Monnit Wireless Sensors and Cellular Gateway Quick Start Guide

Inside the Box
You should find the following items in the box:

• Monnit™ Wireless Sensors
• MonnitLink™ Wireless Cellular Gateway
• Power Supply
• Antenna
• Mounting Hardware
• Quick Start Guide
• Batteries

MonnitLink™ Cellular Gateway Quick Start
• Create an iMonnit user account and assign wireless gateway and sensors.
• Plug the power supply into a power outlet then connect to the gateway.
• Once all three lights turn green, your network is ready to bring sensors online.

IMPORTANT!
DO NOT plug your Cellular Gateway in until after you have created an account on iMonnit.com and added your cellular gateway and wireless sensors to the account.
I. GATEWAY REGISTRATION

If this is your first time using the iMonnit online system site, you will need to create a new account. If you have already created an account, you can skip to the “Logging into the Online System” section. The following instructions will guide you through the account.

1. Open iMonnit in your mobile app or web browser.

2. Navigate your cursor down to the bottom of the login box and select “Add Account”.

3. Next you will be asked to enter your account information in the following fields.

   Note: If this is a Free Trial, you may not have received a subscription code yet. Leave the box blank and proceed.
4. When completed, select the “Next” button.

5. This step will complete the user registration process and lead you into registering your device. You will be able to log out and log back in with your credentials to complete the setup at any time.

LOGGING INTO THE ONLINE SYSTEM

1. Open iMonnit in your mobile app or web browser.
2. Enter your user name and password.
3. Select the “Login” button.

REGISTERING THE GATEWAY

1. You will need to enter the Device ID and the Security Code from your Gateway in the corresponding text boxes.
2. Use the camera on your smartphone to scan the QR code on your Gateway.
3. If you do not have a camera on your phone, or the system is not accepting the QR code, you may enter the Device ID and Security Code manually.
   - The Device ID is a unique number located on each device label. It will be labeled as “ID” on your gateway.
   - Next you’ll be asked to enter the Security Code (SC) on your device. A security code will be all letters, no numbers. It can also be found on the barcode label of your gateway.
4. When completed, select the “Submit” button.
II. USING YOUR MONNIT WIRELESS SENSORS

INSERT BATTERIES INTO WIRELESS SENSORS

**IMPORTANT:** Make sure your sensors are at least three feet away from the Multi-Gateway

Follow the diagrams below to install or replace batteries for your devices. You should either have a sensor that takes AA batteries, Commercial Coin Cell batteries, or Industrial batteries.

![Diagram of sensor installation](image)

**Note:** It will take 10 - 20 seconds for the sensor to power up. Configurations for your sensors can be changed in iMonnit. Your new modifications will take effect on the next heartbeat. More immediate results can be achieved by power cycling the sensor. Power cycling is accomplished by removing then re-inserting batteries or using the power switch to cycle the power.

III. USING THE IMONNIT ONLINE WIRELESS SENSOR SYSTEM

UNDERSTANDING THE ONLINE INTERFACE

When you log into the online system, the default view shows all of your sensors last recorded data.

![Online sensor interface](image)
**Menu System**

**Details** - Displays a graph of recent sensor data.

**History** - List of all past heartbeats and readings.

**Events** - List of all events attached to this sensor.

**Settings** - Editable levels for your sensor.

**Calibrate** - Reset readings for select sensors (Not available for all sensor types).

**Scale** - Change the scale of readings for your sensor (Not available for all sensor types).

**Sensor Overview**

Directly under the tab bar is an overview of your sensor. This allows you to see the signal strength and the battery level of the selected sensor.

- ![indicating green color] indicates the sensor is checking in and within user defined safe parameters.
- ![indicating red color] indicates the sensor has met or exceeded a user defined threshold or triggered event.
- ![indicating gray color] indicates that no sensor readings are being recorded, rendering the sensor inactive.

**Note:** The data shown on the chart, event, history, and export file is based on the date range indicated on the upper right side of the sensor detail information. To change the date range, click the inside of the date box.

**HISTORY VIEW**

Clicking on the “History” tab within the tab bar allows you to view the sensor’s data history as time stamped data.
CONFIGURING SENSOR SETTINGS
To edit the operational settings for a sensor, choose the “Sensor” option in the main navigation menu then select the “Settings” tab to access the configuration page.

