

Artifact Availability for ALRs

We have released two repositories containing the complete code for the ALR-enhanced protocols, along with instructions to reproduce the experiments from our paper:

1. **Hermes(-ALR):**

<https://github.com/akatsarakis/hermes-alr>

This repository supports both the baseline Hermes and Hermes-ALR. You can toggle ALRs by setting `#define ENABLE_ASYNC_ONLY_READS` in the source. Detailed build and execution steps are included in the README.

2. **Zab(-ALR), Raft(-ALR):**

<https://github.com/vasigavr1/Odyssey>

We have integrated ALRs (referred to as “bqrs”) into the original Odyssey repository. You can enable ALRs for Zab and Raft by defining `#define ENABLE_ALRS` or `#define ZK_ENABLE_BQR` in `Zookeeper/include/zookeeper/zk_config.h`.

CloudLab Environment Setup

To replicate our experimental environment, we recommend using the following CloudLab profile: <https://www.cloudlab.us/p/LawTheorem/rdma-cluster-img>

You can provision three to seven “r320” nodes interconnected via RDMA. For example, to launch a five-node cluster:

1. Name your experiment and finalize the setup.
2. Once the cluster is live, copy the hostnames into `bin/init_cloudlab.sh` (in the order listed).
3. Set your CloudLab username and paths to your SSH config and key.
4. SSH to the first node (e.g., `ssh node1`).

Running Hermes(-ALR)

After cloning [hermes-alr](#), compile it with or without ALRs by adjusting the `#define ENABLE_ASYNC_ONLY_READS` flag. To streamline experimentation, you may use helper scripts (e.g., `bin/copy-n-exec-hermesKV.sh`) after updating your IP addresses in `exec/hosts.sh`. The original [Hermes README](#) also provides further details on running different experiments.

Running Zab(-ALR) and Raft(-ALR)

For Zab and Raft with ALRs, clone [Odyssey](#) and follow the same CloudLab setup. Then define or remove the ALR macros (`ENABLE_ALRS` or `ZK_ENABLE_BQR`) before compiling. You can again rely on Odyssey’s README for full instructions on running the experiments.

In summary, all code and documentation necessary to reproduce our results, including protocols with and without ALRs, reside in these two repositories.