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# SEMI V2.1.4 System Software User Manual



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### 1. Introduction

This manual provides SEMI system software operation instructions for SLiM or SAM systems.

### 1.1 SEMI Software Version 2.1.4

The information in this manual reflects the features and functionalities of SEMI software Version 2.1.4.

### 1.2 **Products Supported by Version 2.1.4**

The following products are supported by SEMI software version 2.1.4

- SLiM 100: This fixed-installation SLiM 100 Lithography Process Tool Monitoring System detects volatile organic compounds (VOCs) in the lithography process and supports up to 32 sampling ports. It can support up to four analyzers, one of which includes a broadband VOC analyzer that can detect up to 10 AMC species in the parts per billion range.
- SLiM 100S: This smaller, mobile version of SLiM 100S Lithography Process Tool Monitoring System detects volatile organic compounds (VOCs) in the lithography process and supports up to 16 ports and up to two analyzers, one of which includes a broadband VOC analyzer that can detect up to 10 AMC species in the parts per billion range.
- **SAM-C:** This fixed-installation version of SAM supports up to 32 sampling ports and up to four analyzers (VOC analyzer not included).
- **SAM-S:** This smaller, mobile version of SAM supports up to 16 ports and up to two analyzers (VOC analyzer not included).

### **1.3 A Note Regarding Example Illustrations**



IMPORTANT NOTE ABOUT ILLUSTRATIONS: Many of the illustrations in this manual are for example only and generally reflect the SLiM-100 32-Port system and therefore may not represent what the system that you purchased provides.

For example, if you have a SAM-S system, the ports shown on some UI pages may be 8 or 16 ports. Also, the number and type of species displayed will differ, depending on the analyzers that were ordered during purchase (and in this case, will not display VOC species).

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### 1.4 SLiM and SAM Product Hardware Manuals

For installation, safety, and hardware startup and shutdown instructions, refer to one of the following manuals included with your applicable product:

- SLIM 100: Picarro PN 40-0097
- SLIM 100S: Picarro PN 40-0098
- SAM-C: Picarro PN 40-0099
- SAM-S: Picarro PN 40-0100

#### 1.5 Intended Use

SLiM 100 and SAM systems are fully integrated **AMC (Airborne Molecular Contamination)** monitoring systems with hardware and software working seamlessly together, enabling efficient and effective monitoring of AMCs in your fab.

AMCs can affect your final product and equipment. With contaminants coming from inside and outside the fab, it is vital to monitor and understand changes to the ambient environment. SLiM 100 and SAM monitors your fab conditions, using integrated sensors to track AMC trends in key fabrication areas; the system actively and accurately visualizes, analyzes, and stores data continuously, so you can view conditions and evaluate them according to your unique needs.

The User Interface (UI) provides an easy to use layout to access monitoring of the most recent species concentration values, recipe creation, scheduling and management, system health, and numerous related settings. The navigation panel along the interface left side will advance you to each page. More information about the navigation panel will be in the sections that follow.

Once you are logged into the system software, the **Monitor** page is the first page of the UI that appears. It is the starting point for accessing all the other system features. It shows the analyzer readings, the most recent species concentration values, and the analyzer conditions.

### 1.6 Key Features

SLiM 100 and SAM offers the following elements as prime advantages in AMC detection:

• FAST SYSTEM RESPONSE: The gas-handling hardware of the SLiM 100/SAM system has been specifically designed to minimize the "time-to-detection" response function of the sampling system. Flow control hardware enables you to monitor up to 32 unique locations throughout your fab and can rapidly detect concentration changes within the various monitored environments.

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- A USER-FRIENDLY GUI: While the SLiM 100/SAM hardware system is complex, its UI is simple, easy-to-use, and configurable. From the UI, you can evaluate the concentration of one species or multiple species, and you can assess conditions of specific ports, multiple ports, specific instruments, multiple instruments, a bank or the entire fab. In addition, these conditions can be reproduced in both graph and tabulated forms, so you can see patterns and changes and generate reports for offline analysis and archiving.
- MOBILE MANAGEMENT: For network connected installations, the software enables you to access all of its software features and have full system control from your desktop; you do not have to gown-up and enter the fab to modify measurement schedules and adjust measurement conditions. The software also dynamically detects hardware connections and configures itself; you can easily validate these connections via the System page on the GUI.
- EASY-TO-USE DATA EVALUATION TOOLS: The GUI enables you to track current conditions and to track the history of conditions. The software is always monitoring and collecting concentration data on multiple species from each port in your fab. You can view a history of changes and spot trends, by species, by location, and by specified time period. This enables you to respond to AMC conditions in the moment and make improvements based on your analysis of historical trends.
- SIMPLE RECIPE CREATION and SCHEDULING: The user interface provides Schedule and Recipe Library interfaces where you view currently running scheduled recipes and easily generate, store and schedule new recipes. You can also create and store new recipes and modify existing recipes from the Recipe Library.

### 1.7 Audience and Manual Scope

This manual is designed for technicians, production managers, fab managers, and those involved in the monitoring and management of semiconductor fabrication facilities.

### **1.8 Manual Organization**

This manual describes the User Interface software, divided into the following sections:

- **Monitor:** Displays live data points and historical data where users can choose a relative time span or define a custom time span. It also provides selectable lists to view data by species, port number, and name. See page **20**.
- Recipes: The Recipes page has two tabs. The Schedule tab enables you
  to view recipes that are currently running and those that are scheduled to
  run. You can manage the schedule for each recipe listed or remove it from

the schedule. From this page you can also create a new recipe or select an existing one from the Recipe Library to add to the schedule, as well as run an individual port. From the **Recipe Library** tab, you can create new recipes or edit existing recipes in the library and add them to a schedule. See page **37**.

- **System:** Provides a view of the SLiM/SAM CPU usage, temperature, memory usage, and storage status. It also provides the analyzer's operational, hardware health, and connected hardware communication status. See page **58**.
- Logs: Provides access to all existing logs generated by the system for download to a designated location. See page 60.
- Settings: This icon opens the Settings page, which provides the following tabs. See page 66.
  - Ports Tab: Edit port names, optimize flow rates each time a sampling line is changed, and adjust the time needed to stabilize pressure fluctuation after port switching.
  - Species Tab: Set warning and alarm thresholds for each monitored species per port.
  - General Tab: Set date and time; Change units of measurement for species concentration; Select Download File Format; Assign Port Average value.
  - Zero Port Tab: Select Analyzer SI5450 (SO2 analyzer) or VOC (if equipped); Select a specific port to designate as a Zero Port (SO2 analyzer only if no pressurized clean air source is available); Set MFC flow rate (SO2 analyzer only); Set species offset value(s) – (both VOC and SO2 analyzers).
  - Backup Tab: Set the backup frequency to Automatic or Manual backup; Backup frequency; Backup location – either local or remote (remote requires password); Encryption.
  - **My Account Tab:** Adjust your user account details and change your password.
  - **About Tab:** View the system serial number, software version, UPS details (if equipped), and view installed analyzers.
  - User Management Tab: (Appears only for system Admin when logged in.) Provides tools to: Create new user profiles; Edit user details; Change password; Deactivate a user; Remove a user.
- Alerts: Clicking on this icon opens a chronological list of alerts such as threshold breaches and FDC events as they occur during recipe runs.
- Profile: Clicking on this icon opens a menu with links to user profile for editing, or to log out of a SLiM or SAM system.

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• **Shutdown:** Activating this will shut down the installed analyzers and the SLiM/SAM computer. See page **16**.

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# 2. Accessing the User Interface

### 2.1 Login



When a SLiM 100 or SAM system is delivered and set up, Picarro provides an admin login and password so an owner-designated admin can then set up user profiles. See section *9.8 User Management Tab* in instructions on adding users.

- **1.** After system power up, the system login screen appears.
- 2. Enter your username, click Next, enter password, then click Submit.

If a full system startup is not needed, you will be taken directly to the *User Interface Landing Page – Monitor* (shown in Figure 4). If full system startup is needed, the sequence explained below (**System Startup**) will take place *before* taking you to the Login page.





### 2.2 System Startup

When a system is first started or restarted, a **System Startup Status** pop-up screen will appear, showing the progression of the startup (Figure 2 and Figure 3).

System Startup Status				
Software Service		Hardware Drivers		
Rest Service	Started	IDriver	Starting	
MadMapper	Starting	SAMletDriver	Starting	
Time Sync	Starting	MFCDriver	Starting	
Establish Flow Rate	Not Completed	NumatoDriver	Starting	

Figure 2: System Startup Status Screen – Starting

System Startup Status				
Software Service		Hardware Drivers		
Rest Service	Started	IDriver	Started	
MadMapper	Started	SAMletDriver	Started	
Time Sync	Started	MFCDriver	Started	
Establish Flow Rate	Not Completed	NumatoDriver	Started	
		VOCZero Device Driver	Started	

Figure 3: System Startup Status Screen – Completed

- **3.** If any one of the services or drivers fails during startup, the sequence will pause. If this occurs, contact <u>Picarro Support</u> for assistance.
- 4. If you wish to close the Startup Status pop-up while startup is still running, click the X in the upper right corner.
- 5. Once the startup sequence has completed, the **Monitor** page shown in Figure 4 is displayed. This is the default landing page upon startup. It shows the current graphs of concentration values for each species being monitored by the system.



Figure 4: User Interface Landing Page – Monitor

### 2.3 Shutdown Picarro SLiM or SAM



Clicking this icon opens a shutdown pop-up (Figure 5). Activating this will shut down all installed analyzers and the SLiM/SAM computer. All other components in the system remain energized.



Shutting down the SLiM/SAM from the UI does NOT turn off the entire system. For a safe, full shut down of the entire system (e.g., for service), refer to the Hardware Installation and Startup Manual that was delivered with your system. See section *1.4, SLiM and SAM Product Hardware Manuals* to find the document part number applicable to your system.

() Shutdown	Picarro SAM	
All processes will be shutd	stopped if SAM is own	
Cancel	Shutdown	

Figure 5: Shutdown Confirmation

### 3. General User Interface Terminology

- **Bank:** A collection of ports, numbering 8 each that are routed to different areas of a fab for sensing AMC (airborne molecular contaminants). The number of banks depends on your system configuration.
- Breach: When a measured species concentration value exceeds the concentration assigned Warning or Alarm thresholds for that species.
- **Cleaning a Bank:** This runs a clean gas through the analyzer to return it to baseline.
- FDC: Fault Detection and Control: FDC alerts provide the user with system event information as FDC events occur and can inform the user when there is an issue with sensor readings within any of the installed analyzers that may affect the validity of the concentration readings for a relevant species.
- Interference Flag: When zeroing a VOC analyzer, an additional calculation is performed on the stored port-average data to determine its validity, e.g., whether or not an unknown molecular interferent is negatively affecting the measurement accuracy. The value of the Interference Flag is calculated at the end of each port measurement.
- Loop Recipe: This runs a recipe repeatedly as configured by a user.
- **Port:** The endpoint from which the species' concentrations are read.
- Recipe: Collection of steps where selected ports are sequentially connected via valves to the installed analyzers for concentration measurements.
- Reference Gas: The gas used to verify the calibration of the analyzer.
- Run Port: This is a manual operation that allows the selection and running of any port in order to immediately see what concentration values of supported species are being detected at that port location within the fab.
- **Run Recipe:** This runs the recipe you have established with your schedule.
- Species: The molecule being measured.
- **Standby:** System state whereby the system is running, but no concentration measurements are taking place.
- SYNC X: Synchronization of the graph X-axis to all species; plots.
- **Threshold:** Refers to species' concentration level warning and alarm thresholds that are set up by species and by port.

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# 4. UI Navigation Panel

From the Landing page or any page, you can navigate to any place in the user interface by selecting the icons from the navigation panel located on the left side of the display. See the table below for general functionalities of each navigation icon.

#### Table 1: UI Navigation Panel General Functions

lcon	Functionality	
Monitor	<b>Monitor:</b> This icon takes you to the Monitor page where you can view and download measured species live and historical data values. It also provides multiple ways of viewing the data and various tools for evaluating specific data points or areas of data.	
<b>Recipes</b>	Recipes: This icon takes you to the Recipes page where you can monit measurement schedules, create new recipes, or select and add existing recipes to a schedule. The Schedule tab provides a view of the ongoing sampling steps as they execute for each designated measurement port. You can also create and add new recipes from this page. The Recipe Library tab provides access to all previously created recipes which you can select to add to the schedule, view, edit, or delete. You can also create new recipes from this tab.	
System	System: This icon takes you to the System page. The page has two tabs System Status: Provides a view of the SLiM/SAM CPU usage and temperature, memory usage, and storage status. It also provides Analyze operational status, and communication status of connected hardware. Sensors: Displays analyzer and other system component fault status.	
Logs	<b>Logs:</b> This icon takes you to the <b>Logs</b> page. This page provides access to all existing logs generated by the system software for viewing and downloading to a designated location.	
Settings	<ul> <li>Settings: This icon takes you to the Settings page, which provides the following tabs:</li> <li>Ports tab: Here, you can: Edit port names, optimize flow rates each time a sampling line is changed, and adjust the time needed to stabilize pressure fluctuation after port switching;</li> <li>Species tab: Here you can: Set warning and alarm thresholds for each monitored species for Ports 1-32 (not applicable to Clean, Reference, or VOC Zero port).</li> <li>General tab: Here you can: Set date and time; Change Units of Measurement for species concentration; Select Download File Format; Assign Port Average value.</li> <li>Zero Port tab: Here you can: Select Analyzer – SI5450 or VOC (if</li> </ul>	

#### **UI Navigation Panel**

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lcon	Functionality	
	<ul> <li>only); Set MFC flow rate (SO2 analyzer only); Set species offset value (both VOC and SO2 analyzers).</li> <li>Backup tab: Here you can: Adjust Data Backup Settings including: Automatic or Manual backup; Backup frequency; Backup location – either local or remote (remote requires password); Encryption.</li> <li>My Account tab: Here you can adjust your user account details and change your password.</li> <li>About tab: Here you can view the SLiM/SAM system serial number, software version, UPS details (if equipped), and view installed analyzers.</li> <li>User Management tab (appears only if admin is logged in): Provides tools to: Create new user profiles; Edit user details; Change password; Deactivate a user; Remove a user.</li> </ul>	
Âlerts	Alerts: This icon opens a window that displays a list of all Alerts and Notifications, including Threshold, FDC, Interference, and System Issue events. This can be activated while Monitor, Recipes, System, and Logs pages are open. Clicking anywhere outside the list frame closes the alerts list.	
O Profile	<b>Profile:</b> This icon opens a window from which users can access their account profile or logout from the system.	
Aug 03, 2023 11:25:46	Displays current date and time.	
$\bigcirc$	<b>Shutdown:</b> Activating this icon provides a prompt to shut down the SLiM or SAM system.	

### 5. Monitor Page

### 5.1 Introduction



The Monitor page (which is the default landing page after login) enables the user to monitor and analyze measured species' data values over time. The numbered callouts in Figure 6 identify the general feature groups. Each feature is described in greater detail in the next section.

Acetic Acid	Ports Measure Processed data * Refresh rate 5 sec *	Sync X 🔯 Download 🕹 📈 Line 🖡 S
<b>SO</b> <sub>2</sub>	🛓 💱 Acetic Acid (ppb)- Loading	Q, +
Acetone	1	
D3_Siloxane	0.6	
D6_Siloxane	0.4	
HMDSO		
Isopropyl Alcoho	11:30 11:40 11:50 12:00 Jan 8, 2024	12:10 12:20 12:30
NMP	* 50 SO <sub>2</sub> (opb)- Loading	Q.+
PGME		
		1 Le marsin
Trimethyl Silanol		. A. 14 244. 3
	· · · · · · · · · · · · · · · · · · ·	4 A 4 6 M
	el 1130 Jan 8, 2024 11:40 11:50 12:00	12:10 12:20 12:30

- 1. Species Column: All available species that can be measured by the system are listed here. The species column can be collapsed to allow expanded viewing of data windows.
- 2. Port Selection; Measurement Data Type; Refresh Rate: Menus for customizing data graph views.
- **3. Graph Slider:** Three-position slider allows viewing of 2, 4, or 6 data graphs for each species to display in Monitor view (default is two graphs).
- 4. Sync X; Download; Line/Scatter: Provides a sync x-axis button to view same live and analysis data time spans for all available species; Provides a data download menu; Provides choice of line graph or scatter graph data presentation.
- 5. Data Graph Area: This area displays data graphs over time that are selected by species for viewing. Allows full-page expand graph view, zoom, pan, reset axes, and image/data file download. Displays historical data for analysis when one of the time spans (located at the page bottom) is selected. For details, see 5.2, Data Graph Details.
- 6. Live Data Feed and Historical Analysis buttons; Stop/Start Recipe button and Run Status: Provides live data feed and historical data buttons. view status information of the currently running Recipe and Port; Stop /Start recipe schedule.

