



TSI® FMS 5 SOFTWARE AEROTRAK® + REMOTE ACTIVE AIR SAMPLER SALES DEMONSTRATION SETUP & GUIDANCE

TECHNICAL BULLETIN TCC-192
(5/20/2021) Rev A

Introduction

This document will:

1. Provide step-by-step instructions for setting up FMS for the purpose of performing a sales demonstration with AeroTrak®+ Remote Active Air Sampler (AAS).
2. Provide suggestions for a successful live demonstration of FMS.

Key Take-Aways

- Building an FMS demo provides sales people a working knowledge of FMS Software and first-hand experience of its capabilities along with AeroTrak®+ Remote AAS.
- Demonstrating FMS with an AeroTrak+ Remote AAS builds a sales person's credibility and shows prospective customers ease-of-use.

Equipment

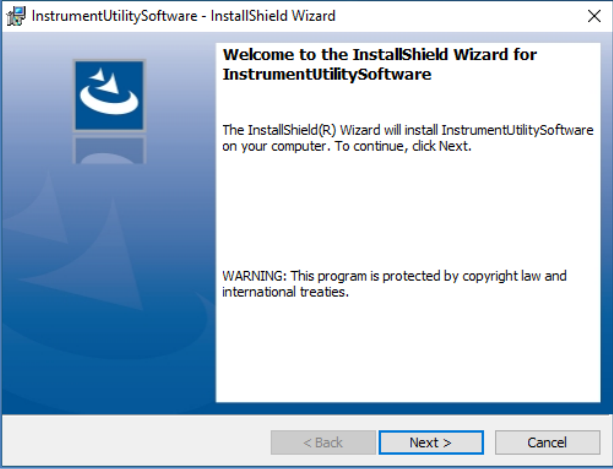
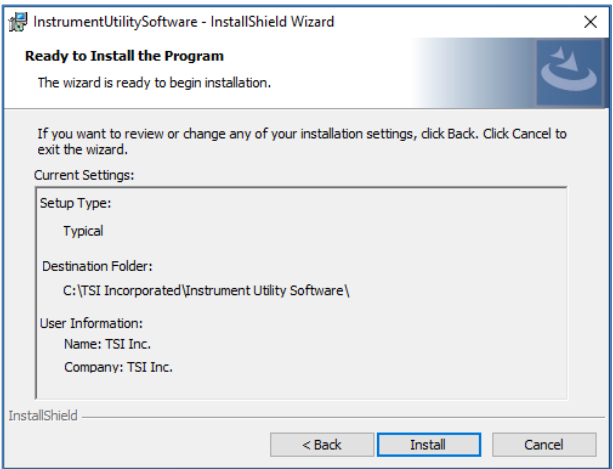
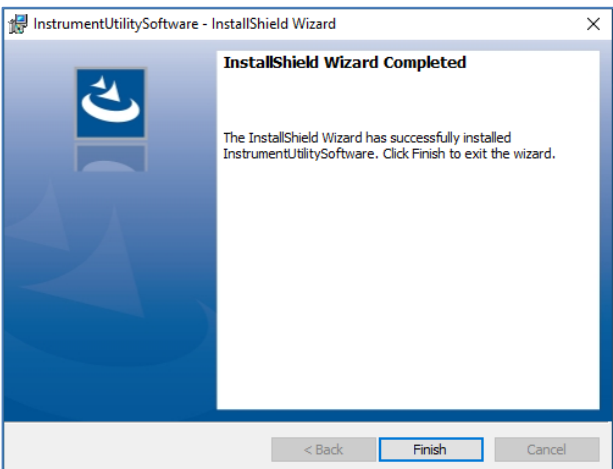
- An FMS compatible laptop, pre-configured with FMS 5.6.0 and network settings set in the same IP range as the AeroTrak+ Remote AAS device that will be used for this demonstration.
- FMS should be installed and configured by a qualified FMS Software specialist prior to performing these instructions.
- Device must already be setup with the AeroTrak+ Remote AAS App, if not then FMS will load the default AeroTrak+ Remote AAS settings saved during manufacturing.
- TSI Instrument Utility Software Program must be installed that will simulate a flow of 28.3 L/min for your demo of the AeroTrak+ Remote AAS. This Utility Software is available by downloading *TCC-192_supporting_files*.



Prior to Starting FMS

- With an ethernet cable, connect your AeroTrak+ Remote AAS device direct to the ethernet port on your laptop.
- Connect the TSI external power supply to your AeroTrak+ Remote AAS.

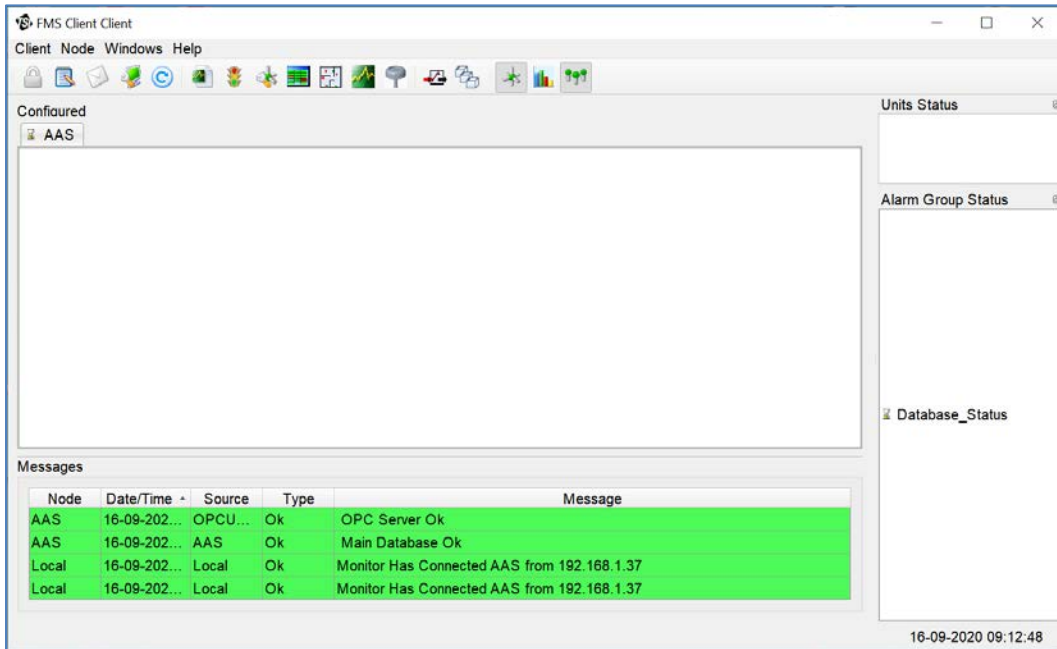
Installing TSI Instrument Utility Software Program

| | |
|---|--|
| <ol style="list-style-type: none">1. Install TSI Instrument Utility Software by running InstrumentUtilitySoftware.exe.2. Click Next. |  |
| <ol style="list-style-type: none">3. Click Install. |  |
| <ol style="list-style-type: none">4. When installation is completed, click Finish. |  |

