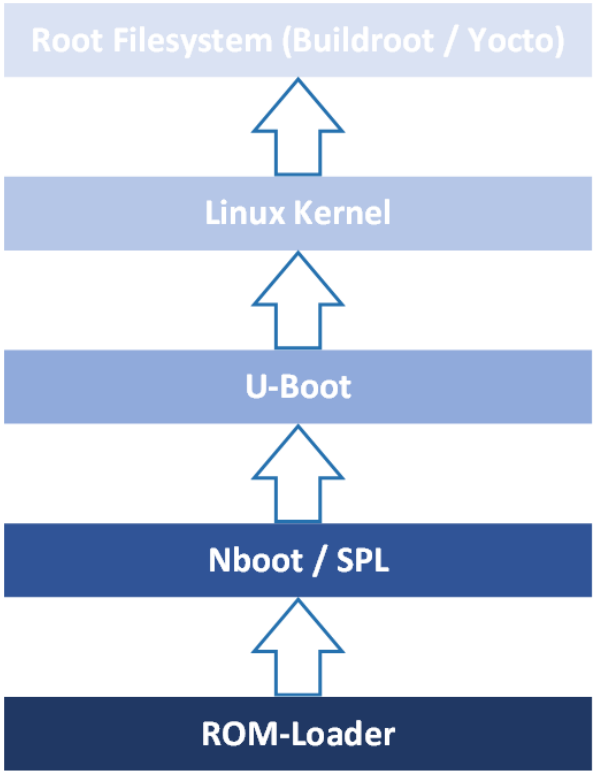
Products Linux Update 2020

F & S Elektronik Systeme GmbH | Untere Waldplätze 23, D-70569 Stuttgart | T +49-711 123722-0 | F +49-711 123722-99 | http://www.fs-net.de

Content

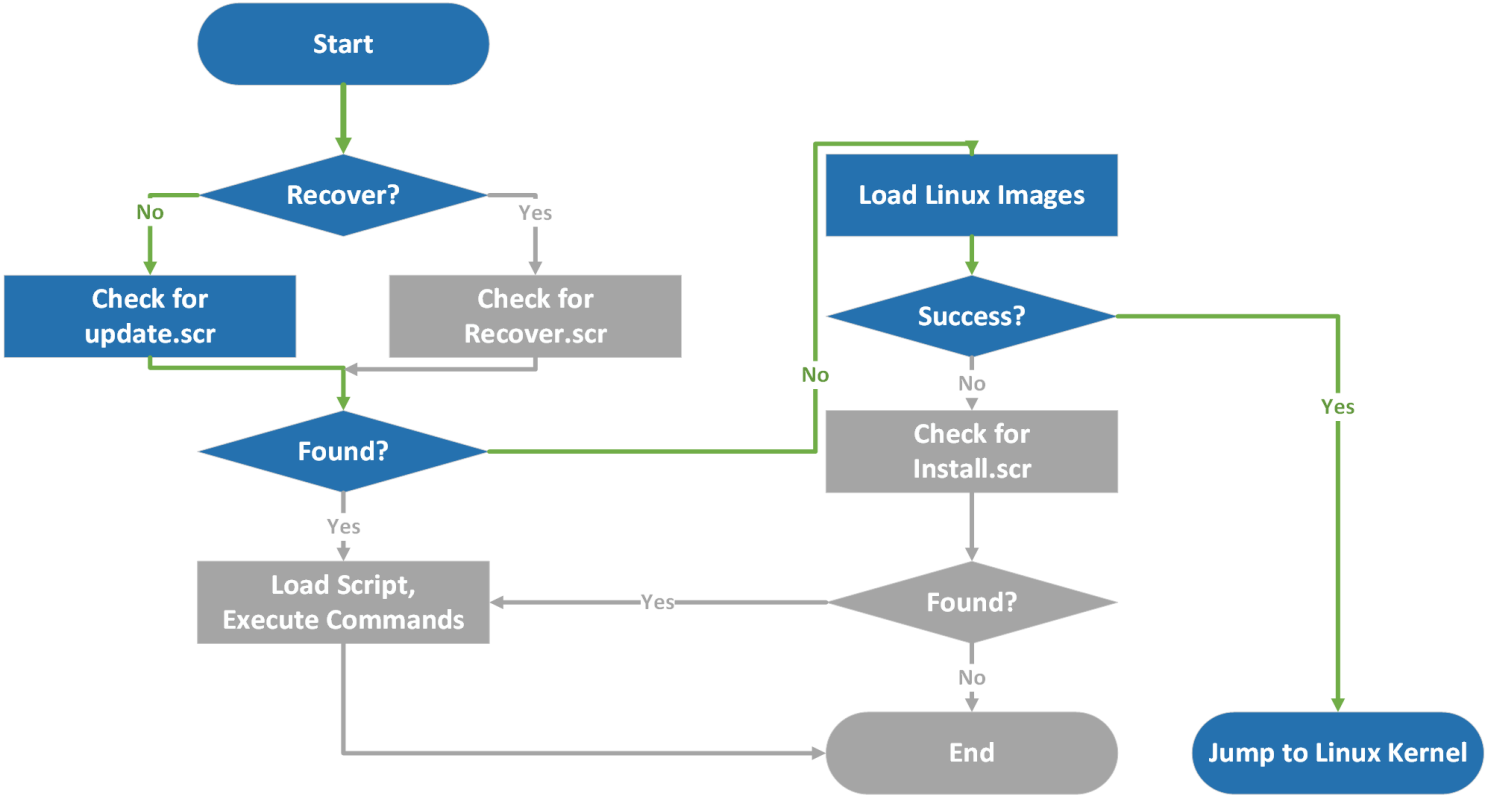
- F&S Linux Update Concept (USB Stick, SD Card)
- F&S Linux Cloud Update and Device Health

