

Software User Manual Rev. 7.06

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ProcessView



This User Manual applies to ProcessView software versions 7.01 and greater.

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Welcome

Welcome to the "ProcessView" software and it's rich feature set. This software is used to monitor, control and display status for up to 50 Watlow[®] F4T, Watlow[®] F4 Legacy controllers or Watlow[®] PM series controllers on an Ethernet network or RS-485 network. The software supports F4T's that can have up to 4 PID Control Loops, 2 Cascade Control Loops and 4 additional monitor sensors and up to 2 Limit Control Loops for 10 analog inputs total. The software supports Legacy F4 controllers that can have up to 3 Analog inputs for either regular PID control or cascade used for part or substrate control applications. Each Legacy F4 can have up to two control loops. The software supports data logging parameters from both F4T and F4 controls in either a comma delimited format (for use in Excel) or a secure Encrypted format for quality control applications. The PM series controllers and Limits are also supported in ProcessView.

It can be used to graph F4T generated non-encrypted data log files for easy interpretation and for archiving in either hardcopy or electronic PDF files. The software is best used if it is run on Windows 7 or 10/11 and with a monitor that has a resolution of 1024 x 768 or greater.

Here are some additional features:

Email Notifications Capability – This software can be used to send End of Profile and or Alarm conditions via an email or text message.

Real Time Trending – This software has a real time trend chart for each F4T or F4 connected on the network that can be used to validate the F4T or F4 performance or for archiving purposes.

Profile Event Control – This software can be used to monitor and control Profile Event Outputs when a profile is idle or running.

Cloud Database Support – This software can be used to upload logged data to Cloud Support Services. Microsoft Azure and Amazon AWS RDS are supported which allows users to access data securely from remote locations. Data is logged in a SQL database format for easy data sorting and organization. Data can be sent to a Microsoft Access database or a Microsoft SQL Server database as well.



Remote PC Access Supports Multiple Users – Using the "Internet of Things" technology, remote PC's can access all the controllers on the network connected to ProcessView.

Additional Hardware Monitoring Sensors – Additional Sensors can be added to the network for Part or Process monitoring using Watlow's D4T Data Logger. Up to 24 additional sensors can be added.

Quality Assurance Reports – Customizable QA reports can be configured which record if a profile has been completed successfully or not and the report can then be archived in a PDF file or sent to an external printer.

Variable Control – This software can be used to monitor and control up to 8 internal digital or analog variables inside a F4T for external machine control. Digital inputs to the F4 controller can be viewed as well.

Alarm Management – This software displays real-time alarm status and control for alarm monitoring and management.

Custom Naming Capability – This software allows the user to provide custom names that are more pertinent to their application for various analog inputs or digital I/O.

Batch Recording – When a Profile is running the real-time data is displayed and can be archived with a printed copy or electronic PDF file as well as custom user notes appended to the trend chart.

Trend Chart Customization – This software allows users to select which data is displayed real-time as well as trend pen graph colors.

Data Logging – This software can selectively log data from the F4T or F4 either continuously or only when a Profile is running. The file saved can be either a CSV file or Encrypted file for Quality standards. All events, variables, starting, stopping, pausing and termination of an active Profile is logged to the data file. When the data log file session has ended, all minimum and maximum process values for all sensors are recorded.

Password/Security Protection – This software has the ability to password protect all menus for either a Technician or Operator type user.

Real-Time Data Logging Viewer – All data can be viewed as it is being logged in real time. You can add notes to the data log file while it is logging and after it is completed.

21 CFR Part 11 Compliance – ProcessView combined with a locked out F4T Controller can be used to satisfy 21 CFR Part 11 Quality guidelines. ProcessView supports electronic signatures, advanced password management, encrypted data log files and an Audit Trail which all are used for data



integrity and security for Life Science, Pharmaceutical, Food or any other industry requiring 21 CFR Part 11 Compliance.

Network Connection

In order for the software to communicate correctly you must ensure that the F4T's and the PC running this software are connected via Ethernet and are on the same Local Area Network Address. To change or ensure that this is the case, please navigate to the Windows Control Panel and select "Network and Sharing Center":



Next Select "Change adapter settings:



Network and Sharing Center			X
🗧 🚽 👻 🛧 🙀 > Control Pa	anel > All Control Panel Items > Network and	Sharing Center	v で Search Co タ
Control Panel Home	View your basic network informat	ion and set up connections	
Change adapter settings Change advanced sharing settings	Watlow OVR 2 Private network	Access type: Internet HomeGroup: Ready to create Connections: Mirrless Network Connection (Watlow OVR)	
R	Unidentified network Public network	Access type: No network access Connections: U F4T Startech Local Area Connection	
	Change your networking settings Set up a new connection or netwo Set up a broadband, dial-up, or VP Troubleshoot problems Diagnose and repair network prob	rk N connection; or set up a router or access point. Iems, or get troubleshooting information.	
See also Akamai NetSession Interface Control Panel Bluetooth Devices HomeGroup Infrared Internet Options Lenovo - Internet Connection Windows Firewall			

Then select the appropriate network adapter that is used to connect the Ethernet cable. If hardwired it will usually be the "Local Area Connection". If wireless than select the "Wireless Network Connection". Then "double click" on the selected network connection with your mouse.





The following pop up window will be displayed:



and card a special	nection Status	2
eneral		
Connection		
IPv4 Connectivi	ty:	No network access
IPv6 Connectivi	ty:	No network access
Media State:		Enabled
Duration:		00:10:42
Speed:		100.0 Mbps
D <u>e</u> tails		
D <u>e</u> tails		
D <u>e</u> tails	Sent —	Received
Details Activity — Packets:	Sent — 616	Received
Details Activity Packets:	Sent — 616 Ojisable	Received 0 Diagnose

Then select by double clicking on "Internet Protocol Versions 4 (TCP/IPv4)"



Connect using: Intel(R) 82577LM Gigabit Network Connection Configure This connection uses the following items: Client for Microsoft Networks Client for Microsoft Networks Construction State Scheduler Construction State Scheduler Construction A (TCP/IPv4) Microsoft Network Adapter Multiplexor Protocol Microsoft LLDP Protocol Driver Microsoft LLDP Protocol Driver Internet Protocol Version 6 (TCP/IPv6) Construction 6 (TCP/IPv6) Construction 6 (TCP/IPv6) Construction 7 Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.	Connect using: Intel(R) 82577LM Gigabit Network Connection Configure This connection uses the following items: Client for Microsoft Networks Client Protocol Version 4 (TCP/IPv4) Microsoft LLDP Protocol Driver Microsoft LLDP Protocol Driver Internet Protocol Version 6 (TCP/IPv6) Internet Protocol Version 6 (TCP/IPv6) Install Properties Description Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.	stworking Sharing				
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This connection uses the following items:	This connection uses the following items: Image: Client for Microsoft Networks Image: Client for Microsoft Network Image: Client for Microsoft Network Image: Client for Microsoft Network Addition for Microsoft Network Microsoft Network Adapter Multiplexor Protocol Image: Microsoft LLDP Protocol Driver Image: Microsoft LLDP Protocol Driver Image: Microsoft LLDP Protocol Version 6 (TCP/IPv6) Image: Client for Microsoft LLDP Protocol Version 6 (TCP/IPv6) Image: Client for Microsoft Network Protocol Version 6 (TCP/IPv6) Image: Client for Microsoft Network Protocol Version 6 (TCP/IPv6) Image: Client for Microsoft Network Protocol Version 6 (TCP/IPv6) Image: Client for Microsoft Network Protocol Version 6 (TCP/IPv6) Image: Client for Microsoft Network Protocol Version 6 (TCP/IPv6) Image: Client for Microsoft Network Protocol Version 6 (TCP/IPv6) Image: Client for			Confi	gure	
Client for Microsoft Networks File and Printer Sharing for Microsoft Networks On S. Packet Scheduler Internet Protocol Version 4 (TCP/IPv4) Microsoft Network Adapter Multiplexor Protocol Microsoft LLDP Protocol Driver Internet Protocol Version 6 (TCP/IPv6)	Client for Microsoft Networks File and Printer Sharing for Microsoft Networks Qo S. Packet Scheduler Internet Protocol Version 4 (TCP/IPv4) Microsoft Network Adapter Multiplexor Protocol Microsoft LLDP Protocol Driver Microsoft LLDP Protocol Driver Internet Protocol Version 6 (TCP/IPv6) Internet Protocol Version 6 (TCP/IPv6) Internet Protocol Version 6 (TCP/IPv6) Install Properties Description Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.	This connection uses	the following items:			
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Install Properties Install Properties Description Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.	Install Properties Install Properties Description Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.	Microsoft Ne	twork Adapter Multiplex DP Protocol Driver	or Protocol /6)	1920	~
Install Uninstall Properties Description Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.	Install Properties Description Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.	Internet Prot	ocor version o (rei /in		>	
Description Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.	Description Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.	Internet Protect				
		Install		Prope	erties	1

Then in the IP address field put in a network address that is on the same network as the F4T (Do not put in the same address as the F4T). The F4T default address is 192.168.0.222. If you put in an address that is something like 192.168.0.10 it will then be on the same local network. Make sure you select "Use the following address" as well. Enter 255.255.255.0 for the Subnet mask. Leave the Default gateway blank as show below:



General					6				
You can get IP se this capability. Ot for the appropriat	ttings assigned herwise, you ne te IP settings.	automatical ed to ask y	y if y our r	your	ork	adr	rk su ninist	pport rator	5
O Obtain an IP	address autom	atically							
• Use the follo	owing IP address								
IP address:		192	. 16	8.	0		10		
Subnet mask:		255	. 25	55.	255		0		
Default gatewa	ay:		×	84		ų.			
O Obtain DNS	server address a	automatical	v						
• Use the follo	wing DNS serve	r addresses	:						
Preferred DNS	server:		•			•			
Alternate DNS	server:		e	.,		æ			
🗌 Vaļidate set	ttings upon exit					A	d <u>v</u> an	ced	

Select OK and exit out of all the dialog boxes by selecting "OK". Your adapter card will now be on the same local network as the F4T and it should communicate. If you change the internal IP Address on the F4T using the F4T touch screen you will need to power the F4T off and then on for it to take effect.

Legacy F4 Serial Communications

The Watlow F4 Controller typically interfaces with ProcessView via a USB to RS-485 converter. The F4 Controller uses RS-485 "2-wire" half duplex serial communications. The signals for this are +Tx/Rx, -Tx/Rx and GND. The positive transmit and receive signals share the same positive wire and the negative transmit and receive signals share the USB converter.



RS-485 Communications:

Important!!!

It is very important that you use a USB to RS-485 converter that uses a good chip set that is supported by Windows 7/10 or 11. If you use an older USB to RS-485 converter you might experience intermittent communication errors which are very hard to diagnose and debug. Several customers have had issues with communicating to an F4T network because they did not have up to date USB to RS-485 converters and when they switched to newer designs the communication errors went away. So please if you don't have good USB to RS-485 converter, spend the \$25.00 and buy one! If you can get one with the FTDI Chipset, they are the most reliable.

Here are a couple (Waveshare, and DTech) that have been tested and have been proven to work very well and are available on Amazon for under \$25.00:

Waveshare:





DTech:



The Watlow F4 Controller typically interfaces with ProcessView via a USB to RS-485 converter. The F4 Controller uses RS-485 "2-wire" half duplex serial communications. The signals for this are +Tx/Rx, -Tx/Rx and GND. The positive transmit and receive signals share the same positive wire and the negative transmit and receive signals share the minus wire of the USB converter.

Below is an example of RS-485 wiring required:





RS-232 Communications:

If you are using a USB to RS-232 converter from your PC a little more work will be necessary compared to the easier USB to RS-485 converter setup. A lot of chamber manufacturers will provide a RS-232 port with a DB-9 or DB -25 connector for the RS-232 signals, but they will not jumper out the RTS, CTS signals or the DTR, DSR signals which will pose a problem in getting the communication to work. The F4 controller uses pins 14 (TX), 15 (RX) and 16 (Common) for RS-232 communications. Most USB converters will also need to have some of the signals "Looped Back" in order to enable communications. Some customers have found that it is easy to take the mounted DB-9 or DB-25 connector off of the panel on the chamber and jumper the signals on the connector where the wires are soldered to the terminals.

Below is a diagram which shows how to jumper the signals with both a DB-25 and DB- 9 connector (DB-9: jumper 7 and 8, jumper 1,4 and 6, DB-25: jumper 4 and 5, jumper 6, 8 and 20)

25 Pin	25 Pin	25 Pin	9 Pin
Connector	Connector	Connector	Connector
SG 7	7 SG	SG 7	5 SG
SD 2	3 RD	SD 2	2 RD
RD 3	2 SD	RD 3	3 SD
RS 4	4 RS	RS 4	7 RS
CS 5	5 CS	CS 5	8 CS
DR 6	6 DR	DR 6	6 DR
CD 8	8 CD	CD 8	1 CD
ER 20	20 ER	ER 20	4 ER

You must make sure that the TX or SD signal goes to pin 15 of the F4 controller and the RX or RD signal goes to pin 15 of the F4 controller (sometimes you might need to swap the wires connected to pins 14 and 15 on some chambers to get the correct interface).

The ProcessView communication settings for the F4 controller must match the current settings stored inside the F4 controller. The network address and baud rate must be the same. To access the communication parameters in the F4 Controller go to the "Setup Menu", then select "Communications" and you will then see the Baud Rate setting (9600 or 19200). Then if you select the forward arrow on the F4 you will see the Network Address setting (1-256). These settings will be used when you configure the F4 Setup in ProcessView.



The other piece of information you will need for the setup is the COM port number assigned by Windows to your USB to RS-485 converter.

After installing the driver for your USB converter you can check which COM port was assigned to the converter by looking at the Device Manager under the Control Panel in Windows as shown below (in this example COM2 was assigned):



Getting Started F4T/D4T

After you have ensured and setup your PC to be on the same Local Network as the F4T (see setting up Network section) then the next thing you need to do is configure the F4T control loop names and



if they are used in the F4T internal program. After installing the ProcessView Software, the main screen below will be shown. You will need to select the "Settings" menu and then select "Add an F4T On-line", menu item. If you log out of that screen you will then need a password to get back in from the "Login" menu. The default user name is "Username", and the default password to use is "Admin" and below is the login screen.

Processi	View													- 0
File	Add Cont	oller Off	Line Profile Ed	litor Help										
Ne	twork Vi	ew												
[Name	Alarm State	Active Profile	Profile Status	Current Step	Step Number	Step Time Remaining	Total Time Remaining	Network Address	Communications Enabled				
										0			MQTT	
													Server	
l]	
												Refresh Network Grid		

🐴 Login				—	•	x
	User Name:	Userna	me]	
	Password:	Admin				•
	Logi	in	Char Passwo	nge ord/PIN		



After selecting the "Settings" menu you will see the "Add New F4T Online" Screen for adding an F4T controller. You will then need to configure the communications to the F4T controller. Enter the appropriate communication parameters for either Ethernet (IP Address of the F4). The default IP address is 192.168.0.222 which is what configured from Watlow. If you are not sure what the F4T IP address is you will need to get that information from the F4T controller. You can do this by touching the settings icon on the bottom of the front F4T screen, then select the "Settings" button, then select the "Network" button, then select "Ethernet". You can then scroll down and you will see the Ethernet Address for your F4T controller. When the screen first comes up, the ProcessView software will scan the local networks for F4T Controllers and populate the list box for any controllers it discovers. You can then select the appropriate controller in the list box and that will be the IP Address used for the rest of the setup process. The screen will also show you the list of IP Addresses associated with your PC's Network Adapters that are on the PC. Make sure that they are colored green which means they are on the same subnet as the F4T IP Address. If for some reason you don't see any discovered F4T's in the list box you can try and manually add an F4T IP Address using the "Enter F4T IP Address" button. Sometimes if you are using a shared network or a virtual PC this might be the case.

F4T Setup: Communications Tab:

Communications List of Network IP Addresses From Network Adapters Installed on: GLENNSPC 192.168.0.31 F4T 192.168.0.42 01240038381007 192.168.0.50 Important: Make sure that one of the IP Addresses in the Box above is "Green" which
List of Network IP Addresses From Network Adapters Installed on: GLENNSPC 192.168.0.31 F4T 192.168.0.42 01240038381007 192.168.0.20 Chamber 1 IP Addresse IP Addresses Enter F4T IP Addresses IP Addresses Enter F4T IP Addresses IP Addresse IP Addre
192.168.1.13 192.168.0.20 Chamber 1 Enter F4T 192.168.0.50 IP Address Important: Make sure that one of the IP Addresses in the Boxabove is "Green" which Enable and Use Serial Modbus RTU
Important: Make sure that one of the IP Addresses in the Box above is "Green" which
Important: Make sure that one of the IP Addresses in the Box above is "Green" which
means it is on the same subnet as the F4T IP Address to work properly.
F4T Internal Settings: Please make sure that under the Settings:Network \Cthernet Menu in the F4T that Modbus TCP Enable is set to "Yes" and the Modbus Word Order is set to "Low High" and IP Address mode is set to "Fixed"!
F4T Name: Edit Name Below If Desired!
F4T Name



If your F4T has been detected and there is only one F4T on the network the software will automatically select the "Configuration Tab" to complete the setup. Otherwise with multiple F4T's or D4T's on the network you will need to select the F4T in the list that you are setting up and then you will be taken to the Configuration screen as shown below:

Configuration Tab:

Control Loop Names Cascade Loop 1 Control Loop Units Connections For Quick Setup Select Chamber/Furnace Manufacturer: Profiles Used in F4T Controller Product Temp *C YES Cascade Loop is connected to SPI of Profile Block Default TES-Bloe M Russells Technical Products Imits Name: F4T Controller Air Temp *C YES Control Loop is connected to SPI of Profile Block Profile Block Ch.1 Units: *C Munidity % RH YES Control Loop is connected to SP2 of Profile Block Profile Block Ch.1 Units: *C PV 2 None NO Control Loop is not connected to Profile Block Profile Block Ch.4 Units: None PV 3 None NO Control Loop is not connected to Profile Block PV Input Type PV Units PV 3 None NO Control Loop is not connected to Profile Block None None *C	F4T1M5FAA1C9	AAA	Case (onl	ade Control Loops might be connected to a S y regular Control Loops can be detected)	P sender on the Profile Blo	ck			
Product Temp °C YES Cascade Loop is connected to SPI of Profile Block TPS-Blue M Russells Technical Products Name: Name: Air Temp Control Loop 1 Wessells Technical Products Limit 1 Over Temp 1 Humidity % RH YES Control Loop is connected to SP2 of Profile Block Profile Block Ch.1 Units: % RH PV 2 None NO Control Loop is not connected to Profile Block Profile Block Ch.4 Units: None PV 2 None NO Control Loop is not connected to Profile Block Profile Block PV Input Type PV Units Pv Units PV 3 None NO Control Loop is not connected to Profile Block PV Source PV Input Type PV Units PV 3 None None None None None	Control Loop Names Cascade Loop 1	Control Loop Units	Control Loop Used	Profile Block Connections	For Quick Setu Chamber/Furnace Default TPS-Tenney	up Select Manufacturer:	₽ ₽ F	Profiles Used in 4T Controller	
Profile Block Ch.1 Units: C Humidity % RH YES Control Loop is connected to SP2 of Profile Block Profile Block Ch.1 Units: % RH Control Loop 2 PV 2 None NO Control Loop is not connected to Profile Block Profile Block Ch.4 Units: None PV 2 None NO Control Loop is not connected to Profile Block Profile Block Ch.4 Units: None PV 3 None NO Control Loop is not connected to Profile Block PV Input Type PV Units PV Units PV 3 None None Profile Block None None PV 3 Internal None None None	Product Temp	°C	YES	Cascade Loop is connected to SP1 of Profile Block	TPS-Blue M Russells Technical F TestEquity	Products	Limit 1	Name: Over Temp 1	
Control Loop 2 NOne Control Loop is not connected to Profile Block Profile Block PV Input Information PV 2 None NOne Control Loop is not connected to Profile Block PV Input Type PV Units Control Loop 3 PV 3 None NOne Control Loop is not connected to Profile Block PV 2 Slot 5 Input 1 Analog Input °C PV 3 Internal None None None None	Control Loop 1 Humidity	% RH	YES	Control Loop is connected to SP2 of Profile Block	Input Values Decimal Scale Tenths	Profile Block C Profile Block C Profile Block C Profile Block C	h.1 Units: :h.2 Units: :h.3 Units: :h.4 Units:	°C % RH None None	
Control Loop 3 PV 3 None Control Loop is not connected to Profile Block PV 1 Slot 5 Input 1 Analog Input °C PV 3 Internal None None None	PV 2	None	NO	Control Loop is not connected to Profile Block	Profile Block P PV Number	V Input Information PV Source	PV Input Type	PV Units	
	Control Loop 3 PV 3	None	NO	Control Loop is not connected to Profile Block	PV 1 PV 2 PV 3 PV 4	Slot 5 Input 1 Slot 2 Input 1 Internal Internal	Analog Inp Analog Inp None None	put °C put PRC None None	

The software will detect all the control loops present in the F4T based on its model number. It does not know which control loops are being used and which ones are active. You will need to tell the software thru the configuration tab which control loops are used and which ones that are being used are connected to the profile engine of the F4T.

