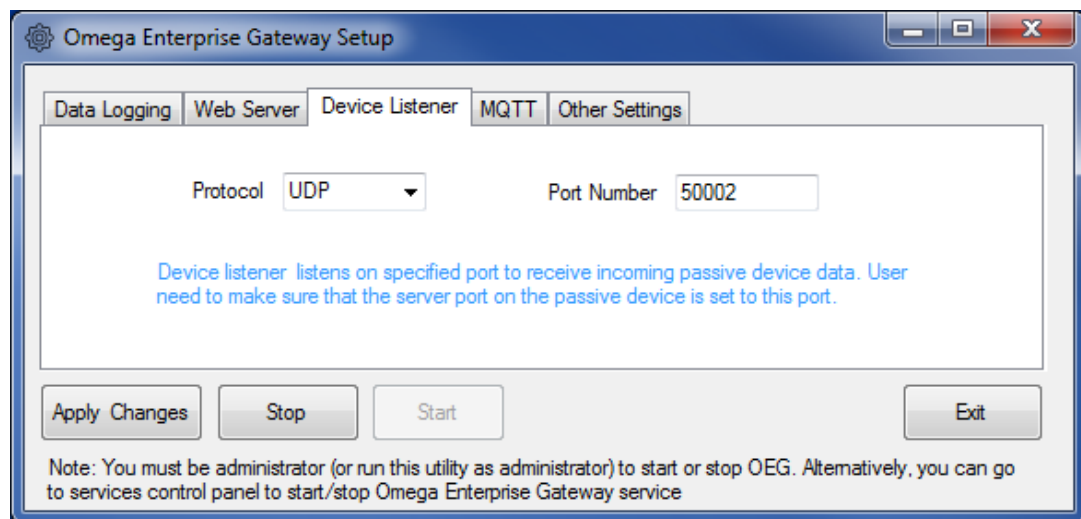


If users want to use a secure connection for web browsing or calling APIs, they can turn on the HTTPS connection by selecting the checkbox “Enable HTTPS Connection”. To secure connection, a certificate must be provided. You can use default self-signed certificate by clicking “Create Certificate” or selecting an existing certificate. When you select an existing certificate, please make sure that the certificate is used for remote machine authentication. If you want to create a certificate on your own, please 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 function will be grayed out to prevent duplicated creation.

### 3.3 Set Passive Device Listener

The passive device listener is designed to accept Wi-Fi based sensing devices such as WW-ED and wSeries. These devices turn-off automatically when they are not transmitting data, to save power. Only two parameters are required: Protocol – TCP or UDP; Port – the communication port. Additional setup is required on sensing devices; refer to the user manuals of each sensing device, if you require setup instructions. If you don’t have these devices, you can simply let it be.



### 3.4 Set IOT and Cloud Connectivity (MQTT)

OMEGA Enterprise Gateway supports IOT and Cloud connectivity via embedded MQTT client and broker. Below are options:

- Enable MQTT Broker - User can turn OEG into a MQTT broker.
- Group Message – When sending reading data to the Cloud, enabling this feature will group all measurements from a device into a single message to reduce traffic
- OEG Instance ID – This is the ID required for connecting OEG to Omega Cloud Application (Subscription service)
- Protocol – To be used to communicate with MQTT broker. The MQTT broker could be either itself or a remote MQTT broker such as Cloud MQTT or Azure.
- Broker Hostname – Host name (DNS name) or IP address of the broker.
- Port – TCP port number of the MQTT broker.
- Client ID – The ID of the MQTT client. For the MQTT broker to support per device authentication, the client ID must be same as the device ID added on the broker (e.g. Azure). If you want to connect to Omega Cloud, this id is the same as the OEG Instance ID

- User Name – Required to login to the broker (you will need to get it from your broker provider).
- Password or Key – Used to login to the broker (you need to get it from your broker provider).
- Get SAS – This function is specifically for Azure IOT connectivity. Azure requires Shared Access Signatures (SAS) for authentication and establishing the connection. This function generates the token based on client ID, user name, and password. It is not necessary to run the function in Gateway. But if you have a client that wants to subscribe to the MQTT message, you will need to use the token to connect to the Azure cloud.

The screenshot shows the 'MQTT' tab of the 'Omega Enterprise Gateway Setup' window. The 'OEG Instance ID' is 'OMEGA-OEG-0001'. The 'Enable MQTT Broker' checkbox is unchecked, while 'Group Message' is checked. The 'Protocol' is set to 'None'. The 'Broker Hostname' is '127.0.0.1', the 'Port' is '1883', and the 'Client ID' is 'OmegaEnterpriseGateway'. There are empty text boxes for 'User Name' and 'Password or Key', and a 'Get SAS' button. At the bottom, there are 'Apply Changes', 'Stop', 'Start', and 'Exit' buttons. A note at the bottom states: 'Note: You must be administrator (or run this utility as administrator) to start or stop OEG. Alternatively, you can go to services control panel to start/stop Omega Enterprise Gateway service'.

### 3.5 Set Local Alarm

Local alarm is a function for providing local (on the machine the Gateway is installed) visual feedback when there is a measurement beyond threshold or a device has lost connection. If you plan to monitor the sensing data remotely, this function does not apply. Local alarm function is turned off by default. The Gateway must run as a console application.

The screenshot shows the 'Other Settings' tab of the 'Omega Enterprise Gateway Setup' window. The 'Identity' section has an 'OEG Host Name' field with the value 'U'. The 'Local Alarm Settings' section has an unchecked 'Enable Local Alarm' checkbox. Below this, a blue text note says: 'If enabled, gateway must run as console application'. At the bottom, there are 'Apply Changes', 'Stop', 'Start', and 'Exit' buttons. A note at the bottom states: 'Note: You must be administrator (or run this utility as administrator) to start or stop OEG. Alternatively, you can go to services control panel to start/stop Omega Enterprise Gateway service'.



### 3.6 Apply Changes

Click the “Apply Changes” button to save all settings to a local installation folder. The settings are persisted.

### 3.7 Restart Service

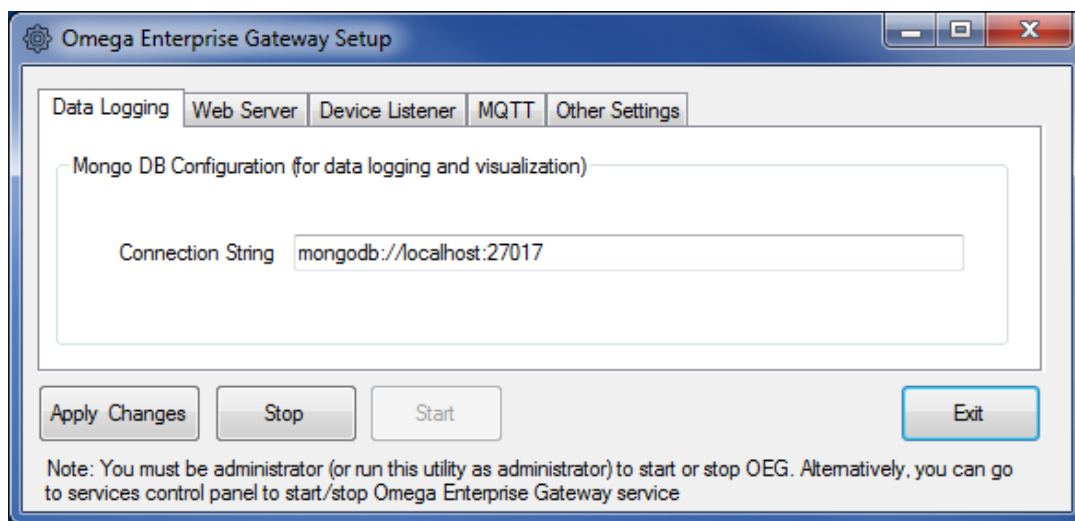
Click “Restart Service” to restart the service. You can also use Windows system management console to start/stop service manually.

## 4 Start OMEGA Enterprise Gateway

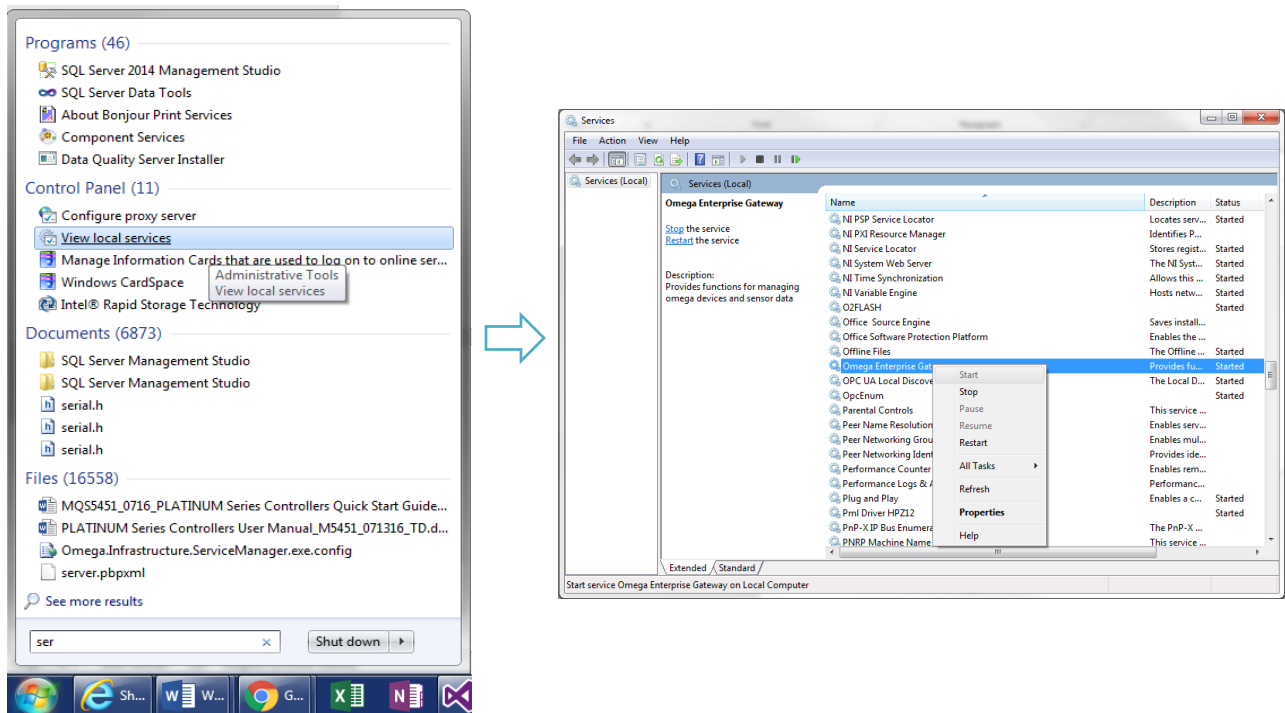
OMEGA Enterprise Gateway is installed as a Windows service, by default, OEG will be automatically started once the computer is started. Users have the option to start it manually if they don’t want this behavior.