F&S Linux Update Concept (USB Stick, SD Card)
Boot Sequence

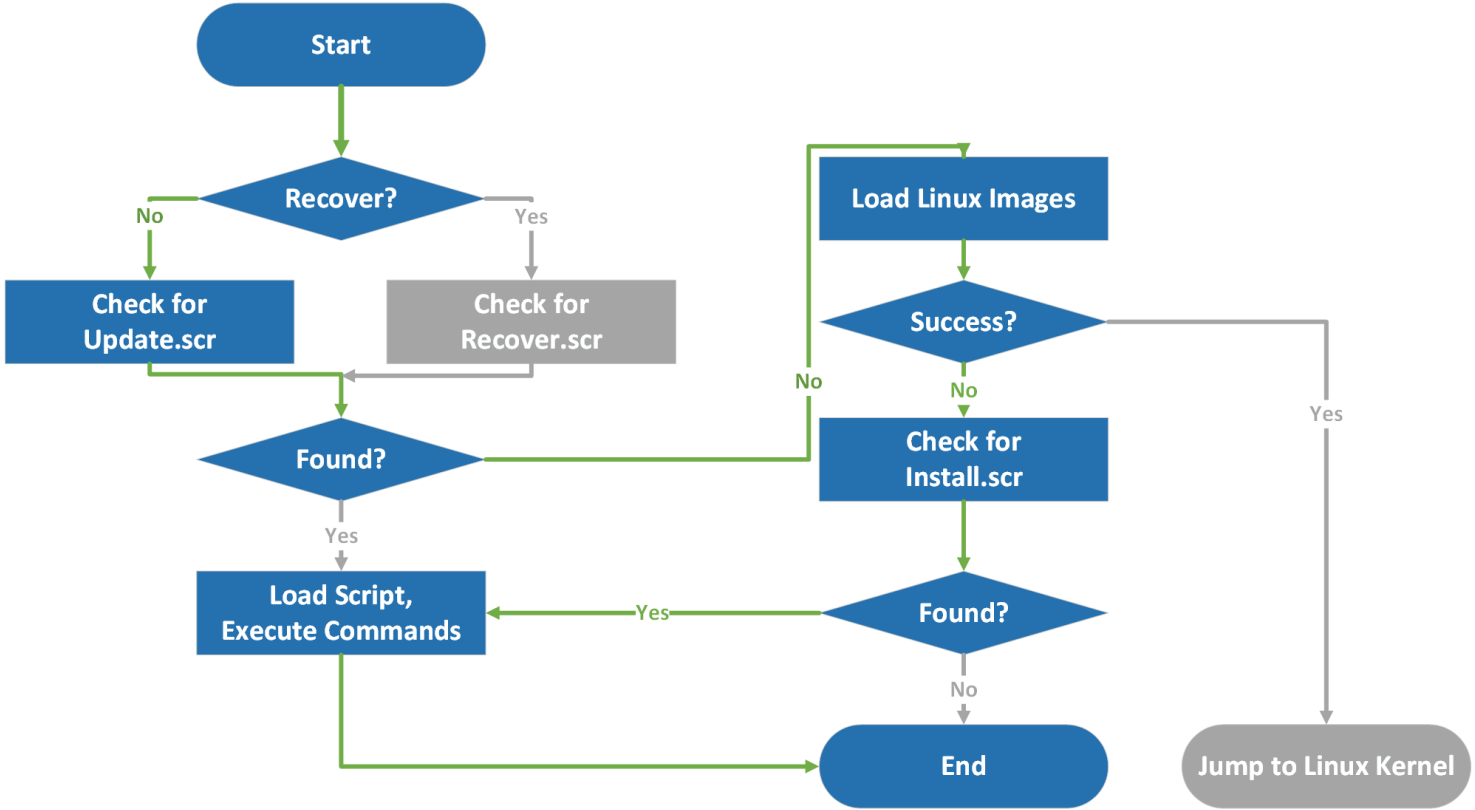


- **Finish boot process, provide Userland**
  - Start daemons and services, e.g. GUI
  - Start customer application
- **Provide Operating System, load Root FS**
  - Multitasking, Processes, Memory Management
  - Storage, Networking, Devices, I/O, Multimedia