You can give unique names to the analog signals that are being read by the F4T. All the text box fields are names for the control loops or inputs to the control loop. In the above screen shot, it is configured for 1 cascade loop (Product Temp and Air Temp) and 1 control loop (Humidity). The YES/NO buttons are used to tell the software if control loops are being used in the F4T program. The "YES" buttons are telling the software that Cascade 1 and Control Loop 1 are being used in the F4T program. In the example above, Cascade Loop 2 and Control Loop 2 are not being used in the F4T program. You must make sure this matches the configuration in the F4T controller.



If you know the manufacturer of your chamber or oven then you can just select the manufacturer in the Chamber/Furnace List and all the names and correct number of loops used will be present and you don't have to do anything else except give your chamber or furnace an appropriate name. In the example above Tenny was selected which populated all the fields.

The Profile Block PV Information container is used for diagnostics and will show you what is wired up in Composer to the Profile Block PV inputs. The software uses PV1 and PV2 so you have to make sure those inputs are correct.

Each regular control loop will also have a note by it if it is connected to the Profile Functions Block's SP output. This is the setpoint signal that is used by the Profile Block to tell the corresponding control loop what the remote setpoint is during a profile program. If a cascade control loop is being used then you will not see a note as this information is not available from the F4T. You might have to use the Composer software to verify this. In the screen shot above, cascade loop 1 is connected to SP1 of the profile block and control loop 1 is connected to SP2 of the profile block. Below is a screenshot from Watlow's Composer configuration software showing an example of a cascade control loop and a regular control loop configured in the software which is programmed in a F4T controller. The circled PV1, PV2 inputs and SP1, SP2 outputs are what must be connected for the software to work with the profile engine. The software does not work with the PV3, P4 or SP3, SP4 input/outputs of the Profile Block. In most of the cases users that setup the program in the F4T will do it similar to the screenshot below.





Analog Inputs Tab:

If you would like to also see the Analog Input filtered values on the trend graph or data log their values independently of the process value being fed to the control loop (most cases this is the same value, but in others a process block may be doing some math or scaling before the signal get's to the control loop block). You can give custom names to the Analog Inputs instead of the default names that indicate the slot number and input number being used.

You can select the "Analog Input" tab to configure the analog inputs as shown below:



Add New F4T Online								-	×
Communications C	onfiguration	Analog Inp	outs Events Ema	il Alerts	Variables				
Any Analog Inputs that are shaded Light Green are Analog Inputs that are directly connected to the Pr Block PV Inputs. Typically these are sensors in the chamber to measure Air Temperatures, Part Temperatures or Humdiity.	En	able or Disa F4T Slot # Slot 1	able Analog Inputs f Analog Input Air Temp Humidity	or Moniti Units °C	oring and Data Lo F4T Slot # Slot 4	Analog Input Slot 4 Input 1 Product Temp	Units °C PRC	Analog Inputs Decimal Scale Hundredths	
	F4T Name: Chamber /	Edit Na ABC	me Below If Desired!		Save And Exit				

This will show you all the analog inputs that are connected to the F4T and which slot and input numbers are being used. If an Analog input is shaded light green, then those are inputs that are directly wired to the PV inputs of the Profile Block. In most cases, you will not need to enable any of the Analog inputs as the software reads the values that are present at the control loop input. Only in some cases you may want to see the "raw" analog value coming in before it is scaled or processed by a process block or linearization block.

Events/Alarms Tab:

The Events/Alarms tab is used to tell the software which events are being used and internal alarms in the F4T. The Events are the signals that are outputs from the Profile Block and can be set as read only or provide the user the ability to change the state of the event output from the software. You can give a custom name to each event output which corresponds to the event function.

Here is an example below:



Add New F4T Online				-
Communications	Configuration A	nalog Inputs Events Email A	lerts Variables	
Event O	utputs		Event Inputs	
RH ENABLE	Used	Read Only	Event	
BOOST COOL	Used	Read Only	Input 1	
AMB LOCK ON	Used	Read Only	Event Input 2	
DEHUMID AIR	Used	Read Only	Event Input 3	
DRY AIR PURGE	Used	Read Only	Event Input 4	
GN2 PURGE	Used	Read Only		
Event 7 Output	Not Used	Read Only		
Event 8 Output	Not Used	Read Only		
	F4T Name:	Edit Name Below If Desired!	Save And	
	Chamber AE	C	Exit	

The Alarms are the internal alarms (8 total) for the F4T controller. In most cases you will not need to access them as they usually are prewired internally in the F4T program and will trip other logic conditions inside the chamber or furnace. The event outputs can be read only or can provide access to the users to make changes independently from the controller program. Custom names can be given to the event outputs, event inputs or alarms which correspond to the function of the event output or alarm condition.

Variables Tab:

The variables tab is used to provide the software access to the F4T internal variables. In most cases you will not need to access or enable the variables on this tab. This is for advanced users that want to have the software be able to set an analog value or digital state to an internal variable that can then be tied to internal logic in the F4T. An example might be to set a belt speed which would use an internal F4T variable tied to an internal Analog voltage output which would be sent to an external speed controller. The variables that can be access are variables 5-12. Custom names can be given to the variable for the function it is providing, such as in the example above it could be "Belt Speed Setpoint".



Add New F4T Online						-	×
Communications	Configuration A	nalog Inputs Events Ema	il Alerts Variables				
		F4T Va	riables				
Variable 5	Not Used	Read Only	Variable 9	Not Used	Read Only		
Туре	: Digital		Туре:	Digital			
Variable 6	Not Used	Read Only	Variable 10	Not Used	Read Only		
Туре	: Digital		Туре:	Digital			
Variable 7	Not Used	Read Only	Variable 11	Not Used	Read Only		
Туре	: Digital		Туре:	Digital			
Variable 8	Not Used	Read Only	Variable 12	Not Used	Read Only		
Туре	: Digital		Туре:	Digital			
	F4T Name:	Edit Name Below If Desired!	Save And				
	Chamber AB	C	Exit				

D4T Setup:

Setting up a D4T is much easier than an F4T as there are only 2 tabs to configure (Configuration and Analog Inputs). After selecting or setting the IP address with the communications tab as show for the F4T you can then enable the Analog Inputs that you would like available for data logging and trending. The screen will show the slot number the input flex module cards are in as well as the input number for that card. If units have been assigned in the D4T they will also be shown. You can also change the units to custom units as well by renaming the units.

You can also give custom names to the analog inputs that you will be monitoring as shown below:



🖳 Edit Anal	og Inputs				_		x
	Enable	or Disa	ble Analog Inputs for Monitorir	ng and Data Log	ging		
D4T Slot #	Analog Input	Units		D4T Slot #	Analog Inpu	t	Units
☑ Slot 1	Slot 1 Input1 1	°C		Slot 4 Slot	ot 4 Input	1	C
✓ Slot 1	Slot 1 Input 2	°C	D4T1J1AAA1A524A	Slot 4 Slot	ot 4 Input 2	2	C
✓ Slot 1	Slot 1 Input 3	°C		Slot 4 Slot	ot 4 Input 3	3	C
✓ Slot 1	Slot 1 Input 4	°C		Slot 4 Slo	ot 4 Input 4	4	C
Slot 2	Slot 2 Input 1	°C		Slot 5 Slot	ot 5 Input	1	C
Slot 2	Slot 2 Input 2	°C		Slot 5 Slot	ot 5 Input 2	2	C
Slot 2	Slot 2 Input 3	°C		Slot 5 Slot	ot 5 Input 3	3	C
Slot 2	Slot 2 Input 4	°C		Slot 5 Slot	ot 5 Input 4	4	C
✓ Slot 3	Slot 3 Input 1	°C		Slot 6 Slo	ot 6 Input	1	°C
Slot 3	Slot 3 Input 2	°C		Slot 6 Slo	ot 6 Input 2	2 °	C
Slot 3	Slot 3 Input 3	°C	Save And	Slot 6 Slo	ot 6 Input 3	3	C
Slot 3	Slot 3 Input 4	°C	Exit	Slot 6 Slot	ot 6 Input 4	4 F	PRC
Slot 3 ✓ Slot 3	Slot 3 Input 3	°C	Save And Exit	✓ Slot 6 Sk	ot 6 Input	4 F	PRC

Getting Started Legacy F4, PM Controllers

After you have ensured and setup your PC to be on the same Local Network as the F4 or PM (see setting up Network section) then the next thing you need to do is configure the F4 or PM sensor input locations and functions. After installing the ProcessView Software, the main screen below will be shown. You will need to select the "Settings" menu and then select, "Add New Legacy F4 Online" or "Add New PM Controller Online" menu item. If you log out of that screen you will then need a password to get back in from the "Login" menu. The default user name is "Username", and the default password to use is "Admin".



🐴 Login			-		x
	User Name: US	ername]	
	Password: Ad	min			•
	Login	Cha Passwo	nge ord/PIN		

After selecting the "Add Controller" menu you will see the "Add New Legacy F4 Online" menu for adding an F4 controller. You will then need to configure the communications to the F4 or PM controller. Enter the appropriate communication parameters for either Ethernet or the serial port. If you are not sure what the PM IP address is you will need to get that information from the PM controller. If you are using an Ethernet to serial gateway, you will need the IP address for the gateway. With the "Enable and Use Serial Modbus RTU" check box checked you will see the serial port setup below. Make sure the PC Com Port, Baud Rate and F4 Controller Address is set to match the F4 controller you are interfacing with.



🐴 F4 Setup		_		x
Communications	Sensor Setup Inputs/Events/Alarms Email Alerts			_
	🖙 Enable and Lies Carial Medbus PTU			
	Configure Serial Communications			
	Soloot PC COM Porty COM2			
	Select PC COM Port. COM3 V			
	Select Baud Rate: 9600 ~			
	Enter F4 Address Address: 3			
	(1-247)			
Save And Exit	F4 Name: Edit Name Below If Desired!	Can	al	1
Save And Exit	Chamber ABC	Cano		

With the "Enable and Use Serial Modbus RTU" check box unchecked you will see the Ethernet port setup below.

The screen will also show you the list of IP Addresses associated with your PC's Network Adapters that are on the PC. Make sure that one network adapter IP address is colored green which means it is on the same subnet as the Ethernet Gateway or PM IP Address. Sometimes if you are using a shared network or a virtual PC this might be the case. In the screen below the Ethernet Gateway Address is 169.254.181.25 which is on the same subnet as the circled adapter IP address listed in the box. You will also need to set the Current F4 Address to the network or Modbus address that is set in the F4 controller.



💾 F4 Setup						_		x
	Sensor Setup	Inputs/Events/Alar	ms Er	mail Alerts				
List of IP Addresses on this PC:		Ethernet Server	IP Add	ress To U	se:			
169,254,181,14		Current Server IP Address:	F	Inter Server]			
192.168.1.27 10.80.0.114		169.254.181.25	Ī	PAddress				
Important: Make sure th	at	Enable and U	se Ser	ial Modbu	S RTU			
one of the IP Addresses i the Box above is "Green means it is on the same s as the Server IP Address work properly.	" which ubnet to							
		Enter F4 Address (1-247)	urrent Addre	t F4 ess: 1				
Save And Exit		F4 Name: <i>Edit Na</i> F4 Name	me Belo	ow If Desired!		Can	cel	

After you have done this you will need to select the "Sensor Setup" Tab to set up how the sensors are mapped to the F4T, PM or F4 controller. You can edit the Sensor Name to a name which makes more sense for the application. In the screen below Input 1 is named "Air Temp" for PID Loop 1. If you are using a dual channel F4 controller then you will most likely need to enable the second sensor for the humidity sensor and PID Loop 2. It is important to make sure that the number of control loops and sensors enabled match the F4 controller you are interfacing with or you will cause unknow software errors as the software will try and access parameters that will be rejected by the F4.



🐴 F4 Setup				_		x
Communications Sensor	Sensor Setup Sensor	Inputs/Events/Alarms Sensor	Email Alerts			
Name	Present	Function				
Air Temp	YES	PID Loop 1	~			
Input 2	NO					
Input 3	NO]				
Save And Exit		F4 Name: <i>Edit Name L</i> Chamber ABC	Below If Desired!	Can	cel	

The next tab you will need to configure is the Inputs/Events/Alarm tab show below. You can give custom names in the name fields for the Alarms, Digital Inputs and Event Outputs. Below names were given for Event 1 Output and Event 2 Output and Event Output 2 was set to a read only condition so a user cannot change the state of the Event Output 2.





Add PM Controller

Make sure the following settings in the "Setup" configuration of the PM controller are set before trying to setup ProcessView for a PM controller:

- 1. Make sure that the communication protocol is set for Modbus instead of Standard Bus.
- 2. Make sure that the Data Map is set to 2 (Default is set to 1).
- If using Ethernet, make sure Modbus TCP Enabled (set to "YES") and Ethernet/IP is set to "NO".
- 4. Make sure IP Address Mode is set to Fixed and enter the corresponding IP address that is going to be on the same subnet as your PC card if using Ethernet communications.



5. Modbus Word Order should be set to "Low-High" which is the default.

Edit an Off Line F4T

You can use the Edit an Off Line F4T display to edit stored configuration settings for F4T's that are not communicating on the Network. You can also use this screen to replace an existing F4T that is off line with a newly commissioned F4T by replacing the stored settings of the "Off Line" F4T with the new F4T that will be added to the network. Select the "Settings" menu and then select "Edit Selected F4T or F4 Configuration". Make sure the F4T or F4 you want to edit is selected or highlighted in the "Network View" tab.

File Setting: Historical Trend Login Security Scanner Setup Logout Monitor Values Off-Line Profile Editor Help Network View F4T Name 1 Network View F4T Name 1 Network Address Total Time Remaining Step Time Remaining Step Time Remaining Step Number Current Step Profile Status Active Profile Alarm State F4T Name	
Network Vew F4T Name 1 Network Address Total Time Remaining Step Time Remaining Step Number Current Step Profile Status Active Profile Alarm State F4T Name	
Network Address Total Time Remaining Step Time Remaining Step Number Current Step Profile Status Active Profile Alam State F4T Name	
Network Address Total Time Remaining Step Time Remaining Step Number Current Step Profile Status Active Profile Alam State F4T Name	
Network Address Total Time Remaining Step Time Remaining Step Number Current Step Profile Status Active Profile Alarm State F4T Name	
Off Line F4T Name 1	4
Refresh	
Network Grid	

Display Scaling

If the "Display Scaling Disabled" Check box is checked then Display Scaling will be disabled and all windows and fonts will be the original proportion from the original design. If it is not checked then the software will scale all windows and fonts to match the resolution of the monitor and will be



activated when the software restarts. The main window will fill the entire monitor space. You should try both modes to see what display works best for your application because sometimes when the scaling is applied, some text boxes and labels may not show up correctly due to Window's font availability or other operating system constraints.

Select the Display Scaling men item under the Help Menu:

: [Help	
	Help	
	About	
n	Registration	
	System Information	
	Display Scaling	

That will bring up the following window that you can use to disable or enable Display Scaling:

💀 Display Scaling		-		\times	
🗆 Disp	lay Scaling Di	sabled	I		
If Checked, then do not Scale the software windows to match your monitor resolution. You can try both modes to see what works better for your application. The change will only take effect when the software is restarted.					
	Save and Exit				



Email/SMS Alerts

You can use the Network Alert screen to setup automatic email and SMS text message alerts to be sent when a profile is done running it's ramp and soak program or if the F4T/F4 is in an alarm condition. The host PC running the Profile Utility software must have an internet connection and have access to a remote SMTP server for Email alerts and a SMS Service such as Twilio for SMS alerts.

The Email Settings				- o x
Server Information		SMS Service Setup		
SMTPS	Server Information	Account SID:	ACea88df6ccfe4d19f71	lf22d4460f29df1
From Sender Name:	ProcessView	Authorization Token:		
From Email Address:	jp1234@gmail.com	Authorization loken.		
Password:	•••••	From Phone Number:	15132246789	
SMTP Server:	smtp.gmail.com	To Phone Numbers:	15133072750	
Port:	587			
Password: YOUR, APP, PASSWOI SMTP Server: smtp.gmail.com Port: 587 SMTP (gmail Recipient Email Information	RD Company Provider:	Message Text:	From ProcessView Text	Message
Subject: ProcessView Noti	ification	Wessage lext.		t mossago.
To Email Address:	Recipient Name:	SMS Message Notif	ications:	
jp@companyA.Com gv@companyA.com	Jerry Pane George Vital	SMS Alarm ON	SMS Profile End ON	SMS Test Message
		Email Message Noti	fications:	
		Email Alarm ON	Email Profile End ON	Email Test Message
		Save and Return	his PC's IP Address: 192.168.1.13	Internet Connection Status: Internet: Connected

Email Alerts:

You will need to know your service provider's email address, password and SMTP address. You can select the SMTP Company of your choice (gmail, yahoo, outlook, etc.) and the port, smtp fields will auto populate for you. You will need your account password and username (from email address) that is being used as the SMTP email server.

An example below is for a Google SMTP server:

Email Address: Joe12@gmail.com



Password: YOUR_APP_PASSWORD SMTP: smtp.gmail.com Port: 587

You can fill out the "To Email Address" text box up to 10 recipients and also enter in a custom subject for the email that will be sent from the PC to multiple email addresses. You will need to also include a valid name for each email address as some email servers will check to make sure the person exists and is a valid email recipient.

You can enable either or both of the conditions that trigger an email being sent by the PC using the "Email Alarm" or "Email Profile End" buttons on the screen. You can use the "Email Test Message" to test your email smtp server. ProcessView will attempt to send a test message to your email account which you can use to make sure your settings are correct.

Gmail Note: Google email requires the 2-step Verification to be enabled and that an App Password be used for ProcessView to be able to send emails to the Google SMTP server. This can be setup in "My account\security" account settings for your gmail account. You will then need to create an App Password and use that as the password to access your google email smtp login.

SMS Text Message Alerts:

To send SMS text message alerts, you will need to sign up for a SMS service such as Twilio. Twilio is recommended as it is the most popular service and it is very economical to use for sending text messages. Twilio has been thoroughly tested with ProcessView and is highly recommended to use. Twilio will provide you with an Account SID number, a password (Authorization Token) and an authorized phone number to use for sending text messages. The authorized phone number from Twilio is the number that is used in the "From Phone Number" field. Twilio will need to have proof that your company has an opt in and opt out mechanism for people that receive text messages. You can find out more from the Twilio website: https://www.twilio.com/en-us.

You should check with your IT department if needed to setup a Twilio account and show proof of an opt-in or opt-out webpage that a user can fill out. After you are approved by Twilio (usually takes about 5-10 business days) then you can use the authorized phone number and fill out the "To Phone Numbers" text box (up to 10 phone numbers) and have ProcessView send text messages if an alarm or end of profile event occurs.



Edit Units/Labels

Once you have installed an F4T/F4/PM or D4T controller you can edit units or labels to provide a better representation of your application to the user or operator. If you select the top menu "Add Controller", then "Edit Selected F4T/F4 or PM Configuration" then select "Edit Units/Labels" you will see the screen below. The units and label fields can be edited and saved and those text values will be changed through out the software in all other screens.



Using Watlow RUI Gateways

ProcessView supports both Ethernet Modbus TCP and Modbus RUI Gateways. The RUI Gateway is used to connect to multiple EZ-Zone PM or F4T's on a RS-485 network using Watlow's proprietary STD Bus. This makes retrofit's for existing furnace or chambers easy to interface to existing EZ-Zone PM controllers that come standard with the RS-485 STD bus interface.

For more information on how to setup the Gateway please refer to Watlow's RUI User Guide manual.


In order to set all the offsets for multiple F4T's or PM controllers on a network you must configure the RUI Gateway using Watlow's EZ-Zone Configurator software which you can download from the Watlow Website for free.

When adding the RUI for the first time you will need to have a PM or F4T controller connected to the gateway. The RUI must first be configured for Modbus Enabled, Modbus Word Order set to Low High, and a Modbus Offset value of 8500. These settings will be found under the Communications 2 menu of the RUI. Communications 2 settings are for the interface between the RUI and the Controllers on the network.

Communications 1 menu settings are for the interface from ProcessView and the RUI and must match accordingly for either Ethernet or Serial settings.

Each PM or F4T controller will then need to have an individual STD Bus Address and be enabled and given the corresponding offset value in the Local Gateway section in the Configurator software. For controller 1 on the network it should have an offset value of 0, the 2nd controller will have an offset value of 8500, the 3rd controller will have an offset value of 17000 and so on.

Historical Trend

The Historical Trend is used to graph data from Data Log CSV files stored on the PC. It can also be used for archiving purposes and the graph along with batch input data can be printed or saved to a PDF file. Fonts, Titles and Axis can be customized as well as the data to be graphed. All the formatting items like font size and type will be saved and will be used if data log files are automatically saved after a profile has been run.