There are two ways to start the Gateway manually.

1. Start Gateway using Setup utility. Please refer to previous section for how to launch the setup utility. In the dialog, click the “Restart Service” button.

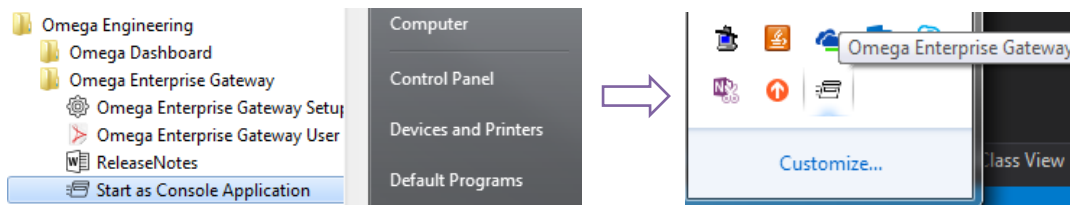


2. Start Gateway using the Windows Service management console. The quickest way to launch the service management console is using the search function of the Windows, as shown below. Once the service management console pops up, you can right-click on the OMEGA Enterprise Gateway service to start, stop, or restart the Gateway service.



### 3. Start as Console Application

Users can run OMEGA Enterprise Gateway in console mode to take advantage of the local alarm function. The local alarm function enables pop-up notification on local machines that the Gateway is installed on. Once the Gateway starts as a console, a system tray icon will be created on the system tray to allow users to interact.



## 5 Use OMEGA Enterprise Gateway

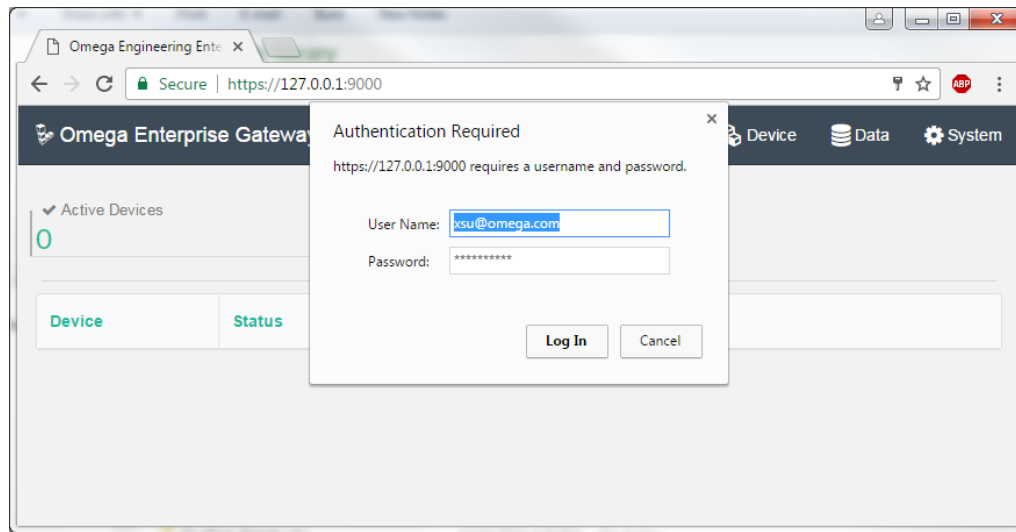
### 5.1 OMEGA Enterprise Gateway Web UI

All functions of OMEGA Enterprise Gateway are exposed through Web UI (*Except* system configuration). This allows users to remotely manage devices, monitor, visualize, and analyze sensing data without installing the software locally. Users can access all functions using desktop, tablets, smart phones, etc.

To access the Gateway Web UI, use your preferred web browser and type in the URL:  
<http://ipaddress:9000/>.

Note: The IP address of the machine that the Gateway is installed, the port number 9000 is the default port number. Please change to the one that is set by the setup utility. If the HTTPS is checked, the URL is <https://ipaddress:9000/>. The Gateway is secured by integrated Windows security. It requires a

Windows user account to login. The access is controlled either by the IT department or locally on the machine that the Gateway is installed.



Once you are signed in, the readings page will show all current readings of the connected devices.

Device	Status	Readings
Refrigerator #1 108.178.128.197_0 Last updated: 2/20/2017 11:35:44 AM	Running	Temperature1 : 18.10 °C    Humidity1 : 67.7 %RH
Refrigerator Cluster 192.168.1.200_0 Last updated: 2/20/2017 11:35:42 AM	Running	7 : 24.60 °C, 43.9 %RH    10 : 25.90 °C    15 : 21.60 °C, 1021.70 mbar, 52.6 %RH
Intensive care 108.178.128.200_0 Last updated: 2/20/2017 11:35:45 AM	Running	Temperature : 17.90 °C    Humidity : 69.4 %RH    DewPoint : 12.20 °C
Refrigerator #2 108.178.128.201_0 Last updated: 2/20/2017 11:35:45 AM	Running	Temperature : 18.30 °C    Humidity : 69.6 %RH    Pressure : 1020.40 mbar    DewPoint : 12.60 °C
Nursery 108.178.128.202_0 Last updated: 2/20/2017 8:53:49 AM	Running	7 : 22.89 °C, 48.8 %RH
Dispensary 108.178.128.206_0 Last updated: 2/20/2017 11:35:44 AM	Running	Temperature1 : 23.50 °C    Temperature2 : 23.30 °C

There are five main functions in the Gateway:

1. Overview – shows the overall system health status and statistics
2. Readings – shows current readings of the connected devices
3. Device – shows status of the current connected devices. It also allows users to add, delete, start, and stop devices
4. Data – allows users to retrieve, visualize, and analyze stored sensing data

5. System – allows users to configure the notification setting, passive device settings, display options, manage the license, or upgrade the firmware for passive devices such as WW-ED

## 5.2 Device Management

Device management is done via device page. On this page, a user can add, delete, start, and stop a device. Also adjust device settings such as pulling interval, alarm threshold, and check real-time readings.

ID	Device Name	Type	Power	Devices/Channels	Status	Connected Time	Actions
108.178.128.197_0	Refrigerator #1	ISD_TH		2		2/17/2017 5:26:57 PM	
192.168.1.200_0	Refrigerator Cluster	zwREC		3		2/20/2017 11:35:25 AM	
108.178.128.200_0	Intensive care	ITHX_W		3		2/20/2017 8:04:03 AM	
108.178.128.201_0	Refrigerator #2	IBTHX_W		4		2/20/2017 8:04:04 AM	
108.178.128.206_0	Dispensary	ISD_TC		2		2/17/2017 5:26:57 PM	

### 5.2.1 Add Device

To add a device, click the “Add New Device” button on the device page. A popup dialog allows a user to add various OMEGA connected devices. In the popup dialog, there are options to select the product to be added, device communicate parameters (TCP, USB, or RS485/RS232), login information (for devices that require authentication), and pulling interval.

#### 1. Specify Product

- Family – Available options are: Controller (PLATINUM, iSeries); DAQ (OM-DAQ-USB); iServer (iBTX, iBTHX-W, iBTX-SD, iTHX-W, iTHX-SD, iTCX, iPTX, iSD-TH, iSD-TC, EIT); Wireless (ZW-REC, zCDR, UWTC-REC3)
- Pressure (PX409-USBH/485, IN-USBH)
- Product – Supported devices will be automatically populated once the family is selected
- Name – A meaningful name for the device

#### 2. Specify Connection Parameters

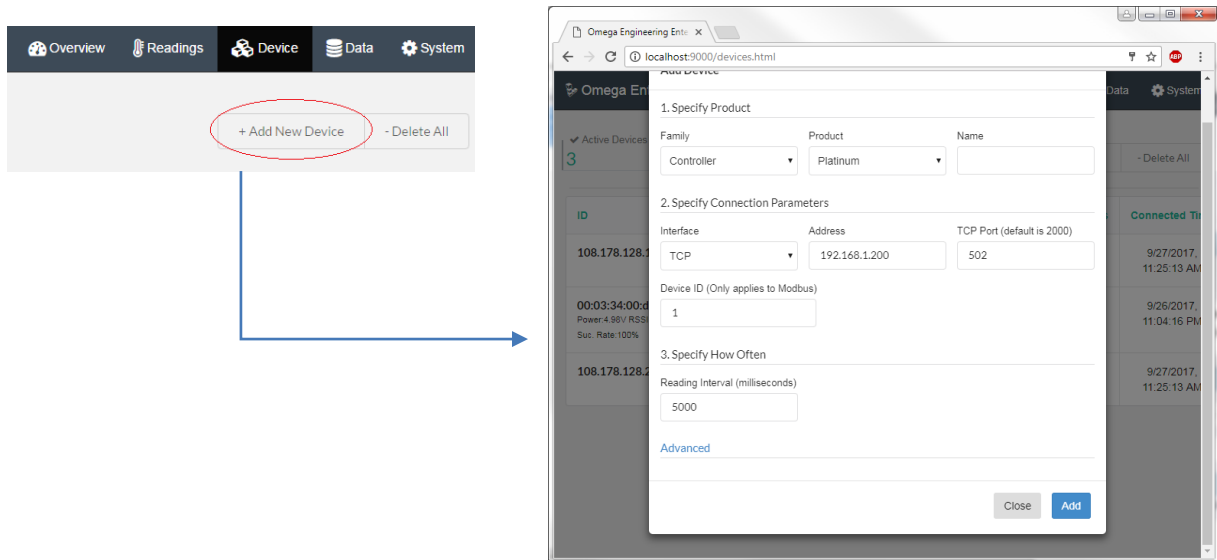
- TCP – Available parameters are IP address, and port number
- USB – Available parameter is COM port (via virtual com port)
- RS232 – COM port, baud rate, data bits, stop bits
- RS485 – COM port, baud rate, data bits, stop bits, device address

#### 3. Specify How Often

- Pull interval – Refers to how frequently a user wants to read the sensing data from the connected device


