IV&V Quality Manual

Version: V

Effective Date: September 27, 2023

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Note: The official version of this document is maintained in IV&V's internal IV&V Management System Website (https://confluence.ivv.nasa.gov:8445/display/IMS). This document is uncontrolled when printed.

Purpose

This document defines the manner in which the NASA IV&V Program implements the NASA IV&V Management System (IMS) as a quality management system.

The IMS is designed to meet the requirements of the International Organization for Standardization (ISO) 9001:2015 Standard.

Scope

This document applies to the work performed under the scope of the NASA IV&V Program:

- Independent Software Verification and Validation
- System Software Assessments
- Systems and Software Engineering Research
- Software Support for the Office of Safety and Mission Assurance (OSMA)
- Software Development

This scope encompasses all of the work activities performed by the NASA IV&V Program and documented in the IMS. The IMS represents a foundational component of the IV&V Program that enables the NASA IV&V Program's mission.
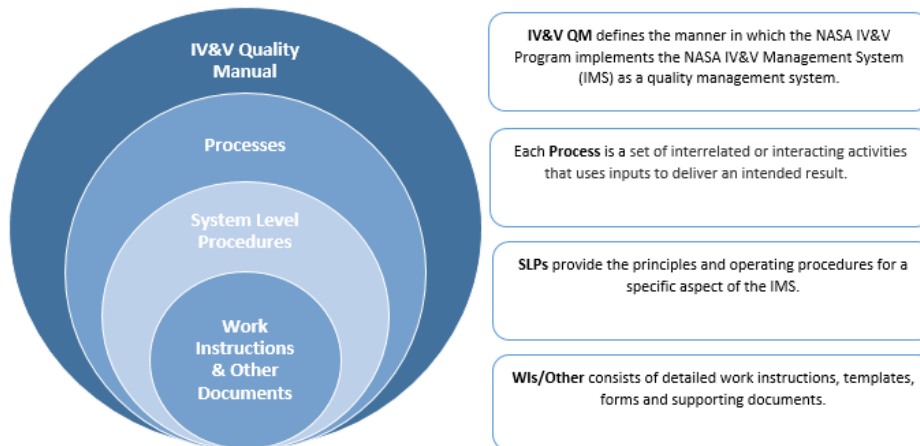
IV&V Management System

General

The IMS encompasses activities that enable the products and services that the NASA IV&V Program provides to customers. The IMS contains processes, procedures, work instructions and supporting documentation that *ensure high quality products and services are provided by the NASA IV&V Program. The IMS enables and standardizes* the planning, performance, control, and measurement of NASA IV&V operations. The NASA IV&V Program practices continuous improvement in its refinement and enhancement of the IMS.

The IMS is documented and structured in the following manner:

IMS Documentation

The following figure the IMS structure.

Figure 2 - IVV QM - IMS Documentation Structure.docx

Figure 2 – <u>IMS Documentation Structure</u>

The [IMS Documentation Master List](link) in the [IMS Confluence pages](link) provides a current representation of all content within the IMS including process/document owners and revision information.

Quality Policy

The NASA IV&V Program's Mission statement serves as the Program's quality policy. This statement and the work performed by the IV&V Program are driven by agency-level content.

NASA IV&V Mission

To provide our customers assurance that their safety and mission critical systems and software will operate reliably, safely and securely, and to advance the systems and software engineering disciplines. In doing so, we work to standards of excellence, focus on customer satisfaction, inspire and advance the next generation, and adhere to and demonstrate our core set of values: safety, integrity, respect, teamwork, balance, innovation and excellence.

The NASA IV&V Program's Mission statement and key agency-level drivers can be found here: https://confluence.ivv.nasa.gov:8445/pages/viewpage.action?pageId=123602129

Information about the IV&V Program's functional organizations: [IV&V Program Implementation and Reporting](link)

Additional information regarding how the IV&V Program meets ISO requirements can be found here: https://ecm.msw.faircon.net/OTCS/llisapi.dll/open/6953205

Quality Objectives

The NASA Strategic Plan outlines the strategic direction, goals, and priorities NASA IV&V will pursue to achieve NASA's Vision and Mission. The IV&V Program is a NASA Program within the Office of Safety and Mission Assurance and established in accordance with NPD 1000.3. The Program's quality objectives consist of the NASA IV&V's overall responsibilities that are outlined in [NPD 1000.3E](link).