Login Screen

The Login menu is where a user enters their credentials. The User Name and Password are entered to enable menus per the user level. When the software is first installed the default password to use is "Admin" and the default User Name is set to "Username".

That will provide access to all menus in the software and is for a Supervisor level. You can then go into the "Security" menu and enable/disable menus and setup passwords and level capabilities for the software. You can also change the password for this username.



🐴 Login	ß		-		x
	User Name:]	
1	Password:			1	•
	Login	Change Password	PIN		

Profile Editor

The Profile Editor Screen allows you to create, edit and manage profiles for the F4 or F4T controllers. You can use the Off-Line Profile Editor from the Main Menu screen to create and save profiles for later use on your PC. The On-Line Profile Editor can be used to upload profiles from the controller and edit them. You can save them to a file for archiving or send the newly created Profile down to the controller as a new Profile Program. When the files are saved, they are saved as an XML format. If you want to save a profile in an easier format to read later, you can save the file in an Excel Worksheet format by selecting the "Export Profile to Excel" Button. This will create an Excel worksheet that has the profile formatted as a table. For F4T controllers, you can join or sequence existing profiles stored in the F4T controller. This capability allows the user to have more than 50 steps in a profile run. The F4T is limited to only 50 steps per profile so this feature allows user to join or sequence profiles to provide up to a maximum of 2000 steps for one single profile. This feature is only for the F4T as the F4 allows the user to jump to additional profiles in the controller and is not limited to 50 steps. If this feature is used then the user should check the enable check box and for each profile in the sequence that is not the last profile, the end step should be set to hold so the temperatures or process values remain the same as the last step when the next profile is started.

You can view newly create files by using the Profile Viewer screen in the software to make sure the profile is correct.



T Profiles Return to 40C35%	Steps Ramp Time	Profile Name: Profile Number:	Return to 40C35%		rofile is		Profile Sequence
E/ CEVO EMO F4T CyStep40C-65C	Soak Ramp Time End	Type Ram	o Time v	Ste	p 1	Create New Profile	
st3 st123		0 1					
iort st7 ilenn1		Control Loop 1 Set Point 0.00	PV 1 Set Point	0.00			
ilenn2 Irogram 3 Iew	Insert Step After	Guaranteed Soal Enable Devia	Guarant ation Enable Off V	eed Soak Deviation 0			
	Insert Step Before	Event Outputs			- Calendar Start		Add Selected
Calendar Start Profile	Update Profile F4T Controller	Event 1 E Output C	Event 2 Dutput Dff V		Day of Week Sunday		Profile
Delete Profile F4T Controller	Delete Step				14 1	4	Remove Selected
View In Profile P	mport Export Profile Profile						Use the Profile Sequence List to join profiles to create larger profiles than the F4T limit of 50 steps. Each Profile's end step should be set to "Hold"
Det	Export Profile						Enable Profile Sequence

User Access Screen

The User Access Screen tab on the Security screen is used to set the active menus for three available User Levels (Operator, Technician or a Supervisor). When the software boots up it defaults to the "System" User level which basically disables almost all functions to keep any user from doing anything that could compromise the process.

Each menu item can be visible or inactive for the user. Set the appropriate viewing rights for a Technician, Operator or Supervisor User. Once you have set the view rights then select the "Save" button in order to save the viewing rights for the User type (Operator, Technician or Supervisor). The viewing rights will be saved in memory temporarily until you exit the Edit Setup screen and save all settings using the "Return and Save" button.



Security User Access Add User Edit User Roles System	×
Network Screen Menus	F4T/F4/PM Detail Screen Menus
User Type: Operator Technician Supervisor Menu Setting	 Enable Profile Control Checking Profile Control Allows the selected User Type to be able to start, stop and load profiles and change event outputs dynamically if their permission is set to read and write.
Return a Save	and

Add User Screen

The Add User Screen tab on the Security screen is used to add users into the software security system. If a duplicate User Name ID is found, the system will not allow you to enter the same User Name ID and you must have a unique name. The system always saves the User Name ID forever so that it requires that there not be any duplicate User Name ID's in the system. The "Full Name" field should be used to store the user's full real name which can be used in the Audit trail for verification and signed documents. The "Password" field must contain 1 uppercase character, 1 lowercase character, 1 number, 1 special character ($!@#$%^&*()+-=_`)$, no white space, no commas, no periods and must be 8- 12 characters in length.



Security		R	-	x
Security User Access Add User	Edit User Roles System Add New User Full Name: User Name ID: Password: Confirm Password: User Role:	John Doe Jdoe1234		X
		Add User		
		Return and Save		

Edit User Roles Screen

The Edit User Roles Screen tab on the Security screen is used change or edit user's roles in the software security system. This is where you can see all the user's in the system along with their full name, user name and current role. You can change the user's role by clicking on the arrow under the "Role" column.



Security				- 9	x
User Access Ac	d User Edit User Roles System	1			
	User	PW UserName	Role		
	System Manager	Usemame	Supervisor	~	
	John Doe	jd1234	Operator	~	
	Sally Sue	ss4321	Technician	~	
	Bill Barry	bb6543	Supervisor	~	
}-×	1			~	
		Return and Save			

Security System Screen

The Security System Screen tab on the Security screen is used configure various functions in the software security system. The Enable PIN Authentication check box is used if you want to add an additional authentication factor besides username and password for identification. If this is checked the user will have to enter a 4-digit code for their PIN during logging into the system. The Enable Password Expiration



check box is used for Password Aging. If this is checked then a user must change his password if his password has expired for a set amount of days entered in the "Days" field. The Enable Auto Logout will automatically log out a user if there has not been any activity for a certain amount of time. The time for this feature is entered in the field below the check box in minutes.

The Require Digital Signatures is used to digitally sign a data log file. If this box is checked then users can electronically sign a data log file to prevent any tampering of the data. More than one user can sign a file and after the last signing a new checksum for the file is calculated for the file. If a file has been tampered with then the file will not be able to be saved or viewed as the signature is always verified before allowing the data to be displayed.

If you would like to bypass the original login requirement at startup and have the default permissions set to a certain role level then you can check select the appropriate level in the "At Startup Automatically Login As" drop down box. When the system automatically logs in at the selected level, the current user is assigned the name "System Manager" for the user name and that is what will show up in the audit trail files. When a user logs out of the system, the user role will go to the "None" level and nothing can be activated or selected that would effect the process control.

The system will lockout a user if it detects more than 3 failed attempts at logging into the system and will lockout the user for the time entered in the field below the check box in minutes.

If the Enable Audit Trail check box is checked, then all user interactions with the software that are time stamped and logged into the audit trail encrypted file. The "who", "what", "why", "when" and reason parameters are all stored when an audit trial entry is entered by the system. If the enable audit trail comments check box is checked than the user must enter text into a text field every time an audit event is recorded.

The Enable Re-Authentication check box is used to force a user to log in to the system when changing parameters that could affect the process. Parameters such as setpoints, stopping profiles, variables, etc. will need to have a user re-enter their password even if they are previously logged into the system for extra security. This prevents users from tampering with the process if the system is left unattended by a currently logged in user.

The "Hide Menus that are not enabled for Operator and Technician roles" check box is used to hide all menus instead of "graying' the menus out. By hiding the menus, the software interface can be made much simpler and easier to use for operators or technicians that never use the "grayed" out menus. Or you might want to keep the grayed out menus so in the future if you need a feature such as Remote PC you will be reminded that the feature exists in ProcessView.



Security	– – ×
Ver Access Add User Edit User Roles System System Parameters Enable PIN Authentication Enable Password Expiration Days: 90 Enable Auto Logout Minutes: 30	Invalid Password Attempts (3 Trys) Lockout Time: Minutes: 30 Enable Audit Trail
 Enable Digital Signatures At Startup Automatically Login As Selected: Operator Hide Menus that are not enabled for Operator and Technician Use 	Enable Re-Authentication Re-authentication will force users to login if a Process Setpoint, Control Mode, Ramp Rate, Single Setpoint Change, Analog Variables, Alarm Acknowledge or Reset, Digital Variables, or Profile Start, Stop, Pause or Resume is changed. Even if the user is currently logged in the software.
Return ar Save	nd

Network View Screen

The "Network View Screen" is the screen that provides the individual Profile Status of each F4T connected on the network. The "File" menu is used to close the program. The "Settings" menu is used to add or edit an existing F4T on the network. The "Historical Trend" menu is used to import F4T Data Log files that have been created by the F4T and display them in a real time chart. The only files supported are non-encrypted files that were generated by the F4T. All the information is updated real time on the Network View Screen. Fields are color coded to provide a quick indication if a profile is running or an



alarm is present. The "Help" menu is used to pull up the help file, register this product or check the software version number.

e work	Settings Historical Trend View Chamber 1 Chamber 2	Help Chamber 3 Chamber 4	Chamber 5 Chamber 6 Cham	iber 7 Chamber 8 Cham	nber 9 Chamber 10 Ch	amber 11 Chambe	12		
	F4T Name	Alarm State	Active Profile	Profile Status	Current Step	Step Number	Step Time Remaining	Total Time Remaining	IP Address
	Chamber 1	Startup	Product ABC	Running	Soak	4	02:12:45	08:22	192.168.
	Chamber 2	Safe	Test Profile ABC	Running	Ramp Time	8	03:55:35	06:51	192.168.
	Chamber 3	Safe	Demo Profile	Running	Ramp Time	1	00:20:03	00:56	192.168.0
	Chamber 4	High Alarm	Test Profile ABC	Terminated	End	0	00:00:00	00:00	192.168.
	Chamber 5	Safe	Product ABC	Completed	End	0	00:00:00	00:00	192.168.
	Chamber 6	Safe	Test Profile ABC	Completed	End	0	00:00:00	00:00	192.168.
	Chamber 7	Safe	Test Profile ABC	Running	Ramp Time	3	02:48:13	10:07	192.168.
	Chamber 8	Safe	Product ABC	Running	Soak	6	00:14:40	04:44	192.168.
	Chamber 9	Safe	Test Profile ABC	Completed	End	0	00:00:00	00:00	192.168.
	Chamber 10	Safe	Product ABC	Running	Ramp Time	12	02:11:06	04:09	192.168.
	Chamber 11	Safe	Test Profile ABC	Paused	Ramp Time	18	01:33:03	06:05	192.168.
	Chamber 12	Safe	Product ABC	Completed	End	0	00:00:00	00:00	192.168.0

Main Screen

The main screen is used for managing profiles in the controller. You can start, stop, pause and resume profile programs stored in the F4T. Event Outputs can be manually changed from this screen as well as Chamber Control Variables. If you want to add an annotation to the graph you can use the "Annotate" button to add a comment to the graph. If you then Archive the graph by using the "Archive" menu it will save the annotated graph in a PDF file or it can be sent to the default printer. If data logging is enabled you will see the green data log icon and you can view the data being logged real time by selecting the Data Logging menu and then the View Data



menu.



Alarms

You can use the Alarms Screen to change Alarm Setpoints and resetting alarms. There are 4 alarms per screen (eight alarms total within the F4T). Each Alarm has an alarm status box which tells you the status of the alarm. The alarm status messages can be "No Alarm", "Start Up", "Error", "High Process" or "Low Process". If an Alarm is a non-latching alarm the alarm will reset and clear itself when the alarm condition goes away.





Limit



You can use the Limit screen to setup the FM approved limit control high and low setpoints. You can also view the current input temperature that the limit control loop is monitoring. The limit status will show if an alarm condition is present or in a safe mode. The "Clear Limit" button can be used to clear a limit alarm condition if it is no longer present and in a safe condition. The Limit display screen supports up to 2 independent limit control loops if configured in the F4T.

🖳 Limit 1		-		×
Limit 1	-		-	
	Sa	fe		
Limi	t Temperature:	77.7	7°F	
[High Limit Setpoint 1	200	°F	
[Low Limit Setpoint 1	<mark>32°</mark>	F	
	Clea Limit	r t		
	Limit 1	Status		
		G		
	Retur	'n		



Static Setpoint

You can use the Control screen to change control setpoints for each control loop independently from the F4T profile program when it is not in use. You can change the control mode for each control loop by changing the control mode to "AUTO", "MANUAL", or "OFF". The current output power percentage is also displayed on the screen. The auto control mode puts the control loop in automatic PID control mode. The manual control mode puts the loop in a manual control loop and uses a fixed preset percentage output value that is output to the heating, humidifier or cooling system. If a cascade loop is used (part temperature control) then the chamber temp is also displayed with the part temperature being controlled. You can monitor up to 4 Control Loops and or 2 Cascade Loops if supported by the F4T.



🖳 Control 1			x			
Cascade Loop 1		Control Loop 2				
Setpoint 6	Setpoint 65.0°F		74.0°F			
Product Temp 7	7.1°F	Humidity Insi	de 85.3% RH			
Heat Power %	0.0 %	Heat Power	% 0.0 %			
Cool Power %	00.0 %	Cool Power	[%] 100.0 %			
AUTO MANU	AL OFF	AUTO	MANUAL OFF			
Current Control Mode A Chamber Temp 7	Auto 7.5°F	Current Control Mo	de Auto			
		Ş				
	Ret	turn				

Profile Viewer

Use the Profile Viewer Screen to load profiles that are stored inside the F4T or F4 and look at them graphically. There are 40 stored profiles that can be loaded from the F4T or F4 which provides a quick and easy way to see what the profiles are that are stored inside the F4T or F4 controller. After you select a profile, the graph will be populated with the profile. You can use the "DownLoad Profile" button to download the current viewed profile to the F4T or F4 controller as the Active Profile to be run. If you hover your mouse over the data bars, you will see more detailed information about each profile step. Under each step are how the Event Outputs are to be turned on or off for that step. In the chart



below, the Event Outputs were given custom names from the "Edit Selected F4T or F4 Configuration" sub menu, under the "Settings" menu.

If a profile is running and you open the active profile in the viewer the current step will be highlighted by the green color as shown below and will be updated as the profile program progresses.



Graph Setup

The Graph Setup page is used to select Pen colors for the trend chart and to enable them. You can also select either the right Y-Axis or left Y-Axis to be used for trending. Each individual trend can also be given custom units to be displayed on the trend chart. Both the right and left Y-Axis titles can also be modified or given a unique name for the trend chart. In the Axis Control group box, you can either set the high and low values for the axis scale of have ProcessView scale the axis automatically. If you check the High or Low Tolerance check boxes, then you will see a tolerance band graph the current setpoint. This can be useful to see if the process values follow the current setpoint in a profile. If the process value goes above or below the tolerance band you can have ProcessView display an alarm and the alarm is enable by checking the "Display High Tolerance Alarm"



check box. If you click on the Pen color, a dialog will window will pop up allowing you to change the trend color.

Note: Make sure you select the correct Sample Rate that will allow the Trend Graph to graph all the data points for your maximum profile time. ProcessView will graph a maximum of 3600 data points in the graph, so you will need to make sure that when you run your profile all data points will be graphed for the Profile that you run. You can see what the maximum time is when you change either the units or sample rate.

Once the Graph Setup is completed all the values and settings are saved for future sessions.

Setup Graph 1										
Pen	Pen	Pen	Select	- Avis Control -			Tama and an Talana a D			
Name	Color	Enable	Y-Axis	Laft	1.44	Loft	Current	ands		
Process Inputs				Y-Axis	Y-Axis	Auto	Setpoint		□ Off	Display High
						Scale	High Tolerance Band	5 °F	□ Off	Tolerance Alarm
Temperature			Left ~	Right	Right	Right	Low Tolerance Band	-5 °F	□ Off	Display Low
Humidity			Right ~	Y-Axis	Y-Axis	🗆 Auto	Select Y-Axis	Left V		Tolerance Alarm
		- •				Scale				
				X-Axis	Y-Axis		- Humidity Tolerance Band	s		
				Font	Font		Current		□ Off	Disalar High
							Setpoint	5 °C		Tolerance Alarm
			Grid Line Color		Graph Ba	ck Color	Low Tolerance Band	-5 °C		Display Low
			a. -				Colort V Avia			Tolerance Alarm
			Stop Trend Has Ended	or Stopped	riie		Select Y-AXIS	Lon V		
Torrestore Controlling							Analog Inputs			
Temperature Control Loop		□ Off	Left Y-Axis	s Title			Air Temp		Humidity	
Temperature Current SP		□ Off	Temperature °	C			Air reinp	_ 001		
Temperature Heat PWR		□ Off	Right Y-Ax	cis Title						
Temperature Cool PWR		□ Off	Humidity % RH	I\Power %						
			Limit							
Humidity Control Loop Humidity Target SP		Off	Limit	1		ff				
Humidity Current SP										
Humidity Heat PWR				Uni	ts					
Humidity Cool PWR			Sample	5.0 Sec	~		Product Temp	Off		
•		- •	кате							
			Maximum tim	e the Data wil						
			be Graphed w	ith Sample Ra	te:					
			Maximum Trend T	Time: 20 Hours	50 Minute	s 0 Seconds				
					Saveau	nd Evit				
					Javea					



PID Sets

You can use the PID Sets Window to view and edit the internal PID sets inside the F4 Controller or F4T Controller. This feature is only available for the F4 Controller. Below is the window used for editing and viewing all the PID sets in the F4 Controller.

PID Set 1		
PID Set Channel 1 PID Set 1-5: 1 v		Cascade PID Set 1-5 Cascade PID Set 1-5: 1 v
Proportional Band A 11 °F	Proportional Band B 11 °F	Proportional Band A 11 °F Proportional Band B 11 °F
Integral A/Reset A 0.11 /min	Integral B / Reset B 0.11 /min	Integral A/Reset A 0.11 /min Integral B / Reset B 0.11 /min
Derivative A / Rate A 0.11 min	Derivative B / Rate B 0.11 min	Derivative A / Rate A 0.11 min Derivative B / Rate B 0.11 min
Dead Band A 1 °F	Dead Band B 1 °F	Dead Band A 1 °F Dead Band B 1 °F
Hysterisis A 1 °F	Hysterisis B 1 °F	Hysterisis A 1 °F Hysterisis B 1 °F
PID Set Channel 2 PID Set 6-10: 6 V	νı	
Proportional Band A 66 °F	Proportional Band B 66 °F	
Integral A/Reset A 0.66 /min	Integral B / Reset B 0.66 /min	
Derivative A / Rate A 0.66 min	Derivative B / Rate B 0.66 min	
Dead Band A 6 °F	Dead Band B 6 °F	
Hysterisis A 6 °F	Hysterisis B 6 °F	Return

Below is the window for the F4T Controller. When you select the Control Loop combination box, the values will be updated for that particular control loop.



PID Set 1						
Control Loop: Part Temp Cascade v PID Set Active: 1						
PID Set Values Cascade INNER PID Set Values PID Set 1-5: 1 V	Cascade OUTER PID Set Values PID Set 1-5: 1					
Heat Proportional Band: 10 °C Heat Proportional Band: 11.000 °C	Heat Proportional Band: 11.000 °C					
Cool Proportional Band: 10 °C Cool Proportional Band: 11.000 °C	Cool Proportional Band: 11.000 °C					
Derivative: 10 Si Derivative: 11 Sec	Derivative: 11 sec					
Integral: 110 si Integral: 110 sec/rpt	Integral: 110 sec/rpt					
Integral: 110 sec/rpt Crossover Values PID Set Crossover Type: Set point PID Set Crossover 1-2: 355.000 F PID Set Crossover 3-4: 700.000 F PID Set Crossover 4-5: 800.000 F Return Return						

Fast Graph

The Fast Graph is used to graph one of the control loops process value and current setpoint much faster than the regular trend plot. For a Legacy F4 controller, the update rate can be as fast as 500 milliseconds, and for the F4T controller, it can be as fast as 250 milliseconds. This is useful for control loops that have fast changing signals such as pressure. This Fast Graph menu is only displayed when there is only one controller on the network as the dedicated communication speed takes up most of the communication bandwidth. You can use the dropdown list box to select which of the control loops to select (only one can be graphed at a time).

The fixed parameters that can be graphed, are the Process Value, the Target Setpoint, the working Setpoint and Percent Power. You can go into the Graph Setup menu to access the setup parameters and change the pen colors, enable the pens or change the update rate.

The percent power and target setpoint are updated at the slower normal graph rate of 5 seconds for an F4T and 8 seconds for an F4 controller.