- **Start Linux, update U-Boot & Linux images**
  - Different boot strategies
  - Board configuration
- **Start main bootloader, update bootloaders**
  - Same NBoot for Linux and WinCE
  - Stays on the board even if flash is erased
- **First main Loader**
  - Integrated in the CPU
  - Read only

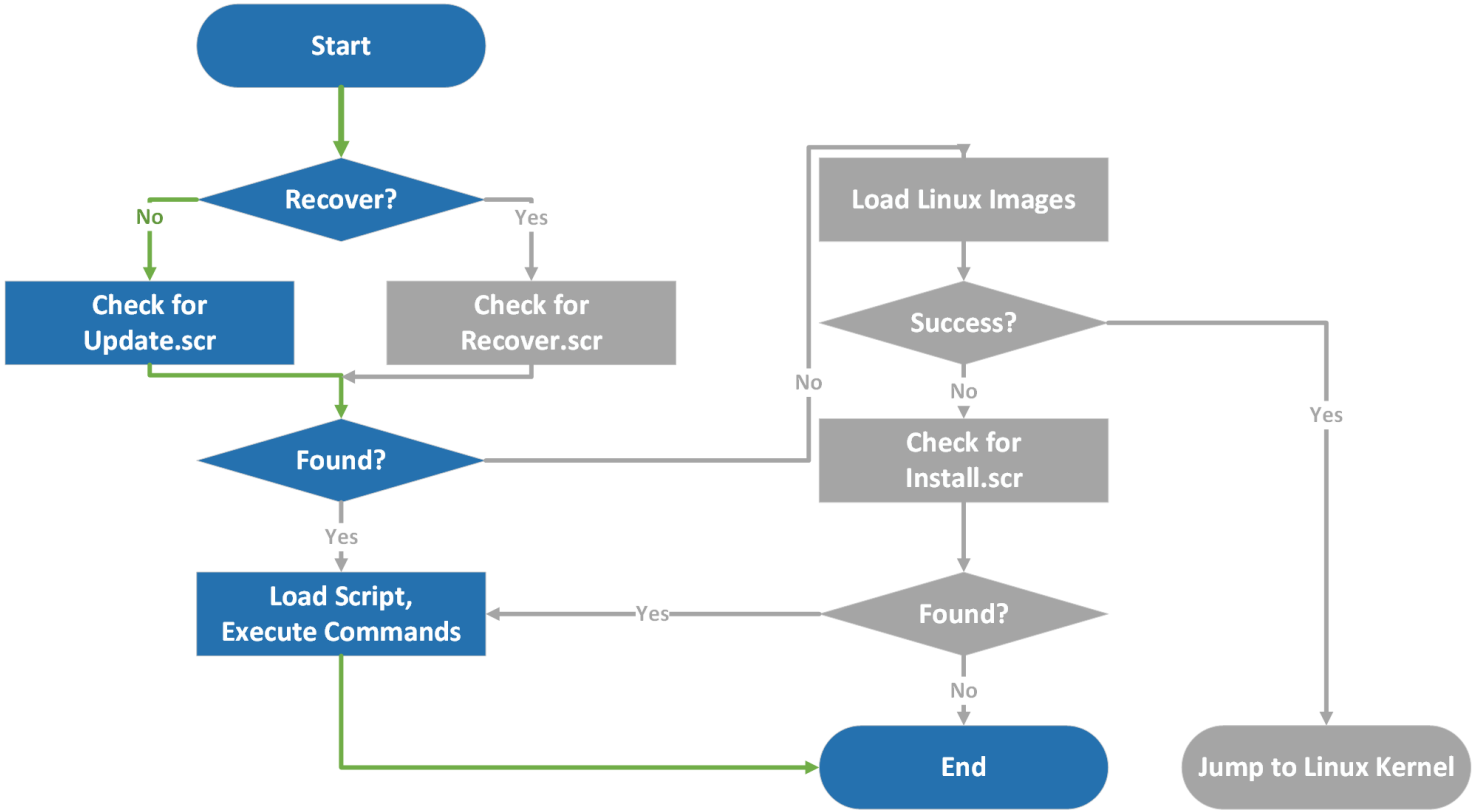
F&S Linux Update Concept (USB Stick, SD Card)
Regular Boot Process



