

Restart hung Mac OS application - How to kill programs in Mac OS - alternative of Windows CTRL + ALT + DEL

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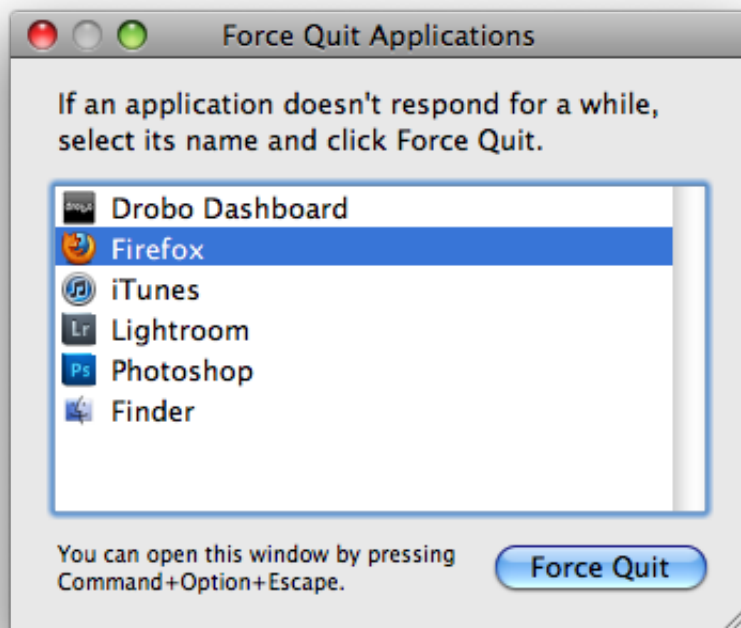
If you happen to have the rare case of having a hung MAC OS X application and you're coming from a Linux / Windows background you will be certainly wondering **how to kill Mac OS X hung application.**

In Mac OS the 3 golden buttons to kill crashed application are:

COMMAND + OPTION + ESCAPE

Command + Option + Escape

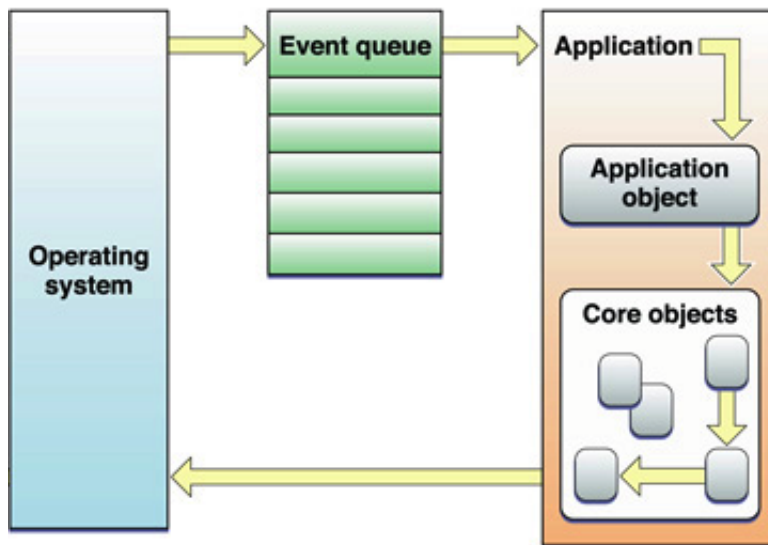
while pressed simultaneously is the Mac Computer equivalent of Windows CTRL + ALT + DEL



Holding together **COMMAND** + **OPTION** + **ESCAPE** on MAC OS brings up the **Force Quit Window** showing and letting you choose between the list of open applications. To close freezed MAC application, choose it and Press the **Force Quit Button** this will *kill immediately that application*.

To directly end application without invoking the choose *Force Quit Window* menu, to force a hanging app quit right click on its icon in *Dock* (**CTRL** + **Click**) and choose "**Force Quit**" from context menu.

A little bit more on why applications hung in MAC OS. Each application in MAC OS has its **event queue**. *Event queue* is created on initial application launch, *event queue* is buffer that accepts input from system (could be user input from kbd or mouse, messages passed from other programs etc.). Program is hanging when system detects queued events are not being used.



Other reasons for Mac OS hanging program is whether you're attaching detaching new hardware peripherals (i.e. problems caused by improper *mount / unmounts*), same hang issues are often observed on *BSD* and *Linux*. Sometimes just re-connecting (mouse, external hdd etc.) resolves it.

Program hungs due to buggy software are much rarer in Macs just like in iPhones and Ipads due to fact mac applications are very well tested until published in appstore.

Issues with program hungs in Mac sometimes happen after "sleep mode" during "system wake" function - closing, opening macbook. If a crashed program is of critical importance and you don't want to "**Force Quit**" with **COMMAND + OPTION + ESC**. Try send PC to *sleep mode* for a minute or 2 by pressing together **OPTION + COMMAND + EJECT**.

An alternative approach to solve hanging app issue is to **Force-quit Finder and Dock** to try that, launch **Terminal**

And type there:

killall Dock

Other useful to know Mac OS keyboard combination is **COMMAND + OPTION + POWER** - *Hold together Command and Option and after a while press Power* - This is a shortcut to instruct your Mac PC to reboot.