

Phylogenetic Trees Made Easy, Fifth Edition

2018 Update for MEGA X

In May 2018, the latest version of MEGA, **MEGA X**, was released. MEGA X runs natively on 64-bit Windows and Linux operating systems, and in late 2018 a version of MEGA X that will run natively on Mac OS X will be released.

MEGA X includes numerous improvements, many of which increase the speed of execution. For instance, MEGA X can parallelize most of its computationally intensive functions, allowing it to take full advantage of the multiple cores that are available on most modern computers. The user can specify the number of cores to use (the default is N-1) and MEGA X ensures that no more than 80% of the available RAM is committed to MEGA. Parallelization is especially helpful when running bootstrap tests.

A newer interface

The appearance of the interface has been “modernized,” the result of which is that the windows will not look like the screen shots provided throughout *Phylogenetic Trees Made Easy, Fifth Edition*. The good news is that those changes are mostly just cosmetic. All of the functions (menus, icons, etc.) in MEGA 7 are still there in MEGA X—they just look different. Figure 1, for instance, compares the main windows of MEGA 7 and MEGA X.

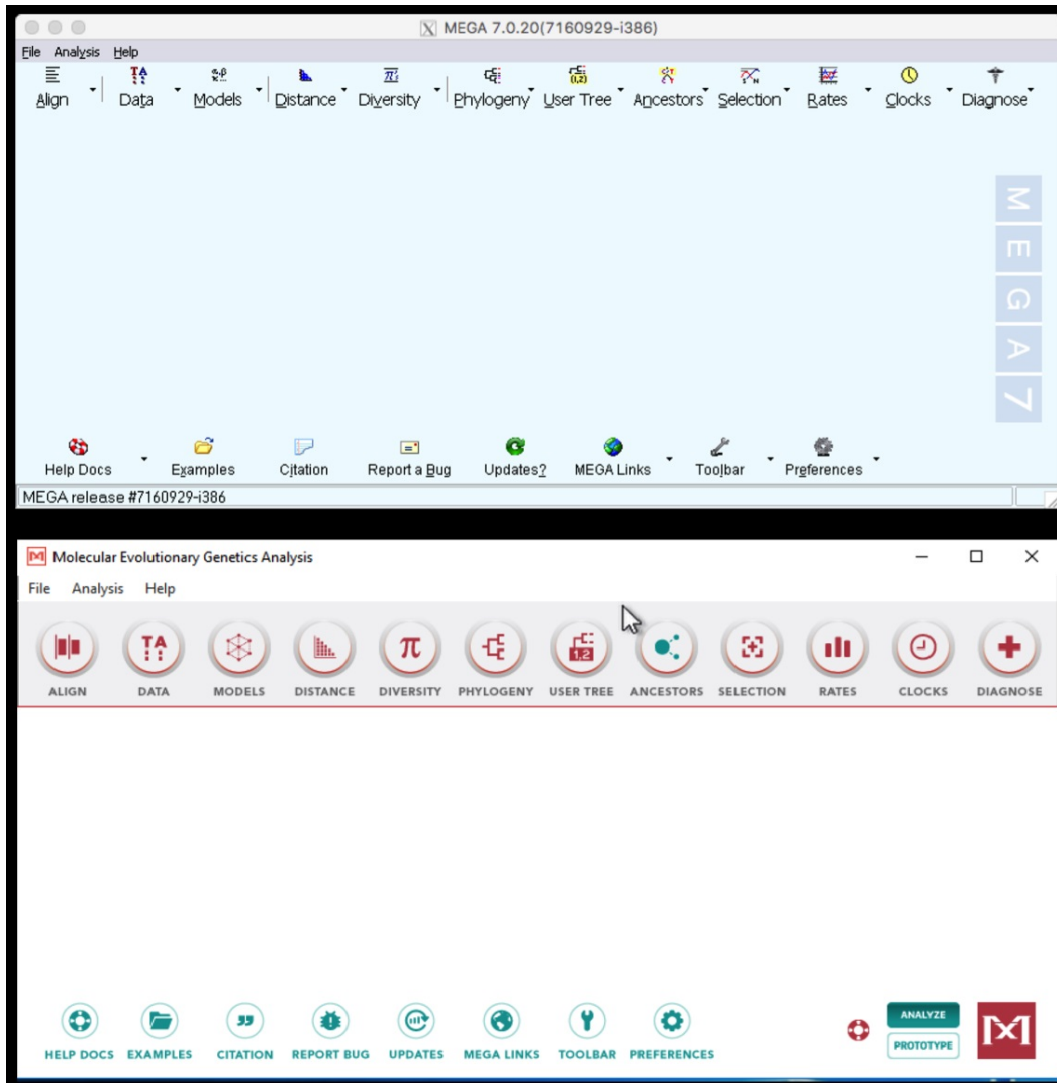


Figure 1 MEGA 7 main window (top) and MEGA X main window (bottom).

