Quick Start Guide to Payload Design

GETTING STARTED

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It can be a long journey from having a great idea for a science investigation in space to seeing it operated on the International Space Station and receiving the results. This Quick Start Guide provides a high-level road map to help you, the Payload Developer, know who you'll encounter, understand what milestones are ahead, and give you an idea of the path you'll travel on that journey. In addition, this Guide provides a foundation to assist you in designing your payload within NASA's constraints using best practices and lessons learned from more than 20 years of payload development experience.

Are you just getting started and need inside information for your discipline on conducting experiments on the station? The ISS Researcher's Guide series provides links to 17 free downloadable booklets that serve as introductions for potential users of the station platform. Each guide provides discipline-specific context for conducting station research, including available hardware and laboratory environments, to assist researchers in their efforts to connect to research opportunities. Since each payload requires both a sponsor and funding, these Guides provide an overview of the most applicable pathways to connect to these resources.

Once you've determined how to plug into one of the available methods to connect your payload to the International Space Station activities, you'll work with your Sponsor to create the contracts required to secure funding and begin integration of your payload into the station program.

As projects are selected and approved, the

The ISS Researcher's Guides are available at the following web address:

https://www.nasa.gov/station-researchers-guides/

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integration process begins and you will be assigned a Payload Integration Manager or PIM. The PIM is considered your primary point of contact or interface with the ISS Program, and will be your guide on your payload's journey to and from the Space Station. In a nutshell, the PIM's job is to help ensure the safe launch, integration, operation, and data return for your payload. The PIM will build an integration schedule to keep you on track as you approach key milestones and reviews together. The PIM will also facilitate PIM Tag-Ups that will include you and the integration team to keep everyone in sync along the way. In addition, PIM-led orientation meetings provide more in-depth explanations of the topics provided in this Guide.

Speaking of the PIM, during your payload development journey, you will encounter acronyms - lots of acronyms (after all, who wants to say Payload Integration Manager when PIM is more efficient?). NASA is full of acronyms because each piece of equipment, each formal meeting, each process and organization and role has its own long name that can contribute to cumbersome conversations without the use of their short names. Don't worry – we have links for that! (See our FAQs.) If an acronym (or conversation full of them) is not clear to you, be sure and ask for clarification.

Entering the integration phase brings with it a decision of consequential importance: what to name your payload/investigation.

Typically, a working name will be used during the initial phases of development, but once your payload is added to the Integrated Payload List (IPL) and a Payload Integration Agreement (PIA) is developed and signed, it can be very difficult to change the name. So think carefully about your payload name, including any resulting acronym. Note that many payloads have a long, descriptive name and a short name by which it is known in conversation for meetings and during on-orbit operations. Discuss your ideas with your assigned PIM, who can make sure your chosen name is not a duplicate or too similar to another payload or investigation.

Other topics covered in this Guide include information on Payload Engineering and Payload Safety. These sections, along with the FAQs, provide an introduction designed to get you started. Additional detailed information will be provided as you need it by your PIM and the appropriate team member.

In these sections, you'll see guideposts labeled as Tips (💡) or SOS (❗). A Tip provides helpful information that can make your planning and design progress more smoothly. An SOS indicates what to do if you run into problems or concerns and need help.

Also be sure to check out the FAQs for additional information on how to interact with NASA's payload integration processes successfully. ▐▟▌