Release Notes

RevPi Bookworm 03/2026

REVOLUTION PI
a KUNBUS brand

2026-03-17

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Release Notes RevPi Bookworm 03/2026

The RevPi Bookworm image is based on Debian Bookworm and includes packages from Raspberry Pi OS.

The image contains all package updates that were released in the Debian, Raspberry Pi OS, and Revolution Pi package sources up to 2026-03-17. It uses kernel `6.12.56`.

Known issues

- Log entries from `/etc/udev/rules.d/99-com.rules:7 Unknown group 'X', ignoring` with the value `gpio`, `spi` and `i2c`. Raspberry Pi packages assume that these groups are present. This error does not cause any issues on the Revolution Pi system, see also Revolution Pi Forum.

Package versions

cockpit-revpi_1.13.0-1+deb12+1

- RevPi Apps can now be uninstalled via the “Apps” card
- Cockpit now features an updated, modern design with rounded elements

python3-revpimodio2_2.8.1-1+deb12+1

- The source code documentation has been translated into English.

revpi-base-files_1.3.2-1+deb12+1

- Reworked UART IRQ pinning on RevPi Connect 5 (stability improvement)
- Reworked network interface renaming logic on devices with SPI Ethernet (fixes incorrect interface names after boot)

Release Notes RevPi Bookworm 11/2025

The RevPi Bookworm image is based on Debian Bookworm and includes packages from Raspberry Pi OS.

The image contains all package updates that were released in the Debian, Raspberry Pi OS, and Revolution Pi package sources up to 2025-11-26. It uses kernel `6.12.56`.

Security Fixes

This image contains further security improvements based on the image Bookworm 08/2025. These were implemented on the basis of an external audit which was conducted in the context of the RED Commission Delegated Regulation 2022/30/EU. The specific changes are documented here.

Lower the limit of unauthenticated SSH connections

The number of unauthenticated SSH connections was lowered from a maximum of 100 to a maximum of 10. Additionally, the number of unauthenticated SSH connections from a single IP address was lowered from no limit to 3 open connections.

This is implemented in the package `revpi-security-ssh` and is automatically installed as a dependency of the general meta package `revpi-security`.

Webserver Security

TLS version 1.3 is now mandatory. All other TLS versions are disabled.

Security headers are set in revpi-webserver `0.5.0-1+deb12+1`.

- HSTS (always redirect HTTP to HTTPS)
- Permissions-Policy (disallow all features like `camera`, `geolocation`, `microphone`…)
- Cross-Origin-Embedder-Policy (disallow iframes from other domains)
- Cross-Origin-Opener-Policy (prevents cross-window/tab scripting attacks)

Known issues

- Log entries from `/etc/udev/rules.d/99-com.rules:7 Unknown group 'X', ignoring` with the value `gpio`, `spi` and `i2c`.

The reason for this is that Raspberry Pi packages assume these groups are present. This error doesn't cause any problems on the Revolution Pi. More information about this can be found in a forum post about this topic: https://revolutionpi.com/forum/viewtopic.php?p=16680#p16680

piControl

Cycle time as a fixed time grid

piControl has seen a few changes regarding the cycle time since the last release. The most significant change is that the cycle time, the time it takes to read and write all parameters from and to RevPi expansion modules and the RevPi itself, is now a fixed time grid. Previously the cycles were implemented to run as fast as possible.
The default behaviour now is to emulate the previous behaviour of running the cycles as fast as possible.

To control the time grid, a module parameter is introduced that allows configuring the time in microseconds for a cycle.

Kernel module parameters, including the ones for piControl, can be set in a file with the file extension `.conf` in `/etc/modprobe.d`. For example, the file `/etc/modprobe.d/picontrol-cycle-duration.conf` might set a cycle time of 20 milliseconds:

```
1 options piControl picontrol_cycle_duration=20000
```

This parameter is only applied when piControl is reloaded or by rebooting the device.

Similarly, the cycle time can also be set by writing to a special file while piControl is running, although this isn't persistent. This file is located at `/sys/class/piControl/piControl0/cycle_duration`. The following command can be used to set the cycle time to 20 milliseconds while piControl is running:

```
1 echo "20000" | sudo tee /sys/class/piControl/piControl0/cycle_duration
```

Reading from this file will return the current cycle time in microseconds.

Metrics exposed by piControl

piControl keeps track of metrics concerning the cycle time. These metrics can be read from files in the directory `/sys/class/piControl/piControl0/`. The following files are available to read:

- `cycle_duration`: The duration between the start of each cycle.
- `cycles_exceeded`: The amount of cycles that were longer than the cycle duration. This metric is influenced by `cycle_duration` and `max_cycle_deviation`.
- `cycles_missed`: The amount of cycles that were missed due to the cycle time being set too low and the current cycle taking too long to finish. This metric is influenced by `cycle_duration` and `max_cycle_deviation`.
- `last_cycle`: The time the last cycle took to complete.
- `max_cycle`: The highest cycle time measured since piControl is running.
- `max_cycle_deviation`: The maximum tolerated deviation from a fixed I/O-cycle.
- `min_cycle`: The lowest cycle time measured since piControl is running.

