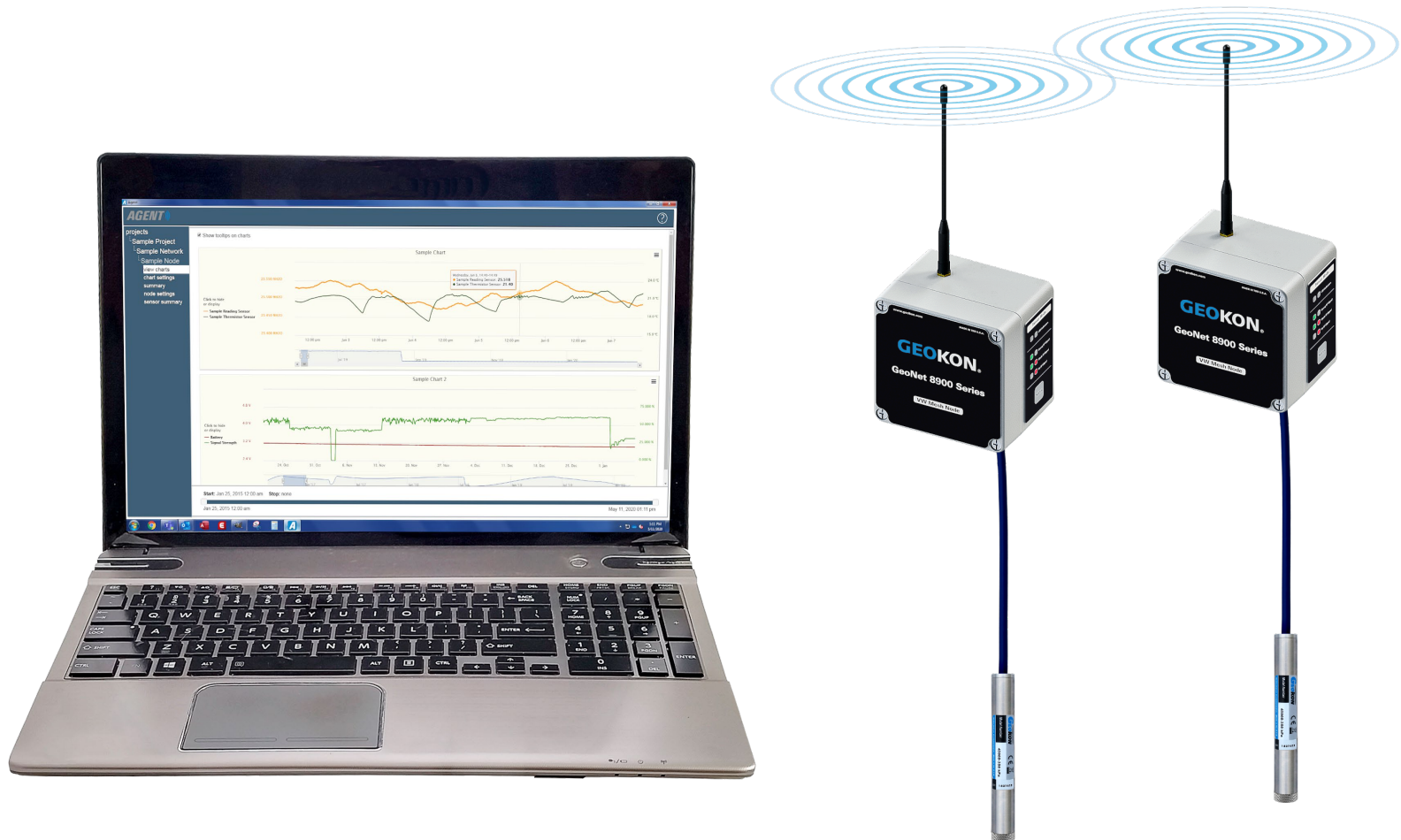




Product Tutorial

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 Nodes have successfully joined the Network
- Cellular Gateway Supervisor must already be commissioned using the api.geokon.com website as described in the [GeoNet manual](#)
- For Supervisors without a Cellular Gateway, connect the Supervisor 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, watch the [GeoNet Installation tutorial](#) or refer to the [GeoNet instruction 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



