

## Lantronix AVL FIRMWARE RELEASE

### VERSION:

BIOS version: [3.0.4](#)  
 Official release date: [08/27/2020 \(M/D/Y\)](#)  
 List of firmware files:  
[avl\\_3.10.0\\_rc2\\_20200818.frp](#)  
[avl\\_3.10.0\\_rc2-Zdd433c31.zip](#)  
[avl\\_3.10.0\\_rc2\\_20200818.txt](#)

Hardware compatibility: This firmware applies to the following LANTRONIX products with Cortex processor:

Devices	Hardware Revisions	Supported firmware versions	Notes
FOX3-2G Series	13,15,17,19,20,21	avl_3.x.x (only)	1) Use the PFAL command \$PFAL,MSG.Version.HardwareRev to get shown the hardware revision of your AVL device. The device responses with (second line shows the hardware version): \$<MSG.Version.HardwareRev> \$11-NUCHB \$SUCCESS 2) The hardware revision is also printed on the product label, located on the back panel of the device. In the Serial Number (S/N) field there are 3 digits in parenthesis, for example, 60148(9XX)50600014, and the number “XX” is the hardware revision of the device. If the number is “11”, it means that the hardware revision is 11.
FOX3-3G Series	06,11,13,15,17,19,20,21	avl_3.x.x (only)	
FOX3-3G-BID*			
FOX3-4G Series	All	avl_3.x.x (only)	
BOLERO40 Series	All	avl_3.x.x (only)	

\* On request

	<h1>Release Notes</h1>		Lantronix AVL Products
			Release date: August 28, 2020
	Firmware version: avl_3.10.0_rc2		Document revision: 3.10.0.0

## IMPORTANT

- This firmware version is **ONLY** for the LANTRONIX products explicitly Mentioned above! Do not try to update other LANTRONIX products with this firmware, otherwise, you will not be able to operate your device anymore.
- Before updating the new firmware on your FOX3 or Bolero series, it is strongly recommended to back up the configuration with the command **\$PFAL,CNF.Backup**
- Before upgrading the firmware on your FOX3 or Bolero series, it is recommended to upload and back up all history data on your server (if needed) and finally delete this data on the device.

## NOTE

- If FOX3-3G-BLE devices with older firmware versions (e.g. 3.0.0\_xx) are upgraded to this new firmware version (3.3.0\_xx), please contact LANTRONIX to receive the BLE activation codes and continue to use this feature without additional costs.
- The latest FW 3.10.0\_rc2 is for FOX3-2G/3G/4G with the CORTEX CPU as well as BOLERO40 series.
- Sleep=Ring on BOLERO40 series works only by using SIM-SLOT2 (the upper SLOT) on BOLERO40 series

	<h1>Release Notes</h1>		Lantronix AVL Products
			Release date: August 28, 2020
	Firmware version: <b>avl_3.10.0_rc2</b>		Document revision: 3.10.0.0

## DOCUMENTATION:

The following document(s) is (are) provided on <https://www.lantronix.com/> as part of the AVL firmware release "**avl\_3.10.0\_rc2**".

Filename	Description
<a href="#">PFAL Command Reference</a>	Lists and describes all PFAL commands supported by this firmware release.

Version	Description	Created by	Date (M/D/Y)
3.10.0.0	Firmware release "avl_3.10.0_rc2"	Lantronix	08/27/2020
3.9.0.0	Firmware release "avl_3.9.0_rc2"	Lantronix	07/14/2020
3.8.0.0	Firmware release "avl_3.8.0_rc3"	Lantronix	06/03/2020
3.7.0.0	Firmware release "avl_3.7.0_rc2"	Lantronix	04/21/2020
3.6.0.0	Firmware release "avl_3.6.0_rc2"	Lantronix	03/10/2020
3.5.0.0	Firmware release "avl_3.5.0_rc8"	Lantronix	02/05/2020
3.4.0.0	Firmware release "avl_3.4.0_rc8"	Lantronix	12/03/2019
3.3.0.0	Firmware release "avl_3.3.0_rc15"	Lantronix	10/02/2019
3.2.0.3	Firmware release "avl_3.2.0_rc39"	FALCOM	07/04/2019
3.1.0.2	Firmware release "avl_3.1.0_rc33"	FALCOM	11/09/2018
3.1.0.1	Firmware release "avl_3.1.0_rc20"	FALCOM	05/15/2018

## 1) Preface

This release note describes the new functionalities of the firmware release "**avl\_3.10.0\_rc2**" and is intended for use as a reference when updating an AVL device to version "**avl\_3.10.0\_rc2**".