The minimum value for `cycle_duration` is `500` (the default). If the minimum cycle time is set it is semantically interpreted as trying to go as fast as possible, so the `cycles_missed` metric isn't incremented.

Attributes that can be modified (i.e. `cycle_duration` or `max_cycle`) are modified by writing a value to them.

The `max_cycle` and `min_cycle` metrics can be reset by writing a `0` to them.

Changes with the image

- The first boot mechanism has been reworked to be more robust
- The D-Bus machine-id in `/var/lib/dbus/machine-id` as well as the general machine-id in `/etc/machine-id` are reliably randomly generated upon first boot
- Images now ship with an initramfs by default
- Custom webserver deployments don't mark the packages `revpi-webserver` and `cockpit-revpi-apache` as unneeded anymore
- Avahi unicast DNS was disabled as recommended as a workaround for CVE-2024-52615 and CVE-2024-52616

Package versions

cockpit-revpi_1.12.0-1+deb12+1

- Permission to use serial interfaces as well as audio and video can be enabled for Node-RED in Cockpit
- The extended system protection feature for Node-RED can be completely disabled. Disabling the extended system protection feature is a security risk and needs to be strictly

evaluated before use. Using Node-RED without the extended system protection feature is not covered by KUNBUS support.
- WLAN can no longer be enabled without selecting a WLAN country code
- The password prompt for executing `sudo` can be disabled
- Cockpit supports the system initialization after flashing a device under “System -> Revolution Pi”. Previously this was only possible through the terminal outside of Cockpit.
- The Revolution Pi plugin has been moved to the top of the `System` section.

linux-image-revpi-v8_6.12.56-revpi0-1+deb12+1

- The Linux kernel version is updated from 6.6.84 to 6.12.56. This brings various security and bug fixes.

picontrol_2.4.0-1+deb12+1

- Various bug fixes and stability improvements

pictory_2.16.0-1+deb12+1

- Added hover feature to display default names in Value Editor
- Added counter display for tracking multiple attributes in Value Editor
- The data types “WORD” and “BYTE” are now supported by ModbusRTU and ModbusTCP Gateways
- Implemented comprehensive security enhancements including session handling, cookie security, file access restrictions, and hardened web server configuration
- Drop “Scan for Modbus Devices”

revpi-base-files_1.2.1-1+deb12+1

- Re-enable power save quirk on piBridge
  - Applies to RevPi Core 3(+) and RevPi Core S (Version 1.0)

revpi-security_0.3.0-1+deb12+1

- Added package `revpi-security-ssh`, which is automatically installed through `revpi-security`

  - Limit unauthenticated connections over SSH

revpi-tools_4.5.4-1+deb12+1

- Activating and deactivating WLAN updates states for both rfkill and NetworkManager
- Activating WLAN requires a WLAN country to be set
- Make resize of partitions and file systems on first boot more robust

revpi-webserver-apache_0.4.0-1+deb12+1

- The TLS configuration is hardened:
  - Only TLSv1.3 is enabled
  - Some TLS ciphers are disabled

Release Notes RevPi Bookworm 08/2025

The RevPi Bookworm image is based on Debian Bookworm and includes packages from Raspberry Pi OS.

The image contains all package updates that were released in the Debian, Raspberry Pi OS, and Revolution Pi package sources up to 2025-08-01. It uses kernel `6.6.84` with the RT patch version `52`.

Security Fixes

To meet the security requirements of RED Commission Delegated Regulation 2022/30/EU, various improvements have been made to our software packages and to the image:

- A firewall has been implemented to block unauthorized access while allowing traffic on the required ports. Port configurations are defined within the respective packages and can be enabled as needed via Cockpit or using the firewall-cmd command.
- `sudo` operations by the standard user now require a password. Passwordless `sudo` is no longer permitted. `sudo` can still be configured to not require a password (see section "`sudo` configuration without a password").
- Brute-force attacks with passwords are now defended against (e.g. at user login on the device or on Cockpit, etc.).
- The key length of the automatically generated TLS certificate used for various RevPi services was increased from 2048 bits to 4096 bits.

`sudo` configuration without a password

Beginning with this image `sudo` is configured in a way that the default user (via the `sudo` group) must enter their password when using it. To keep the old behaviour of not needing to enter a password to use `sudo`, the following command can be executed in a terminal (e.g. in Cockpit -> Terminal):

```
1 echo "%sudo ALL=(ALL) NOPASSWD: ALL" | sudo tee /etc/sudoers.d/050_sudo
    -group-password-prompt
```

The following command can be used to revert to the new behaviour of needing to enter a password for all users in the `sudo` group:

```
1 echo "%sudo ALL=(ALL) ALL" | sudo tee /etc/sudoers.d/050_sudo-group-
    password-prompt
```

CODESYS

The installation of “CODESYS Control for Linux ARM64 SL” proceeds as usual. However, the firewall rule for CODESYS must be enabled, as otherwise the CODESYS IDE cannot find the device on the network.

Further information about the Profinet protocol can be found here.