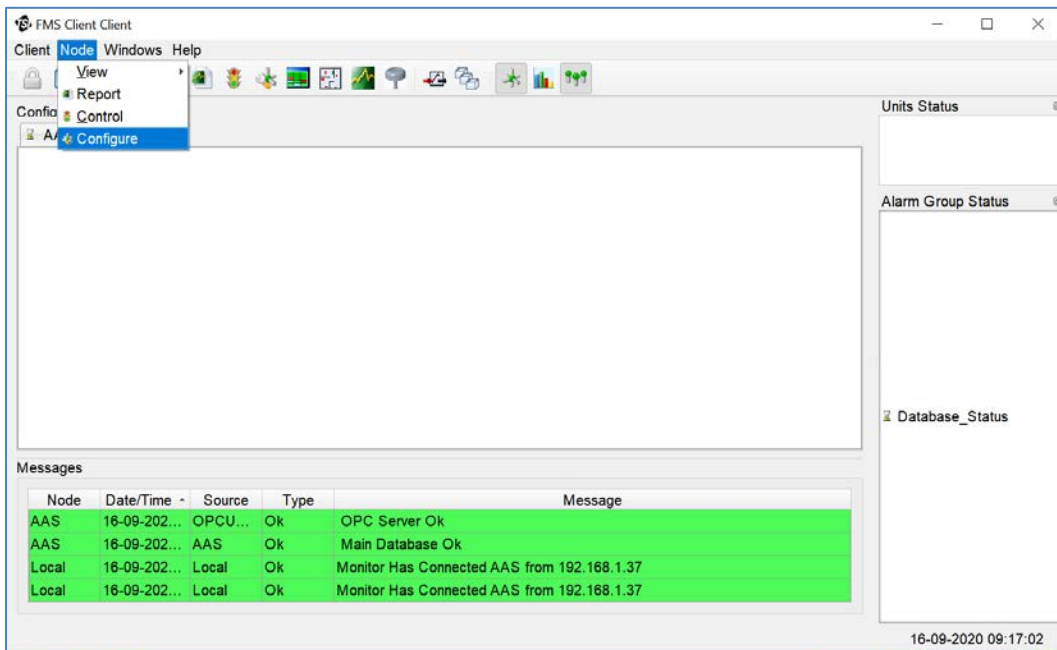
Setting Up Sample Points Before a Demonstration

A qualified FMS technical expert should install and configure FMS prior to beginning setup of sample points for demonstration purposes.

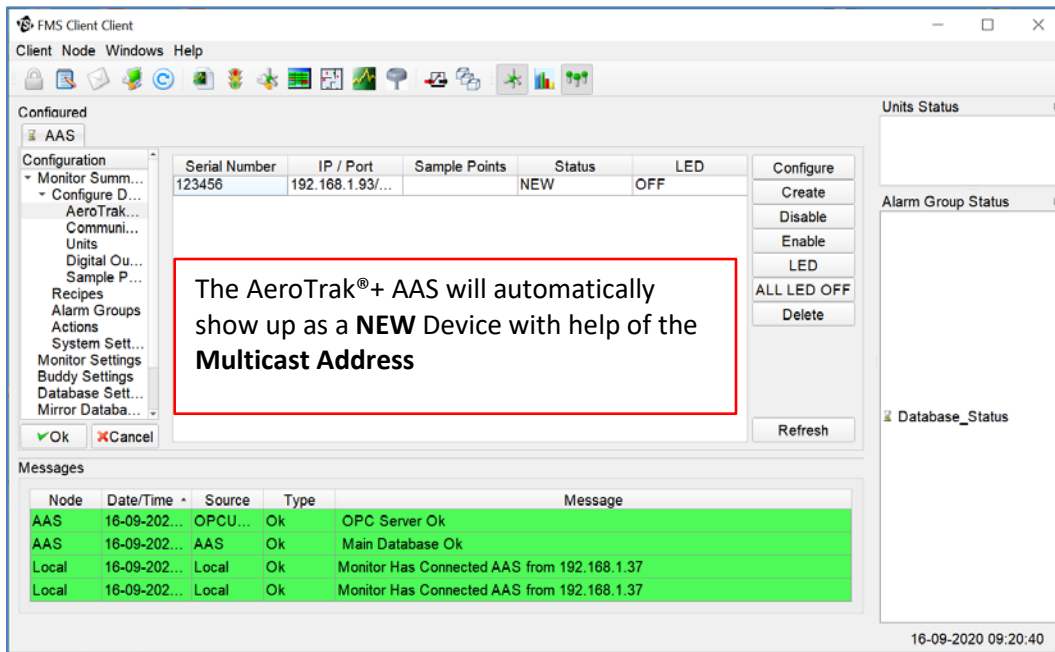
1. Before you begin, your screen should look similar to the one below.



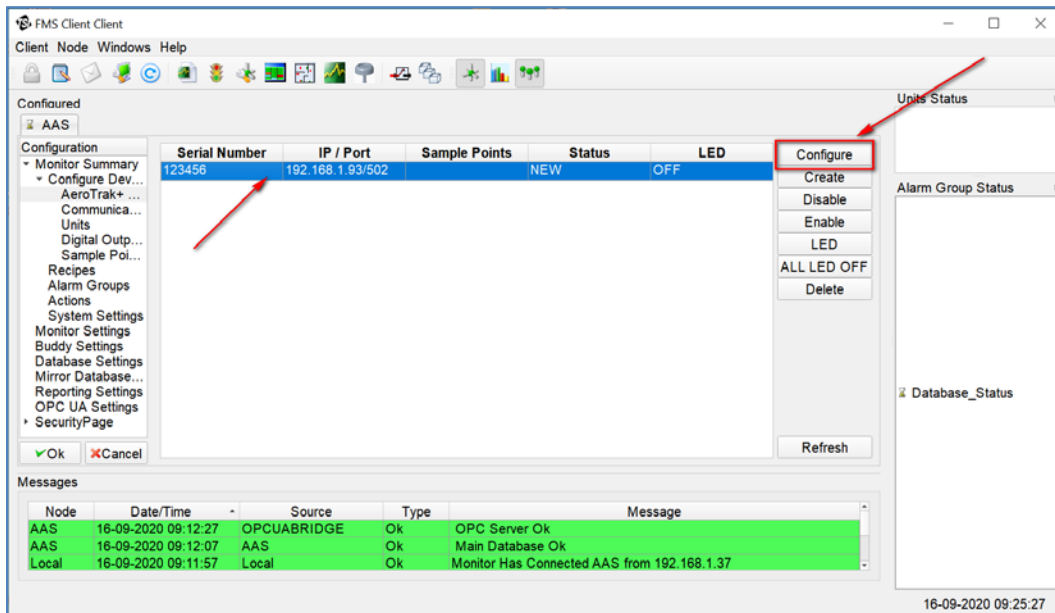
2. Go to Menu and select **Configure**.



- Expand **Monitor Summary**, followed by expanding **Configure Device**.



- Select the new AeroTrak+ Remote AAS that is listed with help of Multicasting, then click **Configure** button.



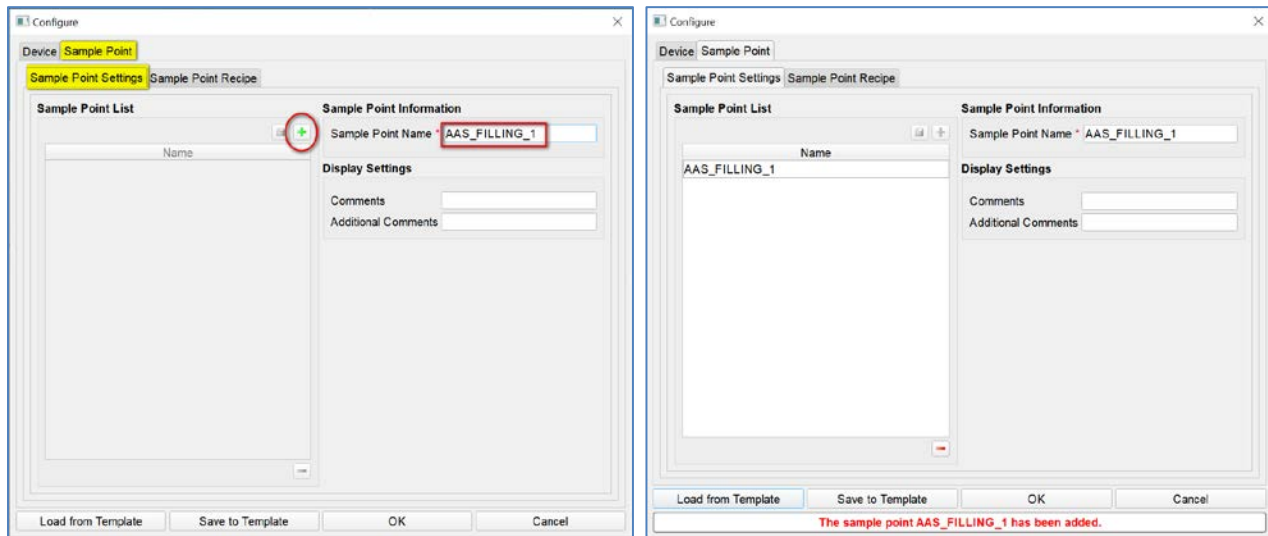
- FMS Software will automatically load the settings from the AeroTrak+ Remote AAS that has been saved during AeroTrak+ Remote AAS setup with the AeroTrak+ Remote AAS App as shown below.

