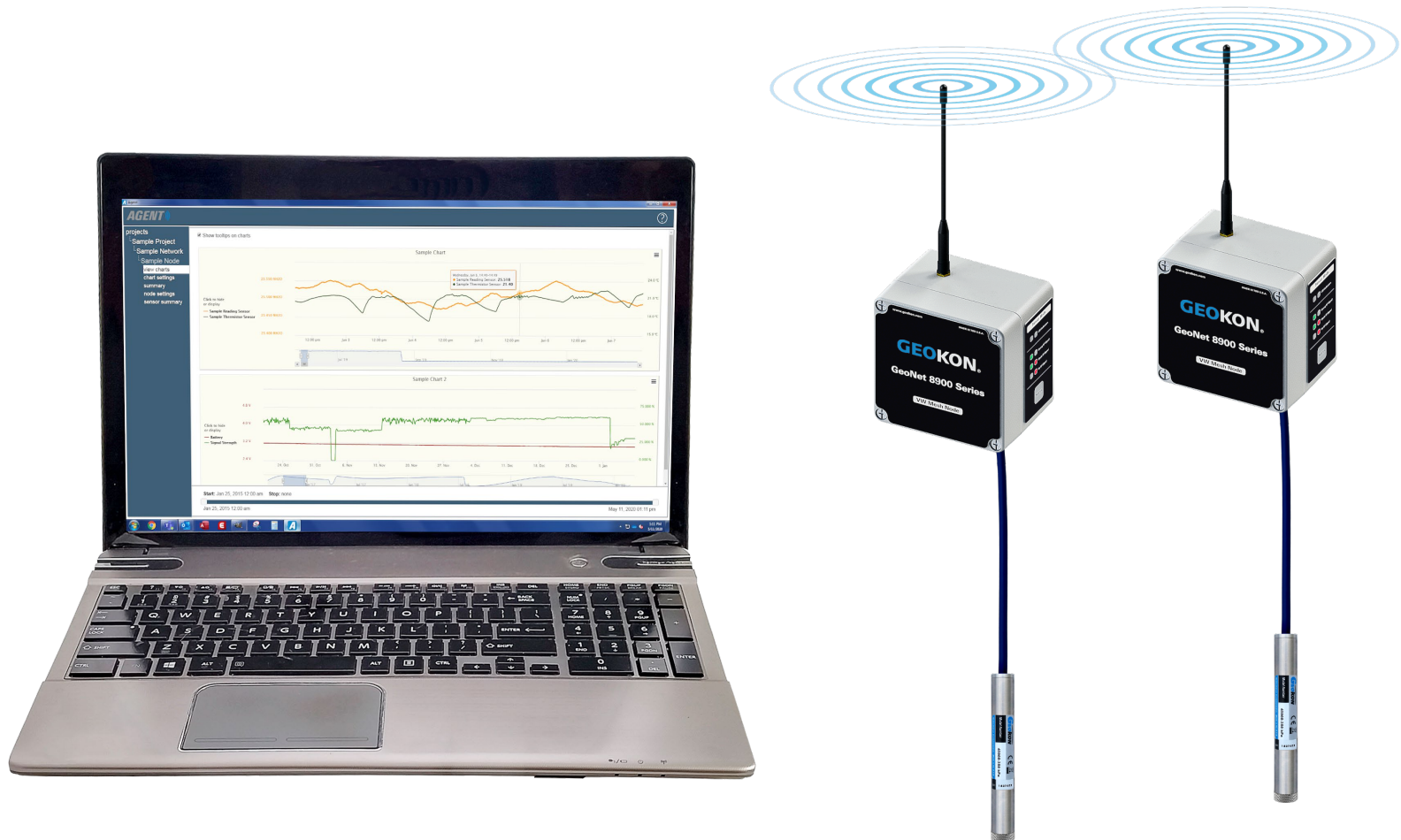




Product Tutorial

Using Agent Software with GeoNet Data Hosting Systems



Topics Covered in this Tutorial

- Software Installation
- Program Overview
- Projects and Networks
- Downloading Data
- Sensors
- Charts

Software Installation




Before Using Agent

- Make sure all Loggers have successfully joined the Network
- Cellular Gateways and Loggers must already be commissioned using the api.geokon.com
- Local (non-cellular) Gateways need to be connected to the computer using the factory supplied cable
- If using an exterior (add on) serial server or cellular modem, the device URL or IP Address must already be established
- For information regarding the installation of GeoNet devices, refer to the [Installing GeoNet Wireless Data Hosting Systems tutorial](#) and the [GeoNet manual](#)

Program Download

1. Before installing Agent onto a computer, verify that it meets these minimum system requirements:
 - ▶ Microsoft® Windows® 7, 8, or 10; running a 32-bit or 64-bit operating system
 - ▶ 1 GB of RAM (physical memory) available during runtime
2. Navigate to www.geokon.com/Software
3. Select the appropriate installer based on the operating system of the computer:
 - ▶ For 32-bit systems, download "Agent Software (x86)"
 - ▶ For 64-bit systems, download "Agent Software (x64)"

(To determine the computer's operating system, click Start , type "system" in the start search box, click "System" in the control panel list, then look for "System Type:")

Installing the Software

1. Locate and open the Agent-x64.zip (or Agent-x86.zip) folder that was downloaded from the GEOKON website



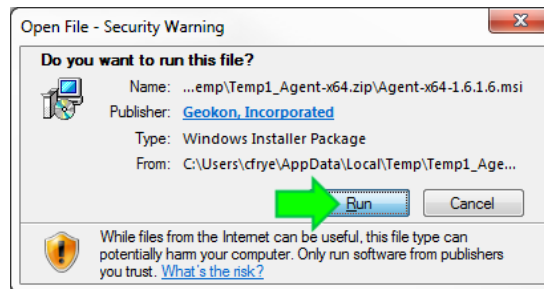
Agent-x64.zip

2. Double click on the windows installer



Agent-x64-1.6.1.1.msi

3. If a security warning appears, click “Run”



Installing the Software (Continued)

4. Read the License Agreement, check the box below to accept the terms of the agreement, and then click "Install"



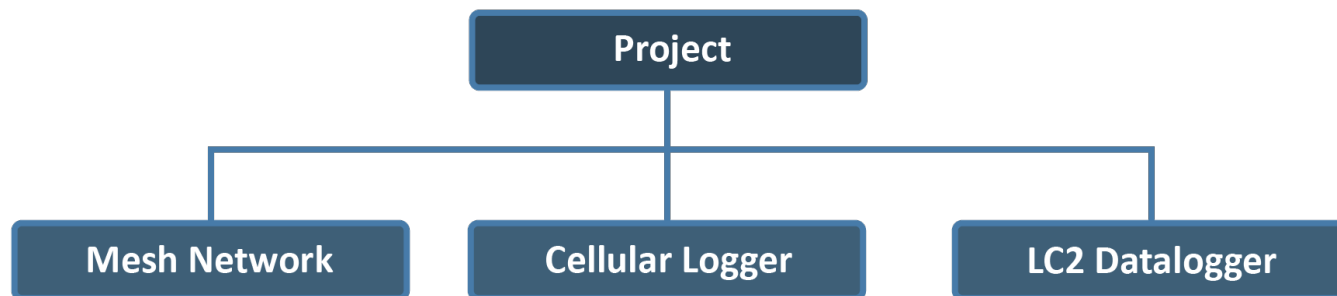
5. When the installation is complete, click "Finish" to close the installer and launch the program

