

TSI® FMS 5 SOFTWARE HOW TO INTEGRATE AEROTRAK® + Remote ACTIVE AIR SAMPLER

TECHNICAL BULLETIN TCC-187 (11/6/2020) Rev B

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Description

This technical note explains, using a procedural example, how to configure the AeroTrak®+ Remote Active Air Sampler (AAS) in FMS 5 Software. It outlines how to create AAS programs that can be assigned to one or more AeroTrak+ Remote AAS sample points.

The instructions and example explained herein are using the FMS Software pharmaceutical screen layout.

Prerequisites

- This procedure is only valid for FMS Software 5.6 or above with use of AeroTrak+ Remote AAS.
- AeroTrak+ Remote AAS is installed following process as outlined in the *Installation Instruction* and *Operation Manual*, and centralized facility vacuum system is turned ON.
- Windows[®] Firewall Inbound Rule is set to allow multicast on UDP port 5000 or any other port that has been assigned by network administrator.
- Windows[®] Firewall Inbound Rule is set to allow State Change Notifications on TCP port 3603.

Assumptions

- All AeroTrak+ Remote AAS that will be configured in FMS Software have the following network setup when delivered:
 - ✓ **TCP/IP Address**..... 192.168.200.90
 - ✓ Gateway Address...... 192.168.200.1
 - ✓ Subnet Mask...... 255.255.255.0
 - ✓ Multicast Address 239.100.100.1
 - ✓ Multicast Port..... 5000
- Prior to configuring instruments in FMS Software, the instrument must first be setup with the following network settings with application software:
 - ✓ **TCP/IP Address**...... 192.168.1.93
 - ✓ **Gateway Address**.......... 192.168.1.1
 - ✓ Subnet Mask...... 255.255.255.0
 - ✓ Multicast Address 239.100.100.1
 - ✓ Multicast Port...... 5000

AeroTrak+ Remote AAS Procedural Example

This technical note explains how to configure and setup one AeroTrak+ Remote AAS in FMS Software that is installed near the filling needles and the associated sampling Programs. It will be run following the example below.



AeroTrak+ Remote AAS Locations

Unit Name	AAS Sample Point Name		Locations
U_AAS_MATERIAL	AAS_MATERIAL	MT	Material Transfer Isolator
U_AAS_ACCUMULATION	AAS_ACCUMULATION	AT	Accumulation Table
U_AAS_FILLING_1	AAS_FILLING_1	FN	Fill Needles
U_AAS_STOPPER	AAS_STOPPER	SB	Stopper Bowl

Note—In the context of this example, we will only configure the **AAS_FILLING_1** Sample Point in FMS Software.

AeroTrak+ Remote AAS Sampling Programs

Sampling Programs that will be configured in FMS Software.

Program Name	AAS Locations	Continuous/ Intermittent	Total Sample Volume	Total Time of Sampling	Delay Time	Total Sample Time	Number of Sample Fractions	Fraction Time	Hold Time
Pre-Fill	МТ, АТ, FN , SB	Continuous	1 m ³	Calculated from volume	00:00:00	00:35:21	1	00:35:21	00:00:00
2 hr Fill	AT, FN , SB	Intermittent (4 fractions)	1 m ³	2 hrs	00:00:00	00:35:21	4	00:08:51	00:28:12
Post-Fill	AT, FN , SB	Continuous	1 m ³	Calculated from volume	00:00:00	00:35:21	1	00:35:21	00:00:00

AeroTrak+ Remote AAS Setup

Before starting to setup the AeroTrak+ Remote AAS, install the TSI AeroTrak+ Remote AAS Application and the FTDI driver which can be found on the USB thumb drive delivered with the instrument. Install Adobe® Reader® Software if wanting to use Adobe Reader Software to read report PDF files generated by the app.

To setup the AeroTrak+ Remote AAS, a USB-A to USB-C cable is required.

TSI AeroTrak+ Remote AAS Application Installation



6. When installation is finished, click Finish .	Device Driver Installation Wizard Completing the Device Driver Installation Wizard The drivers were successfully installed on this computer. The drivers were successfully installed on this computer. To can now connect your device to this computer. If your device are with instructions, please read them first. Driver Name Status Y FTDI CDM Driver Packa Ready to use Y FTDI CDM Driver Packa Ready to use < Back Prieh
7. To install TSI AeroTrak+ Remote AAS Setup Application, run the installer <i>ActiveAirSamplerSetup.exe</i>	Aerotrak+ Active Air Sampler - InstallShield Wizard X Welcome to the InstallShield Wizard for Aerotrak+ Active Air Sampler on your computer. To continue, dick Next. WARNING: This program is protected by copyright law and International treaties. < Back
8. Click Next .	Aerotrak+ Active Air Sampler - InstallShield Wizard Kense Agreement
9. Accept the License terms.	Please read the following license agreement carefully.
10. Click Next.	Software License (effective March 1999) This is a legal agreement between you, the end user, and TSI Incorporated. BY INSTALLING THE SOFTWARE, YOU ARE AGREEING TO BE BOUND BY THE TERMS OF THIS AGREEMENT. IF YOU DO NOT AGREE TO THE TERMS OF THIS AGREEMENT, PROMPTLY RETURN THE UNOPENED PACKAGE AND THE ACCOMPANYING ITEMS (including written materials and binders or other containers) to TSI for a full refund. TSI SOFTWARE TERMS 1.GRANT OF LICENSE. TSI grants to you the right to use one copy of the enclosed TSI software program (the "SOFTWARE"), on a single computer. You may not network the GOFTWARE or otherwise use it on more than one computer terminal at the OFTWARE or atherwise use it on more than one computer terminal at the I do not accept the terms in the license agreement InstallShield </th
11. Click Install to start installation.	Aerotrak + Active Air Sampler - InstallShield Wizard Ready to Install the Program The wizard is ready to begin installation. Click Install to begin the installation. If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard. InstallShield < Back Install Cancel

12. Click Finish .	🛃 Aerotrak+ Active Air Sampler - InstallShield Wizard	×
	Carcle Pinish	• cel

AeroTrak+ Remote AAS Configuration Settings

1.	Connect AeroTrak+ Remote AAS to a		1					
	computer with a USB-A to USB-C	Icon		Descript	ion			
2.	Start the TSI Remote Application by	Į.	l	TSI Setup AeroTrak	Applio + Devi	cation cor ce.	nnected to th	ie
	double-clicking the AeroTrak+ AAS shortcut on the desktop.			Export Ae configura	eroTra tion to	k+ Active an XML f	Air Sampler file for furthe	er use.
		•		Import ar settings.	n XML '	Template	file with con	nfiguration
3.	When the AeroTrak+ Remote AAS Application starts, it will download the settings saved in the instrument	18 Aerolitak	• Active Air Sen	roTrak+ Active Ai	r Sampler			
	as shown.	Firmwar Lest Ce	ire Version: al Date (yyyy-	1.00 mm-dd): 2018-10-3	t Communica	8011	Model: Serial: Location Name:	7XX0-XXX 0123458798012345 LOCATION
No syr FM exc	te<u>—</u>Date and Time will be nchronized with FMS Software after IS Software configuration is saved cept if SNTP is turned ON.	Instrum	ant Temperat	28.30 Lure (°C): 23.60			Date (tyyy mm-dd) Tene (bh.nmr.ss):	2020-08-36 06:09:32
4.	Go to the Communication tab to check the previously set Instrument Communication Settings.	12 AcroTrak	+ Active Air San	roTrak+ Active Ai	r Sampler Communica	tion	Instrume	- C X
		IP Adde	1955:	192.168.1.93	DHCP	OFF	Model:	7XXI0-XXX
		IP Masi	k:	255.255.255.0	IP Gateway:	192.168.200.1	Location Name:	LOCATION
		Multicar	st Addr.	239.100.100.1	Multicast:	ON	Date (yyyy-mm-dd): Time (hh:mm:ss):	06:11:08
		SNTP A	Addr:	10.1.0.249	SNTP:	OFF		
		SNTP T	Time Zone:	(UTC Offset) 0.000				
		MAC A	ddr;	0:30:20:0:0:1				

