

# **Workbench User Guide**

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### **Revision History**

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For the latest revision of this product document, please check our online documentation at <u>www.lantronix.com/support/documentation</u>.

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# **1. Introduction**

The Lantronix Workbench application provides an interface between your personal computer and Lantronix devices which allows you to connect to the devices, configure and manage them, and collect data from them for evaluation. This document describes how to setup and run the Workbench application.

Lantronix Workbench supports the following Lantronix devices:

- FOX3 Series
- FOX4 Series
- BOLERO40 Series

Read the latest product documentation before you use the above-mentioned Lantronix devices or upgrade the firmware of the devices. Refer to chapter <u>2. Related Documents</u>.

# 2. Related Documents

NR	Document	Description
[1]	PFAL Command Reference	Contains the description of the internal firmware and the complete list of supported PFAL commands used to manage/administer an application built on the FOX3, FOX4 and BOLERO40 series devices.
[2]	FOX3 Series - Hardware Manual	Contains information about the hardware of FOX3-2G/3G/4G devices.
[3]	FOX3 Series Promotion Kit – User Guide	Provides customers information about the FOX3- 2G/3G/4G PROMOTION-KIT, to evaluate the product and all its functionality.
[4]	FOX4 Series – Hardware Manual	Contains information about the hardware of FOX4-4G devices.
[5]	FOX4 Series Promotion Kit – User Guide	Provides customers information about the FOX4-4G PROMOTION-KIT, to evaluate the product and all its functionality.
[6]	BOLERO40 Series Hardware Manual	Contains information about the hardware of BOLERO40 series devices.
[7]	BOLERO40 Series Promotion Kit User Guide	Provides customers information about the BOLERO40 series PROMOTION-KIT, to evaluate the product and all its functionality.
[8]	Application Note: Remote Firmware Update with Workbench Software	Contains instructions to upgrade AVL devices to a new firmware version remotely via TCP (server-based application).

The table below lists related user documents and application notes.

Table 2-1: Related Documents

For the latest user documentation, visit <u>https://www.lantronix.com/technical-support/documentation/user-guides/</u>.

For Application Notes, visit https://www.lantronix.com/resources/app-notes/.

# 3. Running the Workbench Application

Requirements:

- PC with Intel Core i3 or advanced processor and Windows 10/11, MacOSX, or Linux operating system installed.
- 512 MB of RAM or higher (512MB minimum supported; may limit performance and some features).
- 300 MB of available hard disk space (recommended 8 GB).
- Keyboard and Mouse.

To run the Lantronix Workbench application on a PC with Windows 10/11 Operating System:

- 1. To download the Workbench software, go to https://www.lantronix.com/products/workbench/.
- 2. Extract the contents of the zip file.
- 3. Open the folder and double-click **start\_workbench** file. The **Load profile** dialog box displays.
- 4. Click in the **Profiles** window, the dropdown displays the available profiles. Select **Default Empty** and click **OK**.



**Note:** The Workbench application allows you to save your work as a profile. A profile is a collection of Workbench views. Each time you start the application, you can load the required profile. For more information on profiles refer to chapter <u>Profiles</u>.

5. The Workbench application is launched, and the UI displays.



Figure 3-1: Workbench User Interface

# 4. Workbench Interface Overview

# Navigating the Interface

The Workbench interface consists of the following sections:

- Application Menu
- Application Toolbar
- Workspace
- Connection View



Figure 4-1: Workbench Interface

# **Application Menu**

The application menu provides access to the various features provided by the application. It contains the following:

- **Plugins** Contains different views that allow you to perform tasks related to the Lantronix devices
- File Provides access to Workbench settings and saving profiles
- Window Allows you to toggle the interface window
- Workbench Provides access to profile options
- Help Provides access to help documentation

# **Application Toolbar**

$\bigcirc$			Ţ	to -	۲	<b>(</b>	畲	0	<b>S</b>	$\odot$	×	0	2	Θ
Port	Terminal	Editor	History	Firmware	GPS	LACS	Wizard	Recorder	I/O + Cellular	Stop Watch	Settings	Help	Login	Sync
									Eigur	4 2. 4	Indication Toolbor			

#### Figure 4-2: Application Toolbar

The application toolbar contains icons to open Views on the workspace. Each View performs a certain function related to the device.

- Port Opens Port view. Use it to set up connection with the device
- **Terminal** Opens Terminal view. It displays messages sent by the device and allows you to send messages to the device
- Editor Opens Editor view. Use it to read and manage the current device configuration
- History Opens History view. Use it to download GPS data saved inside the target device to a file
- **Firmware** Opens Firmware view. Use it to upload a firmware file for local firmware upgrade via serial connection on the target device
- **GPS** Opens GPS view. It displays the GPS details
- Lantronix Advanced Configuration Service (LACS) Opens LACS view. Use it to get device information and as a chatbot for configuration requests
- Wizard Opens Wizard view, displays information about ConfigWizard. Use it to configure your device for different functions and automatically generate device configuration (PFAL Commands) for each function based on your input
- **Recorder** Opens Recorder view. Use it to log data received from the target device, filter the data, and save it to a file. It also allows you to view and evaluate the saved data
- I/O + Cellular Opens I/O + Cellular view. It displays the device I/O port status, and GSM,GPRS connection status
- **Stop Watch** Opens Stopwatch view. Use it to measure the time elapsed between responses, events displayed by the Terminal view
- **Settings** Opens the Settings window. Use it to configure and customize certain features of the Workbench interface and application
- Help Opens Help view. Use it to load and view help documentation
- Login Currently no function
- Sync Currently no function

### Workspace

Workspace displays the opened views which are used to connect to, configure, and evaluate the target device.



Figure 4-3: Workspace Views

## **Connection View**

The Connection View provides schematic connections for setting up relationships among views.



Figure 4-4: Connection View

# **5. Establishing a Connection**

The Workbench application allows you to establish a serial connection with Lantronix devices.

Connect the device to your PC via a serial to USB cable or Bluetooth depending on interface the device supports. For more information to make a serial or Bluetooth connection, refer to the Promotion Kit User Guide of the device (see chapter <u>2. Related Documents</u>).

To establish serial communication with the device:

1. Go to **Plugins > Port** or click the **Port** icon on the toolbar. **Portview 1** displays in the workspace and **Portview 1** circle displays in the **Connection View** (see figure below).



Figure 5-1: Workbench Interface with Port View

- 2. Set values for all the **Portview** components as follows:
  - Port type SERIAL
  - Port Select the port to which the device is connected (go to Device Manager > Ports > USB Serial Port (COMxx), where xx is the COM port to use)
  - Baud 115200 bps
  - Data bits 8
  - Parity None
  - Stop bit 1
  - Flow Control None
- 3. Turn on the device and click the C icon on **Portview** to establish serial connection and start communication with the device.
- 4. Go to **Plugins > Terminal** or click the **Terminal** icon on the toolbar. **Terminal 1** displays in the workspace and **Terminal 1** circle displays in the **Connection View**.
- 5. Right-click the **Connection View** to enlarge it and click the Serial Port circle. The circle turns green establishing a connection between the **Terminal View** and the device, and the **Terminal View** begins to display messages from the device. See image below.

Port View	Terminal View	
Portview 1     ×       • COM4     • 0 • 9355       Type     SERIAL       Port     COM4       Baud     115200       Data bits     8       Parity     None       Stop bit     1       Control     None       I DTR On     ITS On	Imminal 1       -         Add Filter>       -         00:36:153GP GSA.A1.       -         00:36:153GP GSA.O2748.000.00000.0000.0000.14.704.50773       00:36:153GP GSA.A1.         00:36:153GP GSA.A1.       -       -         00:36:153GP GSA.A1.       -       -         00:36:153GP GSA.O2748.000.00000.0000.0000.0000.E.0.00.99.9.0.0.N       00:36:153GP GSM.00.02749.000.00000.0000.0000.0000.E.0.000.99.9.0.0.N         00:36:153GP GSM.00.07249.000.00000.0000.0000.0000.E.0.000.99.9.0.0.N       00:36:143GP GSA.A1.       -         00:36:143GP GSA.A1.       -       -       -         00:36:143GP GSA.A1.       -       -       -         00:36:143GP GSA.A1.       -       -       -       -         00:36:143GP GSA.A1.       -       -       -       -       -         00:36:143GP GSA.A1.       -       -       -       -       -       -         00:36:143GP GSA.A1.       -       -	Connection View

Figure 5-2: Terminal View displays messages

# 6. Views

The Workbench Views allow you to connect to the device and perform functions related to the device. The Connection View shows the schematic connections between the views and the target device.