Tuning

You can use the Tuning screen to tune upto 4 Control Loops and or 2 Cascade Loops if supported by the F4T. Using this in conjunction with the Trend Graph allows you to quick see the Control Loop response after Auto Tuning or with Manual Tuning. The tuning screen below shows two Control Loops, a Cascade Loop and a regular PID Control Loop. With the Cascade loop you can modify the PID parameters for both the "Inner" and "Outer" Cascade Control Loop. Refer to the F4T Operation Manual for more information regarding the Cascade Control Loop. When Auto Tuning the control loop, first enter a setpoint that is where your end process temperature will be operating at and then select the "Start Autotune" button. The F4T will then begin the Autotune and will wait for the process value to cross over the setpoint value 3 times before it calculates the new PID settings. This can be done for both Cascade and regular PID Control Loops. The "Autotune Setpoint" button is used to set a percentage of the regular Setpoint that the Autotune function tunes at. This is primarly used when any overshooting temperatures during the Autotune could harm the equipment. If this is not the case, then it is recommended to set the "Autotune Setpoint" value to 100 or 100% of the setpoint. Then the autotune will tune at the desired process temperature. You can also select the type of response you want by selecting Critical, Under Damped or Over Damped in the "Autotune Aggressiveness" drop down box. Refer to the F4T Operation Manual for more information on the Tuning parameters and what they are used.



cade Loop 1				Control Loop 2			
er PID Loop		Outer PID Loop		PID Parameters			
Heat PB	31	Heat PB	48	Heat PB	25		
Cool PB	3	Cool PB	7	Cool PB	25		
Integral	110	Integral	628	Integral	180		
Derivative	18	Derivative	105	Derivative	0		
Dead Band	2	Setpoint	80.0°F	Dead Band	0	Setpoint	89.0°F
Autotune Set Point	100	S	tart otune	Autotune Set Point	90	S	tart otune
Autotune gressiveness	Critical	Autotune Status:	Waiting For Cross 1-	Autotune Aggressiveness	Critical ~	Autotune Status:	Off
			ß				

Setup Data Logging Screen

Data To Log

The "Data to Log" tab screen is used to select which parameters are to be logged during file data logging. The Data Log Interval button is used to set the frequency of data logging and has a minimum value of 5.0 seconds. The "Event Output Data Enable" is used to check if certain events are set to "ON" during a profile to check tolerance bands or provide data for only one particular or a group of steps in the profile. Select "All Steps" to see the step data information that will be logged in the summary at the end of the data log. Select "None" if you do not want step data to be included in the data log summary at the end of the data log or select a particular event output that can be used as a trigger to record data just during the steps that have event output turned on in the profile run.



Data To Log Log File Name/Location Start/	Stop Automation					
Units	Product Temp	Over Temp 1 Data	Alarms 1-2	Alarms 3-4	Batch Info	Analog Inputs
Data Log Interval 5.0 Sec ~	Target SP Current SP Air Temp	Over Temp 1 Status	Alarm 1 Status	Alarm 3 Status	Load Operator ID Unload	Air Temp
Login User Name Active Profile Profile Data	Product Temp Heat PWR Cool PWR	Over Temp 1 High SP	High SP	High SP	Operator ID Product ID 1 Product ID 2	Slot 2 Input 1
Product Temp Target SP Product Temp	PV 1	Low SP	Alarm 2 Status	Alarm 4 Status	Batch ID	
Product temp Current SP PV 1 Target SP	Current SP PV 1 Heat PWR Cool PWR		High SP Alarm 2 Low SP	Alarm 4 High SP	Tolerance High Tolerance 1	
PV 1 Current SP Step Number			Alarms 5-6	Alarms 7-8	 Tolerance 1 High Tolerance 2 	Stot 4 Limit 1
Step Type Profile Status			Alarm 5 High SP	Alarm 7 High SP	Low Tolerance 2	
Event Outputs			Alarm 5 Low SP	Alarm 7 Low SP	Event Output Data Enable	Slot 5 Input 1
Event 1 Output Event 2 Output Event 3 Output Event 4 Output Event 5 Output			Alarm 6 Status	Alarm 8 Status	All Steps 🗸 🗸	
Event 6 Output Event 7 Output Event 8 Output			Alarm 6 Low SP	Low SP		
		Save and Exit				

If you want to have the software, check a particular step (i.e. Soak step) in a profile run for a tolerance band violation you can select the event output that will be monitored during the profile run. In the window below event 8 will be monitored during the profile run. In the profile you must turn the event on during the step for the software to check if it violates a tolerance band value. Below shows the soak step and event 8 being turned on:

T Profiles ESTIe 1	Steps Ramp Time	Profile Name: Profile Number: 1	ESTIe 1	while this profile is running			Profile Sequence
/3_Step40C-65C 68 to 180 Return to 40C35%	Soak Ramp Time End	Type Soak	~	Sten	2	Create New Profile	
RHfile 5 Step65C-85C SCyStep40C-65C		Hours Minute	s Seconds	otep	-		
/2_3Cy40C-85-40 /2Step65C-85C v3_Step40C-65C		Product Temp	Humidity				
Glenn2 11 Program 3 Newile 13	Insert Step After	Guaranteed SoakEnableDeviationOff10.00	Guaranteed SoakEnableDeviationOff10.00				
	Insert Step Before	Event Outputs			Calendar Start		Add Selected
Calendar Start	Update Profile	RH ENABLE BOOST	COOL AMB LOCK ON	DEHUMID AIR	Day of Week Wednesday	~	Profile
Delete Profile	Delete Step	On V Off DRY AIR GN2 I	vurge	Off Vent 8 Output	Hour I	Minute 21	Remove Selecte
View In Profile Pr	nport Export rofile Profile		<u> </u>				Use the Profile Sequence List to join profiles to create larger profiles than the F4T limit of 50 steps. Each Profile's end step should be set to "Hold"
							_ Enable Profile



You must make sure that the event output is used in the F4T/F4 setup, if enabled you will see it as shown in the main screen display that shows events that are used:



In addition, you need to enable monitoring of the tolerance band for a violation during the step for a profile. This is done from the Graph Setup Window as shown below and in this example the software will only monitor for a violation of the low band tolerance for the Humidity control loop:

Setup Graph 1								
Pen	Pen	Pen	Select	Axis Control			Product Toma Talance Produ	
Name	Color	Enable	Y-Axis				Product Temp Tolerance Bands	
Process Inputs		_		Left	Left	Left	Setpoint O	ff Monitor High
Product Temp		On	Lef v	MIN	MAX	Scale	Lich Talanana Band 5 ac	ff Tolerance Band
Air Temp		On	Left ~				High Tolerance Band 5 C C	📻 🖂 Monitor Low
Humidity		On	Right ~	Right	Right	Right		Tolerance Band
				Y-Axis	Y-Axis	Auto	Select Y-Axis Left ~	
				MIN	MAX	Scale		
							Humidity Tolerance Bands	
Broduct Tomp Carcada Loop				X-Axis	Y-Axis		Current	ff Manitana Ulinta
Product Temp Cascade Loop		□ Off		Font	Font		Setpoint	Tolerance Band
		- •					High Tolerance Band 5 %RH 00	Monitor Low
Product Temp Heat PWR			Grid Line Colo	or 📃	G	raph Back Color	Low Iolerance Band -9 %RH	ff 🛛 🖉 Tolerance Band
Product Temp Cool PWR			Stop Tr	rending Whe	n Profile		Select Y-Axis Left ~	
riduct temp ocort the	_		Has En	ded or Stopp	ed			
Humidity Control Loop			Loft V-A	vic Titlo			Analog Inputs	
Humidity Setpoint		Off	Terrene and the				Air Temp 🔲 🗆 Off Hur	nidity 📃 🗆 Off
			Temperatur	e F				
Humidity Heat PWR		Off	Right Y-	Axis Title				
Humidity Cool PWR		□ Off	Humidity %	RH\Power	%			
			Limit				Slot 4	Input 1 Off
			Li	mit 1		□ Off		
			Sampla		Units		Due due t Terrer	
			Rate	4	Sec	~		
			Maximum	time the Da	ta will			
			be Graphe	ed with Samp	le Rate:			
			Maximum Tre	nd Time: 16 J	Hours 40	Minutes 0 Seconds		
						initiates e occorras		
					Sa	ave and Exit		



Log File Name/Location

The "Log file Name\Location" tab is used to change the folder path where the Data Log files are stored on your PC. Select the "Change File Location" button to change the folder path. If you want ProcessView to make a backup copy of the data log file after logging has ended then you can check the "Backup File after data logging has ended" checkbox and specify a backup location.

If you would like to append information on all the files you can enter text and check the "Append user supplied text to file name" check box. If you would like for a user to be prompted when starting a profile to add text to the file name then check the check box that does this. If you need the data log to be secure and encrypted then check the "Encrypt Data Log File" check box and ProcessView will encrypt the data log file. You can use the View Data Viewer to look at the data from the encrypted file. You can make the order of the file name to your requirements by checking the the File Name Items and setting the order that is needed in your application. Just remember to make "Seconds" the last item in the list so that every file that is stored will have a unique file name.

.og Eog Hie Name/Eocation Si	tarvstop Automation		
ata Log File Location: Change File Location	C:\ProgramData\ProcessView\Data Log Files	File Name Format Example Data Log File: 2024-02-20_11-32-19_Chamber 1_0_Chamber 1.csv Select a File Name Item in the list Select a File Name Item in the list Os and then you can use the Year	
Backup Data Log File Location Change File Backup Location File Security Encrypt Data Log File	x C∴ProgramData\ProcessVise\Backup	artos to e-order the ten hanne istems. You can use the check box to enable and disable an item. You should usually very the second istem so that your file name is unique each run.	
Set File Permissions to Delete only by Administrato	я	Append user supplied text below to file name	
		Prompt user for text to append to the file after the profile has started by the user	

Start/Stop Automation

If you want ProcessView to automatically start data logging when a profile is started and then stop the data logging when the profile has ended then check the "Data Log Only When Profile is Running" check box. If want ProcessView to automatically print a graph of the data just logged then check the



"Print Data Graph at End of Profile" box. After a profile has ended ProcessView will try and print the graph to the default printer in Windows. If you want to have ProcessView save the a graph of the data just logged to a PDF file then check the "Save PDF Data Graph at End of Profile" check box.

If you want to have ProcessView send the data file after it is done logging to an external FTP site you can check the FTP check box and you will then be prompted for the address of the FTP site where the data is to be sent. If you want ProcessView to automatically log data on power up if a profile is running then check the appropriate check box. You can also have ProcessView send a chart from the logged data to the default printer connected to your PC. Check that check box if you want that to happen.

If you want to have ProcessView send the data file after it is done logging to an external FTP site you can check the FTP check box and you will then be prompted for the address of the FTP site where the data is to be sent. If you want ProcessView to automatically log data on power up if a profile is running then check the appropriate check box. You can also have ProcessView send a chart from the logged data to the default printer connected to your PC. Check that check box if you want that to happen.

If you want ProcessView to automatically start data logging at startup when a Profile is currently running then check the "On software startup, Enable Data Logging and DataLog if Profile is running" check box.

For Database applications, you can have ProcessView automatically create a database table and send the data to the new table created at the end of the Profile Run. Check the checkbox shown below "Send Data File to SQL Server or Cloud Database at End of Profile". The table that is created will have the same name as the file name created for CSV files with a prefix of "dbo" for SQL Server databases.

You can also change the date format used thru out the software to match your preferences.

You can also change the date format used thru out the software to match your preferences. If you want to have color coded reports for each controller (ex. Blue badge for a freezer, Red badge for a furnace) you can select the color for each controller by selecting the color badge button. The badge is a small filled rectangle that is added to the upper left corner of any printed or saved PDF files that are automatically printed after a profile run.



Setup Data Logging 1	
Data To Log Log File Name/Location Start/Stop Automation	
Start/Stop Data Logging only when Profile is started and stopped. Print Data Graph at End of Profile End of Profile	Date Format: MM//DD//YYYY v Today's Date: 03/24/2024 MM - Month DD -Day of the Month YYYY-Year
Saved File Location: C:\ProgramData\ProcessView\Graphs Change PDF File Location Send CSV Data File to FTP Site at End of Profile	PDF and Print Documents
Send Data File to SQL Server or Cloud Datbase at End of Profile On software startup, Start Data Loging if Profile is currently running	
	Start Data Logging at Profile Start and Exit

Real-Time Data Viewer Screen

The Real-Time Data Viewer screen is used to view data as it is being logged in real time. You can add notes to the data log file while data is being logged. Anytime a user changes an event, variable, starts, stops, resumes or pauses a Profile that event will be logged. After the logging session has ended, all sensor input minimum and maximum values will be logged as well. This is valuable information for quality control purposes and validation of test runs. Notes can be appended to the data file after a Profile is done or the data logging session has been stopped by the user.

From this screen is where you are able to start and stop manual data logging when data logging is not done automatically when profiles are run. If data logging at the start of a profile option is enabled, then the "Start Data Logging" button will not be visible.

You can load a view prior data logs that are encrypted or not encrypted from the Load Data Log File button. You can see a historical graph of prior data log files with the Graph Data button. If you need to add an electronic signature to the data log you can do this with the electronic signature button. After adding the signature, the file will be converted to an XML file type which as the encrypted electronic signature added to it. This will create a file that is now tamper proof and cannot be altered in anyway. If anything is changed in the file the signature will be invalid. If you need to check if a signed file has not been altered you can use the "Verify Signed File" to check a signed XML file for Authentication. Then if the signed file passes you can load the XML file into Excel to do what you want with the file.



Enter Note to Data Log File	Grap	h Data 🗖	ata Sort Jewest First) R	leturn					
nter Text To Be Ad	ded To Data Log File Here								
2202024 11:43:	44 24.1	100.0	24.2	46.0	99.1	1	Ramp Time	Event Note: Profile: 1:TestA Started by User: System Manager	
2202024 11:43:	49 24.1	100.0	24.3	46.0	98.6	1	Ramp Time		
2202024 11:43:	54 24.1	100.0	24.4	46.0	97.5	1	Ramp Time		
2202024 11:43:	59 24.1	100.0	24.5	46.0	96.4	1	Ramp Time		
2202024 11:44:	04 24.1	100.0	24.6	46.0	95.9	1	Ramp Time		
2202024 11:44:	09 24.1	100.0	24.7	46.0	94.8	1	Ramp Time		
2202024 11:44:	14 24.1	100.0	24.7	46.0	94.3	1	Ramp Time		
02202024 11:44:	19 24.1	100.0	24.9	46.0	93.2	1	Ramp Time		
02202024 11:44:	24 24.1	100.0	25.0	46.0	92.1	1	Ramp Time		
2202024 11:44:	29 24.1	100.0	25.0	46.0	91.6	1	Ramp Time		
02202024 11:44:	34 24.1	100.0	25.1	46.0	90.5	1	Ramp Time		
02202024 11:44:	39 24.1	100.0	25.3	46.0	89.4	1	Ramp Time		
02202024 11:44:	44 24.1	100.0	25.3	46.0	88.9	1	Ramp Time		
02202024 11:44:	49 24.1	100.0	25.4	46.0	87.8	1	Ramp Time		
2202024 11:44:	54 24.1	100.0	25.6	46.0	86.7	1	Ramp Time		
2202024 11:44:	59 24.1	100.0	25.6	46.0	86.0	1	Ramp Time		
2202024 11:45:	04 24.1	100.0	25.8	46.0	84.9	1	Ramp Time		
02202024 11:45:	09 24.1	100.0	25.9	46.0	83.9	1	Ramp Time		
02202024 11:45:	14 24.1	100.0	25.9	46.0	83.3	1	Ramp Time		
02202024 11:45:	19 24.1	100.0	26.0	46.0	82.2	1	Ramp Time		
02202024 11:45:	24 24.1	100.0	26.2	46.0	81.2	1	Ramp Time		
02202024 11:45:	29 24.1	100.0	26.2	46.0	80.6	1	Ramp Time		
02202024 11:45:	34 24.1	100.0	26.3	46.0	79.5	1	Ramp Time		
Date 👻 Time	Temperature Process Value (C)	Humidity Process Value (%RH)	Temperature Profile Current Set Point (C)	Humidity Profile Target Set Point (%RH)	Humidity Profile Current Set Point (%RH)	* Step Number	* Step Type	* Data Log Notes	Misc1
Jata Log File:	2024-02-20_11-43-39_	Chamber 1_1_lestAcsv							
						222			
Log File			Data tog Luc Vic		Lo	aging	Logging		
Load Data			Data Log File Vie	wer	Star	d Data	Stop Data		

Analog Inputs

The Analog Inputs Window, is used to display all of the Analog inputs for the F4T controller (F4's are not supported). The values displayed are the raw analog inputs from either TCs, voltages, current or other internal values such as a variable or process block. The color of the displayed process values can be changed using the "Setup Graph" window. The names of each analog input can be customized in the "Edit Units/Labels", Analog Inputs tab screen which comes from the "Edit Selected F4T/F4 or PM Configuration" menu. You can also enable or disable displaying the Analog Inputs from that screen as well.

If you want to increase the size of the values, labels or units you can do this by first selecting the parameter then left clicking your mouse one time. This will select the parameter, and then you can re-position it on the window by dragging your mouse to the location you desire. Then you can the left click your mouse one time to deselect it and lock it into place. After the move has been done or after selecting and deselecting a parameter you can increase or decrease the font size to make it larger or smaller. Then when finished you will need to select the Save button to save the settings. This feature allows a user to have very large fonts for process values so you can see them on a PC display from a far distance away. You can then move the Analog Input window for several



controllers onto the PC display to show multiple chamber process values. You can also select the information icon and a help window will pop up which describes how to use the screen.

Chamber	1 Analog In	puts		_		×
0		Char	mber 1			
Air Temp	22.14	°C	Overtemp	22.71	°C	
Humidity	32.00	%RH	Product Temp	22.06	с	
Increa Font	se [Decrease Font	Save			

Below is an example of how you can increase the font to make a large process value window:



💾 Chamber 1 Analo	g Inputs		-		×
1	Char	nber 1	I		
Т	emper	atur	е		
2	4.	6	5()	
Increase Font	Decrease Font	Sa	ve		

Using Tolerance Bands

Overview of Tolerance Bands

Tolerance bands allow you to establish high and low limits around the setpoint for soak steps, enabling the software to detect when the process value exceeds these thresholds. When tolerance band monitoring is enabled and a limit is breached, the software logs the event once in the data log's notes section. You can configure reports to generate either periodically (with a frequency you define) or at the end of a profile run. For prolonged soak steps, periodic logging is advisable to maintain a record in case of interruptions like power outages.

Using an Event Output as the Trigger Signal

The software employs an Event Output to initiate tolerance band monitoring for a specific soak or other step. When the Event Output is set to "ON" during a profile step, the software compares the



current process value to the tolerance limits to determine if it remains within the band. When set to "OFF," the software suspends monitoring and does not check the tolerance bands.

Steps to Configure Tolerance Band Monitoring

Follow these steps to set up and use an Event Output as the trigger signal for tolerance band monitoring:

1. Enable an Event Output Trigger

- Open the "Add Controller/Edit Selected F4T/F4 or PM Configuration/Edit Units/Labels" window.
- Navigate to the "Events" tab.
- Set Event 8 (typically unused by manufacturers) to "Used" and optionally label it (e.g., "Tolerance Enable").
- Configure Event 8 as "Read Only" to ensure only the software can modify it, preventing user changes.

Event Out	puts					
RH ENABLE	Used	Read Only				
BOOST COOL	Used	Read Only	Event I	nputs		
AMB LOCK ON	Used	Read Only	Event Input 1	Analog Input 1	Edit Event Output and	
DEHUMID AIR	Used	Read Only	Event Input 2	Digital	Event Input Names if Desired!	
DRY AIR PURGE	Used	Read Only	Event Input 3	Input 2 No Input		
GN2 PURGE	Used	Read Only	Event Input 4	Source No Input		
Event 7 Output	Not Used	Read Only		Source		
Event 8 Output	Used	Read Only				
	* Edit Even	t Output and Alarm	Names			
Cours And	F4T Name:		_			

2. Set Tolerance Band Values

• Access the Tolerance Band Monitoring Setup Window.



Report Out Frequency	Product Temp Control Loo	,		
Enable Auto Save	Monitor High Tolerance Band	High Tolerance Band	3.00	°C
Select the frequency for saving reports:	Monitor Low Tolerance Band	Low Tolerance Band	-3.00	°C
1 . Minutes				
Report will be saved every: 1 Minutes	Humidity Control Loop			
	Monitor High Tolerance Band	High Tolerance Band	3.00	%RH
Tolerance Monitor Trigger Signal	Monitor Low Tolerance Band	Low Tolerance Band	-3.00	%RH
Event 8				
	Make sure for the event ou It is enabled In the Control	tput that is used, ler's Setup Window If you want		
	to trigger on a single or ste Otherwise you can monitor setting the trigger signal to	p in the profile. r on all soak steps by r "All Soaks"		
	Save and			

- Define high and low tolerance bands for up to two PID loops (often temperature and humidity in ovens or chambers).
 - Example: For a cascade control loop, set High Tolerance Band to 3.00°C and Low Tolerance Band to -3.00°C (monitored range: setpoint ± 3.00°C).
 - For humidity, set High Tolerance Band to 3.00 %RH and Low Tolerance Band to -3.00 %RH.
- Check the "Monitor High or Low Tolerance Band" boxes to activate monitoring.
- To show tolerance bands on the trend plot, select the "On" checkboxes in the Setup Graph Menu.
- Configure report output:
 - For periodic reports, check "Enable Auto Save" in the Report Out Frequency group box, selecting minutes, hours, or days (e.g., save as PDF every 1 minute to the Report Directory).
 - For end-of-profile reports, uncheck "Enable Auto Save" and select "Automatically save PDF after Profile Completed" in the Report Configuration window.

3. Select the Event Output Trigger

• Use the dropdown list box to choose the Event Output for monitoring.



