

Trusted Sensors For a Greener World

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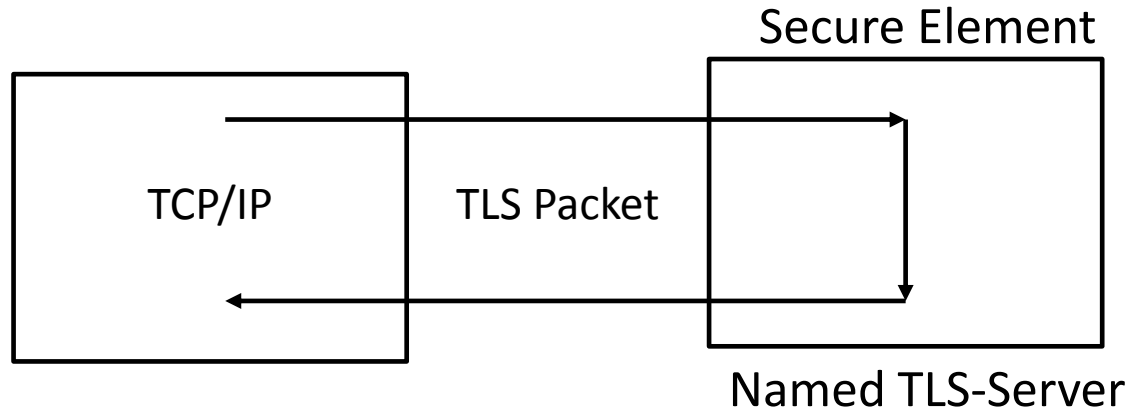
Trusted Sensors

- Sensors and network of sensors are widely used to monitor environmental safety. It is a major topic for the scientific, public and political communities.
- Some examples
 - <https://www.pollutrack.net/>
 - <https://teleray.irsn.fr/>
 - <https://epa.gov>
- Trusted sensors
 - Sensors with tamper resistant resources
 - Based on open technologies
- Benefits
 - Trust for collected measures

Architecture

- Sensors could be organized around secure elements including named TLS servers providing mutual authentication and secure communications.
 - Trust in payments (EMV bank card) or identity (electronic passport) is achieved thanks to secure elements.
- Internal commands for administration.
- Exported commands for Actuators/Sensors interactions.
- On-demand cryptographic resources authorization.