Program Overview



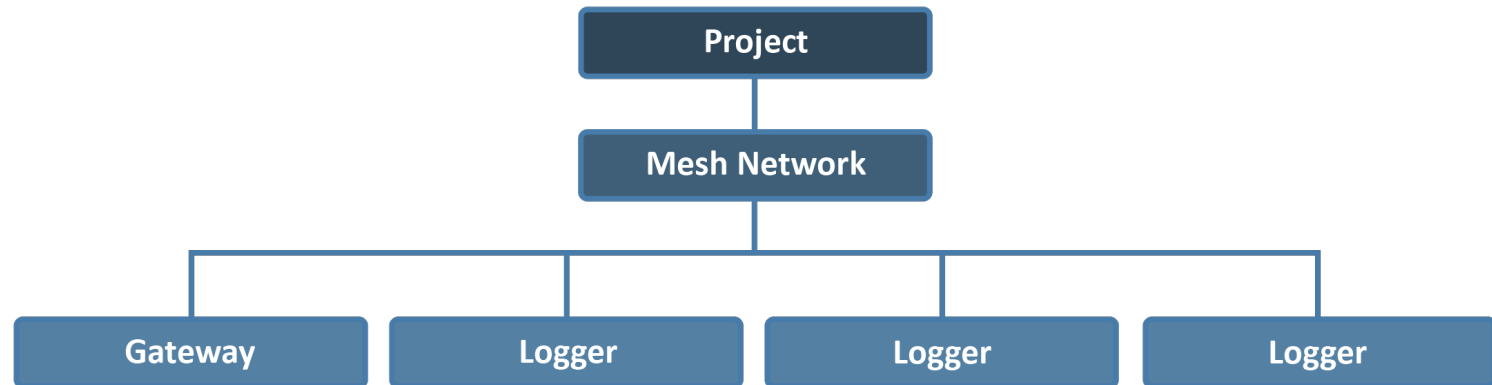
Program Overview

- On startup, Agent defaults to a screen that shows any Projects that have been created
- Projects are at the top of the program's hierarchy
- Projects can be assigned multiple GeoNet Mesh Networks (Models 8800, 8901, 8903), GeoNet Cellular Loggers (Model 8920), and LC2 Dataloggers (Model 8002)



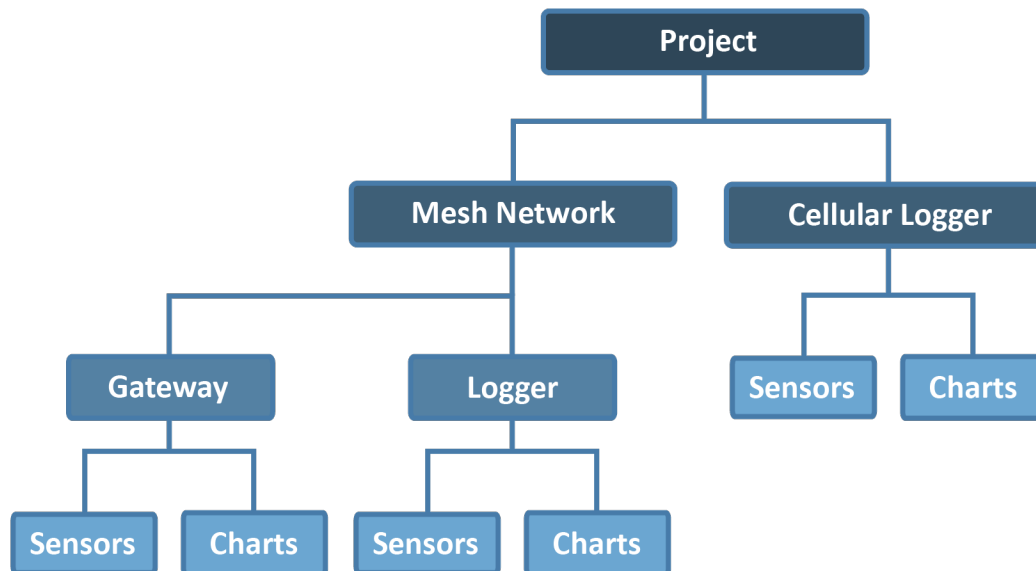
Program Overview (Continued)

- Each GeoNet Mesh Network contains one Gateway and one or more Loggers



Program Overview (Continued)

- “Sensors” represent GEOKON instruments connected to loggers, as well as the internal sensors of a device
- Charts display the data imported by sensors
- Multiple sensors and charts can be assigned to each device



Program Overview (Continued)

- The menu on the left side of the screen is used to navigate the program

The screenshot displays the AGENT software interface. At the top is a dark blue header with the 'AGENT' logo on the left and a help icon (a question mark in a circle) on the right. Below the header, the interface is divided into two main sections. On the left is a dark blue navigation menu with a green border. It contains a tree structure: 'projects' (expanded), 'Sample Project', 'Sample Network', 'Logger 1' (expanded), and sub-items under 'Logger 1': 'view charts', 'chart settings', 'summary', 'logger settings' (highlighted with a white background), and 'sensor summary'. On the right is a light gray configuration area. It features a 'Node' section with a table-like structure: 'Name' with a text input containing 'Logger 1', 'Serial Number' with a text input containing '1533349', and 'Type' with a dropdown menu showing 'VW Logger'. A 'Save' button is below these inputs. Below the 'Node' section is a 'Sensors' section with a list of links: 'Add reading sensor', 'Add multiple channels', 'Add thermistor sensor', and 'Add logger sensors'.

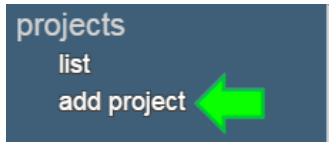
- The menu expands and contracts as the user navigates through the different levels of the program's hierarchy