- Example: Select "All Soaks" to automatically monitor tolerance bands for all soak steps without needing to configure Event Outputs in the profile.
- Alternatively, select "Monitor Enable" (e.g., Event 8) to monitor steps where the Event Output is "ON"; monitoring stops when set to "OFF."
- Other options include constant monitoring of all profile steps or disabling monitoring entirely.
- This approach allows flexible monitoring of all soak steps or specific steps as required.
- 4. Enable Tolerance Band Reporting
 - Go to "QA Reports/Configure Report" to open the Configure Report Window.

Use Tolerances as Additional Critera for PASS/FAIL

Automatically Save PDF

Include Profile Summary Data and Graph of Data Logged in Report Printout or PDF File

• Check "Use Tolerances as Additional Criteria for PASS/FAIL" to enable tolerance band monitoring for a single end-of-profile QA report (use this if not opting for periodic auto-save).

5. Control Monitoring in the Profile

- When creating or editing a profile, set the Event Output condition ("ON" or "OFF") for each step.
 - "ON" enables tolerance band monitoring; if a limit is exceeded, the software logs the process value and breached limit in the data log's "Notes" column.
 - "OFF" disables monitoring for that step.
- Example: For Step 4 (Soak), set the Event Output to "ON" to monitor tolerance bands, and "OFF" for steps where monitoring is unnecessary.



Batch Setup

The "Batch/Scanner Setup" screen is used configure the fields for batch entry before a profile is run. The only two fields that cannot be changed are the "Load Operator and Unload Operator" fields. All the fields can be customized to your application. The "Enable" check boxes are used to enable the fields during the batch entry. The "Required" check boxes can be used to force an input to the associated field. If the field has not been entered by the user when starting a profile an error message will pop up alerting the operator to fill in the information before a profile will be allowed to run. You can use the enable and disable buttons to select all the fields to be enabled or disabled to save some time.

The "Clear All Fields when Batch Input Window Loads" will clear all inputs when the batch input window opens forcing the user to input all new information for a batch run. If this is left unchecked then the software will retain the last batch entry fields when the batch input window opens.

When using a scanner, the order that is scanned is the first column will be first and each row in that column will be scanned, then the second column and so forth.

Bar Code/QR Code Scanner Configuration: In order for the software to recognize that a Bar Code/QR Code has been scanned, the Scanner must be configured to have a CR (Enter Key/Carriage Return Pressed) as an ending character or suffix character that is appended to the Bar Code Data. Most Scanners can be configured this way by scanning a configuration bar code from the Scanner's User Manual. Please refer to your Scanner's User Manual in order to configure this.



									Save and Exit			Cancel	ų į	Dperator before a profile is started a f not display a warning message to t
Shop C Shop C	rders			Disa	able All								, Y	f the field has been filled out by an
Edit Table Batch D Shop C Shop C	Columr bata orders orders	ı Names:		Ena	able All		Clear A	(Fields v	vhen Batch In	put Wir	ndow Loa	ds	E	Select the "Enable" Check Box to nake the parameter visible in the 3atch Input Window. Select the "Required" Check Box if
			Material:			Material:			Material:			Material:		1
			Qty: Material:			Qty: Material:			Qty: Material:			Qty: Material:		1
			Part Number: Qty: Material:			Part Number: Qty: Material:			Part Number: Qty: Material:			Part Number: Qty: Material:		
			shop Order 3: Part Number: Qty: Material:			Shop Order 6: Part Number: Qty: Material:			Shop Order 9: Part Number: Qty: Material:			Shop Order 12: Part Number: Qty: Material:		
			Material: Shop Order 3: Part Number; Qty: Material:			Material: Shop Order 6: Part Number; Qty: Material:			Material: Shop Order 9: Part Number: Qty: Material:			Material: Shop Order 12: Part Number: Qty: Material:		
			Qty: Material: Part Number: Qty: Material:			Qty: Material: Shop Order 6: Part Number: Qty: Material:			Qty: Material: Part Number: Qty: Material:			Qty: Material: Shop Order 12: Part Number: Qty: Material:		
			Part Number: Qty: Material: Shop Order 3: Part Number: Qty: Material:			Part Number; Part Number; Qty: Shop Order 6: Part Number; Qty: Material:			Part Number: Part Number: Qty: Shop Order 9: Part Number: Qty: Material:			Part Number: Part Number: Qty: Material: Shop Order 12: Part Number: Qty: Material:		
7010			Anderna, Shop Order 2, Part Number; Qty: Material: Part Number; Oty: Material:			shop Order 5. Shop Order 5. Part Number. Qty: Shop Order 6: Part Number. Qty: Material:			Materias. Shop Order 8: Part Number: Qty: Shop Order 9: Part Number: Qty: Material:			Materia. Shop Order 11: Part Number: Qty: Shop Order 12: Part Number: Qty: Material:		
stch ID			ozy. Shop Order 2: Part Number. Oty: Shop Order 3: Part Number: Part Number: Oty: Material:			243; Material: Shop Order 5: Part Number; Qty: Shop Order 6: Part Number; Qty: Material: Qty:			205; Material: Part Number: Part Number: Shop Order 9: Part Number: Qty: Material: Oty:			407. Shop Order 11: Part Number: Part Number: Shop Order 12: Part Number: Oty: Material:		
cch ID:			dt yn uniber. Qt yr. Shop Order 2: Part Number. Qt yr. Shop Order 3: Part Number: Part Number: Qt y: Material:			dty: Qty: Material: Part Number: At Number: Shop Order 6: Part Number: Part Number: Qty: Material:			dty: Qty: Material: Shop Order 8: Part Number; Qty: Shop Order 9: Part Number; Qty: Material:			Qty: Qty: Material: Part Number: Part Number: Material: Shop Order 12: Part Number: Qty: Material:		
nioad Operator: oduct ID: stch ID			Snop Order I: Part Number; Qty: Material: Part Number; Part Number; Shop Order 3: Material: Part Number; Qty: Material:			andp Order a. Part Number: Qty: Material: Shop Order 5: Part Number: Qty: Part Number: Part Number: Qty: Material:			Snop Order 7: Part Number: Atterial: Shop Order 8: Part Number: Material: Shop Order 9: Part Number: Part Number: Oty:			andp Order 10. Ody: Ody: Shop Order 11: Part Number: Part Number: Shop Order 12: Part Number: Part Number: Part Number: Material: Ody: Part Number: Part Number: Number: Part Number: Part Number:		

The "Batch Data" column fields are shown in the Quality Assurance Report in the General section at the top of the report. All the other columns are shown in the "Batch Information" section of the Quality Assurance report. You can determine for you application how to organize these fields for that are applicable to your application. If you choose to have a graph and the batch information automatically printed or saved to a PDF file after running a batch or profile you can select how many printed copies are printed by entering the number that you wish to have printed in the text box at the bottom of the window.

Below is an example of using different parameters and associated shop orders when loading a chamber with lots of different shop orders and part numbers:



Evit and 6	Save	Clear Al	I	Ы	umber of Autor int Copies:	matic	1		
User Notes:									
		-							 1
		Material:		Material:		Material:		Material:]
		Qty: Material:		Qty: Material:		Qty: Material:		Qty: Material:	
		Part Number: Qty: Material:		Part Number: Qty: Material:		Part Number: Qty: Material:		Part Number: Qty: Material:	
		Shop Order 3: Part Number: Qty: Material:		Shop Order 6: Part Number: Qty: Material:		Shop Order 9: Part Number: Qty: Material:		Shop Order 12: Part Number: Qty: Material:	
		Material: Shop Order 3: Part Number: Qty: Material:		Material: Shop Order 6: Part Number: Qty: Material:		Material: Shop Order 9: Part Number: Qty: Material:		Material: Shop Order 12: Part Number: Qty: Material:	
		Qty: Material: Shop Order 3: Part Number: Qty: Material:		Qty: Material: Shop Order 6: Part Number: Qty: Material:		Qty: Material: Shop Order 9: Part Number: Qty: Material:		Qty: Material: Shop Order 12: Part Number: Qty: Material:	
		Qty: Material: Shop Order 3: Part Number: Qty: Material:		Part Number: Qty: Material: Shop Order 6: Part Number: Qty: Material:		Part Number: Qty: Material: Shop Order 9: Part Number: Qty: Material:		Part Number: Qty: Material: Shop Order 12: Part Number: Qty: Material:	
		Shop Order 2: Part Number; Qty: Material: Shop Order 3: Part Number; Qty: Material:		Shop Order 5: Part Number: Qty: Material: Shop Order 6: Part Number: Oty: Material:		Shop Order 8: Part Number: Qty: Material: Shop Order 9: Part Number: Qty: Material:		Shop Order 11: Part Number; Qty: Material: Shop Order 12: Part Number; Material:	
Batch ID		Material: Shop Order 2: Part Number: Qty: Material: Shop Order 3: Part Number: Qty: Material:		Material: Shop Order 5: Part Number: Qty: Material: Part Number: Part Number: Material:		Material: Shop Order 8: Part Number: Qty: Material: Part Number: Qty: Material:		Material: Shop Order 11: Part Number: Qty: Material: Shop Order 12: Part Number: Qty: Material:	
Product ID: Batch ID		Qty: Material: Shop Order 2: Part Number: Qty: Material: Part Number: Qty: Qty:		Qty: Material: Shop Order 5: Part Number: Qty: Material: Part Number: Part Number: Qty: Material:		Qty: Material: Shop Order 8: Part Number: Qty: Material: Part Number: Part Number: Qty: Material:		Qty: Material: Shop Order 11: Part Number: Qty: Material: Shop Order 12: Part Number: Qty: Material:	
Unload Operator: Product ID: Batch ID		Part Number; Qty: Material: Shop Order 2: Part Number; Qty: Material: Part Number; Part Number; Qty: Material:		Part Number: Part Number: Shop Order 5: Part Number: Qty: Material: Shop Order 6: Part Number: Part Number: Oty: Material:		Part Number: Qty: Shop Order 8: Part Number: Qty: Material: Material: Shop Order 9: Part Number: Part Number: Qty:		Part Number: Qty: Material: Shop Order 11: Part Number: Qty: Shop Order 12: Part Number: Part Number: Qty: Material: Qty:	
Load Operator: Unload Operator: Product ID: Batch ID		Shop Order 1: Part Number: Qty: Material: Shop Order 2: Part Number: Qty: Shop Order 3: Part Number: Oty: Part Number: Qty:		Shop Order 4: Part Number: Qty: Material: Shop Order 5: Part Number: Gty: Shop Order 6: Part Number: Part Number: Qty:		Shop Order 7: Part Number: Oty: Material: Shop Order 8: Part Number: Cty: Shop Order 9: Part Number: Part Number: Oty:		Shop Order 10: Qty: Material: Shop Order 11: Part Number: Qty: Shop Order 12: Shop Order 12: Part Number: Qty: Qty:	

Mapping a Profile to a Product ID

You can map a profile to be automatically run based on a Product ID that has been input into the batch input. After a user inputs a Product ID number in the Product ID field in the Batch Input Table the software will look for a matching profile number to be run if this is enabled and there is a match. In order to configure the mapping of the profile window below is used which can be accessed from the Batch Information\Map Product ID to Profile menu. Make sure the "Enable Product ID Mapping" check box is checked and for each profile add a Product ID number or name in the field and select the Add button. You can have a maximum of 24 individual part numbers mapped to a given profile in the profile list.



Barcode Map Setup 1

Enable Product ID Mapping



When the user inputs a Product ID in the Batch Input Table as show below, in this case the part number "1234" the profile to be automatically run when the Start button is pushed is the first profile 1:Testle1.


2	Scanner/User Input	1				
	Batch Data	Batch Data Inputs	Parameters A	Parameters A Inputs		
	Load Operator:	Joe Smith	Shop Order#:	12345		
	Unload Operator:	Kate Johnson				
	Product ID:	1234				
	Batch ID	ABC				
	Profile to be L	oaded:	1:TESTle 1			
	User Notes:					
	Exit and S	iave	Clear Al	I	Number of Automatic Print Copies:	

Database Setup

The Database Setup Screen is used to connect to a database such as Amazon AWS RDS, Microsoft Azure, Microsoft Access or Microsoft SQL server. After datalogging has finished, then you must first connect to the database server unless it is for Microsoft Access database.

Before you can connect to the data base you must put in the correct path to the database server and the name of the database you are trying to connect to. If you are unsure what this is consult your local IT person at your company that is familiar with how your company's database settings are configured. You also need to select the database format that you are trying to connect to.

You also must have your username and password typed in that is used to connect to your database. After you have the username and password entered you can connect to the database by selecting the "Login Button". If it is successful you will see the green "Connected" label and you will get a popup message that says you are connected. After you datalogging is finished either automatically after a Profile is done or if you stop it manually you can upload and save the data. When you select the "Upload Data To Database" button or a data log file is automatically uploaded after a Profile is done, a table will be created in your database that has the same name as



the data log file and it will be populated with the data. The file will have a prefix of .dbo added to the file name which represents the default schema for SQL Server which stands for "Database Owner".

You will then see the data that was uploaded in a data grid view table on the database window and a message will appear which tells you how many data rows or records were uploaded. If you are using a Microsoft Access database, the software will create a new database before it creates a table to populate the data in. For cloud and Microsoft SQL Server the software will only create a new database if the current database name is not found in the database server that is connected to.

Saving Tables Automatically after a Profile Run:

To have ProcessView automatically save a database table after a profile has been run then you will need to set the checkbox in the Data Log Setup window as show below:







While the profile is running and the software is connected to the remote database, the indicator shown below will appear on the Main graphing window as show below next to the data logging enable indicator:



Microsoft SQL Server:

When using Microsoft SQL Server, when you login ProcessView will try and connect to the "master" System Database using the username and password credentials first. There must be a "master" System database present on the instance of the SQL server which is always included upon first installing the SQL Server. Then when the "Upload Data To Database" button is selected, ProcessView will check to see if the Database Name field is already present in the remote SQL server and switch from the "master" to the named database. If the named database is not in the SQL Server, ProcessView will create a new database and use it instead of the "master" database.

You can check this by using Microsoft SQL Management Server Studio software at the SQL Server PC and checking to see if it exists as shown below:



Object Explorer	▼ ₽×						
Connect 🗝 🛱 🎽 🝸 🖒 🤸							
■							
🖃 💻 Databases							
🖃 💻 System Databases	🖃 💻 System Databases						
💽 🗑 master							
📧 🗑 model							
🗉 🗑 msdb							
📧 🗑 tempdb							
🗉 💻 Database Snapshots							
⊕ abc123 →							
test1 test1							
🗉 🗎 test2							
🗉 🗎 test3							
🗉 🗎 test4							
🗉 💻 Security							
🗉 🗐 Server Objects							
🗉 💻 Replication							
🗉 💻 PolyBase							
🗉 💻 Management							
🗉 🗹 XEvent Profiler							

Below is a screen shot which shows the tables created after a profile has been run. The table names are the same name as the csv file name with a "dbo" prefix. In the Datalog Setup window you can specify the file name and its components. The table files were stored in the database named "test2".





Below is a screenshot of the Database setup window from ProcessView which shows the database name and file name that was created during a Profile Run:



🖶 Database Setup 1												-	
Server Name or IP Address, Port Number: Default Port (1433)		Username:	glenn1				Log To Se	gin erver					
		Password:	•••••	•		-	10.00		J				
Data Base Name: test2 (lowercase)	Use Local Database				-		Connect	ed					
Server Database Format:	File Location:												
MS SQL Server			Ø	Login To Server At :	Startup		Log	out					
	Uplo	ad Data	-				From S	Server					
Database Table Name: dbo2024_03_04_08_32_03_F4T_8	_Short_	Server											
Date Time PV_1_Outer_LP_Set_Point_C PV_1_Inne	er_LP_Process_Value_C PV_1_Process_Value_PRC	Data_Log_Notes	Misc1	Misc2 Misc3	Misc4	Misc5 Mise	6 Misc7	Misc8	Misc9	Misc10 N	/lisc11		
Note: Make sure "Server Name" is in the correct													
format for your Microsoft Azure. Amazon AWS account or SQL Server PC	С.	_											
Examples:		к	leturn										
Microsoft Azure: f4tserver.database.windows.net Amazon AWS RDS: f4tserver.cisdo5ewmp6r.us-east-1.rds.amazonaws.cc	om												
Microsoft SQL Server: WINDOWS-SM67H80 (typically PC name)													

Below is an example of a database setup using Microsoft SQL Server as the Database format. The database that is used is "abc123" which is stored on the SQL Server. The Server Name is "WINDOWS-SM67H80" which also is the name given to the PC running Microsoft SQL Server. In the majority of cases you will not need to check the "Use Local Database" check box. This is only used if you are using a Local DB or local database for testing purposes.

The Username and Password are for the user that is given remote access in the SQL Server software. Below is an example of a list of users setup on a SQL Server. This window is show in the Microsoft SQL Management Server Software:



Object Explorer	▼ ₽×						
Connect 🕶 🛱 🎽 🝸 🖒 🚸							
■							
🗉 💻 Databases							
🖃 💻 Security							
🖃 📠 Logins							
🗽 ##MS_PolicyEventProcessingLogin##							
🗽 ##MS_PolicyTsqlExecutionLogin##							
BUILTIN\Users							
glenn1							
glenn2							
NT AUTHORITY\SYSTEM							
NT Service\MSSQL\$F4TSERVER							
NT SERVICE\SQLTELEMETRY\$F4TSERVER							
NT SERVICE\SQLWriter							
WINDOWS-SM67H80\glenn							
E Server Roles							
🗉 💻 Credentials							
🗉 💻 Audits							
🗉 🖷 Server Audit Specifications							
🗉 💻 Server Objects							
🗉 🖷 Replication							
🗉 🛑 PolyBase							
🗉 💻 Management							

You can also connect to a SQL Server using an IP address and Port number. 1433 is the default port used by SQL Server. If your SQL Server is setup to use a different port then this is how you can access that SQL server using a different port number.

An example is show below:



💀 Database Setup 1							-	
Server Name or IP Address, Port Number: Default Port (1433)	192.168.0.60,1433		Username: Password:	glenn1	•	Login To Server		
Data Base Name: test2 (lowercase)		Use Local Database				Connected		
Server Database Format:		File Location:						
MS SQL Server	~					Langut		
Database Table Name:	dbo2024_03_04_08_32_03_F4T_8	_Short_	Upload Data To Server	Login To Server At Star	tup	From Server		
Note: Make sure "Server Name format for your Microsoft Azu	e" is in the correct re. Amazon AWS account or SQL Server P(2.						
Examples:			1	Return				
Microsoft Azure: f4tserver.dat Amazon AWS RDS: f4tserver.c Microsoft SQL Server: WINDO	abase.windows.net ;jsdgSewmp6r.us-east-1.rds.amazonaws.co WS-SM67H80 (typically PC name)	m						

Setting Up a MS SQL Server to allow Remote PC Access

After installing Microsoft SQL Server on your PC which will be the server for the database, you will have to note the server name (usually the name given the PC), the instance (then name given the server) and the name of the database that you want ProcessView to store data in.

There are two types of adjustments which must be set before connecting to the remote SQL Server. These settings are important because without them the connection to the remote SQL Server will not be able to be successfully created

Configuration settings:

- 1. The SQL Server instance to allow the protocol being requested
- 2. Allow access through the Window Firewall

In order to allow access to SQL Server instance, we have to enable TCP/IP protocol which is not enabled by default.

In order to establish a successful remote connection is to set up appropriate ports through the Window Firewall. In SQL Server there are two types of instances. First is a default instance and the second is a named instance. To connect to the default instance of Database Engine, or named instance that is the only instance installed on the machine, the TCP port 1433 is the only port that you need to specify.

But if you have multiple name instances installed on your machine, to connect with one of them, we must provide a port number which corresponding to appropriate instance name. By default named instance



used dynamic port, which means that every time when the Database Engine starts new port number is assigned. Because of that it is difficult to configure Windows Firewall to enable access.

In order to resolve this problem, there is a SQL Browser service, which provide the TCP port number that corresponds to the named instances. The SQL Browser services use UDP port 1434. Now we met with the basic matters relating to remote connection, let's continue with the setup procedure.

Enabling TCP/IP protocol

The first step is to enable TCP/IP protocol on the SQL Server service. Open the **SQL Server Configuration Manager** in the **Configuration Tools** folder under the **Microsoft SQL Server** folder:





From the **SQL Server Network Configuration** node, select the **Protocols** item for the appropriate SQL Server. In the details pane, right click the **TCP/IP** item and select the **Enable** option:





After that, again right click and select Properties of TCP/IP protocol. Select the **IP Addresses** tab in the window and scroll down all the way down to **IPALL** section and make sure the TCP Dynamic Ports is set to nothing and the TCP Port is set to a value of 1433 as shown below, then hit OK:



	Enabled	No	~
	IP Address	fe80::1df8:52d5:7b48:f510%11	
	TCP Dynamic Ports	0	
	TCP Port		
E	IP8		
	Active	Yes	
	Enabled	No	
	IP Address	169.254.245.16	
	TCP Dynamic Ports	0	
	TCP Port		
E	IP9		
	Active	Yes	
	Enabled	No	
	IP Address	::1	
	TCP Dynamic Ports	0	
_	ICP Port		=
E	IPAII		
	TCP Dynamic Ports		_
-	TCP Port	1433	~
Act	TCP Dynamic Ports TCP Port tive dicates whether the selected	IP Address is active.	