The sensor edit panel allows you to set the primary configurations for the sensor. When you have finished making changes, press the “Save” button at the bottom of this section.

Note: Be sure to select the “Save” button anytime you make a change to any of the sensor parameters. All changes made to the sensor settings will be downloaded to the sensor on the next sensor heartbeat (check-in). Once a change has been made and saved, you will not be able to edit that sensor’s configuration again until it has downloaded the new setting.
SENSOR AND/OR GATEWAY NOTIFICATION(S)

Notifications for a single sensor or gateway can be created, deleted, and edited by clicking the “Events” tab in the sensor tab bar.

You can toggle the Event Trigger on or off by selecting the switch under Current Event Triggers.

Creating an Event

Events are triggers or alarms set to let you know when a sensor reading identifies that immediate attention is needed. Types of events include sensor readings, battery level, device inactivity, and scheduled data. Any one of these can be set to send a notification or trigger an action in the system. This guide will walk you through creating two types of events. First a sensor reading notification for a temperature sensor, then an inactivity notification configured for all sensors.

1. Select Events in the main navigation menu.

2. A list of previously created events will display on the screen. From here, you have the ability to filter, refresh, and add new events to the list.

Note: If this is your first time adding an event, the screen will be blank.
3. From the Events page, tap “Add Event” in the left hand corner.

4. The dropdown menu will have the following options for Event Types:
   - **Sensor Reading**: Set alerts based on sensor activity or reading.
   - **Battery Level**: This is where you can set to be notified when the battery level drops below a certain percentage. 15% is the default setting.
   - **Device Inactivity**: Alerts when the device doesn’t communicate for an extended period of time.
   - **Advanced**: Alerts based on advanced rules, such as comparing past data points with current ones.
   - **Scheduled**: These are notifications that fire at a time set basis.

5. Select **Sensor Reading** from the dropdown menu.

6. A second dropdown menu will appear. From here, you will be able to see a list of the different type of sensors registered to your account. Choose **Temperature** in the dropdown menu.

7. Next, you will be asked to input the trigger settings. You have the option of setting this trigger for greater than or less than a temperature reading.

8. Press the “Save” button.

   If you don’t have a temperature sensor, the option in this example won’t be available, select any variable output sensor and follow along.

   Variable output sensors can have multiple event triggers created.

   **Example**: A temperature sensor used in a freezer. You may want to be notified if the temperature goes below 0° or above 30° Fahrenheit. You would create two events.

   - **Event 1**: Trigger Set for temperatures LESS THAN 0°F.
   - **Event 2**: Trigger set for temperatures GREATER THAN 30° F.
9. The Event Information page has a series of tabs across the top.

A. History: A table of all past alert notifications for this specific event.

B. Schedule: Here you can schedule the event only to be active at certain times or certain days.

C. Trigger: This is where you can review your trigger settings.

D. Actions: Where you set the action you want to happen when an alert state is triggered.

10. Choose the **Trigger** tab.

11. The **Trigger Sensors** section sits below “**Trigger Conditions.**” If you have multiple sensors for the same type (**Example**: five temperature sensors), this is where they will be listed. There should be at least one sensor in this section.

12. By default, the sensor(s) will not be assigned to the event conditions you’ve just set. To assign a sensor, find the device(s) you want to designate for this event and select. Selected sensor boxes will turn green when activated. Choose the sensor box again to unassign the sensor from the event.

13. Continue toggling the sensor(s) corresponding to this new event until you are satisfied with your selection. These can be adjusted later by returning to this page.

14. Press the “Save” button.

15. Select the Actions tab.

16. Press the Add Action button under the Event Information header and available action types are presented in a select list.

   • **Notification Action**: Specify account users to recieve notifications when this event triggers.

   • **System Action**: Assign actions for the system to process when this event triggers.

17. Choose **Notification Action** from the notification list.
A. Configure the subject for the notification.

B. Customize the message body for the notification.

C. Save button commits any changes to message content fields.

D. Recipient list identifies who will receive the notification.
   - Select the icon next to a user to configure how they will be notified
   - Choose if you want notifications sent immediately when triggered or if you want a delay before it is sent and press Set.
   - A green icon indicates the users that will not receive the notifications.
   - If a delay has been selected, the delay time will display beside the icon.