The MEGA X menu icons are larger and easier to read, but exactly the same menus are shown, and the icons are positioned in exactly the same order as in MEGA 7.

Similarly, the Analysis Preferences windows (Figure 2) look different but include exactly the same functions.

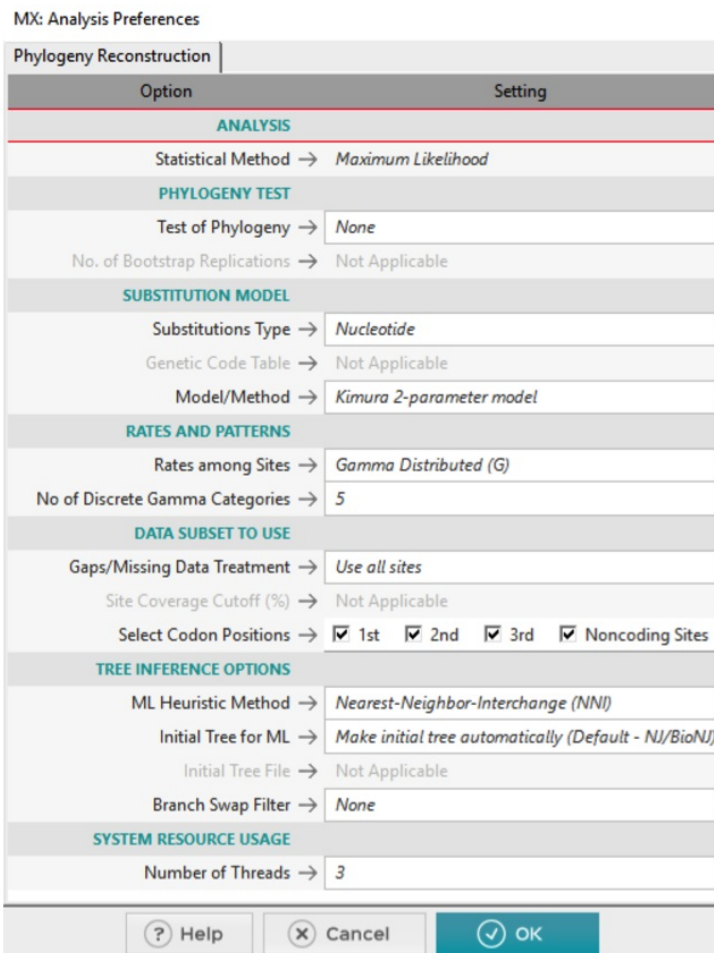
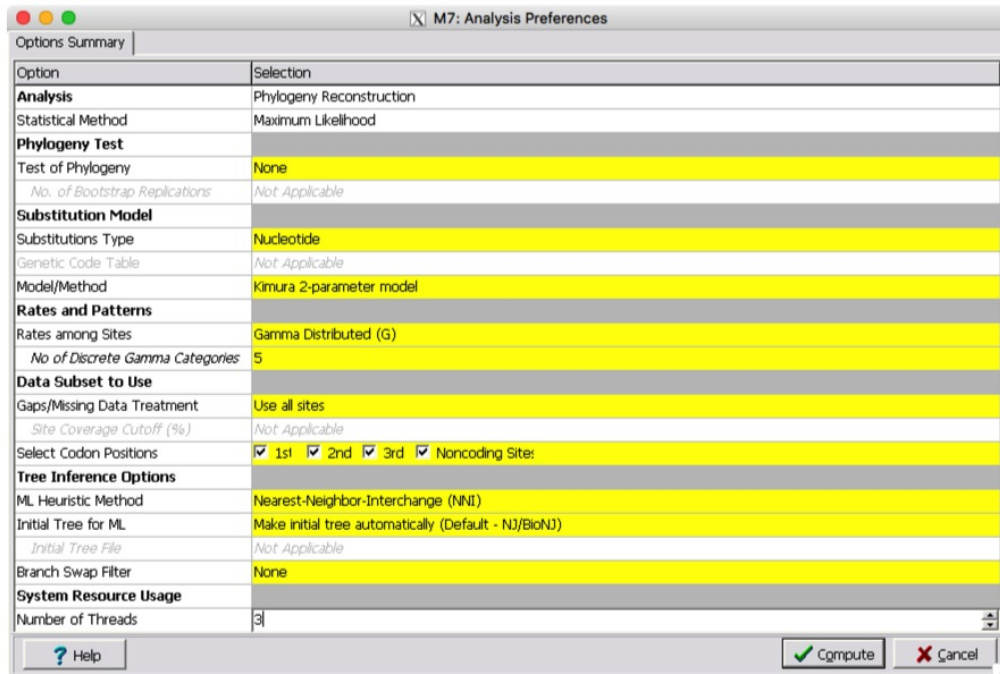