#### 4. Advanced

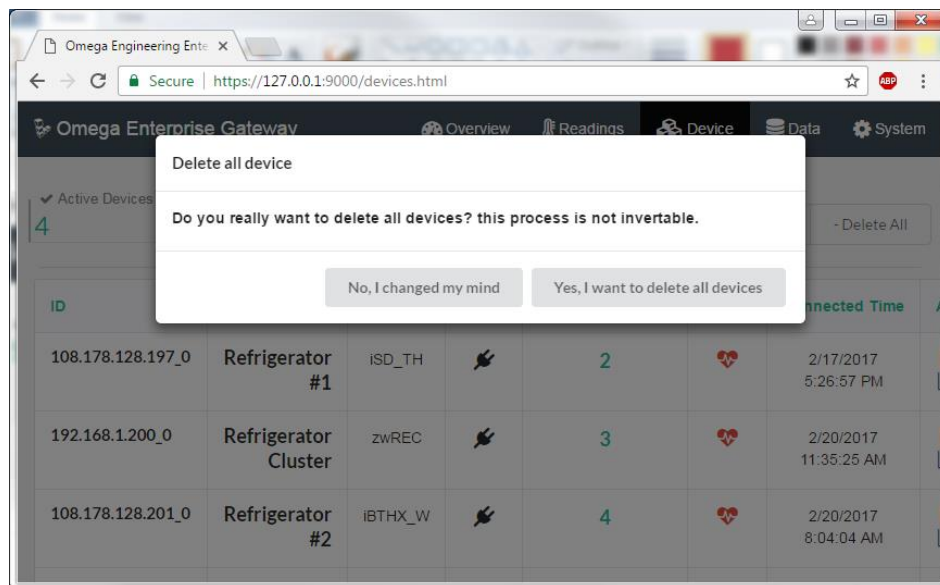
- User name – the user name for login
- Password – the password for login
- Use secure connection – if the device requires secure connection, select this checkbox
- Disconnect after read - disconnect the device once the reading is complete



Once your parameters are set correctly, click “Add” to add the device.


### 5.2.2 Delete Device

Deleting a Device is simple. Just click the  icon in the actions column of the device table. You can also delete ‘all devices’ at once if you want. A confirm deletion dialog will show up to allow the user to confirm the intended deletion.




### 5.2.3 Start/Stop Device

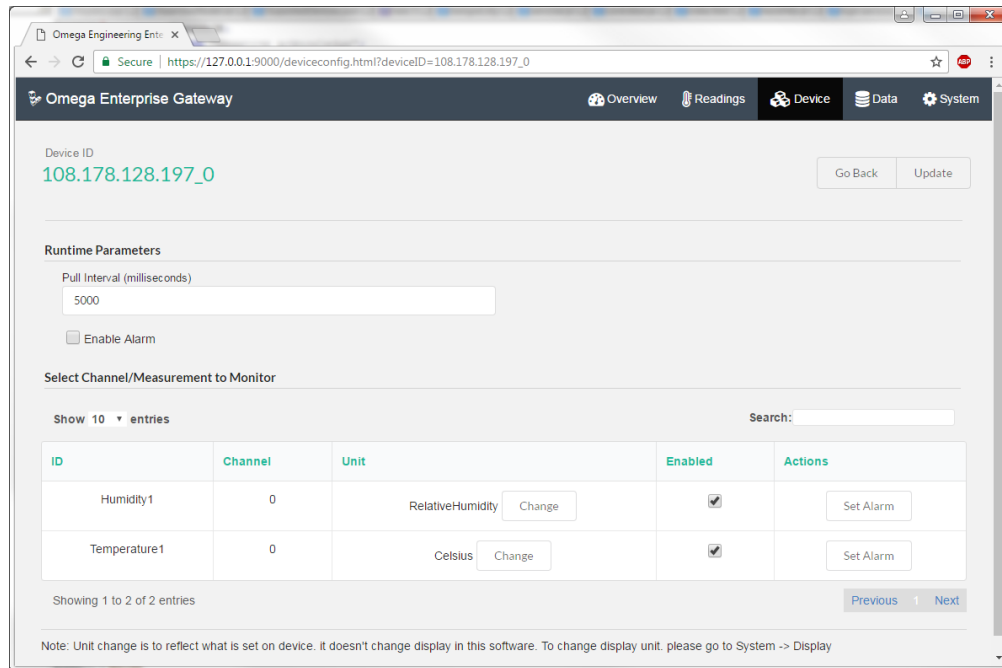
Start and Stop device function allows the start/stop pulling of a specified device. Start/stop function are a toggle function.

Stop function is performed by clicking the  icon.

The start action is performed by clicking the  icon.

## 5.2.4 Configure Device

Configure device is done by clicking  icon in the actions group. You will be redirected to a device setup page.



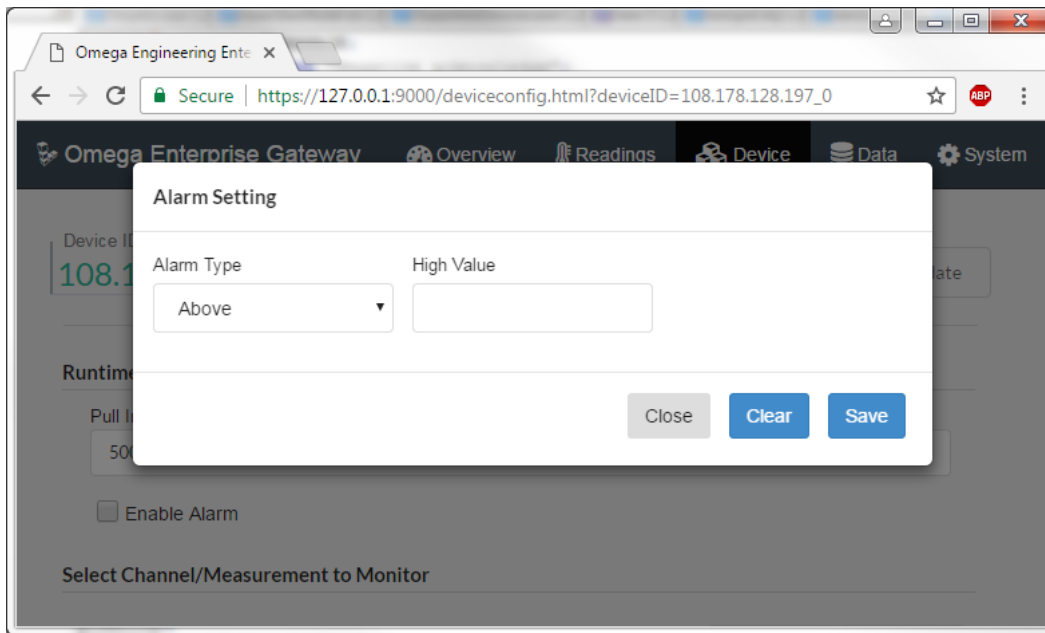
1. Runtime Parameters
  - a. Change Pull Interval - Users can change pull interval by adjusting the value of the pull interval textbox. The value is a current pull interval used on the device
  - b. Enable alarm – the user can turn on/off the alarm on this device by checking or unchecking the “Enable Alarm” checkbox
2. Select Channel/Measurement to Monitor
 

A list of available channels/measurements on a selected device are listed in the table. Turn on/off channels by checking or unchecking the enabled checkbox.
3. Change Unit
 

Users can change the measurement unit if the unit is unknown. We recommend only using this option if the measurement doesn't contain 'unit'. For example, the PLATINUM process value doesn't contain a measurement unit. Users can use this function to set the unit. For devices such as ZW-REC, unit function is contained in the measurement.
4. Set Alarm
 


Set Alarm function allows users to set alarm on specific channel or measurement. Currently, there are three alarm types available:

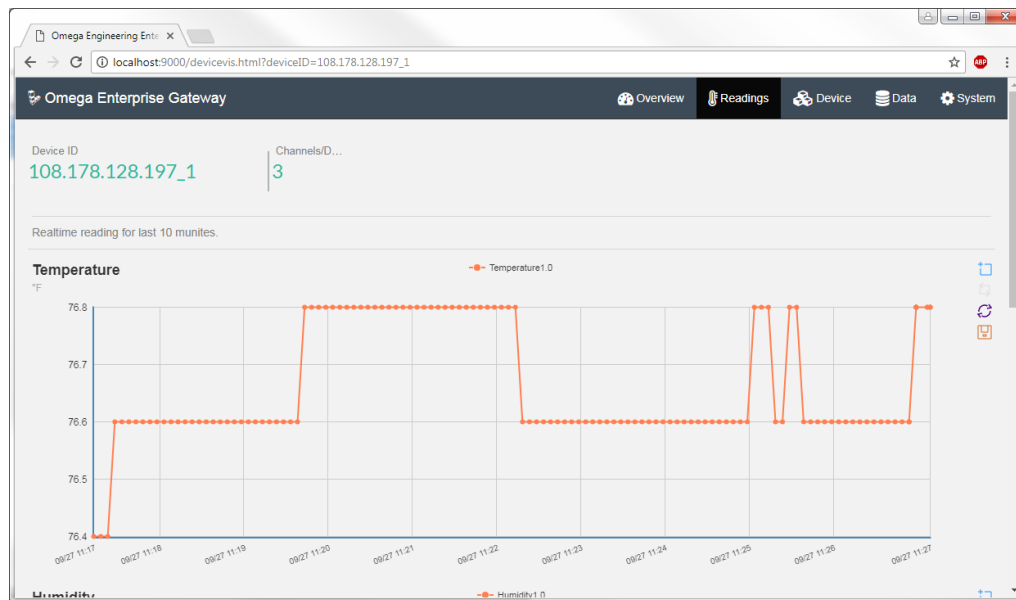
  - a. Above – when measurement is above the threshold
  - b. Below – when the measurement is below the threshold
  - c. Out of Range – when measurement is out of range



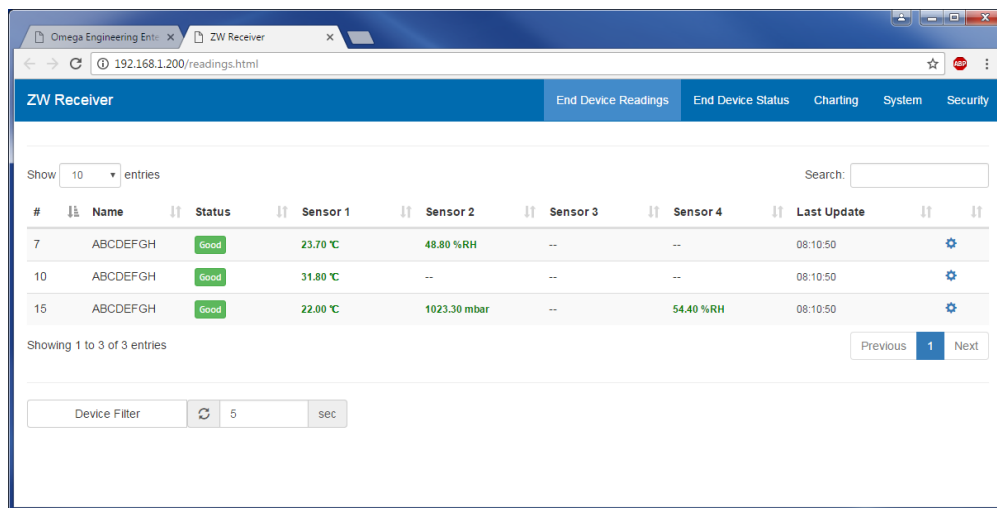
**NOTE: TO APPLY CHANGES TO THE GATEWAY, YOU MUST CLICK THE UPDATE BUTTON AT THE TOP OF THE PAGE.**

### 5.2.5 Review Single Device Live Data

Review a single device reading by clicking the  icon. If the device is directly connected with a sensor, the next page will show real-time and historical readings for the last 10 minutes (can be set in the System page).

