Setting Up *Tejas*

Getting Started

1. Place the installation script *install_tejas.py* in the folder where you wish to place the source code of Tejas. A copy of the script can be found at `http://www.cse.iitd.ernet.in/~srsarangi/tejas/home_files/install_tejas.py`.

2. Run the script : *python install_tejas.py*.

3. The script first prints the list of required packages. Make sure you have the same installed.

4. You will be prompted for your installation method preference – '1' to install from a downloaded tar-ball (tar-balls available at `http://www.cse.iitd.ernet.in/~srsarangi/tejas/install.html`) , or '2' to clone a mercurial repository. If you decide to clone, use "guest" as the username and "guest1" as the password.

5. Tejas uses Intel PIN. Please download version 62732 from `http://software.intel.com/en-us/articles/pintool-downloads`. Please read the licence at `http://software.intel.com/sites/landingpage/pintool/extlicense.txt` before downloading. Provide the absolute path to the downloaded tar-ball at the prompt.

6. The script then builds Tejas, configures it, and simulates a simple "Hello World" program to help verify successful installation. Please check if the output file is generated (the path of the output file is printed by the script).

Running Simulations

- The configurations used by the simulator (for example, size of the L1 cache) are mentioned in a configuration file – a sample file is given in *tejas-dir/src/simulator/config/config.xml*. Create copies of this file and make changes as required.

- Run the following commands in *tejas-dir*:

    - ant clean
    - ant

- ant make-jar – this creates a jar file *tejas-dir/jars/tejas.jar*.
  To change the jar filename, change line 5 of *tejas-dir/build.xml* accordingly.
- java -jar *jar-file config-file result-file benchmark*.
  The outcome of the simulation is written to *result-file*; *benchmark* is the x86 executable that is to be simulated. Note : always use absolute pathnames for specifying the arguments.

- It is recommended to use the eclipse IDE to work with Tejas. Eclipse can be freely downloaded. Depending on the version of eclipse,

  - In File→New→Java Project, create a project from existing source, namely, *tejas-dir*, OR,
  - Go through File→Import→General→Existing projects into workspace, and use *tejas-dir* as the root directory.

General Instructions

- Please use absolute paths always.

- The *pin-dir* used in *tejas-dir/src/emulator/pin/makefile.gnu.config* and the configuration file must be the same.

Trouble Shooting the set-up

- If the error message displayed is "pin.h not found",
  check the *tejas-dir/src/emulator/pin/makefile.gnu.config* file if *PIN_KIT* is set correctly to *pin-dir*.

- If the error message displayed is "jni.h not found", locate where Java is installed on your system, and accordingly update JNINCLUDE in the file *tejas-dir/src/emulator/pin/makefile*.

- If the error message is of the form :

  E:Attach to pid 27344 failed.
  E: The Operating System configuration prevents Pin from using the default (parent) injection mode.
  E: To resolve this, either execute the following (as root):
  E: $ echo 0 > /proc/sys/kernel/yama/ptrace_scope
  E: Or use the "-injection child" option.
  E: For more information, regarding child injection, see Injection section in the Pin User Manual.

  run the command "echo 0 > /proc/sys/kernel/yama/ptrace_scope" as the root user.

Updating Tejas

To update the current version of Tejas,

- Set up the current source as a mercurial repository (required for source obtained through the tar-ball method)

- Run the command "hg pull http://www.cse.iitd.ac.in/srishtihg/hg/distrib/Tejas". The username is "guest" and password is "guest1".

- Run the command "hg update". Resolve merge conflicts, if any.

- See `http://mercurial.selenic.com/wiki/Tutorial` and `http://hgbook.red-bean.com/` for help regarding mercurial.