The importance of RCI for industrial applications

RAIN Meeting
Greenville, USA, 2020.02.05
CAEN RFID design and manufacture RAIN RFID readers from 2003

Joined CAEN group in 1997, switched to CAEN RFID in 2006

Started as a SW developer, now leading the marketing and sales department

CAEN RFID joined the RAIN Alliance in 2014, just from its foundation

Member of various WGs, more active in the Developers WG

Member of the Board of Directors from March 2018

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What is RCI

- **Reader Communication Interface**
- The new RAIN guideline for host-to-reader communication
- Version 1.0 – Autumn 2018
- Version 2.0 – Summer 2019
- Version 3.0 – Autumn 2019
Main characteristics

- Vendor agnostic
- Declarative
- Extensible
- Low-resource friendly
- Text based
- Interface agnostic
- IOT ready (Industry 4.0)
- Programming language agnostic
Vendor agnostic

• Not only vendor independency
• Different vendor different type of products
• Unusual reading points
Declarative

- Good for unattended apps
Extensible

• New specific needs can be addressed adding custom functionalities to RCI

An example of a proprietary field in the *Config* message:

```json
{"Cmd":"SetCfg","_Led":"Red"}
```

An example of a proprietary message:

```json
{"Cmd":"_VendorCmd","_VendorValue":100}
```
Low resources friendly

- Device variety, not only portals
- Embedded in machines/robots
- Low-cost readers for high number of read points
Text based (JSON)

- Human readable
- Simple to debug
- Easier to integrate with legacy devices (PLC, filed bus controllers...)

![Image of control panels and electronic devices]
Interface agnostic

- Ethernet, Serial, USB, Bluetooth
  ...
- MODBUS, Profinet, Ethernet/IP, OPC UA ...
- One mapping for any reader
- Developers WG started initiatives
IoT/Industry 4.0 ready

- JSON format (internet friendly)
- One mapping for any reader
- Developers WG started initiatives
Progr. lang. agnostic

- RCI do not define an API for a specific language
- JSON coding/decoding libraries widely available
Contribute!

- RCI almost complete but ...
- ... field bus mapping
- ... IoT protocols mapping
- ... application examples
- ... vendor implementations