F&S Linux Update Concept (USB Stick, SD Card)
Install Boot Process



F&S Linux Update Concept (USB Stick, SD Card)
Update Boot Process



Content

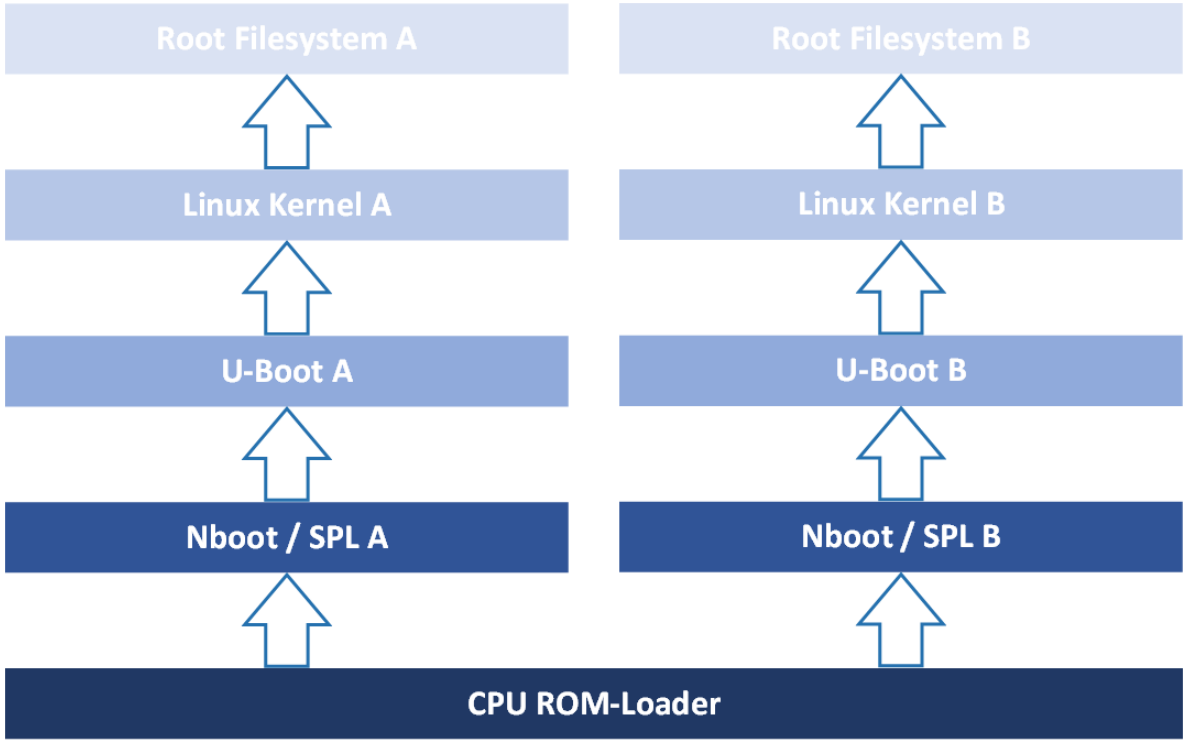
- F&S Linux Update Concept (USB Stick, SD Card)
- **F&S Linux Cloud Update and Device Health**