To open a view, go to Plugins menu and select the required plugin option or click the view icon on the toolbar. The Workspace displays the view, and this view is displayed as a circle in the Connection View.

Using the views requires that you have established connection with a target device (see chapter <u>5. Establishing Connection</u>). The target device is represented by the Serial Port circle.

To establish connection between a view and the device:

- 1. Open the view.
- 2. Right-click the **Connection View** to enlarge it and click the **Serial Port** circle.
- 3. The circle turns green establishing a connection between the view and the device.

The figure below shows the Terminal view connected to the device:

Plugin	s File W	indow Workbend	ch Help											
$\bigcirc$	2		to 🎯 🖗	🖗 🍙	0	<b>S</b>						X	0	80
Port	Terminal E	Editor History F	Firmware GPS L	ACS Wizard R	Recorder I/O	+ Cellular Stop Wa	atch					Settings	Help	Login Sync
	Port	Viow			Torr	minal View								
	1 OIL	VICVV			Ten		•							
(	Portview 1	×		Terminal 1			_		×					
	• COM4	00		<add filter=""></add>										
	♦0 ♥9355			28 II 💩 F	-ilter ·			🦆 😤 🖪	• 🛛					
	Type	SERIAL		00:36:1/\$GPG	GSA,A,1	99.9,99.9,99.9*0	09		_					
	Port	COM4		00:36:12\$GPR	RMC,002747.0 OP 10000110	.000,V,0000.0000,N 0.00000000.0.00.7	N,00000.0000 68.9.11.0.00	),E,060180, 14 70 4 50*7	,*1[ 73					
	Baud	115200		00:36:1/\$GPC	GSM,0,0,0,"",0	00,0000,0000*52		11.70,1.00 7	Č.					
	Data bits	8		00:36:1(\$GPG	GA,002748.0	000,0000.0000,N,C	00000.0000,E	,0,00,99.9,0.	.0,N					
	Parity	None		00:36:1(\$GPF	RMC,002748.0	.000,V,0000.0000,N	N,00000.0000	.E060180.	*1:					
	Stop bit	1		00:36:1(\$GPI	OP,10000110	0,00000000,0.00,7.	.54,8.85,0.00,	14.70,4.50*7	70					
	Control	None		00:36:1:\$GPG	3SM,0,0,0,0,"",0 3GA 002749 (	00,0000,0000*52 000 0000 0000 N C	00000 0000 F	0.00.99.9.0	0.0		Conn	ection	Viev	N
	DIROn	RISOn		00:36:14\$GPC	3SA,A,1,	99.9,99.9,99.9*0	09	,0,00,00,00,0,0					_	
				00:36:14\$GPR	RMC,002749.0	.000,V,0000.0000,N	N,00000.0000	),E,,060180,	,*1:					
				00:36:14\$GPC	GP, 10000110 GSM,0,0,0,"",0	00,0000,0000*52	.42,9.06,0.00,	14.70,4.50*7	13					
				00:36:1(\$GPG	GA,002750.0	000,0000.0000,N,C	00000.0000,E	,0,00,99.9,0.	.0,N					
				00:36:1:\$GPG	3SA,A,1, RMC 002750 (	99.9,99.9,99.9% 	78 N 00000 0000	E 060180	*11			$\frown$		
				00:36:1(\$GPI0	OP,10000110	0,00000000,0.00,7.	.49,8.67,0.00,	14.70,4.50*7	70			(Terminal 1)		Serial Port COM4
				00:36:1(\$GPG	GSM.0.0.0,"".0	00,0000,0000*52		0.00.00.00	~			$\bigcirc$		
				00:36:16GPG	3GA,002751.0 3SA.A.1		00000.0000,E	,0,00,99.9,0.	.0,10					
				00:36:1(\$GPR	RMC,002751.0	.000,V,0000.0000,N	N,00000.0000	,E,,,060180,	,*1/					
				00:36:1(\$GPI0	OP,10000110 3SM 0 0 0 "" (	0,00000000,0.00,7. 00 0000 0000*52	.53,9.07,0.00,	14.70,4.50*7						
							PFAL CRC	🛛 CR 🔽 LF 🗍	flow					
						,0								

Figure 6-1: Terminal View connected to Device

# **Port View**

The Port View allows you to establish different types of communication channels with a target device/server.

Portview 1		$\times$
COM4		00
Туре	SERIAL	~
Port	COM4	$\sim$
Baud	115200	~
Data bits	8	$\sim$
Parity	None	~
Stop bit	1	$\sim$
Control	None	$\sim$
DTR On	RTS On	

#### Figure 6-2: Port View

The table below lists the Port View icons and their functions:

lcon	Function
0	Opens the selected port/connection
0	Closes the selected port/connection.
8	Removes the selected port/communication from the Port-view
•	Displays the total incoming data, in bytes since opening the port
+	Displays the total outgoing data, in bytes since opening the port

#### Table 6-1: Port View icons

Click in the Type field of the Port View to display the different communication types.

Portview 1	×
COM3 ★0 ₹0	00
Туре	SERIAL 🗸
Port	SERIAL
Baud	UDP_CLIENT UDP_SERVER
Data bits	TCP_CLIENT
Parity	TCP_SERVER SSH_CLIENT
Stop bit	API_D2SPHERE
Control	API_PERCEPXION None
DTR On	RTS On

Table 6-2: Port View Types

### **SERIAL**

Allows you to establish a serial communication channel between your PC and the device.

Select Port View **Type** as **SERIAL** and enter the required values for all the Port View fields. See image below.

Portview 1		$\times$
COM4		00
Туре	SERIAL	$\sim$
Port	COM4	$\sim$
Baud	115200	$\sim$
Data bits	8	$\sim$
Parity	None	$\sim$
Stop bit	1	$\sim$
Control	None	~
DTR On	RTS On	

#### Figure 6-3: SERIAL

Field	Description
Port	COM port number. Select <b>COMxx</b> , where <b>xx</b> is the port number to which device is connected
Baud	COM port speed. Select the same baud rate as the target device. Default baud rate for FOX3 is 11500 bps
Data	COM port data bits. Select 8
Parity	COM port parity. Select None
Stop bit	COM port stop bits. Select 1
Control	COM port flow control. Select None
DTR on	COM port DTR line (checked=On, unchecked=Off).
RTS on	COM port RTS line (checked=On, unchecked=Off).

#### Table 6-3: Port View Fields for Serial

### UDP\_CLIENT

Allows you to establish a UDP connection with a device/server where your PC is the UDP client. Select Port View **Type** as **UDP\_CLIENT** and enter the required values for all the Port View fields.

Portview 1	$\times$	
	.2:5555	00
Туре	UDP_CLIENT	~
Server	192.168.1.2	$\sim$
Port	5555	

Figure 6-4: UDP\_CLIENT

Field	Description
Server	IP address of the device/server



Table 6-4: Port View Fields for UDP\_CLIENT

### **UDP\_SERVER**

Allows you to establish a UDP connection with a device/server where your PC is the UDP server.

Select Port View **Type** as **UDP\_SERVER** and enter the required values for all the Port View fields.

Portview 1	$\times$	
<ul> <li>127.0.0.1:5555</li> <li>▲ ○</li> <li>▲ ○</li> <li>▲ ○</li> </ul>		
Туре	UDP_SERVER	~
Server	127.0.0.1	~
Port	5555	

Figure 6-5: UDP\_SERVER

Field	Description
Server	IP address of your PC
Port	Port number to listen to the incoming connection

Table 6-5: Port View fields for UDP\_SERVER

### **TCP\_CLIENT**

Allows you to establish a TCP connection with a device/server where your PC is the TCP client. Select Port View **Type** as **TCP\_CLIENT** and enter the required values for all the Port View fields.