Figure 6: Monitor Page – Default View

Monitor Page

### 5.2 Data Graph Details

The data graph for each species contains information available for live viewing and analysis, or historical analysis as described in this section. In graphical data representations, data can be viewed in either **Live** mode (which is represented in a rolling 1 hour time frame – (the default presentation), or for analysis can be selected to view in historical **6 Hour**, **1 Day**, **7 Day**, or user-selected **Custom** time frames.

#### Live Mode

The default **Monitor** page presentation is **Live** mode, designated by the "**Live**" indicator (shown at the left-lower bar at the bottom of the page). **Live** is the default view.



Figure 7: Live Mode – Rolling 1 Hour Data Display

#### **Graph Data Point Details**

When hovering the cursor over any of the data points, a pop-up appears (Figure 8) which displays that point's details: **Status** (Normal, Warning, or Alarm), the **Port Label**, the **Port Number** at which the reading was taken, the **Concentration** reading, and **Date/Time** of the data point. Shown are the various pop-ups a user may see on a species graph.



Figure 8: Individual Data Point Informational Graph Pop-ups

#### **Graph Data Point Color Designations**

Below the data point colors that may display during a sampling run are defined (Figure 9).





Monitor Page

### 5.3 FDC (Fault Detection and Control)

FDC alerts provides the user with system event information when FDC events occur and can inform the user when there is an issue with sensor readings within any of the installed analyzers that may affect the validity of the concentration readings for a relevant species.

#### **FDC Graphical Alerts**

FDC alerts are graphically displayed as dark blue data points in the graph, and light blue vertical shading which helps identify the length of time over which the error has occurred. Hovering over an FDC data point opens a pop-up (Figure 10) that provides details of the error and the port on which it occurred. *Note: FDC Error indications appear only when Processed Data or Raw Data is selected from the Measure menu.* 



Figure 10: FDC Event Example (Processed or Raw Data Measure Mode Only)

#### **FDC Alerts in Numerical Data Downloads**

Below is an example of downloaded data output illustrating FDC events.

ACETONE	ACETONE_thread	Analyzer	Epoch	FDC_Events			FOC FR	ag Plan	Port	Port Labe	Time			
		512108	1,76+18			124 B-124 B-124 B-125	0	Jitho-44-All Ports	29.	Port 29	3023-09-28	08:50:06.1	67006-67	
		VOC	1.75+18	CavityTemperature	e_Low", "CavityTe	mperature1_Low"	3	Litho-42-515 Ports	29	Port 29	2023-09-28	08:50:06.8	77999-07	
		AOC.	1.76+18	'CevityTemperature	e_Low', 'CavityTe	mperature1_Low'	1	Litho-42-All Ports	29	Port 29	2023-09-28	08:50:06.5	11000-07	
	\$(3401			"hel_interval_high",	'Cavity2Tempera	ature', 'Cavity2Temperature2', 'Ca	- 1	Litho-4e-All Ports	29	20rt 29	2023-08-28	08:50:05.5	77999-02	
		5(3401	1.7.18	"hcl_interval_high",	"Cavity2Tempera	ature', 'Cavity2Temperature2', 'Ca	1	Litho-44-All Ports	29	Port 29	2023-09-28	08:50:05.4	198999-03	
		5(5450	1.72+10				0	Litho-4a-All Ports	29	P0rt 29	2023-09-25	08150105.4	M8333-03	
944.941541		VOC	1,70+18	-avity1emperature	<ul> <li>Low, Cavityle</li> </ul>	mperature1_tow		Litho-4a-All Ports	- 29	90rt 29	2023-09-28	08.30.04	10000-03	
		SOM/A	1.75+10	C	D			E						
		512508	1,75+18	Analyzer	Epoch	FDC_Events							0	
		5/3401	1.75+18	612109	1 75+10	_							0	
		VOC	1.75+18	312100	1.75+10								-0.	
			1.70+18	VOC	1.7E+18	'CavityTemperature	e_Lov	v', 'CavityTen	npera	ature1	Low'		0	
		513401	513401	1.76+18	voc	1.7E+18	'CavityTemperature	e Lov	v', 'CavityTen	npera	ature1	Low'		0
656 581581		50306	1.20138	SI3401	1.7E+18	'hcl interval high'.	'Cavi	itv2Temperat	ture'.	'Cavity	/2Temp	eratu	re2'	
001.011.011		VOC	1.70+18	612401	1 75+10	'hel interval high!	Caul	itu 2Tomporat	turol	Couit	()Tomp	oratu	0.210	
		5(3401	3.70+18	315401	1.76+10	nci_interval_ingir,	Cavi	ityzremperai	ure,	Cavit	zremp	eratui	ez , <sub>01</sub>	
		50401	1.75+18	\$15450	1 7E+18								07	
		5(5450	1,21+18				0	Litho-4a-All Ports	29	Port29	2023-09-28	08:49:58.3	05000-07	
		VOC	1.70+18	'CavityTemperature	e_LOW', 'Cevity're	mperature1_Low'	1	Litho-4e-All Ports	29	9ort 29	2023-09-28	08(49:58.5	54999-07	
		5/2308	1.70+18				. 0	Litho-4a-All Ports	29	Port 29	2023-09-28	08:49:58.4	153000-03	
		513403	1.7(+18	"hcl_interval_high",	Cavity21empen	sture', 'Cavity21emperature2', 'Ca	1	Litho-4s-All Ports	- 29	Port 29	2023-09-28	08:49:58.1	126333-03	
		VOC	1.7(+18	CavityTemperature	e_Low', 'Cavity're	mperature1_Low"	1	Litho-4a-All Ports	29	Port 29	2023-09-28	08/69/58.3	137000-07	
		5(3401	1.7(+18	'hcl_interval_high'.	Cavity21emperi	slure', Cavily21emperature2', Ca	1	Litho-da-All Ports	29	Port 29	2023-09-28	08:49:57.4	45999-03	
663.8452854	2	VOC	1.7(+18	CavityTemperatur	e_Low', 'CavityTe	mperature1_Low'	1	Utho-4e-All Ports	13	Port 29	2023-09-28	08:49:56.5	67000-07	
<u> </u>		MCK.	1.7(+18	CantyTemperature	e Low, CavityTe	mperature1 Low	1	Littio-4e-All Ports	- 25	POP1 29	2023-09-28	08149156.4	achaodil-07	

Figure 11: FDC Alerts in Downloaded Data

### 5.4 Interference Flags (VOC Analyzer Only)

When zeroing a VOC analyzer, an additional calculation is performed on the stored port-average data to determine its validity, e.g., whether or not an unknown molecular interferent is negatively affecting the measurement accuracy. The value of the Interference Flag is calculated at the end of each port measurement. The flag value cannot be seen in any visual display and is only available from the Port Average data export function. Flag definitions are given below:

- 0 = OK; no interference at this data point
- 1 = Interference is probable at this data point
- -1 = Insufficient information to flag whether this data point has interference or not.

#### **Interference Flag Graphical Designations**

Interference flags only appear with **Port Averaging** measurement mode selected. *Can be viewed only in Summarization mode*.



Figure 12: Interference Flag Graphical Example (Summarization Mode)

#### Interference Flag Downloaded Numerical Data

Below is an example of VOC downloaded data output illustrating the interference flag column (int\_flag) and flag states for Trimethyl Silanol.

The interference flag applies to all species supported by the VOC Analyzer. If an unknown interference species is detected, the interference flag pertains to all species concentration values during that port run.

int_flag 💌	e 🔻	resh 🔻 Time	IMETHYL_SILANOL_	_SILANOL_avg_ppb T
0	40:14.5			2.804758105
0	38:41.2	0		-0.063990524
0	point.	ce at this data po	No interfere	-7.759213035
0	26:41.1	0		-1.245935073
1	10.00.4	is data point.	Interference at	-20.46935861
-1	14:40.7	0		0.583975281
-1		n at this data 🚬	Insufficient informa	-11.42220384
-1	02:35.4	ner or not	-1734.328602	
-1	01:12.0			-2113.939055
-1	00:05.9			-1809.906362
0	56:12.2			-16.32211144
-1	55:23.1	0		-1732.345916
-1	45:24.0			-1734.719902

Figure 13: VOC Analyzer Exported Data Showing Interference Flag States

### 5.5 Monitor Page Settings and Tools

Shown below is the **Monitor** page with **Live Feed** active. In this section, each feature and function is described in detail. *With Live Feed* active, the graph always displays a rolling 1-hour time span of data as it is collected.



Figure 14: Monitor Page

#### **Species List**



2	NMP	
	PGME	
	PGMEA	

- 1. Species List: This area lists all species being monitored.
  - The **number of species listed** depends on the analyzers installed and whether they are communicating and sending data to the SLiM/SAM computer. By default, the first 2 species are selected.
  - The **Species** list can be collapsed to allow for more area to view and analyze data graphs.
  - Selecting a species anywhere in the list will also select the next species down. These two species are then displayed in the two data graphs displayed on the UI. (Note: If the user clicks on the last species, then the species above it will be selected. For example, in the image at the left, SO2 is the last species, if the user clicks on SO2, then PGMEA and SO2 will be selected.)
  - The default order of the list is alphabetical. However, when a user rearranges the species, the new arrangement will be saved in the individual user preferences. The next time the user logs in, that same arrangement will be shown.
  - Rearranging List: Each species in the list can be rearranged by dragging and dropping to a different position on the list in any arrangement desired. (Default positions are alphabetical.)
  - The **icon color** next to each species in the list indicates the following as described in the table below. (**Note:** *These indicators are based on Processed Data only.*)



Icon Color (based only on Processed Data)	Indication Definition
GREEN	<b>Normal (</b> Processed data below warning and alarm thresholds)
AMBER	<b>Above Warning (</b> Processed data has breached warning threshold)
RED	Above Alarm (Processed data has breached alarm threshold)

#### Monitor Page

# ΡΙΟΔ R R Ο

Colors on Detailed Graphs (based on any data type)	Indication Definition
BLUE	<b>FDC Events</b> (appear only when <i>Processed Data</i> or <i>Raw Data</i> is selected from the <b>Measure</b> menu) <b>Interference Events</b> (appear only when <i>Port Average</i> is selected from the <b>Measure</b> menu)
GREY	Standby, Clean, Reference, Stabilization
GREEN	Normal (State is 0) (Always green when Measure mode is Port average or 100s average, regardless of whether thresholds are exceeded.)
AMBER	Warning (State is 1)
RED	Alarm (State is 2)

#### **Ports Menu**



 Ports Menu: Clicking the Ports button opens the window shown below where you can select (or unselect) all or any number of individual ports for concentration data viewing and analysis.



#### **Measure Menu**

Measure Processed data \*
Processed data
100s average
Raw data
Port average

3. Measure Options: Clicking button opens a menu from which the user can select the following data measurement/display options as defined below. Processed data is the default selection.

- Processed Data: Removes data that is measured during stabilization time each time the system switches to the next port. In other words, processed data eliminates stabilization time but still tags FDC Data. Default Stabilization Time is 20 seconds (but can be altered in the Settings Page under the Ports tab).
- 100s Average: Selecting this displays the average of the last 100 seconds of data in a time frame. However, all samples will be displayed in green even when they are above a warning or alarm threshold.
- Raw Data: Selecting this displays all unprocessed data collected

- Port Average: When selected, the software will take an average of the last 'n' seconds of data taken (the default setting for 'n' = 60 seconds). This time can be modified in Settings | General | Port Average. There, the user sets the number of seconds to average data from the end of the run).
  - For inorganic species then last n seconds as mentioned in settings.
  - For organic (VOC-measured) species, it averages the entire port average.
  - When Port Average is selected, all sample data is displayed in green, even if data are above warning or alarm thresholds.
  - Interference flag details are shown only with Port Average enabled.

#### **Refresh Rate**

Refresh rate 5 sec 🔺
disabled
5 sec
10 sec
15 sec
20 sec
1 min
2 min
5 min
10 min

 Refresh Rate: Opens a menu from which the user can select the rate at which the displayed graphs refresh as data are collected.

Shown here is the expanded menu with the available refresh rate selections. The selection **Disabled** is available when the user wishes to pause data refresh when needing to take time to view and scrutinize a particular area of data. The available refresh rate selections are:

- 5 seconds
- 10 seconds
- 15 seconds
- 20 seconds
- 1 minute
- 2 minutes
- 5 minutes
- 10 minutes

### Multiple Graph Display Control

5. The Multiple Graph Display control allows the user to view more than two data graphs on the monitor. The functionalities of each graph are still the same.



Monitor Page

### ΡΙΟΔRΟ

#### Sync X Sync (On) 6. Sync X: Turning Sync X On synchronizes the X-axis span on all species' graphs when any graph is zoomed or panned, whether in SYNCX Q Live view state or in Analysis view state. For Live Monitoring, this control is active Sync (Off) Refresh rate disabled only when Refresh Rate is disabled. SYNC X 🕅 When an **Analysis** time span has been selected (at bottom of Monitor page), Sync X is always active. 6 Hours 1 Day 7 Days Custom

#### **Download Data Button**

Download 🛃

 Download: Selecting this icon (upper right corner of Monitor window) will open the Download Data dialog shown below in Figure 15. The user can select any or all species, any or all ports, graph type, and time range.

Clicking **Download** button will activate a pop-up status indicating when download is ready, then the Windows **Downloads** list will appear, where the user can open the file for viewing, and save to a designated location. Figure 16 shows an example opened data file.

Select Date From		То			Graph Type				
Aug 12, 2023 20:48	:42	Aug 12, 2023 :	21:48:42		Processed Data	a 100s Average	R	aw Data	Port Average
Select Species									UNSELECT /
ACETIC ACID		ACETONE		D3 SILOXANE	۲	D6 SILOXANE	۲	HCI	(
Downlo	ads	Ľ	<u> </u>		OHOL 💿	NH3	۲	NMP	(
		a data export-08-13	2-2023 20484	2-08		6	0		
PGME Den	_slim100-bet file				۲	TRIMETHYL SILANOL	•		
PGME SAM Open Select Ports	_slim100-bet	10   Port 10		11   Port 11	•	TRIMETHYL SILANOL	۲	13 Port13Test	UNSELECT
PGME Select Ports	_slim100-bet	10   Port 10	۲	11   Port 11	•	TRIMETHYL SILANOL	•	13   Port13Test	
PGME SAM Open Select Ports 9   Port9Test 14   Port 14 19   Port 19	_sim100-bet	10   Port 10	● /nload is	11   Port 11 Ready	© Downlo	12   Port 12	•	13   Port13Test 18   Port 18 23   Port 23	UNSELECT A
PGME 3 SAM Select Ports 9   Port9Test 14   Port 14 19   Port 19 24   Port 24	sim 100-bet	10   Port 10 ) Your Dow 25   Port 25	Inload is	11   Port 11 Ready 26   Port 26	© Downle	12   Port 12	•	13   Port13Test 18   Port 18 23   Port 23 28   Port 28	UNSELECT
PGME         SAM. Open           9   Port9Test         14   Port14           19   Port19         24   Port 24           29   Port 29         29   Port 29	sim 100-bet	10   Port 10 ) Your Dow 25   Port 25 30   Port 30	● /nload is ● ●	11   Port 11 Ready 26   Port 26 31   Port 31	© Downle © ©	12         Port 12           Dad Now         2           27         Port 27           32         Port 32 Test 2	•	13   Port13Test 18   Port 18 23   Port 23 28   Port 28 Reference	UNSELECT A