5. To make any changes to the instrument settings, go to Menu and select Tech Page.	Main Page Lent Communication Instrument Information Tech Page (eff alop sampler) 98.183 DHCP OFF Societ Page 52.255.0 IP Galeway: 182.198.200.1 Discourse; About Page 0.100.1 Multicast: ON J.1.0.249 SNTP: OFF Ten (hhummass): 06.12.35
6. When requested, enter Tech Password (admin by default, must be all lower-case).	Aerotrak- Active Air Sempler × Enter Tech Password
7. Click Submit .	Tech Password:
8. Instr screen where the communication settings can be set to display.	Anstakk Active Air Sampler
NOTE —If a template file has been previously saved to quickly configure an instrument, it can be loaded from this point by clicking i con.	Instrument Settings SAVE Static IP Address: 192.168.1.93 DHCP (Off/On) Static IP Mask: 265.255.255.0 Static IP Gateway: 192.168.200.1 Multicast Address: 239.100.100.1 Multicast (Off/On): Image: Comparison of the state of the stat
9. Make any changes as required.	SNTP IP Address: 10.1.0.249 SNTP (Off/On) SNTP Time Zone: UTC Offset: 0.00
10. To save Instrument settings, click SAVE	
11. After Instr Settings are saved, click OK.	

INSTRUMENT SETTINGS	
DHCP (Off/On)	When DHCP (Dynamic Host Configuration Protocol) is turned ON, AeroTrak+ Remote AAS will receive network configuration from a DHCP Server.
	In such case, Static IP fields will be grayed out.
Static IP Address	Device TCP/IP address.
Static IP Mask	Subnet mask.
Static IP Gateway	Default gateway for the subnet mask.
Multicast Address	IP address used by FMS Software to search for AeroTrak+ Remote AAS.
	Default : 239.100.100.1
Multicast Port	TCP port used by the multicast address.
	Default : 5000
Multicast (Off/On)	Enabled/disabled use of multicast address on the network.
SNTP (Off/On)	Turned ON, SNTP (Simple Network Time Protocol) will allow AeroTrak+ Remote AAS to automatically synchronize internal date and time against a domain NTP server.
SNTP IP Address	IP address of SNTP server.
	Example: time.windows.com at 52.168.138.145
SNTP Time Zone	SNTP protocol is using UTC time. When SNTP is turned ON, an offset against GMT time has to be set related to the time zone where the device is installed.



Configuration of AeroTrak+ Remote AAS in FMS Software

Adding Instrument

For this example, the following settings for Example 1 are assumed for the instrument:

	Example 1
TCP/IP Address	192.168.1.93
Gateway Address	192.168.1.1
Subnet Mask	255.255.255.0
Location	Filling_1
FMS Unit Name	U_AAS_FILLING_1
FMS Sample Point Name	AAS_Filling_1

1. Start Guard Service.

2. Start FMS Client.



- 3. Go to **Client** menu. Select **Client Options**.
- 4. Verify that the following settings are set according to the instrument setup.

ClientOptions

Client Options

Multicast IP Address	Default Address is 239.100.100.1
Multicast Port	Default Value is 5000

5. Go to Module Selection to confirm TSIModbus2XAAS is selected.

- 6. If one of the multicast settings is changed, the corresponding settings will need to be changed on the instrument.
- 7. If one of the above settings is changed, click **OK** and restart FMS Client.
- 8. Go to **Configure Node**.
- 9. Expand Monitor Summary.
- 10. Expand **Configure Devices**.
- 11. Click AeroTrak+ Devices.

Audit Logging	Module	Selected
FMS Components Information	TSI_CCCPC	✓ TSI_CCCPC
Remote Monitors	TSINextGeneratio	V TSINextGenerationModbus2X
Required Monitors	TSIModbus2XAA	S S TSIModbus2XAAS
User Settings	TSIModbus2Buffe	TSIModbus2BufferDownload
	PhoenixContact	PhoenixContact
	OutputControl	 OutputControl
	Historic	 Historic
	Generic	Generic
	FMSOPCClient	FMSOPCClient
	Calculated	 Calculated
	BatchManager	BatchManager
	AsciiOutput	AsciiOutput
	Actions	Actions
OK XCancel ClientOptions ClientOptions Identification	Identification Settings	
OK ClentOptions ClientOptions ClientOptions Identification Audit Logging Module Selection FMS Components Information	Identification Settings	
ClientOptions ClientOptions ClientOptions Identification Audit Logging Module Selection FMS Components Information Required Monitors Display Monitor Messages	Identification Settings Client Name	Sient
ClientOptions ClientOptions ClientOptions ClientOptions ClientOptions FMS Components Information Remote Monitors Display Monitor Messages User Settings	Identification Settings Client Name License Key	Silent
ClientOptions ClientOptions ClientOptions ClientOptions Identification Aduft Logging Module Selection FMS Components Information Remote Monitors Required Monitors Display Monitor Messages User Settings	Identification Settings Client Name C License Key Broadcast Port 4	client
ClientOptions ClientOptions ClientOptions ClientOptions ClientOptions ClientOptions FMS Components Information Remote Monitors Required Monitors Display Monitor Messages User Settings	Identification Settings Client Name C License Key Broadcast Port 4 Broadcast Using	Client 1001 [:] ntel(R) Ethernet Connection (7) I219-LM
VOK XCancel ClientOptions ClientOptions Client Coptions Audit Logging Module Selection FMS Components Information Remote Monitors Display Monitor Messages User Settings	Identification Settings Client Name C License Key Broadcast Port 4 Broadcast Using II Multicast IP Address 2	Client 1001 [:] ntel(R) Ethernet Connection (7) I219-LM 39.100.100.1
VOK XCancel ClientOptions ClientOptions ClientCoptions Audit Logging Module Selection FMS Components Information Remote Monitors Display Monitor Messages • User Settings	Identification Settings Client Name License Key Broadcast Port Broadcast Using Multicast IP Address Multicast Port	lient 1001 [: ntel(R) Ethernet Connection (7) I219-LM 39.100.100.1 1000 [:

Module Selection

×

🕏 FMS Clien	nt Client							-	\times
Client Node	e Windows	Help							
0 🔊	🦻 🦊 📀	🌒 🍍 🤹 🧮	🔛 🏄 📍	- 🕰 🗞 🗼	199 B				
Configured								Units Status	g
🛙 AAS									
Configuration	on	Serial Number	IP / Port	Sample Points	Status	LED	Configure		
 Monitor 3 Config 	Summary ure Dev	0123456798012 1	92.168.1.93/50	2	NEW	OFF	Create		
Aero	oTrak+						Disable		
Con	nmunica						Enable		
Digi	tal Outp						LED		
Sam	nple Poi						ALL LED OFF		
Alarm	Groups						Delete		
Action	S								
Monitor	m Settings								
Buddy S	ettings								
Databas	e Settings								
Reportin	atabase								
OPC UA	Settings								
 Security 	Page								
₩Ok	×Cancel						Refresh		
Messages									
Node	Date/Time	A Source	Type		Massa	20			
AAS	27-08-202.		Ok O	PC Server Ok	WC334	ge			
AAS	27-08-202.	AAS	Ok M	lain Database Ok					
Local	27-08-202.	Local	Ok M	onitor Has Connected	AAS from 192.16	8.1.37			
Local	27-08-202	Local	Ok M	onitor Has Connected	AAS from 192 16	8 1 37			

12. When **Multicast Address** is enabled on the instrument, the instrument will automatically be listed in FMS Software to configure and **NEW** will display in the **Status** column.

NEW	New instrument needs to be configured.	
PENDING	ENDING Instrument configured but waiting for FMS Software configuration to be saved.	
	<i>or</i> Instrument modified but waiting for FMS Software configuration to be saved.	
CONNECTED	Instrument and FMS have established a connection.	
DISCONNECTED	Instrument is disconnected from the network.	
SAMPLING Instrument is configured, enabled, and sampling.		
DISABLED	Instrument is set to disabled.	

