

# Artsoft Helpdesk

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## What is a coordinate system?

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A CNC machine is controlled by commanding movements and tracking the positions of the axes. These movements are defined in terms of a coordinate system. Mach3 and Mach4 use multiple sets of (Cartesian) coordinate systems for various tasks. The Machine Coordinate (G53) system is the base system that all of the other fixture/work/tool offsets are relative. The work coordinate system (G54, most commonly) is the coordinate system your g code is executed within and is relative to the machine coordinate system, which is established through homing.

The video below discusses coordinate systems as well as homing and soft limits. It shows and discusses Mach4, but the information in the introduction applies to both Mach3 and Mach4.

<https://youtu.be/IXuuGRACU1I>