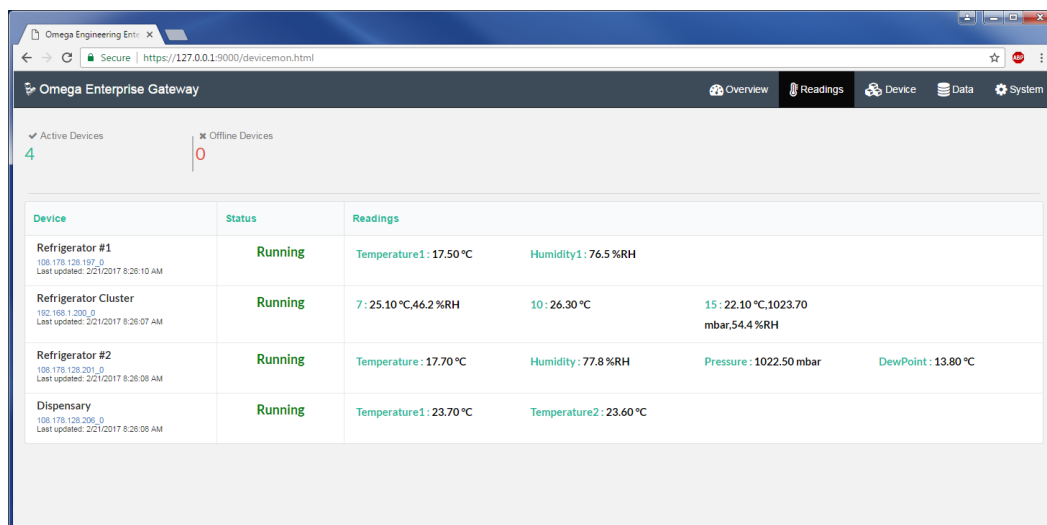


If the device is ZW-REC, zCDR or UWTC-REC3 that connects multiple end devices, the next page will be redirected to the device's reading page.



### 5.3 Monitor Device Readings

Once devices are added, use the readings page to monitor real-time sensor readings. If the device has a sensor directly attached, the reading is organized by channel/measurement. If the device has multiple end devices connected, each end device may have multiple sensors. The readings are grouped by device ID of the end device.

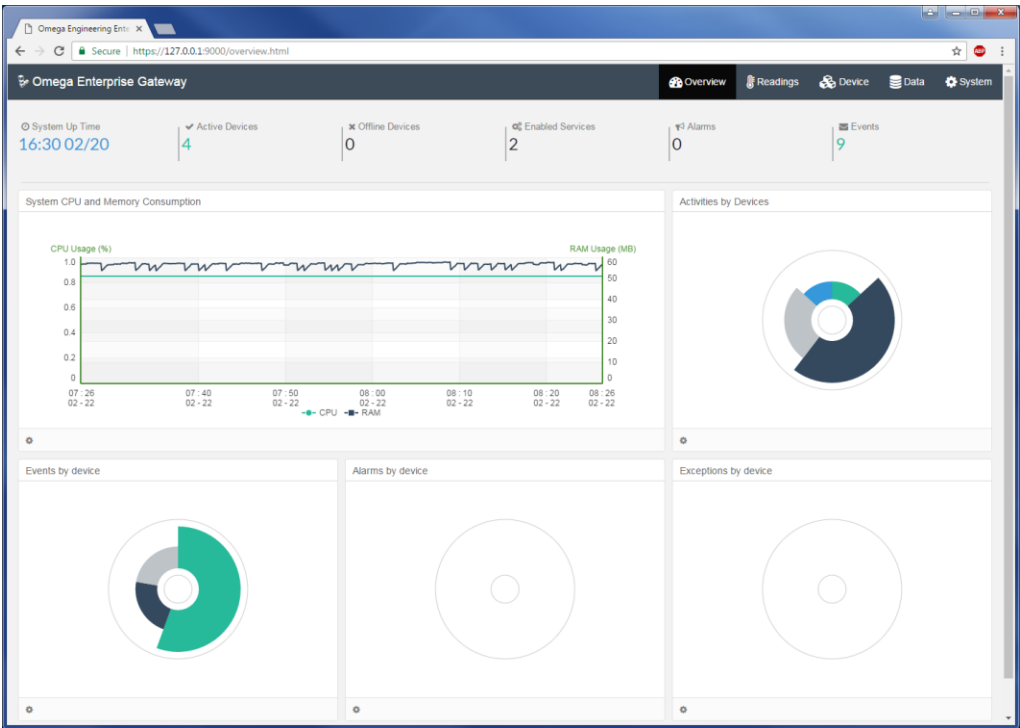


### 5.4 System Overview

The overview page is used for monitoring the status of connected devices of the Gateway. Information on the overview page includes Gateway:

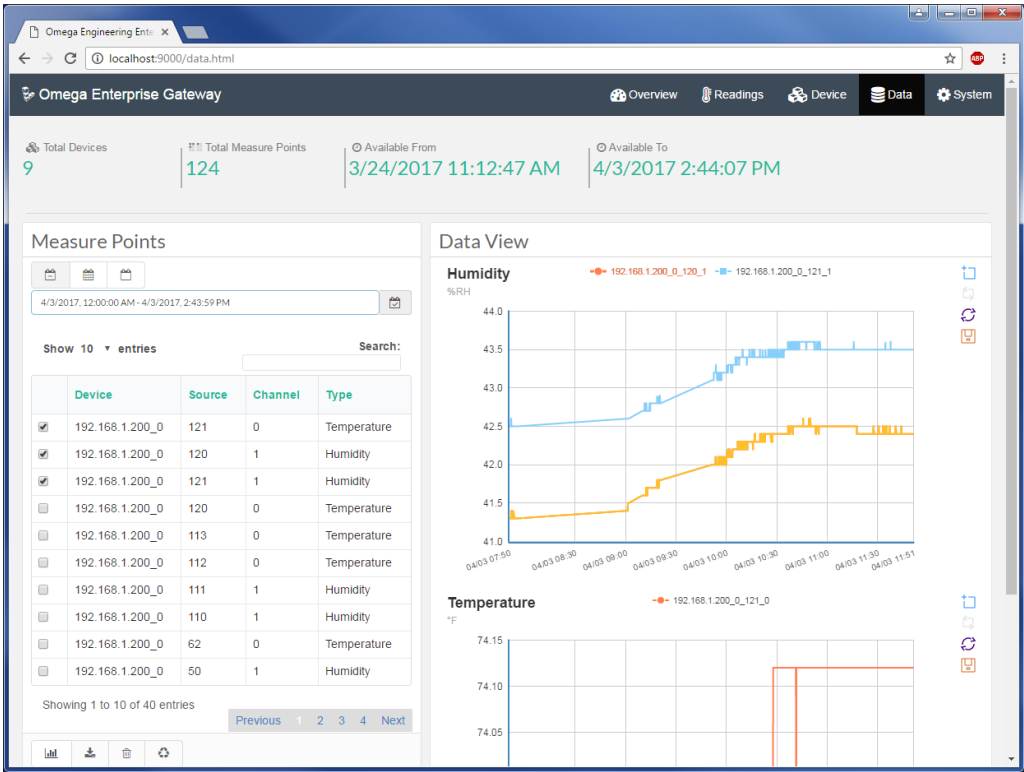
- Start-up time
- Active devices, offline devices (in case there are predefined devices that cannot be automatically reconnected after the Gateway started)
- Supported services
- Total alarms (measurement beyond the threshold) from the start
- Total events (device events such as disconnected, start, stop, etc.) from the start
- System CPU and memory consumption
- Charts for activities (measurements reading frequency) of each device
- Events and alarms of each device; exceptions - something went wrong on the device(s)












5.5 Visualization and Analytics


Visualization and Analytics allows the pulling of historical readings for trending analysis; export historical data, or delete data. Users can search, sort, and select measurements to review. Plus, users can select a time range of today, this week, this month, or a customized time range.



### 5.5.1 Set Time Range

Set a time range by using the time select buttons: today , this week , this month . If you want to use the custom range, select the range you will need, then click the refresh button  to apply the new time range.









4/3/2017, 12:00:00 AM - 4/3/2017, 2:43:59 PM


### 5.5.2 Select Measurements

The table below displays Time Selection buttons and available measurements. You can filter the measurements by typing in the keywords in the search textbox. Select the checkbox on the left of each row in the table to select measurements.

#### Measure Points





9/27/2017, 12:00:00 AM - 9/27/2017, 11:29:06 AM


Show 10 ▼ entries
Search:

	Device	Name	Source	Channel	Type
<input type="checkbox"/>	108.178.128.202_1	gest	0	1	Humidity
<input type="checkbox"/>	108.178.128.202_1	gest	2	0	Temperature
<input type="checkbox"/>	108.178.128.202_1	gest	0	0	Temperature
<input type="checkbox"/>	108.178.128.202_1	gest	2	1	Humidity
<input type="checkbox"/>	108.178.128.197_1	123	DewPoint1	0	Dewpoint
<input type="checkbox"/>	108.178.128.197_1	123	Temperature1	0	Temperature
<input type="checkbox"/>	108.178.128.197_1	123	Humidity1	0	Humidity
<input type="checkbox"/>	00:03:34:00:d4:d6	MyWWED	1	0	Humidity
<input type="checkbox"/>	00:03:34:00:d4:d6	MyWWED	0	0	Temperature


Showing 1 to 9 of 9 entries

Previous
1
Next

☐ Smart down sample to improve charting response time

### 5.5.3 Data View and Management






View Trending Analysis; download and delete data using data view and management functions.