Projects and Networks



Adding Projects

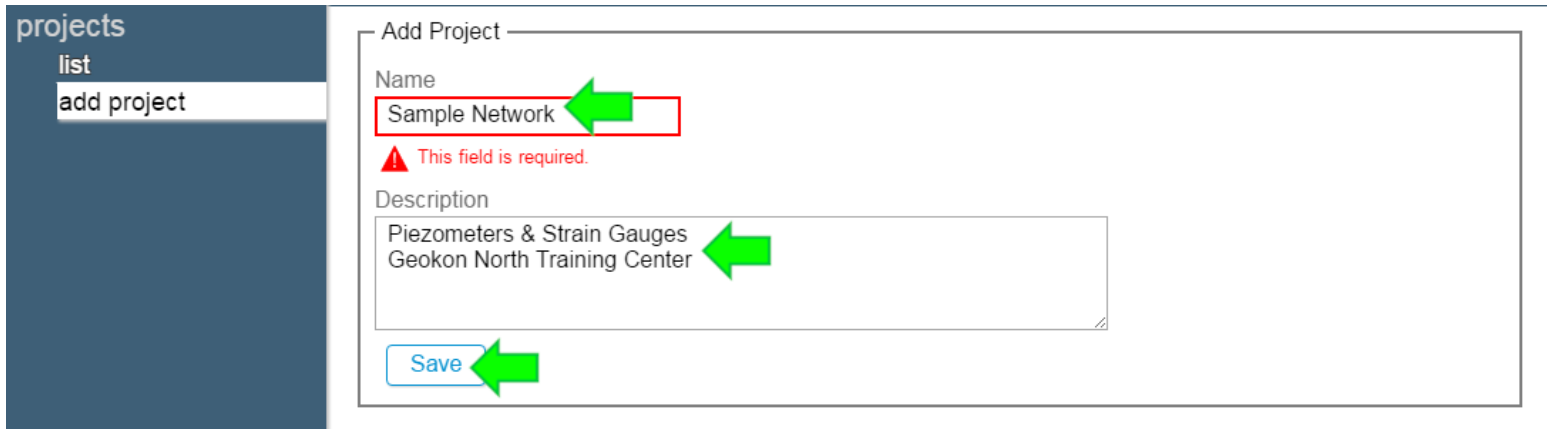
1. Click “add project”



projects
list
add project

Agent uses projects to organize your data loggers.
Click 'add project' to create a new project.

2. Enter a Name and Description for the project, then click “Save” (Name is required, Description is optional)



projects
list
add project

Add Project

Name
Sample Network

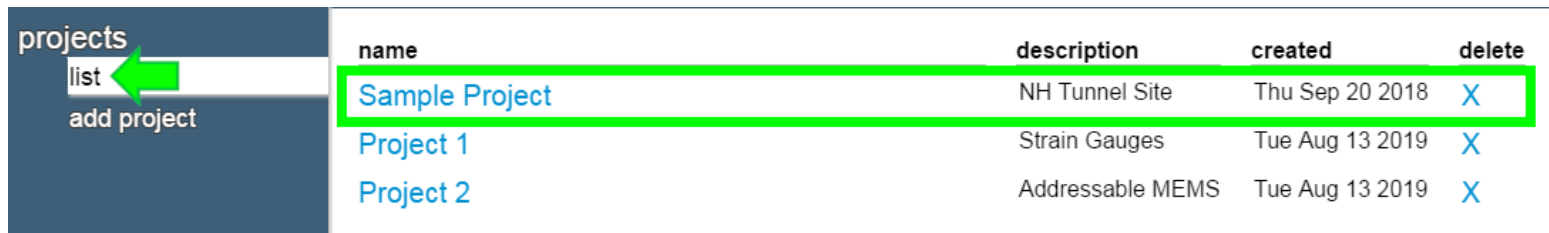
⚠ This field is required.

Description
Piezometers & Strain Gauges
Geokon North Training Center

Save

Project List

- Once a project has been created, it will be added to the projects list



name	description	created	delete
Sample Project	NH Tunnel Site	Thu Sep 20 2018	X
Project 1	Strain Gauges	Tue Aug 13 2019	X
Project 2	Addressable MEMS	Tue Aug 13 2019	X

- The list of projects can be accessed at any time by clicking “projects” at the top of the menu

Adding a Network

1. Select a project by clicking on the project name

projects list add project	name	description	created	delete
	Sample Project	NH Tunnel Site	Thu Sep 20 2018	X
	Project 1	Strain Gauges	Tue Aug 13 2019	X
	Project 2	Addressable MEMS	Tue Aug 13 2019	X

2. Click "add network"

projects Sample Project list add network add lc2 transfer project settings	This project doesn't have any GeoNet networks or loggers. Use 'add network' or 'add lc2' to add them.

Adding a Network: Cellular Gateways & Loggers

- The Gateway/Logger must already be commissioned on the GEOKON API Portal: <https://api.geokon.com>
- A tutorial on using the API portal is available at: <https://www.geokon.com/8900-Tutorials#API>

3a. Copy and paste a token from the GEOKON API Portal into the Network Address field

The screenshot shows the 'Network Settings' form in the GEOKON API Portal. On the left is a sidebar with the following menu items: 'projects', 'Sample Project', 'list', 'add network' (highlighted with a green arrow), 'add lc2', 'transfer', and 'project settings'. The main form area is titled 'Network Settings' and contains the following fields:

- Name:** A text input field containing 'new network'.
- Network Address:** A text input field containing the token 'p98hoTm68Y17pmWsdgDEdgDE'. A green arrow points from the 'add network' button in the sidebar to this field.
- Serial Number:** A text input field that is currently empty.
- Scan Rate:** A dropdown menu set to '10 minutes'.
- Deploy Period:** A dropdown menu set to '1 hour'.
- Network Time Zone:** A dropdown menu set to '(UTC-04:00) Paraguay Standard Time (uses daylight savings)'.
- Description/Notes:** A large text area for additional information.

A 'get network settings' button is located to the right of the 'Network Address' field.

Adding a Network: Local Gateways

- 3b. Type "COM" in the "Network Address" field, then select the COM port the Gateway is connected to
(If the correct port is not shown, close Agent, make sure the device is powered on, the cable connection secure, and then try again)

The screenshot shows the 'Network Settings' form within the 'Sample Project' section. The 'Network Address' field is highlighted with a green arrow pointing to 'COM'. Below it, a dropdown menu shows 'COM4' and 'COM3' (highlighted with a green arrow). A 'get network settings' button is to the right. The form includes fields for Name, Serial Number, Scale, Network Time Zone, and Description/Notes. A 'Save' button is at the bottom left.

projects

- Sample Project
 - list
 - add network
 - add lc2
 - transfer
 - project settings

Network Settings

Name: new network

Network Address: COM

Serial Number: [empty]

Scale: 10

Network Time Zone: (UTC-04:00) Paraguay Standard Time (uses daylight savings)


Description/Notes: [empty]

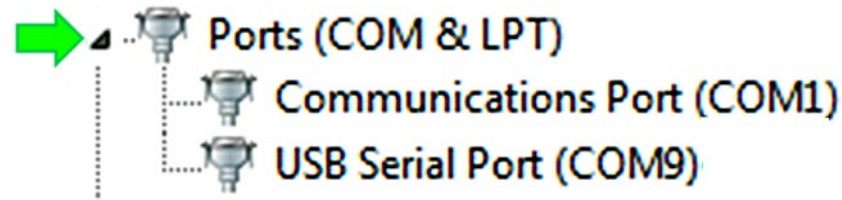
get network settings

Save

Adding a Network:

Local Gateways (3b. Continued)