Portview 1 ×		
<ul> <li>192.168.1.2:5555</li> <li>▲ 0</li> <li>● 0</li> </ul>		
Туре	TCP_CLIENT	~
Server	192.168.1.2	~
Port	5555	

Figure 6-6: TCP\_CLIENT

Field	Description	
Server	IP address of the device/server	
Port	Port number of the device/server	

#### Table 6-6: Port View fields for TCP\_CLIENT

### TCP\_SERVER

Allows you to establish a TCP connection with a device/server where your PC is the TCP server.

Select Port View **Type** as **TCP\_SERVER** and enter the required values for all the Port View fields.

Portview 1			×
<ul> <li>127.0.0.1:5555</li> <li>♠ 0</li> <li>♥ 0</li> </ul>			00
Туре	Т	~	
Server		127.0.0.1	~
Port		5555	

Figure 6-7: TCP\_SERVER

Field	Description
Server	IP address of your PC
Port	Port number to listen to the incoming connection

### Table 6-7: Port View fields for TCP\_SERVER

### SSH\_CLIENT

Allows you to establish an SSH connection with device/server where your PC is the SSH client. Select Port View **Type** as **SSH\_CLIENT** and enter the required values for all the Port View fields.

Portview 1	$\times$	
ssh://root@192.1681.2		
Туре	SSH_CLIENT	~
SSH URL	192.1681.2	
Port	22	
User	root	
Password	•••••	•

Figure 6-8: SSH\_CLIENT

Field	Description	
SSH URL	IP address of the device/server	
Port	Port number of the device/server	
User	Username	
Password	Password	

Table 6-8: Port View fields for SSH\_CLIENT

### **API\_D2SPHERE**

Allows you to establish connection with a device that is registered on and added to d2sphere server.

Select Port View **Type** as **API\_D2SPHERE** and enter the required values for all the Port View fields.

Portview 1 ×			
Туре	API_D2SPHERE ~		
API URL	192.1681.2		
User	admin		
Password	•••••		
DeviceIMEI	[your device id]		

Figure 6-9: API\_D2SPHERE

Field	Description	
API URL	URL/IP address of the d2sphere server	
User	Username to login to d2sphere server	
Password	Password to login to d2sphere server	
DeviceIMEI	Device IMEI	

Table 6-9: Port View fields for API\_D2SPHERE

### API\_PERCEPXION

Allows you to establish connection with a device that is registered on and added to Lantronix Perception server.

Select Port View **Type** as **API\_PERCEPXION** and enter the required values for all the Port View fields.

Portview 1 ×			
Perceptxion @ 192.1681.2     S     ♥ 0			
Туре	API_PERCEPXION ~		
API URL	192.1681.2		
User	admin		
Password	•••••		
Portal	[your portal]		
Tenant	[your tenant]		
Device ID	[your device id]		

Figure 6-10: API\_PERCEPXION

Field	Description	
API URL	URL/IP address of Percepxion server	
User	Username to login to Percepxion server	
Password Password to login to Percepxion server		
Portal	Percepxion portal name	

Field	Description	
Tenant	Percepxion tenant name	
Device ID	Percepxion device ID of the device	

Table 6-10: Port View fields for API\_PERCEPXION

# **Terminal View**

The Terminal View performs the following functions:

- Displays the GPS data, debug information (if enabled) received from the device periodically every second and allows you to monitor, evaluate this data
- Allows you to send messages/commands to the device
- Displays the responses to all the commands executed by the device and the events generated by the device in response to the commands

Open Terminal View and use Connection View to connect it to the Serial Port. The Terminal View begins to display messages from the device. See image below.

🔳 Terminal 1		—		×
<add filter=""></add>				
🗰 🔳 💼 Filter :			? II	
12:46:06 \$GPRMC,012	754.000,V,0000.0000	N,00000.000	0,E,,,06	0180
12:46:06 \$GPIOP,1000	0010,00000000,0.11,	7.40,0.11,0.0	0,14.70,4	4.50*
12:46:06 \$GPGSM,0,0,	0,"",00,0000,0000*52			
12:46:07 \$GPGGA,012	755.000,0000.0000,N	,00000.0000,	E,0,00,9	9.9,0
12:46:07 \$GPGSA,A,1,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	9*09		
12:46:07 \$GPRMC,012	755.000,V,0000.0000	,N,00000.000	00,E,,,06	0180
12:46:07 \$GPIOP,1000	0010,00000000,0.27,	7.27,0.09,0.0	0,14.70,	4.50'
12:46:07 \$GPGSM,0,0,	0,"",00,0000,0000*52			
12:46:08 \$GPGGA,012	756.000,0000.0000,N	,00000.0000,	E,0,00,9	9.9,0
12:46:08 \$GPGSA,A,1,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	9*09		
12:46:08 \$GPRMC,012	756.000,V,0000.0000	,N,00000.000	)0,E,,,06	0180
12:46:08 \$GPIOP,1000	0010,00000000,0.00,	7.51,0.00,0.0	0,14.70,	4.50°
12:46:08 \$GPGSM,0,0,	0,"",00,0000,0000*52			
12:46:09 \$GPGGA,012	757.000,0000.0000,N	,00000.0000,	E,0,00,9	9.9,C
12:46:09 \$GPGSA,A,1,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	9*09		
12:46:09 \$GPRMC,012	757.000,V,0000.0000	,N,00000.000	00,E,,,06	0180
12:46:09 \$GPIOP,1000	0010,00000000,0.21,	7.43,0.29,0.0	0,14.74,	4.50'
12:46:09 \$GPGSM,0,0,	0,"",00,0000,0000*52			
	HEX PFA	L 🗌 CRC 🔽 🤇	CR 🔽 LF	flow

#### Figure 6-11: Terminal View

The table below lists the Terminal View icons and their functions:

lcon	Function
1010 0101	<b>Change to binary</b> - Changes the format of the Terminal display form text (default) to binary. Incoming protocols/messages are displayed in binary format
II	Stop - Pauses the display of further incoming messages. Use to read and copy specific

lcon	Function
	data received from the device
	Restarts displaying messages
1	Clear Console - Clears the contents of the Terminal View
<b>*</b>	Filter incoming - Enables/disables filtering for all incoming data (data sent from the device)
1	Filter outgoing - Enables/disables filtering for outgoing data (data sent to the device)
	<ul> <li>Select filter type - Specifies how filter expressions are applied to the incoming/outgoing data:</li> <li>Simple filter (default) - Displays all messages containing the specified text.</li> <li>Regular expression filter - Displays all messages containing the specified expression.</li> </ul>
	Maximize console – Maximizes the Terminal View
×	Close Console – Closes the display

Table 6-11: Port View icons and their functions

### Sending Messages/Commands to the Device

The Terminal View allows you to send messages/commands to the device.

To send a message/command to the device:

1. Click in the text box at the bottom left corner of the terminal. See image below.

🗌 HEX 🗌 PFAL 🗌 CRC 🔽 CR 🔽 LF 🗌 flov	N
Figure 6-12: Terminal View Text Box	

- 2. Type the command (without \$ character) and press **Enter** key on your keyboard. All messages sent to the target device will be shown in the bold font.
- 3. You can send commands in the following formats:
  - HEX Automatically converts the typed text into HEX value
  - PFAL Adds the text "PFAL," at the beginning of each command
  - CRC Adds the checksum at the end of each command
  - CR Adds a Carriage Return to each command
  - LF Adds a Line Feed to each command
  - Flow Updates the view by time and does not wait for CRLF in the data. It will be used by binary or stream data.
- 4. Use the checkbox next to a format to select it.

Note: To send a PFAL command to the target device, refer to 2. Related Documents [1].

### **Filtering Messages**

Terminal View allows you to filter the displayed messages and display only the messages that meet the filter criteria set by you.