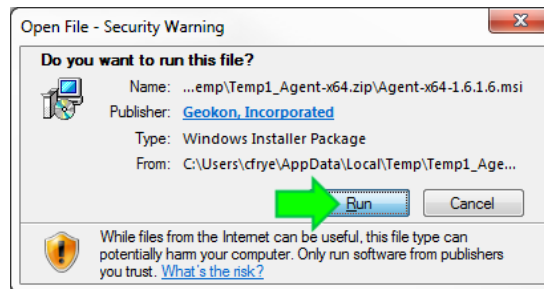
Agent-x64.zip

2. Double click on the windows installer



Agent-x64-1.6.1.1.msi

3. If a security warning appears, click "Run"



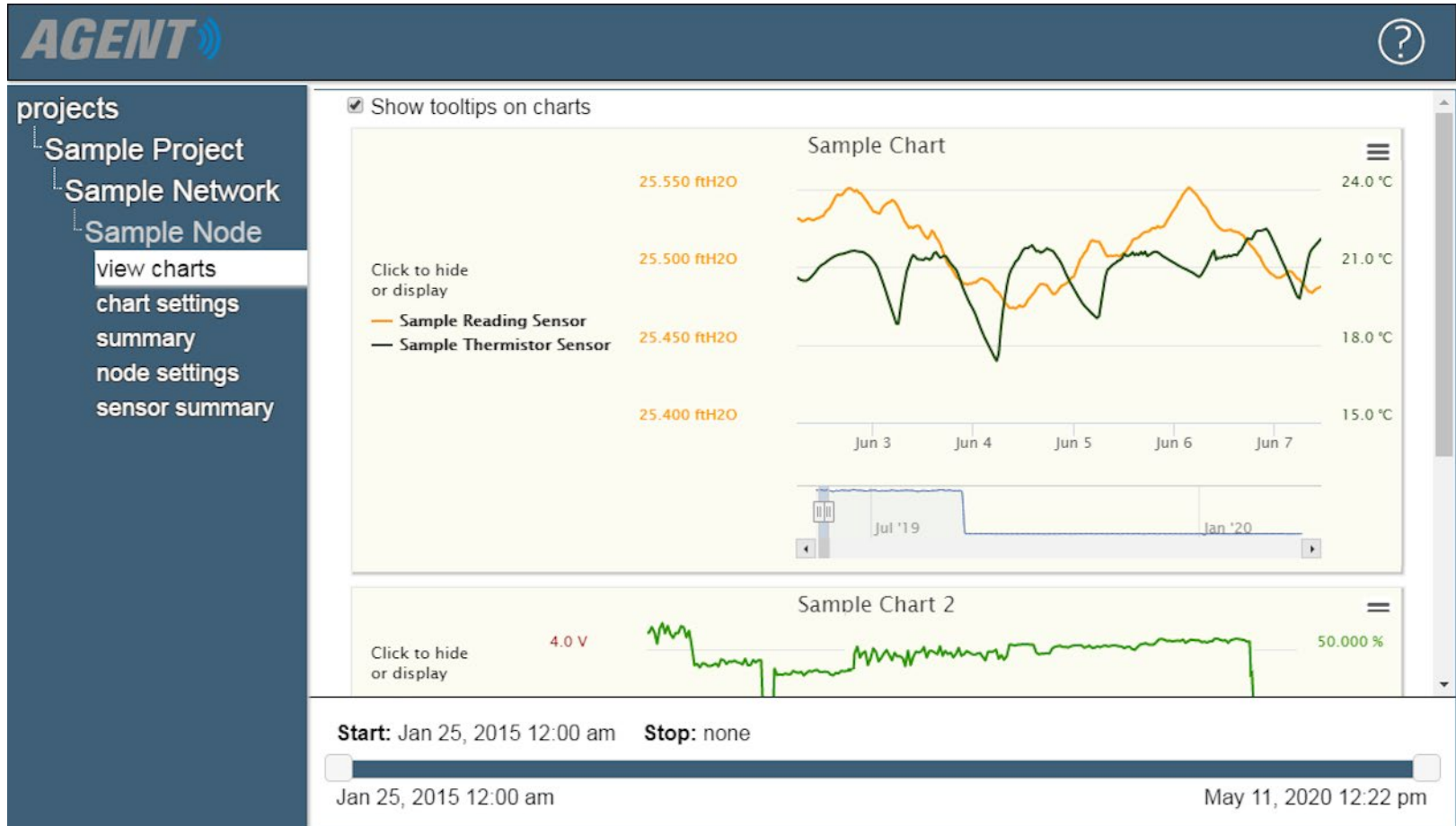
Installing the Software (Continued)

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



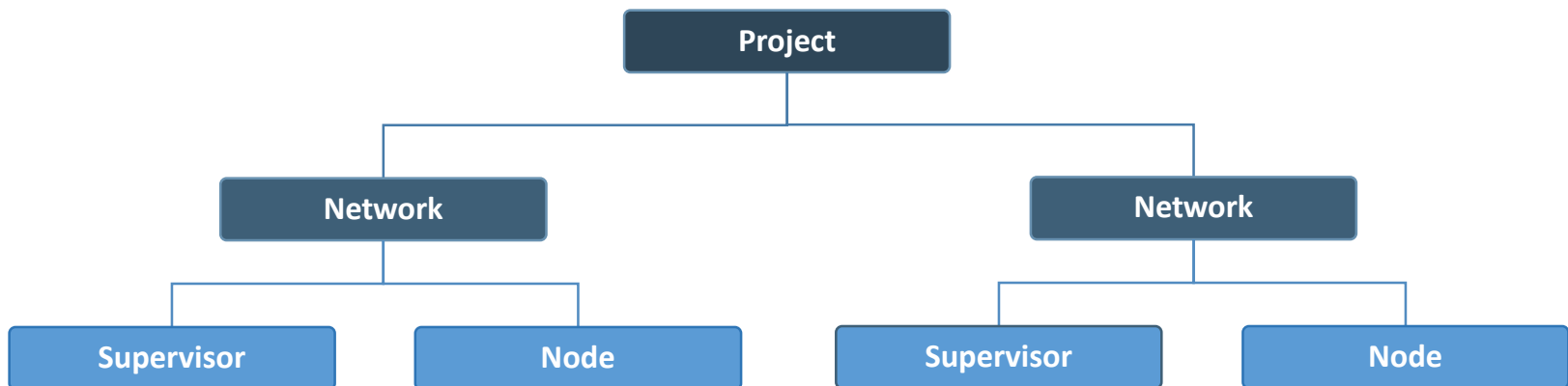
5. When the installation is complete, click "Finish" to close the installer and launch the program