The screenshot shows the 'Configure' dialog box for a 'Sample Point' device. The 'Device Information' section has 'Serial Number' (123456), 'Location' (Filling_1), 'IP Address' (192.168.1.93), and 'Port' (502). The 'Unit Information' section has 'Unit Name' (empty), 'Comments' (empty), and 'Additional Comments' (empty). The 'Calibration Settings' section has 'Nominal Flow Rate' (1.0), 'Calibration Alarm Enabled' (unchecked), and 'Buffer Settings' (checked, Buffer Size 1440). Buttons at the bottom include 'Load from Template', 'Save to Template', 'OK', and 'Cancel'.

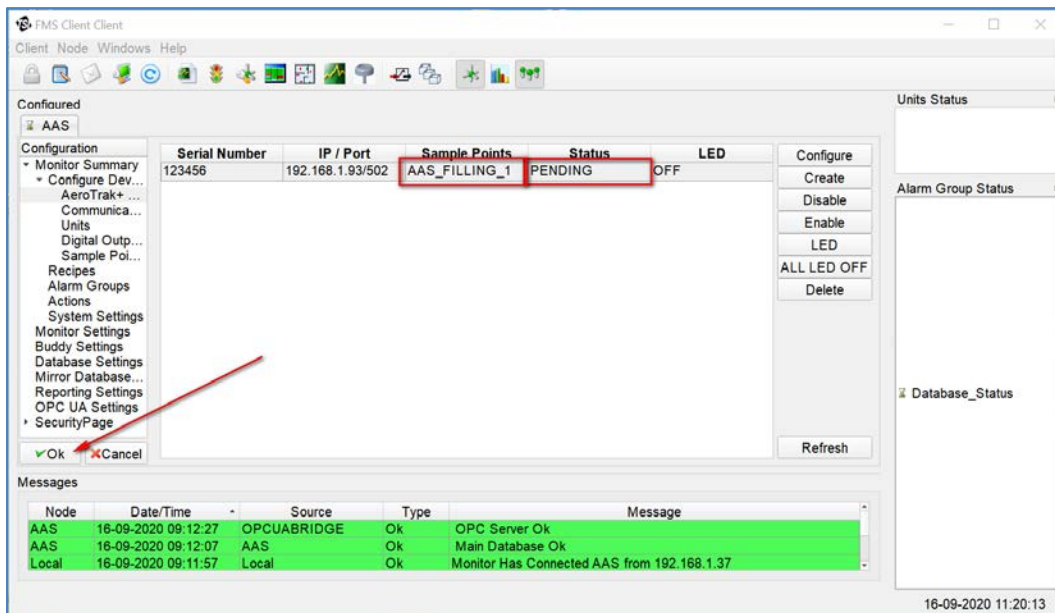
- From this point it is still possible to change the **Location** where the device is installed.
- Enter a **Device Unit Name**, i.e. **U_AAS_FILLING_1**.
- Enter a **Comment** for this Unit if required.
- FMS configuration will set the next calibration date that you can enable by clicking the checkbox so that before the due date FMS will generate warnings for the device to be calibrated.
- Buffer Download** is enabled by default and cannot be changed. Please adjust the Buffer size to the desired value. Default value is **1440**.

The screenshot shows the 'Configure' dialog box with updated settings. 'Location' is 'Filling_1', 'Unit Name' is 'U_AAS_FILLING_1', and 'Comments' is 'AeroTrak+ AAS installed near the Filling needle'. 'Calibration Alarm Enabled' is now checked, and 'Buffer Size' is 1440. Buttons at the bottom include 'Load from Template', 'Save to Template', 'OK', and 'Cancel'.

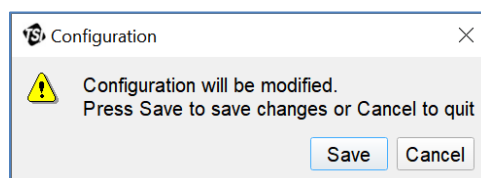
11. Go to **Sample Point** tab, followed by **Sample Point Settings**.
12. Enter a **Sample point Name** for the Device.
13. When **Sample Point Name** is created, click the **Plus** icon to add it to the **Sample Point List**.



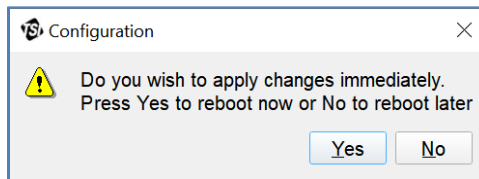
14. When finished, click **OK** button to save your new Device and Sample Point.
15. The newly created Sample Point is now listed and the Device is in a **PENDING** state which means that the changes have to be apply to the Device when FMS Configuration is saved.
16. Click **OK** button to save FMS Configuration and to apply changes to the AeroTrak+ Remote AAS device.



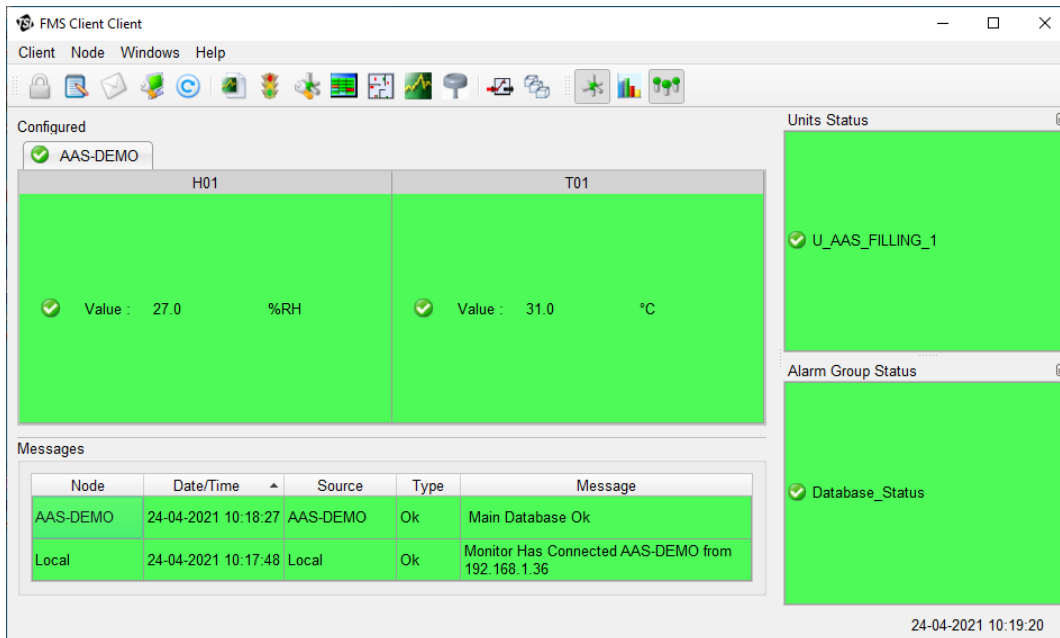
17. Click **Save** button.



18. Click **Yes** to apply changes to the Device.



19. Your screen should look like this:



NOTE: AeroTrak+ Remote AAS Sample Points are not displayed on the Main screen. From the Main Screen Sample Point, no action is possible.

Creating AeroTrak+ Remote AAS Programs

An AAS program is a sampling program that can be assigned to one or more AeroTrak+ Remote AASs. When started, an AAS program will automatically sample a user-defined volume of air during a predefined time with or without a user-defined delay time prior to starting. The sample volume can be sampled in a user-defined number of fractions over the course of the user-defined time.