18. Select System Action from the select list under the Event Information header.

19. Scroll down to the System Action section.

20. The Action to be Done select list has the following options.
   - **Acknowledge**: Automatically signal that you have been notified of an event and take action. When an event has been triggered, actions will continue processing until the event returns to a value that no longer triggers an event.
   - **Full Reset**: Reset your trigger so it is armed for the next reading.
   - **Activate**: Enable an event trigger.
   - **Deactivate**: Disable an event trigger.

**EXPORTING SENSOR DATA**

Sensor data can be exported to a (.csv) file by following the next steps:

1. Select Sensors from the main navigation menu.
2. Choose the sensor you need an export for in the list.

3. Pick the **History** tab.

4. On the far right of the sensor history data is a cloud icon. Selecting this icon will export an excel file for your sensor into your download folder.

![Sensor Readings](image)

**Note:** Make sure you have the date range for the data you need input in the “From” and “To” text boxes. This will be the most recent week by default. Only the first 2,500 entries in the selected date range will be exported.

The data file will have the following fields:

**MessageID:** Unique identifier of the message in our database.

**SensorID:** If multiple sensors are exported you can distinguish which reading was from which using this number even if the names for some reason are the same.

**Sensor Name:** The name you have given the sensor.

**Date:** The date the message was transmitted from the sensor.

**Value:** Data presented with transformations applied but without additional labels.

**Formatted Value:** Data transformed and presented as it is shown in the monitoring portal.

**Battery:** Estimated life remaining of the battery.

**Raw Data:** Raw data as it is stored from the sensor.

**Sensor State:** Binary field represented as an integer containing information about the state or the sensor when the message was transmitted. (See “Sensor State Explained” below).

**Gateway ID:** The Identifier of the gateway that relayed the data from the sensor.

**Alert Sent:** Boolean indicating if this reading triggered a notification to be sent from the system.

**Signal Strength:** Strength of communication signal between the sensor and the gateway, shown as percentage value.

**Voltage:** Actual voltage measured at the sensor battery used to calculate battery percentage, similar to Received Signal you can use one or the other or both if they help you.

**State**
The integer presented here is generated from a single byte of stored data. A byte consists of 8 bits of data that we read as Boolean (True (1)/False (0)) fields.
Using a temperature sensor as an example.

If the sensor is using factory calibrations the Calibrate Active field is set True (1) so the bit values are 00010000 and it is represented as 16.

If the sensor is outside the Min or Max threshold, the Aware State is set True (1) so the bit values are 00000010 and it is represented as 2.

If the customer has calibrated the sensor this field the Calibrate Active field is set False (0) AND the sensor is operating inside the Min and Max Thresholds, the bits look like 00000000 this is represented as 0.

If the sensor is using factory calibrations and it is outside the threshold the bit values are 00010010 and it is represented as 18 (16 + 2 because both the bit in the 16 value is set and the bit in the 2 value is set).

**Note:** These two are the only bits that typically observed outside of our testing procedures.

**CALIBRATING SENSOR DATA**

Certain wireless sensors can be calibrated for more accurate readings (**Example:** temperature sensors). If calibration is possible for a sensor, the “Calibrate” tab will be visible in the tab bar.

A. Go to the tab to open the sensor calibration settings window.

B. To calibrate a sensor, you will want to ensure that the environment of the sensor and other calibration device is stable. Note the “Expected Next Check-in” time for the sensor you are calibrating and take a reading from your calibration device a few minutes prior to the sensors next check-in.

C. Enter the actual (accurate) reading from the calibration device into the text field.

D. If you need to change the unit of measurement you can do that here.

E. Press “Calibrate”.

To ensure that the calibration command is received prior to the sensors next check-in, press the control button on the back of the gateway, once, to force communication (Cellular and Ethernet gateways).

