

# How to Generate Trace Files for Manifold Simulation

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The simulators in `ROOT/simulator/smp/TraceProc` use trace files to get instructions. This guide briefly describes how to generate your own trace files using QSim.

Throughout this document, `ROOT` refers to the root of the source code of the Manifold distribution package.

## Preliminary Steps

1. Build and Install QSim, if not already installed. Refer to Manifold User Guide on how to do this.

## Generate Trace Files

1. Goto the `zesto` directory, and make a backup copy of `qsimclient-core.cc` and `qsimclient-core.h`.

```
cd ROOT/models/processor/zesto
cp qsimclient-core.cc qsimclient-core.cc.bak
cp qsimclient-core.h qsimclient-core.h.bak
```

2. Copy `qsimclient-core.cc` and `qsimclient-core.h` in `ROOT/util/traceGen` to `zesto`.

```
cd ROOT/models/processor/zesto
cp ROOT/util/traceGen/qsim* .
```

3. Open `qsimclient-core.cc`. At the beginning of the file, change the definition of `FILENAME` to the name you want to use for your tracefiles.

4. Compile `zesto`

```
//assuming you are in ROOT/models/processor/zesto
make clean
make
```

## 5. Compile the simulator in QsimClient

```
cd ROOT/simulator/smp/QsimClient
make clean
make
```

## 6. Start QSim server

```
cd <qsim server directory>
./qsim-server <port> <state_file> <benchmark>
```

For example, to generate trace files for a 2-core model using the benchmark ferret.

```
./qsim-server 12345 ../../state.2 ferret.tar
```

## 7. Open the the simulator's configure file, e.g., conf2x2\_torus\_llp.cfg, and make necessary changes (mainly the stop time).

For example, **if you want to use the trace files to run 1,000,000 cycles, you probably want to set the stop time to a slightly larger number such as 1200000.**

## 8. Start the simulator.

For example, to run the simulation of a 2-core model.

```
cd ROOT/simulator/smp/QsimClient
mpirun -np 4 ./smp_llp ../config/conf2x2_torus_llp.cfg
../config/6.cfg localhost 12345
```

After the simulation, your trace files will be generated.

## 9. Test the trace files.

If you use the same configure file that used to generate the trace files, you probably want to change the stop time to a smaller number.

```
cd ROOT/simulator/smp/TraceProc
make clean
make
./smp_llp ../config/conf2x2_torus_llp.cfg ../config/6.cfg
<tracefile>
```

// <tracefile> is the basename of your trace files. For example, if your files are named myFile0, myFile1, etc., then the base name is myFile.

10. If you need to rename your trace files, you can use `rename .sh`.

For example, to rename myFile0 and myFile1 to yourFile0 and yourFile1

```
sh rename.sh myFile yourFile 1
```