To enable filtering:

- 1. In the **Filter:** text box, enter the text/expression that the messages must contain for them to be filtered and displayed.
- 2. Click 🔄 icon to start filtering messages.

**Example:** If you want to view only "GPRMC" protocol in the Terminal, then enter "GPRMC" on the input field next to this button and the Terminal displays only "GPRMC" protocol each second. If you want to view only system events, successes, and errors type "EVENT|SUCCESS|ERROR" (without spaces) on the input field next to this button. To apply multiple extensions to your filter, separate them using a pipe "|"

3. Click <Add Filter> to add a child filter. You can add multiple filters.

Each child filter terminal displays messages containing the filter text/expression in its **Filter:** text box. See image below.

Terminal 1	-		$\times$
<add filter=""></add>			
🗰 💵 💼 Filter : GPRMC	-	🏆 🔡	
16:03:57 \$GPRMC.044544.000.V.0000.0000.N.00000.0000.E060180*1E			
16:03:58 \$GPRMC.044545.000.V.0000.0000.N.00000.0000.E060180*1F			
16:03:59 \$GPRMC.044546.000.V.0000.0000.N.00000.0000.E060180*1C			
16:04:00 \$GPRMC.044547.000,V.0000.0000,N.00000.0000,E060180,.*1D			
16:04:01 \$GPRMC,044548.000,V,0000.0000,N,00000.0000,E,,,060180,,*12			
16:04:02 \$GPRMC,044549.000,V,0000.0000,N,00000.0000,E,,060180,,*13			
16:04:03 \$GPRMC,044550.000,V,0000.0000,N,00000.0000,E,,,060180,,*1B			
16:04:04 \$GPRMC,044551.000,V,0000.0000,N,00000.0000,E,,,060180,,*1A			
16:04:05 \$GPRMC,044552.000,V,0000.0000,N,00000.0000,E,,,060180,,*19			
16:04:06 \$GPRMC,044553.000,V,0000.0000,N,00000.0000,E,,,060180,,*18			
16:04:07 \$GPRMC,044554.000,V,0000.0000,N,00000.0000,E,,,060180,,*1F			
16:04:08 \$GPRMC,044555.000,V,0000.0000,N,00000.0000,E,,,060180,,*1E			
16:04:09 \$GPRMC,044556.000,V,0000.0000,N,00000.0000,E,,,060180,,*1D			
16:04:10 \$GPRMC,044557.000,V,0000.0000,N,00000.0000,E,,,060180,,*1C			_
16:04:11 \$GPRMC,044558.000,V,0000.0000,N,00000.0000,E,,,060180,,*13			
16:04:12 \$GPRMC,044559.000,V,0000.0000,N,00000.0000,E,,,060180,,*12			
III I Filter : EVENT SUCCESS ERROR	<b>i</b>	🏆 🔡	
10.03.49 \$GPGGA,044330.000,0000.0000,11,00000.0000,E,0,00,99.9,0.0,10,0	.0,101,0	.0,0001	( D
16:03:49 \$GPGSA,A,1,,,,,,99.9,99.9,99.9*09			
16:03:49 \$GPRMC,044536.000,V,0000.0000,N,00000.0000,E,,,060180,,*1B			
16:03:49 \$GPIOP,10000010,00000000,0.00,7.29,0.01,0.00,14.70,4.50*7F			
16:03:49 \$GPGSM,0,0,0,"",00,0000,0000*52			
16:03:50 \$GPGGA,044537.000,0000.0000,N,00000.0000,E,0,00,99.9,0.0,M,0	.0,M,0	.0,0001*	7A
16:03:50 \$GPGSA,A,1,,,,,,99.9,99.9,99.9*09			
16:03:50 \$GPRMC,044537.000,V,0000.0000,N,00000.0000,E,,,060180,,*1A			
16:03:50 \$GPIOP,10000010,00000000,0.07,7.41,0.21,0.00,14.70,4.50*74			
16:03:50 \$GPGSM,0,0,0,"",00,0000,0000*52			
16:03:54 \$GPEVENT:GSM.eSimLost			
16:03:54 \$GPERROR:No SIM Card detected, please insert SIM			
			flow

Figure 6-13: Terminal View with Child Filter

4. To turn off filtering remove the text from **Filter:** text box or click 塗 icon.

# **Editor View**

The Editor view allows you to perform the following functions:

- Read the current device configuration
- Modify the current device configuration
- Save the device configuration to a file
- Upload a configuration file to the device
- Delete settings from a configuration parameter

Open Editor View and use the Connection view to connect it to the Serial Port.

Editor 1	_		$\times$
i i X 2 d d d d d d d d d d d d d d d d d d			
*Editor 1 🛛 Editor 2 Editor 3			- 8
\$PFAL,Cnf.Show			
4			•
🗹 PFAL 🗹 CRC 🔽 Append Command ID Retry 1 🚔 Delay	5000	<b>(</b>	Loop

Figure 6-14: Editor View

The table below lists the Editor View icons and their functions:

lcon	Function
<u>_</u>	<b>Open new edito</b> r - Add a new Editor window.
-	<b>Open configuration file</b> - Opens a windows dialog box for selecting and opening *conf  .txt configuration files. The selected file must contain PFAL commands and not simply text. However, the workbench is delivered with different configuration files which are available in the /Lantronix Workbench/data/device configuration/*.config. These files can be changed and used for further configuration purposes
لمن	<b>Start sending configuration</b> - Uploads the selected file to the target device. Each line is read and sent as a separate command. When the first command is successfully transmitted and responses are received, it skips to the next line of the file.
â	<b>Read user configuration</b> - Shows user configuration setting including all configuration settings changed and executed by the user. Excludes factory preloaded configuration settings.
2	Read current device configuration - Reads the current device configuration.

Û	Clear the current editor - Clears the contents of the current editor.
<u>ت</u>	<b>Save current editor content</b> - Saves the contents of the current editor to a file when used for the first time for that editor. When used again for the same editor, it overwrites the contents of the editor.
jang la	Save current editor content as - Saves the contents of the current editor to a file.
X	Cut selection - Cuts and copies the selected text to the clipboard.
	Copy selection - Copies the selected text to the clipboard.
Ĩ	<b>Paste</b> - Pastes all text currently on the clipboard back to the location of the insertion point on the editor.

#### Table 6-12: Editor View Icons

The following Editor View fields perform specific functions related to the configuration commands:

		PFAL	CRC	Append Command ID	Retry 1	Delay	5000	🔷 🗌 Loop
--	--	------	-----	-------------------	---------	-------	------	----------

Figure 6-15: Editor View Fields

- **PFAL** When enabled treats all commands as PFAL commands. You do not have to add \$PFAL to the command
- **CRC** Enables/disables adding the checksum at the end of the response for each sent command (optional)
- Append Command ID When enabled the response to each command displays a unique id. If you add an id to the PFAL command, it returns an error message. When disabled you can add an id to your PFAL command, and the response displays the id you have entered
- **Retry** Number of times to retry if a command does not respond (Optional. Sets a retry schedule for each command that does not respond, and not for commands that respond with ERROR or OK).
- **Delay** Specifies the amount of time (in milliseconds) to wait for a response from the device and time between delivery attempts (Optional. This process continues until the total number of retries have been completed.)
- Loop Enables to execute the contents of the Editor line-wise repeatedly, based on the value assigned to Delay option. To send a command repeatedly, right-click over the command and select Loop "PFAL Command". To stop it click Stop icon that appears on the Editor-toolbar when Loop function is executed.

#### Note:

- To prevent any interference between old and new alarms, it is recommended to set the device into the Configuration Update Mode before sending any configuration to the device. To set the device into the Configuration Update Mode use the command: \$PFAL,Sys.Device.CfgUpdateMode.
- For the description of the parameters used in the device configuration and information about the PFAL commands, Events and States, refer to <u>2. Related Documents</u> [1].

