

# Software requirements

The Animal Tag Tools originated in Matlab, so many of the file in/out and calibration tools will be translated from Matlab to Octave and R. Currently tools have been written and tested in [Matlab](#), [GNU Octave](#), and [R](#). The tagTools team is working hard to ensure that the tagTools are available in other languages such as [Python](#) and are looking for users to help port the tagTools to other languages. If you can help please contact the team.

## Matlab

MATLAB (matrix laboratory) is a proprietary multi-paradigm numerical computing environment and fourth-generation programming language developed by Mathworks. MATLAB allows matrix manipulations, plotting of functions and data, implementation of algorithms, creation of user interfaces, and interfacing with programs written in other languages, including C, C++, C#, Java, Fortran and Python (Source: <https://en.wikipedia.org/wiki/MATLAB>).

### Getting Matlab

[Matlab](#) is available from Mathworks. Commercial, Academic & Student Licences are available and the latest version of Matlab is R2017a. Matlab is available for the following platforms: GNU/Linux, macOS, Windows

## GNU Octave

GNU Octave is free software featuring a high-level programming language, primarily intended for numerical computations, that is being developed as a free alternative to Matlab. Octave has similar capabilities to Matlab and emphasises (bidirectional) syntactic compatibility with Matlab. i.e. you can use code developed in Matlab directly in Octave with no modifications to achieve the same results (Source: [https://en.wikipedia.org/wiki/GNU\\_Octave](https://en.wikipedia.org/wiki/GNU_Octave)).

### Getting Octave

[GNU Octave](#) is available from [GNU Operating System](#). It is installed with a number of user developed packages (toolboxes) available from [Octave Forge](#). The latest stable version is 4.2.1. GNU Octave is available for the following platforms: GNU/Linux, macOS, BSD, Windows

## R

R is a GNU open source programming language and software environment for statistical computing and graphics that is supported by the R Foundation for Statistical Computing. The R language is widely used among statisticians and data miners for developing statistical software and data analysis. While R has a command line interface, there are several graphical front-ends available, we will be using R via the RStudio IDE (Source: [https://en.wikipedia.org/wiki/R\\_\(programming\\_language\)](https://en.wikipedia.org/wiki/R_(programming_language))).

### Getting R and RStudio

[Download and install R](#) from the [R Project for Statistical Computing](#). The latest version of R is 3.4.1 (Single Candle). R is available for a wide variety of UNIX platforms, macOS & Windows.

### Getting started in Matlab

A number of different resources are available for Matlab newbies. Here are just a few links that might be of help to those getting started.

- [Learn with Matlab Tutorials](#), requires a Mathworks account
- [Tutorials Point Matlab](#)

### Matlab for Octave, R and Python users

- [Matlab to R reference sheet](#) by David Hiebeler (2010).
- [Matlab to NumPy reference sheet](#) by Vidar Bronken Gundersen (2006).

### Getting started in GNU Octave

A number of online tutorials for newbies to GNU Octave are available online, here are links to a few that we found useful.

- [Octave Wiki Tutorials](#)
- [Wikibooks Octave Programming Getting Started](#)

[RStudio Desktop Open Source Edition](#) is available from [RStudio](#) and requires R2.11.1+ to be installed. The latest version of RStudio is 1.0.153, and it is available for Linux, macOS and Windows.

### Using R and RStudio

Some tutorials for getting started in R via RStudio:

\* Many resources are linked at [<https://www.rstudio.com/online-learning/>](<https://www.rstudio.com/online-learning/>) - R programming, R markdown, and Shiny may be useful to us in this project. \* You can always look online for more!

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