13. The different **Status** levels of the instrument include:

14. Select the instrument by clicking on the **Serial Number**.

15. Click **Configure**.

16. **Device Settings** tab will display.

At this time, FMS Software is loading the settings set in the instrument during setup.

vice Sample Po	nt			
evice Settings				
Device Informat	ion			
Serial Number	0123456798012345			
Location	LOCATION			
IP Address	192.168.1 .93			
Port	502			
				Using DHCP
Unit Information				
Unit Name *		7		
Comments				
Additional Com	ments			
			Enab	le Debug Output
Iominal Flow Ra	te 1.0			
	gs			
Calibration Settir				
Calibration Settir	arm Enabled 31-10-2019			
Calibration Settir Calibration A Buffer Settings	larm Enabled 31-10-2019			
Calibration Settir Calibration A Buffer Settings Enable Buffe	r Download Buffer Size		1440	- -

DEVICE INFORMATION				
Serial Number	When instrument is listed from the multicast network, the serial number is automatically read from the instrument.			
Location	Location name. This has to be programmed with TSI APP			
IP Address	The IP address of the instrument. This is used by FMS Software to configure the instrument and collect data from it.			
Port	Modbus port number to communicate with instrument. Default value is 502.			
Using DHCP	Enabling DHCP mode will automatically disable IP address selection.			
	NOTE: When using DHCP mode, be sure the DHCP server will always assign the same IP address when lease time expires.			

UNIT INFORMATION			
Unit Name	Enter the name for the instrument.		
Comments	Enter comments about the instrument.		
Additional Comments	Enter additional comments about the instrument.		
Nominal Flow Rate	Nominal flow rate of the instrument.		
CALIBRATION SETTI	NGS		
Calibration Alarm Enabled	According to the date entered, FMS 5 Software will start generating warnings that the calibration date for the instrument is approaching.		
BUFFER SETTINGS			
Enable Buffer Download	FMS Software will download, from the device buffer, up to the number of samples entered in Buffer Size after recovering from a communication issue.		
	Buffer download option is always enabled.		
Buffer Size	Number of samples to be downloaded when Enable Buffer Download is enabled.		
	Default Value	1440 (1 day)	
	Max Value	256000	

17. Enter the following settings to configure the instrument.

Serial Number	DO NOT change as it is read direct from the instrument.	
Location	Enter the location where instrument is installed. Filling_1	
IP Address	DO NOT change as it is read direct from the instrument.	
Using DHCP	Ensure Using DHCP is unchecked.	
Unit Name	U_AAS_FILLING_1	
Comments	Enter comments about the instrument.	
Additional Comments	Enter additional comments about the instrument.	
Enable Buffer Download	Checked.	
Buffer Size	For purposes of this document, either disable buffer download or select a buffer size >1.	

18. Click **Device Recipe** tab.

Configure				
evice Sample P	oint			
Device Settings				
Device Informa	ation			
Serial Number	• 0123456798	012345		
Location	Filling_1			
IP Address	192.168.1	93		
Port	502			
				Using DHCP
Unit Informatio	on			
Unit Name *	U_AAS	FILLING_1		
Comments				
Additional Con	mments			
			Ena	ble Debug Output
Nominal Flow F	ate 1.0			
Calibration Set	ings			
Calibration	Alarm Enabled	31-10-2019		0
Buffer Settings				
Enable Buf	fer Download	Buffer Size	1440	3
			/	

19. Click **Sample point** tab.

20. Enter the following information to configure the instrument.

Sample Point Name: AAS_FILLING_1

21. Click + icon to add sample point.



22. Click **OK** to exit **AeroTrak+ Devices** configuration screen.

SAMPLE POINT INFORMATION				
Sample Point Name	Name must start with letter A to Z and may not contain spaces. Name must be alpha-numeric. Underscore character is allowed.			
	NOTE: Maximum of 32 characters allowed. Only one sample point Name can be added to the list of Name			
+	Click to add a new recipe.			
	Click to save recipe settings.			
	Click to delete a selected recipe.			

23. Click OK.

24. Click **Save** to save FMS Software configuration.

25. Click **Yes** to reboot the monitor.

B FMS Client Client	– 🗆 X
Client Node Windows Help	
: 🖴 🗷 🔗 🦑 🕲 🌒 🏶 🤸 🔜 🔛 🌌 🜳 🕰 🎭 🔧 🖍 🚥	
Configured AAS	Units Status @
Configuration Serial Number IP / Port Sample Points LED Configure	
Configure Dev OFF Create Create	
AeroTrak+ Disable	
Units Enable	
Samle Poi	
Recipes ALL LED OFF	
A larm Groups Delete	
Monitor Settings Buddy Settings Database Settings Mirror Database Reporting Settings OPC UA Settings > SecurityPage VOk XCancel Refresh	
Messages	
Node Date/Time Source Type Message	
AAS 27-08-202 OPCUABRIDGE OK OPC Server Ok	
AAS 27-08-202 AAS OK Main Database Ok Local 27-08-202 Local Ok Monitor Has Connected AAS from 192 168 1 37	
Local 27-08-202 Local Ok Monitor Has Connected AAS from 192 168 1 37	
	27-08-2020 10:26:44

26. After monitoring node is restarted, your FMS Software screen will look like below.

FMS Client Client	- 🗆 X
ient Node Windows Help	
💁 🗷 今 🧶 💿 🛋 💈 水 🎫 🚰 🜌 👎 🚜 🗞 🔺 🖍 🐲	
onfigured	Units Status
9 AAS	
	OU AAS FILLING 1
	o of work internotion
	Alarm Group Status
	⊘ Database_Status
essages Node Date/Time - Source Type Message AAS 25-09-202 U_AAS Ok Stopped Failing:Unit Working	
Local 25-09-202 Local Ok admin Logged In Local 25-09-202 Local Ok Liser&AS Has Lonned Out	

Create AeroTrak+ Remote AAS Programs

An AeroTrak+ Remote AAS Program is a sampling program that can be assigned to one or more AeroTrak+ Remote AASs. When started, an AeroTrak+ Remote 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.

AeroTrak+ Remote AAS Programs are accessible by clicking icon . **AeroTrak+ Remote AAS Programs** window allows new AeroTrak+ Remote AAS Program to be added. They can also be edited or deleted, but always remain available for recall during Reports.

FMS Software can store up to 100 different AeroTrak+ Remote AAS Programs. If a User does not have AeroTrak+ Remote AAS **Edit** Program permissions assigned, FMS Software will hide the **AAS Programs** icon.

Field Label	Description	
Total Valuma	Desired volume to be sampled by the AeroTrak+ Remote AAS	
Total volume	Program.	
Number Fractions	Desired Number of fractions to be sampled by the AeroTrak+	
Number Fractions	Remote AAS Program.	
	Desired Sample Time of the AeroTrak+ Remote AAS Program.	
Total Sample Time	The sample Time 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 AeroTrak+	
Flactional Sample Time	Remote AAS Program.	
	The desired delay time used by the AeroTrak+ Remote AAS	
Delay Time	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 AeroTrak+ Remote	
Inter-maction notu mine	AAS Program.	
	The Calculate Time button is used to calculate the sampling	
Calculate Time	times and hold times based on the total volume and number of	
	fractions of the AeroTrak+ Remote AAS Program.	

Program Example 1: A single fraction where the total volume is sampled continuously.



Program Example 2: Four sample fractions where the total volume is sampled in four equal fractions with an interfraction Hold Time that is dependent upon the Total Sample Time defined by the User.



