



# GeoMos Communication Update Guide

## Overview

The guide provides a step-by-step upgrade manual for users who connect to Bentley (sensemetrics) over a dedicated TCP/IP port. This guide applies to the following devices/installations:

- Geomos/Total Station
- Spider
- Nivel
- Weather Station devices (e.g. Meteo)

## Background

Bentley is committed to security, and this upgrade ensures that the connection from a user's device/installation to the Bentley servers is completely secure from an authorization and authentication perspective. This upgrade enhances the communication link with the following secure benefits:

- The network traffic is fully encrypted using TLS 1.3 (Transport Layer Security) with ed25519 256-bit keys.
- The target device is identified via Server Name Indication (SNI).
- Client authentication is performed via X.509 client certificates verified via private keys, also known as "two-way TLS handshake."
- Authorization is handled on the server by checking against a set of authorized certificates.

## Step-by-Step Upgrade Process

To upgrade, we encourage you to complete the following steps:

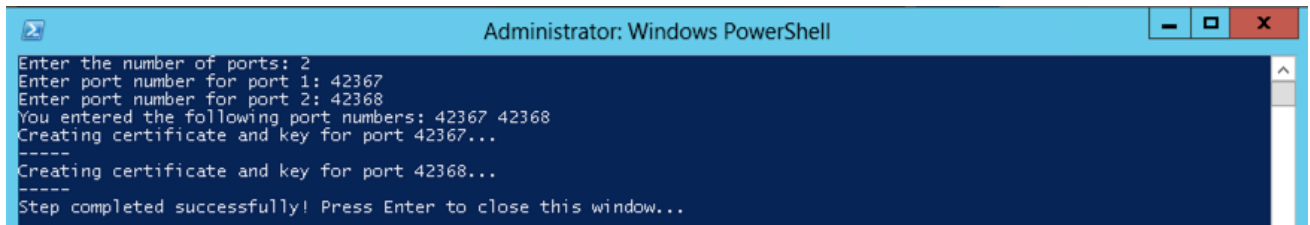
1. Login to the Windows machine that is running Geomos as a user with *Administrator* privileges
2. Open *Geomos* → *Configuration (top toolbar)* → *Sensor Manager* (dropdown option below "Configuration"). Please take note of each of the numerical ports under the Communication column. You may need to resize the window or hover over the rows if you are not able to immediately see the port numbers. For example, if you see the following:
  - app.sensemetrics.com:42367. The numerical port is 42367
  - app.sensemetrics.com:42368. The numerical port is 42368

If this is a brand **new** installation, you may see the following:

- localhost:42367. The numerical port is 42367
  - localhost:42368. The numerical port is 42368
3. (Optional) If you are also using GNSS Spider, open *GNSS Spider* → *Local Site Server* → *right-click each Site Name (sensor)* → *Properties* → *Sensor comm 1*. Please take note of each of the numerical ports displayed under "Remote port"
  4. Open a browser and visit the link below to download the SecurePorts-1.5 zip file:  
<https://github.com/sensemetrics/SecurePorts/archive/refs/tags/1.5.zip>
  5. Go to *Windows Explorer* → *Downloads*, right-click the downloaded SecurePorts zip file, click *Extract All*, and choose the default location.

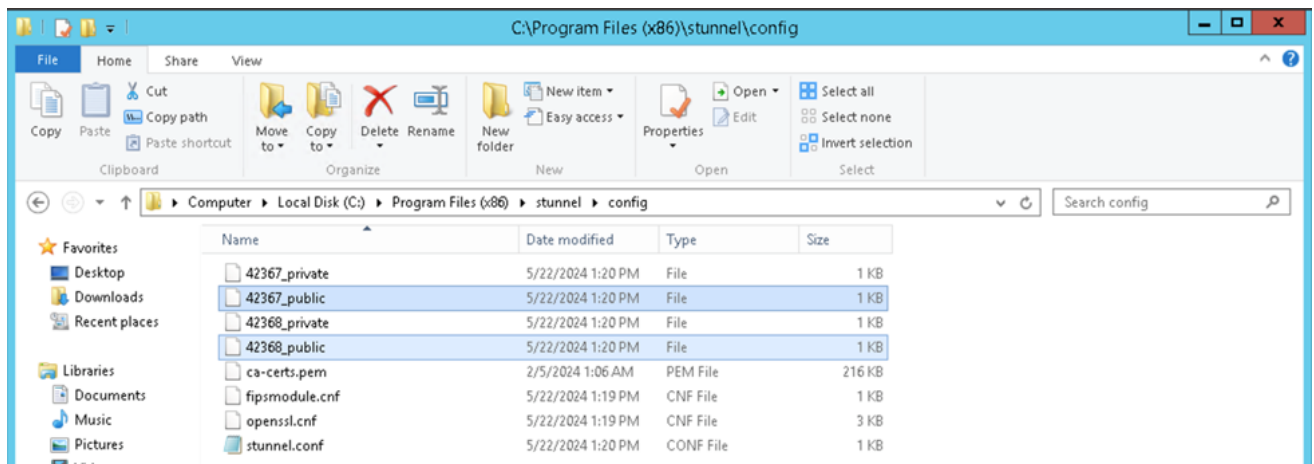
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6. Go into the directory SecurePorts-1.5 and right-click the file *securePorts.ps1* and click *Run with PowerShell*. If prompted with any security warnings, click *Open* or type *Y* to proceed.
7. A window will pop up asking for three questions. Answer the questions using the information gathered from step two (and three, if applicable) above.
  - If this is your first time executing the update guide, all ports on the machine should be done with one execution of this script.
  - If you have previously executed this update guide, you can simply enter in the **new** ports you are adding.
  - An example screenshot showing the questions and answers and the final output is provided below:



```
Administrator: Windows PowerShell
Enter the number of ports: 2
Enter port number for port 1: 42367
Enter port number for port 2: 42368
You entered the following port numbers: 42367 42368
Creating certificate and key for port 42367...
-----
Creating certificate and key for port 42368...
-----
Step completed successfully! Press Enter to close this window...
```