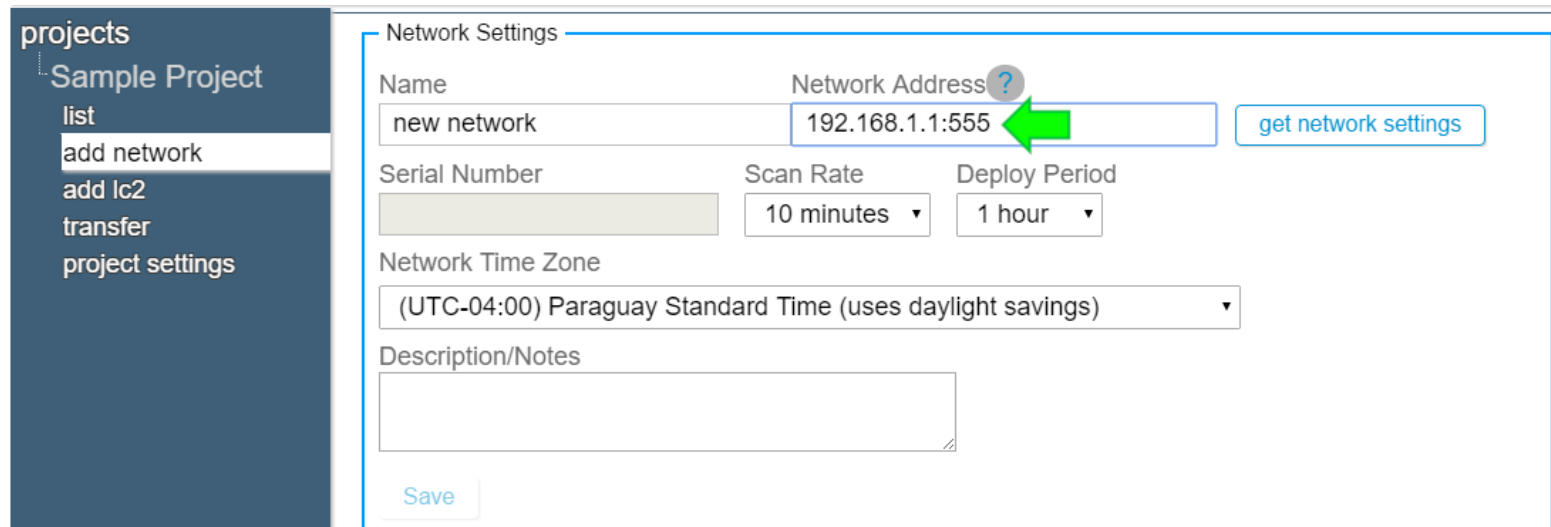
- Unsure of which COM port the Gateway is connected to?
 - ▶ RS-232 connections will normally use COM1, but may use COM2 or COM3 if the computer has multiple serial ports
 - ▶ To determine the correct port for a USB connection, click Start , type “device” in the search box, then click “device manager” in the control panel list. Next, click the triangle next to “Ports (COM & LPT)” to expand the list



Disconnect and then reconnect the USB cable to the computer—the COM port the Gateway is using will disappear and then reappear on the list

Adding a Network: Wireless Connections

- 3c. If connecting to the Gateway via an external serial server or cellular modem, enter the device URL or IP Address as the "Network Address"
(IP addresses must be followed by a colon and then the port number)



The screenshot shows a web application interface for adding a network. On the left is a sidebar with a 'projects' menu containing 'Sample Project', 'list', 'add network', 'add lc2', 'transfer', and 'project settings'. The 'add network' option is highlighted. The main content area is titled 'Network Settings' and contains the following fields:

- Name:** A text input field containing 'new network'.
- Network Address:** A text input field containing '192.168.1.1:555'. A green arrow points to this field, and a small question mark icon is next to the label.
- Serial Number:** A text input field.
- Scan Rate:** A dropdown menu set to '10 minutes'.
- Deploy Period:** A dropdown menu set to '1 hour'.
- Network Time Zone:** A dropdown menu set to '(UTC-04:00) Paraguay Standard Time (uses daylight savings)'.
- Description/Notes:** A large text area.

Buttons include 'get network settings' next to the Network Address field and 'Save' at the bottom left of the form.

Adding a Network (Continued)

4. After entering a Network Address, click “get network settings”; Agent will attempt to connect to the Gateway

The screenshot shows a web interface for adding a network. On the left is a sidebar with a 'projects' header and a 'Sample Project' section containing links for 'list', 'add network', 'add lc2', 'transfer', and 'project settings'. The 'add network' link is highlighted. The main area is titled 'Network Settings' and contains the following fields:

- Name:** A text input field containing 'new network'.
- Network Address:** A text input field containing 'COM3', with a question mark icon to its right.
- Serial Number:** An empty text input field.
- Scan Rate:** A dropdown menu currently set to '10 minutes'.
- Deploy Period:** A dropdown menu currently set to '1 hour'.
- Network Time Zone:** A dropdown menu currently set to '(UTC-04:00) Paraguay Standard Time (uses daylight savings)'.
- Description/Notes:** An empty text area.

A green arrow points to a button labeled 'get network settings' located to the right of the 'Network Address' field.

5. Cellular Gateways/Loggers: A “Choose Cloud Network” field will appear, select the desired Gateway/Logger from the list
6. The “Serial Number” field will populate automatically once Agent has successfully connected to the Gateway

Adding a Network (Continued)

7. Other Network Settings available include:

- ▶ Name: Enter a descriptive name for the Network
- ▶ Scan Rate: Determines how often Loggers take sensor readings (Should be left at 10 minutes until it has been verified that all Loggers are present and collecting data)
- ▶ Deploy Period: Sets duration of “Deployment Mode” on the Gateway (i.e. how long it will search for new Loggers)
- ▶ Network Time Zone: Use the drop-down to select the correct time zone
- ▶ Description/Notes: Enter any additional Network information

8. When finished editing the Network Settings, click “Save”

Loggers Screen

- After a Network is created, Agent automatically navigates to a screen that lists all the devices associated with that Network



logger type	name	serial number	last reading	battery level	signal strength	charts	remove
VW Logger	(Not Set)	1537815				0	X
Gateway	(Not Set)	1537823				0	X
Tilt Logger	(Not Set)	1533349				0	X

- Only Loggers that have joined the Network will be displayed
- Loggers subsequently added to the Network will not appear on the list until after the next download
- Data for “last reading”, “battery level”, and “signal strength” will be displayed once it has been downloaded from the Network

Downloading Data



Downloading Data

- Data will only be collected from the Network when a data download occurs
- Data will not appear on charts, on the Logger Screen, etc., until it has been downloaded from the Network
- Downloads can be initiated manually or set to occur automatically
- When Automatic Download is enabled, Agent will automatically download data from the Network at specific times or intervals
- If Automatic Download is disabled, Agent will only download data when the user initiates a manual download

Downloading Data

Cellular Gateways & Loggers

- Data is uploaded from the Cellular Gateway/Logger to the GEOKON API (Network server)
- Data is uploaded in recurring intervals when:
 - ▶ A certain amount of time has passed
 - ▶ A set number of readings is reached
- Agent communicates with the GEOKON API (not the Gateway/Logger)
- Only data that has been uploaded to the GEOKON API can be downloaded by Agent

Automatic Download

1. Select a project by clicking on the project name

projects

list

add project

name	description	created	delete
Sample Project	NH Tunnel Site	Thu Sep 20 2018	X
Project 1	Strain Gauges	Tue Aug 13 2019	X

2. Click the  icon that corresponds with the Network to be downloaded

projects

Sample Project

list



add network

add lc2



transfer

project settings

GeoNet Networks

name	settings	download	gateway serial number	address	scan rate	download rate	delete
Sample Network			1537815	COM9	10 min.	45 min.	X