## 2) Important Notes

The firmware file with extension "**\*.frp**" is for the update through the **Workbench** and for the update remotely OTA (RUpdate). The firmware file with extension "**\*.txt**" is for the update through **terminal emulators** (e.g.: Hyperterminal, PComm Pro). The firmware file with extension "**\*.zip**" is for the WebUpdate. To update the firmware with the extension "**\*.frp**", please use the **Workbench** version **2.6.2\_RC7** or higher. To update the firmware with the extension "**\*.txt**" you can use any **terminal emulator** (example: Hyper terminal, Pcomm Pro). To initiate a WebUpdate use the command

	<h1>Release Notes</h1>		Lantronix AVL Products
			Release date: August 28, 2020
	Firmware version: avl_3.10.0_rc2		Document revision: 3.10.0.0

**\$PFAL,SYS.WebUpdate.Start,"u rl",80** on the device. DON'T switch off the AVL device while it reboots after the firmware update. The duration of the reboot after the firmware update may take approx. 45 seconds.

	<b>Release Notes</b>		Lantronix AVL Products
			Release date: August 28, 2020
	Firmware version: <b>avl_3.10.0_rc2</b>		Document revision: 3.10.0.0

### 3) Firmware Installation Notes

The installation package consists of firmware in three different formats \*.frp and \*.zip. and \*.txt. You can choose whether you want to update the firmware via following interfaces:

Interfaces	File	Description	References
<b>RS-232 PORT</b>	*.frp	This is primarily intended for updating one device first, to ensure the process completes properly before rolling the update to a group of other devices. Use " <b>Workbench</b> " and update the "*.frp"-file via the serial port.	
<b>WEB-SERVER</b>	*.zip	This is a perfect solution when multiple deployed AVL devices need updating. The firmware file is located in your web-server and you send to the AVL device the URL of a web server you have set up for downloading over-the-air the firmware file.	
<b>Remote with Workbench</b>	*.frp	This solution lets you update the firmware remotely on several AVL devices. More details can be found in the online help in the Workbench software.	
<b>TCP-SERVER</b>	*.frp	This solution lets you update the firmware remotely on several AVL devices.	
<b>Terminal SW</b>	*.txt	You can upload the firmware with the extension *.txt serially over a terminal SW such as PComm Lite, Tera Term, etc.	

### 4) Prerequisites concerning the PC

A 32/64-bit-WINDOWS operating system (Windows XP, Vista, 7) or Linux is running on your PC and about 50 MByte free space on your hard disk is required. The RS-232 interface must be configured with the following parameters:

- Baud rate: 115200
- Data Bits: 8
- Parity: None
- Stopbits: 1
- Flow Control: None

### 5) Firmware Update Process

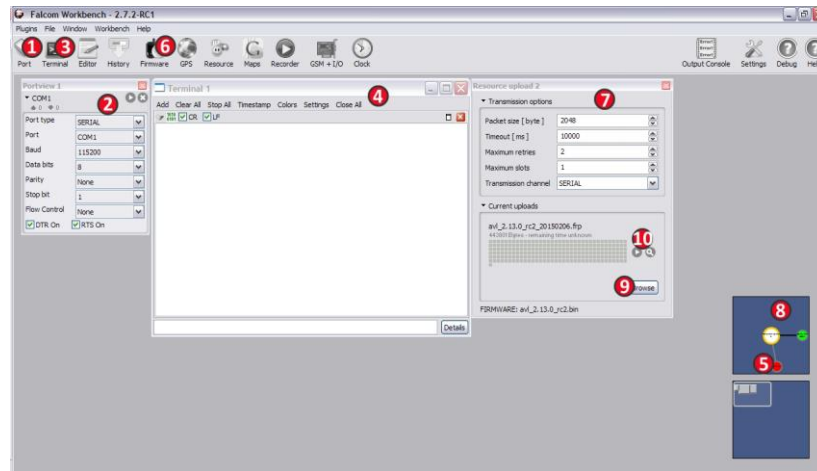
These instructions are specific to updating your LANTRONIX AVL device via COM interface (Serial Port).

