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| St. Mary's University of San Antonio |
| An Expert System for Network Router Configuration |
| Development Environment Setup Guide |
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| This document is a guide to setup the development environment on Windows and Debian Linux. |

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# Introduction

## Purpose

This document will guide the developer in setting up a development environment on Windows 7 and on the Crunchbang Debian Linux distribution. Required libraries, SDKs, and other files are listed.

## Quick Install Guide: Windows

In Windows 7 we are using Cygwin to provide compatible Linux command-line tools including the python runtime and Django 1.5.1 web-framework, Sublime Text 2 for a text-editor, and the Chromium web browser. We are running a 64-bit version of Windows 7 but have installed 32-bit version of Cygwin. We assume you have Windows already installed and that you are familiar with Linux administrative commands such as “cd”, “mkdir”, “git”, “ln”, and bash.

***Installing Chromium web browser:*** Chromium is the open-source project down-stream from the Google Chrome web browser. It has all the functionality you would expect to find in Chrome. As of this writing, chromium.org no longer hosts binary installs for its web browser. However, you can find them at https://commondatastorage.googleapis.com/chromium-browser-snapshots/index.html  
From there you can find installation binaries for Linux, Mac, and Windows. Click on the folder named “Win” for Windows. The next screen is a listing of folders named after release numbers. Find and click on the folder with the largest release number for the latest release of the Chromium. This will usually be the folder at the bottom of the list. You can verify the latest release number by viewing the text file “LAST\_CHANGE” in the Win folder. Within each release folder is a file called “mini\_installer.exe”. Download and run this file to install the Windows version of Chromium on your system. You can keep Chromium updated with the Chromium Updater from the Chrome Web Store.

***Installing Cygwin:*** From cygwin.com, download and run setup\_x86.exe. This program can be run again at any time to upgrade, remove, or install packages for the Cygwin environment. Select a mirror to download the packages from and a categorized list of software will be presented to you. Packages marked “skip” will not be installed. Packages with a version number will be installed. In addition to the default packages already marked for installation for you, be sure to mark for installation:

* Devel > **gcc,** **gcc-core, and** **git**
* Python > **python** 2.7.x
* Databases > **mysql** 5.5.x
* Web > **wget**

***Installing python and django:*** From within the cygwin shell, use wget to download the setuptools 0.9.8 package from the python package index at pypi.python.org. As of this writing the ez\_setup.py script will install the current version setuptools package for your platform.

>wget https://github.com/ActiveState/ez\_setup/raw/master/ez\_setup.py

Now run the script and install pip and django 1.5.1.

>python ez\_setup.py

>easy\_install pip

>pip install django==1.5.1

Download the pyclips tarball, pyclips-1.0.7.348.tar.gz, from sourceforge.net at http://sourceforge.net/projects/pyclips/files/pyclips/pyclips-1.0/ and move it into you cygwin environment.

>mv /cygdrive/c/Users/mperez/Downloads/pyclips-1.0.7.348.tar.gz /home/mperez

>cd /home/mperez

>tar xvzf pyclips-1.0.7.348.tar.gz

>cd pyclips\*

>python setup.py install

***Setting up git and getting the code:*** At the cygwin shell prompt, change to a directory you want to store the code and clone the code repository from github.

>git clone git://github.com/meekprize/bakshi

Tip: Your can get to directories outside of the normal cygwin environment by using “/cygdrive/c/” for example to refer to the Windows C: drive

It is easy to develop with source files outside of the cygwin environment using softlinks with the ln command. For example

>mkdir /cygdrive/c/gits

>git clone git://github.com/meekprize/bakshi /cygdrive/c/gits

>ln -s /cygdrive/c/gits/bakshi /home/mperez/bakshi

>cd /home/mperez/bakshi/django\_project

>python manage.py validate

>python manage.py syncdb

>python manage.py runserver 8080

Open Chromium and navigate to http://locahost:8080. The django web app should be running in your web browser.

Running interactive prompt is a great way to quickly test your models.

>python manage.py shell

## Quick Install Guide: Linux

pretty much the same except skip the cygwin step.

# CLIPS Interactive Shell

CLIPS is a shell for running expert systems.

# Interface between Web Server and the CLIPS shell

CLIPS runs in a process separate from the web server. PyCLIPS provides python bindings to the CLIPS shell. We can register python callbacks to be used in CLIPS programs. These callbacks can be used to update databases and assert or redact facts in a CLIPS environment.