Figure 2 Analysis Preferences in MEGA 7 (top) and MEGA X (bottom).

In the Tree Explorer window (Figure 3), the tool icons of MEGA 7 have been updated, but they are in the same positions. The “Options” icon of MEGA 7 was a hammer, wrench, and screw driver (Figure 3A). In MEGA X the icon is a simple wrench (Figure 3B) and is called “Tree Display Formatting Tools.”

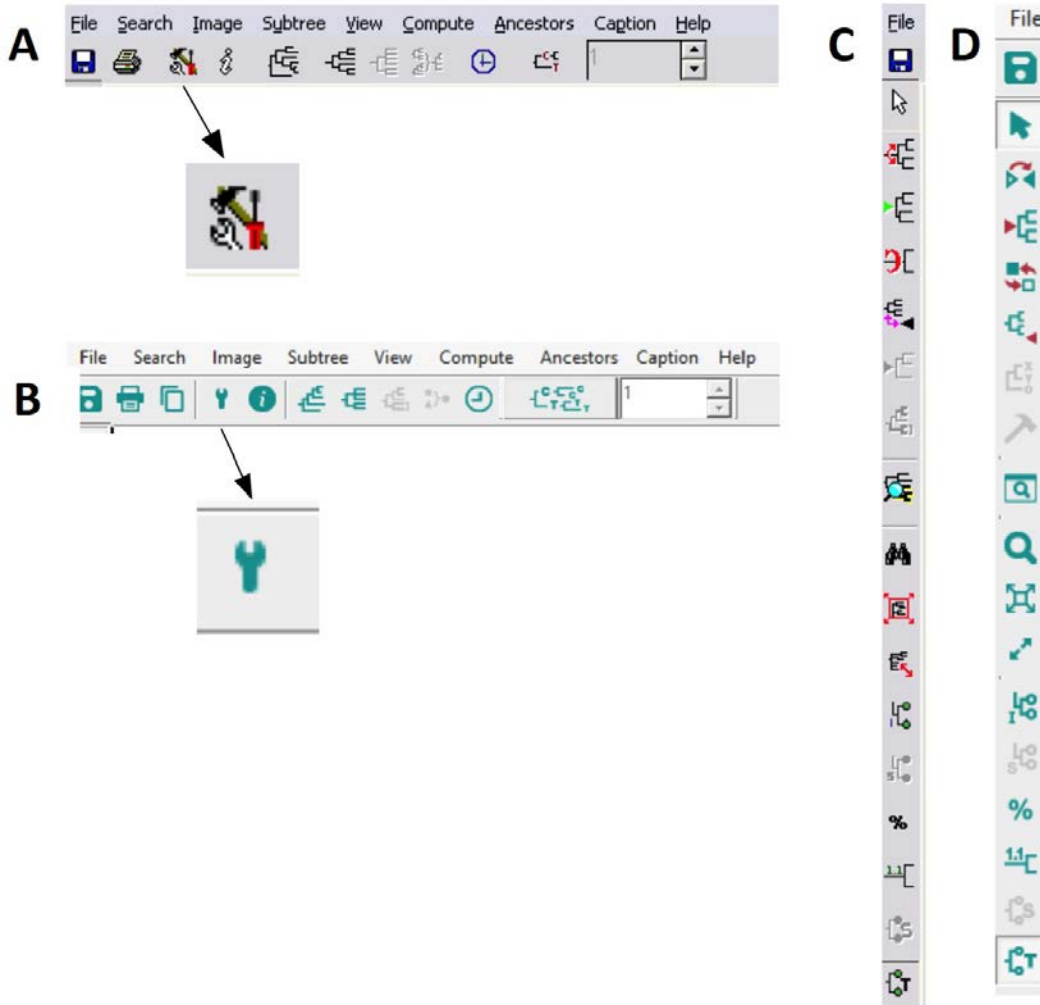


Figure 3 Tree Explorer tool icons in MEGA 7 (A & C) and MEGA X (B & D).