 Click icon on the Main screen. This screen allows Users to configure AAS Program. An AAS Program may be a simple combination of multiple AAS Sample Points and a set of AAS timing settings. 	Setup Active AAS Programs
2. Active AAS Programs window will come up.	
 Click Edit Programs Program Config will popup 	Program Config ? × Select Program Add Program Remove Program Remove Program AAS Program Name: AAS_Program_1 Total Volume: 1,00 ° ° L * m3 ° ft3 Number Fractions: 1 ° Calculate Time Total Sample Time: 00:35:23 ° Fractional Sample Time: 00:00:00 Delay Time: 00:00:00 ° Inter-fraction Hold Time: 00:00:00 Sample Points >> >> >> AAS_FILLING_1 > >> >> Apply OK ° Cancel
5. Click Add Program.	■ AAS Enter Program Name ? ×
6. Enter Program Name as mentioned in Program Pre-Fill Example	Enter New Program Name Pre-Fill
7. Click OK	OK Cancel



 21. In Sample Points list, select the Sample Point(s) to which this program is assigned. 22. Click > button to move the selected Sample Point(s) to the right frame. 23. Click Apply. Note—Sample points moved to the right frame are included in the program. 	Program Config
 24. Click Add Program. 25. Click Yes to confirm you wish to continue. 26. Add Post-Fill program. 27. Enter Program Name as mentioned in Program Post-Fill Example. 28. Click OK. 	 Confirm Add Pending changes will not be saved. Are You Sure you wish to continue? Yes No AAS Enter Program Name Post-Fill OK Cancel
 29. Enter settings for Post-Fill program as mentioned in Program Post-Fill Example : Total Volume: 1m³ Number Fractions: 1 Total Sample Time: 00:35:21 Delay Time: 00:00:00 30. Click Calculate Time button to calculate. Note—Calculate Time button will calculate Sampling Time and Hold Time based on the total Volume and Number of Fractions.	Select Program Add Program Pre-Fill Remove Program AAS Program Name: Post-Fill Post-Fill Remove Program AAS Program Name: 1,00 Total Volume: 1,00 Total Volume: 0:00 Total Sample Time: 00:35:53 Fractional Sample Time: 00:00:00 Sample Points Inter-fraction Hold Time: AAS_FILLING_1 Apply OK

	Program Config ? ×
	Select Program Add Program
	Pre-Fill
	2hr-Fill Poet Fill Remove Program
31. In Sample Points list, select the Sample	Post-Fill Remove Program
Point(s) to which this program is assigned.	AAS Program Name: Post-Fill Total Volume: 1,00 0 L • m3 ft3
32. Click - Dutton to move the selected	Number Fractions: 1 Calculate Time
Sample Point(s) to the right frame.	Total Sample Time: 00:35:53 C Fractional Sample Time: 00:35:21
22 Cliels Annuly	Delay Time: 00:00:00 C Inter-fraction Hold Time: 00:00:00
33. Click Apply	Sample Points
Note—Sample points moved to the right frame are included in the program.	AAS_FILLING_1
34. Click OK to return to Main Screen.	Setup Active AAS Programs.

Running AeroTrak+ Remote AAS Programs

Once AeroTrak+ Remote AAS Sample Points are configured and one or more Programs are defined, the user can run a sampling Program by following these steps.

IMPORTANT NOTE

Changing the Location Name in FMS configuration while a program is running is "**Not Supported**". Trying to do so will stop the program in-progress.

Starting an AeroTrak+ Remote AAS Program

1. 2. 3. 4.	Click icon on the Main screen to access Active AAS Programs. Click Select Program button. From the Select Program drop down list, select Pre-Fill. Click OK.	Select Program ? × Select Program: Pre-Fill • OK Cancel
5.	Pre-Fill Program appears on the Active AAS Programs window.	Setup Active AAS Programs Setup Programs Setup Programs Status: Idle 0% Close
6.	Click once on the Pre-Fill Program so that the AAS Program window shows up.	AAS Program X Stati Program: Pre-Fill Statt Time: Details End Time: Total Volume: 1.00 m3 Number Fractions: 1 Total Duration: 00:35:21 Status: Idle 0% Total Run 0% Sample Points Included Fraction Time: 00:00:00 Sample Points Included State Agar Plate ID Volume Serial Number Calibration Date AAS_FILLING_1 Close
7.	Click on the Agar Plate ID for the AAS_FILLING_1 Sample Point. Enter the Agar Plate ID . Only Alphanumeric characters are accepted.	AAS Program Start Time: End Time: End Time: Status: Idle 0% Total Volume: 10% Total Run 0% Sample Points Included State AAS_FILLING_1 AgarPlate ID Volume Serial Number Close

 9. Click Start button. When Start button is clicked, Abort button will display to allow the AAS Program to be stopped. Note—Starting an AAS Program is not allowed until all Agar Plate IDs are entered. If FMS Software Security is turned ON, the operator will have to give their credentials before starting an AAS Program. Clicking Start button will be reflected in the Audit Log. 	Program: Pre-Fill Start Time: 31-08-2020 16:31:34 End Time: 31-08-2020 17:06:55 Status: Sampling 5% Total Run 5% Total Volume: Sample Points Included State Agar Plate ID Volume Serial Number Calibration Date AAS_FILLING_1 OK AgarPlateNumber 0.06 Close Close
10. If the AAS Program window is closed during sampling, a minimized view will be shown on the Active AAS Programs window showing the progress.	AAS Setup Active AAS Programs Pro-Eill OStatus: Sampling Progress: 8% Close
 11. When AAS Program is finished, Abort button will be hidden. 12. Click Close button. 	AAS Program Program: Pre-Fill Start Time: 31-08-2020 16:31:34 End Time: 31-08-2020 17:07:03 Total Volume: 1.00 m3 Number Fractions: 1 Total Duration: 00:35:21 Delay Time: 00:035:21 Delay Time: 00:035:21 Hold Time: 00:00:00 Fraction Time: 00:05:21 Hold Time: 00:00:00 Sample Points Included State Agar Plate ID Volume Serial Number Calibration Date AAS_FILLING_1 OK AgarPlateNumber 1.00 1234567980123 31-10-2019 Close
13. On the Active AAS Programs window, the Pre-Fill Program shows complete.	AAS Setup Active AAS Programs Subsci Program Complete Close
14. It can remain viewable on the screen or click Close to remove the Program from the running list. Confirm to remove it.	Close "Pre-Fill" Are You Sure?

Aborting AeroTrak+ Remote AAS Programs

To abort the sampling program prior to its completion according to the program parameters, follow these steps.

	Ye AAS Program X
	Program: 2hr-Fill
	Start Time: 31-08-2020 17:11:37 Details
	End Time: 31-08-2020 17:13:25 Total Volume: 1.00 m3
	Number Fractions: 4
	Status: Idle
1 If an AAS Dragram is aborted the AAS	Delay Time: 00:00:00
Program can be deleted from the Active	Total Run Program Aborted Hold Time: 00:28:12
AAS FIOgianis minimized view.	Sample Points Included
2. Click Close button.	State Agar Plate ID Volume Serial Number Calibration Date
	AAS_FILLING_1 OK 12 0.05 1234567980123 31-10-2019
3. Respond to the "Are you sure" message. If the AAS Program is still running, an error	Close
message will annear	Ø AAS
The are will be an "Are some sure" was some	Setup Active AAS Programs
There will be an Are you sure message	Select Program 2hr-Fill
after the Abort button is clicked.	Edit Programs
	Close
User credentials will be requested before	
Aborting if FMS Software security is	
turned ON.	
	Confirm Close of AAS Progr 🗡
	Close "2hr-Fill"
	Are You Sure?
	Yes No
	Tea
	Cation Astice AAC Dragrams
	Setup Active AAS Programs
	Select Program
	Edit Programs
4. Minimized AAS Program is removed from	
Active AAS Program.	