LC2 Data Loggers

name	settings	download	serial number	address	scan rate	type	delete
Sample LC2			1742325	COM4	60 sec.	single	X

Automatic Download (Continued)

3. Check "Enable automatic Download"

The screenshot shows a web application interface for 'network settings'. On the left is a dark blue sidebar with a menu containing 'projects', 'Sample Project', 'Sample Network', 'loggers', 'network settings' (highlighted), 'export', and 'live'. The main content area is white and contains several sections. At the top, there's a 'Battery Life' section with a slider and a 'Save' button. Below that is a 'Network Time' section with a text input for 'Current Network Time' and a 'set network time' button. To the right of this is a 'Set Project' section with a 'Project' dropdown menu set to 'Sample Project' and a 'Save' button. The 'Automatic Download' section is highlighted with a blue border and a green checkmark icon. It has a heading 'Automatic Download' and a sub-heading 'Enable automatic Download'. There are two radio buttons: 'Download at a scheduled interval' (which is selected) and 'Download at specified Times'. Under 'Download at a scheduled interval', there is a 'Start Time' input field with '15:30' and a 'Download every' input field with '60' minutes. Under 'Download at specified Times', there is a 'Times' input field (a large empty box) and a label 'Enter a time to add:' with an input field. At the bottom of the 'Automatic Download' section are 'Save' and 'Cancel' buttons.

projects

- Sample Project
- Sample Network
- loggers
- network settings
- export
- live

Battery Life: 30 S

Save

Normal

Network Time

To get network time use the "get network settings" button

Current Network Time

set network time

Set Project

Project

Sample Project

Save

Automatic Download

Enable automatic Download

☒ Download at a scheduled interval

Start Time: 15:30

Download every 60 minutes

Save Cancel

☐ Download at specified Times

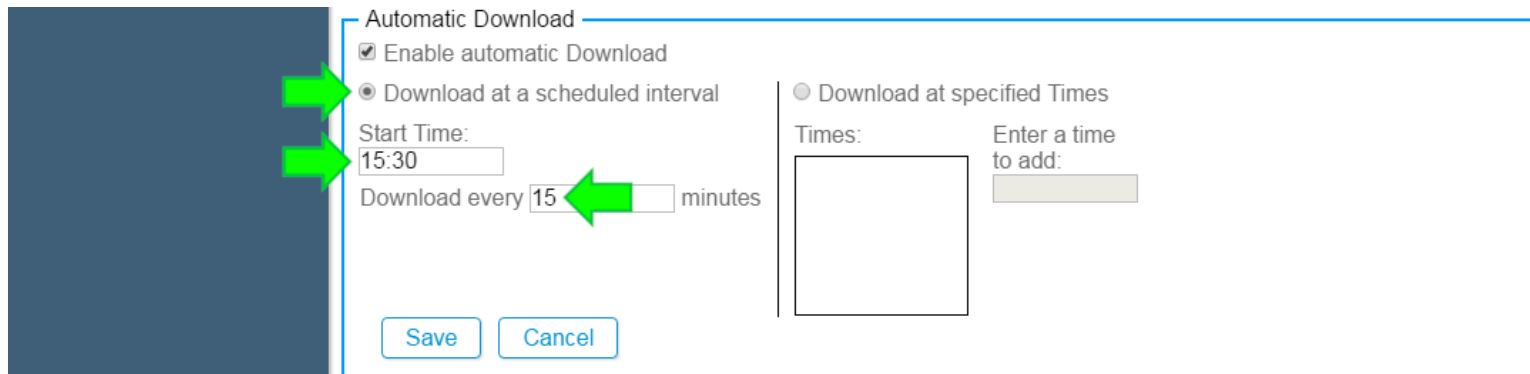
Times:

Enter a time to add:

Automatic Download:

Download at Scheduled Intervals

- 4a. To set the automatic download to occur at scheduled intervals, click the “Download at a scheduled interval” button, then enter a Start Time and an interval in minutes
(An interval in minutes is required, a Start Time is optional.
Start Times must be entered in 24-hour hour format, e.g., 3:30 PM becomes 15:30)



Automatic Download

☒ Enable automatic Download

☒ Download at a scheduled interval

Start Time: 15:30

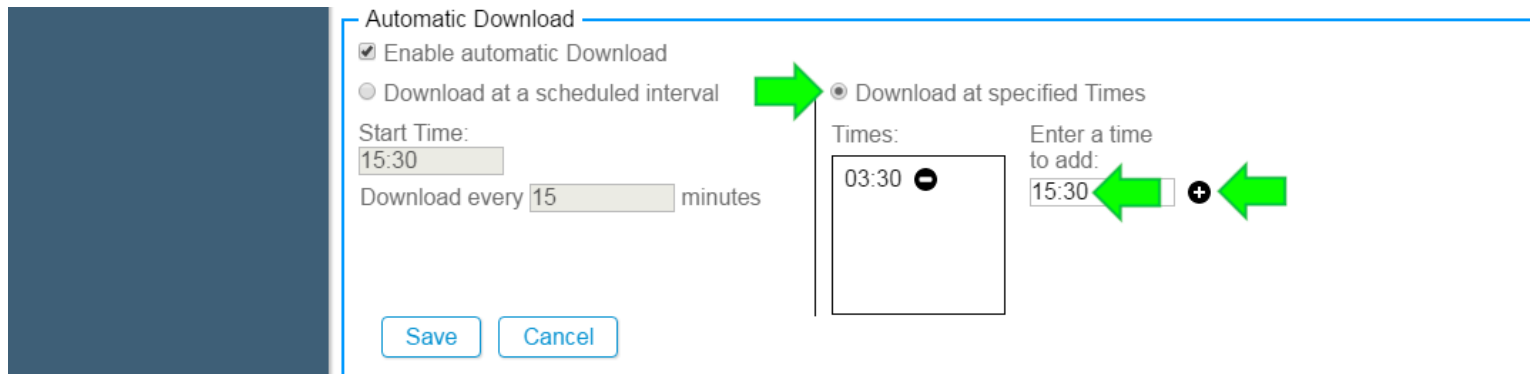
Download every 15 minutes

☐ Download at specified Times

Times: Enter a time to add:

Automatic Download: Download at Specific Times

- 4b. To set the automatic download to occur at specific times, click the “Download at specified Times” button, input a time in the “Enter a time to add field” and then click **+**
To remove a time from the list, click **-**
(Times must be entered in 24-hour hour format, e.g., 3:30 PM becomes 15:30)



The screenshot shows the 'Automatic Download' settings window. On the left, a dark blue sidebar is partially visible. The main window has a title bar 'Automatic Download' and two radio buttons: 'Enable automatic Download' (checked) and 'Download at a scheduled interval'. A green arrow points from the 'Download at a scheduled interval' option to the 'Download at specified Times' option. Below the radio buttons, there are two sections. The first section, 'Start Time:', has a text input field with '15:30' and a 'Download every' field with '15' minutes. The second section, 'Times:', has a list box containing '03:30' with a minus sign button next to it. To the right of the list box is an 'Enter a time to add:' field with '15:30' and a plus sign button. A green arrow points from the plus sign button to the 'Enter a time to add:' field. At the bottom of the window are 'Save' and 'Cancel' buttons.

