

## **The “Programmatics” of the ISS Crewmembers’ Twelve Month Mission**

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### **Abstract**

The mission duration for crewmembers’ stay on the International Space Station (ISS) has historically been approximately six months, consistent with the service life of the Soyuz spacecraft that delivers and returns the crewmembers previous. Exploration missions beyond low Earth orbit are expected to require crew durations of a year or more. The ISS Partners have agreed to begin building an experience base of longer crew durations, and have selected two crewmembers to serve on ISS for approximately twelve months, beginning in the Spring of 2015.

The preparations for the one NASA and one Roscosmos crewmember require many new considerations for the ISS Program and its Partnership – “programmatics” considerations that are separate from crew health concerns. Since the long-duration crew’s Soyuz will need to be replaced halfway through their stay, crew rotation, handover and the Soyuz docking port plan are affected. There is also an opportunity for two short-duration crewmembers to fly during the Soyuz exchange. It is desirable to minimize additional training required of the prime and backup crewmembers; normal crew rotations have a Soyuz crew train as the backup crew, then train as the prime crew. Ground teams will adjust their traditional support to ISS crewmembers, including communication of long-term plans, onboard training, and logistics support. The lessons learned during the preparation and execution of the 12-month mission will support improvements in future ISS long-duration missions and exploration missions.