If a Flow Error occurs (i.e. flow drop from 2 Error will be generated when Program is fi been sampled during the requested samplin	8.3 LPM to 20.0 LPM) during sampling, a Volume nished. This means that the desired Volume has not ng Time.
If the Sampling Point is already in Sampling Mode for a specific AAS Program, a message will warn the User who wants to Start another AAS Program that the AAS Sampling Point is not in Idle Mode.	Confoured • AAS • AAS Setup Active AAS Programs Pre- Status Sampler Status: Sampling Status: Sampling Viessages Node Node Date Time - Source Ass OC-0PCU OK Ass OC-0PCU OK
If an AAS Program is Aborted, a Volume Error will be generated to mention that the desired Volume to be sampled has not been met.	Image: Start Sprogram Frogram: Pre-Fill Start Time: 02-09-2020 12:04:10 Details End Time: 02-09-2020 12:33:20 Total Volume: 1.00 m3 Status: Idle Idle Total Volume: 1.00 m3 Total Volume: 1.00 m3 Number Fractions: 1 Status: Idle Idle Delay Time: 00:00:00 Total Run Program Aborted Fraction Time: 00:35:21 Mold Time: 00:00:00 Strate Included Sample Points Included State Agar Plate ID Volume Serial Number re AAS_FILLING_1 Fail 123 0.82 1234567980123.3 Image: State Agar Plate ID Volume Serial Number re Image: State Agar Plate ID Volume Serial Number re Image: State Agar Plate ID Volume Serial Number re

remaining active Sample points.

Running AeroTrak+ Remote AAS Programs with Batch Report

AeroTrak+ Remote AAS Sample Points can also be used with Batch Manager. To setup **Batch Manager**, please refer to *TCC-127—How to Setup Batch Manager*.

Running AeroTrak+ Remote AAS Reports

AeroTrak+ Remote AAS Reports can be used for both Normal or Batch report selection.

Generate Normal Report

1. 2.	Click Mew Report .	AAS Report Details Name Batt Report Name Hard Tale Report Type Normal Report Footer Default Footer Report Data No Sample Point Data Compliance Stats Stats Summary Recipe No Recipe Filter User Defined Check Recipes Index Stats Time Previous Hour OB:51 OI:00:00-20 End Time Current Date-Time OD:51 OI:00:00-20 End Time
		Add Sign Off Table 1 Signatures Sample Points Logs and Messages Schedule Report VOK ¥Cancel
		© AAS Report Details
3.	Enter a name and Title for this report.	Name AASReport Title Normal AeroTrak+ Active Air Sampler Report
4.	Select Normal Report from the Report Type drop down list.	Report Type Normal Report Footer Default Footer Report Data AAS Program Data AAS Summary
5.	Select AAS Program Data from the Report Data drop down list.	Start Time Exact Date-Time 16:30 31-08-20 - End Time Current Date-Time 17:30 31-08-20 -
6.	Select the desired time duration.	Add Sign Off Table AAS Sample Points Logs and Messages Schedule Report Vok XCancel

7. Click AAS Sample Points to add AAS Sample Points used during this time frame.	
By default, AAS Sample Points available to be selected are all the AAS Sample Points used during the time period specified.	© AAS TAAS FILLING 1
 8. To include another AAS Sample Point in the report, do as follow: Click + Add button for a new row. Double click on the new row. Open the dropdown. From the dropdown select a new AAS 	+Add All +Add →Remove
Sample Point.	Weighted Statistics Calculate MKT Weekly Mean
Note —If an AAS Sample Point has to be removed from the Report, select it and click Remove button.	VOk ¥Cancel
9. Click OK to close the Sample Point Selection window.	
10. Click OK to close the report details window.	
11. Click View button to preview the Report.	• AAS Reports Report Description: AASReport AASReport Normal Report Created: 2020-08-31 17:26:46 Title: Normal AeroTrak+ Active Air Sampler Report Normal AeroTrak+ Active Air Sampler Report StartDateTime: Exact Date-Time Foodrat Time: Exact Date-Time Foodr: Default Footer Data: AAS Program Data Data: AAS Program Data Recipe: No Recipe Filter IncludeStatistics: No IncludeAASSummary: Yes IncludeCompliance: No View Scheduled Reports SignOffTable: Yes TotalSignatures: 1 View LogsFrabled: Yes AlarmGroupMessageLogsEnabled: No CSV AlarmGroupMessageLogsEnabled: No SAMPLE POINT DATA ,