After this step the **Warning** box pop up in which informs us that changes that are made won't take effect until the next time service is started.



In order for the changes take effect, from console pane, select the **SQL Server Services** and from the details pane, right click the **SQL Server (SQLEXPRESS)** database engine instance and click the **Restart** option:

Sql Server Configuration Manager		×
File Action View Help Image: Second s		
 SQL Server Configuration Manager (Local) SQL Server Services SQL Server Network Configuration (32bit) SQL Native Client 11.0 Configuration (32bit) SQL Server Network Configuration Protocols for SQLEXPRESS Protocols for SQLENTERPRISE SQL Native Client 11.0 Configuration 	Protocol Name Status Shared Memory Enabled Named Pipes Enabled TCP/IP Disabled Enable Disable Properties Help	
Enable selected protocol.		

Now the service started with TCP/IP enabled, but still can't connect remotely until we configure the Windows Firewall.

Configuring Windows Firewall

From the **Control Panel** choose **Windows Firewall** and click the **Advanced settings** or just type **wf.msc** in **Search program and files** from the **Start** menu:



Control Panel Home	Help protect your compute	er with Windows Firewall					
Allow a program or feature through Windows Firewall	Windows Firewall can help prevent your computer through the Interne	: hackers or malicious software from gaining access to et or a network.					
Change notification settings	How does a firewall help protect my computer?						
Turn Windows Firewall on or	What are network locations?						
Restore defaults	🖉 🧭 Home or work (pri	ivate) networks Not Connected 😵					
Advanced settings	Public networks Connecte						
Troubleshoot my network	Networks in public places such as	airports or coffee shops					
	Windows Firewall state:	On					
	Incoming connections:	Block all connections to programs that are not on the list of allowed programs					
	Active public networks:						
	Notification state:	Notify me when Windows Firewall blocks a new program					
See also							
Action Center							

- **Inbound Rules:** You can allow or block traffic attempts to access the computer that matches certain criteria in the rule. By default inbound traffic is blocked, to allow traffic to access computer, you need to create inbound rule.
- **Outbound Rules:** You can allow or block traffic originating from specifying computer creating rules. By default outbound traffic is allowed, so you need to create the rule that block outbound traffic.

In the **Windows Firewall with Advanced Security**, click the **Inbound Rules** from the left pane, right click **Inbound Rules** and select the **New Rule** or from the **Actions** pane click the **New Rule**:

You will create a new Inbound Rule with the following properties:

Rule Type: **Port**

Protocol and Ports: UDP, 1434

Action: Allow the connection

Profile: Domain, Private, Public



Name: SQL UDP 1434

Go to Inbound Rules and select New Rule.

Windows Firewall	with Advanced S	Security							
Windows Firewal	I with Advance	Inbound R	ules					1	Actions
Inbound Rule				Group	Profile	Enabled	Action	^]	Inbound Rules
E Connecti	Filter by Profil	e)	. Backup . Backup port iICS iICS		All All Public	Yes Yes Yes	Allow Allow Allow		Wew Rule If Filter by Profile If Filter by State
	Filter by Group View Refresh Evport List	•	IILS C:\Program Files (x86)\Mozilla Fir (C:\Program Files (x86)\Mozilla F (C:\Program Files (x86)\Mozilla F	Public Privati Privati Privati Public	Private Private Private Private Public	ate Yes ate Yes ate Yes ate Yes blic Yes	Allow Allow Allow Allow Allow		Filter by Group View Refresh
	Help	V Microso Microso mode=1	ft Lync UcMapi ft Lync UcMapi ft Office Outlook DISABLE		Public Public Public Public Public	Yes Yes Yes Yes	Allow Allow Allow Allow Allow		ist β Help
New Rule	•	< Laurence					,		

On which you will click, it's up to you. In both case the **New Inbound Rule Wizard** will appear. Under the **Rule Type** choose **Port** and click the **Next** button:



create.
create. What type of rule would you like to create? Program Rule that controls connections for a program. Protectimes Rule that controls connections for a TCP or UDP port. Predefined: BranchCache - Content Retrieval (Uses HTTP) Rule that controls connections for a Windows experience. Custom Custom rule. Leam more about rule types

From this link you can more informed of all rule types which are shown in the image above.

In the **Protocols and Ports** there are a several options that you can choose, depending on which type of protocols you select.

If you are wondering what is the difference between the TCP and UDP protocols you can find from this link.

TCP is used for the default instance and named instance if is the only instance installed on the machine and default port is 1433.

- All local ports: Rule applies on all ports from the selected protocol.
- **Specific local ports**: In the text box you specify a port or set of ports to which the rule applies.

For this example, select the UDP protocol and in the **Specific local ports** enter port number 1434. To proceed with the settings SQL Browser services, click the **Next** button:



🔗 New Inbound Rule Wizar	d	×					
Protocol and Ports Specify the protocols and ports	to which this rule applies.						
Steps:							
Rule Type	Does this rule apply to TCP or U	DP?					
Protocol and Ports	© TCP						
Action	UDP						
Profile							
Name	Does this rule apply to all local ports or specific local ports?						
	All local ports						
	Specific local ports:	1434					
	Learn more about protocol and p	Example: 60, 443, 5000-5010					
		< Back Next > Cancel					

- Allow the connection: Includes all connections secure and insecure.
- Allow the connection if it is secure: Includes only connection if it is made through a secure channel.
- Block the connection: Blocks all connections secure and insecure.

In the Action dialog choose Allow the connection and click the Next button:



💣 New Inbound Rule Wizard	i
Action Specify the action to be taken w	hen a connection matches the conditions specified in the rule.
Steps: Protocol and Ports Action Profile Name	What action should be taken when a connection matches the specified conditions? Image: Contract Content Contract Contract Contract Contract Contr

- **Domain**: The setting is applied only when a computer is connected to a domain.
- **Private**: The setting is applied when a computer is connected to a network that is identified as a private network.
- **Public**: The setting is applied when a computer is connected to untrusted public network.

In the **Profile** dialog choose all three profiles and click the **Next**:



Provident America Stress America Str	rd 📃 🔍
Profile Specify the profiles for which th	is rule applies.
Steps:	
 Rule Type Protocol and Ports Action 	When does this rule apply? Image: Domain
Profile	Applies when a computer is connected to its corporate domain.
Name	 Private Applies when a computer is connected to a private network location. Public Applies when a computer is connected to a public network location.
	Leam more about profiles < Back

On this step give the rule a name and click the **Finish**.

Note: When we give the name of the rule, please write some descriptive name that you can understand later, when you need to find them or edit in the Inbound Rules list.

In the Name Dialog give the rule a name that you understand and will remember, you can also add a description in the description text box that the rule is for allowing incoming requests on the UDP port 1434.

Name: SQL UDP 1434

You will now need create an incoming rule for the TCP Port 1433 just like you did the UDP port 1434. Repeat the steps above:

Go to Inbound Rules and select New Rule. Add the following rule, refer to images above if unclear.

Rule Type: **Port**

Protocol and Ports: TCP, 1433



Action: Allow the connection

Profile: Domain, Private, Public

Name: SQL TCP 1433

Now create an allow rule for the database engine instance.

Go to the **New Rule** and from the **Rule Type** select the **Custom** rule:

🔗 New Inbound Rule Wizar	d 📃
Rule Type Select the type of firewall rule to) create.
Steps:	
Rule Type	What type of rule would you like to create?
Program	
Protocol and Ports	🕙 Program
Scope	Rule that controls connections for a program.
Action	Port
Profile	Rule that controls connections for a TCP or UDP port.
Name	Predefined:
	BranchCache - Content Retrieval (Uses HTTP)
	Rule that controls connections for a Windows experience.
	Oustom
	Custom rule.
	Learn more about rule types
	<back next=""> Cancel</back>

In the **Program** under the **Services** click the **Customize** button:



Drogram	
Specify the full program path an	Id executable name of the program that this rule matches.
Steps:	
Rule Type	Does this rule apply to all programs or a specific program?
Program	
Protocol and Ports	All programs
Scope	Rule applies to all connections on the computer that match other rule properties.
Action	This amoran path:
Profile	
Name	Example: c:\path\program.exe %ProgramFiles%\browser\browser.exe Services
	Specify which services this rule applies to.
	< Back Next > Cancel

From the **Customize Service Settings** under **Apply to this service** select database engine instance service and click the **OK** button:



Short Name	
sppuinotify	
MSSQL\$CRM	
CrmSqlStartupSvc	
MSSQL\$SQLENTERPRI	
MSSQL\$SQLEXPRESS	
SQLAgent\$CRM	
SQLAgent\$SQLENTER	
SQLAgent\$SQLEXPRESS	
MSOLAP\$SQLENTERP	•
ntlog):	
	Short Name sppuinotify MSSQL\$CRM CmSqlStartupSvc MSSQL\$SQLENTERPRI MSSQL\$SQLENTERPRI SQLAgent\$SQLENTER SQLAgent\$SQLENTER SQLAgent\$SQLENTERP ntlog):

Then click the **Next** all the way to the **Name** dialog, give rule a name and click the **Finish**:



Apply to all programs and services Apply to services only Apply to this service: Name Short Name SPP Notification Service sppuinotify SQL Server (CRM) MSSQL\$CRM SQL Server (CRM) On-Demand Shutdown CmSql\$tartup\$vc SQL Server (SQLENTERPRISE) MSSQL\$SQLENTERPRI SQL Server (SQLEXPRESS) MSSQL\$SQLEXPRESS SQL Server Agent (CRM) SQLAgent\$CRM SQL Server Agent (SQLENTERPRISE) SQLAgent\$SQLENTERPRI SQL Server Agent (SQLEXPRESS) SQLAgent\$SQLENTERPRI SQL Server Agent (SQLEXPRESS) SQLAgent\$SQLENTERP SQL Server Analysis Services (SQLENTERPRISE) MSOLAP\$SQLENTERP	ply this fulle as follows:		
Apply to services only Apply to this service: Name Short Name SPP Notification Service sppuinotify SQL Server (CRM) MSSQL\$CRM SQL Server (CRM) On-Demand Shutdown CmSql\$tartup\$vc SQL Server (SQLENTERPRISE) MSSQL\$SQLENTERPRI SQL Server (SQLENTERPRISE) MSSQL\$SQLEXPRESS SQL Server Agent (CRM) SQLAgent\$CRM SQL Server Agent (SQLENTERPRISE) SQLAgent\$SQLENTER SQL Server Agent (SQLEXPRESS) SQLAgent\$SQLENTERP Apply to service with this service short name (example: eventlog):	Apply to all programs and services		
Apply to this service: Name Short Name SPP Notification Service sppuinotify SQL Server (CRM) MSSQL\$CRM SQL Server (CRM) On-Demand Shutdown CmSqlStartupSvc SQL Server (SQLENTERPRISE) MSSQL\$SQLENTERPRI SQL Server (SQLENTERPRISE) MSSQL\$SQLENTERPRI SQL Server Agent (CRM) SQLAgent\$CRM SQL Server Agent (SQLENTERPRISE) SQLAgent\$SQLENTER SQL Server Agent (SQLEXPRESS) SQLAgent\$SQLENTER	Apply to services only		
Name Short Name SPP Notification Service sppuinotify SQL Server (CRM) MSSQL\$CRM SQL Server (CRM) On-Demand Shutdown CmSqlStartupSvc SQL Server (SQLENTERPRISE) MSSQL\$SQLENTERPRI SQL Server (SQLEXPRESS) MSSQL\$SQLEXPRESS SQL Server Agent (CRM) SQLAgent\$CRM SQL Server Agent (SQLENTERPRISE) SQLAgent\$SQLENTER SQL Server Agent (SQLENTERPRISE) SQLAgent\$SQLENTER SQL Server Agent (SQLEXPRESS) SQLAgent\$SQLENTERP Apply to service with this service short name (example: eventlog):	Apply to this service:		
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SQL Server (CRM) MSSQL\$CRM SQL Server (CRM) On-Demand Shutdown CmSqlStartupSvc SQL Server (SQLENTERPRISE) MSSQL\$SQLENTERPRI SQL Server (SQLEXPRESS) MSSQL\$SQLEXPRESS SQL Server Agent (CRM) SQLAgent\$CRM SQL Server Agent (SQLENTERPRISE) SQLAgent\$SQLENTER SQL Server Agent (SQLENTERPRISE) SQLAgent\$SQLENTER SQL Server Agent (SQLEXPRESS) SQLAgent\$SQLENTERP Apply to service with this service short name (example: eventlog):	SPP Notification Service	sppuinotify	
SQL Server (CRM) On-Demand Shutdown CmcSqlStartupSvc SQL Server (SQLENTERPRISE) MSSQL\$SQLENTERPRI SQL Server (SQLEXPRESS) MSSQL\$SQLEXPRESS SQL Server Agent (CRM) SQLAgent\$CRM SQL Server Agent (SQLENTERPRISE) SQLAgent\$SQLENTER SQL Server Agent (SQLENTERPRISE) SQLAgent\$SQLENTER SQL Server Agent (SQLEXPRESS) SQLAgent\$SQLENTER SQL Server Agent (SQLEXPRESS) SQLAgent\$SQLENTER SQL Server Analysis Services (SQLENTERPRISE) MSOLAP\$SQLENTERP Apply to service with this service short name (example: eventlog):	SQL Server (CRM)	MSSQL\$CRM	
SQL Server (SQLENTERPRISE) MSSQL\$SQLENTERPRI SQL Server (SQLEXPRESS) MSSQL\$SQLEXPRESS SQL Server Agent (CRM) SQLAgent\$CRM SQL Server Agent (SQLENTERPRISE) SQLAgent\$SQLENTER SQL Server Agent (SQLEXPRESS) SQLAgent\$SQLENTER SQL Server Agent (SQLEXPRESS) SQLAgent\$SQLENTER SQL Server Agent (SQLEXPRESS) SQLAgent\$SQLENTER SQL Server Analysis Services (SQLENTERPRISE) MSOLAP\$SQLENTERP Apply to service with this service short name (example: eventlog):	SQL Server (CRM) On-Demand Shutdown	CrmSqlStartupSvc	
SQL Server (SQLEXPRESS) MSSQL\$SQLEXPRESS SQL Server Agent (CRM) SQLAgent\$CRM SQL Server Agent (SQLENTERPRISE) SQLAgent\$SQLENTER SQL Server Agent (SQLEXPRESS) SQLAgent\$SQLENTER SQL Server Agent (SQLEXPRESS) SQLAgent\$SQLENTERPRISE) SQL Server Analysis Services (SQLENTERPRISE) MSOLAP\$SQLENTERP Apply to service with this service short name (example: eventlog):	SQL Server (SQLENTERPRISE)	MSSQL\$SQLENTERPRI	
SQL Server Agent (CRM) SQLAgent\$CRM SQL Server Agent (SQLENTERPRISE) SQLAgent\$SQLENTER SQL Server Agent (SQLEXPRESS) SQLAgent\$SQLEXPRESS SQL Server Analysis Services (SQLENTERPRISE) MSOLAP\$SQLENTERP Apply to service with this service short name (example: eventlog):	SQL Server (SQLEXPRESS)	MSSQL\$SQLEXPRESS	
Image: SQL Server Agent (SQLENTERPRISE) SQLAgent\$SQLENTER Image: SQL Server Agent (SQLEXPRESS) SQLAgent\$SQLEXPRESS Image: SQL Server Analysis Services (SQLENTERPRISE) MSOLAP\$SQLENTERP Image: Apply to service with this service short name (example: eventlog): Image: SQL Server Analysis Service short name (example: eventlog):	SQL Server Agent (CRM)	SQLAgent\$CRM	
SQL Server Agent (SQLEXPRESS) SQLAgent\$SQLEXPRESS SQL Server Analysis Services (SQLENTERPRISE) MSOLAP\$SQLENTERP Apply to service with this service short name (example: eventlog):	SQL Server Agent (SQLENTERPRISE)	SQLAgent\$SQLENTER	
SQL Server Analysis Services (SQLENTERPRISE) MSOLAP\$SQLENTERP	SQL Server Agent (SQLEXPRESS)	SQLAgent\$SQLEXPRESS	
Apply to service with this service short name (example: eventlog):	SQL Server Analysis Services (SQLENTERPRISE)	MSOLAP\$SQLENTERP	
***************************************	Apply to service with this service short name (example: even	ntlog):	
	am more about these settings		

Repeat the steps above except in the **Customize Services Settings** Dialog, select SQL Browser under the **Apply to this service** radio button.

The rule should have the following settings:

Rule Type: **Custom**

Program: All Programs

Action: Allow the connection

Profile: Domain, Private, Public

Name: SQL Browser

You should now have 4 inbound rules: SQL Browser, SQL Express, SQL TCP 1433, SQL UDP 1434.

Now when all rules are set up, you are ready to connect to remote SQL Server.

Start the SQL Server, in the dialog window for the **Server name** enters the name of the instance that you want to connect with. From the **Authentication** drop down box, select the **SQL Server**



Authentication and for the field **Login** and the **Password** enter your credentials then click the **Connect** button and see if you can connect to the SQL server.

	SQL	Serve	r	
Server <u>t</u> ype:	Database	Engine		
Server name:	WINDOW	S-SM67H80\F4TS	ERVER	~
Authentication:	SQL Serv	er Authentication		~
Login:	sa			~
Password:	*****			
	✓ Rei	<u>m</u> embe <mark>r passwor</mark>	d	
	Connact	Cancol	Help	Ontions >>

If you are successful you will see a similar window in the Object Explorer in the Microsoft SQL Management Studio program below that shows you are are connected:



Add a Remote User to the Database

If you need to add a new remote user to access the database from ProcessView you will need to open the Microsoft SQL Management Studio program and select **Security**, then **Logins**. There you will see all the current users that are allowed to access the database. In the window below, the user "sa" is a user that was



created when first installing the SQL Server Program and provides System Administration rights. We will now create a new user that can access the database.

Object Explorer	• 4 ×
Connect - 🛱 🎽 👅 🍸 🖒 🚸	
■ WINDOWS-SM67H80\F4TSERVER (SQL Server 15.0.2070 - sa)	
🗉 💻 Databases	
🖃 📕 Security	
🖃 📁 Logins	
##MS_PolicyEventProcessingLogin##	
よ ##MS_PolicyTsqlExecutionLogin##	
BUILTIN\Users	
🔓 glenn1	
NT AUTHORITY\SYSTEM	
NT Service\MSSQL\$F4TSERVER	
NT SERVICE\SQLTELEMETRY\$F4TSERVER	
NT SERVICE\SQLWriter	
NT SERVICE\Winmgmt	
🔓 sa	
WINDOWS-SM67H80\glenn	
🗉 📕 Server Roles	
🗉 ≡ Credentials	
🗉 📕 Audits	
🗉 ≡ Server Audit Specifications	
🗉 🐖 Server Objects	
🗉 🖷 Replication	
📧 🛑 PolyBase	
🗉 📕 Management	

Right Click on Logins and select **New Login...** Your will see the following pop up window below.



🚦 Login - New				-	• X			
Select a page & General	I Script ▼ 😮 Help							
 Server Roles User Mapping Securables Status 	Login name: Windows authentication SQL Server authentication Password: Confirm password: Specify old password Old password: Enforce password policy Enforce password expire User must change password Mapped to certificate Mapped to asymmetric key Map to Credential	glenn2			S <u>e</u> arch			
Connection	Mapped Credentials	Credential	Provider		Tag			
Server: WINDOWS-SM67H80\F4TSERVEF Connection: sa W View connection properties								
Progress				[Remo <u>v</u> e			
Ready	Default <u>d</u> atabase: Default language:	test1 <default></default>		~				
				OK	Cancel			

Enter the login name, in this case it is "glenn2" and select **SQL Server authentication** and enter a user password for the new user. In the Default database field, select your database that you want to have the new user have access too. In the example above the default database selected was "test1".

Then select the **Server Roles** Page, and make sure that the checkboxes **public** and **sysadmin** below are checked:



Login Properties - glenn2		-	•	x
Select a page	I Script ▼ ? Help			
General Server Roles User Mapping Securables Status	Server role is used to grant server-wide security privileges to a user. Server roles: bulkadmin dbcreator diskadmin processadmin public securityadmin serveradmin setupadmin v sysadmin			
Connection				
Server: WINDOWS-SM67H80\F4TSERVEF Connection: glenn1				
View connection properties				
Progress				
Ready				
		ОК	Car	ncel

Then go to the **Status** page and make sure that the permission to connect to database engine is set to **Grant** and Login is **Enabled**.



Login Properties - glenn2		-		x
Select a page				
 General Server Roles User Mapping Securables Status 	Settings Permission to connect to database engine:			
Connection				
Server: WINDOWS-SM67H80\F4TSERVER Connection: sa If <u>View connection properties</u>				
Progress				
Ready				
		ОК	Ca	ancel

Hit OK, and you should have a new user added to the database for remote access.