Via Cockpit

- Open the “Network” menu item.
- Click on “Edit rules and zones” in the “Firewall” section.
  - Click on “Add services”.
  - Search for “revpi-codesys” and enable the rule.
  - Click on “Add services”.

After these steps, the device will be found via the CODESYS IDE in “Browse network”.

Via Terminal

The following commands activate the rule and reload the firewall:

```
sudo firewall-cmd --permanent -add-service=revpi-codesys
sudo firewall-cmd --reload
```

After these steps, the device will be found via the CODESYS IDE in “Browse network”.

Modbus Server (Slave) und OPC UA Server in PiCtory

When configuring these devices in PiCtory, the respective rules must be activated in the firewall!

> If ports other than the standard ports are used, these ports must also be activated in the firewall!

Via Cockpit

- Open the “Network” menu item.
- Click on “Edit rules and zones” in the “Firewall” section.
  - Click on “Add services”.

  - Search for “revpi-modbus-default” or “opcua-server-default” and enable the rule.
  - Click on “Add services”.

> If additional ports are needed, “Custom Ports” must be selected above.

Via Terminal

The following commands activate the rule and reload the firewall:

```
sudo firewall-cmd --permanent --add-service=revpi-modbus-default
sudo firewall-cmd --permanent --add-service=opcua-server-default
sudo firewall-cmd --reload
```

> If additional ports are needed, they must be activated via `firewall-cmd --permanent --add-port=`

Known issues

- Log entries from `/etc/udev/rules.d/99-com.rules:7 Unknown group 'X', ignoring` with the value `gpio`, `spi` and `i2c`.
  The reason for this is that Raspberry Pi packages assume these groups are present. This error doesn’t cause any problems on the Revolution Pi. More information about this can be found in a forum post about this topic: https://revolutionpi.com/forum/viewtopic.php?p=16680#p16680
- Activating WLAN isn’t possible via `revpi-config` and can only be activated with Cockpit for now. This will be possible with `revpi-config` through a later update of the package revpi-tools.

Changes with the image

- A firewall solution (`firewalld`) is now installed by default.
- WLAN and Bluetooth are disabled by default on all devices supporting this functionality and must first be activated (e.g. via Cockpit) before they can be used.
- A country code for WLAN must be selected before it can be used
- Users will be locked for 10 minutes after 3 incorrect password attempts. See revpi-pam-faillock_0.1.0-1+deb12+1.

Package versions

A detailed list of all changes can be found in the changelog of the respective package. (e.g.: `/usr/share/doc/PACKAGE_NAME/changelog.Debian.gz`).

cockpit-revpi_1.8.0-1+deb12+1

- Fullscreen display for the Node-RED Editor in expert mode
- When installing Node-RED, `revpi-nodered-firewalld` is also installed if a firewall is installed on the system.

cockpit-revpi-redirect-firewalld_1.8.0-1+deb12+1

- Added firewall configuration to allow TCP ports 80 and 443.

revpi-webserver-firewalld_0.3.0-1+revpi12+1

- Added firewall configuration to allow TCP port 41443.

revpi-cert-wizard_1:2.5.0-1+deb12+1

- Increased default certificate key length to 4096 bits for stronger encryption.

pictory_2.14.0-1+deb12+1

- RevPiTimer has been deprecated and removed.

pitest_1.8.1-1+deb12+1

- piTest now identify Virtual Devices and print corresponding name.

revpi-security_0.1.0-1+deb12+1

- Initial release of the meta-package revpi-security. The packages `revpi-pam-faillock` and `revpi-firewalld-services` are installed as dependencies.

revpi-pam-faillock_0.1.0-1+deb12+1

- Added PAM-based protection against brute-force attacks by locking accounts after repeated failed login attempts. The default is locking accounts after 3 tries for 10 minutes. This can be configured through `/etc/security/faillock.conf`.

revpi-firewalld-services_0.2.0-1+deb12+1

- New package which deploys firewall service definitions for various Revolution Pi services. These can be found and activated in Cockpit under Networking -> Firewall -> Edit rules and zones -> Add services.
  Initially, revpi-firewalld-services only ships configuration for using CODESYS.

Linux Kernel (linux-image-revpi-v8) 6.6.84-rt52-revpi9-1+deb12+1

- The rudimentary Energy Efficient Ethernet (EEE) support on the LAN A of the RevPi Connect 5 was deactivated. The connection frequently broke off due to a faulty driver for the Compute Module 5. This only concerns setups where the LAN A of a Connect 5 is connected to an EEE-enabled device and EEE is enabled on both sides.

Release Notes RevPi Bookworm 05/2025

The RevPi Bookworm image is based on Debian Bookworm and includes packages from Raspberry Pi OS.

The image contains all package updates that were released in the Debian, Raspberry Pi OS, and Revolution Pi package sources up to 2025-05-28. It uses kernel `6.6.84` with the RT patch version `52`.

Based on the retired Bookworm 04/2025 image

Some Files in the Bookworm 04/2025 image (i.e. `/etc/hosts` or `/usr/share/keyrings/raspberrypi-archive-keyring.gpg`) have the wrong permissions. This is a security risk.