Program Overview



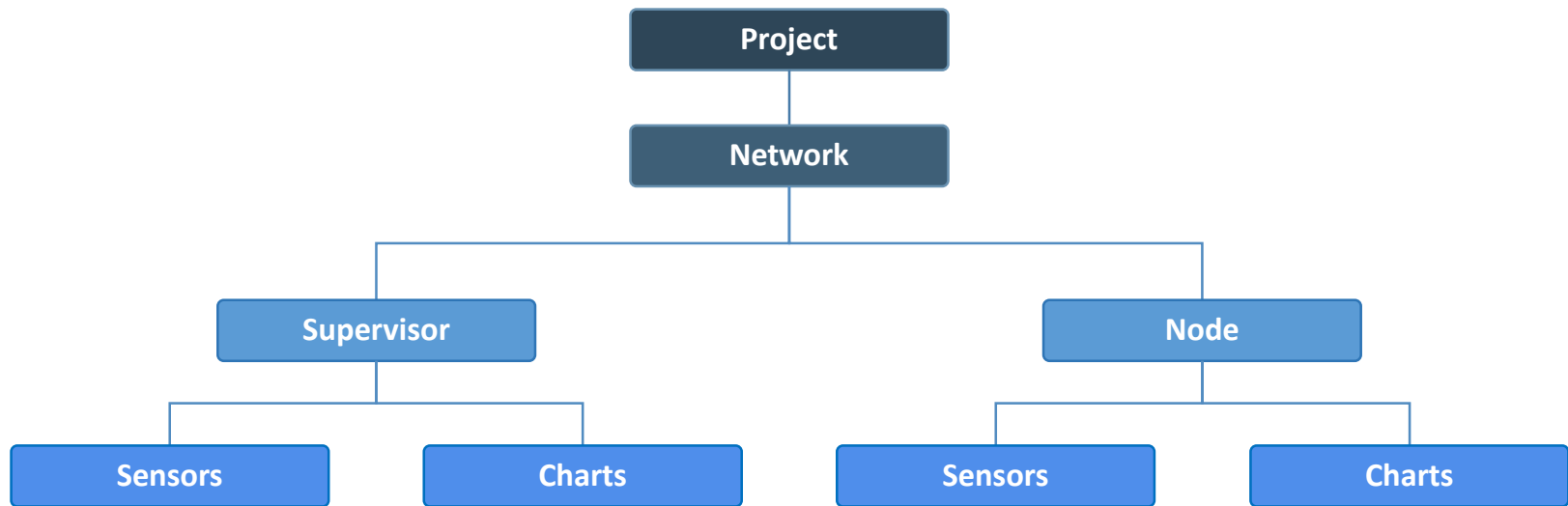
Program Overview

- 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; they contain GeoNet Networks, which in turn contain a certain number of Nodes as well as the Network Supervisor



Program Overview (Continued)

- Each Supervisor or Node can be assigned multiple sensors (which import data collected by the device) and charts (which display data imported by sensors)



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. On the left, a dark blue sidebar menu is highlighted with a green border. It contains the following items: 'projects', 'Sample Project', 'Sample Network', 'Sample Node', 'view charts', 'chart settings', 'summary', 'node settings' (which is currently selected and highlighted in white), and 'sensor summary'. The main content area on the right has a dark blue header with the 'AGENT' logo and a help icon. Below the header, there are two sections. The first section, titled 'Node', contains a form with three fields: 'Name' (containing 'Sample Node'), 'Serial Number' (containing '1533349'), and 'Type' (a dropdown menu showing '8800-XX-01C'). A 'Save' button is located below these fields. The second section, titled 'Sensors', contains three links: 'Add reading sensor', 'Add thermistor sensor', and 'Add node 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

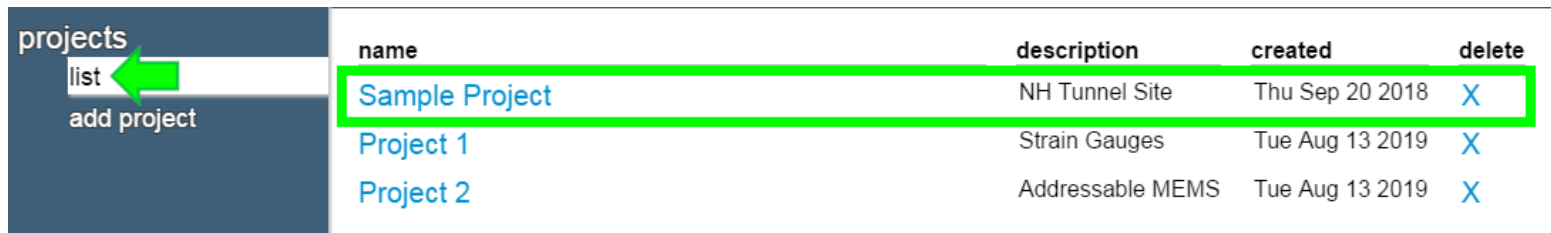
Piezometers & Strain Gauges
Geokon North Training Center

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 Gateway Supervisors

- The Supervisor must already be commissioned using the api.geokon.com website as described in the [GeoNet manual](#)

3a. Type “token:” into the “Network Address” field, then copy and paste a token created on api.Geokon.com as the Network Address

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

- Name:** A text input field containing 'new network'.
- Network Address:** A text input field containing 'token:p98hoTm68Y17pmWsdgDE3'. A green arrow points to this field. To its right is a button labeled 'get network settings'.
- Serial Number:** A text input field that is currently empty.
- Scan Rate:** A dropdown menu showing '10 minutes'.
- Deploy Period:** A dropdown menu showing '1 hour'.
- Description/Notes:** A large text area for additional information.
- Save:** A button at the bottom left of the form.

Adding a Network: USB and RS-232 Cables

- 3b. If connecting to the Supervisor using a cable, type "COM" in the "Network Address" field, then select the COM port the Supervisor 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)

projects

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

Network Settings

Name: new network

Serial Number: [empty]

Description/Notes: [empty]

Network Address: COM

COM3

COM9


COM1

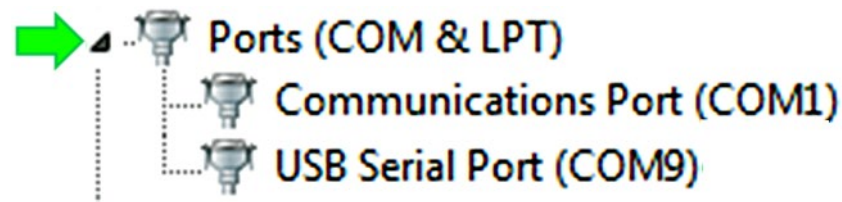
get network settings

Save

Adding a Network:

USB and RS-232 Cables (3b. Continued)