Normal AeroTrak+ A	ctive Air Sam Audit Log	pler Rep	ort AASREPOR 12:18:56	Γ From: 25	-09-2020 1	0:40:29 To: 25-09-2020
Results Table For:	Audit Log					
Data Timo	Source	Commor	x t			
25-09-2020 10:52:25	EMS Client	Client H	n Started			
25-09-2020 10:53:55	EMS_Client		as Started			
25-09-2020 10:54:24	FMS_Client			s lleer To	44S	
25-09-2020 10:54:53	FMS_Client	Adding E	Batch Event Start_	Batch_1 fo	r Batch Pro	oductName by AAS
25-09-2020 10:55:44	FMS_Client	Started F Number(plateid F	Pre-Fill (TotalDura DfFractions 1, dela late 1 by UserAA	tion 00:35:2 ay 00:00:00 S	21, TotalVo)) on AAS_	lume 1.00m3, FILLING_1 using
25-09-2020 11:32:37	FMS_Client	Started F Number	Post-Fill (TotalDura DfFractions 1, dela	ation 00:35 ay 00:00:00	:53, TotalV)) on AAS_	olume 1.00m3, FILLING_1 using
25-09-2020 11:33:30	FMS_Client	Aborted Program	Post-Fill on AAS_ for testing	FILLING_1	l by UserA	AS Comment: Aborting
25-09-2020 11:34:22	FMS_Client	Started F Number(plateid F	Post-Fill (TotalDura DfFractions 1, dela late_2 by UserAA	ation 00:35 ay 00:00:00 S	:53, TotalV)) on AAS_	olume 1.00m3, FILLING_1 using
25-09-2020 12:11:00	FMS_Client	Started 2 Number(plateid 4	2hr-Fill (TotalDurat DfFractions 4, dela 56 by UserAAS	tion 02:00:0 ay 00:00:00	0, TotalVo) on AAS_	ume 1.00m3, FILLING_1 using
25-09-2020 12:11:32	FMS_Client	Aborted Commer	2hr-Fill on AAS_F	ILLING_1	by UserAA	S Comment: No
25-09-2020 12:12:08	FMS_Client	Adding E USER	Batch Event Stop_	Batch_1 fo	r Batch Pro	oductName by AAS
25-09-2020 12:12:14	FMS_Client	UserAA	6 Has Logged Out	t		
25-09-2020 12:12:21	FMS_Client	admin H	as Logged In As L	Jser To AA	S	
25-09-2020 12:13:14	FMS_Client	Started F Number(plateid 7	Pre-Fill (TotalDura OfFractions 1, dela 89 by UserAAS	tion 00:35:2 ay 00:00:00	21, TotalVo)) on AAS_	lume 1.00m3, FILLING_1 using
25-09-2020 12:18:48	FMS_Client	Making F	Report AASREPO	RT For AA	S As Admi	nistrator
2: New AAS-spe	cific FMS S	Softwa	re Report For	mat.		
Normal AeroTrak+ Results Table For: Plate D: Plate 1	Active Air Sar PlateID: Pla	npler Rep nte_1 Loo	cation: AASREPOR 12:18:56 cation: AAS_FIL	T From: 25	5-09-2020 1 456	10:40:29 To: 25-09-2020
Normal AeroTrak+ Results Table For: PlateID: Plate_1, I Date Time	Active Air Sar PlateID: Pla _ocation: AA	npler Rep ate_1 Lo \S_FILL	oort AASREPOR 12:18:56 cation: AAS_FIL ING_1, SerialNur Fraction	T From: 25	5-09-2020 1 456 me (m3)	0:40:29 To: 25-09-2020
Normal AeroTrak+ Results Table For: PlateID: Plate_1, I Date Time 25-09-2020 10:55:4	Active Air Sar PlateID: Pla _ocation: AA Event 6 Start Sar	npler Rep nte_1 Lo NS_FILL	oort AASREPOR 12:18:56 cation: AAS_FIL ING_1, SerialNut Fraction	T From: 25 LING_1 mber: 1234 Cum. Volu	5-09-2020 ⁻ 456 me (m3)	Event Details
Normal AeroTrak+ Results Table For: PlateID: Plate_1, Date Time 25-09-2020 10:55:4 25-09-2020 11:31:0	Active Air Sar PlateID: Pla _ocation: AA Event 6 Start Sar 7 Stop Sar	npler Rep ate_1 Lo S_FILL npling npling	oort AASREPOR 12:18:56 cation: AAS_FIL ING_1, SerialNum Fraction 1	T From: 25 LING_1 mber: 1234 Cum. Volu 0 1	5-09-2020 1 456 me (m3)	Event Details Started by UserAAS Completed
Normal AeroTrak+ Results Table For: PlateID: Plate_1, I Date Time 25-09-2020 10:55:4 25-09-2020 11:31:0 Normal AeroTrak+ / Results Table For:	Active Air Sar PlateID: Pla Cocation: AA Event Event Start Sar Stop Sar Active Air Sam PlateID: Pla	npler Rej nte_1 Lo NS_FILL npling npling upler Rep te_test L	ort AASREPOR 12:18:56 cation: AAS_FIL ING_1, SerialNur Fraction 1 1 ort AASREPOR 12:18:56 .ocation: AAS_F	T From: 25 LING_1 mber: 1234 Cum. Volu 0 1 T From: 25 ILLING_1	5-09-2020 1 456 me (m3) -09-2020 1	0:40:29 To: 25-09-2020 Event Details Started by UserAAS Completed 0:40:29 To: 25-09-2020
Normal AeroTrak+ Results Table For: PlateID: Plate_1, I Date Time 25-09-2020 10:55:4 25-09-2020 11:31:0 Normal AeroTrak+ Results Table For: PlateID: Plate_tes	Active Air Sar PlateID: Pla ocation: AA Event Event Start Sar Stop Sar Active Air Sam PlateID: Pla	npler Rej ate_1 Lo (S_FILL npling npling upler Rep te_test L \AS_FIL	ort AASREPOR 12:18:56 cation: AAS_FIL ING_1, SerialNun Fraction 1 1 ort AASREPOR 12:18:56 .ocation: AAS_F .LING_1, SerialN	T From: 25 LING_1 mber: 123/ Cum. Volu 0 1 T From: 25 ILLING_1 lumber: 12	5-09-2020 1 456 me (m3) -09-2020 1 23456	0:40:29 To: 25-09-2020 Event Details Started by UserAAS Completed 0:40:29 To: 25-09-2020
Normal AeroTrak+ Results Table For: PlateID: Plate_1, I Date Time 25-09-2020 10:55:4 25-09-2020 11:31:0 Normal AeroTrak+ Results Table For: PlateID: Plate_tes Date Time	Active Air Sar PlateID: Pla cocation: AA Event Start Sar Stop Sar Active Air Sam PlateID: Pla t, Location: A	npler Rej ate_1 Lo IS_FILL npling npling upler Rep te_test L AAS_FIL Fracti	ort AASREPOR 12:18:56 cation: AAS_FIL ING_1, SerialNum Fraction 1 1 ort AASREPOR 12:18:56 .ocation: AAS_F .LING_1, SerialN ion Cum. View	T From: 25 LING_1 mber: 1234 Cum. Volu 0 1 1 F From: 25 ILLING_1 lumber: 12 olume (m3)	456 me (m3) -09-2020 1 23456 Event Det	I0:40:29 To: 25-09-2020 Event Details Started by UserAAS Completed 0:40:29 To: 25-09-2020 ails
Normal AeroTrak+ Results Table For: PlateID: Plate_1, 1 Date Time 25-09-2020 10:55:4 25-09-2020 11:31:0 Normal AeroTrak+ Results Table For: PlateID: Plate_tes Date Time 25-09-2020 11:32:33	Active Air Sar PlateID: Pla Location: AA Event 6 Start Sar 7 Stop Sar Active Air Sam PlateID: Pla t, Location: A Event 9 Start Sampli	npler Rej ate_1 Lo IS_FILL mpling npling upler Rep te_test L VAS_FIL Fracti ng 1	overt AASREPOR 12:18:56 cation: AAS_FIL ING_1, SerialNum Fraction 1 overt AASREPORT 12:18:56 .occation: AAS_F .LING_1, SerialNon ion Cum. Vi 0	T From: 25 LING_1 mber: 1234 Cum. Volu 0 1 1 From: 25 ILLING_1 lumber: 12 olume (m3)	456 me (m3) -09-2020 1 23456 Event Det Started by	IO:40:29 To: 25-09-2020 Event Details Started by UserAAS Completed IO:40:29 To: 25-09-2020 ails UserAAS

 Click icon to access Reports. Click New Report. 	AAS Report Details Report Details Report Details Report Type Normal Report Footer Default Footer Report Data No Sample Point Data Recipe No Recipe Fiter User Default Footers Index Start Time Previous Hour Other Details Start Time Previous Hour Other Details Other Details Other Details Other Details Other Details Other Details Recipe Fiter Other Details Index Oth
3. Enter a name and Title for this report.	
 Select Normal Report from the Report Type drop down list. 	Name AASBatchReport
5. Select Batch Report from the Report Type drop down list.	Report Type Batch Report - Batch Footer - Batch Report Default Footer - Report Data AAS Program Data - AAS Summary
6. Select AAS Program Data from the Report Data drop down list.	Index - Start Time DemoBatch - Start Production - 09:11 : 01-09-20 - End Time DemoBatch - End Bradueties - 00:55 : 01-00-20 -
 Select for Start and End Time desired, Batch Name followed by selecting Event Name. 	Add Sign Off Table 1 Signatures AAS Sample Points Logs and Messages Schedule Report
 8. Click AAS Sample Points to add the AAS Sample Points used during this time frame. 9. To include another AAS Sample Point in the report, do as follows: Click + Add button for a new row. Double click on the new row. Open the dropdown. From the dropdown, select a new AAS Sample Point. Note—If an AAS Sample Point has to be 	AAS AAS AAS_FILLING_1 AAS_FIL
removed from the Report, select it and click on Remove button.	Weekly Mean
10. Click OK to save the Report Configuration 11. Click View button to preview the Report.	AAS Reports Report AASBatchReport Batch Report Created: 2020-09-01 10:03:51 AASReport Batch Report Created: 2020-09-01 10:03:51 AASReport Batch Report Created: 2020-09-01 10:03:51 AASReport Data: AAS StartDateTime: DemoBatch Start Production 09:11:41 2020-09-01 EndDateTime: DemoBatch End Production 09:55:06 2020-09-01 Footer: Default Footer Data: AAS Program Data Recipe: No Recipe Filter IncludeStatistics: No IncludeAASSummary: No IncludeCompliance: No GenerateIndex: Yes GenerateCSV: No GenerateIndex: Yes AlarmLog: No AuditLog: Yes TraceLog: No EventLog: LogsEnabled: Yes AlarmGroupMessageLogsEnabled: No AlarmGroupMessageLogsEnabled: No SAMPLE POINT DATA

Example 1: Normal FMS Software Report Format.