F&S Linux Cloud Update and Device Health

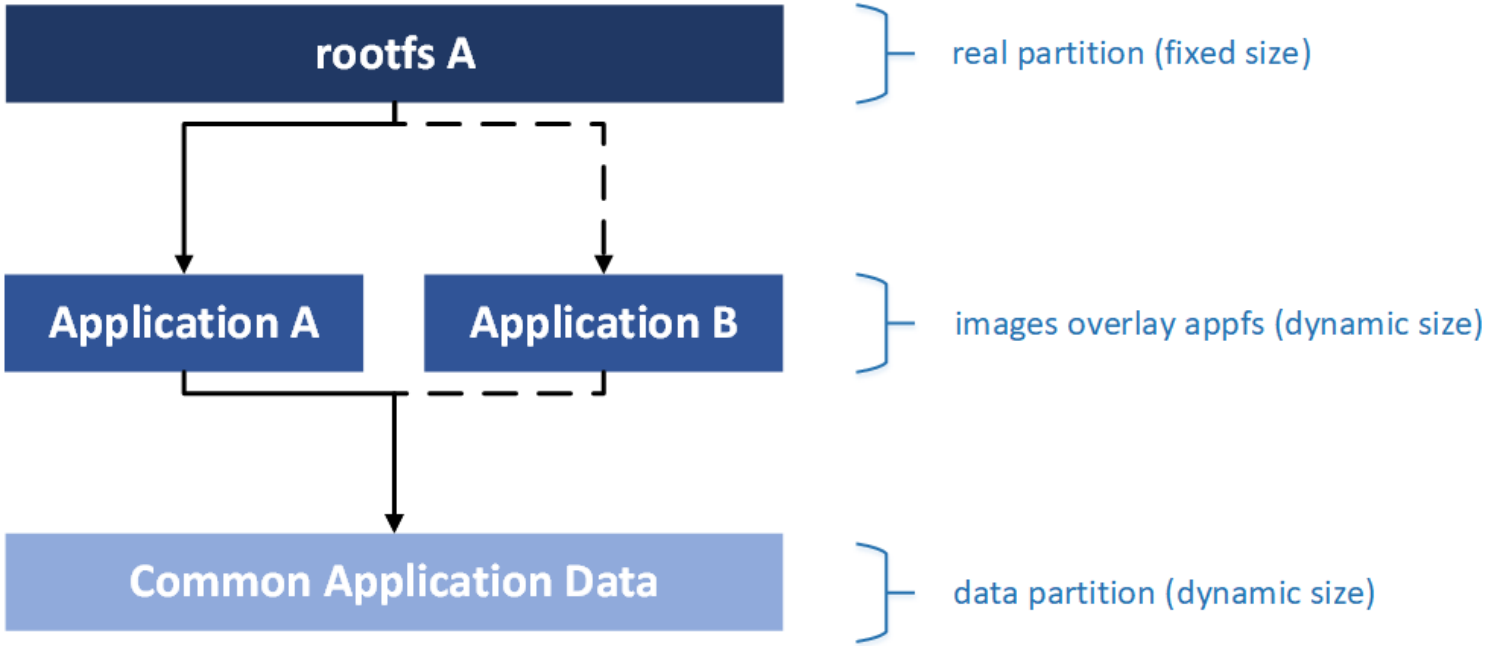
Key Features

- Customer can control the Update via RootFS
- Online as well as offline updates are possible
- Online roll out for several devices with „1-Click“
- Secure Updates (signed, CRC)
- Device health data (i.e. CPU temperature, NAND/eMMC health)