#### 5.5.3.1 Trending Analysis



When time range and measurements are set, click the “Trending Analysis” button to retrieve data. Trending chart will be grouped by measurement type.

#### 5.5.3.2 Download Data



Download the selected data into CSV file by clicking the “Download Data” icon.

#### 5.5.3.3 Delete Selected Data



Delete selected data by clicking the “Delete Selected Data” button. A confirmation dialog will allow a user to cancel or complete this operation.

#### 5.5.3.4 Wipeout Data



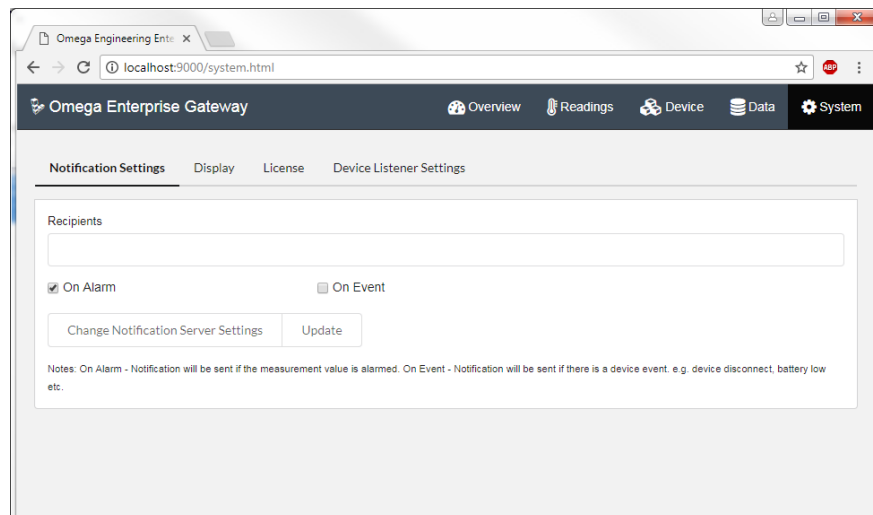
To completely wipe out all data in the database, click “Wipe out all data”. A confirmation dialog will allow user to cancel or complete this operation.

### 5.6 System Settings

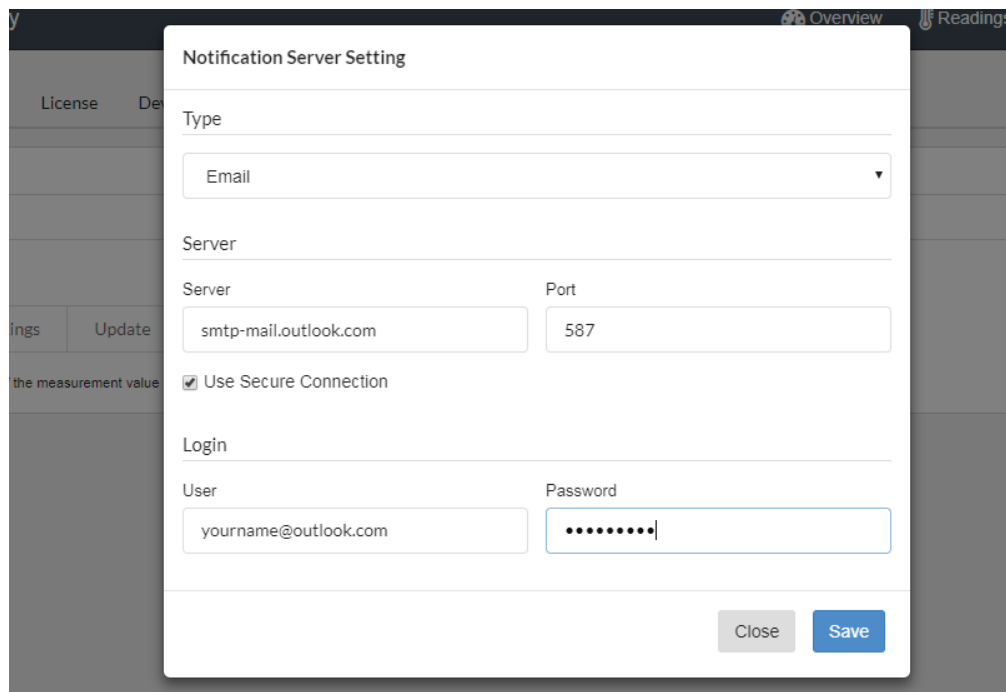
Change gateway runtime settings using the system page. The system page contains functions including:

#### 5.6.1 Notification Settings

Set email delivery parameters once an alarm or event occurs. The “Recipients” field allows users to input multiple recipients’ email addresses separated by “;”. Then choose notification type of an alarm or event or both. Click “Update” to apply the changes.



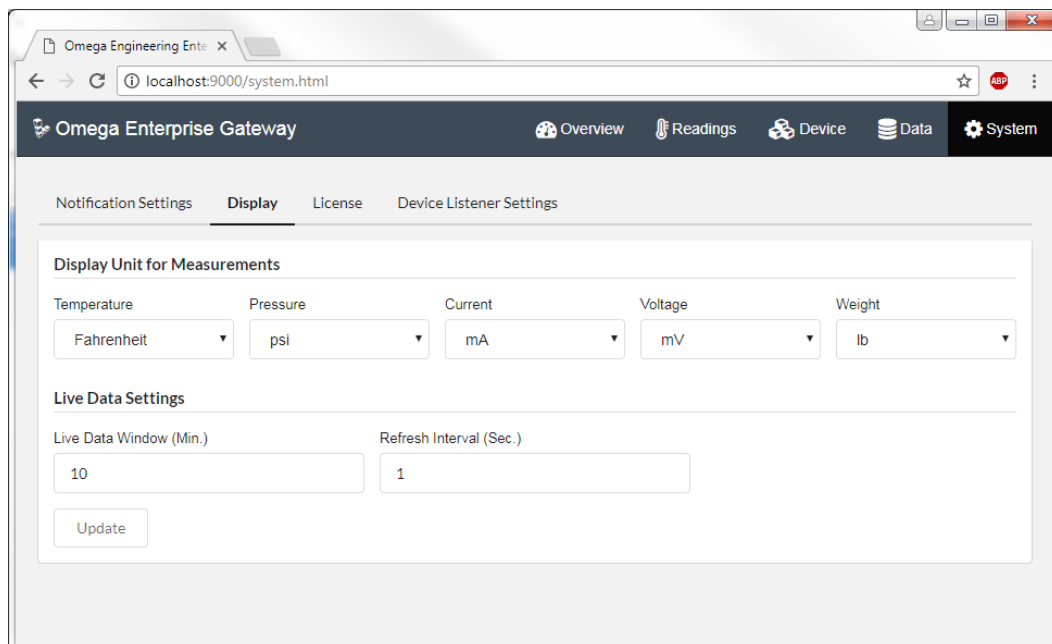
Users can also change the notification server settings. You can select type, server name or address, port number, and user login information etc. in the popup dialog. Below is an example of using outlook account for sending email.



The image shows a 'Notification Server Setting' dialog box. It has a title bar with 'Notification Server Setting'. Below the title bar, there is a 'Type' dropdown menu with 'Email' selected. Underneath is a 'Server' section with two input fields: 'Server' (containing 'smtp-mail.outlook.com') and 'Port' (containing '587'). Below these is a checkbox labeled 'Use Secure Connection' which is checked. The 'Login' section has two input fields: 'User' (containing 'yourname@outlook.com') and 'Password' (containing masked characters). At the bottom right, there are 'Close' and 'Save' buttons.

### 5.6.2 Display

Set the display unit for temperature, pressure, weight in this page. A user can also set a live data window and page refresh interval. Note: the display unit only applies to display, it does not change the units that are saved in the database or applied to the device. Live data window is the max sliding window when users review live data of the single device.

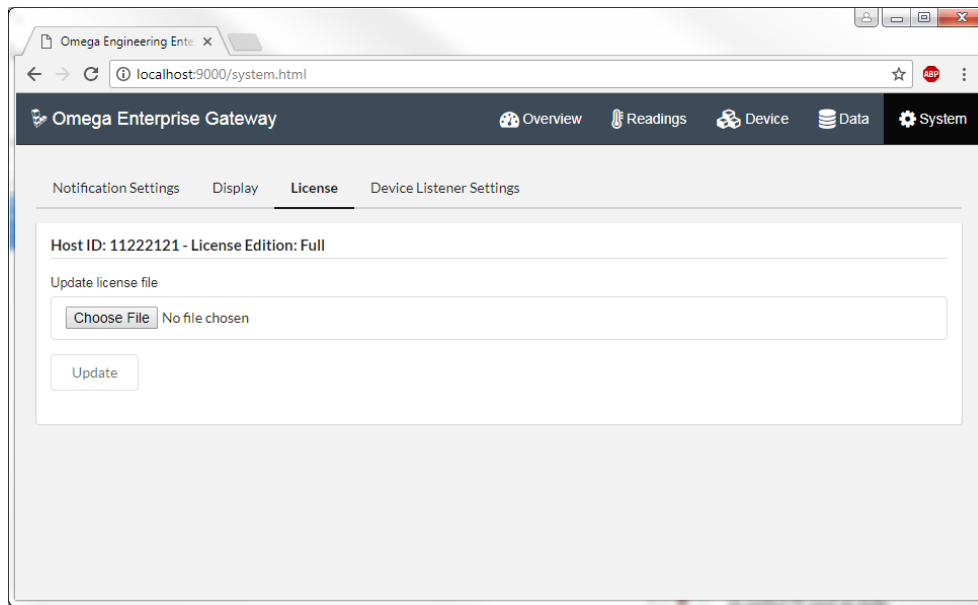


The image shows the 'Omega Enterprise Gateway' web interface. The top navigation bar includes 'Overview', 'Readings', 'Device', 'Data', and 'System'. The 'Display' tab is selected. Below the navigation bar, there are tabs for 'Notification Settings', 'Display', 'License', and 'Device Listener Settings'. The 'Display' tab is active. The main content area is titled 'Display Unit for Measurements' and contains five dropdown menus for 'Temperature' (Fahrenheit), 'Pressure' (psi), 'Current' (mA), 'Voltage' (mV), and 'Weight' (lb). Below these is the 'Live Data Settings' section, which has two input fields: 'Live Data Window (Min.)' (10) and 'Refresh Interval (Sec.)' (1). An 'Update' button is located at the bottom of the 'Live Data Settings' section.