Figure 15: Data Download Dialog

#### Monitor Page

A	В	С	D	E	F	G	H	DC CILO	J	AA	AB	AC	AD	AE	AF	AG
ACCETIC ACL		ACCTONE	ACETONIE			US_SILU	D6_SILO	DO_SILU			Dent		CO2 1-4	TRIMETH	TRIMETH	
ACETIC_ACI	ACETIC_ACI	ACETONE	int flog	- Analuzor	D5_SILOXAN	t flog	ANE_av	ANE_III	French	Bort	Label	SU2_avg_	SU2_Int_		OL int fl	Time
166 6054246	U_IIIL_IIag	_avg_pp0	IIII_IIag	VOC	5 000032146	1	8 <sup>-</sup> bbo	1	1 75+19	27	Dort 27	ppp	nag	15 42794	1	2022 09 28 08:48:19 080999 07
100.0034240		332.2314		\$12109	3.333323140		0	~1	1 75+19	27	Port 27			13.42704		2022-09-28 08:48:19.080999-0
				\$15450					1 76+10	27	Port 27	0 124244				2022-09-20 00:40:10.910000-01
				\$12108					1.75+19	26	Port 26	0.134344				2022-09-28 08:45:18 871000-0
				\$15450					1 76±10	20	Port 26	0 11297				2022 09 20 00:45:10 202000 0
200 0021097	1	522 2527		313430 VOC	1 504262102	1	0	1	1.70+10	20	Port 26	0.11207		52 67911		2023-09-28 08:45:18 255000 0
203.0331087		550 40044		VOC	1.304203133		0	-1	1.70+10	20	Port 25			91 60500		2023-05-28 08:43:18:233000-0
202.1303135	-1	300.42244		\$12109	0	-1	U	-1	1.75+10	23	Port 25			81.00303	-1	2023-09-28 08:42:17:734999-0
				512108					1.75+10	25	Port 25	0.000650				2023-09-28 08:42:16.504000-0
200 2007076		500 40601		313430	0		0		1.70+10	2.5	Port 24	0.085032		04 20070		2023-05-28 08:42:13:313000-0
290.3997070	-1	390.49081		VUC	0	-1	U	-1	1.75+10	24	Port 24	0.000000		94.20078	-1	2023-09-28 08:39:18.278000-0
				515450					1.76+18	24	Port 24	0.062812				2023-09-28 08:39:17.283000-0
				512108	-		-		1.7E+18	24	Port 24					2023-09-28 08:39:16.953999-0
311.931/5/2	-1	010.10029		VUC	0	-1	U	-1	1.76+18	23	Port 23	0.040470		98.37209	-1	2023-09-28 08:38:18.975000-0
				515450					1./E+18	23	Port 23	0.042479				2023-09-28 08:36:18:353999-0
				512108					1.7E+18	23	Port 23					2023-09-28 08:36:17.377000-0
				512108					1.76+18	22	Port 22					2023-09-28 08:33:18.185999-0
372.0930007	-1	629.05591		VOC	0	-1	0	-1	1.7E+18	22	Port 22			135.0458	-1	2023-09-28 08:33:17.570000-0
				\$15450					1./E+18	22	Port 22	0				2023-09-28 08:33:15.969000-0
431.4884574	-1	616.6287		VOC	0	-1	0	-1	1.7E+18	21	Port 21			142.7899	-1	2023-09-28 08:30:18.910999-0
				SI2108					1.7E+18	21	Port 21					2023-09-28 08:30:18.679999-0
				SI5450					1.7E+18	21	Port 21	0				2023-09-28 08:30:18.562000-0
				SI2108					1.7E+18	20	Port 20					2023-09-28 08:27:18.733000-0
				SI5450					1.7E+18	20	Port 20	0				2023-09-28 08:27:18.608999-0
445.8821859	-1	594.49662		VOC	0	-1	0	-1	1.7E+18	20	Port 20			125.0832	-1	2023-09-28 08:27:18.556999-0
461.8839981	-1	588.70592		VOC	0	-1	0	-1	1.7E+18	19	Port 19			106.6945	-1	2023-09-28 08:24:18.512000-0
				SI2108					1.7E+18	19	Port 19					2023-09-28 08:24:18.093999-0
				SI5450					1.7E+18	19	Port 19	0				2023-09-28 08:24:16.109000-0
497.1669647	-1	607.4094		VOC	0	-1	0	-1	1.7E+18	17	Port 17			34.74158	-1	2023-09-28 08:18:19.024999-0
				SI2108					1.7E+18	17	Port 17					2023-09-28 08:18:18.997000-0
				SI5450					1.7E+18	17	Port 17	0				2023-09-28 08:18:16.892000-0
544.2345156	-1	629.22371		VOC	1.702215931	-1	0	-1	1.7E+18	16	Port 16			3.936316	-1	2023-09-28 08:15:18.367999-0
				SI2108					1.7E+18	16	Port 16					2023-09-28 08:15:17.747000-0
				SI5450					1.7E+18	16	Port 16	0				2023-09-28 08:15:16.996999-0
579.3361675	-1	643.20557		VOC	4.376614328	-1	0	-1	1.7E+18	15	Port 15			0	-1	2023-09-28 08:12:18.924000-07
				SI2108					1.7E+18	15	Port 15					2023-09-28 08:12:18.256999-07

Figure 16: Example Downloaded Data File Spreadsheet

### Line/Scatter Display Modes



8. Line or Scatter Data Display Option:

Selecting Scatter displays data as individual points.

Selecting Line displays graph data as a continuous line.



### PICARRO

#### Download Graph Image/Data and Expand Graph View

н	SO2 (ppb)	9.	Download Graph Data: This feature icon (local	
×		30 <sub>2</sub> (ppb)		corner of each data graph, next to the species
				name) is available on each species' graph. Clin
				this button provides selections to download an



lable on each species' graph. Clicking ovides selections to download an image file of the selected data graph (JPG, PNG, PDF), or a CSV file containing the numerical data displayed in the graph. 10. Expand Graph: When clicked, graph expands to full



page for more detailed viewing. This works even when multiple graphs are showing. Clicking again shrinks graph to default size.

#### Graph – Zoom/Pan/Reset Tools

#### 11. Graph Zoom/Pan/Reset Tools:



Zoom: Clicking this icon allows the user to select a particular region of a displayed graph for a closer view of the data as shown below. To zoom in, left-click and hold near the area of interest then drag to the desired capture area.





Pan: To Pan, select this icon to activate. Left-click/hold over the graph area to move the graph around the X and Y axes to move to an area of data that is of interest.



⇔

Pan Time Only: Also, by hovering over the X axis, the cursor becomes a left/right arrow time so the time axis can be panned



left/right (only) to view previous data during live data view. This function is always active and does not require clicking on the Pan icon.





**Reset Axes:** Clicking the **Reset axes** icon returns the graph to its default time span and concentration magnitude, covering the most recent 60 minute time span of data collected.

#### **Summarization Modes for Data Analysis**

12. Data Analysis Time Spans: To view and analyze a summarization of previous data, the user can switch from Live measurement and select one of four historical time ranges; 6 Hours, 1 Day, 7 Days, or Custom for a user-designated time span. Once a range is selected, each species graph shows a Summarization Bar below it so the user can identify problem areas along the selected time span. The vertical marks within the bar are colored to indicate the data status (defined below). Note: The colors in the summarization bar are determined from Processed Data only. The selection of the graph area for the summarization is 24 hours processed, 100s Avg and RAW. While it is 30 days for Port average.



bar are a fixed number of 120 that represents the data summarization within the selected time span.

#### Summarization Bar Color Definitions:

Red = Concentration Data has breached the defined Alarm threshold

Amber = Concentration Data has breached the defined Warning threshold

Green = Concentration Data is below Warning and Alarm thresholds Gray = Measurement in Standby



Following are examples of time selections along with ways the user can manipulate the displayed graph to view the desired area for scrutiny.

Figure 17: Six Hour Historical Time Span



Figure 18: One Day Historical Time Span



Figure 19: Seven Days Historical Time Span

#### Monitor Page



Figure 20: Custom Historical Time Span

#### Live Feed Indicator / Recipe Status / Stop Start Control



 Live Indicator: When highlighted on Monitor page, indicates that live data is being displayed on the graph in a rolling 1 hour time span.

When an **Analysis** time span is selected, the **Live** indicator is not highlighted. Clicking on **Live** will return the displayed graphs to current recipe **Live** display.



**14. Recipe Run Status:** On right lower corner of the **Monitor** page, indicates currently running recipe name, port name, time remaining for that port, and next port to be measured and its duration.



15. Stop/Start Control: Clicking the Stop button stops the currently running recipe. If the recipe running was executed as "Start Now", that recipe cannot be restarted. If the recipe was scheduled for a designated start date/time, the recipe can be restarted by clicking the Start button.
=2

Recipes

### 6. Recipes Page

### 6.1 Introduction

The **Recipes** page provides tools to create, modify, schedule, and run recipes. From the **Schedule** tab (the default view), users can view the schedule and the currently running recipe. It also provides a button to create and schedule a new recipe or add one from the library to the schedule. Also provided is a button to manually run an individual port at any time if needed. From the **Recipe Library** tab, any existing recipes can be added to the current schedule, sorted, filtered, viewed, and edited. New recipes can also be created from the library tab.



- 1. Schedule and Recipe Library tabs
- 2. Go to Recipe Date: Opens calendar to view 7-day recipe schedule dates in future or past.
- Recipe Schedule List: Shows currently running recipe (shaded green) and recipes scheduled by date/ time. Recipe status is indicated as currently running, completed, stopped/inclomplete, or scheduled but not run.
- 4. Currently running Recipe Loop Schedule and Status: In default view, loop is closed.
- 5. Current Recipe step list: Includes run time for each step and a progress status bar.

- 6. Run Port button: Clicking this allows for immediately running an individual port to check its status at will.
- Add/Create New Recipe button: Opens dialog to create new recipes and add to the schedule. See section 6.4, Recipe Creation and Scheduling from Schedule Tab.
- 8. Live; Recipe Info; Stop/Start Control: "Live" (when clicked) returns schedule to current day; Recipe Info Indicates the currently running recipe's status, and provides recipe stop/start control.



Schedule

### 6.2 Schedule Tab Overview

Shown below is the **Schedule** tab. This tab displays the currently running recipe, recipes that have already run, and recipes scheduled to run in the future. In this section, each feature and function within the tab is described in detail. The numbered callouts in Figure 22 correspond to each feature's detailed description listed below.

<b>٩</b>	Schedule Recipe Litrary Dec 04, 2023	< Loop 4	(5)	6 Ran Port II
Monitor	Dec 04, 2023  ScheduleSpansDay  Frem 04 Dec, 000000 - To 04 Dec, 1654400 @ 12 68/113	Coop #116 From 04 Dec, 10:17:15 - To 04 Dec, 10:26:13	SAMPLING ScheduleSpansDay FROM 04 Dec, 00:00:00 - To 04 Dec, 16:54:00	
i System	Schedt 3 by From 5d 3 to - To do Dec Currently	running 18	Port# 5 - 00:03:00 Port 5	EXECUTED
<b>C</b> 2	Dec 05, 2023	ignlighted 4 Dec, 10:35:13 - To 04 Dec, 10:44:13	Port# 16 - 00:03:00 Port 16	EXECUTED
2035 2023	ScheduleSpansDay     From 05 Dec, 00:00:00 - To 05 Dec, 16:54:00	From 04 Dec, 10:44:13 - To 04 Dec, 10:53:13	Port# 24 - 00:03:00 Port 24	NOW RUNNING
<u>Settings</u>	ScheduleSpansDay     From 05 Dec, 16:55:00 - To 06 Dec, 16:54:00     @	Loop #120 From 04 Dec, 10:53:13 - To 04 Dec, 11:02:13		Þ
Alerts	Dec 06, 2023	Loop #121 From 04 Dec, 11:02:13 - To 04 Dec, 11:11:13		
Profile	ScheduleSpansDay From 06 Dec, 00:00.00 - To 06 Dec, 16:54:00 @ # 0/113	Coop #122 From 04 Dec, 11:11:13 - To 04 Dec, 11:20:13		
	ScheduleSpansDay     From 06 Dec, 16:55:00 - To 07 Dec, 16:54:00     @ 2 0/48	Loop #123 From 04 Dec, 11:20:13 - To 04 Dec, 11:29:13		
Dec 04	Dec 07, 2023	Loop #124 7		(10)
2023 10:23:17	ScheduleSpansDay From 07 Dec, 00:00:00 - To 07 Dec, 16:54:00 @ # 0/113	From CO Indefinity op To 04 Dec 11:38:13	ScheduleSpansD   00:0	6:03 / 00:09:00
U	ScheduleSnansDav	Loop 🛇 Indefinite Loop 💮 Recurring	Live Port 24   00:00:03 / 00:03:00 Next port: N(A   00:00:00	0

Figure 22: Recipes Page – Schedule Tab



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2. Recipe Schedule List: User can scroll up and down list to view recipes scheduled for each day. Clicking on any of the recipes listed opens the sequence details of that recipe and the number of times it will loop. The recipe details panel for the selected recipe shows Recipe Name, Time Span, Port Numbers, and individual Step Durations.

Loop #1 From 16 Aug, 10:53:13 - To 16 Aug, 12:49:13	SAMPLING 16-Ports-All EROM 16 Aug 10:5212 - To 17 Aug 06:1212	
From 16 Aug, 12:49:13 - To 16 Aug, 14:45:13		
Coop #3 From 16 Aug, 14:45:13 - To 16 Aug, 16:41:13	Port# Clean - 00:03:00 EXECUTE clean - 00:03:00 EXECUTE Port# 1 - 01:00:00 NOW BUNKING	D
From 16 Aug, 16:41:13 - To 16 Aug, 18:37:13	Port 1 Port 2 - 00:05:00 Port 2 schedule	D
<ul> <li>Loop #5</li> <li>From 16 Aug, 18:37:13 - To 16 Aug, 20:33:13</li> </ul>	Port# 3 - 00:03:00 SCHEDULE Port 3 Port M Reference - 00:03:00 SCHEDULE PortM Reference - 00:03:00 SCHEDULE	0
Loop #6 From 16 Aug, 20:33:13 - To 16 Aug, 22:29:13	Ports 4 - 00:03:00 schedule	D
Loop #7 From 16 Aug, 22:29:13 - To 17 Aug, 00:25:13	Port# 5 - 00:03:00 SCHEDULE Port 5 - 00:03:00 SCHEDULE	0
	Port 6 Port# 7 - 00:03:00 schebule	D
Loon CO Indefinite Loon C. Recurring	16-Ports-All 00:06:45 / 01:56:00	1

In scenarios where the recipe name is longer than thirty characters, the name will display truncated by default. However, the complete recipe name will display when hovered with a mouse pointer.





### Recipes Page



Note that when a recipe is stopped by manual intervention and deleted, a strikethrough displays when hovered with a mouse pointer.

4. Loop **Recipe Panel:** This panel lists the number of times the current recipe will run and the time span each loop will run. The loop run status icon changes state as each loop is run.

The default display of loop panel is *closed*. Click the right-pointing arrow (>) to open the panel; left-pointing arrow (<) to close the panel.

		1.100	
	111-0.4	• Digen rappe	
		All and the second second	and the second s
	100 PMA	4125 and to an	Streemen and
	100	1005 and second	~
		Concerns name	Without and
	- 27- VA		·*
10.00	1000		
10.00	a schester		
	44 177	Tel letter disc	

 Recipe Sampling Status Panel: The recipe sampling status panel shows a green horizontal bar that indicates progress of the current sample loop. It also indicates the run status of each step in the recipe as EXECUTED, NOW RUNNING, OR SCHEDULED.

SAMPLING <b>16-Ports-All</b> FROM 16 Aug, 10:53:13 - To 17 Aug, 06:13:13	•••
Port# Clean - 00:03:00	EXECUTED
<ul> <li>Port# 1 - 01:00:00</li> <li>Port 1</li> </ul>	NOW RUNNING
Port# 2 - 00:05:00 Port 2	SCHEDULED
Port# 3 - 00:03:00 Port 3	SCHEDULED
Port# Reference - 00:03:00 reference	SCHEDULED
Port# 4 - 00:03:00 Port 4	SCHEDULED
Port# 5 - 00:03:00 Port 5	SCHEDULED

Run Port III

6. Run Port: Clicking this button provides a quick way to manually run a single port to see what the current concentration readings are for the area of a fab to which the port of interest is routed.

This is explained in detail in the section *Manual Operation (Run Individual* Port) under section 6.4 Recipe Creation and Scheduling from Schedule Tab.

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16-Ports-All | 00:28:36 / 01:56:00 Port 1 | 00:25:37 / 01:00:00 Next port: Port 2 | 00:05:00



#### 7. Recipe Run Type Icon Definitions:

**Loop:** This indicates that the scheduled recipe will run in a loop for a user-defined number of times. The number of loops can vary from 1 to 1000.

**Indefinite Loop:** This indicates that the scheduled recipe will repeat its full run indefinitely until a user stops the run.

**Recurring:** This indicates that the scheduled recipe will repeat on a user-defined recurring schedule, which can be daily, weekly, or on specified days/times, and be specifed as to what time and date it will end.

- Live Indicator: If a date in future or past in the schedule has been selected (via the calendar icon shown at the left – to view recipes in the list), or you have scrolled down the list, click "Live" to return to the current day and current recipe on the schedule.
- Recipe Run Status: Displays the currently running recipe name, the port that is currently being measured, the step elapsed time of its total duration time, and next port to be measured. When a recipe isn't actively running, the display only indicates "No Recipe Running".
- 10. Stop/Start Button: Clicking the Stop button stops the currently running recipe. If the recipe running was executed as "Start Now", that recipe cannot be restarted. If the recipe was scheduled for a designated start date/time, the recipe can be restarted by clicking the Start button.