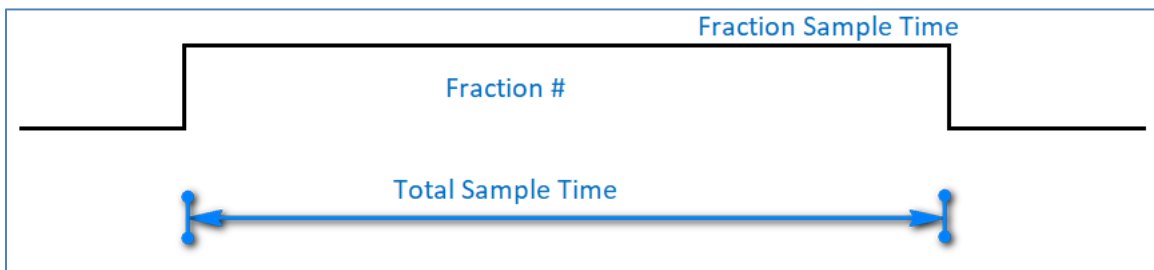
AAS Programs Window allows new AAS Program to be added. They can also be edited or deleted, always be available for recall during reports.

FMS can store up to 100 different AAS programs. If a user does not have **AAS Edit Program** permissions assigned, FMS will hide the **AAS Programs** icon.

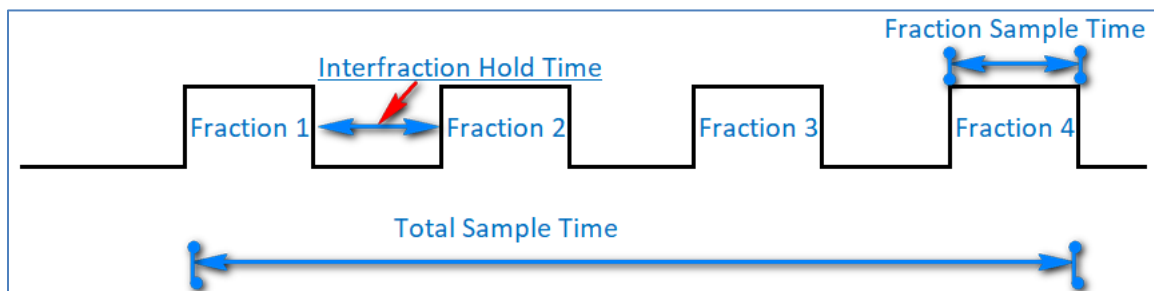
Definition of the different fields of a program:

| Field Label | Description |
|--------------------------|--|
| Total Volume | Desired volume to be sampled by the AAS Program. |
| Number Fractions | Desired number of fractions to be sampled by the AAS Program. |
| Total Sample Time | Desired sample time of the AAS Program. The sampletTime is the total amount of time to complete the program. The total time can be split into fractions. |
| Fractional Sample Time | Amount of sampling time per fraction of the AAS Program. |
| Delay Time | Desired delay time used by the AAS Program. The delay time is the amount of time the program will wait after starting before beginning its sampling. |
| Inter-fraction Hold Time | Amount of hold time per fraction of the AAS Program. |
| Calculate Time | Calculate time button is used to calculate the sampling times and hold times based on the total volume and number of fractions of the AAS Program. |

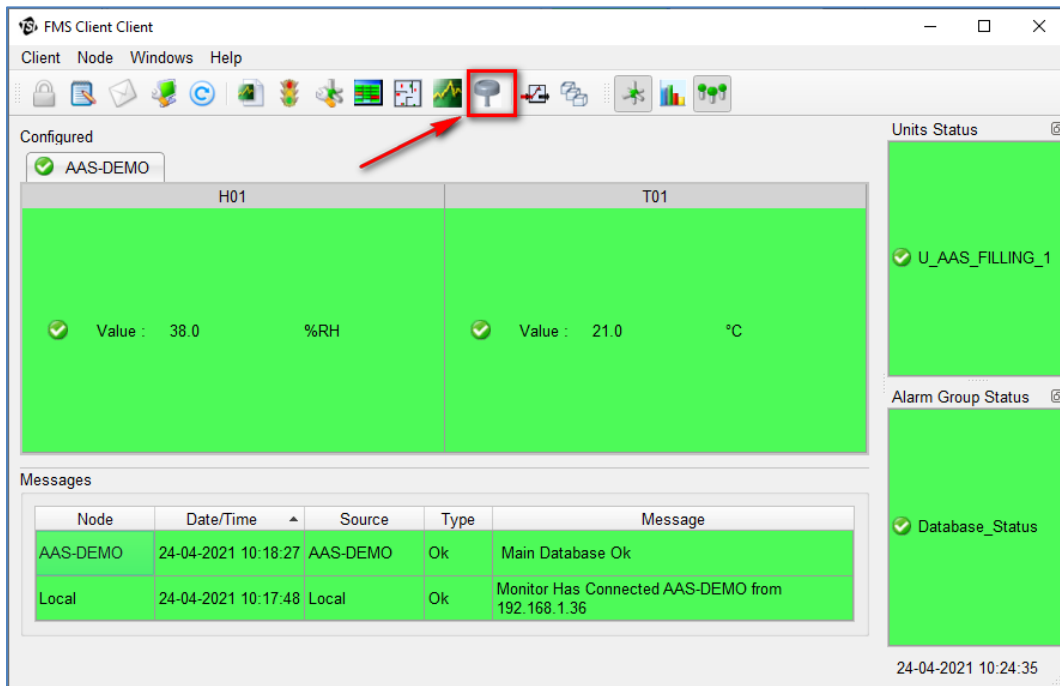
Pre-Fill Program Example—A single fraction where the total volume is sampled continuously.



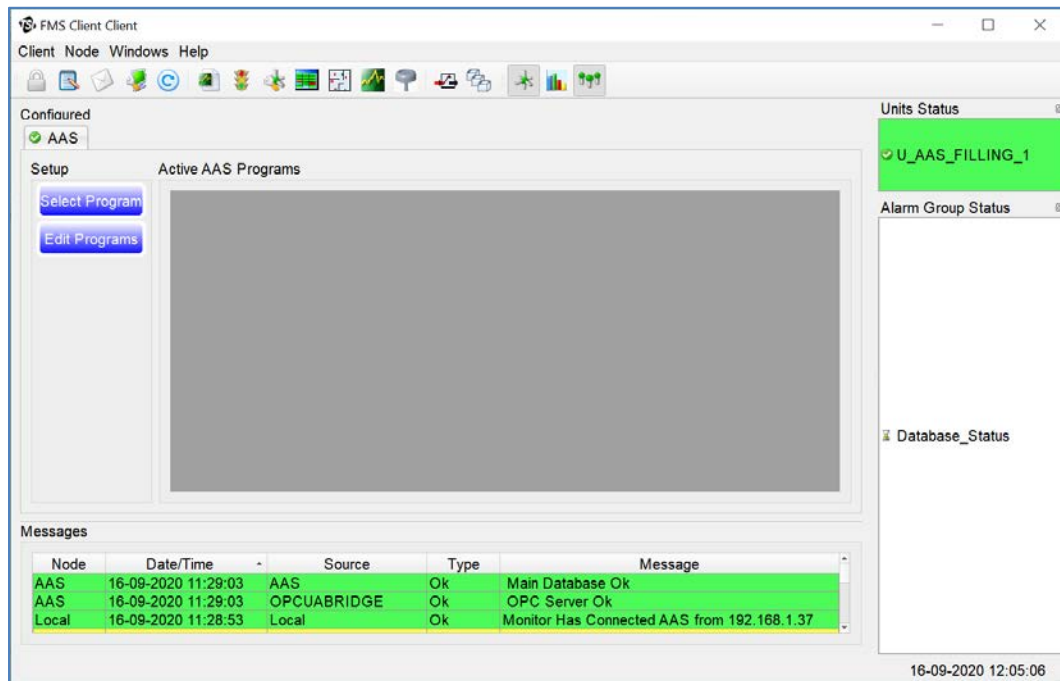
2 Hour-Fill Program Example—Four sample fractions where the total volume is sampled in four equal fractions with an interfraction hold time that is dependent upon the total samplet time defined by the user.