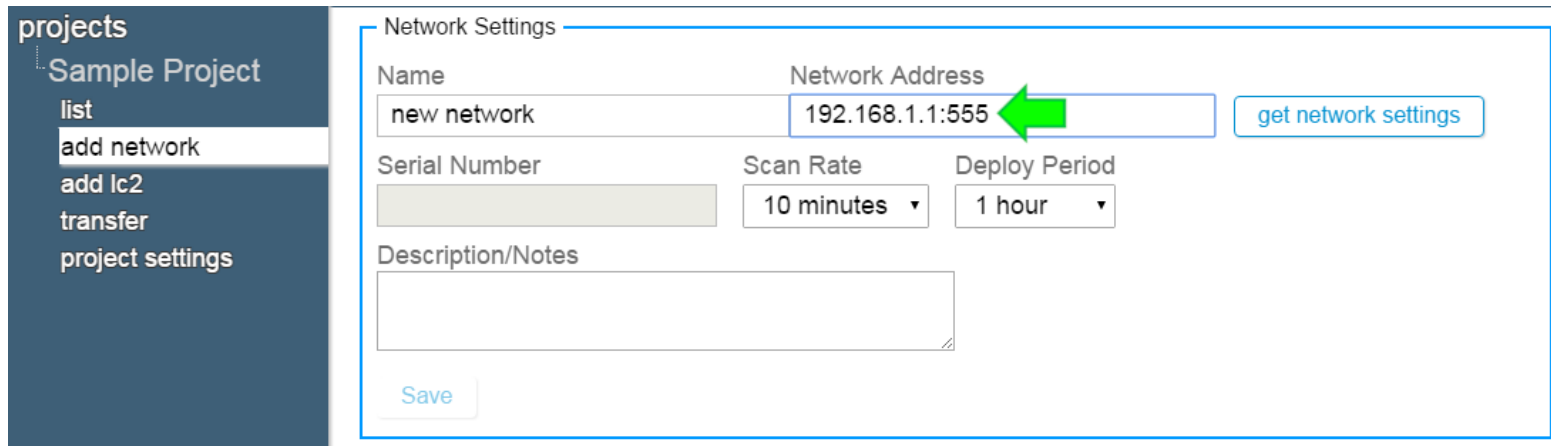
- Unsure of which COM port the Supervisor is connected to?
 - ▶ RS-232 connections will normally use COM1, but may use COM2 or COM3 if the computer has multiple serial ports
 - ▶ To determine the correct port for a USB connection, click Start , type “device” in the search box, then click “device manager” 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 Supervisor is using will disappear and then reappear on the list

Adding a Network: Wireless Connections

- 3c. If connecting to the Supervisor 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)

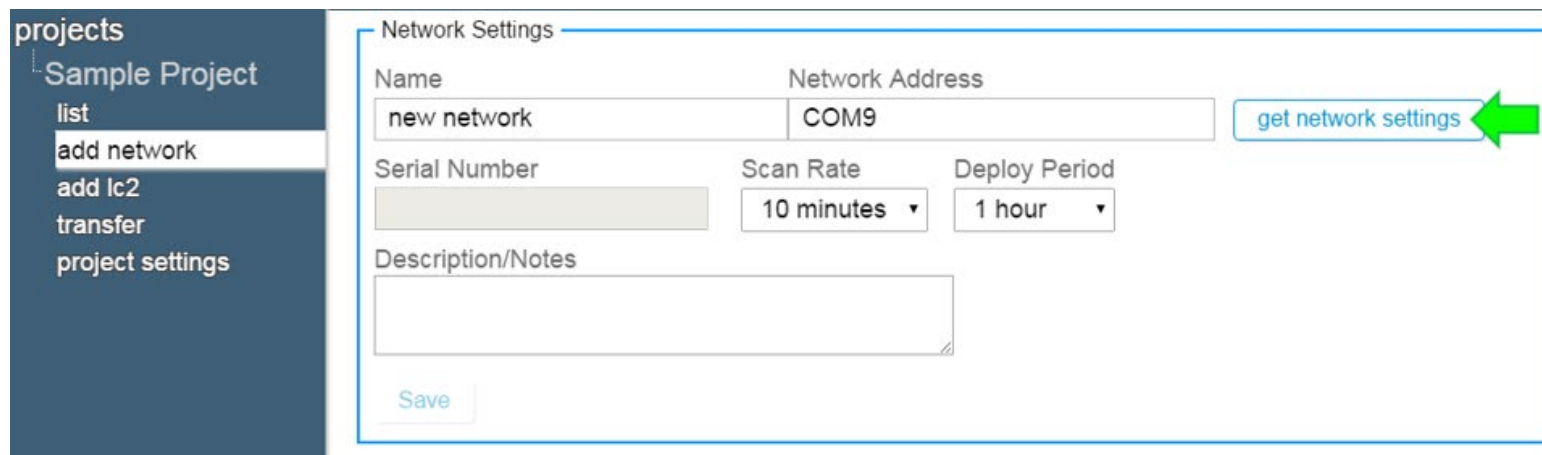


The screenshot shows a web application interface for adding a network. On the left is a sidebar with the following menu items: "projects", "Sample Project", "list", "add network" (highlighted), "add lc2", "transfer", and "project settings". The main content area is titled "Network Settings" and contains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

- 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. To its right is a button labeled "get network settings".
- Serial Number:** A text input field.
- Scan Rate:** A dropdown menu currently showing "10 minutes".
- Deploy Period:** A dropdown menu currently showing "1 hour".
- Description/Notes:** A large text area.
- Save:** A button 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 Supervisor



The screenshot shows a web application interface for adding a network. On the left is a sidebar with a 'projects' section containing a 'Sample Project' and a list of actions: 'list', 'add network' (highlighted), 'add lc2', 'transfer', and 'project settings'. 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 'COM9'.
- 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'.
- Description/Notes:** A large text area for additional information.

At the bottom left of the form is a 'Save' button. At the bottom right is a 'get network settings' button, which is highlighted by a green arrow.

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

Adding a Network (Continued)

7. Other Network Settings available include:

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

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

Nodes Screen

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

<div>projects</div> <div>Sample Project</div> <div>Sample Network</div> <div>nodes</div> <div>network settings</div> <div>export</div> <div>live</div>	node type	name	serial number	last reading	battery level	signal strength	charts	remove
	Supervisor	(Not Set)	1537815				0	X
	8800-XX-01C	(Not Set)	1537823				0	X
	8800-XX-04C	(Not Set)	1533349				2	X

- Only Nodes that have joined the Network will be displayed
- Nodes subsequently added to the Network will not appear on the list until after the next downloaded
- Data for “last reading”, “battery level”, and “signal strength” will 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 Node 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
- Cellular Gateway Supervisors: Only data uploaded from the Supervisor to the GEOKON Server will be available for download

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	supervisor 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"

projects
└ Sample Project
└ Sample Network
 nodes
 network settings
 export
 live

Network Settings

Name	Network Address
Sample Network	COM9

[get network settings](#)

