



Revisiting TockWorld6

<https://www.tockos.org/tockworld6/agenda>

TW6: July 2023



TockWorld6 - July 2023 @ UVA - Two days

- Day 1: Technology-focused
- Day 2: Partners and Tock Foundation-focused

- ~20 attendees (mostly developers/contributors)

- Goals:
 - Update on significant projects/developments
 - Brainstorm and discuss technical developments going forward
 - Discuss vision for Tock Foundation
 - Begin planning for NSF-funded Ecosystem project



Day 1 Topics (First Half)

- MMIO Soundness -> Open PR:
<https://github.com/tock/tock/pull/4001>
- Thread and 802.15.4 ->
<https://github.com/tock/libtock-c/pull/380>
 - OpenThread support in libtock-c
- LoRa
 - HW:
<https://github.com/tock/tock/tree/master/boards/wm1110dev>
 - Libtock-c RadioLib: <https://github.com/tock/libtock-c/pull/344>
- BLE: no progress
- Ethernet
 - Add STM32F4 Ethernet support in tock-ethernet branch
- CAN: nothing upstream

Time	Topic	Speaker(s)
8:30	Breakfast	
9:15	The State of Tock [slides] <ul style="list-style-type: none">• The Big Picture• Since TockWorld 5• Coming Soon: The Tock Foundataion	Amit Levy
9:45	Kernel soundness, size, and ergonomics <ul style="list-style-type: none">• ufmt in the kernel• Adding blocking command syscall• Implementing zerocopy APIs• Results of a small async runtime experiment• Improving MMIO soundness	Alyssa Haroldsen
10:30	The Current and Future State of Networking	
	Thread & 802.15.4 [slides]	Tyler Potyondy
	Other Wireless PHYs: LoRa, BLE [slides]	Branden/Pat
	Ethernet	Leon Schuermann and Cristian Cirstea
	Other Wired PHYs: CAN, etc	Alexandru (or students)
	Open discussion re: networking	

Day 1 Topics (Second Half)

13:45

A Check-In on Development Focus Areas

- Code Size
- Pluggable/blocking syscalls
- Connectivity
- Testing

Hudson Ayers

- Code Size
 - Benchmark CI continues to run
 - <https://tweedegolf.nl/en/blog/126/tock-binary-size>
- Blocking Syscalls
 - Implemented Yield-WaitFor:
<https://github.com/tock/tock/pull/3577>
- Connectivity
 - Network WG:
<https://github.com/tock/tock/tree/master/doc/wg/network>
- Testing
 - <https://github.com/treadmill-tb/treadmill>
 - In the process of hiring testing engineer

- Networking: created WG <https://github.com/tock/tock/tree/master/doc/wg/network>
- Blocking Commands: Yield-WaitFor implemented
- Goals and Future:
 - Grow TockWorld ✓
 - More tutorials: CPS/loT Week 2024, EWSN 2024
- Libtock-rs: Moving forward:
 - Establish a libtock-rs working group? ✗
 - More momentum behind reviewing PRs ~
 - Rewrite tutorial in libtock-rs ✗
 - Everyone (in the core team) should try it ✓
 - Release testing & CI with libtock-rs ✗
 - Next Tock release should announce support ✗
 - Build system needs work: <https://github.com/tock/libtock-rs/pull/482>
- Technical Debt
 - Create a pinned tracking issue with priority queue of issues ✗
 - Create a triage tag (or some other name) for quickly+easily marking found problems ✗
 - Create links in the readme to specific issue groups ✗
 - Create mdbuf plugin to include source code in book ~
 - Move docs to tock/book ✓
 - Update the tockos.org website to explain the ecosystem and point to resources ✗
 - Idea: implement that TODOs in code have corresponding tracking issues ✗
- Scheduler and Interrupt Priority
 - Discussion: <https://github.com/tock/tock/pull/3576>

Day 1 Topics (Breakouts)

Tock Foundation

- Vision
 - Distilled into the foundation structure document
- Scope of Foundation
 - Supporting existing Tock community
 - Tutorials
 - Documentation improvement
 - Supporting an expanded Tock community
 - Expand the community
 - Tutorials
 - Improve / build image of Tock + improve visibility
 - Distinguishing from Rust embedded, other embedded OS
 - Production readiness
 - Clarifying use-cases / goals + non-use cases
 - Communications with users
 - Post on blog, interface with Rust & embedded community
 - If people are reaching out to Tock
 - Fundraising
- Hiring
 - Testing engineer: job ad out, interviewing now
 - Community organizer: not started