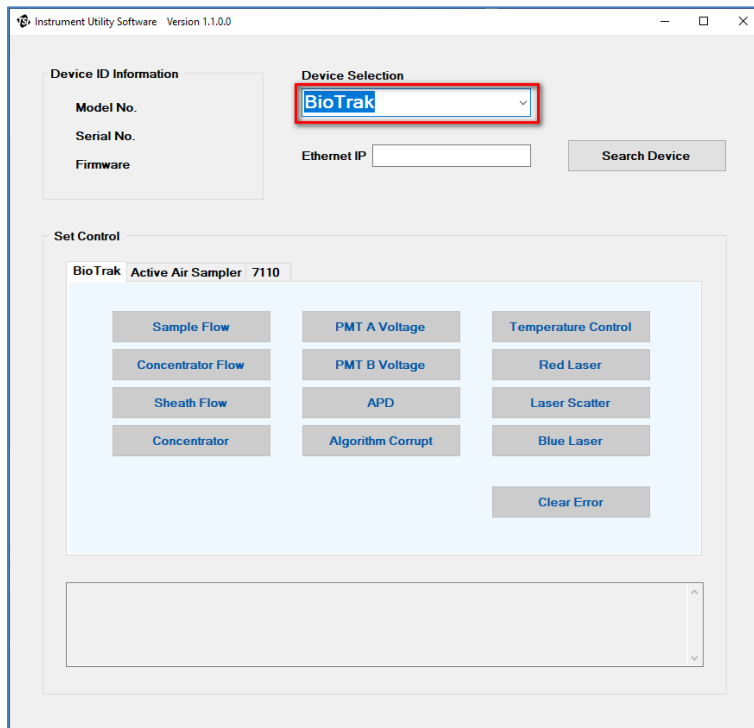
1. Click the **AAS Status** icon.



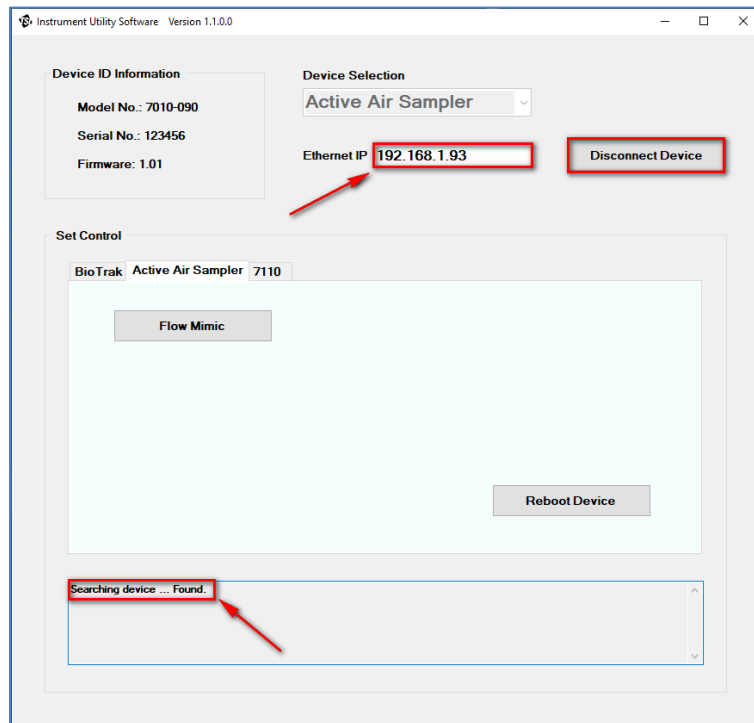
2. **Active AAS Programs** screen will open.



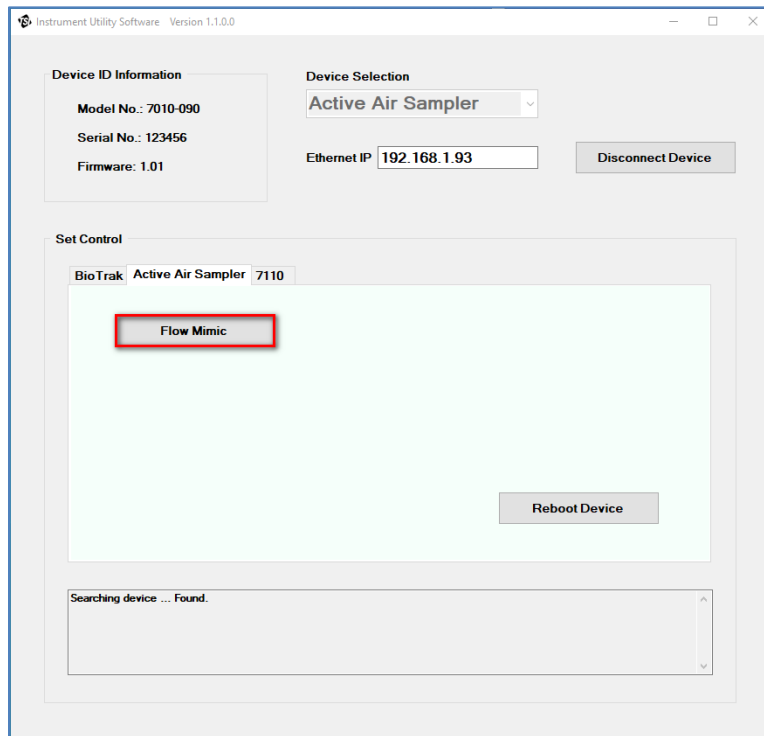
3. Double-click the **TSI Instrument Utility Software Program** icon on your desktop.



4. From the **Device Selection** drop-down box, select **Active Air Sampler**. Enter the IP address of your AAS and click **Search device**. **Search Device** button will change to **Disconnect Device** when the AAS is found.

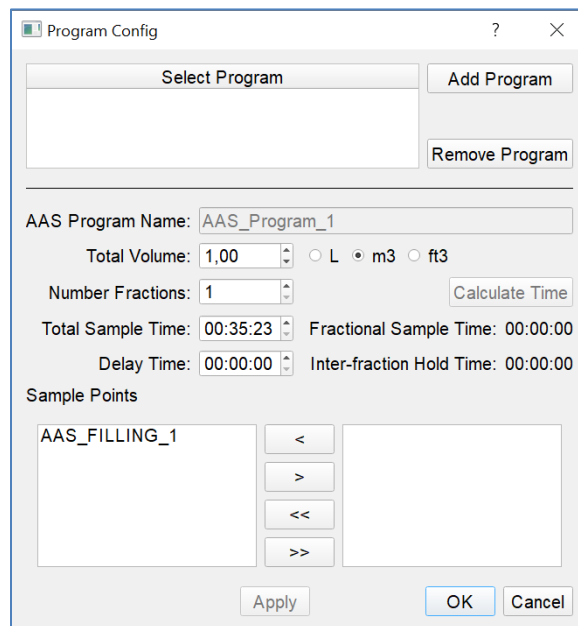


- Click **Flow Mimic** button to simulate 28.3 L/min flow rate for the AAS.

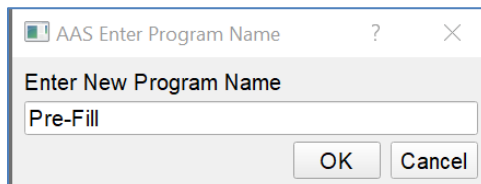


NOTE: DO NOT close the TSI® Instrument Utility Software during your demo.

- Click **Edit Programs** button to access the **Program Config**.



- Click **Add Program**.
- Enter **Program Name**, i.e. **Pre-Fill**.



9. Click **OK**.

10. Enter settings for **Pre-Fill**, i.e. like shown below, and click **Calculate Time** button to calculate **Sampling Time** and **Hold Time** based on the **Total Volume** and **Number of Fractions**.