F&S Linux Cloud Update and Device Health
Boot Sequence

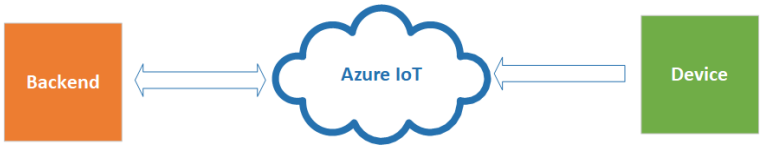


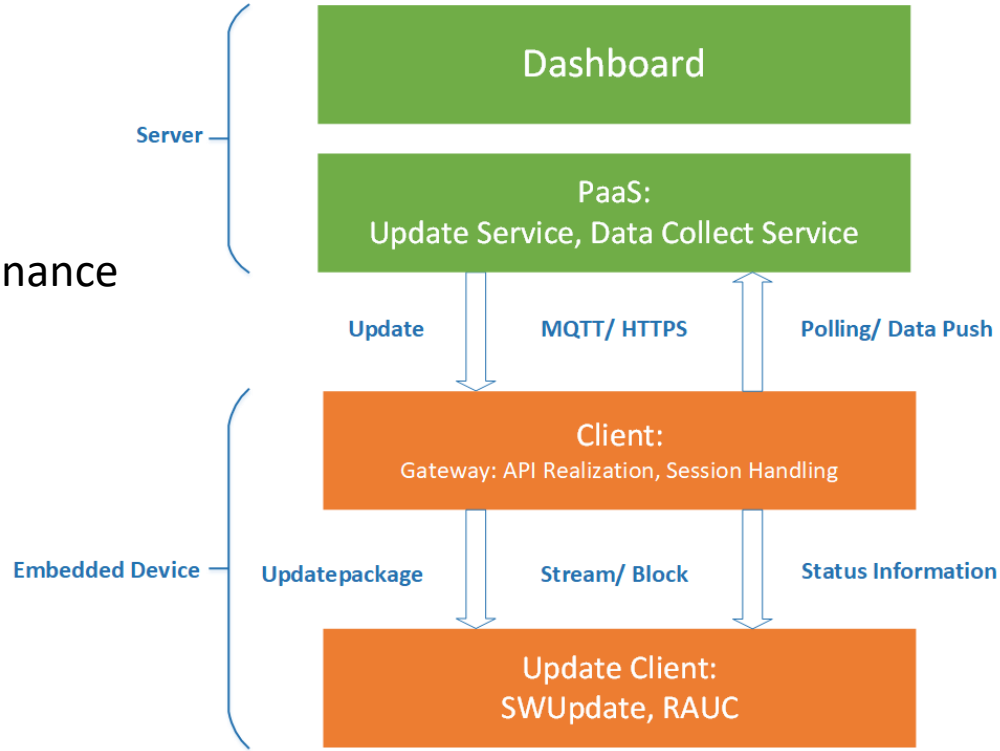
F&S Linux Cloud Update and Device Health Application Update



F&S Linux Cloud Update and Device Health Architecture

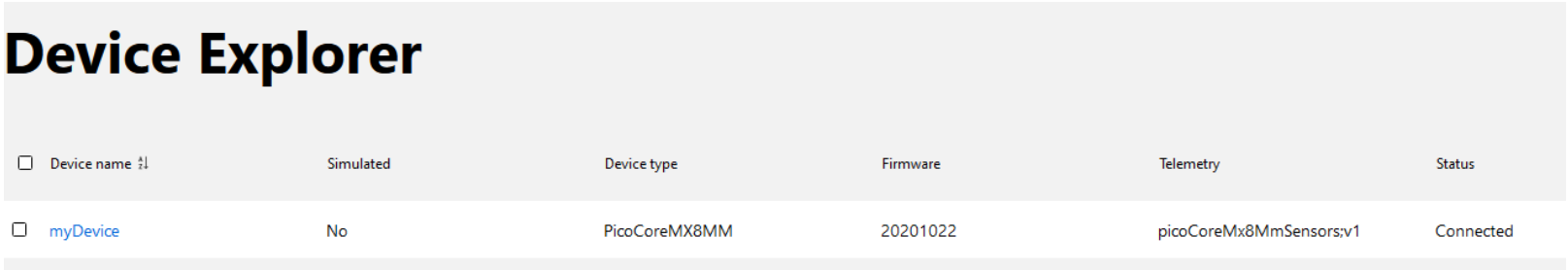
- A/B Partition
- Update Client: RAUC
- Cloud: Azure
- Device Twin
- Device Health Data -> Predictive Maintenance





