

## Installing $A \rightarrow Z + T$

### TL;DR

You need Python 3+ and *one* dependency (PyAudio) to run  $A \rightarrow Z + T$ . Download this repository (<https://github.com/kent-rasmussen/azt>), and run `main.py`. If this is enough information for you, great; if not, please read this whole document.

### Error Tracking

If you have *any* trouble with anything on this page, please copy all error messages and paste them into an Email to me and/or Google.

If you click on an icon and get a flash and nothing more, you may need to run python from a command terminal (□ win + R then type 'cmd' in Windows) to see what errors are keeping it from running.

### Download $A \rightarrow Z + T$

To get the program, either

- run `git clone https://github.com/kent-rasmussen/azt.git` (in terminal)
  - You may need to install Git (e.g. [here](#) or [here](#)) first, or
- click on the green code button on the main page for download options.

If you download an archive (e.g., zip file), extract it so you have a folder of files. Either way, put it somewhere sensible, so you can find it later. If you use `git clone`, you can update in the future with `git pull`, and just download the changes since you last updated.

### Python

If you need to install Python (you may already have it), you can find it [here](#).

- If you have more than one version of python installed (e.g. 2.7 and 3.6.8), be sure to know how to run version 3 for this program (may be called `python` or `python3`).

### Installation on Ubuntu Linux

This should get you all the necessary packages: `sudo apt-get install python3-tk python3-pip portaudio19-dev` (add optional `texlive-xetex` below)

Then this will get you the needed python modules: `python3 -m pip install pyaudio`

tkinter lxml Pillow The last two are not necessary, but helpful, and not much extra to do at this point.

### Installation on Microsoft Windows

- **Be sure to check “add to PATH”** (or whatever options are appropriate), so Windows knows where Python is installed. If you miss this step, A→Z + T will not work.

For some reason, I have had trouble getting pyaudio installed on Windows machines with most recent versions of Python (3.9). You may have better mileage than I. In any case, I have found that it works smoothly to download and install Python 3.6.8 (e.g., from here).

### Dependencies

- Depending on how Python is installed on your system, you may also need
  - tkinter. On Ubuntu, `sudo apt-get install python3-tk` is sufficient to do this.
  - pip. On Ubuntu, `sudo apt-get install python3-pip` is sufficient to do this.
- PyAudio: to install, run `python -m pip install pyaudio` in a terminal (e.g., `win+R` then type ‘cmd’ in Windows).
  - On Windows, if the above gives you problems, it may work to do the following:
    - \* `python -m pip install pipwin`
    - \* `pipwin install pyaudio`
    - \* to get this and python optional dependencies, too: `pipwin install pyaudio Pillow lxml`
  - On Linux (and Mac?), pyaudio may in turn have a dependency of `portaudio19-dev`, which you should install with your package manager (e.g., `sudo apt-get install portaudio19-dev`).

### Optional dependency: PIL/Pillow

This install allows for visual rendering of tone glyphs that aren’t currently working in tkinter:

```
python -m pip install --upgrade pip (if your pip hasn't been upgraded recently)
python -m pip install --upgrade Pillow
```

If you have any problem installing this, it is not a problem for using AZT—you will simply see tone marks badly ligatured, like (↑↑↓↓↑↓↑) instead of like (↑↓↑↓).

### **Optional dependency: lxml**

This is just required to compile reports into PDF. If you're not doing that (e.g., plan on compiling yourself through XXE anyway), you don't need this:

```
python -m pip install lxml
```

### **Optional dependency: XeLaTeX**

A→Z+T will eventually try to produce the first draft of reports directly to PDF. In order for this to work, you must have XeLaTeX installed:

- Debian/Ubuntu Linux: `sudo apt-get install texlive-xetex`
- MS Windows: There are many ways to do this, e.g.,
  - <https://www.latex-project.org/get/>
  - Google “XeLaTeX Windows”

### **XLingPaper and the XMLmind XML Editor (XXE)**

To make full use of A→Z+T's report output, I strongly advise you to be ready to use XLingPaper, if you are not already. It can be downloaded [here](#); this page also includes information on downloading the XMLmind XML Editor (XXE), which is critical to most uses of XLingPaper.

### **To run AZT**

Assuming your system is configured correctly, just run `main.py`. Depending on your system, that may be just a click on the file (or a link to it on your desktop or wherever), or you may need to type that into a terminal. Your operating system should know to open `main.py` with `python`, but you can also explicitly tell it to with `python main.py`.

For usage information, see `USAGE`