After pressing the "Calibrate" button and choosing the gateway button, the server will send the command to calibrate the specified sensor to the gateway. When the sensor checks-in, it will send the pre-calibration reading to the gateway, then receive the calibration command and update it’s configuration. When the process is completed, it will send a “Calibration Successful” message. The server will display the sensor’s last pre-calibrated reading for this check-in, then all future readings from the sensor will be based on the new calibration setting.
It is important to note that after calibrating the sensor, the sensor reading returned to the server is based on pre-calibration settings. The new calibration settings will take affect on the next sensor heartbeat.

**Note:** If you would like to send the changes to the sensor right away, please remove the battery(s) for a full 60 seconds, then re-insert the battery(s). This forces the communication from the sensor to the gateway and this the message to make a change from the gateway back to the sensor. (If the sensors are industrial sensors, turn the sensor off for a full minute, rather than removing the battery).

**REPORTS**

Reports are delivered regularly via email, updating you on sensor activity. The interval of these reports is easy to set and can even be submitted as one-time non-recurring updates. Regular reports help you stay up to date on your sensor activity. This guide will walk you through setting up a battery health report. You can use the same steps to set up other reports as needed. Some parameters will differ slightly depending on the type of report you select.

1. Find “Reports” in the main navigation menu and select.

2. A list of all previous reports will display.

3. To create a new report, select “Add Report” in the upper left hand corner.

4. Next you will select what type of report you want to generate.

   **A.** The first step will be to add a title for your report.

   **B.** When creating the report, you will be asked to input a title and when you want the report delivered. You have several options for selecting when you want the report generated. You can also customize what time of day you would like to receive the report; Morning, Mid-day, Evening, or Night:

   - **Monthly** = The 1st, 8th, 15th, or 22nd of every month.
   - **Weekly** = Once on the preferred day of the week.
   - **Daily** = Every day at the time of your choosing.
   - **Once** = A one-time, non-recurring, report.

   **C.** Selecting "SAVE" will immediately add your new test to the list where you may continue to edit, view report history, and customize recipients.

Your user will automatically be added as a recipient of the report. To add other users first, make sure they have been added to the account then select the name of the report you want to manage.
5. Choose the **Report Recipients** tab.

![](image)

6. Select the other users you would like to also be notified when the report runs.

**SENSOR MAPS**

The Maps feature gives you the option of uploading your floorplan or other image to iMonnit® and allows you to virtually position sensors where you have physically placed sensors in the location. This is useful if you have multiple sensors and want to know see them in context of where they are placed. This guide will walk you through uploading a floorplan and positioning sensors.

1. Find the main navigation menu and select “Maps.”

![Maps Navigation](image)

2. All previously created sensor maps will display.

3. To create a new sensor map, locate “**Create Sensor Map**” in the top left-hand corner.

![Create Sensor Map](image)

- The following page will ask you to enter a title for your new sensor map.
- Next you will upload a picture of your floorplan. Acceptable image formats are: bmp, gif, jpg, png, tiff.
- Selecting "Create Map" will guide you to the Edit Sensor Map screen.
- The following screen will be the Edit Map page. Choose the button for the sensor you want to add to the map. The button will turn green and the sensor icon will appear on the map. You can then drag it to the designated location on the map. Secondary selection of the icon will open a menu with additional options. Once your sensors are in you the desired locations, proceed to view the map.
- Select the View Map tab to open a window showing your whole floorplan with the sensors.
• You cannot move sensors when you are on the View Map page. This can only be done on the Edit Map Page.

• Select the back button in the tab bar at the top of the page to be guided back to the Maps homepage.

• Selecting "Create Map" will guide you to the Edit Sensor Map screen.

• The following screen will be the Edit Map page. To place a sensor, choose the sensor you want to replace. The sensor will turn green and you will be allowed to place a yellow square representing the sensor where it is located on your floorplan.

• Select the View Map tab to open a window showing your whole floorplan with the sensors.

• You cannot move sensors when you are on the View Map page. This can only be done on the Edit Map Page.

• Select the back button in the tab bar at the top of the page to be guided back to the Maps homepage.

ACCOUNT MENU

Account Settings is where you can edit any account information. From this easy to use page, you can configure account parameters, manage users, set account level preferences, and manage your notification credits.

The “Account Menu” is where you can access various administrative functions pertaining to your iMonnit account. Select the profile symbol in the top right to open the menu.
Account Settings

Access “Account Settings” by finding the section in the Account Menu.