Serial Number	Scan Rate	Deploy Period	Description/Notes
1537815	10 minutes ▾	1 hour ▾	Devices Installed on May 1 2019

Network Time Zone
(UTC-05:00) Eastern Standard Time (uses daylight savings) ▾

[Save](#)

Network Time

Current Network Time

[set network time](#)

Set Project

Project
Sample Project ▾ [Save](#)

Automatic Download

☒ Enable automatic Download

☒ Download at a scheduled interval

Start Time:

Download every minutes

[Save](#) [Cancel](#)

☐ Download at specified Times

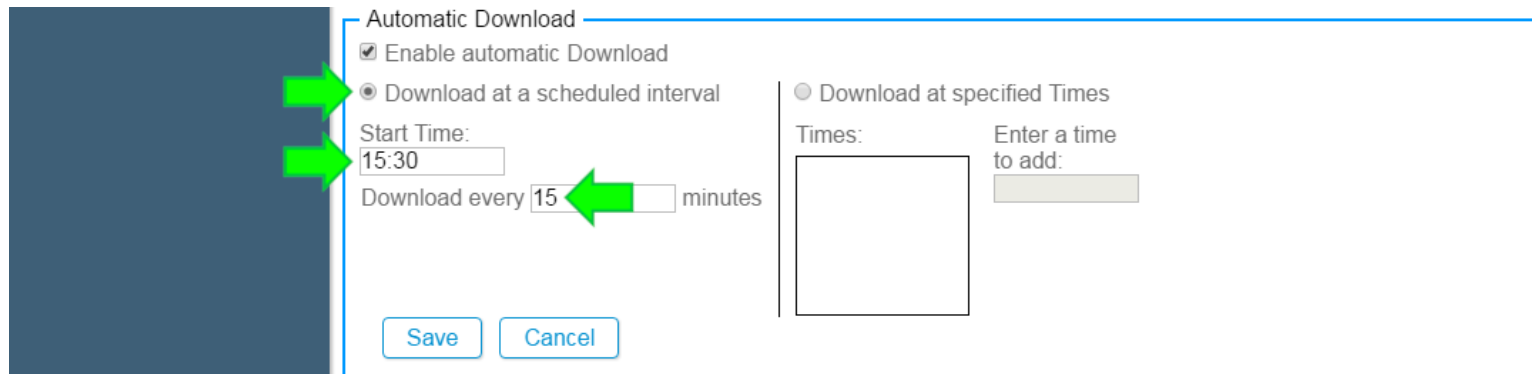
Times:

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)

Automatic Download

☒ Enable automatic Download

☐ Download at a scheduled interval

Start Time: 15:30

Download every 15 minutes

☐ Download at specified Times

Times: 03:30 -

Enter a time to add: 15:30 +


Save Cancel





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	supervisor 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 Nodes and the Supervisor
- Data imported by Sensors can be displayed on charts
- Sensors must be added to a 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 “node 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 device. On the left is a dark sidebar with a tree view under the heading 'projects'. The tree includes 'Sample Project', 'Sample Network', and 'Sample Node'. Under 'Sample Node', there are links for 'view charts', 'chart settings', 'summary', 'node settings' (which is highlighted with a green arrow), and 'sensor summary'. The main content area is divided into two sections. The top section, titled 'Node', contains a form with three fields: 'Name' (containing 'Sample Node'), 'Serial Number' (containing '1537823'), and 'Type' (a dropdown menu showing '8800-XX-01C'). A 'Save' button is located below these fields. The bottom section, titled 'Sensors', contains three links: 'Add reading sensor', 'Add thermistor sensor', and 'Add node sensors' (which is highlighted with a green arrow).

projects

- Sample Project
 - Sample Network
 - Sample Node
 - view charts
 - chart settings
 - summary
 - node settings
 - sensor summary

Node

Name Serial Number Type

Sample Node 1537823 8800-XX-01C

Save

Sensors

- Add reading sensor
- Add thermistor sensor
- Add node sensors

Adding Sensors to a Device (Continued)

Sensor types are as follows:

- ▶ Reading Sensor (e.g., vibrating wire gauge)
- ▶ Thermistor Sensor (e.g., temperature sensor)
- ▶ String of MEMS Sensors (e.g., MEMS inclinometer system)
- ▶ Two Axis Tilt Meter (e.g., GeoNet biaxial tiltmeter Node)
- ▶ Node Sensors (factory installed sensors contained within the device, including: Battery, Aux Battery, Node Temperature, and Signal Strength)

Adding Sensors to a Device (Continued)

4. Select which Sensors to add, edit the Sensor options if desired, and then click "Save"
(Sensor options vary based on sensor type. For ease of demonstration, Node sensors are used in this example)

The screenshot shows a web application interface with a sidebar on the left containing a tree view of projects and nodes. The main area displays the 'Edit Sensor' dialog box. The dialog has a title bar 'Edit Sensor' and three sections for adding different sensors. The 'Add Node Temperature' section is highlighted with a green box and a green checkmark. The 'Save' button at the bottom right is highlighted with a green arrow.

projects

- Sample Project
 - Sample Network
 - Sample Node
 - view charts
 - chart settings
 - summary
 - node settings
 - sensor summary

Edit Sensor

☐ Add Battery

Name: Battery Start Date: 2016-08-22 End Date: None Change

Choose a color: [Black]

☒ Add Node Temperature

Name: Node Temperature Units: °C Start Date: 2016-08-22 End Date: None Change

Choose a color: [Blue]

☐ Add Signal Strength

Name: Signal Strength Start Date: 2016-08-22 End Date: None Change

Choose a color: [Purple]

Save Cancel

Adding Sensors to a Device (Continued)

5. Sensors that have been added to the device will be shown in the node settings screen
(Sensor setting can be edited at any time by clicking on the name of the sensor)

projects

- Sample Project
 - Sample Network
 - Sample Node
 - view charts
 - chart settings
 - summary
 - node settings**
 - sensor summary

