

AlphaZ has been only tested on 64 bit Linux and MacOS. There are several options that can be used to get a working eclipse instance with AlphaZ installed.

## Option 1 - Eclipse Setup on CS Department Machines

You must be a CSU student with access to the CS department machines to do this. An eclipse environment with all necessary plug-ins is available in the AlphaZ project directory. Run the following in a bash terminal to add the AlphaZ project directory to your path:

```
echo 'export PATH=/s/chopin/h/proj/AlphaZ/bin:$PATH' >> ~/.bashrc
source ~/.bashrc
```

Then launch Eclipse with the following command:

```
eclipse.alphaz
```

## Option 2 - Eclipse Setup using Local Install

Alternatively, you can install eclipse on your own machine and manually install the AlphaZ plugins directly. See the README in the AlphaZ git repo:

<https://github.com/CSU-CS-Melange/AlphaZ>

Note that this link is not public and is only accessible from the CSU network (you either need to be physically on campus or connected to the VPN).

## Checking out Sample Project

To get started with AlphaZ, a Java plug-in project with examples can be checked out from our repository. From Eclipse, do the following:

1. File > Import... > Git > Projects from Git > click Next > Clone URI > click Next
2. In the URI: field, specify <https://mustang.cs.colostate.edu:3000/melange/AlphaZ> > click Next and follow the prompts with defaults until you reach the "Import Projects" step
3. Click Deselect All > select the edu.csu.melange.alphabets.examples project from the list > click Finish

If you see certificate (SSL) warnings, ignore them.

### What's Inside

Inside the edu.csu.melange.alphabets.examples project, you will find four directories: AlphabetsExamples, CodeGenTutorial, CommandScripts and ValidationTutorial. Alphabets is the programming language for programming in equations (with extension .ab), and CompilerScripts (.cs) are script files to use the scripting interface of AlphaZ.

Try running `BasicScript.cs` in the `CommandScripts` directory to make sure that the system is working on your machine (right click `BasicScript.cs` > Run as > Compiler Script).

`ReadAlphabets` loads `.ab` files and parses it to get a `Program` object. Objects returned by commands and strings/integers can be stored in untyped variables.

`Show`, `AShow`, `PrintAST` are all commands to print out the program in different formats.

`generateXXX` commands takes the program and generates executable C code.

## Common Pitfalls

Check the following if something does not work

- AlphaZ requires JRE1.8. Please make sure you have the Java 8 installed on your machine, and it is the default java version used by eclipse. Otherwise, the plugins installed will not be activated.
- Most of the machines in the department is 64bit linux, but some are 32bit. You won't be able to start eclipse in those machines.
- If Eclipse does not reflect the changes you made, try
  - Cleaning the project
  - Starting eclipse with `-clean` option so that plug-ins are refreshed

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