The screenshot shows the 'Program Config' dialog box. At the top, there is a 'Select Program' list with 'Pre-Fill' selected. Below this, the 'AAS Program Name' is 'Pre-Fill'. The 'Total Volume' is set to '1,00' with a red box around it, and the unit is 'm3' (selected with a radio button and a red circle around it). The 'Number Fractions' is '1' with a red box around it. The 'Calculate Time' button is visible. Below these, the 'Total Sample Time' is '00:35:21' with a red box around it, and the 'Delay Time' is '00:00:00' with a red box around it. The 'Sample Points' section shows 'AAS_FILLING_1' in the left frame, and the right frame is empty. At the bottom, there are 'Apply', 'OK', and 'Cancel' buttons.

11. In **Sample Points** list, select the Sample Point(s) to which this program is assigned.

12. Click > button to move the selected Sample Point(s) to the right frame.

13. Click **Apply**, followed by **OK**.

This screenshot shows the 'Program Config' dialog box after the sample point has been moved. The settings for 'Pre-Fill' are the same as in the previous screenshot. In the 'Sample Points' section, 'AAS_FILLING_1' has been moved from the left frame to the right frame. The '>' button between the frames is highlighted in blue. The 'Apply', 'OK', and 'Cancel' buttons are at the bottom.

14. Repeat the same step shown above to create the **2 Hour-Fill** Program.

Program Config

Select Program

Pre-Fill
2hr-Fill

Add Program
Remove Program

AAS Program Name: 2hr-Fill

Total Volume: 1,00 L m3 ft3

Number Fractions: 4 Calculate Time

Total Sample Time: 02:00:00 Fractional Sample Time: 00:08:51

Delay Time: 00:00:00 Inter-fraction Hold Time: 00:28:12

Sample Points

< AAS_FILLING_1
>
<<
>>

Apply OK Cancel

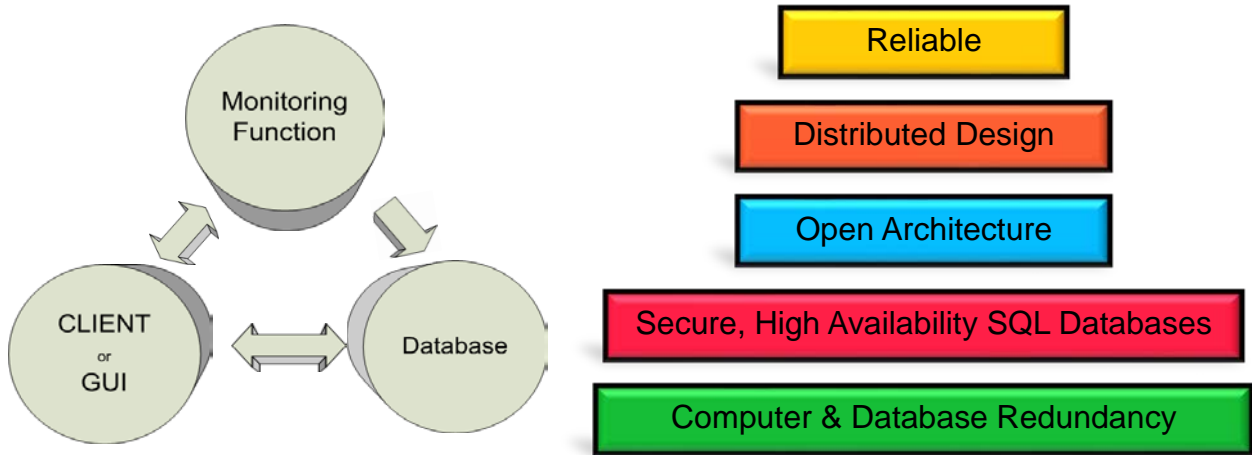
15. Click **OK** to return to **Active AAS Programs** screen.

Setup Active AAS Programs

Select Program
Edit Programs

Five Minute FMS Demonstration

It is effective to point out that all three functions of FMS are operating on your laptop computer. FMS can operate as simply as a single computer or it can be deployed in a completely distributed design to provide *reliability* and *redundancy* with **Buddy backup monitor**.



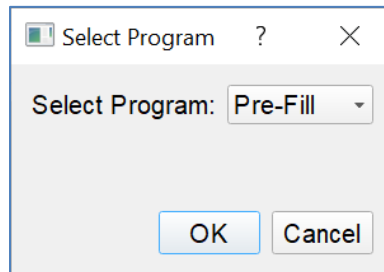
Describe the color coding (note colors setting can be changed by users).

| State | Icon | Text Color | Meaning |
|----------------|------|------------|--|
| No Measurement | | White. | Indicates an idle state. This means that the system is waiting for the first data to be received after starting. This can also mean there is a problem if an item remains white for a long period of time. |
| Ok | | Green. | Indicates an item is OK. The currently measured values are not outside any alarm or warning limits and any associated equipment has not failed. |
| Warning | | Yellow | Indicates the item is in a warning state. |
| Alarm | | Red. | Indicates the item is in an alarm state. Usually when a sample point enters an alarm state, it requires acknowledgement. The item will be shown in cyan until the alarm is acknowledged. The icon associated with the item changes to reflect the current alarm state of the item. |
| Failure | | DARK BLUE | Marks that an item has failed. Usually there will be some Notes to indicate the reason for the failure. |
| Need.Ack. | | | |

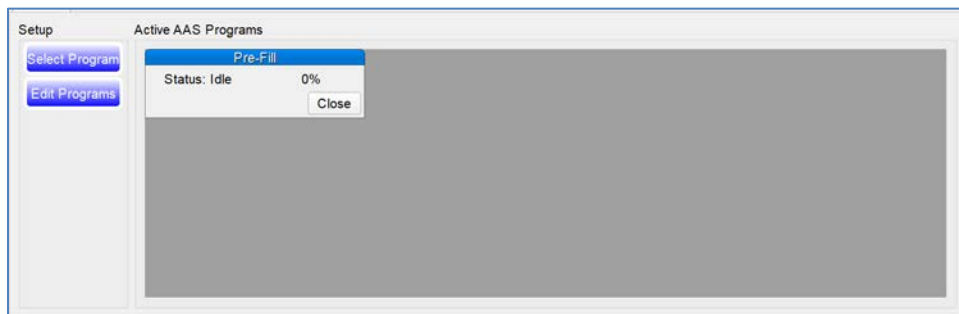
Symbols to the left of the sample point name indicate the current condition of the sample point (e.g. the sample point could be light blue indicating an acknowledgement is required, but have a green checkbox next to the name indicating it is currently **NOT** operating within alarm limits).

Demonstrating AeroTrak+ Remote AAS Programs

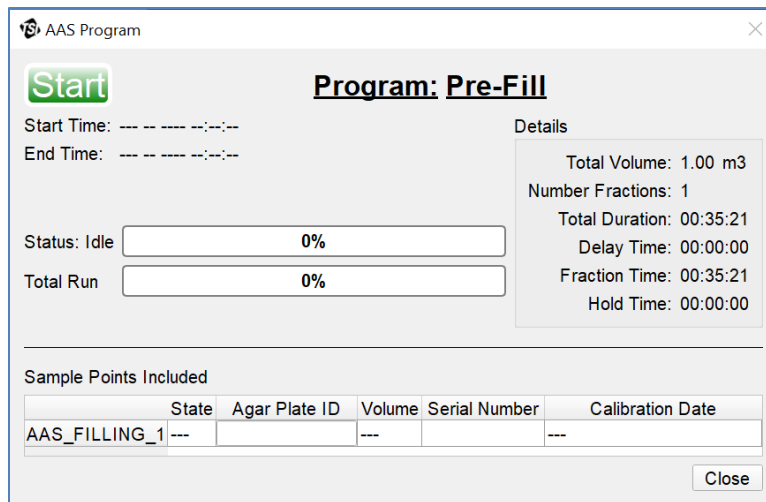
1. Once AAS sample points are configured and one or more Programs are defined, you can now run sampling Program by following these steps.
2. From the **Active AAS Programs** screen, click **Select Program**.