Node

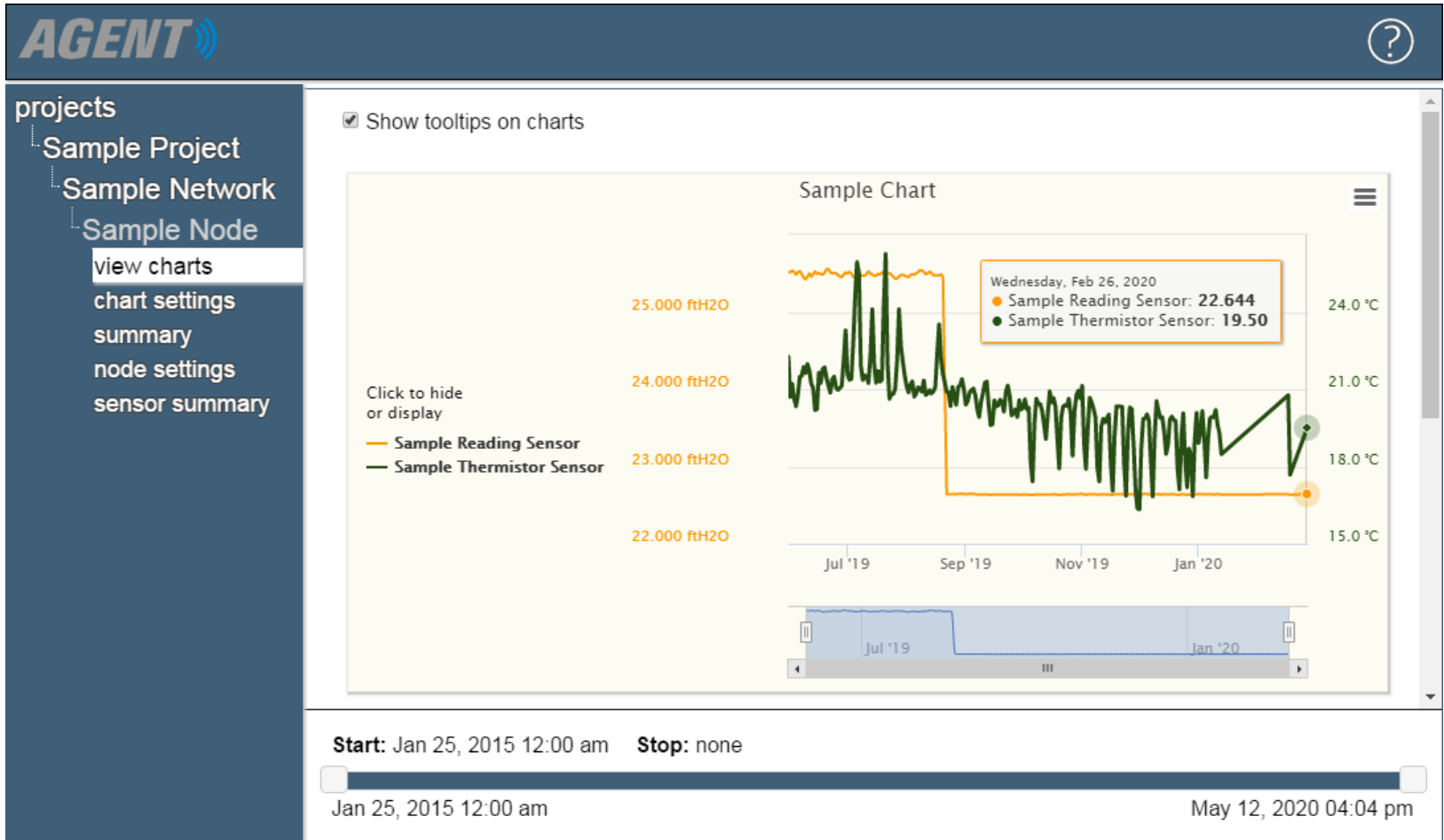
Name: Serial Number: 1537823 Type:

Sensors

[Add reading sensor](#)
[Add thermistor sensor](#)
[Add node sensors](#)

Name	Type	Alerts	Additional Information
Node Temperature	NodeTemp	None	Start date: 2016-08-22. End date: None remove
Sample Reading Sensor	Reading_1	None	Start date: 2016-08-22. End date: None remove
Sample Therm Sensor	Therm_1	None	Start date: 2016-08-22. End date: None remove

Charts

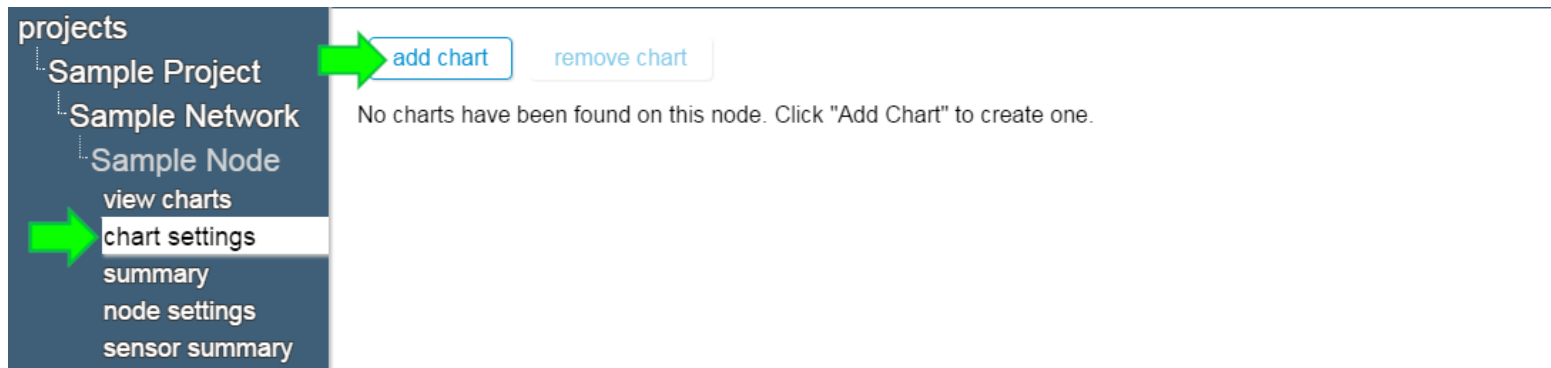


Charts

- 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 Network
- If automatic download is disabled, charts will not update until a manual download is performed

