RAIN Communications Interface (RCI)

Lars Thuring, Logopak
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Working with UHF RFID systems

- At the RAIN meeting in Graz 2016-02, the Developers workgroup discussion turned to how we are working with the various readers and the required infrastructure at implementations.

- And we found ... that it is not an easy situation and often time consuming.

- Why?
Hurdles for more installations

- When integrators and end-users set up their RAIN RFID infrastructure, they
  - may be faced with different readers for different purposes.
  - must work with different protocols ranging from simple to complex.
  - are looking at integrating with SDKs, APIs or plain protocol formats.
    - Subset: requirements for different programming languages, or the integrator in-house programming language is not supported.
  - find that newer RFID tag features are not supported by that reader or protocol.
Who faces the issues?

- Integrators
  - Proliferation of different interfaces, APIs and SDKs is making the life for integrators harder.

- Reader Manufacturers
  - Additional effort for existing users wanting to add your readers to their program.

- Non-RFID experts
  - What is this all about??
RCI Guideline Targets

- New guideline for RAIN readers – *RAIN Communication Interface* (RCI):
  - Simple to use, and simple to implement.
  - Use with different communication interfaces (Ethernet, RS-232, etc.).
  - Also run on low-resource platform (CPU, memory, communication bandwidth).
  - Easy to use in the current and future digital world, be part of Internet-of-Things.
  - Allow vendors to differentiate on reader intelligence, performance and services.
RCI Data Format

- Uses human readable format (JSON based).
- Supported by many software tools and libraries.
- Minimal requirements for LEAN implementation.
- Allows for vendor specific extensions.

“This is what we want!”
RAIN Communication Interface

The “HTML” of RFID
Increases interoperability of systems and solutions.

Connecting with the IoT world
Easier to create connections with MQTT, OPC UA and more.

Standards, standards, …
RAIN inherently builds on the global standard from GS1 and ISO.
RCI Data Interpretation

Lots of bits in a tag
These are magic numbers unless you are an expert.

Interpreting the bits
✓ Provides the data as human readable information.
✓ Avoids mistakes to start with
✓ Aids in immediate diagnostics
✓ Can be easily extended

Compare with internet:
IP: 192.34.56.78
www.this-is-my-site.qqq

Interpreting the bits

or
"sgtin":{"CompanyPrefix":061414141,
"ItemRefAndIndicator":112345,
"SerialNumber":400}
Enable more RAIN features
Sensors
Security – passwords / crypto

Expert Know-How
Isolate new users from the gritty-nitty of tag content and air protocols!

Flooding
Encourage correct use, best practices and filtering when looking for your tags in a read-zone.
Where are we?

- Version 1 released autumn 2018.
- Version 2 is pending approval from the board.
- Demonstrators and first compliant readers.

- Next steps being decided with the next release planned for later in 2019.

- Will it do what you want?
Contribute!

Join RAIN if you haven’t already – and then join the Developers WG.

Monthly web-meetings and always interesting face-to-face meetings.

Don’t hesitate – we are a nice bunch of people!

If you want to join the group send an email to Caroline@RAINRFID.org

For general questions contact:
Chair: lthuring@logopak.de
Vice Chair: apretorius@licensys.com
RAIN: Steve@RAINRFID.org
Thank you!