There should be no problem relating MEGA X to the screen shots in *Phylogenetic Trees Made Easy*, Fifth Edition.

A much easier way to label tree nodes

In Chapter 16 of the Fifth Edition, “Reconstructing Ancestral Sequences,” on pages 251–253, I presented a tedious, time consuming, frustrating method for manually labeling the nodes of a tree with the node IDs. It turns out that, unnoticed by me, MEGA 7 already had a way to automatically number those nodes, and that method is continued in MEGA X.

In the Tree Explorer window, pull down the View menu, and from the resulting Show/Hide submenu, choose Node IDs. Figure 4 shows a tree in MEGA X with the nodes thus labeled.

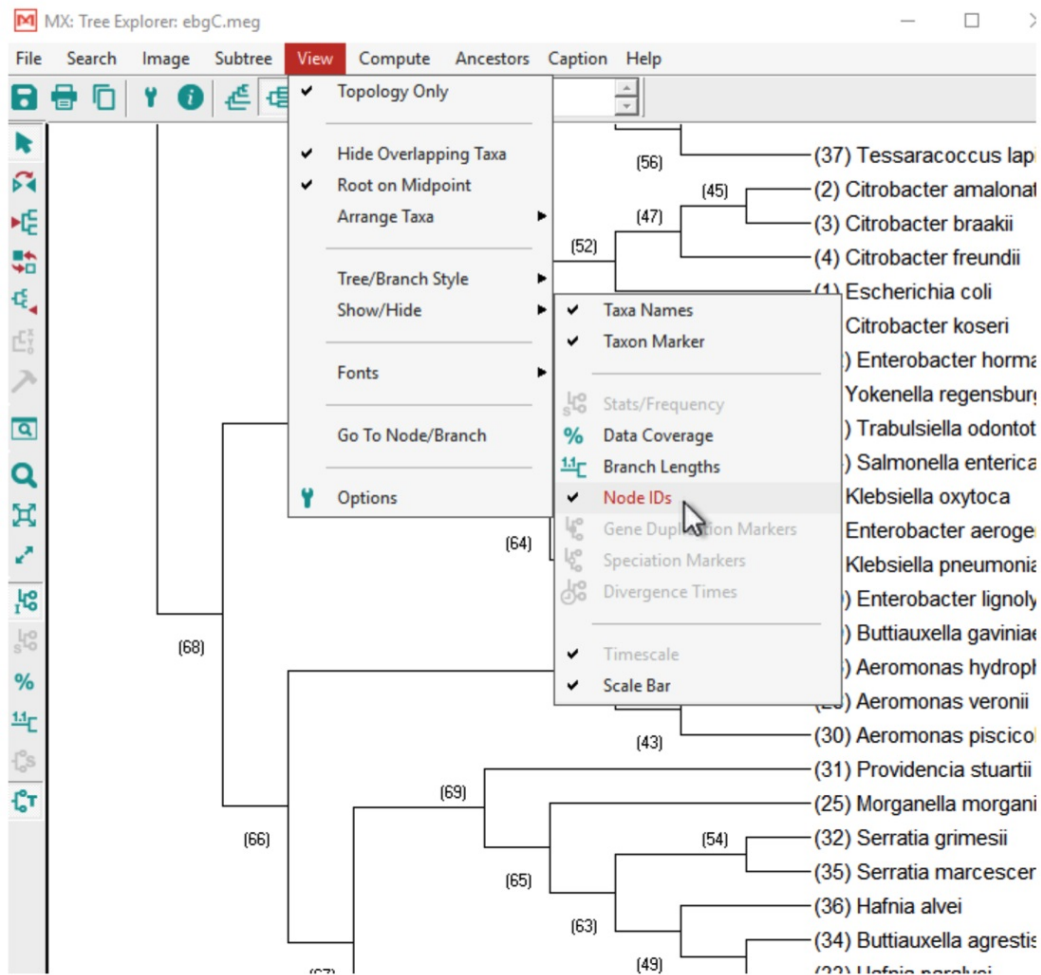


Figure 4 How to label the node IDs in MEGA X.