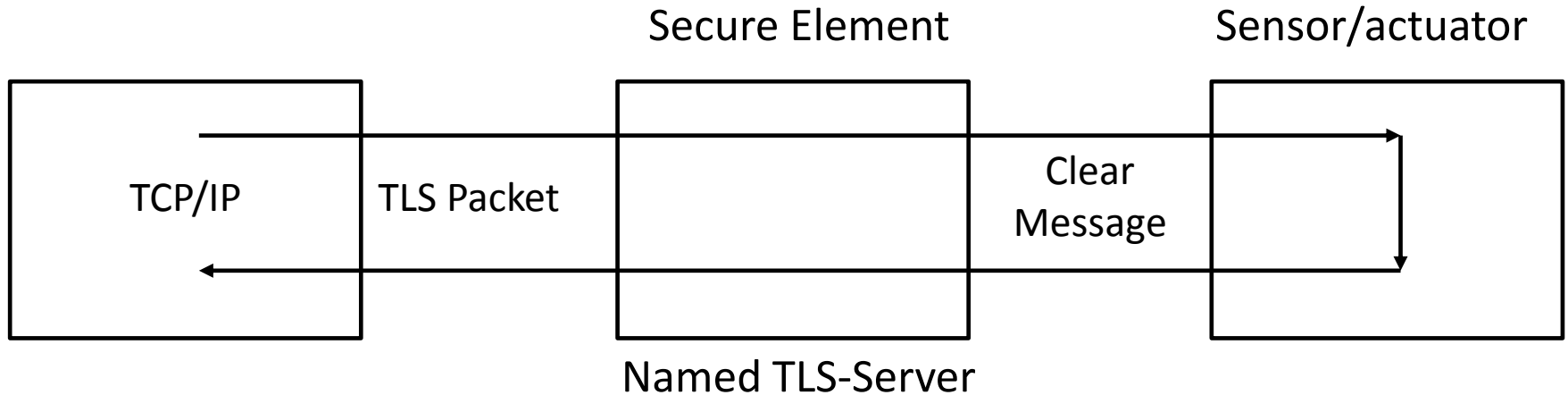
Internal Commands



<https://datatracker.ietf.org/doc/draft-urien-tls-se/>

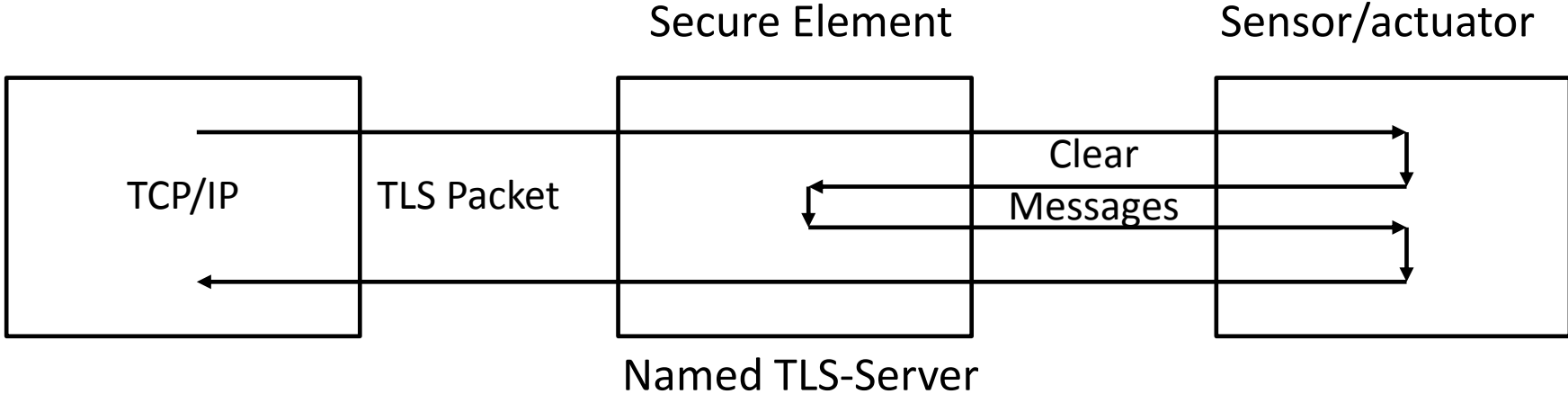
<https://datatracker.ietf.org/doc/draft-urien-coinrg-iose/>

Exported Commands

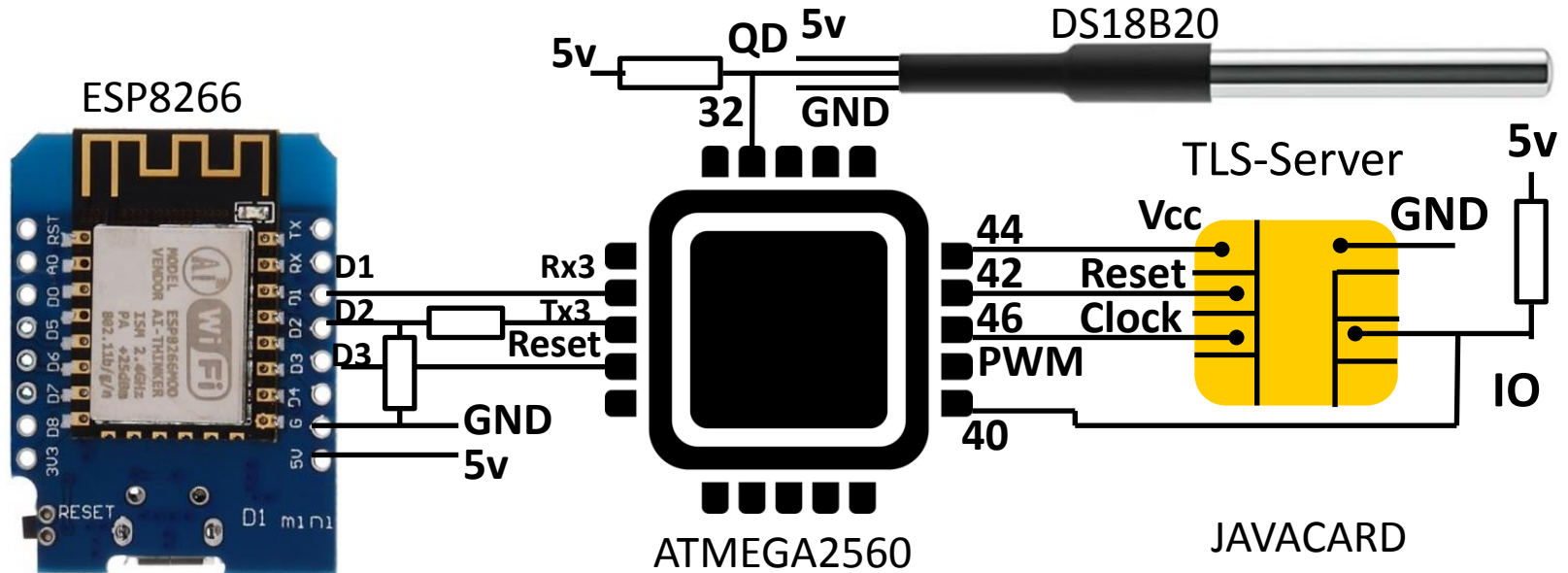


<https://datatracker.ietf.org/doc/draft-urien-core-tls-se-io/>

On-Demand Cryptographic Resources Authorization



Illustration



<https://www.youtube.com/watch?v=74aoCvrtZ0c>

Next Steps

- Defining framework for trusted sensors
- Defining network interface
- Design guideline for trusted sensors with open hardware software