All devices that have a Bookworm 04/2025 image installed should update to 05/2025. Alternatively the Bookworm 04/2025 image should be updated quickly (either through Cockpit or the terminal with `sudo apt update && sudo apt dist-upgrade -y`) to fix the permission of all affected files.

Package versions

A detailed list of all changes can be found in the changelog of the respective package. (e.g.: `/usr/share/doc/PACKAGE_NAME/changelog.Debian.gz`).

cockpit-revpi_1.6.0-1+deb12+1

- The browser now displays a favicon.
- Internal optimizations to improve availability.

picontrol_2.3.6-1+deb12+1

- Fixed a bug on the RevPi Compact which would crash piControl on repeated write to the process image while the CPU is under load.

revpi-base-files_1.1.1-1+deb12+2

- The image Bookworm 04/2025 has certain files that are installed with wrong permissions. The permissions for these files is fixed with an update to revpi-base-files version 1.1.1-1+deb12+2.
  This bug only appears on the Bookworm 04/2025 image. The permissions of the files is only changed if a Bookworm 04/2025 is used and file permissions weren't changed from the stock image.

revpi-sos-report_2.2.0-1+deb12+1

- Additional data is added to the RevPi SOS Report, including piBridge statistics, a list of all installed packages with their versions, and rotated logs. This allows the support team to solve problems more efficiently and provide faster support.

Release Notes RevPi Bookworm 04/2025

The RevPi Bookworm image is based on Debian Bookworm and includes packages from Raspberry Pi OS.

The image contains all package updates that were released in the Debian, Raspberry Pi OS, and Revolution Pi package sources up to 2025-04-30. It uses kernel `6.6.84` with the RT patch version `52`.

Security Fixes

This release includes security fixes for the following vulnerabilities:

- PiCtory:
  - CVE-2025-32011
  - CVE-2025-35996
  - CVE-2025-36558
- Node-RED:
  - CVE-2025-24522

The relevant KUNBUS security advisories are found here:

- https://www.kunbus.com/en/productsecurity/revolution-pi-authentication-bypass-and-xss-in-pictory
- https://www.kunbus.com/en/productsecurity/kunbus-2025-0000002-missing-authentication-in-node-red-integration

More information about vulnerabilities of KUNBUS products can be found here in the KUNBUS security advisories: https://www.kunbus.com/en/security-advisories

New Features

- New Cockpit configuration tool for Node-RED: RevPi Node-RED
  - The packages `revpi-nodered` and `noderedrevpinodes-server` are no longer preinstalled in any image.
  - The functionality can be conveniently installed via the new “Apps” tile in Cockpit. This also includes the new plugin for configuring Node-RED.

  - Using the terminal, the functionality can be installed in any image via `apt install cockpit-revpi-nodered`.

- All images prior to this one did not automatically install recommended packages. This has now changed: recommended packages are automatically installed by default. This aligns with the default behavior of all upstream Debian installations.
  To achieve the same behavior on an older image, you can use the following command:

```
sudo sed -i -e '/^APT::Install-Recommends "false";$/d' /etc/apt/apt.conf
```

Known issues

- Log entries from `/etc/udev/rules.d/99-com.rules:7 Unknown group 'X', ignoring` with the value `gpio`, `spi` and `i2c`.
  The reason for this is that Rasbperry Pi packages assume these groups are present. This error doesn't cause any problems on the Revolution Pi. More information about this can be found in a forum post about this topic: https://revolutionpi.com/forum/viewtopic.php?p=16680#p16680

Changes with the image

- The GUI isn't available on a lite image, but it can be installed by installing the `revpi-ui` package. To start the GUI, it has to first be enabled through `raspi-config`. This is the same behaviour as on the default image.
- The file `/etc/machine-info` is populated with useful non-device specific information.
- The default image can only be used on devices with more than 4 GB of storage due to increased storage requirements.

Package versions

A detailed list of all changes can be found in the changelog of the respective package. (e.g.: `/usr/share/doc/PACKAGE_NAME/changelog.Debian.gz`).

cockpit-revpi-nodered_1.0-1+deb12+1

- Added a user-friendly tool for securely configuring Node-RED as a cockpit plugin.

cockpit-revpi_1.5.0-1+deb12+1

- Introduced a RevPi Apps list to easily start, configure, or install available applications.
- Automatically enables swap space when activating GUI mode on devices with limited memory.

pictory_2.13.0-1+deb12+1_all

- Several security vulnerabilities have been fixed. More details are available through the KUNBUS security advisories: https://www.kunbus.com/en/security-advisories
- Digital input modules (DI) now have, like the DIO, a configuration assistant for configuring the “Counter” (MEM). When using “Encoders”, for example, the associated input is also configured as “Encoder”.
- Improved user interface:
  - Optimized default panel dimensions for efficient workspace utilization
  - Enhanced device tree visualization
  - Implemented direct datasheet access for all devices via context menu
  - Added a notification system to prompt cache clearing after PiCtory version updates

revpi-base-files_1.1.1-1+deb12+1

- Bluetooth on the Flat S works again after boot without manual intervention.

