



What is a fiducial?

A fiducial is a small decal that can make a big difference in space. Used to align components, a fiducial acts as a target and guide all in one — helping robots find spacecraft and perform tasks.

Fiducial markers, also known as rendezvous fiducials, are low-cost, low-mass tools that NASA uses to bridge the gap between legacy and prepared satellites. Though you may assume it is just a QR code, the fiducials NASA uses are more complex. When a fiducial is detected, it can relay key data that allows the software to compute its precise 3D position, orientation, and identity of the tag relative to the camera.

Looking Toward the Future

Going forward, the goal is to have fiducials incorporated into spacecraft to enable autonomous satellite servicing tasks, like repairs or refueling operations. This is part of the push towards *cooperative servicing*, the implementation of design features to enable in-space servicing, assembly, and manufacturing.