**(a) Download the firmware file and Workbench software needed from the following hyperlinks.**

1. <https://www.lantronix.com/products/workbench/#tab-docs-downloads>
2. <https://www.lantronix.com/products/fox3-series/#tab-docs-downloads>
3. Download "**avl\_3.10.0\_rc2.zip**" and extract the file you downloaded into a temporary folder on your PC.
4. Run the "**workbench**" software. If this software is still not installed on your PC, download it first

	<h1>Release Notes</h1>		Lantronix AVL Products
			Release date: August 28, 2020
	Firmware version: <b>avl_3.10.0_rc2</b>		Document revision: 3.10.0.0

and start the installation.



**(b) Begin the firmware update process (refer to the fig. above).**

1. Connect the AVL device to your PC either directly using the programming cable or the corresponding evaluation board.
2. Do **NOT** update the firmware version 3.x.x on FOX3-2G/3G/4G devices with an older processor. The firmware version 3.x.x is **ONLY** for FOX3-2G/3G/4G and BOLERO40 devices with the **CORTEX (CT)** processor. Please verify the hardware revision from the table "**Hardware compatibility**" above and make sure you are upgrading a FOX3-2G/3G/4G device with CORTEX processor. LANTRONIX takes no liability and no responsibility for any cases, firmware versions have been flashed wrongly nor will LANTRONIX cover any costs associated with this happening.
3. Click **Port** (1) icon, select the COM port settings from the **PortView1** (2) and click the **Play** button next to the text "COM.." to open the selected COM port.
4. Click **Terminal** (3) icon, select the **TerminalView 1** (4) and go to the **ConnectionView** (5) and connect it to the **Serial Port COM1**.
5. Click **Firmware** (6) icon, select "SERIAL" from the **Transmission Options** (7), go to **ConnectionView** (8) and connect it to the **Serial Port COM1**.
6. Click **Browse** (9) button and select the firmware file as "\*.frp" from the temporary folder where the firmware was expanded.
7. Click **Play** (10) button to start the firmware update. This button appears only if the firmware file has already been selected.
8. Wait until the update process completes. While the update is running, do not send any command to the device and do not manually reboot it until the device restarts itself.
9. After the update process successfully completes, a success message will appear. Click "OK" button to restart the AVL device.
10. After device restarts and configuring the unit, you can execute the command **\$PFAL,Cnf.Backup** to save the user configuration as factory settings. If the AVL device was

	<h1>Release Notes</h1>		Lantronix AVL Products
			Release date: August 28, 2020
	Firmware version: <b>avl_3.10.0_rc2</b>		Document revision: 3.10.0.0

already configured, you can execute the same command after the firmware update to save the user configuration as factory settings.

11. LANTRONIX recommends that you update one device first, to ensure the process completes properly before rolling the update to a group of other devices.

	<h1>Release Notes</h1>		Lantronix AVL Products
			Release date: August 28, 2020
	Firmware version: avl_3.10.0_rc2		Document revision: 3.10.0.0

## 6) New and Modified Functions

### IMPROVEMENTS and BUGS FIXED:

- Synchronization in the CMUX packet handler has been revised and made more reliable. This prevents packet loss in CMUX protocol stream during network traffic.
- Handling the event "eSimLost revised and improved.
- Stop/Release internal IO's before sleep

### NEW FEATURES FOR LUA:

This section presents what is new since the latest released firmware regarding the Premium-Feature LUA.