### 5.6.3 License

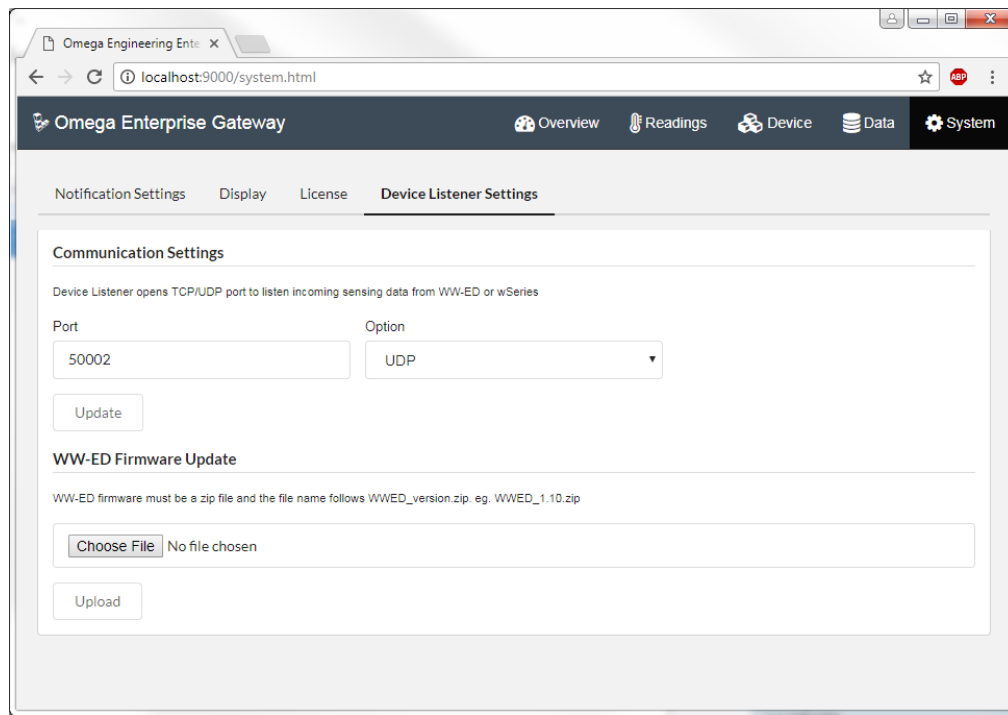
OMEGA Enterprise Gateway can run without a license. The default version without a license is the standard version and does not have functions of historical data and OPC integration capability.

This page allows the user to update the license. For license information, please contact [support@OMEGA.com](mailto:support@OMEGA.com).



#### 5.6.4 Device Listener Settings

For passive devices such as WW-ED that wakes up, sends data, then goes to sleep, it is necessary to open a port on Gateway to receive the push data. This page allows users to change the connection type. This feature requires a user to correctly set the communication on the passive device as well. Please refer to the user manual of respective devices to set the communication parameters. Default settings are port 50002, UDP connection. User can use this tab to update WW-ED firmware as well.



## 6 Integrate with Other Enterprise Software

OMEGA Enterprise Gateway provides three ways for integrating sensing data into other enterprise applications.

1. OPC UA Server (require license)
2. OPC DA Server (require license)
3. RESTful web API.

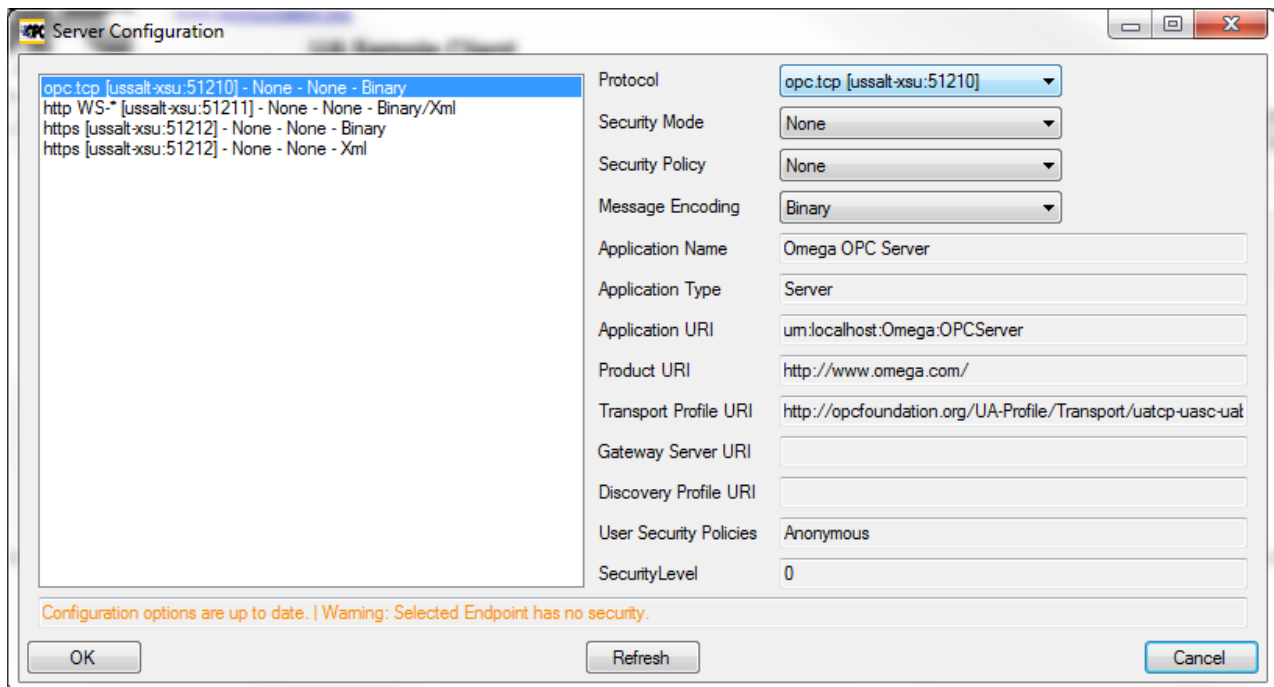
### 6.1 OPC UA Server

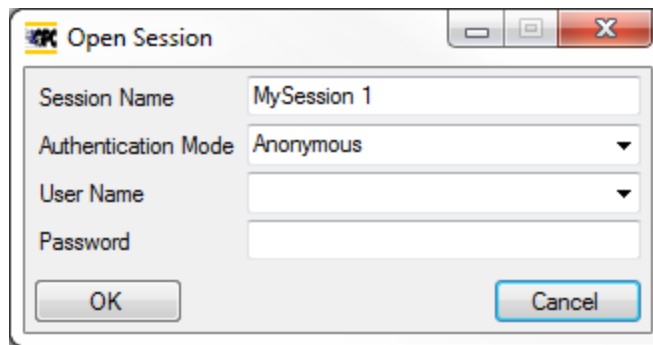
OMEGA Enterprise Gateway comes with an embedded OPC UA server. This OPC UA server allows the OPC UA compliant enterprise application to connect to Gateway and retrieve sensing data.

Once the Gateway is started, the OPC UA server is also started and exposed through URL: `opc.tcp://hostname:51210/OMEGA/OPCServer`.

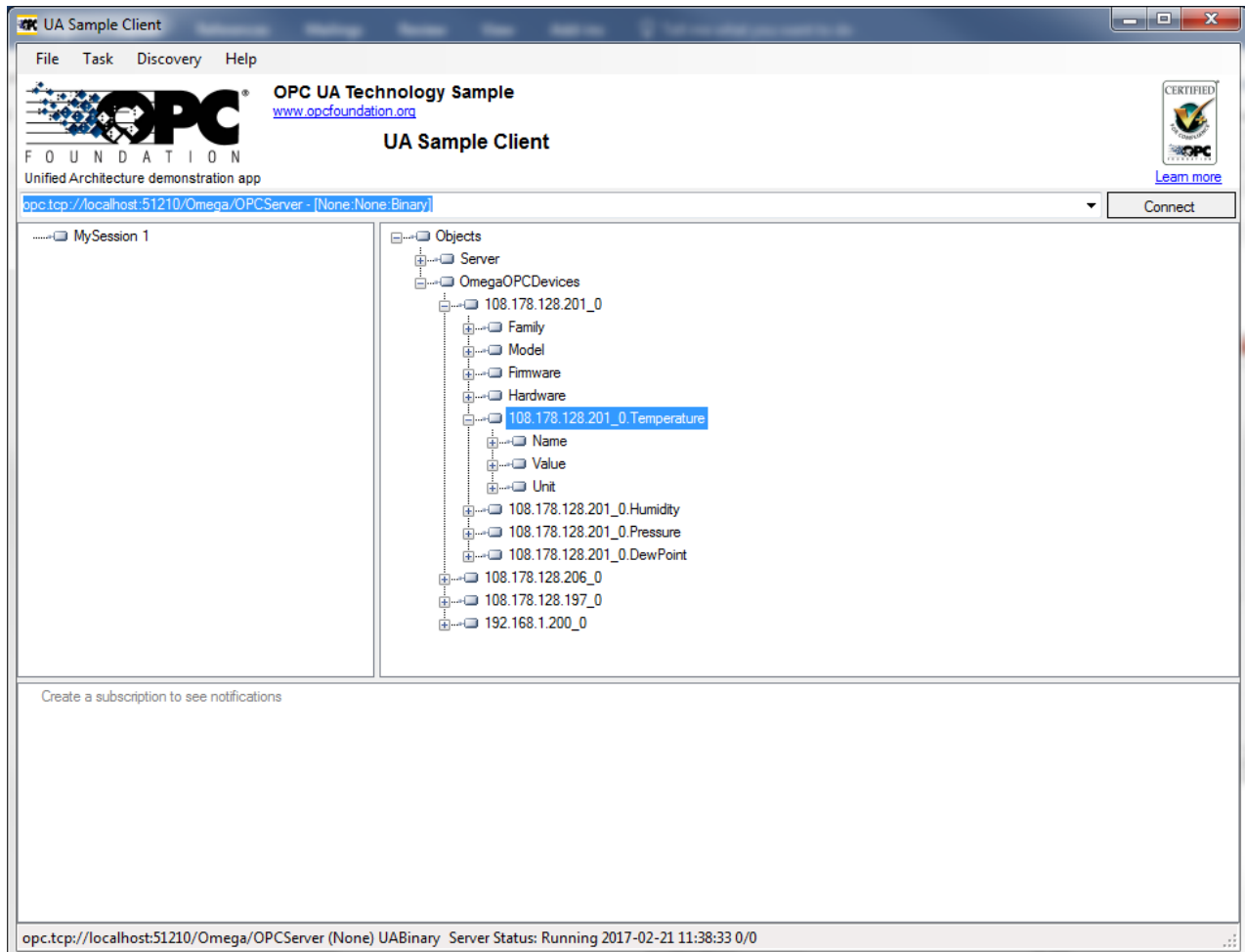
Note: the host name is either the DNS name or IP Address of the machine that the Gateway is installed.