5. When finished, click “Save”

Manual Download


1. Select a project by clicking on the project name

projects

list

add project

name	description	created	delete
Sample Project	NH Tunnel Site	Thu Sep 20 2018	X
Project 1	Strain Gauges	Tue Aug 13 2019	X

2. Click the  icon to download all new data from the Network (Note: Only one Network can be downloaded at a time)

projects

Sample Project

list



add network

add lc2



transfer

project settings

GeoNet Networks

name	settings	download	gateway serial number	address	scan rate	download rate	delete
Sample Network			1537815	COM9	10 min.	45 min.	X

LC2 Data Loggers

name	settings	download	serial number	address	scan rate	type	delete
Sample LC2			1742325	COM4	60 sec.	single	X

Sensors



Sensors

- Sensors created in Agent import data collected by Loggers and the Gateway
- Data imported by Sensors can be displayed on charts
- Sensors must be added to the device before they can be added to a chart

Adding Sensors to a Device

1. Select a project, a Network, and then the device the sensor will be added to
2. Click "Logger settings"
3. Select a Sensor to add
(The available sensors will vary depending on the device type)

The screenshot displays a web interface for configuring a logger. On the left is a dark sidebar with a tree view under the heading 'projects'. The tree includes 'Sample Project', 'Sample Network', and 'Logger 1'. Under 'Logger 1', there are links for 'view charts', 'chart settings', 'summary', 'logger settings' (which is highlighted with a green arrow), and 'sensor summary'. The main content area is titled 'Node' and contains a form with three fields: 'Name' (containing 'Logger 1'), 'Serial Number' (containing '1533349'), and 'Type' (a dropdown menu showing 'VW Logger'). A 'Save' button is located below these fields. Below the 'Node' section, there is a 'Sensors' section, which is highlighted with a green rectangular box. This section contains four links: 'Add reading sensor', 'Add multiple channels', 'Add thermistor sensor', and 'Add logger sensors'.

projects

- Sample Project
 - Sample Network
 - Logger 1
 - view charts
 - chart settings
 - summary
 - logger settings
 - sensor summary

Node

Name: Logger 1 Serial Number: 1533349 Type: VW Logger

Save

Sensors

- Add reading sensor
- Add multiple channels
- Add thermistor sensor
- Add logger sensors

Adding Sensors to a Device (Continued)

Sensor types are as follows:

- ▶ Reading Sensor: Displays data collected from external gauges connected to the device
- ▶ Thermistor Sensor: Displays data collected from a thermistor (includes built-in thermistors and thermistor strings)
- ▶ Add Multiple Channels: Add several channels of readings at once (Designed for Multi-Channel Loggers and addressable sensors)
- ▶ Logger Sensors: Displays data collected by the device's internal sensors (e.g., Battery, Signal Strength, etc.)
- ▶ Tilt Sensors (angle/deflection): Displays data collected by MEMS tilt sensor including Tilt Loggers and Addressable InclinoMeters

Adding Sensors to a Device

(Continued)

4. Sensors that have been added to the device will be shown in the Logger settings screen
(Sensor settings can be edited by clicking the name of the sensor)

projects

└ Sample Project

└ Sample Network

└ Sample Logger

view charts

chart settings

summary

logger settings

sensor summary

Node

Name

Serial Number

Type

Sample Logger

1537823

VW Logger

Save

Sensors

[Add reading sensor](#)

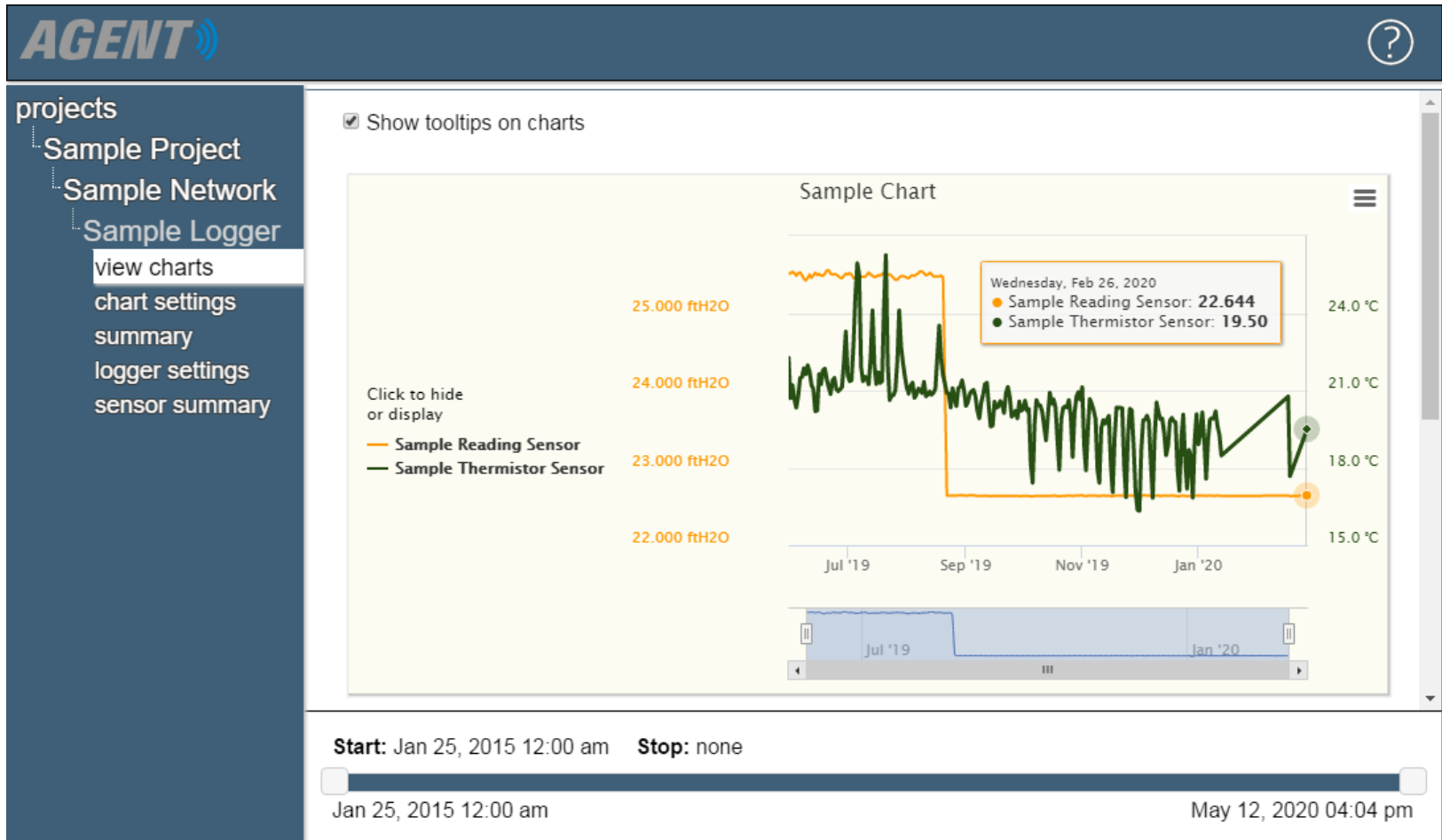
[Add multiple channels](#)