Appendices

The following appendices contain content maintained in separate documents. Follow the links provided to view the documents.

[Appendix A – Acronyms and Definitions](link)

[Appendix B – Responsibilities and Authorities](link)

Version History

VERSION HISTORY				
Version	**Description of Change**	**Rationale for Change**	**Author**	**Effective Date**
Basic	Initial release to replace Ames QM		Siamak Yassini IT/332	09/09/1999
A – H	Older revision information may be located in the Version History Overflow Document		Various	05/07/2001 – 01/24/2006
I	Updated content; moved appendix material to separate documents		Stephanie Ferguson	10/10/2007
J	Updated Vision, Quality Policy, and document references; updated terms and definitions resulting from re-engineering process		Stephanie Ferguson	04/08/2008
K	Updated terminology to reflect the current organizational structure and to meet the ISO 9001:2008 Standard		Stephanie Ferguson	07/14/2009
L	Updated to reflect new organizational structure		Stephanie Ferguson	07/13/2010
M	Revised information on PEP; added execution plan process diagram		Greg Blaney	08/31/2010
N	Updated the Quality Policy, Leadership direction and Quality Objectives. Sections 1.2, 1.2.1, 1.2.2, and 1.3 are affected. Added IVV 09-9 to section 4.3. Added IVV 03 and IVV 26 to section 4.5.		Greg Blaney	11/24/2010

VERSION HISTORY				
Version	Description of Change	Rationale for Change	Author	Effective Date
O	Updated Knowledge Management and KM roles, Public Affairs, etc.	Updated to accurately reflect updated roles and organizational changes	Natalie Alvaro	10/24/2011
P	Updated vision/mission, add description of Strategic Plan, remove details regarding office ownership of SLP's, remove detailed office descriptions, add description of Office Execution Planning process (and the tie between that content and the Strategic Plan, including Outcomes serving as quality objectives), removal of GSFC and HQ org charts.	Sync the QM with the IV&V Program Strategic Plan (approved Sept. 2012) (addresses PAR # 2012-P-376), simplify the QM by removing content that isn't required and describes our organization in general (rather than describing our organization's implementation of a quality management system).	Jeffrey Northey	03/27/2013
Q	Modified Section 3.2 to clarify that Section 7.6 (of the ISO 9001:2008 Standard), *Control of monitoring and measuring equipment*, is excluded.	Equipment is not used by the IV&V Program to provide evidence of conformity of product to determined requirements. (PAR: 2014-P-396).	Jeffrey Northey	08/28/2014
R	Added language to Purpose to be explicit about our intent. We want a single management system that meets all requirements. Under IMS Documentation - updated the terms to re-use exiting content and removed content not needed to be called out certain required sections for the standard.	To address outdated references to the ISO 9001:2008 standard. (PAR #2017-P-498)	Jeff Northey	11/28/2018

VERSION HISTORY				
Version	**Description of Change**	**Rationale for Change**	**Author**	**Effective Date**
S	Removed references to the IV&V Program Strategic Plan, added link to functional organizations and their functional statements, removed organizational structure chart, removed management responsibility, vision statement, and mission statement, updated Quality Policy to be the Program's Vision and Mission statements and added a link to the statements, updated the Quality Objectives to be the responsibilities outlined in NPD 1000.3E and added a link to the NPD, added a link to the Agency's Strategic Plan, removed reference to Office Execution Plans (OEP), removed the NASA IV&V Execution Plan Model and description, removed organization description, responsibility and authority, and management review description of Quarterly Metric Reviews (QMR), removed figure for process for customer feedback.	This Program-level content is already being maintained and is available to our program in Confluence. The compliance matrix will now capture the information on how IV&V meets the ISO requirements.	Alex Ayers	08/05/2020
T	Added IV&V Vision and Mission Statements	Overall usefulness and effectiveness	Alex Fansler	11/14/2022
U	Added SW Development to the scope and removed reference to ISO certification	No longer ISO certified	Alex Fansler	01/17/2023
V	Removing Vision statement and references and updating links	Updating broken links and removing Vision statement	Alex Fansler	09/27/2023