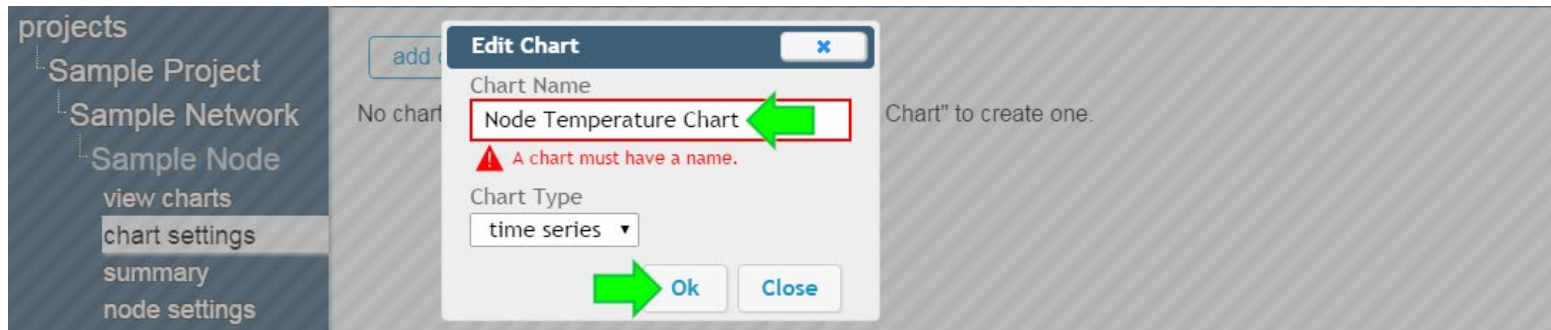
Creating Charts

1. Select a project, a Network, and then the device to which the chart will be added
2. Click “chart settings” then “add chart”

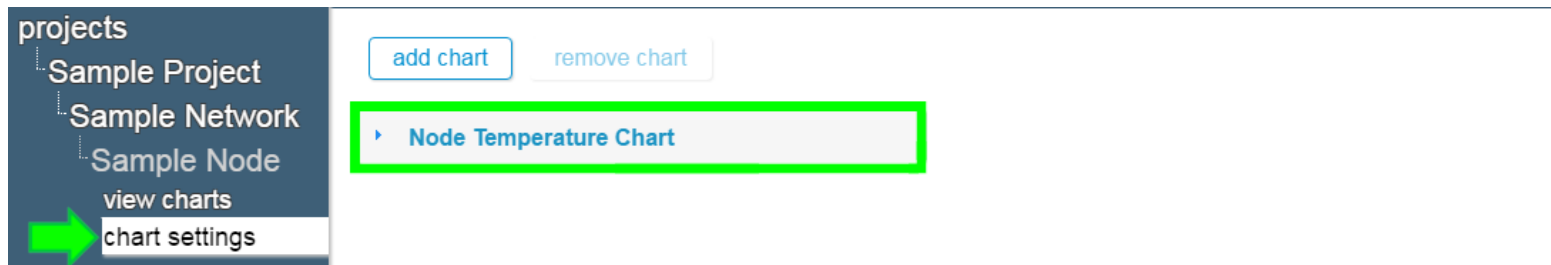


Creating Charts (Continued)