### 6.3 Recipe Library Tab Overview



Shown below is the **Recipe Library** tab. All columns can be sorted and filtered to narrow searches for a particular recipe. Columns can also be resized and rearranged. In this section, each feature and function within the tab is described in detail. The numbered callouts in Figure 23 correspond to each feature's detailed description below.

P	Schedule Rec	ipe Library	Reposition Click/hole heading,	on columns: d near column then drag left/right.	Resize Click/h then d	e Columns: hold vertical bar, rag left/right.	, g
Monitor	Recipes (784)		niy latest version				- Create Recipe
=*	760		00:00:40	Aug 11, 2023 02:52			
Recipes	2	05162023	00:03:00	May 16, 2023 11:57	5	6 7	8
۵	197	0609	00:06:00	Jun 09, 2023 16:21	1	jen	1
System	198	0612	00:06:00	Jun 12, 2023 14:01	1	jen	1
C	201	0620	00:06:00	Jun 20, 2023 14:51	1	jen	1
Logs	206	0720	00:12:00	Jul 20, 2023 15:14	1	jen	1
錢	207	0721	00:06:00	Jul 21, 2023 13:44	1	jen	:
Settings	208	0725	00:06:00	Jul 25, 2023 14:32	1	jen	:
¢	209	0726	00:18:00	Jul 26, 2023 13:58	1	jen	:
Alerts	246	0728	00:15:00	Jul 28, 2023 16:07	1	jen	:
© Profile							
Aug 16, 2023 11:33:32							(10)
Ċ						< 1	234579>

Figure 23: Recipes Page – Recipe Library Tab

Show only latest version 1.	Show only latest version (default): When selected, <u>Show only</u> <u>latest version</u> filters out earlier versions of the recipe contained in the library. For efficiency, this selection tends to be the most used radio button.
O Show all versions	<b>Show all versions:</b> There can be any number of versions of a recipe with the same recipe name. When selected, <u>Show all versions</u> will display all available versions of the recipes in the library.
RECIPE ID 2.	<b>Recipe ID</b> column: Each recipe that is created is assigned an ID number in the order created. If you know the ID of a particular recipe, you can either sort the column or enter the ID using the provided filter tool.
RECIPE NAME 3.	<b>Recipe Name:</b> A name is assigned by the user whenever a new recipe is created. This column can be sorted and filtered.
DURATION 4.	Duration: Lists the total recipe time duration of all steps combined.
CREATED AT 5.	<b>Created At:</b> Lists the date and time the recipe was created/modified.
CURRENT VERSION 6.	<b>Current Version:</b> When there are multiple versions of a recipe with the same name, this column displays the most current version number of that recipe.
OWNER 7.	Owner: Lists the username of the person who created the recipe.

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8. Actions: The vertical ellipsis at the end of each row provides three ACTIONS action choices for the selected recipe; Add to Schedule, View/Edit Recipe, and Delete Recipe. Create Recipe button: Click this to open the Create New Recipe 9. + Create Recipe dialog. 10. Library Pages: Library pages on the UI are viewable in groups of < 1 2 3 4 5 ... 79 > 10. Select a number to view more pages of logged events. Sorting and Filtering the Library Recipe Library By default, the recipes list/library is sorted by the ascending order of the recipe name. The Sort/Filter/Hide/Show Columns menu accessible in each column enables the user to organize the recipe library listing by column and to ECIPE NAME narrow searches for a particular recipe. Quick Sort is described in Figure Menu Sort by DESC 24. • Unsort: Clicking this in a column that has been sorted reverts the listing Pin to left back to its default order. 🐐 Pin to right · Sort by ASC: Clicking this in any column arranges the list in ascending order, either numerically or alphabetically, for that column. Figure 24 Ride column shows the Recipe Name column has been sorted in ascending order. III Manage columns · Sort by DESC: Clicking this in any column arranges the list in descending order, either numerically or alphabetically. Click the arrow to Quick Se

<b>-</b> ጠ	Schedule Recipe	Show all versions  Show only	lick the Menu ico open menu.	2 Clicks: 3 Clicks:	Sorts by ascend Sorts by desce Clears sort	ing order nding order	+ Create Recipe
tonitor	RECIPE ID	RECIPE NAME 1		CREATED AT	CURRENT VERSION	OWNER	ACTIONS
==	760	↓ Sort by DESC	00:00:40 Sort	Aug 11, 2023]02:52	1	engineer	1
ecipes	2	Unsort	00:03:00	May 16, 2023]11:57	1	jen	1
ø	197	🖈 Pin to left	00:06:00	Jun 09, 2023 16:21	1	jen	1
stem	198	🏂 Pin to right	00:06:00	Jun 12, 2023 14:01	1	jen	1
2	201	Y Filter	00:06:00	Jun 20, 2023 14:51	1	jen	1
ogs	206	Real Hide column	00:12:00	Jul 20, 2023 15:14	1	jen	1
\$	207	III Manage columns	00:06:00	Jul 21, 2023 13:44	1	jen	1
ttings	208	0725	00:06:00	Jul 25, 2023 14:32	1	jen	1
¢	209	0726	00:18:00	Jul 26, 2023[13:58	1	jen	1
lerts	246	0728	00:15:00	Jul 28, 2023 16:07	1	jen	1

Figure 24: Recipe Library Name Column Sorted in Ascending Order

- Filter Tool: Selecting the menu choice Filter in any column brings up the tool shown below in Figure 25. It provides setup choices shown to help narrow your search results.
  - 1. Click the Columns list to select a column to which you want the filter applied.
  - 2. Select Operator to further narrow the search.

- The filter Value entered can be any known number or letters for the particular recipe you want to find. In the example, the value "VOC" narrows down to events listed that only contain the word "VOC".
- Once a Value is entered, the list will filter out all events except those to which the parameters entered for the selected column apply.
- 5. Multiple filter parameters can be applied by clicking +ADD FILTER. The and/or operator choice appears when an additional filter appears.
- 6. Note that when a filter is applied, a filter icon appears next to the relevant column heading.



Figure 25: Recipe Library Filter Tool Options

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- Hide Column: Clicking this hides the selected column.
- **Manage Columns:** Clicking this opens a panel for showing or hiding any or all columns.

Find column	
Column title	
RECIPE ID	
RECIPE NAME	
DURATION	
CREATED AT	
CURRENT VERSION	
OWNER	
ACTIONS	
HIDE ALL	SHOW AL

- Pin to Left: Clicking pins the column to the left side of the table.
- Pin to Right: Clicking pins the column to the right side of the table.
- **Unpin:** This appears in the menu to return a pinned column to its default position.

### 6.4 Recipe Creation and Scheduling from Schedule Tab

### Add/Create New Recipe (Button)

On the Schedule tab, click **Add/Create New Recipe** button: Clicking this button opens a pop-up for selecting one of two choices:

- Create New Recipe
- Add Recipe from Library



Figure 26: Add/Create New Recipe Button

### **Creating a New Recipe**

- 1. Click the Add/Create New Recipe button then click the Create New Recipe option as shown above to open the Create a Recipe dialog window (Figure 27).
- 2. Enter a relevant name in the Recipe Name field.

	3.
1 Port 1	+
2 Port 2	✓ +
	4.
10 Port 10	<b>√</b> 2 +

Add ports to the recipe by clicking the desired port's plus (+) symbol. This adds the port to the **Create a Recipe** side of the window as shown in **Error! Reference source not found.** 

A checkmark appears next to the plus symbol for each port added to the recipe.

A port can be added multiple times to the schedule at any point in the sequence. When this is done, a number appears next to the checkmark indicating that the port will be run more than once during the recipe run.

D	← Create New Recipe				
	Available Ports 32				Add a Recipe
.iiil Monitor	Bank 1			Special Ports	Create a Recipe Recipe Name here
	1 Port1	+ 2 Port 2	+)	R Reference +	00000
Recipes	a Port 3	+ 4 Port 4	+)		
Ö	6 Port 5	+ 6 Port 6	+)	v VOC Zero 😋 +	Click + Icon to Add
System	7 Port7	+ Port 8	+)	The VOC Zero Is an auxiliary device for calibration the onboard VOC analyzer	
Ċ,	Bank 2			Circus Banks	
Logs	9 Port 9	+ 10 Port 10	+	Clean Ports	
\$	19 Port 11	+ 12 Port 12	+)	C Clean 1-8 +	
	13 Port 13	+ 14 Port 14	+)	C Clean 9-15 +	
Д Alerts	15 Port 15	+ 10 Port 15	+)	C Clean 17-24 +	
6	Bank 3			C Clean 25-32 +	
Profile	17 Port 17	+ 18 Port 18	<b>(</b> +)		
	19 Port 19	+ 20 Port 20	+)		
	21 Port 21	+ 22 Port 22	+)		
	23 Port 23	+ 24 Port 24	+		
	Bank 4				
	28 Port 25	+ 28 Port 26	+)		
	27 Port 27	+ 28 Port 28	+)		
Sep 18, 2023	29 Port 29	+ 30 Port 30	+)		
1107.46	31 Port 31	+ 32 Port 32	+)		Cancel Save Charges
U					

Figure 27: Create New Recipe Window - Default View

<b>ף</b> 61	Create New Recipe  Available Ports 32	port	to recipe s	sequence.	)		Create a Re	rcipe	Total s and tot	teps al
NOR OF	1 Port1	~ <b>0</b> +	2 Pert 2	× +	opecial Ports		Litho-4a-A	All Ports	duratio	n of Same
=#	a Port	1.+	4 Part 4	×+	# Reference	~+			recipe	1
		VI.	a Partő	Z +				Port #1: Port 1		
Nur	nber indicates	1	8 Part 8	× +	The VOC Zero is an auxilia	ry device for	641	Run VOC Zoon Mongalde		Apply to All
mul	tiple instances	( <u> </u>			calibrating the onboard V	0C analyzer		Data	) It at an	1
of n	ort added to		(		Clean Ports		2	Dera	uit step	00 03 00 🛞
0. p	uonco	V +	10 Port 10	V +	C Clean 1-8	×+)		dura	tion is 3	409.00
sey	uence.	×+	12 Port 12	V 0 +	C Clean 9-15	+		min.	Change	00 03 00
¢	8 19/13	V +	14 Port 14	V +	C Clean 17-24	+	848	as ne	eded.	Apply to All
Alerts	B Port 15	V +	16 Port 16	V +	C Clean 25-32	+		Clean 1-8		
٢	Bank 3						- East	🔲 Run VOC Zero Alongaide		00:03:00 ®
Profile	17 Port 17	✓ +	18 Port 18	©√+						
	19 Port 19	✓ +	20 Port 20	✓ +				Port #4: Port 4		00.03.00 (0)
	21 Port21	✓ +	22 Port 22	✓ +			/ -	C) warrow zerowenderen		Apply to All
	23 Port 23	✓ +	24 Port 24			$\sim$				
	Bank 4			Po	orts addec		840	After all d	esired ste	eps
	25 Port25	✓ +	26 Port 26	to	sequence	e.		have bee	n added.	click
	17 Port 27	✓ +	28 Port 28	V +			641	Save Ch	andes bu	tton N <sup>®</sup>
5ep 24, 2023	29 Port29	✓ +	30 Port 30	✓ +			Ca Preview	Care on	inges bu	
13:37:40	(m) Read MI	1.4	12 Peret 12							$\sim$

Figure 28: Ports Added to Recipe Sequence

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Any port in the recipe sequence may be dragged and dropped to a different position within the sequence as you build the recipe. It can also be moved to a different step position by clicking on the **Edit** link under the step number.





**Note:** Checking the "**RUN VOC Zero alongside**" (available only if SLiM 100 or SLiM 100S is installed) causes the VOC analyzer to run a zeroing calibration sequence while the designated port is being sampled by the other installed analyzers. In the example, Port 10 below has the Run VOC zero enabled, so when that port runs, the VOC analyzer is flowing air through a PAIC filter to zero the VOC analyzer. Consequently, the VOC is <u>not</u> sampling from Port 2 during this step, but all other installed analyzers are sampling from port 2.



- Add any other ports desired to the sequence as shown in Figure 30 below. As ports are added, the Step Count total and Total Recipe Time at the top of the sequence list advances. To change each Step Duration click in the time field. A scroll bar appears when the number of steps exceeds the window space.
- 6. Add any available **Clean-Port** for any of the Banks into the sequence as desired.
- 7. Add the **Reference** port (and/or VOC Zero, if installed) from **Special Ports** into the sequence as desired.
- 8. For any port that has been designated as a **Zero Port**, add that port into the sequence to the position desired. Note that Zero Port is assigned under the Zero Port tab on the **Settings** page. Refer to the sub-section **Zero Port** Tab under section **9** for more information.
- **9.** Drag and drop any steps already in the sequence to a different loacation within the sequence if desired.
- **10.** Any port can be removed from the sequence by clicking the **X** on that port.

### **Adding Special Ports to Recipe**

Special Ports available can be added as steps to the sequence (Figure 30).

- **R 11. Reference:** Add this port to the recipe sequence when you want to run the reference gas through applicable analyzers.
- v 1:

12. VOC Zero (SliM 100, SLiM 100S only): Add this port to the recipe sequence when you want to run VOC zeroing through the VOC. Analyzer.

### **Previewing a Recipe**



**13.** The recipe sequence may be preivewed at any time by clicking the icon shown to the left. A condensed window pops up showing the entire recipe sequence (Figure 29). Click away from the window to close it.

Available Ports 32					
Rank 1			* Pressial Basta	Create a Recipe	
DOTIN T			apecial Ports	ZTost1	6 step
1 Port 1 V +	2 Port 2	+	R Reference +	210311	00:18:00
3 Port 3 🗸 🕇	4 Port 4	+		ID: 3 Version: 1 Last Modified: Jap 03 2024 15:11:58 by zare	
5 Port 5 +	6 Port 6	+	Clean Ports		
7 Port 7 +	B Port 8	+	C Clean 1-8 +	1 Port #12 : Port 12	00:03:00
ank 2			C Clean 9-16 +	ter	Apply to All
9 Port 9 😂 🕇	10 Port 10	+	C Clean 17-24 +	2 Port #16 : Port 16	00:03:00
11 Port 11 +	12 Port 12	✓ +	C Clean 25-32 +		Apply to All
13 Port 13 +	14 Port 14	+		3 Port #30 : Port 30	00:03:00 🛞
15 Port 15 +	• 16 Port 16	✓ +	_		000100
ank 3		<b>–</b>		4 Port #18 : Port 18	00:03:00
17 Port 17 +	18 Port 18	<ul> <li>✓ +</li> </ul>	Recipe Preview 6 steps   00:18:00		499.00
19 Port 19 +	20 Port 20	+	2) Port #16 : Port 16 00:03:00	5 Port #3 : Port 3	00:03:00
21 Port 21 +	22 Port 22	+ (	3 Port #30 : Port 30 00:03:00		Apply to All
23 Port 23 +	24 Port 24	+	4 Port #18 : Port 18 00:03:00 5 Port #3 : Port 3 00:03:00	6 Port #1 : Port 1	00:03:00
ank 4			Port #11Port 1     00:03:00	Preview	APODY TO AR
25 Port 25 +	26 Port 26				
27 Deci 27	Value			Carter Reset	

Figure 29: Recipe Preview Selected

### **Recipe Completion**

**14.** Once building the recipe is completed, click the **Save Changes** button (Figure 30).

An action choice window will pop up (Figure 31). At this point, the newly created recipe is automatically assigned a **Recipe ID** number, a **Version** number, and then stored in the **Recipe Library** for future use.

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Figure 30: Recipe Completion

 Click the Schedule This Recipe button if you want to add this recipe to the schedule now. Otherwise click Close, which closes the Create Recipe window and takes you to the Recipe Library tab.



Figure 31: Recipe Ready Notice with Option to Schedule or Close

### Scheduling the New Recipe (Run Now)

When the **Schedule This Recipe** button is selected, the following window opens with various options for adding it to the schedule. (Note that the newly created recipe now has an ID number and Version assigned.)

- 1. To add to the schedule now, the radio button **Run now** (the default option) is selected as shown in Figure 32.
- In the Run <u>time(s) and stop</u> field, enter the desired number of times you would like to repeat the recipe, then click Create. This places the recipe into the schedule and starts running it immediately.
- 3. Click **Run Indefinitely** (until manually stopped) which will run the recipe now and continue to run indefinitely until it is stopped.



Figure 32: Scheduling New Recipe – Run Now

### Scheduling the New Recipe (Run Later)

- 1. Select the **Schedule** radio button to run the recipe at a later specified date and time.
- 2. Click on the calendar icon next to the **Start schedule on** field to open and select a date from the displayed calendar. The date and time can also be entered directly into the **Start schedule on** field.

