

TGCC Conference Presentation Abstract:

Title: Managing Requirements-Documents to Data.

Managing Requirements on long term projects like International Space Station (ISS) can go thru many phases, from initial product development to almost over 20 years of operations and sustainment. Over that time many authorized changes have been made to the requirement set, that apply to any new systems that would visit the ISS today, like commercial cargo/crew vehicles or payloads. Explore the benefits of managing requirements in a database while satisfying traditional documents needs for contracts and stakeholder/user consumption that are not tied into the database.

Some of the benefits of managing requirements in a database that will be explored are:

- a) Single source/location for requirements
- b) Use of attributes like Rationale, Owner, Increment/flight applicability, etc
- c) Traceability for Change impact, Parent/child relationships, Variance (deviations/waivers)
- d) Change management for change history and consolidated change impact.
- e) Reporting/Exporting into project formats

Some examples will be shown on how this was applied to existing ISS documentation. Where requirements were imported, along with some additional requirement meta-data, into a database to improve user consumption.

Bios:

**Kevin Orr** has over 19 + year career in the Systems Engineering domain specializing in requirements, verification, and performance parameters. Have worked for Barrios over the last year supporting International Space Station project doing various System Engineering and Requirements Management tasks. Prior to that spent a couple of years providing System Engineering (SE) leadership with GE Oil & Gas for Engineering, Procurement and Construction (EPC) Subsea projects and SE functional improvements. SE time with GE has included managing interfaces, performing Extended Factory Acceptance Testing (EFAT) for Subsea Manifolds, SE manager for field extensions, authoring Subsea System Engineering Management Plan, and testing product lifecycle management tools. Previous 16 years were with Boeing providing System Engineering leadership for various space and military projects focused on system level functional architecture/analysis, Project Technical Performance Measures (TPMs) requirements (system, subsystem, and interface) , traceability, and verification products. Currently hold active certificates as Certified Systems Engineering Professional (CSEP) and Project Management Professional (PMP).

**Abe Hudson** is systems engineer at Barrios Technology working for the International Space Station (ISS) Program, Mission and Program Integration (MAPI) Contract. He has helped manage the operational ground rules, requirements, and constraints for the Space Station. Abe also worked on a Barrios contract for Transocean where he was a systems engineer on safety critical project.

Prior to working for Barrios Technology, Abe was a requirements analyst for 11 years at United Space Alliance where he worked in the Space Shuttle Flight Software group. There, he worked with NASA Astronauts and the Astronaut Training Office to develop new flight displays for the Shuttle. Abe also performed Shuttle flight software verification and validation using a Capability Maturity Model Integration (CMMI) Level 5 process.

Abe earned a Bachelor of Science degree from the University of Oklahoma in Aerospace Engineering.