Editor uses five different text colors to display the configuration information. To modify the default colors used by the Editor, refer to chapter <u>8. Workbench Settings</u>

The below table lists the default text colors used by the Editor and the type of information for which they are used:

Color	Description
Grey	For block or single comments.
Black	For commands still not transmitted.
Blue	For PFAL Command sent successfully. Device has acknowledged that command with <b>OK</b> .
Red	For PFAL Command that has responded with <b>Error</b> , or it has not responded within the specified delay time. To get more details, move the mouse pointer over the red-marked commands and pause momentarily.
Green	Comments

Table 6-13: Editor View Text Colors

# **History View**

The History View enables you to download all or a part of GPS data that has been saved inside the target device. The number of times data is saved inside the device depends on the user defined save parameter conditions (e.g., when a timer of 20 seconds expires and the speed is greater than 50km/h, save current position of the device). You can save the downloaded data to a file, convert the binary data into the NMEA format and upload the file to a mapping software to graphically represent the driven road.

To save GPS data and other information inside the device use the PFAL command **"\$PFAL,GPS.History.Write,xx,"user text"**.

You have the option to download the entire GPS data saved in the device or part of the data.

Open History View and use the Connection View to connect it to the Serial Port.

History download 1	×
Save converted data	
History Format Binary O Binary -> Conv User	et 🔿 Txt 🔿 RMC 🔵 KML
	Cancel Download Clear

Figure 6-16: History View

History View provides the following formats in which you can download and store the data:

- Binary Downloads and stores the history data to the specified file in binary format
- Binary -> Convert Downloads and stores the history data to the specified file in NMEA format.
- Txt Downloads and stores the history data to the specified file in .txt format
- **RMC** Generates an RMC protocol for each entry available in the history and then downloads and stores this data to the specified file in NMEA format. This file with RMC protocol can then be uploaded and plotted on a mapping software.
- KML Downloads and stores geographic data to the specified file in KML format.
- User Downloads and saves only the user text to the specified file.

When the download process starts a progress bar at the bottom of this view will show the status of the download.

To download the entire GPS data stored in the device:

- 1. Open History View.
- 2. Connect the History View to the device through Connection View.
- 3. Select Download all.
- 4. Select required History Format.
- 5. Click **Download**, the **Save in** Windows dialog box displays.
- 6. Enter a file name and select .txt for **Save as type** field. Click **Save**.
- 7. Once the file is successfully downloaded a success message displays and in case the download fails, **Error while downloading history data** displays.

To download part of the GPS data saved in the device:

1. Disable the **Download all** option. The **Start** and **Stop** buttons showing the current date and time display.

History	download 1	×
Save	converted data nload all	
Start	8.10.2023,0:38:0	
Stop	8.10.2023,0:38:0	
History O Bina O Use	y Format ary <b>O</b> Binary -> C rr	Convet 🔿 Txt 🔿 RMC 🔿 KML
		Cancel Download Clear

Figure 6-17: History View to download part of GPS data

2. Click **Start** field, the **Select startpoint** window displays. Click **Stop** field, the **Select endpoint** window displays. Use both options to set the duration for which you require the saved GPS data.

Selec	t start	poin	t			$\times$
•		Octo	ober 2	023		•
Sun	Mon	Tue	Wed	Thu	Fri	Sat
24	25	26	27	28	29	30
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4
1:19	:22 AI	M 🗭	]			
						ОК

Figure 6-18: Select Start Point and End Point

- 3. Click **Download**, the **Save in** Windows dialog box displays.
- 4. Enter a file name and select .txt for Save as type field. Click Save.

5. Once the file is successfully downloaded a success message displays and in case the download fails, **Error while downloading history data** displays.

#### Note:

- The option Save converted data has currently no effect on the download process. It is kept free for future use.
- If the Stop-date is found, but the Start date is not, all GPS data stored earlier than the Stop-date will be downloaded.
- If the download process fails (the device does not response within 15 seconds after starting the download), the error message Error while downloading history data displays.

### **Firmware View**

The Firmware View allows you to upgrade the firmware of the device.

Workbench application provides the following options to upgrade device firmware:

- Locally via Bluetooth or serial to USB connection. This method is easy, fast, and reliable.
- Remotely via a TCP connection, when local access to the device is not possible.

### Firmware upgrade via Bluetooth or Serial to USB Connection

To upgrade firmware via Bluetooth or serial to USB connection:

1. Open Firmware View and use Connection View to connect it to the Serial Port.

Resource upload 1		$\times$
<ul> <li>Transmission options</li> </ul>		
Packet size [ byte ]	4096	
Timeout [ ms ]	9000	▲ ▼
Maximum retries	5	▲ ▼
Maximum slots	5	<b></b>
Transmission channel	SERIAL	~
<ul> <li>Current uploads</li> </ul>		
no uploads a	vailable	
		Browse
No Resource selected		

#### Figure 6-19: Firmware View

- 2. Select the required values for all the fields:
  - Packet size [byte] Determines the number of bytes that will be sent in one packet. Min=512 bytes; Max=4096 bytes. The lower the packet size, the more secure is the packet transmission. The higher the packet size, the faster is the packet transmission. Set it to maximum (4096 bytes) for high-volume data transmission. If the Total retries increases, decrease the packet size

- **Timeout [ms]** Specifies duration to wait for pending packets before trying to send it again. Set it to maximum (9000 ms)
- **Maximum retries** Determines how many times a packet should be resent if the target device does not respond with **SUCCESS** within the timeout. Set it to 5
- **Maximum slots** Determines how many packets should be sent at once. This setting is device dependent. Set it to 5
- Transmission channel Select SERIAL
- 3. Click Browse to locate and add the firmware upgrade (.frp) file.

Resource upload 1	×
<ul> <li>Transmission options</li> </ul>	
Packet size [ byte ]	4096
Timeout [ ms ]	9000
Maximum retries	5
Maximum slots	5
Transmission channel	SERIAL ~
<ul> <li>✓ Current uploads</li> </ul>	
avl_3.20.0_rc10_2023 691941 Bytes - remaining t	1003.frp ime unknown
	Browse
FIRMWARE: avl_3.20.0_	rc10.bin

Figure 6-20: Firmware Upgrade File

4. Click Cicon to start the firmware upgrade.

### Firmware upgrade via TCP Connection

To upgrade firmware remotely via TCP server, refer to chapter 2. Related Documents [6].

### **GPS View**

GPS View graphically displays the location of the device, the signal strength and orbital position of each of the tracked, used, and available satellites.

Open a GPS View and use the Connection View to connect it to the Serial Port. The GPS View begins to display information. See image below.

Signal	Strength
GPS De	etails
Lat	50.69046° N
Long	10.931605° E
Alt	497.0 M
Fix	3D
PDOP	2.5
HDOP	1.6
VDOP	1.9
Date	2023-10-09
UTC	09:46:06
Speed	0
• Orbital	Positions
w	

The GPS view shows three different characteristics for evaluating GPS performances such as **Signal Strength**, **GPS Details**, and **Orbital Position**.

# Lantronix Advanced Configuration Service (LACS) View

Allows you to get device information and functions as a chatbot for configuration requests. *Note:* LACS is currently in use for internal purposes only.

### **Wizard View**

Allows you to configure your device for different functions and automatically generate device configuration (PFAL Commands) for each function based on your input.

You can use any of the following options to open Wizard View:

 Start the Workbench application and in the Load Profile dialog box that displays, set Profiles field to Default Wizard Mode, and click OK. The Workbench UI displays with Wizard View open.

LAN	TRONIX Workbench	×
Load p ① Pleas	rofile e choose a desired start profile.	
Profiles	Default Wizard Mode Opens a new Wizard Mode OK Cance	el

Figure 6-22: Default Wizard Mode



Figure 6-23: Workbench UI with Wizard View Open

• In the Workbench UI select **Wizard** from the **Plugins** menu options or click the **Wizard** icon on the toolbar. The Wizard View displays with information about the ConfigWizard and its features.