Recipe Name ID:63 Version:1 Litho-4a-All Ports Ö Duration: 01:54:00	Recipe Name Litho-4a-All Ports	ID:63 Version:1 Ô Duration: 01:54:00	Recipe Name Litho-4a-All Ports	ID:63 Version:1 Õ Duration: 01:54:00
🔿 Run nov 🔘 Schedule	O Run now 🖲 Schedule		O Run now      Schedule	
Start schedule on	Start schedule on		Start schedule on	Enter date/time
Sep 24, 2023 14:29	Sep 24, 2023 14:29	P.L	Sep 🖉 2023 14:29	directly
	September 2023 📼		₽.	<b></b>
Run 3 time(s) and stop	7 W T	Select date	Run 3 time	(s) and stop
O Run on selected days	ber of times	from calendar	O Run on selected days	
to run OR	select "Run			
Create On selected	d days"		Cri	sate
	<b>0</b> 15 16 17 78	12 10		
	24 25 26 27 28	29 30		

Figure 33: Scheduling New Recipe – Scheduled to Run Later

 Once the start date/time is selected, you can either enter the number of times you want to run the recipe (in Run \_\_time(s) and stop field - or select the Run on selected days radio button.

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- 4. If **Run on selected days** button is selected, the scheduling options shown in Figure 34 appear.
- 5. Tick the **Run Daily** box to run every day of the week, or leave it unticked to select specific days as shown in the third image.
- 6. In the **Run until** field, enter the time of day for the recipe to stop (on each day that was selected).

The recipe will resume (on each subsequent day selected) at the same time that was entered in the **Start schedule on** field.

- 7. In the **End schedule at** field, click the calendar icon and select a month and day for the recipe to end its sampling run.
- Click Create to finish the process and add the recipe to the schedule. The new recipe will execute and end on the dates/times that were



Figure 34: Scheduling New Recipe – Run on Selected Days

specified.

### Adding a Recipe from Library to Schedule



- Selecting the choice Add Recipe from Library from the Schedule tab opens the dialog shown in Figure 35 from which you can select a recipe to add to the schedule.
  - In this example, a recipe named "Litho-4a-All Ports" is selected in the library. The right side of the window shows a preview of the details of each step that will take place when this recipe is added to the schedule and executes. You can move the slider bar on the right of the window to review all the steps that will occur before adding it. Note that the recipe cannot be edited from this view; only from the edit selection in the Recipe Library tab.

				Litho-4a-All Ports Ö 01:54:00
	Recipe Name	Duration $\downarrow$	Version	ID: 63 Version: 1
	U714	02:43:00	4	Last Modified: Sep 24, 2023 14:18 by daver
l.	0714	02:43:00	5	
	0714	02:43:00	6	Bank 1   Port 1   Step 1 Port 1 00:03:00
			-	Run VOC Zero port alongside
	ZeroTest	02:10:20	1	Bank 1   Port 2   Step 2
)	Long_recipe	02:00:00	1	Port 2     00:03:00     Stop Du
;	Litho-4a-All Ports	01:54:00	1	
	0			Bank 1   Port 3   Step 3 Port 00:03:00
	Fab-2-All-Ports	01:48:00	1	Run VOC Zero port alongside
	Test-DR-5	01:45:00	1	Bank 1   Port Clean   Step 4
	Test-DR-6	01:40:00	3	Clean 1-8 00:03:00
				Run VOC Zero port alongside
	0714	00:33:00	3	
	0725	00:33:00	1	Add To Schedule

Figure 35: Adding Recipe from Library via Schedule Tab

- 3. Click Add to Schedule to open the dialog shown below, from which you can select either Run Now, or Schedule to run it later at a specific date and time. In this illustration, Run Now is selected.
- 4. In the Run <u>time(s)</u> and stop field, enter the number of times to repeat the recipe.
- 5. Alternatively, you can select **Run Indefinitely** which repeats the recipe run until a user stops it.
- 6. Click the **Create** button to execute the **Run Now** choice. This places the recipe into the schedule and starts running it immediately and gives a confirmation message that the recipe was successfully started.

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Figure 36: Recipe Selected from Library - Run Now Selected

7. If there is another recipe scheduled that conflicts with the recipe that occupies the same or part of the selected time (Run Now in this example), the following Job Conflict alert (Figure 37) will pop up giving the choice to either click No to schedule it later or Yes to stop the currently running recipe and to start the new recipe. Click the Yes button to override and start the new recipe. To run later, see the section: Scheduling the New Recipe (Run Later).



Figure 37: Run Recipe Now – Conflict Alert and Response Choices

Run Port 🔡

### Manual Operation (Run Individual Port)

A user can run an individual port manually to quickly see what is going on in the part of the fab to which that port is routed.

1. From the **Recipes | Schedule** tab, click the **Run Port** button (located at the top right of the window).

The **Manual Operation** dialog opens (Figure 38). Note that a green notice bar appears stating that a scheduled recipe is already running shown in the example below).

2. Click on any port to run manually (in this example, Port 7).

A **Manual Operation** action notice pops up. If a VOC is installed in the SLiM 100 or SLiM 100S, the user can select the "Run VOC port alongside".

elect a Port to Run	Notice of a recipe already running appears	Now Running: Recipe: ZeroTest   Label: Port 12   Port #12
Bank 1		Special Ports
1 Port 1	2 Port 2	R Reference
3 Port	4 Port 4	
5 Port 5	6 Port 6	v VOC Zero voc
7 Port 7	brings up this and a point 8 Port 8 dialog.	The VOC Zero is an auxiliary device for calibrating the onboard VOC analyzer
Bank 2		Clean Ports
9 Port 9	Manual Operation	C Clean 1-8
11 Port 11	Port #7	
13 Port 13	Port 7	c Clean 9-16
15 Port 15	Click START to run this port	C Clean 17-24
	Run VOC Zero port alongside	C Clean 25-32
Bank 3		

Figure 38: Run Port Dialog (Manual Operation – Port 7 Example)

- 3. Since a recipe is already running, clicking the **Start** button causes a popup **Schedule Job Conflict** action notice to open (Figure 39). It states which recipe is currently running and asks if you want to stop the current schedule and start the manual run.
- Click Start Manual Run if you wish to start running Port 7 or click Cancel to abort the Manual Run and allow the current recipe to continue. Figure 40 shows the manual run in progress.

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Figure 39: Run Port (Manual Operation – Schedule Conflict Warning)

P	Schedule shows Port 5ep 24, 2023		Bun Pert II
Monitor	a manual run state.	SAMPLING	
=¥ Recipes	Port 7     From 24 Sep, 20:21:32 - Manual run	FROM 24 Sep, 20:21:32 - Manual run	
) System	Sep 25, 2023 No scheduled recipe	Port 7 Port 7	NOW RURRING
Logs	Sep 26, 2023		
र्ट्रि Settings	From 26 Sep, 17:09:57 - To 26 Sep, 17:11:37		
Âlerts	No scheduled recipe Sep 28, 2023		
O Profile	EHwanhtm From 28 Sep, 07-4100 - To 29 Sep, 015800 @ 11 0/2038		
Sep 24, 2023 20:21:58	RIMidija From 28 Sep. 074153 - To 28 Sep. 074333 # 015		end manual run.
$\bigcirc$	+ 2023	inite Loop C Recurring	Live Port 7 is running

Figure 40: Run Port (Manual Operation – Running)

5. The recipe Schedule will remain paused until the manual run is stopped (by clicking the **Stop** button). Figure 40 above shows the schedule page with **Port 7** running manually.

Once the manual run has gathered the amount of data desired, click the Stop button at the bottom-right of the Schedule screen to end the Manual port run. A pop-up (Figure 41) will appear with a choice to Restart Scheduler Engine or Skip. Clicking Restart Scheduler will start the next scheduled recipe at its designated Date and Time.

#### **Recipes Page**

7. Click the **Restart Scheduler** button on the pop-up to restart the current schedule. Clicking **Later** will leave the scheduler paused.



Figure 41: Restarting Scheduler after Run Port (Manual Run) Stopped

### 6.5 Recipe Creation and Scheduling from Library Tab

Recipe Library

From the **Recipe Library** window (Figure 42), you can create new recipes using the **+ Create Recipe** button (which are then automatically stored in the library). You can also add an existing recipe from the library into the schedule.

You can also sort and filter the recipe list, view/edit, or delete existing recipes from the library. (See section **6.3** for details on these subjects.)

						CIICK LO CI	eale a	
í	Recipes (37) 🔿 Show	v all versions (e) Show only latest version				new recip	e	ie Reck
KOT .	RECIPEID	RECIPE NAME	DURATION	CREATED AT $~~\psi$	CURRENT VERSION	OWNER	AC	TIONS
\$	63	Litho-4a-All Ports	01:54:00	Sep 24, 2023[14:18	1	daver		:
pes	62	CreateRecipe_19Sept_V1	00:21:00	Sep 21, 2023[07:22	4	test-av		:
Ð	61	2109-1	00:09:00	Sep 20, 2023[21:40	1	jan		1
oan	60	HAR-3462 test	00:09:00	Sep 20, 2023 21:13				
2	56	Fab-2-All-Ports	01:48:00	Sep 18, 2023[12:32	Click	to add	Add to Schedule	de la
Q5	55	Test-DR-6	01:40:00	Sep 18, 2023(12:18	<sup>a</sup> existi	ng recipe to	View/Edit Recipe	0
3	52	Test-DR-5	01:45:00	Sep 18, 2023(12:05	scher	tule	Delete Berine	
irgs	51	0714	02:55:00	Sep 18, 2023[02:17	,			
1	50	ZeroTest	02:10:20	Sep 14, 2023[10:05	1	jen		1
rts	49	TestRecipe	03:00:00	Aug 28, 2023[18:05	1	mpavaskar		:
**								
24,								



### + Create Recipe Creating a New Recipe (Library Tab)

Creating a new recipe from the **Recipe Library** follows the same steps as when creating a new recipe from the **Schedule** tab.

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- 1. From the Recipe Library page (Figure 42), click the + Create Recipe button to open the Create New Recipe dialog window.
- 2. Go to the section: *6.4, Recipe Creation and Scheduling from Schedule Tab* and follow the instructions for generating a new recipe.

### Scheduling the New Recipe (Run Now)

3. Follow the section *Scheduling the New Recipe (Run Now)* located under section *6.4*.

### Scheduling the New Recipe (Run Later)

4. Follow the section *Scheduling the New Recipe (Run Later)* located under section *6.4*.

### Adding a Recipe from Library to Schedule

астіоня 1.

**Recipes Page** 

- From the **Recipe Library** page, choose the recipe you want to run and click the menu icon (vertical elipsis) under the **Actions** column.
- 2. Select Add to Schedule.
- 3. Go to the section: *Adding a Recipe from Library to* Schedule located under section *6.4* and follow the instructions.

System

## 7. System Page

The System page has two tabs, System Status and Sensors.

### 7.1 System Status Tab

System Status

The System Status tab provides a view of the SLiM/SAM CPU usage, memory, storage, and CPU temperature. It also shows each analyzer installed in the system and each one's current status, as well as connected hardware driver status. The system dynamically detects the hardware that is connected to its system and configures itself. Use this section to validate your connections. It shows the status of network devices and serial drivers, and their associated hardware.

**Analyzer Status:** The status column next to each analyzer's name will show one of the following states: **Warming** or **Measuring**. If monitoring this page when the system is shut down from the user interface, as each analyzer is shut down, their respective status will show **Parking**, then **Disconnected**.

	CPU Usage	Memory	Storage	CPU Temp	Analyzer	Status
					\$15450	Measuring
				54*C	voc	Measuring
			System Data			
			12% 20%			
	9%	<u>4N</u>	N	=		
Co	onnected hardware					
	root > Devices > Network_Devices		root > Devices > Serial_Device	5		
	AnalyzerDriver	AnalyzerDriver	SAMLETDriver	SAMLET	river	SAMLETDriver
	IP: "192.168.10.100"	IP: "192.168.10.102"	Baudrate: 230400	Baudrate:	30400	Baudrate: 230400
	SN 9001-NUV1049*	RPC_Port: 33001	RPC_Port: 33040	RPC_Port:	13041	RPC_Port: 33042
			SAMLETDriver	ValveDriv	er	MFCDriver
			SAMLETDriver Baudrate: 230400	ValveDriv Baudrate:	er 9200	MFCDriver Baudrete: 19200
			SAMLETDriver Baudrate: 230400 Pate: (dev)trg/0584 BPC, Port: 35043	ValveDriv Baudrate: Path:/dev/ BPC.Port:	er 9200 ttyACM0 13030	MFCDriver Baudrate: 19200 Path: JoevithyUSB5 BPC, Port: 31000
			SAMLETDriver Bestrate: 230400 Path: (dev/thj:USB4 RPC,Port: 33043	ValveDriv Baudrate: Path: /dovj RPC,Port:	er 9200 rtyACM0 13030	MFCDriver Baudrats: 19200 Path: JewyThyUBB5 BPC,Pert: 33030
			SAMLETDriver Beadrate: 200400 Pare: (devity:0284 BPC, Pert: 3043 VOCZeroDriver	UalveDriv	er 9200 tyACM0 13020	MFCDriver Baudrate: 19200 Parc: Jeon/tpublis BPC_Part: 38000
			SAMLETDriver Beuters: 230400 PBC, Kert: 33043 RPC, Pert: 33043 VOCZeroDriver Beuters: 230400	UsiveDriv Bautrate: Path: Joing BPC,Port:	er 19200 170ACM0 13030	MFCDriver Baudram 19200 Patz: (#earthputdB) BPC_Part: 33000

Figure 43: System Page – System Status Tab

#### System Page

### 7.2 Sensors Tab

Sensors The Sensors tab provides sensor data that indicates certain status metrics of each installed analyzer and other system components. Sensor data gathered from Fault Detection and Control (FDC) includes device temperatures, pressure, flow rates, and other data relevant to each device. If a fault is detected from the sensor data for a device, the status states indicated on this tab will change to red and indicate "High" or "Low.

Settings	Port	N/A		
<b>5</b> %	Set point	40	ок	
	Flow rate	40.1		
	Name	Value	Status	
	MFC	tubiling for any of		
	Other components	long time on a c the user should tubing for any o	ertain port, then check that port's	
	Warmbox temperature	If MFC status in	dicates Low for a	
	Cavity pressure	449.98 Torr	ок	
	Cavity temperature	2° 08	ок	
	Name	Value	Status	
Logs	voc		^	
17	Warmbox temperature	45 °C	ок	
	Cavity pressure	139.97 Torr	ок	
	Cavity temperature	45 °C	ок	
	Name	Value	Status	
	SI3401		^	
	Warmbox temperature	N/A	N/A	
	Cavity pressure	140 Torr	ок	
	Cavity temperature	40 °C	ок	
	Name	Value	Status	
System	SI5450			
Recipes	Analyzers	High is	indicated in a	
Monitor	Sensor status	indicat color w	ed with a green while Low or	
ŝ	System Status Sensors	and Lo	ow. OK is	
1CARRO	System	Status	Indication	

Figure 44: System Page – Sensors Tab (expanded view)

## 8. Logs Page

When the **Logs** icon is clicked, the default **Live Feed** view of this page appears as shown in Figure 45. The data on this page is constantly updated. It provides a way to search, sort, filter, and select data logs for download and viewing. The listing shows each event with an **SN** number (serial number), the **Log Course Name**, the **Event** description, the current event **Severity**, and a **Time Stamp**.