Object Explorer 🔹 🖣 🗙
Connect - ∓ ×∓ = ⊤ ♂ -∿-
■
🖭 🕮 Databases
🖃 🛲 Security
🖃 📕 Logins
##MS_PolicyEventProcessingLogin##
k ##MS_PolicyTsqlExecutionLogin##
BUILTIN\Users
🔓 glenn1
glenn2
NT AUTHORITY\SYSTEM
NT Service\MSSQL\$F4TSERVER
NT SERVICE\SQLTELEMETRY\$F4TSERVER
NT SERVICE\SQLWriter
NT SERVICE\Winmgmt
🔓 sa
WINDOWS-SM67H80\glenn
🗉 🐖 Server Roles
🗉 💻 Credentials
🗉 📕 Audits
🗉 ≡ Server Audit Specifications
🗉 🔳 Server Objects
표 🛑 Replication
🗉 🖷 PolyBase
🗉 📁 Management

Command Line Arguments

ProcessView supports a few command line arguments when starting up the software. By using command line arguments with ProcessView an external software application can invoke ProcessView and make changes to Static Setpoints, change control modes (F4T and PM only), and start or stop a profile. If a command line argument is included when starting ProcessView, ProcessView will start then execute the command and then close. If there is an error when trying to execute the command, ProcessView will notify the user with a pop-up message to let the user know there was an error condition while trying to execute the command. If no pop-up messages are present then it can be assumed the command was executed correctly.



The following Command Line Argument commands are supported:

Change Static Setpoint:

F4 Controls: f4ssX Y Z, where X is the row number of the controller shown on the Network Overview Screen (see below). Y is the control loop number that is changed, and Z is the new setpoint value. Spaces are delimiters between arguments.

ProcessView	ProcessView								
File Settings Historical Trend Login Security Scanner Setup Logout Off-Line Profile Editor Help									
Network View) F4 Name 1 F4T Name 2 F4T Name 3 PM Name 4 F4 Name 5									
Network Address	Total Time Remaining	Step Time Remaining	Step Number	Current Step	Profile Status	Active Profile	Alarm State	F4T Name	
Slave #: 3	N/A	00:00:00	0	Unknown	Terminated	Profile Not Loaded	Safe	F4 Name 1	•
192.168.0.200	00:02:00	00:00:00	0	Ramp Time	Idle	Test1	Safe	F4T Name 2	
192.168.0.222	00:17:00	00:00:00	0	End	Terminated	Glenn3	Safe	F4T Name 3	
Slave #: 1	N/A	00:00:00	0	End	Off		Start/Block	PM Name 4	
Slave #: 2	N/A	00:00:00	0	Unknown	Terminated	Profile Not Loaded	Safe	F4 Name 5	
	Row Number	a 							

F4T Controls: ftssX Y Z

PM Controls: pmssX Y Z

Example Command Line usage:

Change the static setpoint for control loop 1 for the F4T on row 4 to 125.7.

Processview.exe ftss4 1 125.7

Start Profile:

F4 Controls: f4spX Y, where X is the row number of the controller shown on the Network Overview Screen. Y is the profile number that is to be started. Spaces are delimiters between arguments.

F4T Controls: ftspX Y

PM Controls: pmspX Y

Example Command Line usage:



Start Profile number 5 for the PM that is on row 2.

Processview.exe pmsp2 5

Stop/End Profile:

F4 Controls: f4epX, where X is the row number of the controller shown on the Network Overview Screen.

F4T Controls: ftepX

PM Controls: pmepX

Example Command Line usage:

Stop the currently running profile for an F4 on row 1.

Processview.exe f4ep1

Change Control Mode (F4T and PM controls only):

F4T Controls: ftcmX Y Z where X is the row number of the controller shown on the Network Overview Screen. Y is the control loop number that is changed, and Z is the new Control Mode.

Control Mode Codes: Z = 0, control loop Off. Z = 1, control loop set to Auto. Z=2, control loop set to Manual

Spaces are delimiters between arguments.

PM Controls: pmcmX Y Z

Example Command Line usage:

Set the Control Mode for control loop 2 to Automatic for the F4T on row 3 Processview.exe ftcm3 2 1

ProcessView Remote PC Overview

The ProcessView Remote PC feature enables a user to remotely control and read data from a remote PC. The remote PC can be connected to the PC running ProcessView thru a local area network or thru the internet via an MQTT Cloud Service.



ProcessView Server or an MQTT Cloud Service is an MQTT server/broker and a clientbased messaging platform designed for the fast, efficient and reliable movement of data to and from connected IoT devices. It uses the MQTT protocol for instant, bi-directional push of data between your Watlow F4T/F4/PM controllers and a ProcessView Client.

Efficient Network Utilization:

Unlike HTTP (web servers or VNC servers), MQTT is based on a publish-subscribe architecture so the total network traffic is reduced since there is no client polling. MQTT message size is also significantly smaller than HTTP so the amount of data passing through the network is reduced. Real-time updates are very fast when compared with older technologies such as web servers or VNC servers.

Reliable Data Delivery:

Data delivery over unreliable networks can be a challenge. ProcessView Server and MQTT Cloud Services implements all MQTT Quality of Service levels, including at most once, at least once and exactly once delivery.

Enterprise-Grade Security:

ProcessView Server is designed to secure the IoT data from Watlow F4T/F4/PM controllers to enterprise systems or remote PC's. Support for authentication using username/password required for both the Server side and Client side to insure a secure connection.

Below shows 3 chambers communicating with the ProcessView software. The ProcessView software is communicating with the ProcessView Server software which can run on the same PC as ProcessView or on a remote Server. Each remote PC is running the ProcessView Client software and is communicating to the ProcessView Server.



Industry 4.0 - Internet of Things Technology **Multiple Network Users Supported!** Remote PC Remote PC Client Client All Data ProcessView Server Remote PC Remote PC All Data All Data Client Client Data 2 Data 1 Data 3 ×., Chamber 3 Chamber 1 Chamber 2



Industry 4.0 - Internet of Things



ProcessView Remote PC Client



Configuration Help Exit					
Naturals Cantas II-re	Process Data		Analog Inputs		
Select To Change:	Product Temp PV: 7.0°C Heat PWR 91.3 %	Over Temp 1 PV: 22.0°C	Air Temp	21.67	°C
Chamber 1 v	Product Temp SP: 20.0°C Cool PWR 0.0%	Over Temp 1	N/A	Not Used	N/A
Active Controller:		Status: High Limit	N/A	Not Used	N/A
Chamber 1			N/A	Not Used	N/A
			Humidity	32.00	PRC
Profile List Stored In Controller Select to Change:	Humidity PV: 32.0% RH Heat PWR 0.0 %		N/A	Not Used	N/A
1:TestabcDU	Humidity SP: 45.0% RH Cool PWR 61.2 %		N/A	Not Used	N/A
			N/A	Not Used	N/A
Active Profile: 1:TestabcDU			N/A	Not Used	N/A
in Stabebo			N/A	Not Used	N/A
			N/A	Not Used	N/A
Profile information	Event Outputs	Batch Information	N/A	Not Used	N/A
Start Prome status: Kunning	RH ENABLE OFF DRY AIR PURGE OFF	Operator ID: N/A	Slot 4 Input 1	22.04	°C
Step #: 1	BOOST COOL OFF GN2 PURGE OFF	Unload Operator ID: N/A	N/A	Not Used	N/A
Step Type: Ramp Time		Product ID 1: N/A	N/A	Not Used	N/A
Paura Stan Timer 00:00:38		Product ID 2: N/A	N/A	Not Used	N/A
	DEHUMID AIR OFF	Batch ID: N/A	Product Temp	21.62	PRC
Total Time: 04:03:			N/A	Not Used	N/A
			N/A	Not Used	N/A
PID Control Modes			N/A	Not Used	N/A
Current Control			N/A	Not Used	N/A
Mode PID 1: Auto Mode PID 3: Auto			N/A	Not Used	N/A
Auto ~ Auto ~		Connection Opened	N/A	Not Used	N/A
Current Control Current Control	Refresh Connect	Connected to Server Client ID#: 19045	N/A	Not Used	N/A
Mode PID 2: Auto Mode PID 4: Auto	Data to Server	ProcessView Client On-line			
Auto 🗸 🗸		ProcessView Client Software Version:	1.10		

The ProcessView Remote PC Client software is used as a client which subscribes and publishes messages to a MQTT Server/Broker to get data from the client running on ProcessView main software. The type of communication used by the Client adheres to the MQTT protocol which is an OASIS standard messaging protocol for the Internet of Things (IoT). When the client is connected to a Server, it is possible to do the following functions remotely from a PC:

- Start a stored Profile in a controller
- Stop a Profile currently running in a controller
- Pause a Profile currently running in a controller
- Resume a Profile that is currently paused in a controller
- Change the active profile in a controller to a stored profile in the controller
- Change the Control Mode for each PID control loop in a controller


- View the current Profile Status, Profile Step, Profile Step Type, Profile Step Time and Profile Total Time remaining
- View the Alarm Status for Alarms 1 and 2 internal to the controller if used
- View the current process values for the first 2 PID loops
- View the current setpoint values for the first 2 PID loop
- View the current heat and cool power percentages for all PID loops
- View the status of the integrated Limit Controller and process value
- View the status of the Event Outputs
- View the above parameters for each controller on the network interfaced with ProcessView

In order for the client to read data from the ProcessView client it must be connected to both the Server and the ProcessView Client. In the above screenshot in the lower right hand corner is the connection status, which shows a connection has been opened and it is connected to a Server and the ProcessView Client is also connected to the Server. This feature is only present with the ProcessView Server software running. If you are using a cloud based server on the Internet, you will not be able to get status if the ProcessView Client is connected to the server.

Client Configuration:

The window form below shows the window that is opened after selecting the "Configuration" menu from the main Client window:



ient Configuration			3 <u>7</u>	
	Username:	johndoe		
Enable ProcessView Client	Password:	******		
Server Port Used:		-		
1388				
Destron/Commenting Address on ID Address				
Broker/Server URL Address or IP Address: 10.0.0.45				
Broker/Server URL Address or IP Address: 10.0.0.45 Example MQTT Cloud Server URL Address: gac99dfc.us-east-1.emqx.cloud				
Broker/Server URL Address or IP Address: 10.0.0.45 Example MQTT Cloud Server URL Address: gac99dfc.us-east-1.emqx.cloud Example Server IP Address: 10.0.0.45				

Configuring for Server Software running on a local network:

The "Port" text box is the port to be used on the PC running the Server software. If there are connected clients on a network that will be accessing the server, you will need to enable those TCP/IP ports in the Windows Security setup advanced settings on the PC that is running the Server Software before any connected Client can access the server. For secure communications, a username and password are required and will be also required when setting up connected clients. The password and username must be the same for both the server and clients. In the screenshot above the IP Address for the local server is 10.0.0.45 in the Server URL text box. The TCP/IP port being used by the Server is 707.

URL for running a Server on a Local Network:

When running the Server on a local network the URL text field should have contain the PC's IP address that the Server software is running on. In the screenshot above the PC running the Server software is 10.0.0.45. Any clients used must also use the IP address of the PC that is running the Server software.

URL for running a Server on a MQTT Cloud Service:

When interfacing with a Cloud Service over the Internet, the Server URL will be provided by the MQTT Cloud Server being used. You will need to refer to the documentation for the service you have chosen. The port number will also be dependent on the Cloud Service being used and you will need that information from the service. The benefits of using a



MQTT Cloud Server is that you can access all the data from the client over the internet and can be remotely located offsite from where the ProcessView PC is located.

Software Registration

To register the software and be able to access all the features you will need to enter a registration key that you can get from your vendor that sold you the Client Software. The registration key is tied to the PC that the client software is running on, so make sure when you activate the registration you do it on the PC that will be used in your application. The registration form can be found under the "Help" menu and "Registration" menu.



ProcessView Remote PC Server

The ProcessView Remote PC Server software is used as a server running to facilitate messages sent and received from connected ProcessView Clients. The type of communication used by the Server adheres to the MQTT protocol which is an OASIS standard messaging protocol for the Internet of Things (IoT). The server can be loaded on the same PC that is running ProcessView or it can be run on a PC that is used as a Server separate from the PC that ProcessView is running on. The main screen above has two



buttons that are used to start and stop the server running. All connected clients with Client ID numbers are shown in the "Connected Clients" list box. All incoming Client messages are displayed with a time stamp in the text box labeled "Incoming Client Messages". This can be used for debugging and also shows the type of message that was received from a client. The message log can also be saved to a text file using the "Save Message Log" button for future reference or debugging. After the Server is started, you should see the Connection status as "Server Running" as show above.

Server Configuration:

The window form below shows the window that is opened after selecting the "Configuration" menu from the main server window:

Server Configuration			3 <u>9</u>	×
TCP/IP Port: 1883		Username:	johndoe]
		Password:	fish1234	
This PC's IP Address: 10.0.0.45				
	Return and Save			

When initially starting the Server software a prompt pops up to setup the Server configuration before the Server can be used. The "Port" text box is the port to be used on the PC running the Server software. If there are connected clients on a network that will be accessing the server, you will need to enable those TCP/IP ports in the Windows Security setup advanced settings on the PC that is running the Server Software before any connected Client can access the server. For secure communications, a username and password are required and will be also required when setting up connected clients. The password and username must be the same for both the server and clients.

URL for running a Server on a Local Network:



When running the Server on a local network the URL text field should have contain the PC's IP address that the Server software is running on. In the screenshot above the PC running the Server software is 10.0.0.45. Any clients used must also use the IP address of the PC that is running the Server software.

Group Control

The "Group Control" feature is useful when you have a group of controllers that are all running the same product or batch in a profile run. You can scan batch parameters or enter them manually one time for all the controllers specified in the group. You can also start and stop the profiles for the entire group at the same time in the Group Scanner/User Input window.

You can use Setup Group Control window to choose which controllers on the network are in a group when a batch is run. You can add or remove controllers to make a "Group" that can then have the same batch parameters loaded in all the controllers in the group on the network. You can assign which batch labels will be used for scanning or entering manually that will all be the same for each controller in the group.



Setup Group Control			_	×
Available Controllers: F4T Chamber 1	Add Remove	Controller Group: F4T Chamber 1	Assign to Group: Load Operator ID Unload Operator ID Product 1 ID Product 2 ID Batch ID Load Profile 	
		Exit and Save		

Group Scanner\User Input:

When scanning or entering manually batch parameters for the controller group you need to select the "Group Scanner\User Input menu and you will see the window below. Before using this window you need to initially select one of the controllers that is in the group and go to the "Scanner Setup" window and make sure the "Copy to Group Control Batch Parameters" check box is checked then save and exit. This will copy the batch parameters which will be saved and used for all Group batch scans. From this window you can also start and stop profiles simultaneously for all the controllers in the group and you can load the same profile that is to be loaded and started for all the controllers in the group.





ProcessView Web Server

ProcessView has a built in Web Server that can be used to view Profile status and Process data for each controller on the ProcessView network. The Web Pages are read only and are intended to allow users to get an update on what the status is for each controller on the network that is running a profile. The web pages are read only so that no users or hackers have the ability to make changes to the controllers that are connected to the PC that is running ProcessView for security reasons.

As long as the PC that is running ProcessView is connected to a network, all computers on that network can access the Web Server page. If ports are opened to the internet thru a router and firewall then the Web Server can be accessed on the Internet. This allows a user to access the Profile Status of all the controllers from anywhere in the world if the user has Internet access. Mobile devices such as smart phones can also access the Web Page as long as they are connected on the same network.



To access the Web Server Page, the remote user must put in the IP address that is assigned the PC that is running the ProcessView software. The remote PC must be on the same LAN as the computer that is running ProcessView. For example, if the PC that is running ProcessView IP's address is 192.168.0.1, then any computer that is connected to the LAN that has an IP address of 192.168.0.XXX can access the served Web Page. When accessing the Web Server, the IP Address and the Port number must be entered into the Web Browsers address field. For example, if the IP Address of the PC running ProcessView is 192.168.0.200, then to see the Web Server page, the connecting PC or smart phone would need to have the IP Address 192.168.0.200:50001 entered in the browsers address bar as shown below:

If the user would like access to the served Web Page on the Internet then any routers must have port 50001 (which is the ProcessView default Web Server Port) forwarded to the ProcessView PC's IP address. The IPS provider must also have that port open and not blocked. Consult your IT department if you are unsure how to do this. In order to start the Web Server, you must first enable the Web Server from the main menu item "Web Server". If a user would like to enable the Web Server or use a different port for the Web Server then that can be changed in the Web Server window form shown below:



To see the web page that is served after enabling the Web Server, you can enter "localhost:50001" in the browser IP address bar on the PC that is running ProcessView to see what will be sent out on the network.



ome: Profile Status	Process Dat	a				
rocessVi	ew We	eb Ser	ver			
	1-	Netwo	ork Profile S	tatus		
Controller Name	Active Profile	Profile Status	Current Step	Step Number	Step Time Remaining	Total Time Remaining
F4 Chamber 1	DEMO 1	Running	Ramp Time	1	18:51:16	N/A
F4T Chamber 2	Demo 2	Running	Ramp Time	1	22:07:19	70:09:
F4T Chamber 3	Demo 3	Running	Soak	2	01:25:10	33:29:
PM Oven 4	Profile 1	Running	Ramp Time	1	58:2 <mark>4:3</mark> 6	N/A
E4 Chamber 4	DEMO 4	Running	Ramp Time	5	18:15:51	N/A

After entering the IP Address above, you should see the home page for the Web Server as shown below:

		Comment					
roce	ssview wei	o Server					
			Process Da	ta			
Controller Name	Control Loop 1 Current Setpoint	Control Loop 1 Target Setpoint	Control Loop 1 Process Value	Control Loop 2 Current Setpoint	Control Loop 2 Target Setpoint	Control Loop 2 Process Value	Monito Process Value
F4 Chamber 1	Temperature Current SP=42.5°C	Temperature Profile Target SP=35.0°C	Temperature=42.4°C	Humidity Current SP=32.0% RH	Humidity Profile Target SP=54.0% RH	Humidity=32.0% RH	
F4T Chamber 2	Air Temp Current SP=81.3*C	Air Temp Profile Target SP=89.0°C	Air Temp≃0.0°C	Humidity Current SP=73.0% RH	Humidity Profile Target SP=50.0% RH	Humidity=100.0% RH	
F4T Chamber 3	Temperature Current SP=80.0*C	Temperature Profile Target SP=80.0*C	Temperature=63.4°C				
PM Oven 4	Temperature Current SP=92.7*F	Temperature Profile Target SP=100.0*F	Temperature=92.8*F				
F4 Chamber 4	Chamber Temp Current SP=100.0°F	Chamber Temp Profile Target SP=75.0°F	Chamber Temp=100.0*F	Humidity Current SP=75.0% RH	Humidity Profile Target SP=75.0% RH	Humidity=0.0% RH	

Using a Digi Port Server with an F4 Controller



ProcessView supports using a Digi Port Server device to interface to F4 controllers on an Ethernet network. The PC running ProcessView communicates to the Digi Port Server via Ethernet and the port server converts Modbus TCP/IP to Modbus RTU via RS-232 (single controller) or RS-485 half duplex (multiple controllers on a serial network). Below are screenshots from the Digi Webserver which shows how the Digi Port Server must be set up to work with ProcessView and an F4 controller.

The first thing you need to do is configure the DIP switches for RS-485 half duplex and wire up the RJ-45 Ethernet port from the Digi Port Server to the F4 Controller RS-485 terminals. The wiring is as follows:

(Data +) is pin 5 on the RJ-45 (usually a Blue/White wire), it should be connected to the Rx+/Tx+ terminal of the F4 controller (terminal 12)

(Data -) is pin 1 on the RJ-45 (usually a Orange/White wire), it should be connected to the Rx-/Tx-terminal of the F4 controller (terminal 13)

(SGND) is pin 7 on the RJ-45 (usually a Brown/White wire), it should be connected to the GND terminal of the F4 controller (terminal 7)

If you have several F4 controllers connected on a RS-485 network you might need to connect a 120-ohm termination resistor across the (Data +) and (Data -) terminal of the last controller physically connected on the network if noise issues seem to be present.





