

MASTodon user manual

v0.1

MASTodon download: <https://github.com/downloads/justsz/Mastodon/MASTodon.jar>

Java download (if you don't have it already): <http://java.com/en/download/index.jsp>

To view instructions, open the directory where you put MASTodon.jar in a terminal window and run:

```
java -jar MASTodon.jar -help
```

This will bring up the following information:

```
Usage: java -jar MASTodon.jar [-help] [-n <s>] [-s <r>] [-p <i>] [-i <i>]
Starred entries are required.
```

```
-help display this page
-n stem of output files. Default is stem of input file
-s *desired minimum MAP score [0.0 - 1.0]
-p *maximum number of taxa to prune [1+]
-i *maximum number of iterations[1+]
```

```
Example: java -jar MASTodon.jar -s 0.8 -p 10 -i 20000 carnivores.trees
```

The MAP score indicates how well the subtree that is a result of some pruning fits all the input trees. If the data contains weight information, the MAP score will be the sum of the weights of matching pruned trees. Otherwise it will be the number of matching pruned trees divided by the total number of trees.

The maximum number of iterations is how many different pruning combinations you want the program to try.

MASTodon will quit either when the number of allowed iterations run out or when the desired MAP score is achieved, whichever comes first.

Once finished, the found pruning candidates will be listed along with their MAP scores and number of matching subtrees. If no good pruning is found, the program will show a pruning candidate that only has one matching subtree, itself.

The tool also outputs a .trees file that can be used in FigTree to visually view the pruning.

FigTree download: <http://tree.bio.ed.ac.uk/software/figtree/>

Open the .trees file with FigTree. This will show the MAP tree of the set. Go to the “Appearance” tab and in “Colour by” select “pruned”. Nodes that have been pruned will be highlighted. If there are more than one possible pruning combinations, you will be able to click the Prev/Next buttons at the top to view them.