		FEED	Aux Rows Severity	* Q	ogs y
,	SN	Log Course Name	Event	Severity	Time Stamp
	12375	MFCDriver 7	Writing MFC data to Influe: ('measurement': 'mfc,data', 'tags'; ('mfc,id': 'A', 'gas,id': 'Air', 'mfc,conc,invalid,flag': 0, 'dri	10	Aug 12, 2023 21:42:50
	12375	MFCDriver	Writing MFC data to influx: ('measurement': 'mfc_data', 'tags': ('mfc_id': 'W, 'gas_id': 'Wir, 'mfc_conc_invalid_flag': 0, 'dri	.10	Aug 12, 2023 21:42:48
	1237521	MFCDriver	Writing MFC data to influe: ("measurement': 'mfc_data', 'tags': ("mfc_id1' W, 'gas,id1' Wr', 'mfc_conc_invalid_flag': 0, 'dri	10	Aug 12, 2023 21:42:46
	1237518	MFCDriver	Writing MFC data to Influe: ('measurement': 'mfc_data', 'tags') ('mfc_id') 'W, 'gas_id') 'Wir, 'mfc_conc_invalid_flag': 0, 'thi	10	Aug 12, 2023 21:42:44
	1237516	MFCDriver	Writing MFC data to Influe: ("measurement": "mfc_data", "tags"; ("mfc_id"; "A, 'gas_id"; Wri, 'mfc_conc_invalid_flag: 0, 'dri	10	Aug 12, 2023 21:42:42
	1237515	MFCDriver	Writing MFC data to influe: ('measurement': 'mfc_data', 'tags': ('mfc_kit': 'A', 'gas_id') 'Wir', 'mfc_conc_invalid_flag': 0, 'dri	10	Aug 12, 2023 21:42:40
0	1237513	MFCDriver	Writing MFC data to Influx: ("measurement") 'mfc_data', 'tags') ("mfc_id": 'X, 'gas_id"; 'Xiir', 'mfc_conc_invalid_flag': 0, 'dri	10	Aug 12, 2023 21:42:38
	12375	MFCDriver	Writing MFC data to influx: ('measurement': 'mfc_data', 'tags': ('mfc_idf': 'W, 'gas_id': 'Wir', 'mfc_conc_invalid_flag': 0, 'dri	10	Aug 12, 2023 21:42:36
	12375	MFCDriver	Writing MFC data to influx: ('measurement': 'mfc_data', 'tags': ('mfc_id': 'X, 'gas_id': 'Xir', 'mfc_conc_invalid_flag': 0, 'dri	10	Aug 12, 2023 21:42:34
	12375	MFCDriver	Writing MFC data to influe: (measurement': 'mfc_data', 'tags'; ('mfc_id': 'A', 'gas_id': 'Air', 'mfc_conc_invalid_flag': 0, 'dri	10	Aug 12, 2023 21:42:32
	12375	MFCDriver	Writing MFC data to influx: ("measurement": "mfc,data", "tags": ("mfc,id": "A, "gas,id": "Air", "mfc,conc,invalid,flag": 0, "dri	- 10	Aug 12, 2023 21:42:30
-	1237501	MFCDriver	Writing MFC data to influe: ('measurement': 'mfc_data', 'tags') ('mfc_id': 'A', 'gas_id': 'Air', 'mfc_conc_invalid_flag': 0, 'drl	10	Aug 12, 2023 21:42:28
£	12374	MECDriver	Writing MFC state to influe: Omeasurement's finfe data' tags's Cinfe lift' & 'gas lift' Air' Infe cone invalid flag's 0. 'thi		Aun 17, 2023 21:42:26

- 1. Live Feed: With Live Feed enabled as shown, the log table updates as each event is logged. With it disabled, the log shows only events from the most recent entry.
- 2. Custom Date: Opens a window to set a Date/Time span to view only events that have logged within that time span. The maximum duration is three days of logs available to download.
- 3. Max Rows: This menu provides selections to view 500, 1000, 2000, or 5000 events. (This does not affect the quantity of events that are stored for download all events are stored).
- Severity: This menu provides selections to view events with severity levels of 10, 20, 30, 40, 50, or all. Severity levels are defined below.

Figure 45: Logs Page – Default View

- Search All Logs: Provides a field in which to enter specific search terms to narrow the event entries to only those containing those terms. Entering values here will search only in Log Course Name and Events columns.
- 6. Download: Clicking this button downloads event data in CSV or SSV data formats for viewing and analysis in a spreadsheet.
- 7. Event Rows: Each event row in the log provides the event ID (SN), Log Course Name, the Event data, Severity, and Time Stamp.
- 8. Log Pages: The number of pages available for viewing depends on specified time span (Custom Date) of the data and the Max Rows selection.

# $\mathsf{PIC} \land \mathsf{RRO}$

#### Logs Page

### 8.1 Log Column Definitions

- SN: denotes an assigned event ID number.
- Log Course Name: Specifies what part of the application emitted the log message.
- **Event:** The Event title provides information on any action the system has taken.
- Severity: Log data severity shown in Table 2 defines the severity level for each event in the log.
- Time Stamp: The time stamp denotes System time the event was logged.

Table 2: Log Data Severity Column – Level Number and Color Meanings

Severity Number	Color	Meaning
Level 10	Green	<b>Debug:</b> This level is not usually relevant to most users. It can be useful in rare circumstances if the user wants to see a larger level of detail to gain an in-depth understanding of a specific event.
Level 20	Green 20	Information: Any normal expected activity or event.
Level 30	Amber 30	<b>Warning:</b> Handled exceptions; statuses approaching thresholds; non-fatal conditions that you can continue operating in or recover from via software control; improper user inputs.
Level 40	Red 40	<b>Error:</b> Handled exceptions; you cannot recover to the normal operating state via software control; missing files; missing configuration; unintended web-socket disconnection.
Level 50	Red	Critical: Unhandled exception, traceback info, crash.

### 8.2 Setting Custom Date Search Parameters

 Click on Custom Date button to open a calendar date selection window (Figure 46 below). You can either type in the date/time directly, or click on the calendar icon to use the calendar and time tools. The default span is the last 24 hours. The maximum time span is limited to 3 days. Select the desired From date and time. Repeat the same for the To field.

Note: The LIVE FEED switch is disabled when Custom Date is enabled.

- 2. In the **Max Rows** field, select the number of rows you would like to display on the UI. When the search results are displayed, each page contains 100 rows each (scroll to see all events on the page).
- **3.** Click **Apply**. This will generate a list of all events that occurred during the designated time span (Figure 47). Note that the Live button on the upper left of the window is not available in this mode.



Figure 46: Logs Page – Setting the From/To Date and Time Search Parameters

# $\mathsf{PIC} \land \mathsf{RRO}$

P	C LIVE	FEED	Custom Date:         Sep 24, 2023 13:01:00 - Sep 24, 2023 13:01:10         So0         +         All         +         Q	ي. Download
í i	58	Log Course Name	Event Kenerity Tree Samp	
=\$	72103	MECOnver	Writing MFC data to Influe (Inexasurement' Infl., data', Tago: (Infl., Jrf. K., gas., et . Jan, V. Jan, M., Mol., zone, Javaid, (Tagi: 0, Yahiwri Xiloar), Yeldari (Inexasure: 7723, te	
clipes	72163_	MFCDriver	Witting MPC data to Influe (Invasionment: Infl), data: Tagel: (Infl), Jd: R; yae, Jd: Xr), Infl, core, Jineld, Jag G, Salvar: Micel); Selds: (pressure: 7118, 16	
	72983	MECONNE	Writing MIC data to Influe (Insecurement) Inflicitet, Yagel, Vel; Joh, MI, See, Lett. Xer, Yerk, Lonc, Josefel, Utgl B, Other: Micel), Teldo (Jeressen: 712.0, 1	
-	72983	MECDriver	Writing MPC data to Inflac (Treasurement) Infludatic, Tage) (Trefulder) RC gala, Att 397, WrG, conculturald, flag) D, Wreen (Micrat), Selder), Densurent 772,0, 1	
ega .	72363	MF CDriver	Willing MPC data to Influe (Investment) Influence), Tagle (Influent: Ri, gas, Jrt. Ref, Influence), Javakit, Flag (I. Shiver): Alloar), Teldel: (pressure): 211A, Te (19)	
ŝ	72963	MECOriver	Writing MFC data to Influe (Incessorement) Inflo, data), https://mfc.dot.Wr, ipeb.et/Wr, imflo.com, Jinulid, flag: 0, thiver: XKcarl, Telds: (precourt: 7121, te 10)	
tings	72963_	M/CDriver	Writing MPC data to Influe (Investorment): Info, data (, tage) (Info, Jaf: W, yas, M: Wr), Info, core, Javaid, Jieg' 0, Yalver: Wicard, Teddy (genotaer: 772.0, 1	
â	72983_	MFCDriver	Witting MPC data to Influs: (Imaaurument: Influster), Tagel: (Influster, Tagel: (Influster, Witting, One, Javalid, Flagr. 0, 'ditver: Wicard), Tadds: (pressure: 712.0, 1	
arts	7296331	MECDriver	Writing MFC data to influe: (measurement: 'wlu_data', 'tage; (mlu_dit', 'K. 'gas_atr.' 30', 'mlu_conc_invalid_flag: 0, 'shiver': 'Nicat'), Teldo: (pressure: 711.0, 'ta	
9	72983	MFCDriver	Writing MEG data to Influe (Insusamment: Infl., data), Tagel: (Infl.; MT. R.; yas, MT. Hr), nono, invalid, Tagel: 0, Velver: Notari), Tedds: (pressure: 7118, 1s	
	72163	MFCDriver	Writing MPC data to Influe (Investmentent) Influentity, Tages (Influent: W, gass Jal); Her, Influence.Jmodel./heg/10, Valuent; Micard); Seldas (greessure); 7117, Yass. 10	
	72163_	MFCDriver	Willing MPG data to Influe (measurement) Infl., data?, Tagel: (Infl., J.R., Y. yak, Jon Wr), Yolk, Sone, Jinold, Jagf. G. Valver: Mical), Selds: (pressure: 7118, 14	
	7290321	MECOnver	Writing MPC data to Influe (Investmentent' Influential, Tagel (Influent', K. yan, Jrl. Kr. yah, conc., musich, flagr 0, 'diver: Mical'), Teldo: (pressure: 7118, 16 1992), 2022 13.0109	
	7216318	MFCDriver	Witting MFC data to Influst (Ineasurement) Infls, data(, Tage) (Infls, Id) 76, jan, Jc) 767, cons, Jessield, Eagl 0, Talver: Micarl, Telds) (pressure) 7118, Tel., 569 28, 2023 13:01:07	
	7216317	ScheduleService	seeure_bog_recipe_piges controller size = ACTIVE_PLAN	
	7216316	ScheduleService	ericom, Joog, redge: job 1636 k s88 running at 2023-09-2613 0147/28936 56 2 2 2 3 3 0147	
e 26.	7216312	M/CDriver	Writing MPC data to Influe (Insecurement: India, Islay): (India, Mr. W., Igas, V.: Wr, Love, Jewidel, Step 10, Velver: Wood?), Teldel: (Spessure: 712.0, 1	
23	7210310	MECDriver	Writing MFC data to influe: (measurement: wile, data; Tago: (mfc.jdr. K; yae, jdr. Xir; wile, one, jiwalid, flagr 0, 'altwir: Xicar), Taldo: (pressant: 7118, Ta. 10	
	Showing B	00 of 500 rows	S 0 2	3 4 5 🕥

Figure 47: Logs Page – Example Search Results – Custom Date/Time Span

4. The event list displayed can be sorted and filtered for viewing particular events. It can be downloaded to your computer in a CSV (Comma Separated Values) or SSV (Semicolon Separated Values) file format. See the section Downloading Log Data below for instructions.

### 8.3 Sorting Log Events For Viewing

Each log column can be sorted alphabetically or numerically by clicking on the column vertical arrow which enables the user to organize the current log listing by column. Column order can also be rearranged by click/holding the column header and dragging to another location.

### 8.4 Downloading Log Data

🕹 Download

When the **Download** button is clicked, all data in the user-selected time frame is downloaded into either a **.csv** or **.ssv** format. A "Download in progress" pop-up appears (Figure 48). Once data download is ready, the green colored pop-up appears on the Logs page with a button from which you can execute the download. Clicking the **Download Now** button opens the Windows **Downloads** window from which you can open the file for immediate viewing in a spreadsheet or save the file for later use.

Commented [AP1]: Sec: 8.4: Downloading Log Data:

After download csv file, formatting issue on "ClientTimeStamp" column in MS Excel, can be fix by using "Format Cell" -> "Custom Format" -> set with "mm/dd/yyyy hh:mm:ss"

cc @Mangala Pavaska

Commented [MD2R1]: Note added on page 64



Figure 48: Logs Download Sequence

Upon opening the file after download, the user can view and sort the event data as needed in a spreadsheet for analysis (see example file in Figure 49). The Filename of the downloaded file is named for the time span selected. In the example filename below, the user-entered time span was Sep 21, 2023, at 16:15:00 to Sep 23 2023, at 16:15:00.

SAM\_logs\_2023-09-21\_16\_15\_00\_2023-09-23\_16\_15\_00.csv



The desired data format (CSV or SSV) can be specified by clicking *Settings* on the Navigation bar and then clicking on the *General* tab. Select Download File Format to choose the desired format.

<u> </u>
NOTE
NOTE

If CSV format is selected, after downloading, you can correct the formatting issue in the "ClientTimeStamp" column by updating the cell format. From MS Excel select: "Format Cell", "Custom Format", set with "mm/dd/yyyy hh:mm:ss"

### 8.5 Log Data Column Definitions

ClientTimestamp: Same as Time Stamp column shown in the UI Log listing. ClientName: Same as Log Course column shown in the UI Log listing.

**EpochTime:** Conversion of **ClientTimestamp** to epoch time (Unix time is the number of seconds that have elapsed since 00:00:00 UTC on 1 January 1970

LogMessage: Same as Event column content shown in the UI Log listing.

Level: Same as Severity column shown in the UI Log listing.

A	В	с	D	E	F	G
1 ClientName	ClientTimestamp	EpochTime	IP	Level	LogMessage	rowid
56 PicarroAMSADS0003_subthread	13:57.1	1.6758E+12		40	Error occured sending FDC alert in analyzer_driver =	642505
57 MFCDriver	13:57.0	1.6758E+12		10	Writing MFC data to Influx: {'measurement': 'mfc_data', 'tags': {'mfc	642504
58 MFCDriver	13:54.9	1.6758E+12		10	Writing MFC data to Influx: {'measurement': 'mfc_data', 'tags': {'mfc	642503
59 MFCDriver	13:52.9	1.6758E+12		10	Writing MFC data to Influx: {'measurement': 'mfc_data', 'tags': {'mfc	642502
60 InletService	13:52.1	1.6758E+12		20	No Zero Port configured	642501
61 InletService	13:52.1	1.6758E+12		30	No ZeroPort configured: list index out of range	642500
62 ScheduleService	13:52.1	1.6758E+12		10	ManualJobModel: list job start/finish 2023-02-07 00:00:00/2023-02-1	642499
63 ScheduleService	13:52.1	1.6758E+12		10	RunInstanceModel: list run instance finished_at 2023-02-14 00:00:00	642498
64 ScheduleService	13:52.1	1.6758E+12		10	RunInstanceModel: list run instance started_at 2023-02-13 00:00:00	642497
65 ScheduleService	13:52.1	1.6758E+12		10	RunInstanceModel: list run instance finished_at epoch 1676361600	642496
66 ScheduleService	13:52.1	1.6758E+12		10	RunInstanceModel: list run instance started_at epoch 1676275200	642495
67 ScheduleService	13:52.1	1.6758E+12		10	ScheduleModel.list: current end view = 2023-02-14 00:00:00	642494
68 ScheduleService	13:52.1	1.6758E+12		10	ScheduleModel.list: current start view = 2023-02-13 00:00:00	642493
69 ScheduleService	13:52.1	1.6758E+12		10	ScheduleModel.list: UI request display weekday = 0	642492
70 ScheduleService	13:52.1	1.6758E+12		10	RunInstanceModel: list run instance finished at 2023-02-13 00:00:00	642491
71 ScheduleService	13:52.1	1.6758E+12		10	RunInstanceModel: list run instance started_at 2023-02-12 00:00:00	642490
72 ScheduleService	13:52.1	1.6758E+12		10	RunInstanceModel: list run instance finished_at epoch 1676275200	642489
73 ScheduleService	13:52.1	1.6758E+12		10	RunInstanceModel: list run instance started_at epoch 1676188800	642488
74 ScheduleService	13:52.1	1.6758E+12		10	ScheduleModel.list: current end view = 2023-02-13 00:00:00	642487
75 ScheduleService	13:52.1	1.6758E+12		10	ScheduleModel.list: current start view = 2023-02-12 00:00:00	642486
76 ScheduleService	13:52.1	1.6758E+12		10	ScheduleModel.list: UI request display weekday = 6	642485
77 ScheduleService	13:52.1	1.6758E+12		10	RunInstanceModel: list run instance finished at 2023-02-12 00:00:00	642484
78 ScheduleService	13:52.1	1.6758E+12		10	RunInstanceModel: list run instance started at 2023-02-11 00:00:00	642483
79 ScheduleService	13:52.1	1.6758E+12		10	RunInstanceModel: list run instance finished at epoch 1676188800	642482
80 ScheduleService	13:52.1	1.6758E+12		10	RunInstanceModel: list run instance started at epoch 1676102400	642481
81 ScheduleService	13:52.1	1.6758E+12		10	ScheduleModel.list: current end view = 2023-02-12 00:00:00	642480
82 ScheduleService	13:52.1	1.6758E+12		10	ScheduleModel.list: current start view = 2023-02-11 00:00:00	642479
83 ScheduleService	13:52.1	1.6758E+12		10	ScheduleModel.list: UI request display weekday = 5	642478
84 ScheduleService	13:52.1	1.6758E+12		10	RunInstanceModel: list run instance finished at 2023-02-11 00:00:00	642477
85 ScheduleService	13:52.1	1.6758E+12		10	RunInstanceModel: list run instance started at 2023-02-10 00:00:00	642476
86 ScheduleService	13:52.1	1.6758E+12		10	RunInstanceModel: list run instance finished at epoch 1676102400	642475
	40.50.4	4.07505.40			a to a set the set of the second	

Figure 49: Log Downloaded for Viewing in Spreadsheet

# ΡΙΟΔΡΟ

**t** 

Settings

## 9. Settings Page

The **Settings** page provides the tabs as shown in Figure 54 below and described in detail later. The following tabs can be accessed from this page:

**Ports**: Assign port names, establish flow rates, and adjust stabilization time. Port quantity varies with the system purchased.

