



# The Standardization of In-space and Surface Docking Systems

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<https://www.internationaldockingstandard.com/>

**Introduction:** The International Docking System Standard (IDSS) aids on-orbit crew rescue and joint operations between different spacecraft. For the International Space Station, the IDSS has enabled Global interoperability for Commercial Crew and soon JAXA, and the IDSS is currently being extended to the Artemis Program. As more companies, agencies, and nations announce their intentions to explore and occupy low Earth Orbit (LEO), Cis-Lunar space, including the Lunar surface, it is a natural extension that new standards will be developed to support infrastructure build-up for mission-based or permanent occupation and exploration by national and multi-national Agencies, Industries, and Companies.



**What's Next:** A surface version of the IDSS, a.k.a. IDSS-Surface (IDSS-S), is under consideration by the NASA docking discipline leads responsible for the leadership of technical development and negotiation of the original IDSS a little over a decade ago. The IDSS-S, like its predecessor, will detail the physical geometric mating interface and de-sign load requirements to ensure physical interoperability and support a broad set of design reference missions. An IDSS-S, if used, increases the probability of successful Lunar surface docking between different modules enabling the accessibility and inclusivity required for multi-national, sustainable Lunar exploration.

**What's Happening:** NASA JSC Docking designers have on-going activities exploring surface docking and shirt sleeve transfer capabilities which include articulating systems and inflatable tunnels to perform the docking and transfer functions between two elements. A primary objective is to explore and document the features and requirements of a potential international interface standard with the goal in 2022 to create a draft of the new surface standard and begin dialog with commercial and international counterparts heading towards baselining in a few years. Keeping schedule is important in order to be able to support anticipated and ongoing architectural, ground-based, and flight development activities leading towards a future sustained lunar surface operations; including the potential to scar early Artemis elements/vehicles for potential retrofit of a docking interface or by on-ramping this/these capabilities later as they mature.



Image: Space X Commercial Crew Docking System (photo from internet)

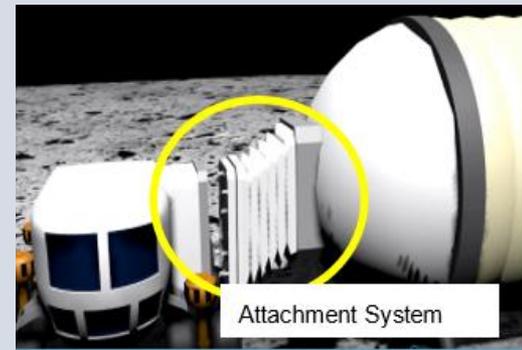


Image: Concept depicting Rover and Lunar Surface Module Docking