The next thing you have to do is setup the IP address for the Digi PortServer (refer to Digi Port documentation on how to do this, it usually involves using an arp command in Windows. Below is a process to do this from the Digi Port Server manual:



An IP a	address can be configured by manually updati	ing a server's ARP table and then pinging the Dig
The AF and ga This p 1.	RP-Ping command assigns the IP address you tteway addresses. It is necessary to change t rocedure assumes that your Digi device is cor Record the MAC address of the Digi device. T unit.	designate but also assigns default subnet mask he subnet mask and gateway addresses. inected to the Ethernet network. 'he MAC address is on the label side (bottom) of t
		- <u></u>
Digi One Famil	y and PortServer TS Family	1
Digi One Famil Configure the	y and PortServer TS Family IP address	1 Configure an IP Address using DHCP and RAM
Digi One Famil Configure the 3.	y and PortServer TS Family IP address Manually update the server's ARP table usin you want assigned to the Digi device. The fol Windows NT 4.0 system: arp =s 191.168.2.2 00-00-9d-22-	Configure an IP Address using DHCP and RAM g the Digi device's MAC address and the IP addre llowing is an example of how this is done on a
Digi One Famil Configure the 3. 4.	y and PortServer TS Family P address Manually update the server's ARP table usin you want assigned to the Digi device. The fol Windows NT 4.0 system: arp -s 191.168.2.2 00-00-9d-22- Ping the Digi device using the IP address jus ping 101.168.2.2	Configure an IP Address using DHCP and RAF g the Digi device's MAC address and the IP addre llowing is an example of how this is done on a 23–60 t assigned. For example:
Digi One Famili Configure the 3. 4.	y and PortServer TS Family IP address Manually update the server's ARP table usin you want assigned to the Digi device. The fol Windows NT 4.0 system: arp -s 191.168.2.2 00-00-9d-22- Ping the Digi device using the IP address jus ping 191.168.2.2 The ping will probably time out before there	Configure an IP Address using DHCP and RAM g the Digi device's MAC address and the IP addre llowing is an example of how this is done on a 23–60 t assigned. For example: is a response from the Digi device.
Digi One Famil Configure the 3. 4.	y and PortServer TS Family P address Manually update the server's ARP table usin you want assigned to the Digi device. The fol Windows NT 4.0 system: arp -s 191.168.2.2 00-00-9d-22- Ping the Digi device using the IP address jus ping 191.168.2.2 The ping will probably time out before there Wait 30 seconds and then ping the Digi device	Configure an IP Address using DHCP and RAI g the Digi device's MAC address and the IP addre llowing is an example of how this is done on a 23-60 t assigned. For example: is a response from the Digi device. e again.

Then you need to create an "Industrial Automation" profile for the serial port in the Port Server. Below are screen shots from the Web Server of the Port Server which allows you to configure the Port Server for Modbus RS-485 RTU communications.



	0	
lome	Industrial Automation	
Configuration	- Social Slavor	
Network	Port Protocol Action	
Serial Port	1 Medbur/DTU Depende	
Security	1 Moubusykio Kentove	
System	Serial Macters	
pplications	Votrugel Masters	
opp	Network masters	
ndustrial Automation	Destination rables (Packet Roburg)	
anagement		
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Iministration		
Backup/Restore		
Jpdate Firmware		
actory Default Settings		
Device Information		
Repoor		
gout		
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		8	He
Home	Serial Port Configuration		
Configuration Network	▼ Port Profile		
Serial Port Users	Current Port Profile: Industrial Automation Change Profile The Industrial Automation (IA) Profile allows you to communicate and network-enable various IA devices and PLCs		
Security	Profile Settings		
Applications PPP	Current Protocol: Modbus/RTU Serial Slave Change Protocol My PLC or other IA device is connected to this serial port and needs to communicate with another PLC, device, or system on the	ne <mark>tw</mark> ork.	
Industrial Automation	▼ Modbus RTU Settings		
Management Serial Ports Connections Power	Forward incoming network requests using the following unit addresses 0 to 255		
Administration Backup/Restore Update Firmware Factory Default Settings Device Information	 Override the Modbus unit address on incoming requests with specified unit address Image: Specified Comparison (XMIT) handling 		
Reboot	Ignore incoming broadcast requests using unit address 0		
Logout	 Send incoming broadcast requests to this serial device Change the Modbus unit address to 1 before sending 		
	Enable error responses when unable to reach destination or requests time out		
	Apply		
	Modbus/TCP Network Settings [Global]		
	Advanced Protocol Settings		
	Basic Serial Settings		
	Port Security Settings		
	Advanced Serial Settings		
	Restore Eastery Corial Part Sattings		

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	⊳ 0	н
Home	Serial Port Configuration	
Configuration	▼ Port Profile	
Network Serial Port	Current Port Profile: Industrial Automation Change Profile	
Users	The Industrial Automation (IA) Profile allows you to communicate and network-enable various IA devices and PLCs	
Security	Profile Settings	
System	Current Protocol: Modhus/PTII Serial Slave. Change Protocol	
Applications	My PLC or other IA device is connected to this serial port and needs to communicate with another PLC, device, or system on the network.	
Industrial Automation	► Modbus RTU Settings	
lanagement	✓ Modbus/TCP Network Settings [Global]	
Connections	Note: The following settings are globally configured and affect all serial ports. They are provided here for convenience.	
Power	Accept incoming Modbus/TCP connections	
dministration	TCP port: 502	
Backup/Restore		
Update Firmware	 Allow and process all incoming requests 	
Device Information	Allow and process only requests	
Reboot	 Allow and process only read or write requests 	
ogout	Modbus/TCP Protocol Settings:	
	Ignore incoming broadcast requests using unit address 0	
	Send incoming broadcast requests to this serial device	
	Change the Modbus unit address to 1 before sending	
	Enable error responses when requests time out	
	Modbus/TCP Protocol Timeouts:	
	Character timeout: 100 ms	
	Message timeout: 2500 ms	
	Enable idle timequite for idle connections	
	Idle timeous for the correctoris	
	Apply	
	Advanced Protocol Settings	
	Basic Serial Settings	
	► Port Security Settings	
	Advanced Serial Settings	



Audit T	rail Viewer									
	Current Audit Trail File: C:\F	ProgramData	\ProcessView	Audit Trails\April 23 2020 Au	dit Trail_csv.er	ncrypt				
	Time Stamp	User	Catagory	Description	Old Value	New Value	Comments	F4T Name	Revision	
•	4/23/2020 5:00:03 PM -04:00	Usemame	System	System Manager Logged in						
				Return						

Audit Trail

When the audit trail is enabled, the audit trail file is written to in a secure encrypted format which can be viewed using the audit trail viewer. The audit trail is created each day and is assigned a file name with the date in the file name. The Audit Trail Viewer is used to see the current active audit trail events for the current software session. If you want to see all the events for a given day then you need to use the "Export Audit Trail" window from that menu item.



Audit Trail Viewer						-	• ×
Current Audit Trail File:	No File Loaded						
Time Stamp		User	Catagory Descrip	tion Old Value	New Value	Comments	F4T Name
<		ш					>
Search String:	Course Audit	1	Load	Export		Drint	
	Trail File	Return	Audit Trai	CSV File	e Au	dit Trail	
					-		

Below is the window shown from selecting the "Export Audit Trail" sub menu under Quality Control. From this window you can load a whole days' worth of Audit Trail events. You can also export them to an unprotected CSV file for Auditors to inspect or print them for a hard copy. You can also search the audit trail for specific search strings, like a date, username or event type.

Digital Signature

The "Digital Signature" pop up window appears when you select the digital sensor button on the Data Viewer Window. This allows a user to digitally sign a data log file and after the data log file is signed it is converted to a signed XML file. The XML Signature used (also called *XMLDSig*, *XML-DSig*, *XML-Sig*) defines an <u>XML</u> syntax for <u>digital signatures</u> and is defined in the <u>W3C recommendation XML</u> <u>Signature Syntax and Processing</u>. The user can accept or reject the changes and can add a comment for the meaning of change after the user has logged in with their credentials for



authentication. Multiple users can sign as well and each time a user signs the logged file it will be appended to the file. This method insures the data log file is tamper proof.

Electronic Signature 1	2
Accept changes	
O Reject changes	
Meaning of change:	
Password:	
Sign	Cancel

QA Reports

You can use the QA Reports feature to create reports that are generated after a profile has run successfully or aborts for some reason. In order to configure a report, you must first select the "Configure Report" menu from the "QA Report" menu. After selecting you will see a window like to the one below:



🖳 Edit Report 3	1				- 🗆 X			
Miscella	aneous Title 1			Bana				
Miscella	aneous Title 2			Repu	Automatically Filled			
Miscella	aneous Title 3			Res	ults: PASS - Automatically Filled			
Miscella	aneous Title 4							
Miscell	aneous Title 5							
Ganaral Inform								
General Inform	lation							
Recipe name	e: Automatically Filled	Load Operator:	Automatically Filled	Parameter 1	Automatically Filled			
Recipe Modi	ified: Automatically Filled	Unload Operator:	Automatically Filled	Parameter 2	Automatically Filled			
Data File:	Automatically Filled	Initial PV 1	Automatically Filled	Parameter 3	Automatically Filled			
Run Start:	Automatically Filled	Initial PV 2	Automatically Filled	Parameter 4	Automatically Filled			
Run End:	Automatically Filled	Parameter 0:	Automatically Filled	Parameter 5	Automatically Filled			
User Notes:	Automatically Filled							
Parameters A		Parameters B						
Parameter A	1: Automatically Filled	Parameter B1:	Automatically Filled	Leave at	field blank if you do not want it to show			
Parameter A2	2: Automatically Filled	Parameter B2:	Automatically Filled	up on the be filled v	e report. Automatically Filled fields will with by the software after a Profile Run.			
Parameter A	Automatically Filled	Parameter B3:	Automatically Filled	User Fille before th	d fields need to be filled by the user e Profile Run unless they are always the			
Parameter A	4: Automatically Filled	Parameter B4:	Automatically Filled	same for	each Profile Run.			
Parameter A	5: Automatically Filled	Parameter B5:	Automatically Filled	If a Profile	e is run and completes all steps in the Profile			
Parameter A	6: Automatically Filled	Parameter B6:	Automatically Filled		ate "FAIL". If a profile is running then the results			
Parameter A	7: Automatically Filled	Parameter B7:	Automatically Filled	Heid Will I	lucate in Photness .			
Parameter A	8: Automatically Filled	Parameter B8:	Automatically Filled	Note: When ch	ecked, if a process value is out of the tolerance.			
Darameter A	Automatically Filled	Parameter B9:	Automatically Filled	band spe	cified in the Graph Setup Window, while running			
Parameter A	10: Automatically Filled	Parameter B10	Automatically Filled	output ca	an be used as a "enable flag" on each step to			
Darameter A	11. Automatically Filled	Parameter B11:	Automatically Filled		when this condition is active.			
Parameter A	Automatically Filled	Deservative B12	Automotivelle Filled	U Use	Tolerances as Additional Critera for PASS/PAIL			
Parameter A1	Automatically Filled	Parameter B12	Automatically Filled		Smatically Save FDF			
Parameters C		Parameters D		Inclu Grav	ude Profile Summary Data and ob of Data Logged in			
Parameter C	1: Automatically Filled	Parameter D1:	1: Automatically Filled		ort Printout or PDF File			
Parameter C	2: Automatically Filled	Parameter D2:	Automatically Filled	Demost File L	43			
Parameter C	3: Automatically Filled	Parameter D3:	Automatically Filled	Report File Lo	ocation:			
Parameter C4	4: Automatically Filled	Parameter D4:	Automatically Filled	C:\ProgramD	ataterocessviewikeports			
Parameter C	5: Automatically Filled	Parameter D5:	Automatically Filled	Change	PDF			
Parameter Co	5: Automatically Filled	Parameter D6:	Automatically Filled	File Loca	tion			
Parameter C	7: Automatically Filled	Parameter D7:	Automatically Filled					
Parameter C	8: Automatically Filled	Parameter D8:	Automatically Filled	User Notes:	User Filled			
Parameter C	Automatically Filled	Parameter D9:	Automatically Filled					
Parameter C	10: Automatically Filled	Parameter D10	Automatically Filled					
Parameter C	11: Automatically Filled	Parameter D11:	Automatically Filled		Save and			
Parameter C	12: Automatically Filled	Parameter D12:	Automatically Filled		Exit			

To customize the fields shown in the actual report window, you can change the text in the fields that are designed to be filled in by the operator or user before or after a batch or profile is run. If you do not want certain text field to show up on the report then you can delete all the text in the fields and it will not be shown on the actual report. For example if you don't want any of the information for the "Parameter A1" to show up on the report then you simply just need to delete all the text fields in the Parameter A1 section and it will not be shown when the report is displayed after a profile run. All the input fields that will be automatically field by the software at the end of a profile run except the "User Notes" field. The User Notes field can be filed out by the user after the profile as



been run for adding additional information about the profile or batch run. There are several checkboxes on the configuration window that are used for the following functions:

Use Tolerances as Additional Criteria for PASS/FAIL

This feature is used to determine if a process value is within a user specified tolerance band which is specified or setup in the Graph Setup Window. The tolerance values that are set in the Graph Setup Window +/- values not percentages. If the process value while running in a profile exceeds the higher tolerance band or is below the lower tolerance band then the QA report will indicate a "FAIL" condition, otherwise it will be a pass condition. If you want to only measure the tolerances on a specific step in the profile then you can use an event output to trigger when the tolerance conditions are checked. When an event specified is set to "ON" during a profile program then the software will check the process values against the tolerance bands. This event used can be setup in the Data Log Setup window as shown below which is setup for when Event 3 output is set to "ON":

Setup Data Logging 1		Ģ	
Data To Log Log File Name/Location S Units 5.0 Sec Login User Name Active Profile Profile Data Part Temp Current SP Purt I Target SP PV 1 Target SP Step Number Step Type Step Type Profile Status	Rart/Stop Automation Part Temp Setpoint Y Air Temp Part Temp Good PWR Humidity Setpoint Y Humidity Setpoint Y Humidity Cool PWR	Over Temp 1 Data Over Temp 1 Status Over Temp 1 Over Temp 1 Over Temp 1 Dover Temp 1 Low SP	Batch Info Analog Inputs Load Stot 1 Input 1 Operator ID Stot 1 Input 1 Unload Operator ID Product ID 1 Stot 2 Input 1 Product ID 2 Batch ID Batch ID Tolerance 1 Low Tolerance 1 Uorearce 2 Stot 4 Limit 1 Low Stot 5 Input 1 Event Output Data Stot 5 Input 1 Event 3 V
		Save and Exit	

Include Profile Summary Data and Graph of Data Logged in Report Printout or PDF File Check Box

When checked the summary data which is logged at the end of the data log will be included in the QA report. Maximum PV, Step Std. Error, etc. which are recorded during the profile run can be saved in the QA



report if this checkbox is checked. A graph of the data that was logged will be included at the end of the report as well.

Automatically Save PDF file Check Box

If checked then after a profile is run, a PDF file will be generated and saved at the location specified by the user automatically.

All the fields that not greyed out can be edited to whatever you would like your report to look like. The Report Titles, General Information and Parameter fields can be changed and that will be saved when the report is generated after a profile has run or has aborted for some reason. If you erase an editable field then on the actual report it will not show up or will be blank. After a profile is run all the fields that are marked "Automatically Filled" will be filled by ProcessView and all the fields that are marked "User Filled" (User Notes) can be filled out after a profile is run for special circumstances.

Below is an example report that was run:

Report 1										
Control Sys	tem				R	eport Time:	Tuesda	ay, August 22, 2	2023	
ACT							Result	s: PASS		
Exceptions	Report	- All Parts								
General Inform	ation									
Recipe name: 1:Testabc			Load Operator:	Glenn						
Recipe Modified: No Change Data File: 2023-08-22_20-13-52_F4T_Testabc.csv Run Start: 08/22/2023 20:13:53			Unload Operator:	Joe						
		bc.csv	Initial Product Temp:	24°C						
Run Start: 08/22/2023 20:13:53 Run End: 08/22/2023 20:14:39			Batch Number:	32 %RH						
Kun En	u: 06/22	2/2023 20:14:39			baten Namber.	ABCD				
Batch Informati	on									
Shop Order #1:	1234	Shop Order #4:	1459							
Part #:	12A	Part #:	13B							
Material:	SS 304	Material:	304 SS							
Qty:	4	Qty:	5							
Shop Order #2:	4596	Shop Order #5:	56934							
Part #:	13B	Part #:	67Y							
Material:	304 SS	Material:	304 SS							
Qty:	7	Qty:	4							
Shop Order #3:	430389	Shop Order #6:	1324							
Part #:	45S	Part #:	11B							
Material:	SS 304	Material:	304 SS							
Qty:	2	Qty:	6							
Qty:	2	Qty:	0							
					Exit			Print	Save As	
									PDF	



Digital Signatures

You can add a digital signature after a report has been completed by selecting the Add Digital Signature button. That will bring up a popup window that the user will need to login to the system using their username and password and can accept or decline the report. In order to use this feature, you must enable Digital Signatures in the Security window under the System tab.

The information is then printed at the bottom of the report as shown below:



Diagnostics

The diagnostics window will provide information about the controller's model number, serial number, date of manufacture and current software revisions. For F4T's additional information about the Profile Block PV inputs is also provided so you can verify that PV1 and PV2 are connected internally correctly in the F4T controller.



🖳 Diagnosti	cs		-		x				
F4T Base Model Number: F4T1M5FAA1CCAAA Serial Number: 12008 Date of Manufacture: 18291 (YYDDD) Software Revision: 04:05:0007									
-Profile Bloc	k PV Input Inform	nation							
-Profile Bloc PV Number	k PV Input Inform	nation PV Input	t Type	PV	Units				
Profile Bloc PV Number PV 1	k PV Input Inform PV Source Slot 5 Input 1	nation PV Input Analog I	t Type nput	PV U °C	Units				
Profile Bloc PV Number PV 1 PV 2	k PV Input Infor PV Source Slot 5 Input 1 Slot 2 Input 1	nation PV Input Analog I Analog I	t Type nput nput	PV (°C °C	Jnits				
Profile Bloc PV Number PV 1 PV 2 PV 3	k PV Input Infor PV Source Slot 5 Input 1 Slot 2 Input 1 Slot 2 Input 1	nation PV Input Analog I Analog I None	t Type nput nput	PV U °C No	Jnits ne				

Open Loop Detect Alarm



Open Loop Detect Alarm 1							-			
PV 1 Outer LP Cascade Loop	-PV 2 Oute	r LP Cascade Loop								
Open Loop Det	tect Alarm E	nable	Open Loop Detect Alarm Enable							
Enable PC Audible Alarm	n		🗌 En	able PC Audible Alar	m					
Open Loop Detect Time:	240 SEC		Open	Loop Detect Time:	240	SEC			١	
Open Loop Detect Deviation:	5.6 °C	Clear Error	Open Loop	Detect Deviation:	5.6	°C	Clear	FLLOL	J	
Open Loop Status: Open Loo	op Detect Disable	d	Open Loop Status: Open Loop Detect Disabled PV 2 Control Loop Open Loop Detect Alarm Enable							
PV 1 Control Loop										
Open Loop Det	tect Alarm E	nable								
Enable PC Audible Alarm			Enable PC Audible Alarm							
Open Loop Detect Time:	5 SEC		Open	Loop Detect Time:	240	SEC		-		
Open Loop Detect Deviation:	1.0 °C	Clear Error	Open Loop	Detect Deviation:	5.6	°C	Clear	FLLOL	J	
Open Loop Status: Open Loo	р		Open Loc	op Status: Open Lo	oop Dete	ct Disable	ed			
Open Loop Detect Enable Feature: nable or disable the open-loop de he output signal. If the loop does letected by this feature and the cor	tect feature. When o not respond as expe ntrol loop automatic	enabled, this feature ected, the control mo ally shut off to preve	monitors close de for the contr nt poor control	d-loop control for the ol loop is set to off. (which could result in	e appropria Open Heat damage o	ate process ers or faile r incorrect	value res d sensors product.	ponse to can be	0	
Open Loop Detect Time: et a delay in seconds to the open l Detect Devition value for this amou	loop error. If Open I unt of time, and ope	.oop Detect Enable i n-loop error occrs a	is on and the pro nt eh control m	ocess value deviates f eode is set to off.	rom the se	et point by	the Open	1 Loop		
Open Loop Detect Deviation: Det the minimum difference betwe f the process deviates by this amo	eeen set point and p ount or more for the	rocess vlaue that is o Open Loop Detect Ti	consiedered exc ime, and ope lo	essive by the open lo op error occurs and tl	op detecti he control	on feature. mode is se	et to off.			
		Save a	nd	Alarm Silence						

Open Loop Detect Enable

Enable or disable the open-loop detect feature When enabled, this feature monitors closed loop control for the appropriate process value response to the output signal If the loop does not respond as expected, the control mode is set to off. Open heaters or failed/reversed sensors can be detected by this feature and the control loop automatically shut off to prevent poor control which could result in equipment damage or quality issues with the product being controlled by the process.

Open Loop Detect Time

Set a delay in seconds for the open loop error. If Open Loop Detect Enable is on and the process



value deviates from the set point by the Open Loop Detect Deviation value for this amount of time, an open-loop error occurs and the control mode is set to off.

Range: 0 to 9,999 seconds

Open Loop Detect Deviation

Set the minimum difference between the set point and the process value that is considered excessive by the open loop detection feature. If the process deviates by this amount or more for the Open Loop Detect Time, an open loop error occurs and the control mode is set to off

Range: -99,999 to 99,999 °F or units -55,555 to 55,555 °C

Use the Enable PC Audible Alarm checkbox to cause an audible PC alarm if an alarm condition occurs. Use the Alarm Silence button to silence the audible PC alarm or if the alarm is no longer present and has been cleared using the Clear Button.