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# **TraceR Documentation**

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Below, we provide detailed instructions for how to start doing network simulations using TraceR.



## QUICKSTART

This is a basic `mpirun` command to launch a TraceR simulation in the optimistic mode:

```
mpirun -np <p> ../traceR --sync=3 -- <network_config> <tracer_config>
```

Some useful options to use with TraceR:

- |                            |   |
|----------------------------|---|
| <b>--sync</b>              | ROSS's PDES type. 1 - sequential, 2 - conservative, 3 - optimistic  |
| <b>--nkp</b>               | number of groups used for clustering LPs; recommended value for lower roll-backs: (total #LPs)/(#MPI processes) |
| <b>--extramem</b>          | number of messages in ROSS's extra message buffer (each message is ~500 bytes, 100K should work for most cases) |
| <b>--max-opt-lookahead</b> | leash on optimistic execution in nanoseconds (1 microsecond is a good value)                                    |
| <b>--timer-frequency</b>   | frequency with which PE0 should print current virtual time  |





## CREATING A TRACER CONFIGURATION FILE

This is the format for the TraceR config file:

```
<global map file>
<num jobs>
<Trace path for job0> <map file for job0> <number of ranks in job0> <iterations (use_
↪1 if running in normal mode)>
<Trace path for job1> <map file for job1> <number of ranks in job1> <iterations (use_
↪1 if running in normal mode)>
...
<Trace path for jobN> <map file for jobN> <number of ranks in jobN> <iterations (use_
↪1 if running in normal mode)>
```

If you do not intend to create global or per-job map files, you can use NA instead of them.

Sample TraceR config files can be found in examples/jacobi2d-bigsim/tracer\_config (BigSim) or examples/stencil4d-otf/tracer\_config (OTF)