



# **IETF Hackathon:** **Software / Firmware** **updates for IoT devices**

**IETF 111**  
**July 19-23, 2021**  
**Online**



# Hackathon Plan

## 1. Get the software/firmware to the device

- Constrained IoT devices: LwM2M with OSCORE security for CoAP
- Regular IoT devices: TEEP for trusted app update on TEE

## 2. Secure the update using the SUIT manifest

## 3. Use the new software/firmware



Three teams with sync-points between them.

# What got done

- Identified issues with the TEEP protocol
  - <https://github.com/ietf-teep/teep-protocol/issues>
- Integration of OSCORE into Leshan (LwM2M server) and Wakaama (LwM2M client) (in progress)
  - Successfully tested registration with the Wakaama client to the Leshan server using OSCORE
  - [https://github.com/leandrolanzieri/RIOT/tree/pkg/wakaama/add\\_oscore](https://github.com/leandrolanzieri/RIOT/tree/pkg/wakaama/add_oscore)
  - <https://github.com/eclipse/leshan/tree/oscore>
- SUIT integration in Mcuboot (in progress)
  - Simulator preparation: <https://github.com/mcu-tools/mcuboot/tree/suit-111>
  - Update of the SUIT manifest generator: <https://gitlab.arm.com/research/ietf-suit/suit-tool>
  - Update of the libcsuit parser: <https://github.com/yuichitk/libcsuit>

# What we learned

- Great interactions despite online nature of the event and the timezone differences
- Regular work disturbs the “flow” and our plan was a bit too ambitious ...
- Secure bootloaders are more complex than they might appear. Bootloader testing is different than protocol testing.
- Thanks to Matt Gillmore for suggesting the LwM2M theme. Was a good way to work with new people.

# Wrap Up

## Team members:

- Dave Thaler (TEEP)
- Brendan Moran (SUITE)
- Leandro Lanzieri (OSCORE)
- Rikard Höglund (OSCORE)
- Hannes Tschofenig (SUITE)
- David Brown (McuBoot)

First timers @ IETF/Hackathon: Leandro

## With help from

- Daniel Innes (LwM2M)
- Simon Bernard (LwM2M)
- Achim Kraus (LwM2M)
- Akira Tsukamoto (TEEP)
- Isobe Kohei (TEEP)
- Kikuchi Masashi (TEEP)
- Takahiko Nagata (TEEP)
- Ken Takayama (TEEP)