



IETF Hackathon: Software Updates for IoT (SUIT)

IETF 102

3-4 Nov, 2018

Bangkok

The Group

Team:

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- Jaime Jiménez
- Tadahiko Ito
- Yohei Kaieda
- Yuichi Takita
- Dan Petrie
- Emmanuel Baccelli
- Henk Birkholz
- Chris Inacio
- Laurence Lundblade



1st time IETF

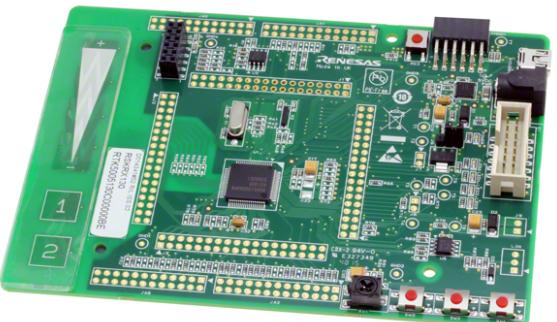
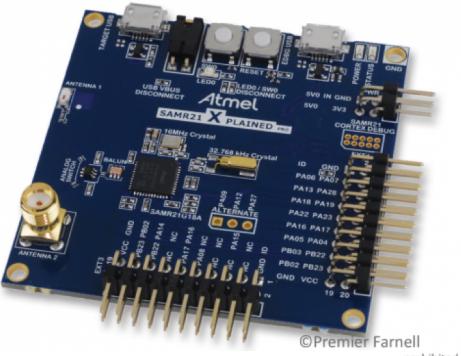


1st time SUIT Hackathon

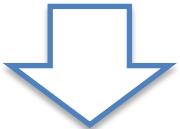


Lots of Hardware

1. STM32F4-DISCOVERY
2. NUCLEO-F207ZG
3. SAMR21 xpro
4. Renesas Starter Kit for RX231
5. MCBSTM32F400
6. Custom SUIT Hackathon Board



1
Create
Firmware & Manifest



0
Dockerized development
environments
(Mbed OS & RIOT)

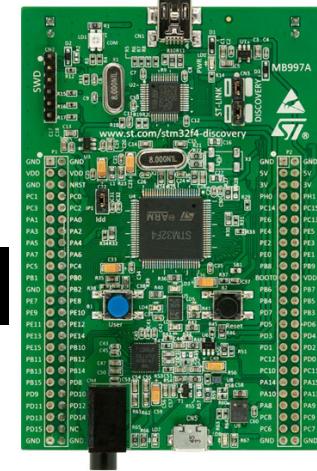
2
Transport
Firmware & Manifest



Renesas

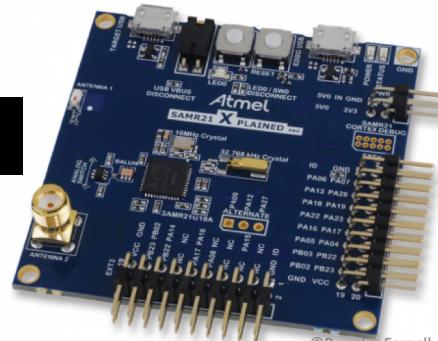
USB

JLINK



STM

CoAP



SAMR21 xpro

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③ Verifying and booting

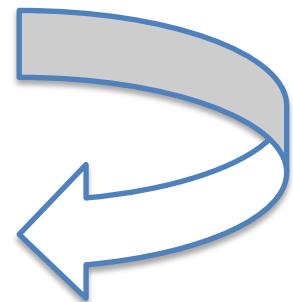
Table 5. Flash module organization (STM32F40x and STM32F41x)

Block	Name	Block base addresses	Size
Main memory	Sector 0	0x0800 0000 - 0x0800 3FFF	16 Kbytes
	Sector 1	0x0800 4000 - 0x0800 7FFF	16 Kbytes
	Sector 2	0x0800 8000 - 0x0800 BFFF	16 Kbytes
	Sector 3	0x0800 C000 - 0x0800 FFFF	16 Kbytes
	Sector 4	0x0801 0000 - 0x0801 FFFF	64 Kbytes
	Sector 5	0x0802 0000 - 0x0803 FFFF	128 Kbytes
	Sector 6	0x0804 0000 - 0x0805 FFFF	128 Kbytes
	.	.	.
	Sector 11	0x080E 0000 - 0x080F FFFF	128 Kbytes
	System memory	0x1FFF 0000 - 0x1FFF 77FF	30 Kbytes
	OTP area	0x1FFF 7800 - 0x1FFF 7A0F	528 bytes
	Option bytes	0x1FFF C000 - 0x1FFF C00F	16 bytes

Bootloader

Application
Firmware

Staging Area



What we learned

- First day of a Hackathon is always pain
 - Power adapter killed → Shop visit
 - Missing Serial-to-USB cable → Shop visit
- Help is nearby
 - CDDL is hell → Ask Carsten
 - COSE is hell too → Ask Jim
- SUIT manifest draft needs an update (CDDL and examples)



What got done

1. Development environments installed (for new folks)
2. MCUs configured
3. Manifest generator updated to latest draft
4. Manifest and firmware verified on device
5. Wrote basic bootloader and simple embedded application

More Info

IETF SUIT Working Group: <https://datatracker.ietf.org/wg/suit/about/>

Manifest draft used: <https://tools.ietf.org/html/draft-moran-suit-manifest-03>

Poster:

http://jaimejim.github.io/docs/suit_poster.pdf

Detailed write-up available at <https://git.io/fxh6D>