REVOLUTION PI

Release Notes
Stretch 06/2020 for RevPi Core, Connect
and Compact

6/29/2020

Kernel 4.19 instead of 4.9

The kernel was updated from version 4.9.76-rt60 to version 4.19.95-rt38. This makes modern functions like nftables usable.

Devices with Compute Module 3 and 3+ boot a bit faster, because the CPU clock is set to 1200 MHz right at the beginning. With Stretch 03/2019 the devices started with a variable clock between 600 and 1200 MHz (cpufreq governor ondemand) and were only fixed at 1200 MHz at the end of the boot process (cpufreq governor performance).

Since kernel 4.12, the text console no longer has a screen saver active by default. You can reactivate the screen saver by adding the parameter console-blank=600 to the file /boot/cmdline.txt (600 s = 10 min).

Raspbian Stretch with backports

The image is derived from Raspbian Stretch 2019-04-08. It contains all Raspbian Stretch Package updates released until mid-June 2020.

In addition, we have backported selected packages from Raspbian Buster to Stretch to provide more up-to-date software and fix security vulnerabilities:

- nodered 1.0.6 (instead of 0.20.7)
- nodejs 10.19.0 (instead of 4.8.2)
- npm 6.14.5 (instead of 1.4.21)
- libmodbus 3.1.6 (instead of 3.0.6)
- openssl 1.1.1d (instead of 1.1.0l)

These packages are already preinstalled on the image. They are also available for reinstallation in a separate APT repository called "stretch-backports". Thereby we offer you a "long-term support" for Stretch. Packages can also be backported on customer request.

Revolution Pi devices in the field learn from the stretch-backports repository when they update the revpi-repo package. To update the entire system based on the repository, it is necessary to call "sudo apt-get update && sudo apt-get upgrade" twice: The first call installs the changed "revpi-repo" package and the second call installs the packages from the new repository.

If you want to prevent packages from being automatically updated from "stretch-backports", you can create a file in /etc/apt/preferences.d/ with the following content:

```
1  Package: *
2  Pin: release a=stretch-backports
3  Pin-Priority: 100
```

You can then manually update individual packages:

```
1  apt-get install -t stretch-backports <paketname>
```

OpenSSL

openssl forces in the new version at least TLSv1.2 (instead of TLSv1) as well as TLS Security Level 2 (key length at least 2048 Bit RSA/DHE or 224 Bit ECC, hash function at least SHA-2). If this causes the connection to certain remote stations to fail, you can reduce the settings to the previous level by entering them in /etc/ssl/openssl.cnf

```
1  MinProtocol = None
2  CipherString = DEFAULT
```

LibModbus

For libmodbus the API of the functions modbus_report_slave_id() and modbus_get/set_response/byte_timeout() has changed. Own programs which are compiled against libmodbus may have to be adapted. Details are in these commits:

https://github.com/stephane/libmodbus/commit/ea80f74094e3

https://github.com/stephane/libmodbus/commit/52a82f8cfe90

Node-RED with RevPi Nodes

Node-RED is pre-installed and enables the easy use of process image values in flows thanks to the RevPi nodes supplied.

Before you can use Node-RED, you have to enable it in the web status. Two buttons have been added to the "Services" tab for this purpose: One to start Node-RED and one to start the Revpi Nodes Server. This acts as a bridge between the RevPi nodes and the piControl process image. Once you have enabled Node-RED in the "Services" tab and waited for it to start, you can access it via a button in the "Apps" tab. The starting process takes about 5 seconds.

Attention: Node-RED is accessible by default from any computer on port 1880 of the Revolution Pi and uses neither authentication nor encryption. Use it only in a protected environment without Internet access. Instructions for setting up authentication and encryption can be found here:

https://nodered.org/docs/user-guide/runtime/securing-node-red

http://www.steves-internet-guide.com/securing-node-red-ssl/

The RevPi Nodes Server starts only if a configuration has been created in PiCtory before. If you started the server by mistake without PiCtory configuration, you have to restart it manually with :

```
1   sudo systemctl restart noderedrevpinodes-server
```

The RevPi nodes are unfortunately incompatible with the pre-installed epiphany-browser. If you want to access Node-RED from Revolution Pi, you have to replace Epiphany with Chromium. However, this will occupy about 270 MByte additionally on the eMMC:

```
1   sudo apt-get update
2   sudo apt-get install chromium-browser
3   sudo dpkg -r epiphany-browser epiphany-browser-data
4   sudo dpkg -r libwebkitgtk-3.0-0 libjavascriptcoregtk-3.0-0
5   sudo apt-get clean
```

The RevPi Nodes and the RevPi Nodes Server were developed with erminas GmbH. The above issues will be fixed in future package updates.

RevPiModIO

The packages RevPiModIO, RevPiPyLoad and RevPiPyControl by Sven Sager, which are popular among Python developers, are now pre-installed.

You can turn RevPiPyLoad on by clicking a button in the "Services" tab of Web Status. At boot time, it starts and monitors a Python control program written with RevPiModIO, which must be placed in /var/lib/revpipyload/.

It also provides the interface for "revpipycontrol", a graphical configuration program for the X Window System ("startx"). This makes it easy to take the first steps and inspect the process image. This can also be done over the network from any computer. The upload of the Python program and all settings of RevPiPyLoad are also possible.

If the process image is to be made available for visualizations or other decentralized peripherals, you can activate the process image server of RevPiPyLoad. This allows external systems to write to the process image via RevPiNetIO. This can also be used to develop the control program on your own computer in the network. It is like developing directly on the RevPi.

For security reasons RevPiPyLoad is by default only accessible at the loopback address 127.0.0.1, i.e. only by the Revolution Pi itself. To use it from other computers in the network, you have to run the wizard "sudo revpipyload_secure_installation" on the Revolution Pi. This sets on which IP address RevPiPyLoad can be reached and which IP addresses are allowed to access it.

Further information can be found at: https://revpimodio.org/revpipyplc/

Third party software

logi.RTS was updated to version 4.3.0, TeamViewer to version 2.10.18.

PROCON-WEB IoT is no longer pre-installed as the partnership with Weidmüller GTI Software GmbH unfortunately ended. The last available version 6.3.7.0 can be manually installed with :

```
1   sudo apt-get install procon-web-iot
```

PiCtory

PiCtory now supports the RevPi Compact and a new "Virtual Device 32 Byte (Extended)" with up to 64 inputs and outputs.

For the Modbus Master the dialog "Extended Data" was extended by two features:

With the new checkbox "disable action rows limitation" it is possible to define more action rows than Modbus_Action_Status values.

And the checkbox "disable -Device Value- conflict checking" disables the check that newly inserted rows do not describe the same Device Value as existing rows. This improves the performance of PiCtory when many rows are to be inserted, but it is then the responsibility of the user to prevent such conflicts.