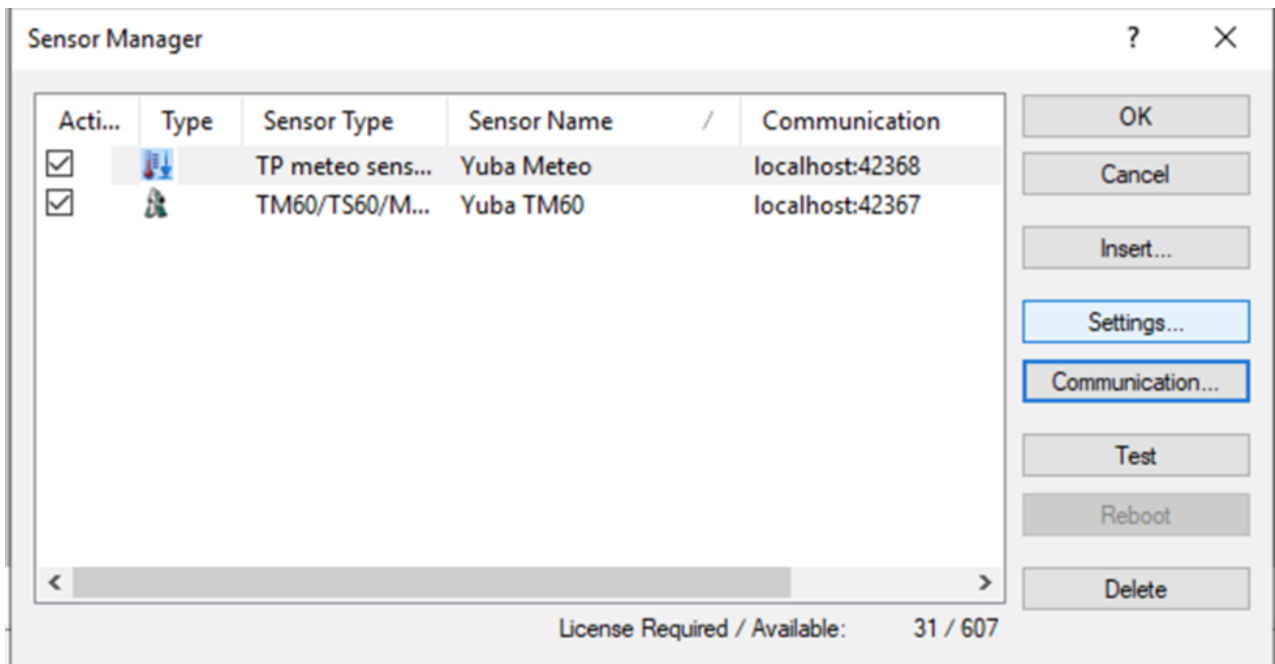
8. Go to Windows Explorer and go to the directory *C:\Program Files (x86)\stunnel\config*. Next, email the two public key files (e.g., *42367\_public* and *42368\_public*) to [infrastructureiot-devops@bentley.com](mailto:infrastructureiot-devops@bentley.com). An example is provided below.



9. Then, wait for confirmation from Bentley Infrastructure IoT Support that you can proceed with the following steps.
10. Once confirmation is received from Bentley Infrastructure IoT Support, go to Task Manager on the computer –> Services (tab at the top of Task Manager) –> *stunnel* (found in the “Services” tab), right-click on *stunnel* and click *Start*, it should then say “Running.”
11. If this is a brand **new** installation or the first time running Geomos for this setup, please skip to **step 14**.
12. Go to *Geomos* –> *Measurement* and click “Pause measurement sequence.”
13. Go to *Geomos* –> *Measurement* and click “Stop measurement sequence.”

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14. Go to *Geomos* → *Configuration* → *Sensor Manager*. For each sensor, press the *Communication* button and change the text in the IP address from "app.sensemetrics.com" → "localhost." Please do not change the numerical port. The result should look similar to this:



15. Click "Test" within the Sensor Manager window for each sensor to ensure a successful response.

16. Once successful, click OK.

17. Go to *Geomos* → *Measurement* and click "Start Measurement Sequence."

18. (Optional) If you are also using GNSS Spider, please take the following steps:

- Go to each Site in the Site Properties folder
- Go to Site --> Disconnect, click Yes (if this fails, try Sensor communication-->Reset communication)
- Right click the sensor on the right window pane and click Properties
- Change "app.sensemetrics.com" to "localhost", click OK
- Right click the same sensor and click Connect
- Right click the same sensor and click Start (if not already started)

19. The upgrade is now complete. Thank you for completing this process.

For any additional questions or guidance, please contact [support@infrastructureiot.com](mailto:support@infrastructureiot.com).

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