Wizard 1	_		$\times$
Welcome to <b>ConfigWizard</b>			
Discover the Future of Tech Configuration Are you tired of navigating through complex, lengthy processes when configuring technical devices? Frustr lose and the mistakes you make? Welcome to ConfigWizard your solution to seamless and efficient device	ated by t configur	he time ation.	you
Bridging Complexity with Simplicity ConfigWizard is more than just a software product. It's a companion that guides you through a tailored step device configuration, whether it's a firewall, specialized hardware, or anything else you need. With us, then technical background or arduous trial and error; ConfigWizard has got you covered!	-by-step e's no ne	process ed for d	s of eep
The Magic of ConfigWizard Imagine having a guide that not only asks the right questions to gather all necessary information but also us automatically generate the correct configuration. With ConfigWizard, this is not just a fantasy, but your new stop there. Our software wizard also tests the configuration on a digital twin, ensuring everything is set up p deployment.	es these / reality. erfectly,	answer But we o ready fo	s to don't or
For Everyone, Everywhere Whether you're a salesperson with basic technical knowledge or a field application engineer with a high de expertise, ConfigWizard is for you. Our software has been carefully designed to cater to a wide range of us complex tech configurations as easy as a breeze.	gree of te sers, ma	echnical king	
Step into a Stress-free Future Take the guesswork out of device configurations, save valuable time, and increase your productivity. Embra technology with ConfigWizard, where we turn complexity into simplicity.	ce the fu	iture of	
Ca	ncel	Next	

Figure 6-24: Wizard View

#### To use the Wizard View:

1. Open the Wizard View and on the home page click **Next**. The **Device Discovery** page displays.

This page allows you to select how the ConfigWizard detects the connected device. The **Manual discovery (advanced)** option is selected by default (currently this is the only option available).



Figure 6-25: Device Discovery Page

2. Click Next, the Manual device discovery page displays.

This page allows you to select the communication channel you want to use to connect to the device. The **Device is connected to a serial port** option is selected by default (currently this is the only option available).



Figure 6-26: Manual Device Discovery Page

3. Click Next, the Serial port selection page displays.



Figure 6-27: Serial Port Selection Page

- 4. Click in the **Port** field and select the port to which the device is connected.
- 5. Click **Continue**, the **Automatic device detection page** displays. The **Device** field displays the name of the connected device.

Wizard 1	-		$\times$
Automatic device detection			
Please wait until the connected device is detected properly and <b>procee</b> or switch to the <b>manual</b> device type selection to <b>cancel</b> the detection p <b>Attention: make sure the device is turned on and connected prop</b>	<b>d</b> process! <b>erly!</b>		
Device : FOX3-4G			
Back	anual	Proceed	b

Figure 6-28: Automatic Device Detection Page

6. If the right device is detected click **Proceed** and the **Configurator** page displays. If not, you can go back and check the port or click **Manual**, the **Manual device selection page** displays.

Wizard 1	-		×
Manual device selection Please select the matching device type as configuration target!			
Device : OK BOLERO41 BOLERO43 BOLERO43 BOLERO43 BOLERO45 FOX3-2G FOX3-3G FOX3-3G-BLE FOX3-3G-BLE FOX3-3G-BLE FOX3-3G-BL FOX3-3G-C1-NA FOX3-4G FOX3-4G-C1-NA FOX3-4G-C1-NA FOX3-4G-C1-NA FOX3-4G-C1-NA FOX3-4G-C1-NA FOX3-4G-C1-NA FOX3-4G-C1-NA FOX3-4G-C1-NA			
	Back	Nex	đ

Figure 6-29: Manual device selection page

- 7. Click in the **Device** field and select the required device from the dropdown.
- 8. Click Next, the Configurator page displays.

Wizard 3		-		>
Configurato				
Configure the paramete	s below based on your needs!			
> Connectivity > Power Mode	Welcome to Configurator			
	Ca	ncel Generate	Update	

Figure 6-30: Configurator page

The Configurator page allows you to configure the functions of the device related to:

- Connectivity
- Power Mode

### Connectivity

Allows you to generate configuration for connectivity related functions of the device. On the **Configurator** page, click **Connectivity**. The function of the connectivity feature displays. Click the arrow pointing to **Connectivity**, the following options display:

- APN Setup
- TCP Server Setup
- Percepxion Setup

Wizard 4		-		×
Configurator				
Configure the parameters b	elow based on your needs!			
<ul> <li>Connectivity APN Setup</li> </ul>	Welcome to Connectivity			
TCP Server Setup Percepxion Setup > Power Mode	This allows you to setup different connections available based on the device unu allows you to manually configure the access point name (APN) according to you TCP Server as well as Percepxion can also be personalized.	ier setup. Ir service p	The APN provider.	
	Cancel Genera	ate	Update	

Figure 6-31: Connectivity Options

#### **APN Setup**

Allows you to manually configure the access point name (APN) based on your service provider. This configuration enables the device to establish GPRS/data connection.

To configure APN Setup:

1. Click **APN Setup**, the different fields display.

Wizard 1				-		×
Configurator						
Configure the parameters be	low based on your needs	5!				
✓ Connectivity	GPRS Autostart	~				
APN Setup	Modifies the behaviour of the GPRS connection on startup of the device					
Percepxion Setup	Network	~		-		
> Power Mode	Mobile-Network-Operator	~				
	APN	Example: data641003				
			Cancel Generate	e	Update	

Figure 6-32: APN Setup

- 2. Place the cursor over each parameter to view its function.
- 3. Select or enter the required value for all the fields.
- 4. Do one of the following:
  - Click Generate to save the configuration file on your system.
  - Click **Update** to send the configuration to device.

To generate the configuration file:

1. Click Generate, the Save as Command Template window displays.

LANTRONIX Wo	rkbench	×
Save As Corr	mand Template	
Processing co	mplete.	
Save as		
File Name:	F	ile Format: 🛛 🗸
	ОК	Cancel

Figure 6-33: Window to save Configuration File

2. Click the Save as checkbox and then enter the File Name and select the File Format.



Figure 6-34: File Name and Format of the Configuration File

3. Click **OK** to save the configuration file to your local system.

#### **TCP Server Setup**

Your device can establish multiple TCP connections. The TCP Server Setup allows you to configure your device to establish TCP connections with two servers

To configure TCP Server Setup:

1. Click **TCP Server Setup**, the different fields display.

II Wizard 1					- (		$\times$
Configurator							
Configure the parameters be	low based on your need	ls!					
✓ Connectivity APN Setup	TCP Client 1	<first [<="" ip="" or="" server="" tcp="" th=""><th>DNS&gt;,<port></port></th><th></th><th></th><th></th><th></th></first>	DNS>, <port></port>				
TCP Server Setup Percepxion Setup	TCP Client 2	<main ip="" or<="" server="" tcp="" td=""><td>DNS&gt;,<port></port></td><td></td><td></td><td></td><td></td></main>	DNS>, <port></port>				
> Power Mode	Send Mode 1	0 👤					
	Send Mode 2	0 📮					
	Login to First Server						
	Login to Second Server	to activate sending of Io connection is established	igin data automatic d. For TCP Client 2	ally to the used	remote :	server	[
			Cancel	Generate	Up	date	

Figure 6-35: TCP Server Setup

- 2. Place the cursor over each parameter and option to view its function.
- 3. For the fields **TCP Client 1** and **TCP client 2**, enter the IP address or DNS of the respective TCP server and the port number to use in the format displayed.
- 4. Click in the checkbox for each option to enable it and then set the required value.

- 5. Click **Generate** or **Update**.
- Note: For further details on Send Modes refer to PFAL Command Reference (see chapter <u>2</u>. <u>Related Documents</u>).

#### **Percepxion Setup**

Allows you to configure the device to establish connection with Lantronix Percepxion server.

To configure Percepxion Setup:

1. Click **Percepxion Setup**, the different fields display.

Wizard 1		-		Х
Configurator				
Configure the parameters be	low based on your needs!			
<ul> <li>Connectivity APN Setup TCP Server Setup Percepxion Setup</li> <li>Power Mode</li> </ul>	Connect to Percepxion Connect to Percepxion-for-internal-testing CONTENT_CHECK_INTERVAL 1800 € STATUS_UPDATE_INTERVAL 60 € Determines the intervals at which the status of the device should be sent	1		
	Cancel Generate		Update	

Figure 6-36: Percepxion Setup

- 2. Place the cursor over each option to view its function.
- 3. Click in the checkbox for each option to enable it and then set the required value.
- 4. Click Generate or Update.