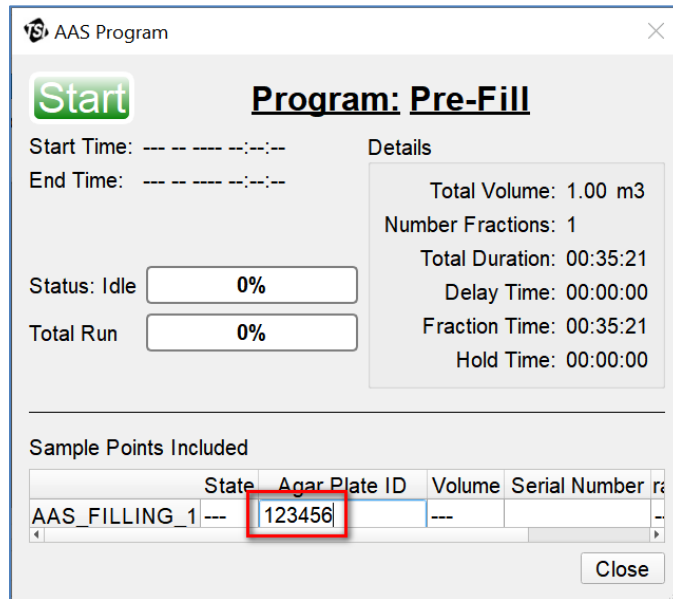
3. Select **Pre-Fill** Program and click **OK**.
4. **Pre-Fill** Program appears on the **Active AAS Programs** window.



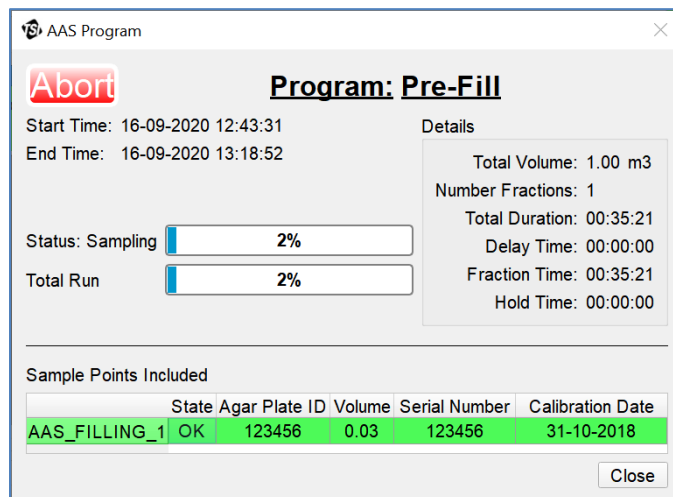
5. Click once on the **Pre-Fill** Program so that the AAS Program window shows up.



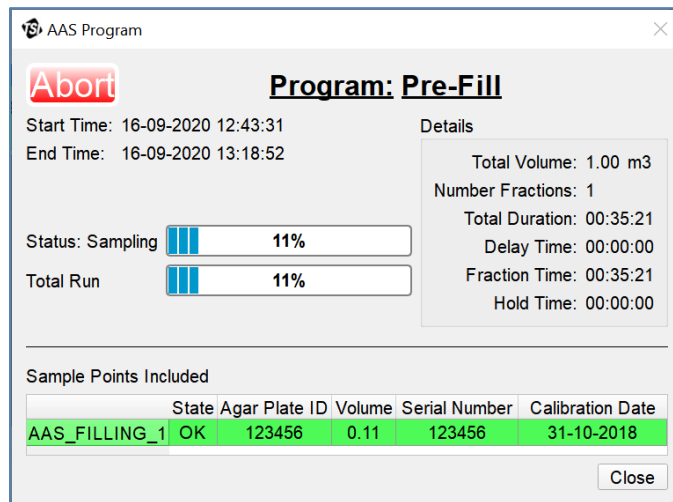
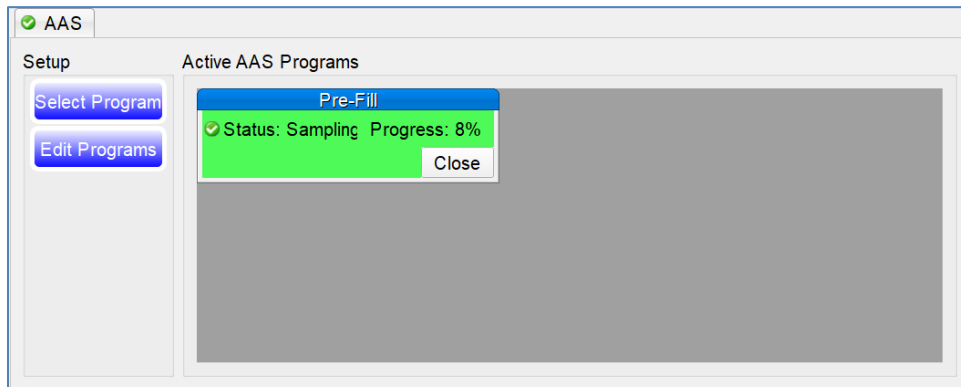
- Click on the **Agar Plate ID** for the **AAS_FILLING_1** Sample Point and enter the **Agar Plate ID**.



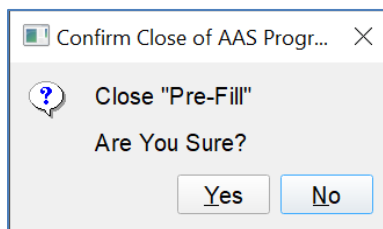
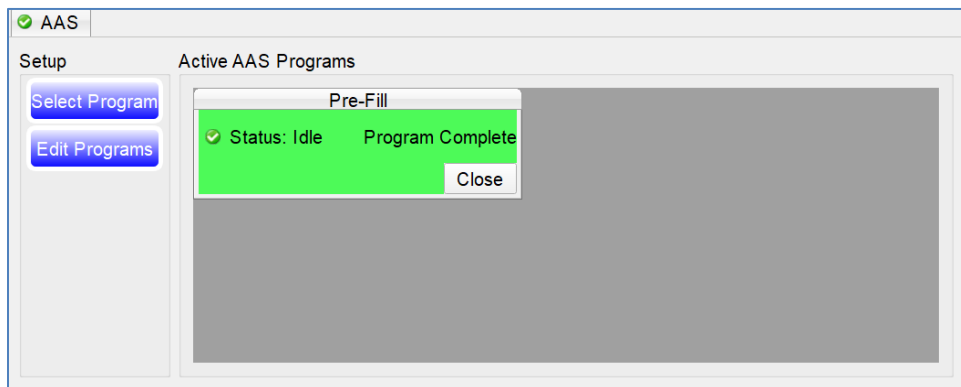
- Click **Start** button. When **Start** button is clicked, **Abort** button is displayed allowing the AAS Program to be stopped.