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

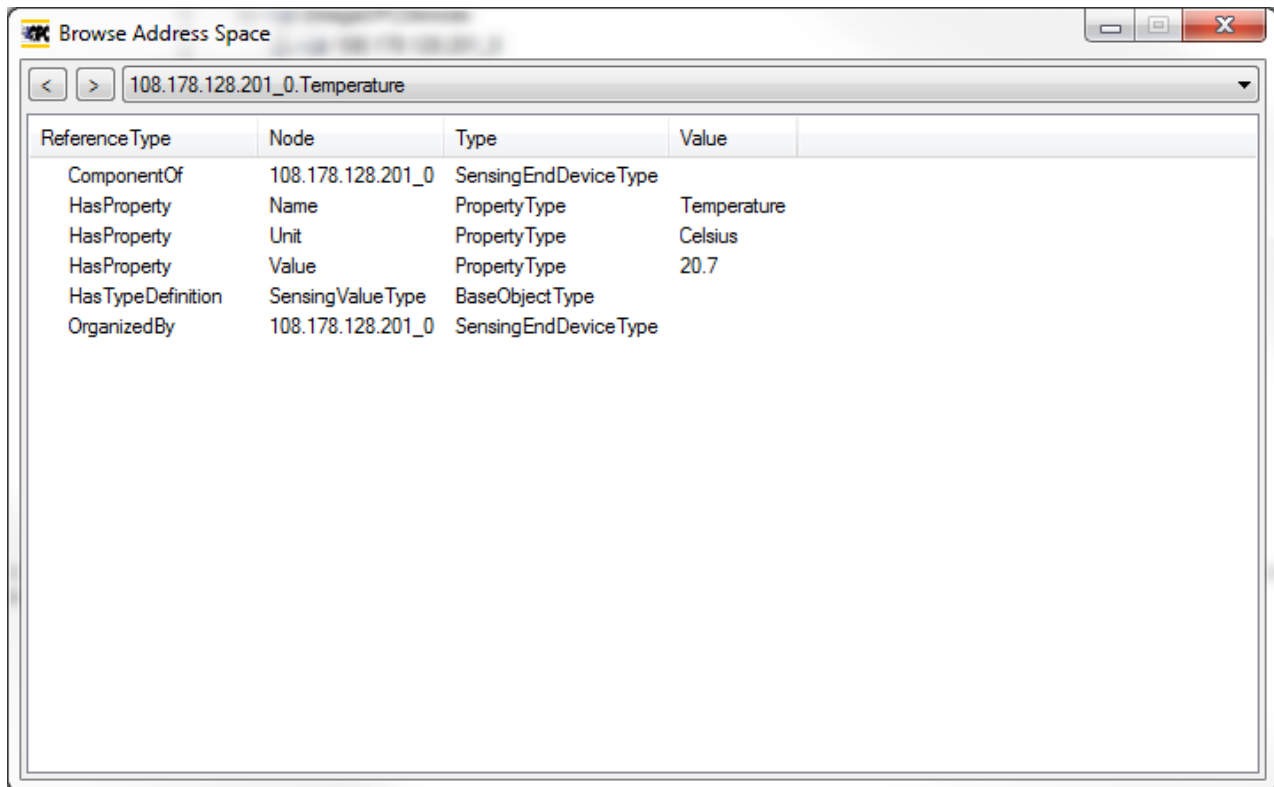




After sign in, browse the measurements in the tree structure.



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.



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

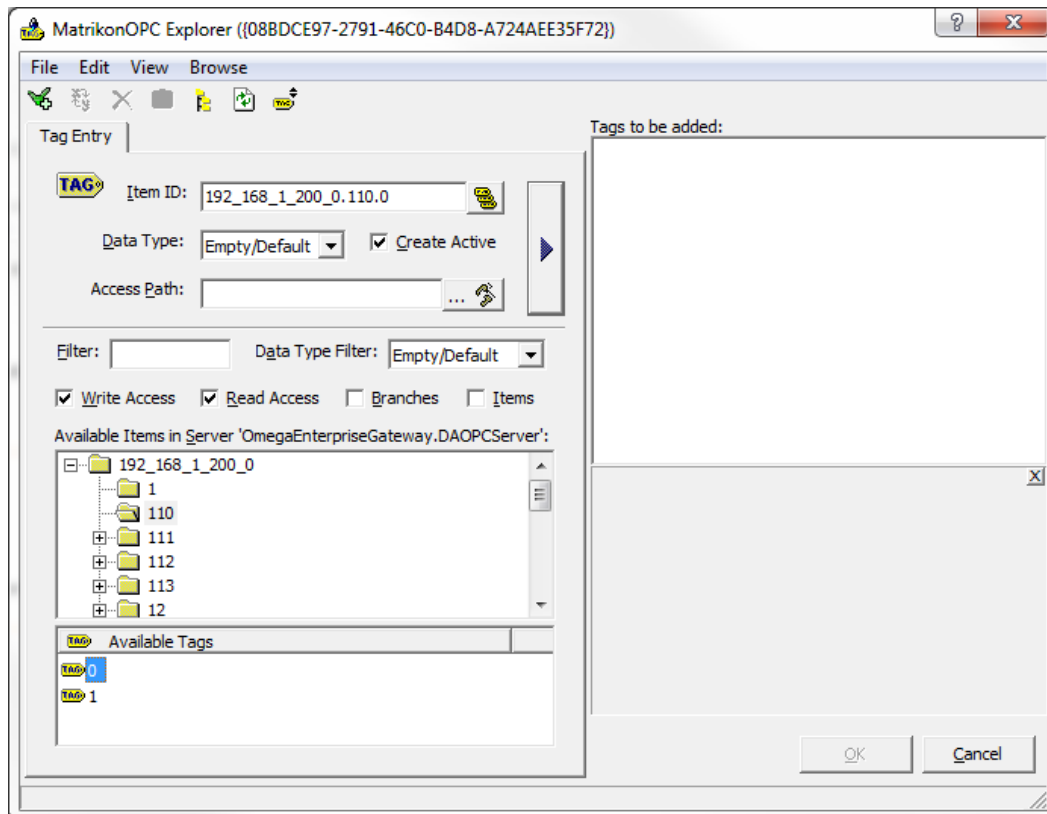
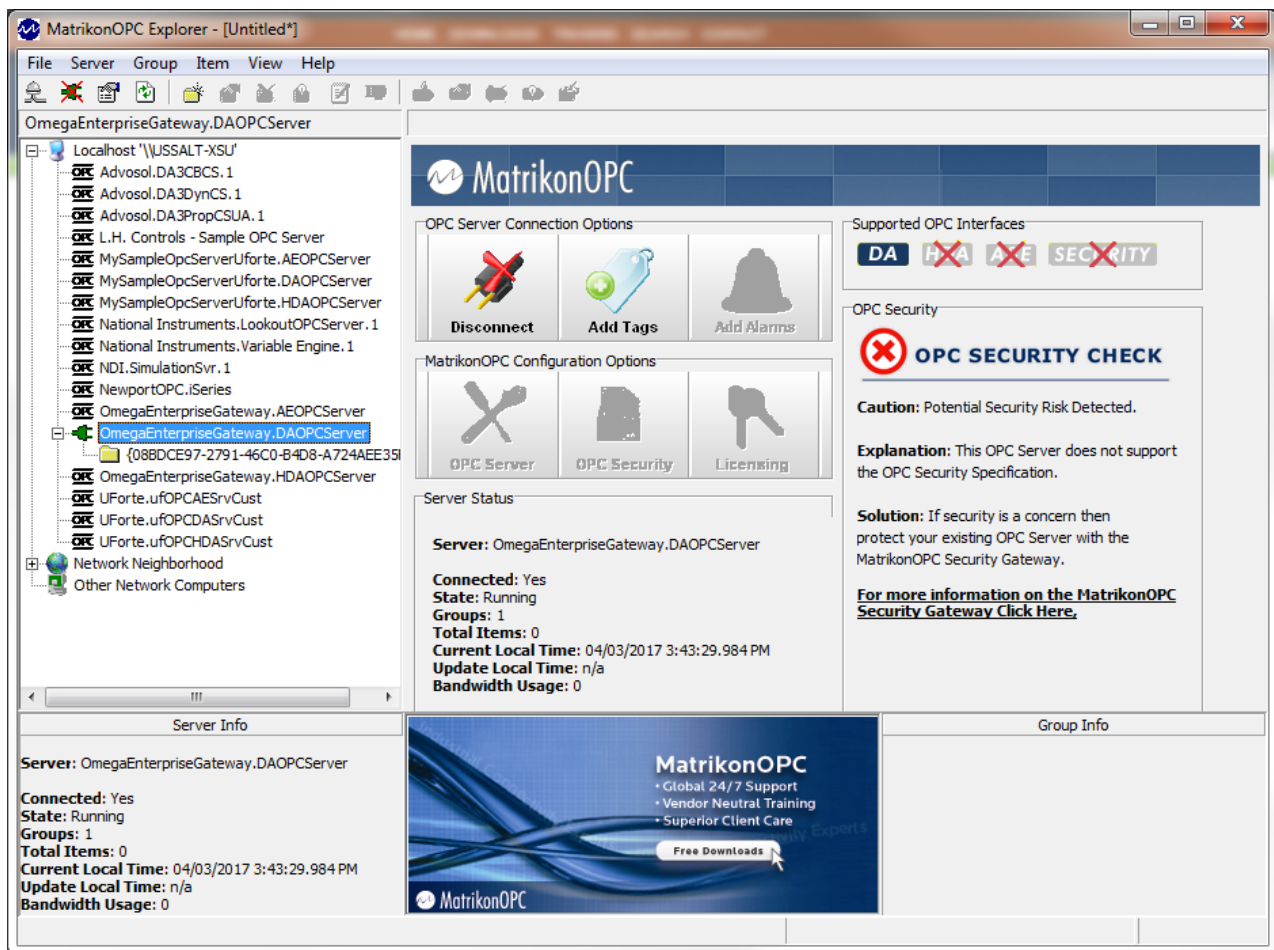
## 6.2 OPC DA Server

OMEGA Enterprise Gateway exposes the OPC DA 2.0 and 3.0 compatible DA 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. Once it is connected, you can browse the items from the available items list box. Items are automatically populated once you have a device added to the OMEGA Enterprise Gateway.