linux-image-6.6.0-revpi8-rpi-v8_6.6.84-rt52-revpi8-1+deb12+1

- PiBridge communication errors are no longer logged immediately. They are only written to the kernel log once a certain threshold is reached, indicating a problem with the connection. Error data can now be found in `/sys/bus/serial/drivers/pi-bridge/stats/`
- Unused HDMI ports are now deactivated on the Connect 4, Connect 5, and Flat S. This ensures that only active audio and video interfaces are shown in the system.
- The EEPROM bootloader can now be updated without extra hardware-related steps on the Connect 4 and Flat S.
- The kernel version was updated from v6.6.46-rt39 to v6.6.84-rt52.

picontrol-6.6.0-revpi8-rpi-v8_2.3.5-1+deb12+1

- The firmware update process is now significantly more stable during normal operation.

pitest_1.8.0-1+deb12+1

- The `--force` flag has been introduced to allow a firmware update even if the current firmware version is equal to or older than the one running on the module.
- A spinner has been added to provide visual feedback while a firmware update is in progress, improving the user experience and making the process more intuitive.

revpi-bluetooth_1.1.2-1+deb12+1

- Wi-Fi on the RevPi Flat now also works on Bookworm after a warm start.

Release Notes RevPi Bookworm 01/2025

The RevPi Bookworm image is based on Debian Bookworm and includes packages from Raspberry Pi OS.

The image contains all package updates that were released in the Debian, Raspberry Pi OS, and Revolution Pi package sources up to 2025-01-24. It uses kernel `6.6.46` with the RT patch version `39`.

New Features

- Important information is displayed during package updates using the new pre-installed package apt-listchanges (Terminal only).

Known issues

- Log entries from `/etc/udev/rules.d/99-com.rules:7 Unknown group 'X', ignoring` with the value `gpio`, `spi` and `i2c`.
- WLAN on the RevPi Flat is currently not usable after a warm start. It was found that the problem can be avoided using an older firmware version (firmware-brcm80211 20230210). A fix that resolves this issue is being provided and can be installed via the update in Cockpit or `sudo apt update && sudo apt upgrade`.
- Removing the Chromium browser causes the Connect 5 to no longer boot into the GUI.
- The noderedrevpinodes-server crashes on devices with a freshly flashed image approximately every 10 seconds and restarts because the PiCtory configuration is missing (file under /etc/revpi/config.rsc).
  - When the PiCtory configuration is created, the service no longer crashes and runs as expected.
  - On new devices that come fresh from production, this does not happen, as new devices are already shipped with a basic PiCtory configuration in production.

Package versions

A detailed list of all changes can be found in the changelog of the respective package. (e.g.: `/usr/share/doc/PACKAGE_NAME/changelog.Debian.gz`).

cockpit-revpi_1.2.1-1+deb12+1

- The Message of the day (MOTD) during login on the console now shows the correct port through which Cockpit is accessible (Port 41443, if a network connection exists).
- The Cockpit plugin “RevPi Configuration” can no longer be accidentally removed within Cockpit itself. This previously led to the entire Cockpit being inaccessible from remote computers.

noderedrevpinodes-server_1.2.0-1+deb12+1

- Log outputs now appear in `journald` and Cockpit.
- The PiCtory configuration is internally reloaded when it is modified by the user and activated through a “Driver reset”.
- The IO processing has been stabilized.

pictory_2.11.1-1+deb12+1

- The DIO module now displays 14 inputs and 14 outputs. This corresponds to the hardware, and the previous value of 16 each was incorrect.
- The URL for the datasheet has been provided for the RevPi Connect 5.

revpi-base-files_0.7.0-1+deb12+1

- Sets the `cpufreq` governor to the value `performance`. This value could be changed by Raspberry Pi packages. Other values cause errors on the PiBridge and destroy the real-time capability.
- At high utilization of the network interface of the RevPi Connect 4, packet losses occurred on the PiBridge, which led to many error messages in the system log. From now on, the reception of RS485 data packets on PiBridge will be handled by a different CPU core than the network traffic.

revpi-tools_4.4.1-1+deb12+1

- Ensure cache is written to disk after ssh key generation.

revpi-ui_0.1.2-1+revpi12+1

- The graphical user interface can be started on a Connect 5.
- New wallpapers for the desktop and the desktop login.

Release Notes RevPi Bookworm 12/2024

The RevPi Bookworm images are based on Debian Bookworm and include packages from Raspberry Pi OS.

The images contain all package updates that were released in the Debian, Raspberry Pi OS, and Revolution Pi package sources up to 2024-12-05. It uses kernel `6.6.46` with the RT patch version `39`.

Known issues

- Log entries from `/etc/udev/rules.d/99-com.rules:7 Unknown group 'X', ignoring` with the value `gpio`, `spi` and `i2c`.
- WLAN on the RevPi Flat is currently not usable after a warm start. It was found that the problem can be avoided using an older firmware version. A fix that resolves this issue is being provided and can be installed via the update in Cockpit or `sudo apt update && sudo apt upgrade`.