Species: Sets alarm thresholds for each relevant species.

**General:** Set date and time, units of measure, port average value, and file download format.

**Zero Port:** Select Zero Port for VOC (SLiM 100 or SLiM 100S only) and SI5450 analyzers (if either or both are installed in the system).

Backup: Set data backup parameters and frequency.

My Account: Enables individual users to modify some of their account details.

About: View system details.

**User Management:** Manage all user accounts (This tab appears only when the designated system administrator (admin) is logged in).

	Select a Port to Edit		
	Bank 1		Special Ports
•	1 Port1	2 Port 2	R Reference
	3 Pert 3	4 Port 4	
	a Port S	6 Port 8	Clean Ports
	7 Part7	B Port 8	C Clean 1-8
	Bank 2		C Clean 9-16
	0 Port 9	10 Port 10	© Clean 17-24
	11 Port 11	12 Port 12	© Clean 25-32
	13 Port 13	14 Port 14	
	15 Port 15	16 Port 16	
	Bank 3		Establish Flow Rates
	17 Part 17	18 Port 18	Optimize flow-rate teach time the sampling line is changed
	19 Port 10	20 Port 20	
	21 Port 21	22 Port 22	Stabilization time
	23 Port 23	24 Port 24	Driver the time needed to stabilize pressure fluctuation after port switching.
	Barix 4		00:20 sec
	25 Port 25	26 Port 26	Apply To All Ports
	27 Port 27	28 Port 28	
	20 Port 29	30 Port 30	
	31 Port 31	32 Port 32	

Figure 50: Settings Page (My Account tab is default view)

#### Settings Page

### ΡΙΟΔ R R Ο

### 9.1 Ports Tab



### **Ports Tab Features**

The Ports tab enables the user to:

- Edit **Port Name**, **Flow Rate**, and **Stabilization Time** for each port in each bank, in accordance with the fab locations to which the sample lines from The system are routed. For each port:
- **Establish Flow Rates:** Optimizes the flow rate each time a sampling line is changed, including length, size, and location. When Establish Flow Rates is selected, the following warning pop-up appears.

Flow-rate cl	hange warning!
This will stop all curr restart the schedule flow ra	ent sampling jobs. Please r manually after the new te is setup.
Cancel	Proceed

Figure 51: Flow Rate Change Warning Pop-up

• Selecting **Proceed** starts a sequence in which the flow rate of each port within each bank is optimized depending on its line length. See Figure 52 for an example of this process underway. Each bank turns green as the process in it proceeds. Each port turns yellow to indicate the flow rate is being set for that port. The sequence stops when all banks are completed.

Select a Port to Edit		
Bank 1		Special Ports
1 Port 1	2 Port 2	Balannea
3 Port 3	4 Port 4	
s Port 5	6 Port 6	Clean Ports
7 Port 7	8 Port 8	© Clean18
Bank 2		C Clean 9-16
9 Port 9	10 Port 10	0 Clean 17-24
Each bank turns green in flow rates in that bank. Y indicates progress as the	ndicating the system is setting fellow color in each port e flow settings are set through	C Dava 25-92 Education Transforme California
Each bank turns green in flow rates in that bank. Y indicates progress as the the bank.	ndicating the system is setting fellow color in each port of flow settings are set through	C Gass 25-32      Examining Theorem     Calculate Theorem
Each bank turns green in flow rates in that bank. Y indicates progress as the the bank.	ellow color in each port follow settings are set through	Count-19-12     Statistic Houriston     Count-19-12     Statistic Houriston     Statistic Houriston     Statistic Houriston
Each bank turns green in flow rates in that bank. Y indicates progress as the the bank.	e flow settings are set through	Cose 35-12      Cose 35-1
Each bank turns green in flow rates in that bank. Y indicates progress as the the bank.	dicating the system is setting 'ellow color in each port e flow settings are set through	Cose 3-12      C
Each bank turns green in flow rates in that bank. Y indicates progress as the the bank.	ellow color in each port fellow settings are set through	C Gaus 3-22      Editation How Insure      Generation
Each bank turns green in flow rates in that bank. Y indicates progress as the the bank. # net? # net? # net? # net? # net? # net? # net? # net?	ellow color in each port fellow settings are set through	C Gava 3-22  C Gava 3-22  C Gava 3-24  C Ga
Each bank turns green in flow rates in that bank. Y indicates progress as the the bank.	e flow settings are set through	C Cana 3-9 2 C Cana 3-9 2 Control from the same of t

Figure 52: Establish Flow Rates Routine Running

 Adjust Stabilization Time: Here the user can enter the time needed to stabilize pressure fluctuation after port switching so data collected during that stabilization period will be ignored. Clicking Apply To All Ports sets entered time in all ports.

### **Editing a Port**

- 1. Click on the port you wish to change. A pop-up dialog (Figure 53) appears for making changes.
- 2. Change Port Name as needed.
- 3. Change **Stabilization Time** (the amount of time required for the measurement to stabilize after port switching) and **Flow Rate** as needed.
- 4. The **Clean Port** for any bank may be edited for stabilization time and flow rate only. The name cannot be changed.
- 5. The **Special Ports** selection (the default name is "**Reference**") may be edited for port name, stabilization time, and flow rate.
- 6. Click Save to complete and close the dialog.

L	Port 1		Reference
Port Name		Port Name	
Port 1		Reference	
Stabilization Time	Flow Rate (Max 40 slpm)	Stabilization Time	Flow Rate (Max 40 slpm)
00:20 sec	40.00 slpm	00:20 sec	40.00 slpm
Cancel	Save	Cancel	Save
		Clean 1-8	
	Stabilization Time 00:20 sec	Flow Rate (Max 40 slpm) 40.00 slpm	

Figure 53: Port Edit Pop-up Dialogs

#### Settings Page

## ΡΙΟΔRΟ

### 9.2 Species Tab

1.

2.

Species

The **Species** tab enables the user to set **Warning** and **Alarm** threshold values for each species at each available port. The species and ports shown will vary depending on the analyzers and ports installed and operating in the system.

#### Default vs Individual Thresholds Toggle



Select **Individual** on the toggle to apply custom threshold values for each individual species at each port. Each individual species can have a different value assigned at each port (Figure 54).

- Default 🚺 Individual
- Select **Default** on the toggle to apply the same assigned threshold values for each individual species to all ports (Figure 55).

#### To scroll left to right within the table:

Press and hold the keyboard Shift button to scroll right and left.

### Set or Edit Threshold Values



- Click on the cell of the species and port. The cell will change to green color.
- 2. Enter the desired number for the **Warning** and **Alarm** thresholds at each applicable port for each species.
- **3.** Note that if a species value in the **Default** row is changed, it assigns that value for all ports under that species. See Figure 55.
- 4. Click Save button to implement changes.
- 5. Click Reset if you want to return the threshold to the previous values.

						th	resnol	ds to all p	orts (	lgure	55).	
	ACETIC ACID	ACETONE	D3 SILOKANE	D6 SILOKANE	нсі	HF	HMDSO	ISOPROPYL ALCOHOL	NH3	NMP	PGME	POMEA TRIMETHYL SILANOL
Default	20 30	20 30	20 30	20 30	0.3 0.35	8 10	20 30	20 300	6.7 7.7	20 30	20 30	
Port1 Port1	20 30	20 20	20 20	20 20	0.3 0.35	0.00 0.04	20 20	20 200	9 10	20 30	20 30	Click Save but
Port 2   Port 2	20 30	20 30	20 30	20 30	0.3 0.35	0.02 0.05	20 30	20 300	13 14	20 30	20 30	keep any chan
Port 3 Port 3	20 30	20 30	20 30	20 30	0.3 0.35	5 10	20 90	20 300	13.0 19.1	20 30	20 30	made or click
Port 4   Port 4	20 30	20 20	20 20	20 20	0.3 0.35	5 10	20 20	20 200	4.7 2.7	20 30	20 30	to revert to pre
Port 5   Port 5	20 30	20 30	20 30	20 30	0.3 0.35	5 10	20 30	20 300	6.7 7.7	20 30	20 30	to revent to pre
Port 6   Port 6	20 30	20 30	20 30	20 30	4.5					20 30	20 30	Settings.
Port 7 Port 7	20 30	20 20	20 20	20 20	Pr	ess an	d hold	Shift ke	y 😨	20 30	20 30	20 20 20 20
Port 8   Port 8	20 30	20 30	20 30	20 30	the	en scro	oll to m	nove table	17	20 30	20 30	20 30 20 30
Port 0   port9test	100 200	100 200	100 200	100 200	💿 lef	ft-riaht	to viev	<i>w</i> more	200	100 200	100 200	100 200 100 200
Pert 10   Pert 10	100 200	100 200	100 200	100 200	SD SD	ecies			200	100 200	100 200	100 200 100 200
Port 11   Port 11	100 200	100 200	300 200	100 200	100	001001			100 200	100 200	100 200	100 200 100 200
Port 12 Port 12	100 200	100 200	100 200	100 200	100 200	100 200	100 200	100 200	100 200	100 200	100 200	100 200 100 200
Port 13   port131	100 200	100 200	100 200	100 200	100 200	100 200	900 200	100 200	100 200	100 200	100 200	100 200 100 200
Port 14   Port 14	100 200	900 200	100 200	100 200	100 200	100 200	100 200	100 200	100 200	100 200	100 200	100 200 100 200
Port 15 Port 15	100 200	100 200	100 200	100 200	100 200	100 200	100 200	100 200	100 200	100 200	100 200	100 200 100 200
Port 15 Port 15as	100 200	100 200	100 200	100 200	100 200	100 200	100 200	100 200	100 200	100 200	100 200	100 200 100 200

Figure 54: Species Tab – Set Concentration Warning and Alarm Thresholds



Figure 55: Species Tab – Set Default Thresholds (values applied to all ports)

### 9.3 General Tab

General The General tab enables the user to adjust system Date and Time, Units of Measure, File Download format, and Port Average value. Further details are below. Any changes made here are saved by clicking the **Save** button.

	oucaup	my Account About		any changes made or Reset
Set system units and standards				to revert to previous settings.
Date and Time	6	> Units		ゥ Download File Format
Use system time Sync time with Servers	NTP	Concentration ()		Comma separated values (csv)
Select time zone		Parts per billion (ppb)		Semicolon separated values (ssv)
America/Los_Angeles (GMT -07:00)	•	Temperature		
Current time at this timezone		Celsiux (C)	-	
Sep 05, 2023 14:22:27	0 <i>2</i>			
		Pressure		
NTP servers : IP address / domains		Torr (torr)	<u></u>	
time.apple.com				
IP Address 2 / Domain Name	H	Port Average		
		Average time in seconds <sup>①</sup>		
P. Address 3 / Domain Name		60		
IP Address 4 / Domain Name				

Figure 56: Settings Page – General Tab – Default View

### Date and Time Dialog

Shown below is the Date/Time settings dialog where the user can select either **Use System Time** (Figure 57), or **Sync Time with NTP Servers** (Figure 61).

1. From the **Select Time Zone dropdown** menu, select any zone from the world-wide list.

Use system time	Sync time with NTF	, ,	
Select time zone	5617613		
America/Los_Angeles (GMT -	07:00) 👻		
Current time at this timezone			

Figure 57: Date and Time – Use System Time is Selected

 Click in the Current Time at this Timezone field. A calendar/time selection window opens for adjusting month and day at the selected timezone. The Date and Time can be entered directly into the the field.

	Sep 0	7, 202	23 00	:05:5	3			<b>F</b> 2
	Sept	embe	er 202	23 🔻	r	<	>	
	S	М	т	W	т	F	S	
						1	2	
٨	3	4	5	6	7	8	9	
	10	11	12	13	14	15	16	
	17	18	19	20	21	22	23	
	24	25	26	27	28	29	30	



**3.** To use **Sync Time with NTP Servers**, select that radio button (Figure 59). This selection provides four additional fields for specifying different IP addresses / domains to which you can sync the system time.

# ΡΙCΔRRO

) Use system time Server	time with NTP rs	J۱
America/Los_Angeles (GMT -07:00)	•	
Current time at this timezone		- 1
Sep 07. 2023 11:42:33	iii	~
		N.
TTP servers : IP address / doma time.apple.com	ains	~
ITP servers : IP address / doma time.apple.com IP Address 2 / Domain Name	ains	~
ITP servers : IP address / doma time.apple.com IP Address 2 / Domain Name IP Address 3 / Domain Name	ains	ν.

Figure 59: Date and Time – Sync Time with NTP Servers Selected



Do <u>NOT</u> enable the *Automatic Date & Time* on the Ubuntu OS Home Page settings panel (see Figure 60 below). If the Ubuntu OS Automatic Date & Time in this panel is enabled, the SLiM/SAM system will no longer synchronize its time with external servers, nor will it serve its time to the Analyzers.

WARNING

To avoid this issue, make SLIM/SAM time settings using "Sync Time with NTP Servers" feature on the Settings page (see Figure 59 above).



Figure 60: Ubuntu OS Date/Time – Leave Automatic Date & Time OFF
#### Settings Page

### Units Dialog

Shown below is the **Units** dialog. Units of measure for Concentration, Temperature and Pressure can be adjusted.

- Concentration: The concentration menu provides choices between parts per billion (ppb) and micrograms per cubic meter (μg/m<sup>3</sup>). Note that ppb to ug/m<sup>3</sup> conversion is done using room temp = 295K and 1 atm pressure.
- **Temperature:** Displays default degrees Celsius (°C) or degrees Fahrenheit (°F).
- Pressure: Displays default Torr (torr).

Concentration (1)		
Parts per billion (ppb)	• •	Concentration
		Parts per billion (ppb)
Temperature		Parts per billion (ppb)
Celsius (C)	·	Micrograms per cubic meter (µg/m³)
Pressure		u
Torr (torr)	-	



#### **Download File Format**

Shown below is the **Download File Format** dialog. The available formats are comma separated values (csv) or semicolon separated values (ssv). Note that the file format selected here is applied to downloads performed in **Monitoring** and **Logs** pages.

Comma separated values (csv)     Semicolon separated values (ssv)
O Semicolon separated values (ssv)



### Port Average

Shown below is the **Port Average** dialog. Here, the user can enter a time in seconds that will be used in the calculation of the port average value. The example in Figure 63 shows a value of 60 seconds entered. *Note that this applies to inorganic gas species only.* Here, input the number of seconds to average from the end of the run.

Port Average	_
Average time in seconds①	
60	

Figure 63: Port Average Value Setting

### 9.4 Zero Port Tab

Zero Port Data collected from the **Zero Port** corrects data from all other ports for possible analyzer drift for relevant measured species measured by VOC and SO2 analyzers. The Zero Port tab provides a utility for applying Current zero offset values, Historic offset values, or to set all values to zero. For the SO2 analyzer, the user can assign any individual port as the Zero Port as well as its flow rate.