### 6.3 RESTful Web APIs

OMEGA Enterprise Gateway supports Server Oriented Architecture (SOA) for enterprise application integration as well. It exposes a set of RESTful APIs that can be called by a client application (Enterprise application). The URL for the WebAPIs are organized as:  
[http\(s\)://hostname:9000/OMEGAservice/apiname?parameters](http(s)://hostname:9000/OMEGAservice/apiname?parameters).

For example, you can use the following URL to return current readings on device 108.178.128.201\_0:  
[https://127.0.0.1:9000/OMEGAservice/getreadings?servicename=&deviceid=108.178.128.201\\_0](https://127.0.0.1:9000/OMEGAservice/getreadings?servicename=&deviceid=108.178.128.201_0).

The return will be in JSON format string.



Users can parse the results using the standard JSON parser.

The table below is a list of available OMEGA Enterprise Web APIs

API Name	Parameters	Returns
<b>GetDevices</b>	serviceName: value can be empty	A list of Available Devices with detail information about identity, status etc.
<b>GetReadings</b>	serviceName: value can be empty deviceID: the deviceID of the device that you want to retrieve	Current sensor readings of specified device
<b>GetReadings</b>	serviceName: value can be empty deviceID: the deviceID of the device that you want to retrieve startTime: the start time of sensing data that you want to retrieve endTime: the end time of the sensing data that you want to retrieve  the time string must follow ISO 8601 standard. E.g. 2007-03-01T13:00:00Z	Get historical sensing data of a specified device
<b>GetActivities</b>	serviceName: value can be empty	A list of activities frequency (measurement rate) of all connected devices
<b>GetEvents</b>	serviceName: value can be empty deviceID: the deviceID of the	A list of events of specified devices between start time and end time

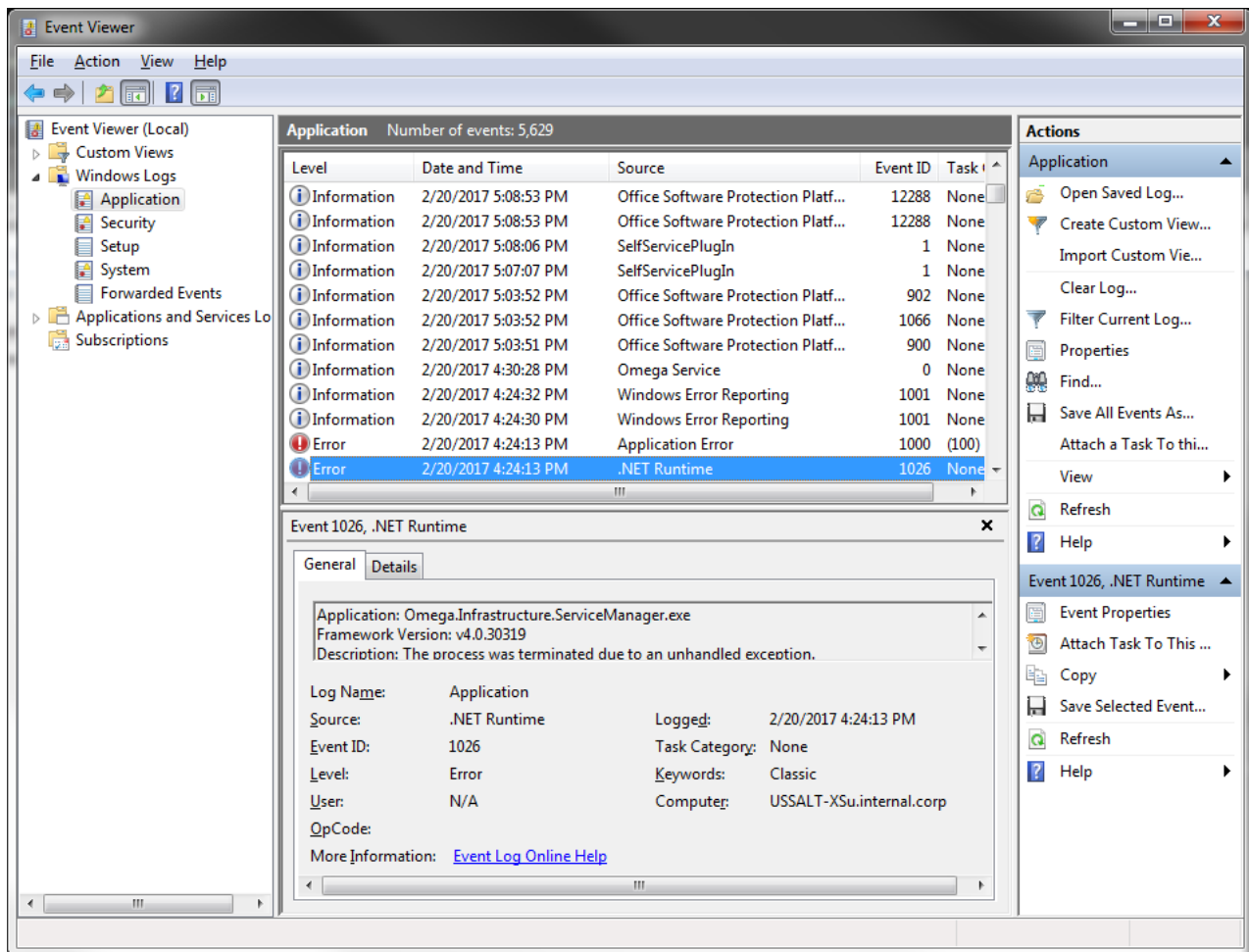
	<p>device that you want to retrieve  startime: the start time of events that you want to retrieve  endtime: the end time of the events that you want to retrieve</p> <p>the time string must follow ISO 8601 standard. E.g. 2007-03-01T13:00:00Z</p>	
<b>GetAlarms</b>	<p>serviceName: value can be empty  deviceId: the deviceId of the device that you want to retrieve  startime: the start time of alarms that you want to retrieve  endtime: the end time of the alarms that you want to retrieve</p> <p>the time string must follow ISO 8601 standard. E.g. 2007-03-01T13:00:00Z</p>	A list of alarms of specified devices between start time and end time
<b>GetAvailableDataInfo</b>	<p>serviceName: value can be empty</p>	Get all available measurement points information from database
<b>GetRangedDataInfo</b>	<p>serviceName: value can be empty  startime: the start time of sensing data that you want to retrieve  endtime: the end time of the sensing data that you want to retrieve</p> <p>the time string must follow ISO 8601 standard. E.g. 2007-03-01T13:00:00Z</p>	Get all available measurement information between start time and end time

## 7 Troubleshooting

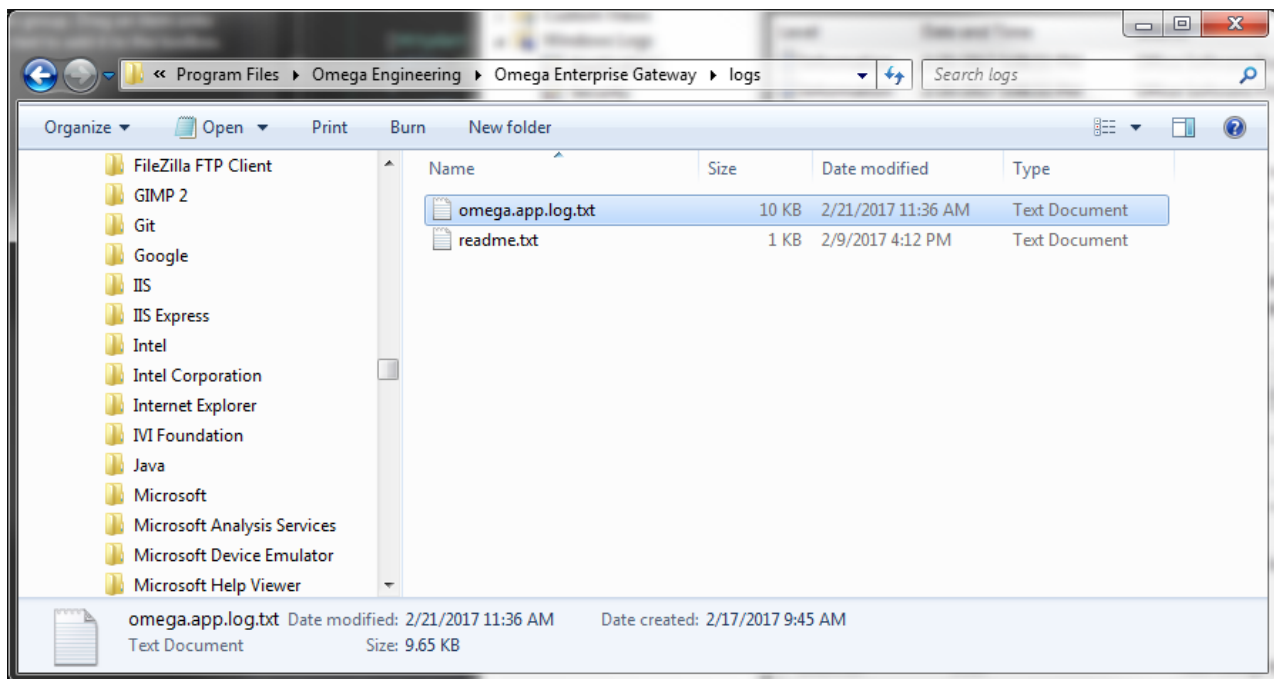
Sometimes it is unavoidable that a software runs into a bad state due to external or internal errors and prevents the software from working correctly.

OMEGA Enterprise Gateway has two places to look for errors.

1. If in any case the OMEGA Enterprise Gateway cannot be started successfully or crashes for any reason, the place to look up errors is Windows System's Event Viewer. The event viewer can be found in administrative tools. It can also be searched using the search function of the start menu.



2. If a device cannot be connected, or device data/status/state shows incorrectly, or the Gateway itself runs into an issue, the place to look is the Log file. The Log file is located under the installation folder of the Gateway. Look for the folder named Logs. Under the Logs folder, there is a file called OMEGA.app.log.txt. you can open that file to look for error messages.



## 8 Support

If you need further assistance, please contact [support@OMEGA.com](mailto:support@OMEGA.com)