[Add thermistor sensor](#)

[Add logger sensors](#)

Name	Type	Alerts	Additional Information
Battery	Battery	None	Start date: 2016-08-22. End date: None remove
Logger Temperature	NodeTemp	None	Start date: 2016-08-22. End date: None remove
Reading_01	Reading_1	None	Start date: 2016-08-22. End date: None remove
Thermistor_01	Therm_1	None	Start date: 2016-08-22. End date: None remove

Charts

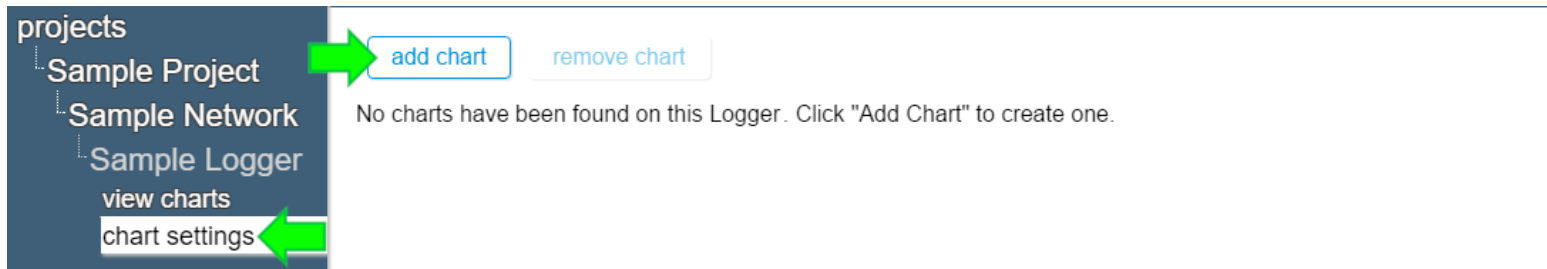


Charts

- Charts display data imported by sensors as a graph
- Sensors must be added to a chart before it will display any data
- If automatic download is enabled, new data will be added to charts automatically each time data is downloaded from the Gateway
- If automatic download is disabled, charts will not update until a manual download is performed

Creating Charts

1. Select a project, a Network, and then a GeoNet device
2. Click “chart settings” then “add chart”

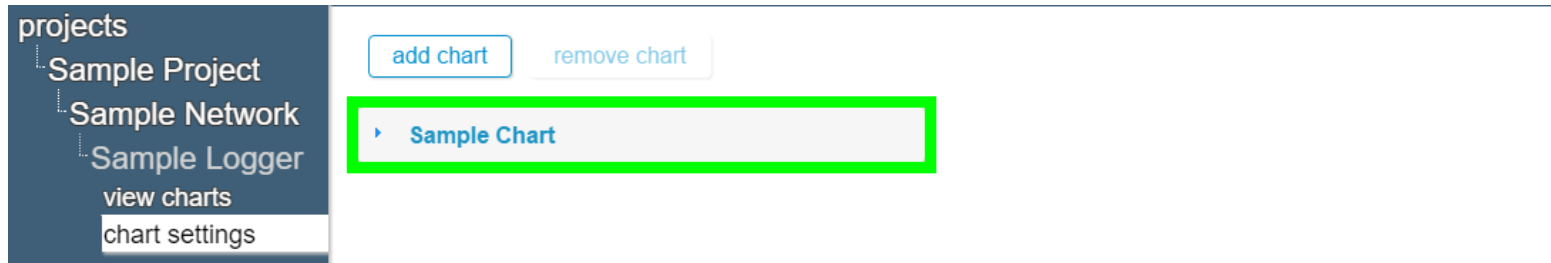


3. Give the chart a name, and then click “Ok”

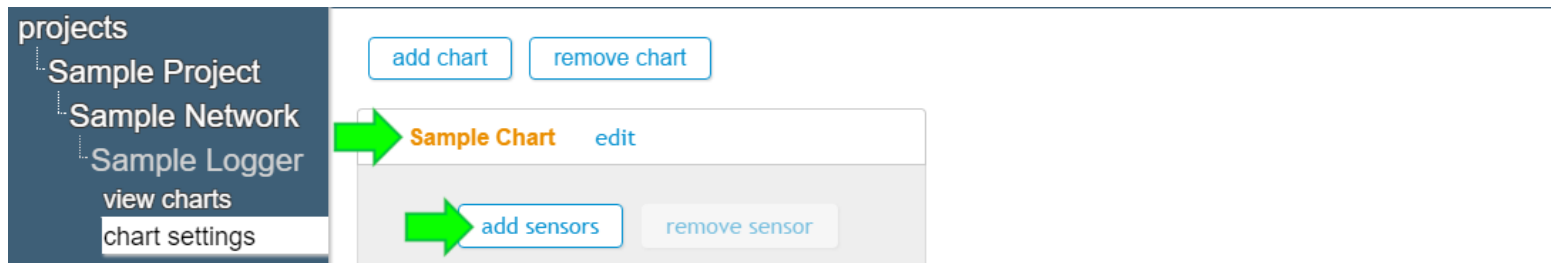


Creating Charts (Continued)

- Charts that have been added to a device will be shown in the “chart settings” screen

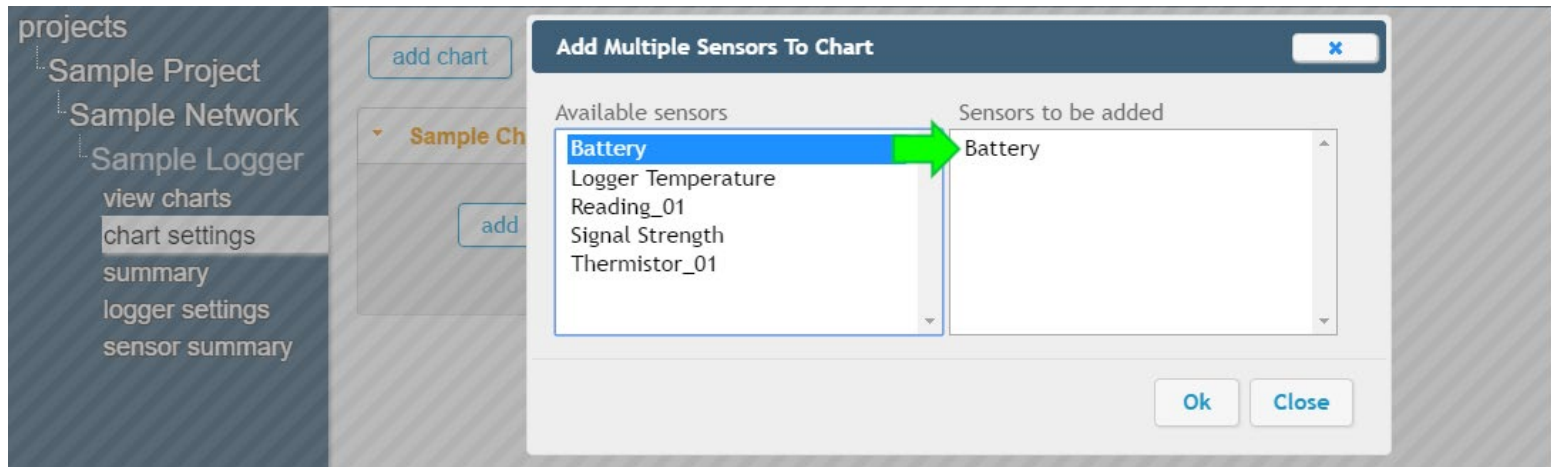


- Click on a chart name, and then click “add sensor”



