

## Build instructions for Ubuntu 64-bit machines

1. Ubuntu PC should be connected to Internet for some of the steps to be successful
2. Extract SMTSIM.zip
3. Cd SMTSIM/smtsim
4. \$ ./configure
5. Cd into build.linux-amd64
6. Edit the Makefile, uncomment the "CXX\_VERSION\_FLAG = -std=c++0x" line
7. Add "LINK\_POST\_FLAGS += -lelf" to the end of the Makefile
8. Install build-essential, libelf, and zlib packages,  
i.e., \$ sudo apt-get install build-essential libelf-dev zlib1g-dev
9. \$ make smtsim

## Issues encountered and solutions I've used

(All but 4 and 6 should be covered in the build instructions)

### 0. Problem

```
/bin/sh: 1: g++: not found
make: *** [.depend] Error 127
```

### 0. Solution:

Install build-essential

### 1. Problem

g++ future features needed for files

### 1. Solution

Uncomment the line below in the Makefile to allow building with gcc version

> 4

```
CXX_VERSION_FLAG = -std=c++0x
```

### 2. Problem

```
$ make
<...line deleted...>
g++ -pipe -O0 -g -DDEBUG -O2 -Wall -pedantic -Wpointer-arith -Wwrite-strings -Wcast-qual -Wshadow -Wno-long-long -Drestrict=__restrict__ -std=c++0x -o linktest-typesys linktest-typesys.o smtsim-typesys.a -lm -lz
/usr/bin/ld: cannot find -lz
collect2: ld returned 1 exit status
make: *** [linktest-typesys] Error 1
```

### 2. Solution

Install zlib1g-dev package

### 3. Problem

```
$ make
../src/loader-elf.cc:33:20: fatal error: libelf.h: No such file or directory
compilation terminated. make: *** [loader-elf.o] Error 1
```

### 3. Solution

Install libelf-dev package

### 4. Problem

```
$ make
../src/gen-string-const -a StaticConfig < ../src/smtsim.conf > static-config.c-tmp
/bin/sh: 1: ../src/gen-string-const: Permission denied make: *** [static-
config.c] Error 126
```

### 4. Solution

Gen-string-const need to be executable `chmod u+x`

```
../src/gen-string-const
```

### 5. Problem

```
loader-elf.o: In function `loader_read_elf':
/home/aaron/Desktop/SMTSIM/smtsim/build.linux-amd64/../../src/loader-elf.cc:376:
undefined reference to `elf_version'
/home/aaron/Desktop/SMTSIM/smtsim/build.linux-amd64/../../src/loader-elf.cc:382:
undefined reference to `elf_begin' loader-elf.o: In function `parse_headers':
/home/aaron/Desktop/SMTSIM/smtsim/build.linux-amd64/../../src/loader-elf.cc:145:
undefined reference to `elf_kind' loader-elf.o: In function
`loader_read_elf':
/home/aaron/Desktop/SMTSIM/smtsim/build.linux-amd64/../../src/loader-elf.cc:430:
undefined reference to `elf_end'
/home/aaron/Desktop/SMTSIM/smtsim/build.linux-amd64/../../src/loader-elf.cc:430:
undefined reference to `elf_end' loader-elf.o: In function `parse_headers':
/home/aaron/Desktop/SMTSIM/smtsim/build.linux-amd64/../../src/loader-elf.cc:153:
undefined reference to `elf64_getehdr'
/home/aaron/Desktop/SMTSIM/smtsim/build.linux-amd64/../../src/loader-elf.cc:203:
undefined reference to `elf64_getphdr' loader-elf.o: In function
`loader_read_elf':
/home/aaron/Desktop/SMTSIM/smtsim/build.linux-amd64/../../src/loader-elf.cc:422:
undefined reference to `elf_end'
/home/aaron/Desktop/SMTSIM/smtsim/build.linux-amd64/../../src/loader-elf.cc:430:
undefined reference to `elf_end' collect2: ld returned 1 exit status make:
*** [smtsim] Error 1
```

### 5. Solution

Add line below to Makefile

```
LINK_POST_FLAGS += -lelf
```

### 6. Problem

(Appears in Ubuntu 12.10 machines?)

```
g++ -pipe -O0 -g -DDEBUG -O2 -Wall -pedantic -Wpointer-arith -Wwrite-strings -Wcast-qual -Wshadow -Wno-long-
long -Drestrict=__restrict__ -std=c++0x -c -o loader-elf.o ./src/loader-elf.cc
./src/loader-elf.cc: In function 'int {anonymous}::loader_read_elf(AppState*, const char*)': ./src/loader-
elf.cc:435:21: error: 'close' was not declared in this scope
make: *** [loader-elf.o] Error 1
```

## 6. Solution

Add the line below to loader-elf.cc  
#include <unistd.h>

## 7. Problem

```
In file included from /usr/include/c++/5/random:38:0,
      from /usr/include/c++/5/bits/stl_algo.h:66,
      from /usr/include/c++/5/algorithm:62,
      from ./src/app-mgr.cc:24:
/usr/include/c++/5/cmath:641:5: note: 'std::isnan'
  isnan(_Tp __x)
  ^
./src/app-mgr.cc: At global scope:
./src/app-mgr.cc:3373:1: warning: 'void {anonymous}::idvec_from_idset({anonymous}::IdVec&, const IdSet&)'
defined but not used [-Wunused-function]
idvec_from_idset(IdVec& dest, const IdSet& src)
^
./src/app-mgr.cc:3412:1: warning: 'bool {anonymous}::random_bool(PRNGState*, double)' defined but not used [-
Wunused-function]
random_bool(PRNGState *prng, double prob)
^
./src/app-mgr.cc:3451:1: warning: 'void {anonymous}::dump_iddeque(FILE*, const std::deque<int>&)' defined but
not used [-Wunused-function]
dump_iddeque(FILE *out, const deque<int>& container)
^
./src/app-mgr.cc:3475:1: warning: 'const {anonymous}::MgrSchedInfo*
{anonymous}::appmgr_get_schedinfo(const AppMgr*)' defined but not used [-Wunused-function]
appmgr_get_schedinfo(const AppMgr *app_mgr)
^
make: *** [app-mgr.o] Error 1
```

## 7. Solution

Update file sys-types.h in src folder as shown below.

- 1) Remove `#define sim_isnan(x) isnan(x)` from the file
- 2) And update the code line at the top of the file as shown below:

```
#ifndef SYS_TYPES_H
#define SYS_TYPES_H

#include <stddef.h>
#include <limits.h>

#ifdef __cplusplus
#include <cmath>
extern "C" {
#define sim_isnan(x) std::isnan(x)
#else
#include <math.h>
#define sim_isnan(x) isnan(x)
#endif
}
```