- Implementation of file system commands via LUA (see LUA table below)
- Enhanced WebUpdate for loading LUA scripts. This feature added support for the Web-Update for LUA scripts.  
Prerequisite, the LUA script must be generated with gzip or 7zip in gzip mode. The file name of the archive must have a certain structure, i.e. "script-LXXXX.[gz|zip]" ( e.g. evalkit-L200603.gz ).



## LUA (File system)

### Commands

<code>file := io.open(filename [, mode])</code>	Open a file
<code>io.lines (filename)</code>	Read one line from file
<code>io.read(...)</code>	Read data from file
<code>io.write(...)</code>	Write data to file
<code>io.type (file)</code>	Type of file
<code>io.flush(file)</code>	Flush written data
<code>io.close(file)</code>	Close file
<code>file:read(...)</code>	File operations
<code>file:write(...)</code>	
<code>file:lines()</code>	
<code>file:flush()</code>	
<code>file:close()</code>	
<code>file:seek ([whence] [, offset])</code>	
<code>os.remove(name)</code>	Remove a file on disk
<code>os.rename(oldname, newname)</code>	Rename a file on disk
<code>os.mkdir(name)</code>	Make a directory

### State requests

<code>stat := os.stat(filename [, request result])</code>	Returns a table with the file attributes corresponding to filename (or nil followed by an error message and a system-dependent error code in case of error). If the second optional argument is given and is a string, then only the value of the named attribute is returned (this use is equivalent to <code>os.stat(file)[request]</code> , but the table is not created and only one attribute is retrieved from the OS). If a table is passed as the second argument, it ( <code>result</code> ) is filled with attributes and returned instead of a new table. The attributes are described as follows; attribute <code>mode</code> is a string. All the others are numbers.
---	--

### State result of state request

<code>dev, rdev</code>	On Unix systems, this represents the device that the inode resides on. On Windows systems, represents the drive number of the disk containing the file.
<code>ino</code>	On Unix systems, this represents the inode number. On Windows systems this has no meaning
<code>mode</code>	String representing the associated protection mode (the values could be file, directory, or other)
<code>nlink</code>	Number of hard links to the file
<code>uid</code>	User-id of owner (Unix only, always 0 on Windows)
<code>gid</code>	Group-id of owner (Unix only, always 0 on Windows)
<code>access</code>	Time of last access
<code>modification</code>	Time of last data modification
<code>change</code>	Time of last file status change

size	File size, in bytes
permissions	File permissions string

## File system directory

```
FS directory object dir := [
  dir:next()
  dir:close()
]
```

dir:next()	Next entry from directory
------------	---------------------------

dir:close()	Close directory
-------------	-----------------

## KNOWN ISSUES:

This is a list of known issues in the current firmware release.

The firmware 3.10.0\_rc2 does not establish internet connection using the RAT 4G with the FOX3-4G-M1 (CAT-M1 which based on SARA-R4xx). Currently, the FOX3-4G-M1 (CAT-M1 which based on SARA-R2xx) establish the internet connection using RAT<sup>1</sup> 2G

Some SIM cards especially support static IP address do not establish internet connection over the RAT<sup>1</sup> 4G with the FOX3-4G-C1 (CAT 1 based on the GSM module LARA-R2xx)

### 1: Radio Access Technology

You can check the type of the GSM module (version) on the FOX3 by executing the command \$PFAL,msg.version.complete.ext

Example:

```
$<MSG.Version.Complete.Ext>
```

```
$Hardware: xxxxx
```

```
$HardwareRev: xxxxx
```

```
$HardwareOptions: xxxxx
```

```
$Software: xxxxx
```

```
$SoftwareID: xxxxx
```

```
$Production ID: xxxxx
```

```
$ProductionCode: xxxxx
```

```
$BIOS: 3.0.4
```

```
$GSM: SW:SARA-R412M-02B M0.10.00,A.02.14
```

```
$GPS: xxxxx $SUCCESS
```

```
$<end>
```