Creating Charts (Continued)

- Click on a sensor to move it from the “Available sensors” column to the “Sensors to be added” column
(Only sensors that were previously added to the device will be shown as “Available Sensors”)



- When all desired sensors have been added, click “Ok”

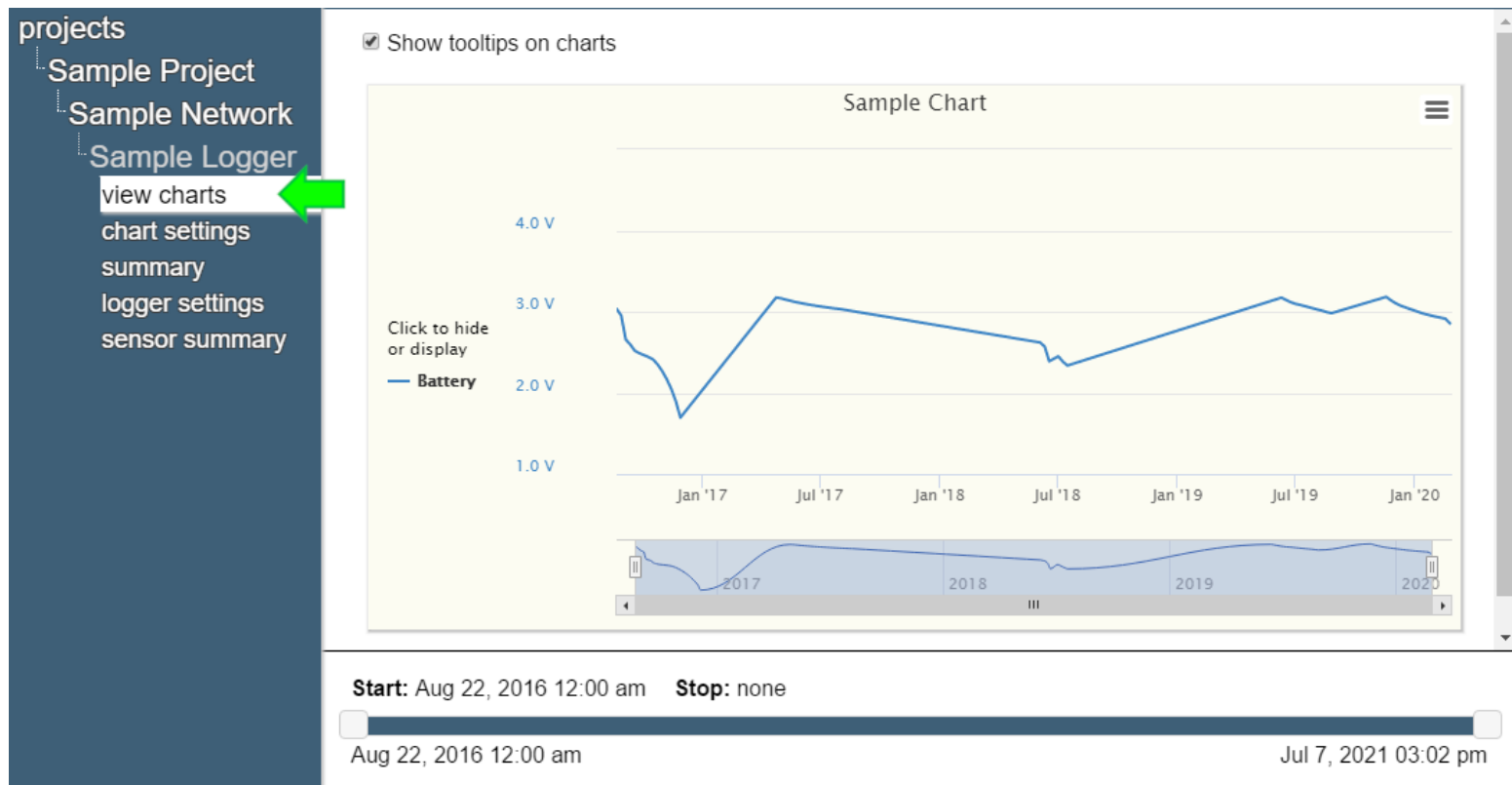
Creating Charts (Continued)

8. Sensors added to the chart will be shown below the chart name

The screenshot displays a web application interface for managing charts. On the left is a dark blue sidebar with a 'projects' menu containing 'Sample Project', 'Sample Network', 'Sample Logger', 'view charts' (highlighted), 'chart settings', 'summary', 'logger settings', and 'sensor summary'. The main content area has a light gray background. At the top are 'add chart' and 'remove chart' buttons. Below them is a card for 'Sample Chart' with an 'edit' link. Inside the card, a white box with a green border contains the sensor details: 'Sensor: Battery', 'SN: None', 'Start Date: Aug 22, 2016', and 'End Date : None'. At the bottom of the card are 'add sensors' and 'remove sensor' buttons.

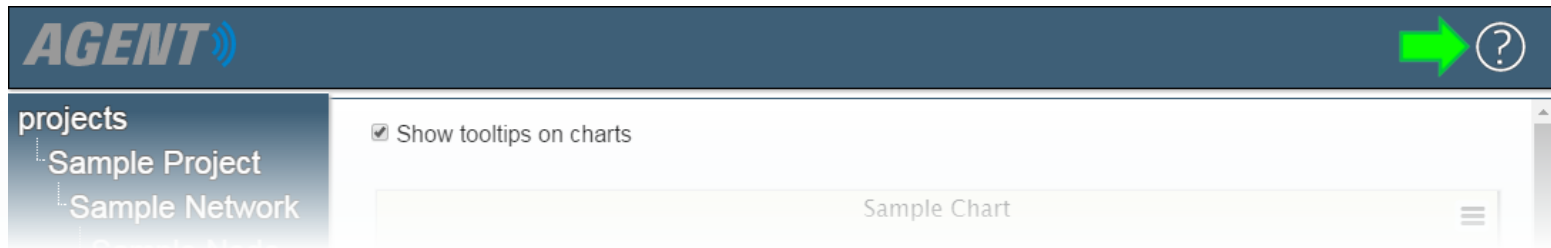
Viewing Charts

1. Click “view charts” to display all charts on the device



For more information...

- Consult Agent instruction manual, which can be accessed by clicking on the question mark at the top of the screen



- Instruction manuals are available for download at: www.geokon.com/Manuals
- Please visit <https://www.geokon.com/Tutorials> for more tutorials