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

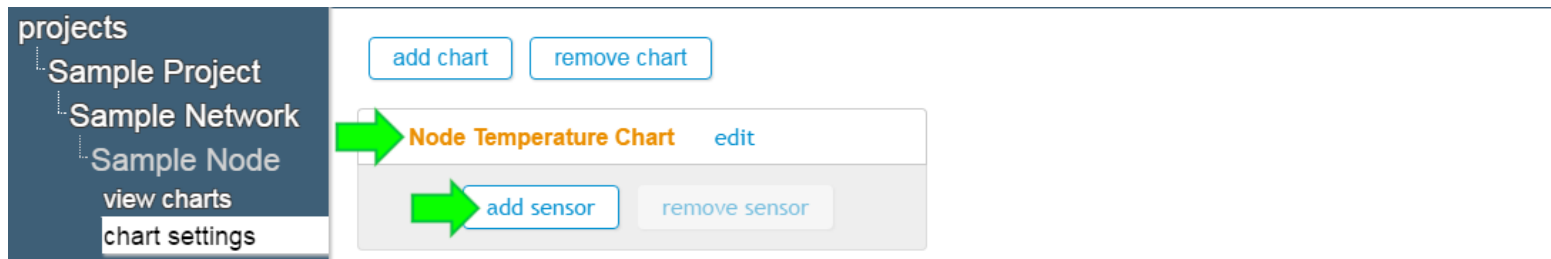


4. Charts that have been added to a device will be shown in the "chart settings" screen

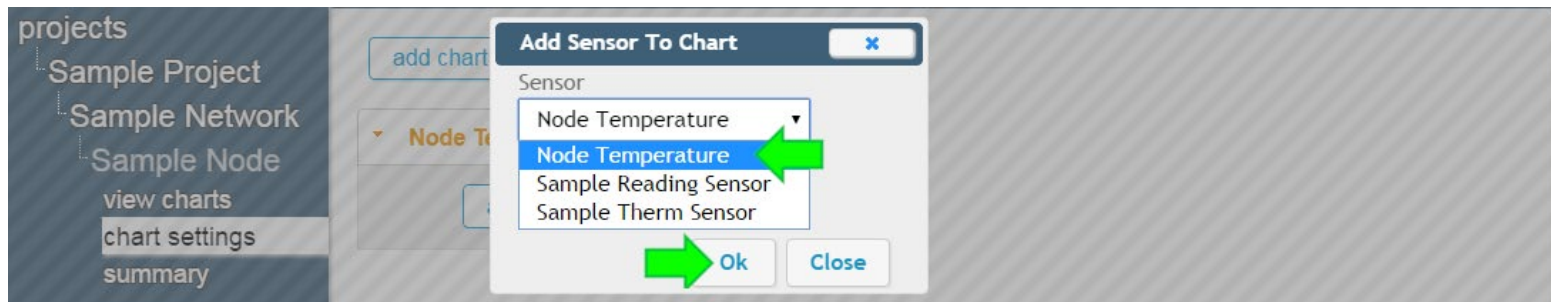


Adding Sensors to Charts

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



2. Select a sensor to add, and then click “Ok”
(Only sensors that were previously added to the device will be shown)



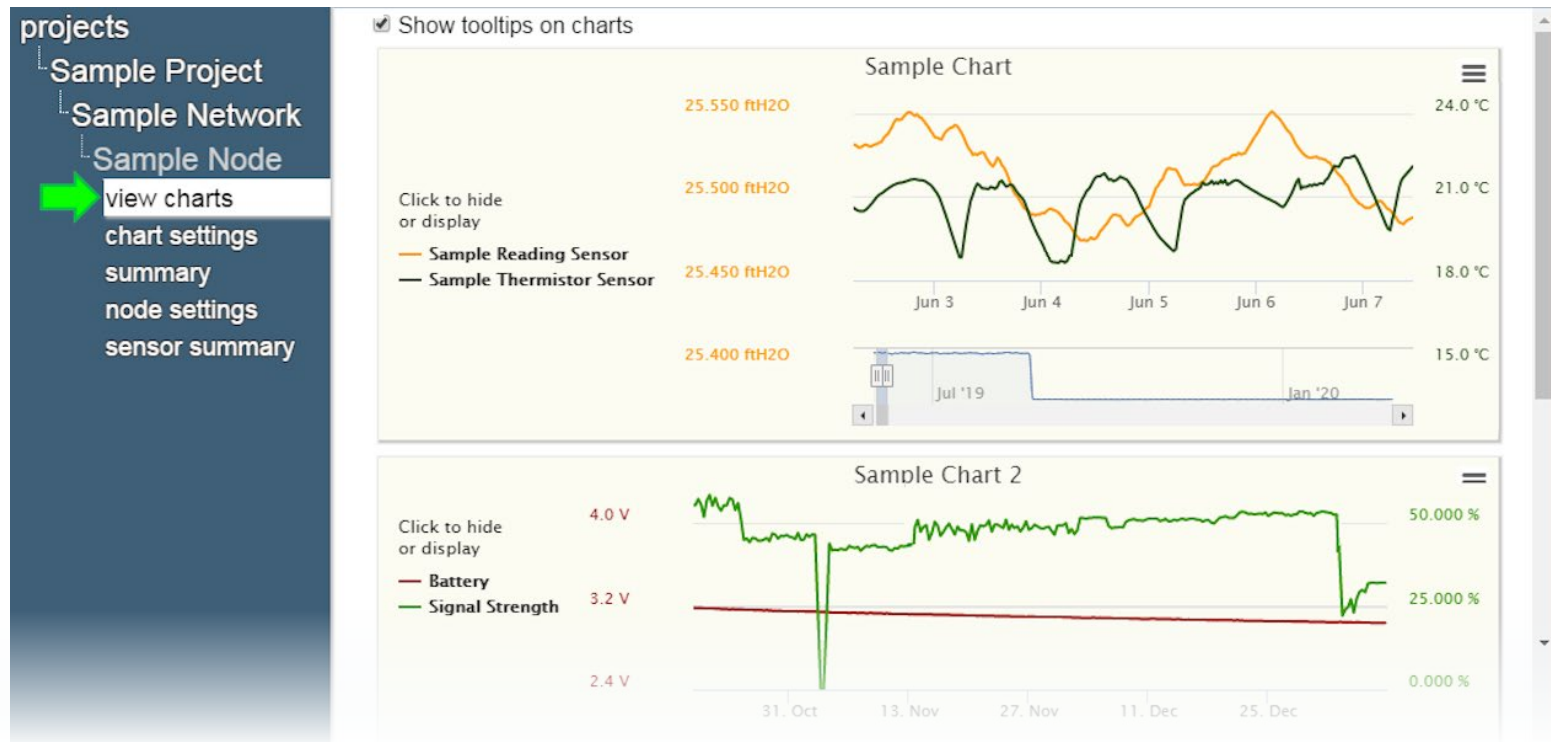
Adding Sensors to Charts (Continued)

3. Sensors that have been added to a chart will be shown below the chart name

The screenshot shows the 'Node Temperature Chart' settings page. On the left is a dark blue sidebar with a tree view containing 'projects', 'Sample Project', 'Sample Network', 'Sample Node', 'view charts', 'chart settings' (highlighted), 'summary', 'node 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 the 'Node Temperature Chart' with an 'edit' link. Inside the card, a green rectangular box highlights the sensor information: 'Sensor: Node Temperature', 'SN: None', 'Start Date: Aug 22, 2016', and 'End Date : None'. At the bottom of the card are 'add sensor' and 'remove sensor' buttons.

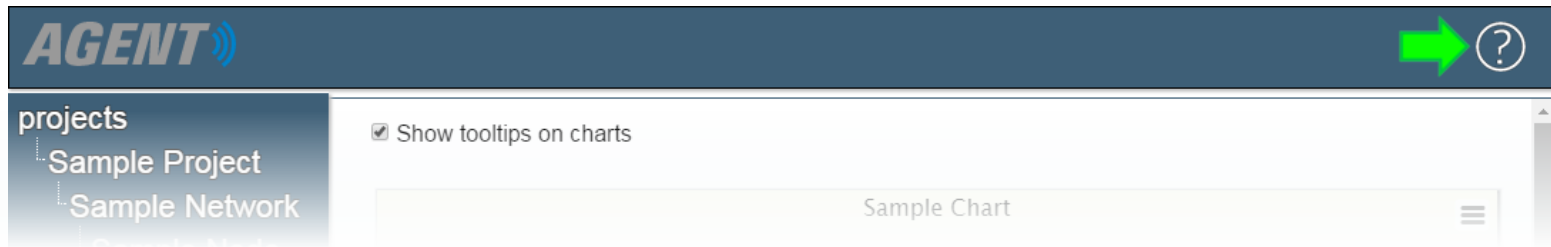
Viewing Charts

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



For more information...

- Consult the [GeoNet](#) and [Agent](#) instruction manuals, which can be accessed at any time 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