

ABSTRACT AND BIOGRAPHY

NASA Software Engineering Procedural Requirements and related Policy

This presentation will provide an overview of the recent changes in the NASA Software Engineering Requirements NPR (NPR 7150.2A) and how the new consolidated NASA Engineering and Program/Project Management Policy (NPD 7120.4) addresses software. The presentation explains and describes the new software engineering requirements and policies required to be used on NASA projects that include software development. Some of the topics addressed in the presentation will be the new software classification definitions, the updated technical authority coverage with respect to software, the inclusion of new key requirements related to the developmental aspects of safety critical software, updates to the CMMI requirements and other changes.

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Dr. Kelly is the Program Executive for Software Engineering within the NASA Headquarters Office of Chief Engineer. His responsibilities include the establishment of Agency wide engineering and management policy, guidance, processes and supporting infrastructure to effectively meet the scientific and technical objectives of software products developed under NASA funding. Dr. Kelly is a certified Project Management Professional (Project Management Institute certificate #492099) and also received NASA's Exceptional Service Medal in 2001. Dr. Kelly also serves as the Chair of the NASA Software Working Group and is a member of the CMMI Steering Group (co-sponsored by DoD and NDIA). His accomplishments include leadership responsibilities in the development and release of NPR 7150.2, NASA Software Engineering Requirements; NPD 2820.1, NASA Software Policy; the annual NASA Software Inventory; and the Agency's Software Engineering Curriculum Plan. Previously he served as a Principal Engineer at NASA's Jet Propulsion Laboratory (JPL) in Pasadena, CA and led Agency-wide initiatives in Formal Methods for Computer Systems, and Software Formal Inspections. Prior to joining NASA-JPL, Dr. Kelly was a professor of Computer Science at Furman University in Greenville, SC, and a Mathematics professor at Darton College in Albany, GA. He is originally from Miami, Florida and received his degrees from Florida State University.

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Mr. Crumbley is the Special Assistant in the MSFC Engineering Directorate, Space System Department. Mr. Crumbley is currently supporting the NASA Office of the Chief Engineer as the co-lead of the NASA Software Initiative. Mr. Crumbley was directly involved in developing the updated NASA Software Engineering NPR 7150.2A. He has over 22 years experience working in software engineering. Prior to this position, Mr. Crumbley served NASA in numerous capacities including: Ares I and V avionics and software lead, two years as the Division Lead for Avionics Systems

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Division, two years as the Division Lead for Data Systems and Software Division, participated on the NASA Software Engineering Requirements NPR development team (2004), served as the Software Engineering NASA Independent Technical Authority, served as a member on the Mars Climate Observer investigation team, 5 years as the Branch lead of the MSFC Flight Software organization, 12 years experience as a software engineer supporting programs like International Space Station and Chandra Space Telescope. Mr. Crumbley has led in-house and contractor produced mission critical real-time embedded software development projects. He has developed an extensive set of metrics for monitoring software development progress and tracking defects. Mr. Crumbley has collaborated with other NASA centers and industry on the software research and process improvement activities. He managed the first NASA software organization to achieve Software Engineering Institute's Capability Maturity Model Integrated level 3 rating.