Topics:

**GAMM module - initially communicated scope:**

1. TWAP should be ready for review by the time we start the engagement
2. The balancer code is done
3. Stableswap - can probably be omitted initially

**General expected outcome of Informal audit:**

* bugs if spotted & elimination of the root cause
* improve testing methodology
* docs and structuring specifications to be effective & maintainable
* improve code abstractions - think of invariants →restructure the code to clearly guarantee these
* Where is 'boilerplate' that were inheriting from the SDK, that we can work on fixing
* Backwards deriving some expectations that are 'implicit' in several of these functions
* TWAP: focus on spec - clarity is a must!; balancer: issues,safety checks; stableswap: safety props in tests and code

### Done until now:

(start date Monday 2022.10.17.)

* Preliminary spec review and code overview for complexity  
  introduction with features, basic concepts, trying to see how deep we would need to dive into the code in order to understand GAMM features.
* Overview of existing tests covering GAMM module:
  + Unit tests, simulation tests (goal: to add more statefull checks, and change effects), e2e tests exist
    - **Note:** Ask osmosis crew to share current testing methodology & experience with existing tests, heads up if certain features are not covered as expected, shortcomings of existing tests ?
* Internal Informal agreements about project plan and methodology to use.
* Audit plan suggestion:
  + Start withTWAP analysis
  + Continue with Balancer Pool models - do code review and specification vs implementation analysis
  + Spin the chain, try running sequences of tx manually
  + Adapt Atomkraft e2e testing tool to execute GAMM msg and test interesting sequences of creating, joining, exiting pools….
  + Write TLA spec covering basic manipulation with pools
  + Generate traces, try to find issues running them with Atomkraft against the chain
  + Expand TLA with further (depending on the time) to try and cover risky impacts from calculations happening during swapping to join/exit pools.

#### Next Steps:

* Agree on a commit hash/tag/version for auditing - main: 42d73f1cc1c52e85561518be1014b730ef6b7a12
* Proceed with issues reported on osmosisLab repo. If security issues are involved - they will be communicated privately
* Audit TWAP, then Balancer Model Pool? - thorough code & spec analysis