# VirtualSoC
# Setup Process

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version 0.1

**Abstract**

This document is intended to guide the user throughout the setup process of VirtualSoC

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## Archive extraction

Extracting the archive

```
$ tar xjf VSoC_VP_RELEASE.tar.bz2
```

will create the `VirtualSoC/` folder.

## Directory Structure

You will find the following directory structure in the root folder `VirtualSoC/`:

- `src/` : VirtualSoC Virtual Platform source code
- `3rd_party/` : third party libraries

[1] please use as subject of your email : `[VirtualSoC] Support`

  - `src/` : source code for both SimSoC and DRAMSim
  - `lib/` : destination folder of SimSoC and DRAMSim libraries
- `build/` : VirtualSoC makefiles
- `apps/` : example applications
- `doc/` : VirtualSoC documentation files (build and usage)
- `scripts/` : build support scripts
- `bin/` : destination folder of VirtualSoC executable
- `SOURCEME` : VirtualSoC environment configuration script

At this level of the tree you will also find release related files such as `AUTHORS`, `README`, `LICENSE`, `RELEASE_NOTES` and `systemc-2.2.0.patch`.

# Setup Process

To configure VirtualSoC and the SimSoC library, SystemC 2.2 and TLM 2.0.1 are required.

### 1. SystemC 2.2

If you already have the SystemC 2.2 library installed in your system, you can skip this step. Otherwise, SystemC 2.2 source code can be downloaded from:

```
http://www.accellera.org/downloads/standards/systemc
```

The one described here is the default SystemC building process except for the patch provided:

```
$ tar xzf systemc-2.2.0.tgz

$ cd systemc-2.2.0

$ patch -p1 < $VSOC_ROOT_DIR/systemc-2.2.0.patch
```

```
$ mkdir objdir

$ cd objdir

$ ../configure

$ make

$ make install
```

The patch file is located in `VirtualSoC/` root folder (pointed by the `$VSOC_ROOT_DIR`) environment variable.

For more information about the configuration options and SystemC building process, read the SystemC `INSTALL` file.

### 2. TLM 2.0.1

If you already have TLM 2.0.1 on your system you can skip this step, otherwise it can be downloaded from:

`http://www.accellera.org/downloads/standards/systemc`

After extracting the `TLM-2.0.1.tgz` archive no installation is required.

### 3. Environment Variables

In order to build both VirtualSoC and the 3rd party libraries, you need to set some environment variables.

- edit the `SOURCEME` file and set the following variables according to your system:
  - `SYSTEMC=/path/to/systemc-2.2.0`
  - `TLM=/path/to/TLM`
- `$ source SOURCEME`

# Build Process

**NOTE**: The build process described here has been successfully tested on Ubuntu Linux 10.04 (32 and 64 bit) and on CentOS 6.3 (32 and 64 bit) with `gcc 4.4.3`.

The build process of VirtualSoC is completely automated, it also builds SimSoC and DRAMSim. The SimSoC library requires the MPFR library (a C library for multiple-precision floating-point computations with correct rounding). For Debian based systems, run the following command to install the MPFR library:

```
$ sudo apt-get install libmpfr-dev
```

In case you are using a different Linux distribution, refer to you distribution's application manager to install the correct package.

Once all requirements are satisfied, to build the VirtualSoC Virtual Platform and all third party libraries:

```
$ vsoc_build -a
```

**NOTE**: the `vsoc_build` script with the option `-a` (all) builds the VirtualSoC Virtual Platform as well as the 3rd party libraries. If invoked without any option only VirtualSoC is built.

The VirtualSoC simulator binary is named `vsoc.x` and is located in the directory pointed by the `$VSOC_BIN_DIR` environment variable. For instructions on how to run the simulator, please refer to the document **simulator.pdf** located in `$VSOC_DOC_DIR`.