Package versions

A detailed list of all changes can be found in the changelog of the respective package. (e.g.: `/usr/share/doc/PACKAGE_NAME/changelog.Debian.gz`).

pictory_2.11.0-1+deb12+1_all

- Adds support for the RevPi Connect 5.

pitest_1.7.0-1+deb12+1_arm64

- Adds support for the RevPi Connect 5.

python3-revpimodio2_2.8.0-1+deb12+1_all

- Adds support for the RevPi Connect 5.
- Context managers for the entire instance will be discontinued, the context managers for the IOs will remain.

- For RevPis with RGB LEDs, additional constants have been added for the colors of the LEDs.

revpi-base-files_0.5.0-1+deb12+1_all

- Adds support for the RevPi Connect 5.
- The configuration for logrotate is installed correctly.

revpi-sos-report_2.1.0-1+deb12+1_all

- Now adds all relevant data from Bookworm-Images to the sos report:
  - `/var/log/syslog` file instead of `/var/log/messages`.
  - Apache protocols of the Revolution Pi configuration pages.
  - `cmdline.txt` and `config.txt` from `/boot/firmware`.
  - New CODESYSControl configuration files are collected as well.
- Manual page for revpi-sos have been slightly revised.

revpi-tmpfs-logs_1:2.4.5-1+revpi12+5

- The revpi-tmpfs-logs package is no longer available with the 2024/12 image, so `/var/log` can no longer be configured as tmpfs.

revpi-tools_4.3.0-1+deb12+1_arm64

- Adds support for the RevPi Connect 5.
- Removes arguments `downclock-cpu` and `perf-governor` from `revpi-config`.

Linux Kernel (linux-image-revpi-v8) 6.6.46-rt39-revpi6-1+deb12+1

- Adds support for the RevPi Connect 5.
- Bugfix for sporadically incorrectly read analog values on the RevPi Flat.
- Setting the CAN termination results in a warning in the kernel logfile. A fix will be provided via a package update an can be installed via Cockpit or `sudo apt update && sudo apt upgrade`.

picontrol 2.3.1-1+deb12+3

- Adds support for the RevPi Connect 5.

Release Notes RevPi Bookworm 10/2024

Changes from Bookworm

- The RevPi Bookworm Images are based on Debian Bookworm and Raspberry Pi OS Bookworm.
- The RevPi Bookworm Images are only offered as a 64-bit version. There will no longer be any 32-bit (armhf) variants.
- An upgrade from Bullseye is not supported.
  - The boot partition is now mounted under `/boot/firmware`.
  - The `config.txt`, the device tree, and overlay files can now be found in `/boot/firmware`.
- RevPi Status is being replaced by Cockpit.
  - The login to Cockpit is done using the user `pi`, not the user `admin`.
  - PiCtory can now be accessed via the menu entry “RevPi Configuration” in Cockpit.
- The access rights of the user `pi` have been restricted.
  - There are now various user groups to configure access rights in a fine-grained manner.

> An upgrade from Bullseye to Bookworm is not supported, just like on the Raspberry Pi! The images need to be reinstalled on the devices.

Known issues

- Configuring the keyboard layout via `raspi-config` is only possible if the `console-setup` package is installed beforehand: `sudo apt install console-setup`.
- Log entries from `/etc/udev/rules.d/99-com.rules:7 Unknown group 'X', ignoring` with the value `gpio`, `spi` and `i2c`.
- WLAN on the RevPi Flat is currently not usable after a warm start. It was found that the problem can be avoided using an older firmware version. A fix that resolves this issue is being provided and can be installed via the update in Cockpit or `sudo apt update && sudo apt upgrade`.
- To fix a Bluetooth issue on the RevPi Flat S, the `revpi-bluetooth` package needs to be updated. Version 1.1.0 fixes the problem.

Package versions

An detailed list of all changes can be found in the changelog of the respective package. (e.g.: `/usr/share/doc/PACKAGE_NAME/changelog.Debian.gz`).

cockpit-revpi 1.2.0-1+deb12+1

Cockpit plugin for the configuration of the Revolution Pi. This package replaces `revpi-webstatus`. As a dependency, the entire cockpit system, including selected plugins, is installed. To use Cockpit, this package must be installed via `cockpit-revpi-apache`.

Further information: Cockpit replaces RevPi Status

cockpit-revpi-apache 1.2.0-1+deb12+1

Integrate `cockpit-revpi` into the Apache web server on port 41443 under `/cockpit-revpi/` and install the `cockpit-revpi` package as a dependency on the system.

Further information: Cockpit replaces RevPi Status

cockpit-revpi-redirect-apache 1.2.0-1+deb12+1

Allows calling Cockpit without specifying the port. For your own web applications on the Revolution Pi system, the package can be uninstalled, making the standard ports 80 and 443 freely usable: `apt remove cockpit-revpi-redirect-apache`

> Cockpit remains accessible via port 41443.