A. The Settings page will be the first page you see. This section will contain all the account information you entered when registering for your account. This is where you will manage your subscription when you need to upgrade or renew your account.

Above are the tabs allowing you to edit this information:

B. The Edit tab allows you to change your account information.

New additions here that you didn't have the opportunity to adjust before include your present address and maximum failed login attempts before the user is locked out for not remembering their password.

C. The User List tab will list all users who have access to the account.

You will be listed as the primary user of the account and the only one listed if no other users have been added.

If you have a basic account, you will not be able to add more users. This feature is only available for active iMonnit Premiere users.

D. Account Preferences is a new feature and new preferences will be added so check back often.

E. The Notification Credits tab will display all the settings for credits needed to participate in Direct SMS, and Voice.

Email and External Provider SMS Messaging do not require Notification Credits.

Notification credits can be redeemed on this page by entering the code and selecting the “Redeem Code” button.

The number of credits purchased will be shown below this data. Credit Notification Settings sit below where you can see how many credits are available, set a threshold and list users to be notified.
Creating a New User

The ability to add users to an account is an exclusive feature of iMonnit® Premiere. Having additional users on an account gives you the chance to act as an administrator and control what each person is allowed to see and do on the account. This can be extremely helpful if you have a large company and several people need access to Monnit® sensors in the event of an emergency.

1. Find “User List” in the Account Menu.

   ![User List.png](image)

2. The user list will display all users who have access to the account.

3. Select “Add User” located in the top left corner.

4. The Add User page will appear. You must enter the new user's account information. If you click out of this page to another tab, it will not display again.

   The User Name will autopopulate with the email address. You will have to change this in the User Name text box if you prefer it to be different.

   The password must be at least eight characters.

   Checking the box for "Is Administrator" gives the new user the ability to add new users to the account. By default, the box is empty. Leave this box unchecked if you do not want them to have this ability.

   After you have entered all the account information, select the "Submit" button.
After submitting the new user information, the following tabs will guide you through editing their settings.

This is where the password can be changed and reset. This information can be downloaded to your computer by clicking the cloud icon in the upper right corner.

A. User Details lists the user's name, password, email, and whether they have signed up to Text (SMS) messaging.

B. User Permissions gives the admin the option of blocking users from having full access to the site.

Options include: Acknowledge Notifications, Edit Gateway Configuration, Password Unlock, and more.

C. User Preferences is a new feature, check back in the future for more options.

D. Notification Details is where you can adjust settings for how you want to be alerted about errors in sensors and gateways.

You can receive these alerts over email, text (SMS) messaging, or voicemail. By default, notifications will be off, if not adjusted. Activation can be accomplished by clicking the "Turn On Notifications" button.

**MANAGE SENSOR NETWORKS**

To view or edit information about your wireless sensor network(s), select the Networks box in the account overview page.

The following network list page allows you to edit details, create new sensor networks, and manage wireless gateways and sensors for your network(s). Find the network you wish to modify in the list and select it to be taken to the network edit page.
The network edit page will give the option of changing the name of your network, enable notifications, enable holding, and review the Install Tech Access Cut-off Date. Remember, you must press the “Save” button after making any changes in this section.

Below this section is a list of sensors and gateways attached to the account. Choosing the icon of a trashcan beside each sensor will delete it from the network. Selecting the icon directly above the sensor section will allow new devices to be added to the network. Review the steps on registering a new device on page 3 of this user guide.

Note: A sensor or gateway cannot be recovered once it has been deleted from the network. It is recommended that you export a sensor’s data history before clearing it from the list.
Additional Information and Support

You can find additional information on using Monnit Wireless Sensors, including product documentation and video tutorials on the Monnit website at http://www.monnit.com/support.

Information to Users

The Monnit wireless products referenced in this Quick Start Guide have been tested and found to comply with the standards for FCC, IC and CE certifications. For certification information on individual products please view product data sheets or product specifications on the Monnit website.

WARNING: Changes or modifications not expressly approved by Monnit could void the user’s authority to operate the equipment.

For additional information or more detailed instructions on how to use your Monnit Wireless Sensors or the iMonnit Online System, please visit us on the web at http://www.monnit.com/support/.