Batch Report AeroTrak+ Active Air Sampler Report AASREPORT ProductName From: Start_Batch_1 25-09-2020 10:54:31 To: Stop_Batch_1 25-09-2020 12:11:47

Results Table For: Audit Log

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Results Table For: Audit Log			
Date Time	Source	Comment	
25-09-2020 10:54:53	FMS_Client	.dding Batch Event Start_Batch_1 for Batch ProductName by AAS /SER	
25-09-2020 10:55:44	FMS_Client	Started Pre-Fill (TotalDuration 00:35:21, TotalVolume 1.00m3, NumberOfFractions 1, delay 00:00:00) on AAS_FILLING_1 using plateid Plate_1 by UserAAS	
25-09-2020 11:32:37	FMS_Client	Started Post-Fill (TotalDuration 00:35:53, TotalVolume 1.00m3, NumberOfFractions 1, delay 00:00:00) on AAS_FILLING_1 using plateid Plate_test by UserAAS	
25-09-2020 11:33:30	FMS_Client	Aborted Post-Fill on AAS_FILLING_1 by UserAAS Comment: Aborting Program for testing	
25-09-2020 11:34:22	FMS_Client	Started Post-Fill (TotalDuration 00:35:53, TotalVolume 1.00m3, NumberOfFractions 1, delay 00:00:00) on AAS_FILLING_1 using plateid Plate_2 by UserAAS	
25-09-2020 12:11:00	FMS_Client	Started 2hr-Fill (TotalDuration 02:00:00, TotalVolume 1.00m3, NumberOfFractions 4, delay 00:00:00) on AAS_FILLING_1 using plateid 456 by UserAAS	
25-09-2020 12:11:32	FMS_Client	Aborted 2hr-Fill on AAS_FILLING_1 by UserAAS Comment: No Comment	

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Batch Report AeroTrak+ Active Air Sampler Report AASREPORT ProductName From: Start_Batch_1 25-09-2020 10:54:31 To: Stop_Batch_1 25-09-2020 12:11:47

AAS Table Summary

AAS Table Summary				
Batch	Start	Stop		
ProductName	Start_Batch_1 25-09-2020 10:54:31	Stop_Batch_1 25-09-2020 12:11:47		

Example 2: New AAS-specific FMS Software Report Format.

Batch Report AeroTrak+ Active Air Sampler Report AASREPORT ProductName From: Start_Batch_1 25-09-2020 10:54:31 To: Stop_Batch_1 25-09-2020 12:11:47

Results Table For: PlateID: Plate_1 Location: AAS_FILLING_1

PlateID: Plate_1, Location: AAS_FILLING_1, SerialNumber: 123456					
Date Time	Event	Fraction	Cum. Volume (m3)	Event Details	
25-09-2020 10:55:46	Start Sampling	1	0	Started by UserAAS	
25-09-2020 11:31:07	Stop Sampling	1	1	Completed	

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Batch Report AeroTrak+ Active Air Sampler Report AASREPORT ProductName From: Start_Batch_1 25-09-2020 10:54:31 To: Stop_Batch_1 25-09-2020 12:11:47

Results Table For: PlateID: Plate_test Location: AAS_FILLING_1

PlateID: Plate_test, Location: AAS_FILLING_1, SerialNumber: 123456					
Date Time	Event	Fraction	Cum. Volume (m3)	Event Details	
25-09-2020 11:32:39	Start Sampling	1	0	Started by UserAAS	
25-09-2020 11:33:30	Stop Sampling	1	0.02	Flow Error Aborted by UserAAS, Comment: Aborting Program for testing	

AeroTrak+ Remote AAS Buffer Download

AeroTrak+ Remote AAS Buffer Data, when Enabled in FMS, may occur during several cases which are described below.

Buffer Download Cases:

- 1. <u>User installs a new Instrument with buffer download enabled:</u>
 - User enables buffer download in Sample Point setup through Configure and saves.
 - After buffer is cleared, FMS Software will go into real time monitoring state without buffer download.
 - FMS Software will perform buffer download afterwards triggered by Monitor restart or communication error recovery.
- 2. <u>User installs a backup Instrument using existing setup with buffer download enabled</u>:

Backup instrument is configured with the same TCP/IP address as the replaced but has a different Serial Number.

- Buffer download is enabled in existing setup.
- After driver reinitiated, FMS Software will clear Instrument's buffer to prevent unwanted buffer download process triggered by Monitor restart or communication error recovery.
- After buffer is cleared, FMS Software will go into real time monitoring state without buffer download.
- FMS Software will perform buffer download afterwards triggered by Monitor restart or communication error recovery.
- 3. <u>Buffer Download enabled</u>:
 - User saves the configuration and restart monitor.
 - FMS Software will clear Instrument's buffer.
 - FMS Software will go into real time monitoring state.
 - No buffer is downloaded (buffer download is still enabled and will happen if needed).
- 4. <u>Power lost to the Instrument with buffer download enabled:</u>
 - System is already running with buffer download enabled.
 - Power lost to the Instrument.
 - FMS Software loses communication to the Instrument.
 - FMS Software will try to recover communication.
 - Power is back online to the Instrument.
 - Communication recovered.
 - Buffer download will occur.
- 5. <u>Power lost to building with buffer download enabled:</u>
 - System is already running with buffer download enabled.
 - Power lost to the whole building.
 - FMS Software is down.
 - Power is back online to the whole building.
 - FMS Software is back online.
 - Buffer download will occur.

- 6. <u>Power lost to monitoring computer with buddy process and buffer download enabled:</u>
 - System is already running with buffer download enabled.
 - Power lost to the monitoring computer.
 - Instrument is collecting data.
 - Buddy starts.
 - Buffer download will occur.
 - Data is recovered.
 - Power is back online and the main Monitor starts up.
 - Buffer download will occur.
- 7. <u>Communication lost or monitor restart during buffer download process:</u>
 - FMS Software is performing buffer download.
 - Communication is lost or a monitor restart occurs.
 - FMS Software re-establishes communication or monitor is running again.
 - Buffer download will attempt to start over again.
- 8. An alarm condition within buffered data:
 - Alarm condition data has been logged in Instrument buffer.
 - FMS Software starts performing a buffer download.
 - When FMS Software encounters alarm condition, it will not post alarm acknowledge message the same way as real time data process (will not trigger digital output).
 - No disruption will occur in buffer download due to alarm condition.
 - User can not acknowledge the buffered data.
 - User can acknowledge alarm condition data buffered after transfer to the database.
- 9. An alarm condition during buffer download process:
 - FMS Software starts performing a buffer download
 - Instrument detects an alarm condition.
 - FMS PROCESS Alarm condition as real time.
 - FMS Software will NOT process the failure until after the Buffer Download is complete.

10. <u>All Database is down during buffer download:</u>

- FMS Software is performing a buffer download process.
- Database is down.
- FMS Software posts processed buffer data to database.
- Posted data is being spooled.
- FMS Software continues buffer download until complete.
- Database comes back on-line, and spooled data is posted to the database. Spooled data in the queue after duplicated key will skipped to prevent garbage data in database.

11. <u>Mirrored DB exists and either / both main / mirrored DB is down during buffer download:</u>

- FMS Software is performing a buffer download process.
- Database (either main or mirrored) database(s) go down.
- FMS Software posts processed buffer data to database.
- For any database that is down, posted data is being spooled.
- FMS Software continues buffer download until complete.
- Database(s) comes back on-line, and spooled data is posted to the database(s). Spooled data in the queue after duplicated key will skipped to prevent garbage data in database.

Alarm Group Messages

Technical bulletin **TCC-137: FMS 530 Alarm Group with Messages Setup Configuration** explains how to setup alarm group messaging to be able to alarm on specific messages generated by FMS Software.

By introducing AeroTrak+ Remote AAS driver **TSIModbus2XAAS**, the following messages can be selected in alarm group.

- Communication problem: timeout getting sample record
- Instrument alert was triggered externally
- Communication problem: invalid sample record data from buffer
- Ambient condition alert
- Cal. corrupt alert
- Stale data: reinitializing counter
- Communication problem: timeout during initializing
- Volume Alert
- Communication problem: timeout getting sample index
- Flow alert
- Index sequence error: record(s) possibility lost
- Instrument error
- Instrument not ready alert
- Resetting com channel
- Service alert
- Unit working
- Wrong driver selected for this device. This driver for TSI map revision 2.xx only

AeroTrak+ Remote AAS Node Tags Available in OPC UA Server

The following screen shot from UA Expert shows all tags made available per AeroTrak+ Remote AAS Sample Point.