Further information: Cockpit replaces RevPi Status

Linux Kernel (linux-image-revpi-v8) 6.6.46-rt39-revpi2-1+deb12+1

Until Bullseye, the Linux kernel and piControl were built in a package under the name raspberrypi-kernel. That changes with Bookworm. The new Linux kernel package is called `linux-image-revpi-v8` and is built differently from the previous kernel package. piControl has its own package named `picontrol`.
We are using the stable version 6.6 for the Linux kernel.

A dedicated device tree overlay for activating the DSA feature on the RevPi Flat S is now also being offered.

mqtt-revpi-client 0.1.0-1+revpi12+2

With this package, the virtual MQTT Client Device is installed in the PiCtory device catalog and is ready for use. With this device, all IOs can be sent and received via an MQTT broker.

opcua-revpi-server 0.4.0-1+revpi12+2

With this package, the virtual OPC UA Server Device is installed in the PiCtory device catalog and is ready for use. With this device, all IOs can be directly addressed via OPC UA.

picontrol 2.2.1-1+deb12+1

piControl is now, like the Linux Kernel, no longer part of the `raspberrypi-kernel` package but exists as a separate package named `picontrol`.

Through optimizations to the UART driver, the processor load demanded by piControl was significantly reduced.

A bug was also fixed that caused increased errors on the PiBridge. This applies especially (but not exclusively) to the case where data was simultaneously sent over a separate RS-485 connection.

The process image under `/dev/piControl0` could previously be read and written by all users. With Bookworm, this is only possible for users in the `picontrol` group. The user `pi` is a member of this group by default.
If other users are to have access to the process image on the system, they must be added to the `picontrol` group. This can be done, for example, with the following command: `sudo adduser $USER picontrol`.

> Access to `/dev/piControl0` is only possible as a member of the `picontrol` group.

pictory-apache 2.10.0-1+deb12+1

Integrate PiCtory into the Apache web server on port `41443` under `/pictory/` and install the `pictory` package as a dependency on the system.

pictory 2.10.0-1+deb12+1

No longer contains web server configurations. To use the web application, this package must be installed via `pictory-apache`.

python3-revpimodio2 2.7.2-1+deb12+1

- Fixes a bug where the relay could not be controlled on a Connect 4.
- The colors of the LEDs over .core.A1 - .A5 on a Connect 4 are now switched according to the constants GREEN, RED, and BLUE.

> Starting with the RevPi Bookworm Images, the user executing the process must be a member of the `picontrol` group. In the case of a PermissionDenied error, this should be checked as the first step of the error investigation.

revpi-base-files 0.4.1-1+revpi12+1

The package installs basic files required for the minimal operation of a Revolution Pi device.

revpi-cert-wizard 1:2.4.5-1+revpi12+4 + revpi-tmpfs-logs 1:2.4.5-1+revpi12+4

The functions for creating TLS certificates and storing logs in a tmpfs (in RAM) were part of `revpi-webstatus`. By replacing RevPi Status with Cockpit, these two components were released as standalone packages.

revpi-nodered-proxy-apache 1.5.1-1+deb12+1

Integrate Node-RED into the Apache web server on port `41880` and install the `revpi-nodered` package. `revpi-nodered` installs the complete Node-RED environment with the RevPi nodes, which were otherwise part of the `node-red-contrib-revpi-nodes` package.

> To install `revpi-nodered` in a Lite image, `revpi-nodered-proxy-apache` must be installed, otherwise it will only be available via `localhost`. Alternatively, it can be installed via Cockpit in the "RevPi Configuration" menu item.

Further information: Node-RED as a standalone package

revpi-tools 4.2.2-1+revpi12+1

This package still contains tools for the Revolution Pi, but no base files required for minimal operation. These are now being installed via the `revpi-base-files` package.

revpi-ui 0.1.0-1+revpi12+1

Installs all dependencies for using the graphical user interface (GUI). Can be used in lite images for the subsequent installation of the GUI.

```
sudo apt install revpi-ui
```

revpi-webstatus

This package no longer exists. The functions have been outsourced to the following packages:

- revpi-webserver-apache
- cockpit-revpi-apache
- pictory-apache
- revpi-cert-wizard
- revpi-tmpfs-logs

revpi-webserver-apache 0.2.0-1+revpi12+2

Framework for web server configurations for all RevPi web applications on port 41443. Packages like PiCtory, Cockpit, Node-RED extend this configuration and are immediately accessible via the web interface after installation. No more `systemctl reload apache2` needed.

More Information

Cockpit replaces RevPi Status

Starting with the RevPi Bookworm Images, the basic configuration with RevPi Status is replaced by Cockpit. The new interface offers, in addition to the configuration options from RevPi Status, various other ways to manage the entire system.

Cockpit is a web application for configuring Linux servers. Cockpit offers a user-friendly graphical interface that allows authenticated users to execute any configurations and commands on a device over a secure connection. Network configuration, user management, status and log views can be managed through a browser. Cockpit, also known as Web Console, is an open-source software project sponsored by Red Hat, released under the GNU Lesser General Public License (LGPL).

Cockpit is based on a modular principle and can be extended with plugins. The package `cockpit-revpi` is a Cockpit plugin from Revolution Pi. The plugin allows for the basic configuration of RevPi devices and a simple activation or deactivation of the installed services.

