

# What's New in Eth2 - 12 November 2018

Edition 6. [Archive](#).

[Ben Edgington](#) ([PegaSys](#), ConsenSys)

## Serenity Edition

### Devcon news

In case you haven't heard, Vitalik is advocating for Ethereum 2.0 to be called *Serenity*, the original name for the release following *Metropolis* (which is now split into *Byzantium* and *Constantinople*, and maybe more to come). Definitely not *Shasper*, anyway. To lay to rest once and for all the myth that Vitalik is Dictator of Ethereum, most of us will be continuing to call it "Ethereum 2.0".

Select videos from Devcon:

- Vitalik's [Ethereum 2.0 keynote](#).
- Justin Drake [Ethereum 2.0 Randomness](#): unpredictable, unbiased, unstoppable.
- Eli Ben-Sasson with an abridged version of his Devcon talk on [State of the STARK](#).
- [Implementation updates](#) from Hsiao-Wei, followed by Raul Jordan. [Hey, Raul - thanks for the link!]

### Workshop notes

There was a one day Ethereum 2.0 workshop in Prague ahead of Devcon. See the [previous edition](#) for more info and photos.

Thanks to all who have written up notes from some of the sessions in the 29th October workshop. There is a maintained [list of all the links to notes](#) which I've summarised below for convenience:

- [Client Architectures & Common Validator Interface](#)
  - [Notes from the working group](#)
- [DoS Attack Analysis](#)
- [Libp2p Daemon](#)
- [UX/DevEx/PM](#) (photos of flipchart notes)
- [Network Sig Aggregation](#)
- [Testing Formats](#)
- [Peer Discovery & Wire Protocol](#)

## Specification updates

Beacon chain specification:

- Spec completion estimate has been [upped](#) to 65%.
- [Assign validators to persistent committees for shard block production](#). Shard committees persist for  $2^{16}$  slots, i.e. about 12 days. Some [discussion](#) about whether to change committee members all at once, or to shuffle gradually. The latter approach won.
- [Changed crosslink mechanics](#). Change when validator reshuffling can occur, and allow multiple crosslinks for a shard between validator set transitions. Fixes a [potential attack vector](#).

Simple Serialize:

- [Add spec for {de,}serializing ssz container types](#). A container is a set of key–value pairs where the values are of arbitrary, mixed types. [I hope we’re planning some serious [fuzz-testing](#) of all this.]
- [Extend ssz hash type to arbitrary lengths](#). Replaces the fixed-size `Hash32`, `Hash96` and `Hash97` types with a single, arbitrary length, `HashN` type.

## Implementers’ call

Next call is [15 November](#).

## Gitter

- A new Github repo [has been created](#) as a home for p2p networking discussion: <https://github.com/ethresearch/p2p>. Yes, it’s supposed to be empty; check the [issues list](#).
  - In particular, check out the [video](#) and [notes](#) from an impromptu breakout session at Devcon on p2p requirements.
- A new Gitter room was [created](#) for Eth 2.0 testing discussion: <https://gitter.im/eth2-0-tests/Lobby>. Already active!
- Danny [said](#) “fortnightly” 🙌
- [Explanation](#) of why it is not good to take the randomness seed from the head of the chain.
- [Explanation](#) of why active and crystallized states are being merged.
- [Plans](#) for formal verification of aspects of the protocol.
- [Discussion](#) of cross-shard transactions culminating in a link to a nice repo of sharding resources: <https://github.com/Swader/awesome-sharding>

## Ethresear.ch

- Epochs [may make a return](#) to Casper to avoid problems in the LMD fork-choice rule that may allow an attacker to force a reorganisation. Marvel at the expression “temporary stickiness”. [Isn’t this usually called [hysteresis](#)?]

- [Discussion](#) around setting the economic incentives for participating as a validator.
- A [new proposal](#) for a stateless client model, coming from the [Ergo Platform](#) team. As an aside: two things I love to see (1) increasing engagement from the academic community - there's a lot of brainpower out there - and (2) the sheer openness of this space. After 20 years of labouring under NDAs, I treasure the open exchange of ideas here, such as the [Near Protocol](#) guys getting stuck in on EthResear.ch and so on. End of aside :-)
- Speaking of the Near Protocol guys, I had a chat with them at Devcon about how the Beacon Chain will maintain the slot duration when it may be to validators' collective advantage to speed everything up. Here is a discussion kicked off by Vitalik about [clock synchronisation without NTP](#), though I don't think it quite addresses this problem.
- [Confirmation](#) that, in the data-availability custody bond mechanism, if a block turns out to be unavailable (withheld or lost) there will have to be a manual hard fork to deal with the consequences.

## Ethereum 1.x

Eh, what's this? Ethereum 1.x???

This will not be a regular feature, but I thought it worth noting at least once. Since the timeline for full delivery of Ethereum 2.0 is fairly long, there's a healthy desire to be a bit more ambitious with innovation on the current Mainnet in the meantime. This was discussed in various breakout sessions with various client teams during Devcon. Specifically, working groups are being formed around:

- Reducing state size growth (state trie pruning; storage rent) [Alexey Akhunov coordinating]
- Implementing eWASM in some form [Casey Detrio coordinating]
- Simulation/Benchmarking framework for evaluating performance proposals [Shahan Khatchadourian coordinating]

The goal is to get draft EIPs/proposals out by the end of this month for broad consultation.

## In other news...

- I just came across this useful [Serenity Node Types](#) overview document.
- Also this on [Networking Requirements](#).

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## Main sources:

- [Updates](#) to the [specification document](#)
  - [Pull requests](#)

- [Commits](#)
- [Fortnightly](#) Eth2.0 implementers' calls
  - <https://github.com/ethereum/eth2.0-pm>
- <https://ethresear.ch/>
- <https://gitter.im/ethereum/sharding> and <https://gitter.im/ethereum/casper>
- Updates to the [Eth2.0 Handbook](#).
- Updates to <https://github.com/ethereum/wiki/wiki/Sharding-roadmap>
- Issues at [https://github.com/ethereum/beacon\\_chain/issues](https://github.com/ethereum/beacon_chain/issues)

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