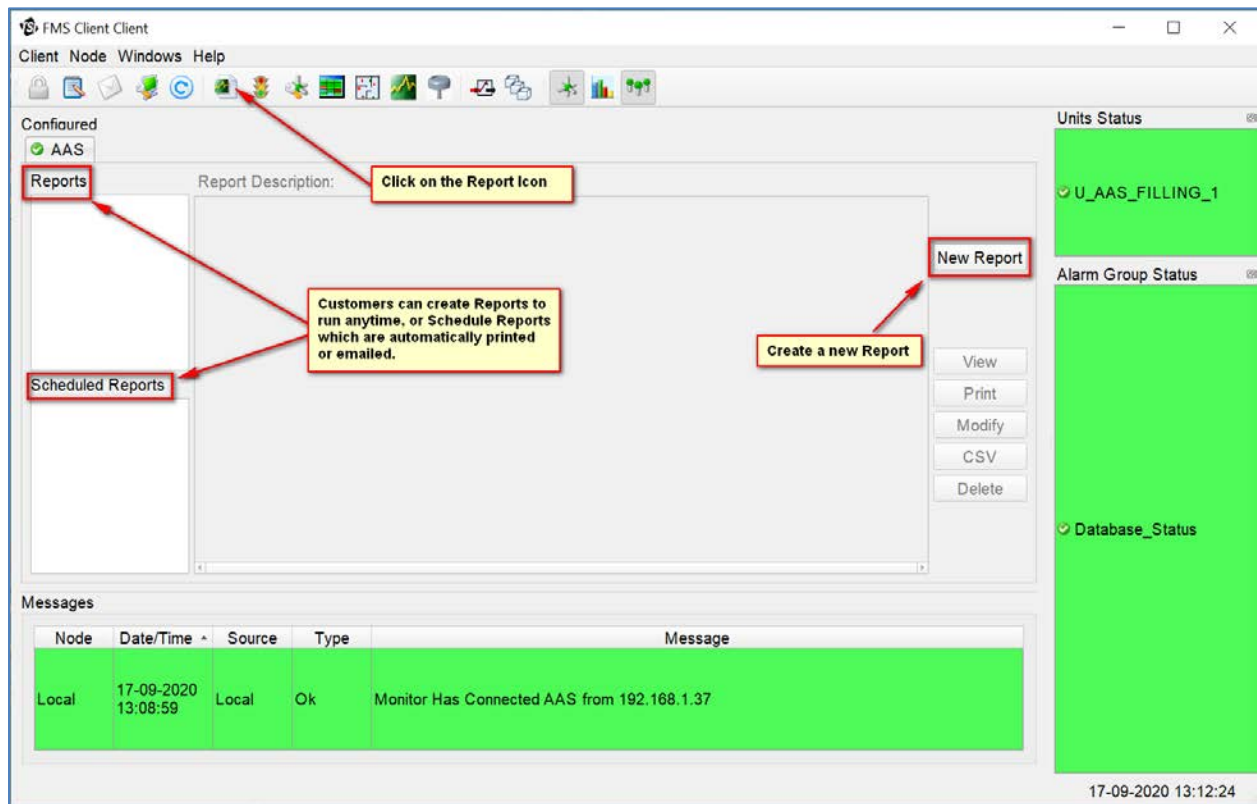
- The **Close** button can be clicked to return to the **Active AAS Programs** that shows which programs are currently running. By clicking once on the **Pre-Fill** program, you will return to the **AAS Program**.



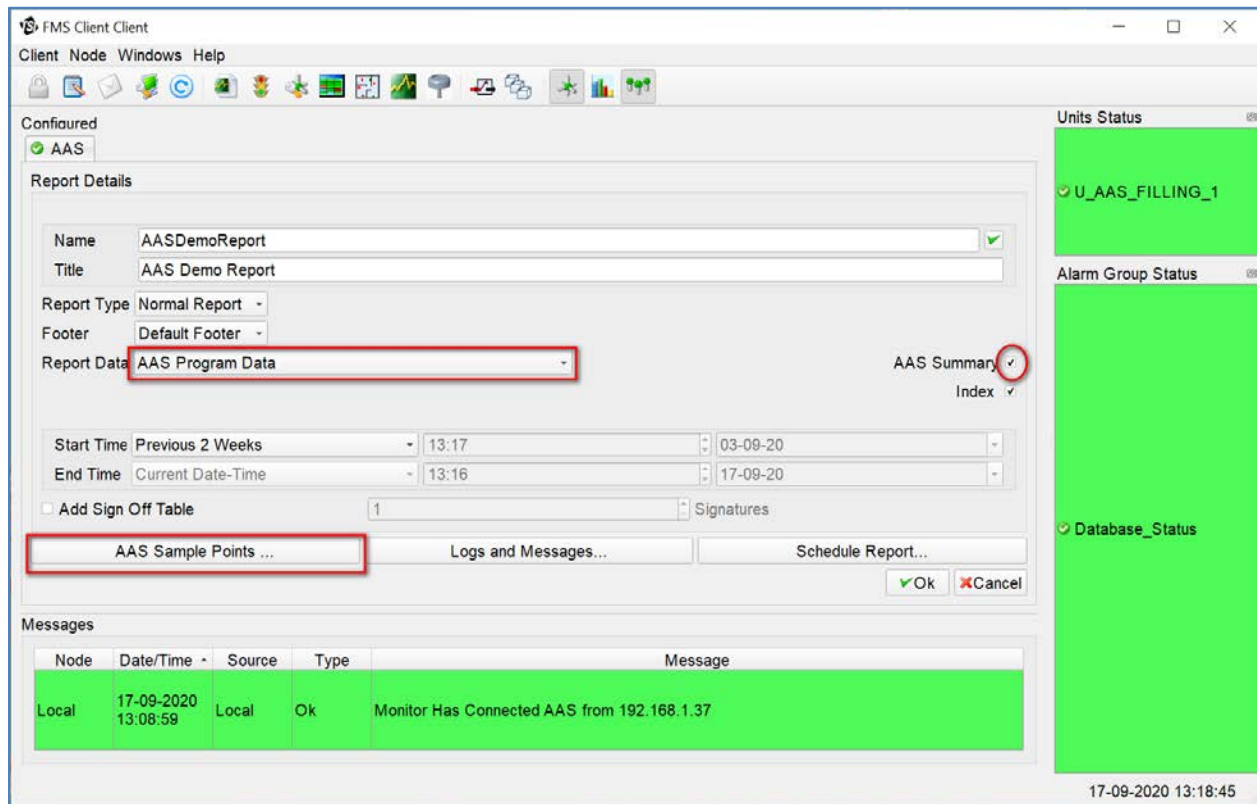
- When the program is finished, you can close it by clicking **Close** button followed by **Yes** to confirm.



10. Demonstrate where you can create AAS reports.



11. Show highlights of the new AAS report screen.





AAS Demo Report AASDemoReport From: 17-09-2020 09:23:23 To: 17-09-2020 13:23:23

Results Table For: Audit Log

| Results Table For: Audit Log | | |
|------------------------------|------------|---|
| Date Time | Source | Comment |
| 17-09-2020 10:58:31 | FMS_Client | Client Has Started |
| 17-09-2020 10:59:16 | FMS_Client | Started 2hr-Fill (TotalDuration 02:00:00, TotalVolume 1.00m3, NumberOfFractions 4, delay 00:00:00) on AAS_FILLING_1 using plateid 123 |
| 17-09-2020 12:07:38 | FMS_Client | Stopping the AAS OPC UA Server Task |
| 17-09-2020 12:09:24 | FMS_Client | Stopping the AAS OPC UA Server Task |
| 17-09-2020 12:10:25 | FMS_Client | Restarting the AAS OPC UA Server Task |
| 17-09-2020 13:08:59 | FMS_Client | Client Has Started |
| 17-09-2020 13:21:13 | FMS_Client | Making Report AASDemoReport For AAS As |
| 17-09-2020 13:22:24 | FMS_Client | Making Report AASDemoReport For AAS As |



AAS Demo Report AASDemoReport From: 17-09-2020 09:23:23 To: 17-09-2020 13:23:23

Results Table For: PlateID: 123 Location: AAS_FILLING_1

| PlateID: 123, Location: AAS_FILLING_1, SerialNumber: 123456 | | | | |
|---|----------------|----------|------------------|---------------|
| Date Time | Event | Fraction | Cum. Volume (m3) | Event Details |
| 17-09-2020 10:59:22 | Start Sampling | 1 | 0 | Started |
| 17-09-2020 11:08:13 | Stop Sampling | 1 | 0.25 | |
| 17-09-2020 11:36:25 | Start Sampling | 2 | 0.25 | |
| 17-09-2020 11:45:16 | Stop Sampling | 2 | 0.5 | |
| 17-09-2020 12:13:28 | Start Sampling | 3 | 0.5 | |
| 17-09-2020 12:22:19 | Stop Sampling | 3 | 0.75 | |
| 17-09-2020 12:50:31 | Start Sampling | 4 | 0.75 | |
| 17-09-2020 12:59:22 | Stop Sampling | 4 | 1 | Completed |

After two 2-hour practice sessions using this document as a guide, you should be capable of efficiently demonstrating FMS.

Revision History

| Revision | Released | Description |
|----------|-------------|-----------------|
| A | 20 May 2021 | Initial Release |

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