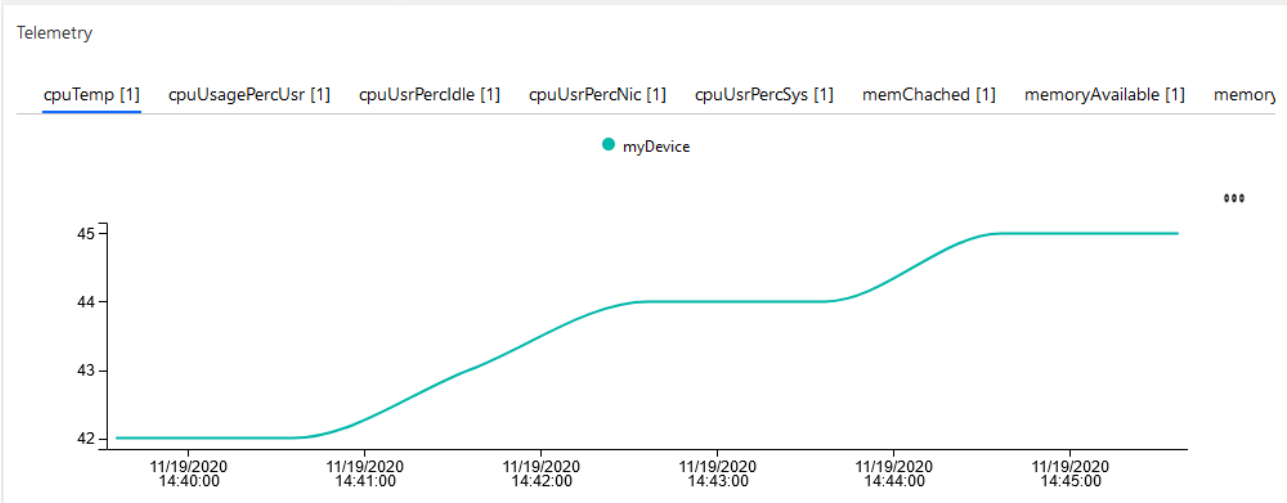
Control your devices

- Keeps an eye on all your devices
- See the current status



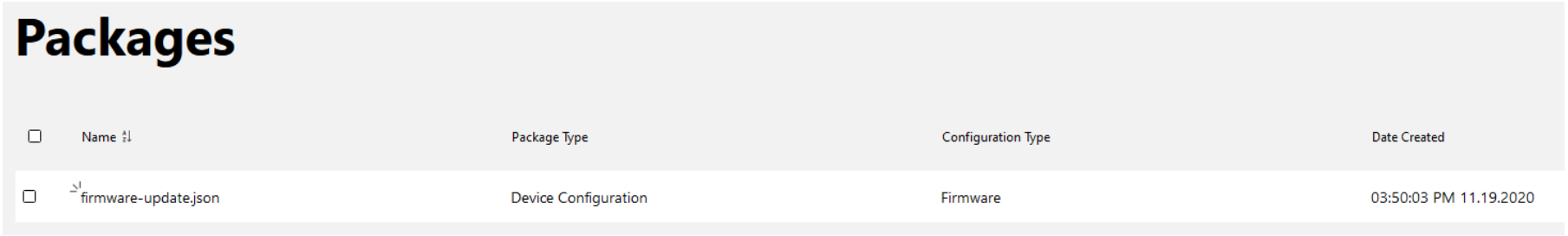
Follow the current system status

- See the current status of your device in real-time
- Watch a bunch of telemetry



Secure updating

- Update your device securely: All update packages are signed with a X.509 certificate
- The connection is also encrypted
- If an update fails, your system keeps functional through the A/B partitioning



Alerts

- You can define your own warnings, to track if a device hits the limit value

CPU temperature too High!

TOTAL	OPEN	ACKNOWLEDGED	CLOSED	LAST EVENT	SEVERITY
3	3	0	0	03:55:40 PM 11.19.2020	▲ Critical

Manage alert occurrences associated to this rule in the section below, and use the associated information to troubleshoot each occurrence.

Rule detail

Rule name	Description	Severity	Device group	Trigger	Notification type	Status	Count	Last trigger
CPU temperature too ...	CPU reached 55°C	▲ Critical	PicoCoreMX8MM		Maintenance log	Enabled	1	03:55:40 PM 11.19.2020

Alert Occurrences

Occurrence	Description	Severity	Trigger device	Time	Status
CPU temperature too High!		▲ Critical	myDevice	03:55:40 PM 11.19.2020	open
CPU temperature too High!		▲ Critical	myDevice	03:54:40 PM 11.19.2020	open
CPU temperature too High!		▲ Critical	myDevice	03:53:39 PM 11.19.2020	open

Holger Frölich

froelich@fs-net.de | 0711/123722-0