🖻 Root						
🗸 🗀 Objects						
✓						
💙 🜲 AAS_FILLING_1						
> 🗖 Additional Comments						
Alarms and Events						
> 💷 Buffer Download State						
> 르 Calibration Date						
> Comments						
CurrentFraction						
CurrentRecipeTime						
> 🔍 ElapsedDelayTime						
> 🔍 ElapsedHoldTime						
ElapsedSampleTime						
> 💷 Enabled						
> 💷 Extended Error						
> 💷 Extended Info						
> 💷 FMS Node						
> 💷 Failed						
> 🔍 LoggedDataType						
> 🔍 Retriggerable Alarms						
🔉 💷 Sample Period						
🔉 💷 SampleStatus						
🔉 💷 SerialNumber						
> 🔍 TotalFractions						
🔉 💷 TotalRecipeTime						
> 📟 Туре						
> 🔍 Units						
> 🔍 Volume						
> 👶 Server						

Note—All time values below are reported in seconds.

NODE TAG	DATA TYPE	DESCRIPTION
Additional Comments	String	Additional comments about the instrument.
Alarms and Events	String	Sample Point Alarms and Events generated by FMS Software
Buffer Download State	Boolean	This is not implemented for AAS (Status code is BadAttributeIdInvalid).
Calibration Date	DateTime	Last Calibration Date from device.
Comments	String	Comments about the instrument.
CurrentFraction	Double	Current fraction of the program.
CurrentRecipeTime	Double	Current elapsed time in the program (seconds).
ElapsedDelayTime	Double	The accumulated delay time.
ElapsedHoldTime	Double	The accumulated hold time in the current fraction.
ElapsedSampleTime		The accumulated sample time in the current fraction.
Enabled	Boolean	If Unit or Sample Point is disabled this turn false.
Extended Error	Boolean	Not defined for AAS (will be always false).

NODE TAG	DATA TYPE	DESCRIPTION
		Will report current AeroTrak+ Remote AAS Program Status in a XML formatted string:
Extended Info	String	 <extendedinfo <br="" delay="00:00:00" numberoffractions="1">TotalVolume="5.00" Action="Started" Time="2020-09- 02T11:48:28" TotalDuration="00:10:00" Program="FlowTest" VolumeUnit="ft3" PlateId="FlowTest1"/></extendedinfo>
		 <extendedinfo <br="" action="Completed">Program="FlowTest"/></extendedinfo>
FMS Node	String	FMS Node name in which the Sample Point is part of.
Failed	Boolean	If the Unit is failed this will turn into false.
LoggedDataType	double	Determine what the logged data is: 0 = DONE bit 0 = 1-minute data bit 1 = state change data
Retriggerable Alarms	Boolean	
Sample Period	Double	Sampling time.
SampleStatus	Double	Accumulated Status (calculated by FMS Software). State of the sample: 0 = Idle 1 = Start Delay 2 = Holding 3 = Sampling 4 = RTC_Sync 5 = Stopping 6 = Zeroing 7 = RTC Error 8 = Aborting
SerialNumber	Double	AeroTrak+ Remote AAS Serial Number.
TotalFractions	Double	Total Number of fractions to be run in a program
TotalRecipeTime	Double	Total program time includes sample time, hold time, delay time and number of fractions (seconds).
Туре	String	By default set to Counts. (Not used for AeroTrak+ Remote AAS)
Units	String	By default set to L.
Volume		Sample Volume in program (Liters).

Security

With introduction of the AeroTrak+ Remote AAS driver, the following security rights can be assigned.

User Groups Level

AAS Program Node:

- Create/Edit
- Start/Abort

Files to Backup

With the introduction of the AeroTrak+ Remote Airborne Particle Counters, new files are required to be added to the configuration backup.

Listed below are **ALL** the folders and files required to be included in the FMS 5 Software configuration backup.

- C:\FMS5\Config\Actions*.*
- ➢ C:\FMS5\Bin\Guard.ini
- > C:\FMS5\Config\AASAllPrograms.xml
- C:\FMS5\Config\NodeLocal.xml
- > C:\FMS5\Config\NodePassword.xml
- > C:\FMS5\Config\ServerOptions.xml (Only if FMS OPC UA SVR option is installed)
- C:\FMS\Maps\NodeName.jpg
- C:\FMS\Maps\NodeName.xml
- C:\FMS5\Node\NodeName.xml
- C:\FMS5\Node\AlarmGroups*.* (And Sub folders)
- C:\FMS5\Template*.* (AeroTrak+ instrument Template files)
- > C:\FMS5\PKI*.* (And Sub folders, only if FMS OPC UA SVR option is installed)
- > C:\FMS5\Translations*.* (And Sub folders, only for Non English FMS5 Interface)

IMPORTANT NOTE

The file **AASActivePrograms.xml** located in C:\FMS5\Config\ do not need to be backup as this file will be updated from a table located in the database and this each time the Main Monitor is restarted or when the Buddy takes over.

Troubleshooting

SNTP Issue

When SNTP is Enabled through the TSI Remote Application, an issue may show up if the IP Address of the SNTP Server is incorrect or the SNTP Time Zone is not correctly set:

- AeroTrak+ Remote AAS Maxi screen will not update the progress of the Program and will not show complete until 6-8 minutes after the instrument is done sampling. When the Maxi screen finally shows complete, the database and Report are as expected.
- If AeroTrak+ Remote AAS is synced against an SNTP Server where, for example, the time is off by one hour, it's expected that the data being collected are one hour old and FMS Software does not distribute old data well. If the Program ends and the Report is complete, that is as good as it gets.

In such cases, please verify with TSI Remote Application that the SNTP IP Address and SNTP Offset Time Zone (UTC Offset against GMT) are correctly set to not have time difference between the AeroTrak+ Remote AAS and FMS Software.

Multicast Address Issues

- 1. Some Windows[®] 7 or Windows[®] 10 Operating Systems will mysteriously refuse sending multicast messages. Adding the **Reliable Multicast Protocol** in the protocol list used by the network card may be needed.
- 2. Multicasting **DOES NOT** work on an Ethernet network where multicast addresses are blocked.

The Windows registry may have to be edited to add the IGMP protocol values as outlined below.

- Open the Registry Editor, and navigate to HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters\
- In the right pane, right-click and select New DWORD (32-bit value), set name as IGMPVersion, and set value to 4. A value of 4 means support IGMP version 3.
- In the right pane, right-click and select New DWORD (32-bit value), set name as IGMPLevel, and set value to 2. IGMP level 2 means it supports sending and receiving multicast packets.
- Restart computer to activate the settings.

IMPORTANT NOTE

To edit the Windows registry, you must be logged in with an account having local administrative rights.

- 3. Verify the availability of the default port 5000. Follow the process below to do so.
 - > Open **Resource Monitor**.
 - Select **Network** tab.
- 4. If port 5000 is used by other programs, re-assign a new multicast port for both instrument and FMS Software.

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istening Ports	í.					•	11.21
nage	PID	Address	Port	Protocol	Firewall Sta	*	
chost exe inet	804	IPv6 unspecified	4500	UDP	Allowed, n		60 Seconds
chost.exe (net	804	IPv4 unspecified	4500	UDP	Allowed, n		TCP Connect
eamViewer_Se	2808	IPv6 loopback	5353	UDP	Allowed, n		
hrome.exe	8564	IPv6 unspecified	\$353	UDP	Allowed, n		
eamViewer_Se	2808	192.168.1.1	\$353	UDP	Allowed, n	(B)	
eamViewer_Se	2808	10.1.3.177	5353	UDP	Allowed, n		
hrome.exe	8564	IPv4 unspecified	\$353	UDP	Allowed, n		
rchost.exe (Ne	1276	IPv6 unspecified	\$355	UDP	Allowed, n		
rchost.exe (Ne	1276	pv4 unspecified	5355	UDP	Allowed, n	-	Umbrella
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References—Technical Bulletins

- TCC-127—How to Setup Batch Manager
- TCC-137—FMS 530 FMS Alarm Group with Messages Setup Configuration

Revision History

Revision	Released	Description
А	10 October 2020	Initial Release
В	6 November 2020	 Added Important Note on page 20. Change Unit description to L in OPC UA Section.

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Technical Note TCC-187 Rev B

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