### **Power Mode**

Allows you to configure the settings depending on which the goes into sleep mode or wakes up. On the **Configurator** page, click **Power Mode**, the function of the **Power Mode** feature displays. Click the arrow pointing to **Power Mode**, the following options display:

- Power Setup
- Sleep/wake



Figure 6-37: Power Mode Options

#### **Power Setup**

To configure Power Setup:

1. Click Power Setup on the Configurator page, the different fields display.

🔳 Wizard 1		_		×
<b>Configurator</b> Configure the parameter	• ers below based on your needs!			
<ul> <li>Connectivity         APN Setup         TCP Server Setup         Percepxion Setup         Power Mode         Power Setup         Sleep/Wake     </li> </ul>	IGN   RING   Motion(ms)   200 ↓   Timer   3:12:31 PM ↓   Wakeup   3:12:31 PM ↓   LowBat(Vol)			
	Cancel	Generate	Upda	te

Figure 6-38: Power Setup

2. Place the cursor over each option to view its function.

- 3. Click in the checkbox for each option to select it and then set the required value.
- 4. Click Generate or Update.
- **Note:** For further instructions on how to use Power Setup options refer to PFAL Command Reference (see chapter <u>2. Related Documents</u>).

#### Sleep/Wake

To configure Sleep/Wake:

1. Click Seep/Wake on the Configurator page, the different fields display.

Uizard 1		_		$\times$
Configurator Configure the paramete Connectivity APN Setup TCP Server Setup Percepxion Setup	ers below based on your needs! ExternalPwrDetect ExternalPwrDrop			
✓ Power Mode Power Setup Sleep/Wake				
	Cance	Generate	Upda	te

#### Figure 6-39: Sleep/Wake Settings

- 2. Place the cursor over each option to view its function.
- 3. Click in the checkbox for each option to select it.
- 4. Click Generate or Update.

**Note:** For further instructions on how to use Power Setup options refer to PFAL Command Reference (chapter <u>2. Related Documents</u>).

# **Recorder View**

Recorder View allows you to log all information received from the target device to a log file and load it back later for evaluation purposes. It also allows you to filter the required data from the log file. The Recorder View has a Logger section and a Player section.

### Logging Data

To log data:

1. Open the Recorder and use the Connection View to connect it to the Serial Port.

Logger 1	×
<ul> <li>Logging</li> </ul>	]
Log file	
Filters	· · · · · · · · · · · · · · · · · · ·
Add	timestamp to the logged lines. RXTX.
▼ Player	
H 1000	Image: Constraint of the second se
File Size:	Number of Lines:

Figure 6-40: Recorder View

- 2. Click the icon and enter the location where you want to save the log file.
- 3. The **Log file** field displays the complete path of the location containing the log file.
- 4. Enter the filter text for the data in the **Filters** field and click the 🕉 icon to enable/disable filtering.
- 5. Check the **Add timestamp to the logged lines.** checkbox to add a timestamp to timestamp (PC local time) to each record/data being saved into the log file.
- 6. Check the **Log RXTX.** checkbox to mark each record into the log file as **RX** for incoming data or **TX** for outgoing data, for easy identification during playing.



Figure 6-41: Logging Data

7. Click the • icon to start logging data. The **File Size:** and **Number of Lines:** values keep updating, indicating that data is being logged.

The table below lists the buttons of the Recorder View Player and their function:

Button	Function			
•	record - Starts/stops logging data into the log file			
•	play - Starts playing the file based on the specified <b>Delay between lines</b> interval			
	stop - Stops logging data into file while logging data. Stops playing when playing a file			
н	pause - Pauses logging or pauses playing depending on when used			
Þ	step forward - Selects the next line in the file			
<b>4</b> I	step backward - Returns to the previous line in the file.			
•	back - Starts playing the selected file backward.			
	rewind - Plays the file backward (rewind), faster than back button			
₩	fast forward - Plays the file forward faster than play button.			

The **Delay between lines** field sets the delay time, in milliseconds, between playing two records (default 1000 ms).

### **Playing Data**

To play data logged in a file:

- 1. Open a Terminal View and use the Connection View to connect it to the Serial Port.
- 2. Open the Recorder and use the Connection View to connect it to the Terminal View.
- 3. Click the icon and load the log file.

4. Click I icon to start playing the logged data.



5. The data is displayed in the Terminal View (starting with TX).

Figure 6-42: Playing Logged Data

### I/O + Cellullar View

I/O + Cellular View shows the I/O port status the device supports, GSM and GPRS connection status, signal quality, and the name of the GSM network provider. All values shown on this view are taken from the GPIOP and GSM protocol. If these protocols are switched off, no data will be displayed.

Open the I/O + Cellular View and use the Connection View to connect it to the Serial Port.

I/O & Cellular Info 1 🛛 🗙				
▪ Digital				
In				
Out				
lgn.				
Charg.				
Analog     ■				
In 1	3.89			
In 2	8.94			
In 3	9.08			
In 4	0.0			
Power ext.	4.82			
Power bat.	4.5			
<ul> <li>Cellular</li> </ul>				
Signal	lb			
Provider	no operate			
CellType	2G (GSM)			
CelLRegState	unregister			
CallState	ready			
GPRS	Unknown			
ТСР	Unknown			
Double click to request data				

#### Figure 6-43: I/O + Cellular View

The table below lists all the I/O + Cellular View fields and their description:

Field	Description
Digital	
IN	Indicates the current status of the digital inputs (if supported by the connected device) Checked = High, Unchecked = Low
OUT	Indicates the current status of the digital outputs (if supported by the connected device) Checked = active; Unchecked = unactive
IGN	Indicates the current status of the ignition line (if supported by the connected device) Checked = High, Unchecked = Low

Field	Description			
Charg.	Indicates the current status of the internal battery (if supported by the connected device) Checked = Charging, Unchecked = Not charging			
Analog				
IN 1	Shows the current voltage value on the analog input 1 (if supported by the connected device)			
IN 2	Shows the current voltage value on the analog input 2 (if supported by the connected device)			
IN 3	Shows the current voltage value on the analog input 3 (if supported by the connected device)			
IN 4	Shows the current voltage value on the analog input 4 (if supported by the connected device)			
Power ext.	Shows the current input voltage of the external power supply			
Power bat.	Shows the current voltage of the internal battery			
GSM				
Signal	Shows the GSM signal strength			
Provider	Shows the GSM provider name			
GPRS	Shows the GPRS current state. Unknown - double-click to refresh Disabled - GPRS not available Connected/Disconnected			

#### Table 6-14: I/O + Cellular View Fields

# **Stop Watch View**

The Stop Watch View allows you to measure the time elapsed between required messages displayed by the Terminal View.

To use the Stop Watch View:

- 1. Open Terminal View and use the Connection View to connect it to the Serial Port.
- 2. Open Stop Watch View and use the Connection View to connect it to the Serial Port.

Stopw	atch 1		$\times$		
00:0	00:0	00:0	0.000		
Start	Stop	Reset	ScanData		
▪ Filter	Setting	gs			
StartE	xp.				
StopE	xp.				
ResetExp.					

Figure 6-44: Stop Watch View

3. You can measure the time elapsed between required messages by using the **Start** and **Stop** buttons. Click **Reset** to reset clock.

To automatically measure the time elapsed between required messages:

- 1. In the **StartExp**. field enter the expression to start the timer when displayed by the Terminal View.
- 2. In the **StopExp**. field enter the expression to stop the timer when displayed by the Terminal View.
- 3. Check the **ScanData** checkbox to start the timer.
- 4. In the **ResetExp.** field enter the expression to reset the timer when displayed by the Terminal View

# **Help View**

Help View provides documentation to help you use the Workbench application and other user documents related to FOX3 and BOLERO40 series devices.

Open the Help View to load the Workbench User Guide.