							Available only with SO2 analy	zer.
P	Ports Species	General	Zero Port B	lackup M	y Account	About		
Monitor	Zero Port	VOC Analyzer	SO2 Analyzer				Port #18 - Port 18 40.0 slpm	Download Data 🛓 Reset Save
E Recipes	Species		O Use Upda	e Current value ated 12:46:40			Use Historic Value Sep 06, 2023 12:24:41 =	Set all values to 0
© System	S02			0.644			0.872	0.000
Logs								
रिंगे Settings								
<u>À</u> Alerts								
O Profile								
Sep 06, 2023 14:39:15								
U								

Figure 64: Zero Port Tab – SO2 Analyzer Selected

Zero Port

Settings Page



If analyzer models relevant to the Zero Port tab are not installed in your system, the tab will be inactive and greyed out:

Normalization     Normalization     Normalization     Normalization       Normalization     Normalization     Normali	P	Ports Species General Zero Port Backup My Account	About	Clicking <b>Download Data</b> creates a file with values taken from	*
Non- training     Non-	anitor	Zero Port VOC Analyzer 502 Analyzer	VOC Zero	currently selected value column.	Dosmicad Data 👌 Reset Save
Active     Analyzer Selected     10%     14%     000       Active     -ases     -ases     -ases     -ases       01     02.800.44     -209     -391     Click Save button to keep any changes may changes may changes       02     000     -445     -459     -000       03     000     -445     -459     -000       04     000     -445     -459     -000       05     000     -445     -459     -000       05     000     -445     -459     -000       05     000     -445     -459     -000       05     000     -445     -459     -000       05     000     -445     -459     -000       05     000     -445     -459     -000       05     000     -445     -459     -000       05     000     -445     -459     -000	=S ncipes	Species VOC	Use Current value Updated 11 28:46	Use Historic Value Apr 07, 2023 0313-46 +	O Set all values to 0
Active     Selected	Ö	ACETIC. ACIO Analyzer	7.070	2369	0.000
Distance     -1.70     -2.28       Distance     -1.70     -2.28       Distance     -1.70     -0.28       Distance     -1.70     -0.28       Distance     -1.70     -0.28       Distance     -1.70     -0.28       Distance     -1.70     -0.19       Distance     -1.778     -0.19       Distance     -1.887     -1.738       Distance     -1.882     10.871     -0.00	ystem		-10.865	-10.963	0.000
ODESCOME     -209     -391     Dutton to keep any changes of the set of the s		D3_SILOXANE	-2.170	-2.228	Click Save
Main         14600         -4.45         -4.69         any changes	67	D6_SILOXANE	-0.209	-0.191	button to keep
American Construction	tings	HMDSO	-5.455	-5.619	any changes of
m         MOP         0.98         0.094         0.004         to previous settings.           plant         27.98.1         27.98.3         28.294         settings.           plant         -4.697         -7.134         0.00	Ç	ISOPROPYL_ALCOHOL	-15.758	-14.990	Reset to reve
Point         22853         31396         Settings.           PointA         -4.607         -7156         -000           TBMETTERLINE, SLADOL         12.842         12.821         -000	rts	NMP	0.186	0.098	to previous
FORM - 4.697 -7336	2	PGME	27.953	28.296	settings.
Tisset 111-311-000 12.582 12.582 0.000		POMEA	-6.967	-2336	-
		INTELLITE, BLANCE	12.062	124.31	0.000
	p 08, 23 8:48				
	0				

Figure 65: Zero Port Tab – VOC Analyzer Selected

#### Zero Port Setup Steps

- 1. Select the **Analyzer** to which you want to apply the Zero Offset parameters.
- 2. SO2 Analyzer Selected: From the Ports menu, select the port number you would like to associate as the Zero port. Then set flow rate if desired (default is 40 slpm).
- 3. VOC Analyzer Selected: Ports menu and flow rate selections are not available for VOC. If VOC Zero is present then it is Auto-assigned to the VOC Analyzer installed in your system.
- Zero offset values are set @jeln the panel associated with the selected analyzer, Current Value will be used if no changes are made. To make changes, user can select either Use Historic Value, or Set all Values to 0.
- Current Value: Shows the current values which, if no changes are made (such as selecting Use Historic Value, or Set all Values to 0), zeroing will be applied to the selected Zero Port from this data (Figure 66).

6. Clicking on Use historic value copies the historical zero offset values selected from the date/time drop-down list (Figure 66) to the selected Zero Port. Click the dropdown menu, select a date, then click Save.

Zer	VOC Analyzer SO2 Analyzer	VOC Zero		Download Data 👌 👘 👘
	Species	Use Current value Updated 11/28-86	Use Historic Value Apr 07, 2023 03:13:46	O Set all values to 0
	ACETIC_ACID	7.070	Apr 07, 2023 03:13:46	0.000
	ACETONE	-10.865	Apr 07, 2023 00:00:36	0.000
	D3_SILOXANE	-2.170	Apr 06, 2023 22:17:36 Apr 06, 2023 20:47:43	0.000
	D6_SILOXANE	-0.209	Apr 06, 2023 19:04:33	0.000
	HMDSO	-5.455	Apr 06, 2023 17:34:34	0.000
	ISOPROPYL_ALCOHOL	-15.758	-14.990	0.000
	NMP	0.186	0.098	0.000
	PGME	27.953	28.296	0.000
	POMEA	-6.967	-7.136	0.000
	THIMETHYL_SILANOL	12.582	12.921	0.000
6				

Figure 66: Zero Port Tab – Use Historic Value Menu

- 7. If the **Set all values to 0** radio button is selected, all species offset values are set to 0 and applied to the selected Zero Port when the **Save** button is clicked.
- 8. For VOC analyzer, click Save to apply the new offset values to the analyzer
- For SO2 analyzer, click on the Save button apply the new offset values to the analyzer and to save any port and flow rate changes. A notification appears on the Settings page indicating a successful save. Cancel will revert the port selection to "None".

#### Settings Page

# ΡΙΟΔ R R Ο

### 9.5 Backup Tab

Backup

The **Backup** tab provides various data backup features and options. Figure 67 shows the tab default view. A log of previous backups is provided here.

P	Ports Species General	Zero Port Backup My Account About			
	Backup ①				Reset Save
=5 ecipes	Backup settings		Last backed up at Aug 29 2023 22:20:39		Backup Now
¢	Automatic Backup		Last 5 backups		
stem	Select Backup Disk	This Machine	Aug 29 2023 22:20:39	Local disk	Backup Successful
€n _✓		O Remote Location	Aug 28 2023 22:20:44	Local disk	Backup Successful
2			Aug 27 2023 22:20:48	Local disk	Backup Successful
tings			Aug 26 2023 22:20:42	Local disk	Backup Successful
¢.			Aug 25 2023 22:20:38	Local disk	Backup Successful
lerts					
ofile					
ip 06, )23 58:52					
U					
4					

Figure 67: Settings Page – Backup Tab – Default View

### **Automatic Backup**

When Automatic Backup is selected, the options in Figure 68 appear. Backup **Frequency** can be set to **Daily** or **Weekly**. Backup disk selection can be local (the SLiM/SAM computer) or remote. If using **Remote Location** selection, fields are provided for entering Username, Password (if required), and an IP Address.

S Backup settings				Backup Frequency Choices
Automatic Backup				Weekly
Frequency	Daily	▼ at 08:14		Daily
Select Backup Disk	This Machine			Weekly
	Remote Location			
		S Backup settings		
		Automatic Backup		
		Frequency	Weekly	▼ at 08:14
			Su Mo Tu	We Th Fr Sa
		Select Backup Disk	This Machine	
			Remote Location	n

Figure 68: Backup – Automatic Backup – (Daily or Weekly)

Automatic Backup			
Frequency	Weekly	▼ at 08:14	
	Su Mo Tu We	Th Fr Sa	
Select Backup Disk	Su Mo Tu We	Th Fr Sa	
Select Backup Disk	Su Mo Tu We This Machine Remote Location	Th Fr Sa	
Select Backup Disk	Su     Mo     Tu     We       This Machine       Remote Location       Username	Th Fr Sa	
Select Backup Disk	Su     Mo     Tu     We       This Machine       Remote Location       Username       User name	Password Password	
Select Backup Disk	Su     Mo     Tu     We       This Machine       Image: State of the stat	Password Password	

Figure 69: Backup – Automatic Backup – Remote Location Selected

### **Backup Now**

Clicking the **Backup Now** button immediately executes a backup per the parameters set in the Backup Settings panel of this tab.

Dec 18 2023 08:17:32		Backup Now
Last 5 backups		
Dec 18 2023 08:17:32	Local disk	Backup Successful
Oct 15 2023 08:17:30	Local disk	Backup Successful
Aug 18 2023 08:17:37	Local disk	Backup Successful
Aug 17 2023 08:17:36	Local disk	Backup Successful
Aug 14 2023 08:17:32	Local disk	Backup Successful

Figure 70: Backup Now Button and History

### 9.6 My Account Tab

My Account

The **My Account** tab provides for limited account changes by each individual user. Here, the user can change their first name, last name, and password. The email can only be changed by the admin. The username cannot be changed, even by the admin. The user is first required to login to the password reset portal using their current credentials.

			Update passw	ord
My Details				
A. Information			<ul> <li>Must contain at least 1 special of Must not be equal to any of last</li> </ul>	haracters 3 passwords
Liter name			<ul> <li>Must contain at least 1 upper co</li> <li>Must contain at least 1 lower ca</li> </ul>	ise characters
daver			<ul> <li>Must be of minimum length 6</li> </ul>	
			<ul> <li>Must not be equal to the userni</li> <li>Must not be equal to the email</li> </ul>	ame
First name		Last name		
David		Rummens		
Email				
drummens@picarro.com			••••••	
Groups			Confirm password	
Engineer Operato	r Service Engineer		••••••	
Change password				
Launch password reset portal	Clicking Change		Sign out from other devices	
	Password opens the	1	Submit	
			Cancel	
	on a separate pop-up.		curcer	

Figure 71: Settings Page – My Account Tab

### 9.7 About Tab

About The About tab provides system hardware and software information including:

- Hardware: SLiM 100, SLiM 100S, SAM-C, or SAM-S
- Serial number of the system (Serial No)
- Software version of system (SW Version)
- UPS information (if installed)
- Number of ports
- Installed analyzers
- Serial number and software version of each installed analyzer

# $\mathsf{PIC} \land \mathsf{RRO}$

•				
omiter	About this unit			
-5	System Info	Analyzers		
rotem	Hardware : SLIM 100 Serial No : slim100-beta SW Version : Simulator UPS : -	SI5450 Berlah No :-UAD580003 SW Version :1200-12.0.79 (910aa445)	S12306 Exert No (6447- MAR052027 SW Werken (2000-12.81) (6697-069)	
ogs	Number of ports 32	VOC Serial No (8380-HUV1044 SW Version (2000-2.0.15 (4ce0469c)	SI3401         Kellis           Smith No         Kellis           MARADSSKOB         Signa           SW Version         (2000- 12094 4)	
¢ <sup>Jerts</sup>			(1056684400)	
rofile				
ep 14, 023 47:49				

Figure 72: Settings Page – About Tab

### 9.8 User Management Tab

User Management



The User Management tab only appears on the Settings page when the ownerdesignated Administrator (admin) is logged in.

The **User Management** tab provides the means for the administrator to add new users and manage each user's access and their respective roles. By clicking the **Create New** button the administrator can create a new user profile.

By clicking the ellipsis (...) in any user row (Figure 73), the administrator can:

- Edit existing user details including:
  - Email address
  - Groups
  - Alert Preferences
  - Note that the Username field cannot be edited
- Change user password
- Deactivate a user
- Remove a user

×1	User Management		_			+ Create New
Aonitor	Username	Email	First Name	Last Name	Status	Action
5	admin	admin@picarro.com	Admin	User	Active	
pes	astmartin	astmartin@picarro.com	Andrew	St.Martin	Active	
þ	daver	drummens@picarro.com	David	Rummens	Activo	
stem	engineer	engineer@a.c	Picarro	Engineer	Active	
ogs	harish	h@t.com	Harish	C Editus	er details	
	harmhxbk	test@test.com	sWMCENPy			
z.	ialkaxan	test@test.com	jRIMirpg	💭 Change	e password	
ings	jen	jtao@picarro.com	Jen			
û. Herts	jenfm	jtao@picarro.com	Jen	Q∗ Deactiv	vate user	
	mpavaskar	mpavaskar@picarro.com	Mangala	। प्रि. Domou		
2				iii Remov	re user	
ofile						
15,						< 1 2

Figure 73: Settings Page – User Management Tab – Default View

### **Create New User**

Clicking the **Create New** button opens the **Create New User** dialog (see Figure 74 and Figure 75). Here the admin can fill out all fields, set an initial password for the new user, assign groups, and set alert preferences.

Username		Create new user Username Username						
						First name	Last name	First name Last name
						First name	Last name	First name Last name
Initial Password		Initial Password						
Password		Password						
Email		Email						
Email		Email						
Groups		Groups						
Group	*	Group						
Alert Preferences		Admin						
Concentration thresh	old System issues	Group Categories						
FDC events		□ operator assigned to the						
		User						

Figure 74: Create New User Dialog – Example

#### Settings Page

# ΡΙΟΔ R R Ο

When any Alert Preferences are selected, any event notifications relevant to that selection will be sent to the user via email.



When a new user is created, the Admin provides the user with the login credentials. At this point, the user would log in with the admin-provided password and then change the password to one of their choice that meets password security requirements.

Cr	eate new user
Username	
David	
First name	Last name
David	Smith
Initial Password	
•••••	
Email	
dsmith@company.com	
Groups	
Engineer 🗴 Operator	Service Engineer S Group
Alert Preferences	
<ul> <li>Concentration thresho</li> <li>FDC events</li> </ul>	old System issues
	Create User

Figure 75: Completed New User Dialog

### **Edit a Current User**

Shown in Figure 76 is an example Edit User Details dialog. The user's first and last name, email, groups, and alert preferences can be changed. *Note that the Username cannot be changed.* 

Jsername		- 1
jen		
First name	Last name	
Jen	Тао	
Email		
jtao@picarro.com		
Groups		
Admin 😒 Engineer 😒	Operator 🛞	•
Service Engineer 🛞 Group		- 1
Alert Preferences		- 1
Concentration threshold FDC events	System issues	
	Save	

Figure 76: Edit User Details (Only by Admin)

### **Group Roles**

The following User Roles (or permissions) shown in the **Groups** panel in Figure 74 are defined here:

- Admin Access:
  - User Management tab under Settings page. Only the User Administrator can access and edit items on the User Management tab which includes creating new users, editing, or removing existing users.
  - o Log, Backup, and Zero Port downloads.
  - Admin Restrictions: Admin cannot download data, create, edit, run, or delete recipes.
- Engineer Access: Engineer role has the following access and restrictions.
  - Monitor Page: View and manipulate all features of Live Feed and Analysis tabs.

- Recipes Page: View and manipulate all features of Schedule and Recipe Library tabs including creation, edit, running and deletion of recipes, search, and modification of Recipe Library.
- System Page: View only.
- Logs Page: View and manipulate all features of Logs including search, filtering, and data download.
- o Settings Page: View and manipulate available features in all tabs.
- Engineer Restrictions: User Management tab is not available or visible to Engineers.
- Operator Access:
  - **Monitor Page:** View and manipulate all features of Live Feed and Analysis tabs.
  - Recipes Page: View Schedule and Recipe Library tabs (search and view only on Library tab).
    - Restrictions: Cannot create, edit, run, or delete recipes.
  - System Page: View only.
  - Logs Page: View and manipulate all features of Logs including search, filtering, and download.
  - Settings Page: View permission only on all tabs
    - Restrictions: User Management tab is not available or visible to Operator.
- Service Engineer Access:
  - Full access as Engineer.
  - Service Engineer Restrictions: Cannot access User Management tab.

#### **Alert Preference Categories**

Any user can have alert preferences set so they can be notified via email when a concentration threshold has been breached, FDC (Fault Detection and Control) or other system issues have occurred. *A user cannot set alert preferences. Contact the Administrator to request alert preference changes.* 

When any of the categories shown in Figure 77 are checked, the user for which they are assigned will receive an alert email each time an event occurs, describing which parameter has issued an event message and the details of the that event. An example concentration threshold email alert is shown in Figure 78.



Figure 77: Alert Preference Categories



Figure 78: Concentration Threshold Alert Email Message - Example

### **Alert Category Definitions**

- **Concentration Threshold:** Whenever a concentration warning or alarm threshold is breached, an email is issued describing the details of the breach, including species concentration, a summary of the event, which analyzer logged it, the port number, breach severity, molecule species, and timestamp (Figure 78).
- System Issues: This alerts the recipient when something malfunctions, such as hardware, communication, UPS status (if installed), or software within the system.
- **FDC Events:** This alerts the recipient when FDC (Fault Detection and Control) events occur.

### **10. Alerts Panel**



Clicking this icon opens a list of any alerts that accumulate during the operation of the system and can be used to identify what actions may need to be taken.



Figure 79: Alerts Window

# 11. Profile Menu



Clicking this icon on the navigation panel opens a selection screen of the current user from which they can view and edit their current account or log out of the current SLiM or SAM system.

Admin User admin@picarro.com
R≡ My account
[→ Logout

Figure 80: Example Profile Menu

### **About Picarro**

Picarro is a leading provider of solutions to measure greenhouse gas (GHG) concentrations, trace gases, and stable isotopes across many scientific applications, along with the energy and utilities markets. Our patented Cavity Ring-Down Spectroscopy (CRDS) is at the heart of all Picarro instruments and solutions, enabling the detection of target molecules at part per billion or better resolution.

### **Product Support**

Utilize Picarro support resources for product support. Join the Picarro community to ask questions and get answers, search the document library for datasheets and user manuals, download software, and purchase products and replacement parts.



Access to online User Manuals is available to all registered Picarro customers with login credentials. If you do not yet have an account, please email us at support@picarro.com to request access. Note must be a registered user and logged in to access the following resources:

- Picarro Document Library
- Picarro Community (Forums)
- Picarro Software Downloads
- <u>Picarro Literature (Scientific Resources)</u>
- Picarro Web Store

Contact Picarro for questions regarding specific applications and additional information.

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