> IMPORTANT: For registration, the username and device password on the sticker on the side of the RevPi base module are now used. The default user is “pi” (previously “admin”).
>
> Current base modules that are already delivered with the Bookwork images have the name of the new standard user printed on the case. (“pi” instead of “admin”).

Basic Configuration with Cockpit

Cockpit is accessed via a web browser at `https://revpi[serial number].local:41443`. The login is done with the username pi and the device password.

In Cockpit, the mode must be switched from Limited access to Administrative access in order to change various settings.

Through the RevPi Configuration menu, the settings for the basic configuration can be made as previously done in the RevPi Status.

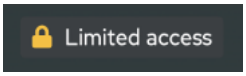

Figure 1: cockpit_access_button_en.png

Starting from the RevPi Bookworm Images, PiCtory will also be launched via Cockpit. The configuration of the Revolution Pi System, which consists of a RevPi base module with extension modules, is done via PiCtory.

If the lite version of the RevPi images has been installed, missing packages like Node-RED can be installed at this point.

> All settings are applied immediately upon being set.

Software updates

In the cockpit menu Software updates, all installed software packages on the Revolution Pi system can be updated.

Network information

In the cockpit menu Networking, network information can be queried and, for example, a static IP address can be set for the interfaces.

Adding the RevPi to a Wi-Fi network is not possible here. For this purpose, the web console and `sudo nmtui` in the browser can be used.

> If the IP address is changed, Cockpit must be restarted via the web browser.

Log files and SOS report

In the cockpit menu Logs, the logs can be filtered and viewed for troubleshooting.

In the cockpit menu Diagnostic reports, an SOS report for error diagnosis can be created and exported.

Integrated terminal

Through the cockpit menu Terminal, an integrated, fully functional terminal opens, through which commands can be entered directly.

SSH connection

It is also possible to access the RevPi base module via an SSH connection with the RevPi Bookworm images.

Node-RED as a standalone package

The Node-RED server is installed in the system via the `revpi-nodered` package. This package also includes the `node-red-contrib-revpi-nodes` in the latest version and will be automatically updated via package updates, just like Node-RED. In images before Bookworm, these were installed via a separate package, which no longer exists.

Node-RED runs on the Revolution Pi system as a systemd service and starts, for security reasons, only with access via `localhost` on port `1881`. To ensure that Node-RED is accessible remotely via an encrypted connection, the pre-installed package `revpi-nodered-proxy-apache` installs a proxy configuration for the Apache web server. Node-RED is remotely accessible via the address of the Revolution Pi on port `41880`.

The Node-RED process runs as the system user `nodered`. All settings and user data are located in the folder `/var/lib/revpi-nodered`. This path is also the only path where the user can write data. The rest of the file system is only available for reading.

Permissions

If access to devices in the `/dev` directory is to be granted via Node-RED, such as RS-485, the user `nodered` must be added to the respective groups that have write access to the devices.

An example is `/dev/ttyRS485-0`, which can be used, for instance, for Modbus. The user `nodered` can obtain access rights either via SSH or through the terminal in the cockpit with the following command:

```
1 sudo adduser nodered dialout
```

> The access to the IOs of the Revolution Pi with the integrated nodes runs through the noderedrevpinodes-server, for which no further permissions need to be set.

Establish standard behavior

If it is necessary for Node-RED to be accessible remotely through the standard method for certain reasons, the following changes can be made to the system. These changes are not supported by us and should only be carried out by experienced users.

- Uninstallation of the web configuration

```
1 sudo apt purge revpi-nodered-proxy-apache
```

- Create an override for the existing systemd file (do not modify the original file, as it would be restored during an update)

```
1 sudo mkdir -p /etc/systemd/system/nodered.service.d
2 cat | sudo tee /etc/systemd/system/nodered.service.d/custom-override.
     conf <<"__END__"
3 [Service]
4 # Clear existing configuration
5 ExecStart=
6 # Use start command without bind ip and port
7 ExecStart=/usr/bin/env /usr/share/revpi-nodered/node_modules/node-red/
     bin/node-red-pi $NODE_OPTIONS $NODE_RED_OPTIONS -D uiPort=1880 -D
     uiHost=0.0.0.0
8 __END__
```

CODESYS

- At least “CODESYS Control Linux ARM 64 (v4.10.0.0)” must be used.
- The RS-485 interfaces now have consecutive numbers `/dev/ttyRS485-0`, `/dev/ttyRS485-1`.

For the use of the RS-485 interfaces, the following entry must be added to `/etc/CODESYSControl.cfg`:

```
1 [SysCom]
2 Linux.Devicefile =/dev/ttyRS485-
```

> The line ends with a hyphen, this is not a typo!

This results in the following assignments in CODESYS:

- `/dev/ttyRS485-0` -> COM Port 1
- `/dev/ttyRS485-1` -> COM Port 2 (Flat S)

> The device `/dev/ttyRS485` is obsolete. For compatibility with Bullseye, it still exists and will be completely removed with the next Debian release.