# 7. Profiles

A profile is a collection of workspace views and connections. The Workbench provides built-in profiles and allows you to save custom profiles.

# Saving a User Profile

To save a profile:

- 1. Click File > Save profile.
- 2. The **Save profile** dialog box displays. Enter a profile name in the **Profiles** field and click **OK**.

# Loading a Profile

To load a profile:

- 1. Start the Workbench application. The **Load profile** dialog box displays.
- 2. Click in the **Profiles** window, the dropdown displays the profiles.
- 3. Select the required profile and click **OK**, the profile displays.

# **Overwriting a User Profile**

Once you load an existing user profile and make changes, to only save the current contents of the workspace (overwrite the profile) click **File > Save profile**.

**Note:** If you want to retain the original contents of the profile click **File > Save profile as** and save the current contents of the workspace as a new profile.

# 8. Workbench Settings

The Workbench Settings allows you to configure and customize the Workbench interface. To access Workbench Settings, go to **File > Settings**. The **Workbench Settings** window displays. **Figure 8-1** below shows the Workbench Settings window with available options.

				×
Workbench Settings				
<ol> <li>Adjust the different aspects of work</li> </ol>	rkbench behaviour.			
Filter				
<ul> <li>Console         <ul> <li>Colors</li> <li>Other settings</li> <li>Editor</li> <li>Colors</li> </ul> </li> <li>General settings         <ul> <li>Appearance</li> <li>Connection Manager</li> <li>Startup</li> <li>Shutdown</li> <li>Profile Manager</li> <li>Profiles</li> </ul> </li> </ul>				
			ОК	Cancel

Figure 8-1: Workbench Settings

# Console

Console allows you to configure the characteristics of the contents displayed by Terminal view. Click **Console**, the following options display (see <u>Figure 8-1</u>):

- Colors
- Other Settings

### Colors

Colors allows you to set the text color for the different categories of messages displayed in the Terminal View.

To set Colors:

1. Click **Colors**, the below window displays.

Filter	Configure the default colors and fonts of console
✓ Console Colors Other settings	Actions         States         Error         Outgoing commands         Debug         Events           Others
<ul> <li>› Editor</li> <li>› General settings</li> <li>› Profile Manager</li> </ul>	Preview \$GPEVENT: IO.Bearing.e6 \$GPACTION: IO.Bearing.e6 \$GPSTATE: IO.Bearing.e6 \$GPERROR: IO.Bearing.e6 \$PFAL,CNF.Set,ALIAS.SYS.TIMER0=_SSEC \$DBG,dafgzzszrwtzrwzurwtzuh \$GPGGA,064931.000,5040.4008,N,01058.8424,E,1,08,1.2,448.9,M,0.0,M,I \$GPGSA,A,3,02,04,07,10,13,16,20,23,00,00,00,02.1,1.2,1.7*32 \$GPGSV,3,1,12,02,33,304,34,04,55,255,37,07,32,173,33,10,51,292,35*71 NORMAL TEXT normal text NORMAL TEXT normal text NORMAL TEXT normal

Figure 8-2: Colors Setting

2. Click **Actions**, the different color options display as shown below.



Figure 8-3: Color Options

- 3. Select the required color or click **Define Custom Colors** to create a custom color.
- 4. Once you select the color, click **OK**. All **ACTION** messages will now display in the selected color.
- 5. Similarly select colors for the different message categories shown in Figure 8-2.

### **Other Settings**

Other Settings allows to configure the Terminal view properties shown in <u>Figure 8-4</u>. To configure Other Settings:

1. Click **Other settings**, the below window displays.

<ul> <li>Y Console Colors Other settings</li> <li>Y Editor Colors</li> <li>Y General settings</li> <li>Appearance Connection Manager Startup Shutdown</li> <li>Y Profile Manager Profiles</li> </ul>	Content Number of Lines: 100 ÷ Number of Chars: 100 ÷ Console Name: Simple Mode: Fonts
--	---

Figure 8-4: Other Settings

- 2. Enter the required values for all the **Content** fields in the above figure.
- 3. Click **Fonts** to display the **Font** window. Select the required font settings and click **OK** to apply the selected values.

Font		×
Font: @Malgun Gothic @Microsoft JhengHei @Microsoft JhengHei UI @Microsoft YaHei @Microsoft YaHei UI @MingLiU_HKSCS-ExtB @MingLiU-ExtB	Font style: Regular Regular Italic Bold Bold Italic	Size: 10 10 11 12 14 16 18 20
Effects Strikeout Underline	Sample	
Color: Black ~	Script:	~
Show more fonts	ОК	Cancel

Figure 8-5: Font Window

4. Click **OK** on **Workbench Settings** window to apply the selected values.

### **Editor**

Editor allows you to configure the characteristics of the contents displayed by Editor view.

To configure Editor:

- 1. Click Editor and the Colors window displays as shown in Figure 8-1
- 2. Click **Colors**, the below window displays:

		×
Workbench Settings <sup>①</sup> Adjust the different aspects	of workbench behaviour.	
Filter Console Colors Other settings Editor Colors General settings Appearance Connection Manager Startup Shutdown > Profile Manager	Configure the default colors and fonts of internal editors. Comments Success Error Others Preview /* * This is a multiple line comment. * It spans more than one line. */ // PFAL command sample in next line. \$PFAL_CNF.show // Following line shows an error while command transmission. \$PFAL_CNF.show // Following line shows an successfully transmitted command. \$PFAL_CNF.set,AL1	
	OK Cano	cel

Figure 8-6: Editor Colors

- 3. Click a message category in the above image and the color options display. Set a color for that message category (similar to <u>8.1.1.</u>). All messages that belong to this category are displayed in the selected color.
- 4. Similarly set colors for all the available message categories.

# **General Settings**

Click General Settings, the following fields display as shown in Figure 8-1:

- Appearance
- Connection Manager
- Startup
- Shutdown

### **Appearance**

Appearance allows you to configure monitor settings.

To configure Appearance:

1. Click Appearance, the below window displays:

Use Monitor	0 (1920x1080)	~
System Encoding	ISO-8859-1 LITE-8	
Set New Encoding	UTF-8	~

Figure 8-7: Appearance settings

2. Set the required values and click **OK**.

### **Connection Manager**

Connection Manager allows you to configure the properties of Connection View.

To configure Connection Manager:

1. Click Connection Manager, the below window displays:



Figure 8-8: Connection Manager Settings

2. Set the required value and click OK.

### Startup

Startup allows you to configure the application behavior during the startup process. To configure Startup:

1. Click **Startup**, the below window displays.

Configure the detailed application behaviour while the startup process.

Disable autosaving. Note: The system needs autosaving for recovery fro

#### Figure 8-9: Startup Settings

- 2. Enable or disable autosaving as required.
- 3. Click **OK** to save the setting.

### **Shutdown**

Shutdown allows you to configure application behavior during shutdown process.

To configure Shutdown:

1. Click **Shutdown**, the below window displays.

Figure 8-10: Shutdown settings
Save the active profile automatically on shutdown.
Hide the profile save dialog on shutdown.
Configure the detailed application behaviour while the shutdown process.

- 2. Enable or disable the options as required.
- 3. Click **OK** to save the settings.

# **Profile Manager**

Profile Manager allows you to configure the properties of the saved profiles and the options to load profiles during startup.

To configure Profile Manger:

1. Click **Profile Manager**, the **Profiles** option displays. Click **Profiles**, the below window displays:

Hide pro	file dialog at startup ys last profile at startup	)						
Name	Description		De	Re				
Default p	Opens a new empty v	vorksp	0					
By Default, user Profiles are saved in User's Home Directory. If you want to change the location for user profilse, please choose a directo								
Current Loca	ation user_app						Browse	
		O	К			Cancel		

Figure 8-11: Profiles Settings

- 2. Enable, disable the available options as required.
- 3. Provide names and descriptions for the saved profiles.
- 4. Click **Browse** and select a location on your PC for **Current Location**. The user profiles are saved in this location.
- 5. Click **OK** to apply the settings.