

IVV 05: Document Control

Version: AP

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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.

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Purpose

The purpose of this system level procedure (SLP) is to establish a consistent method for preparation, approval, issuance, revision, cancellation, tracking, and maintenance of NASA IV&V Management System (IMS)-controlled documentation.

Scope

This SLP is applicable to all documentation that pertains to the IMS. This includes all documents specifically designated as IMS Documents, which include all SLPs, Work Instructions (WIs), templates, supporting documents, and forms.

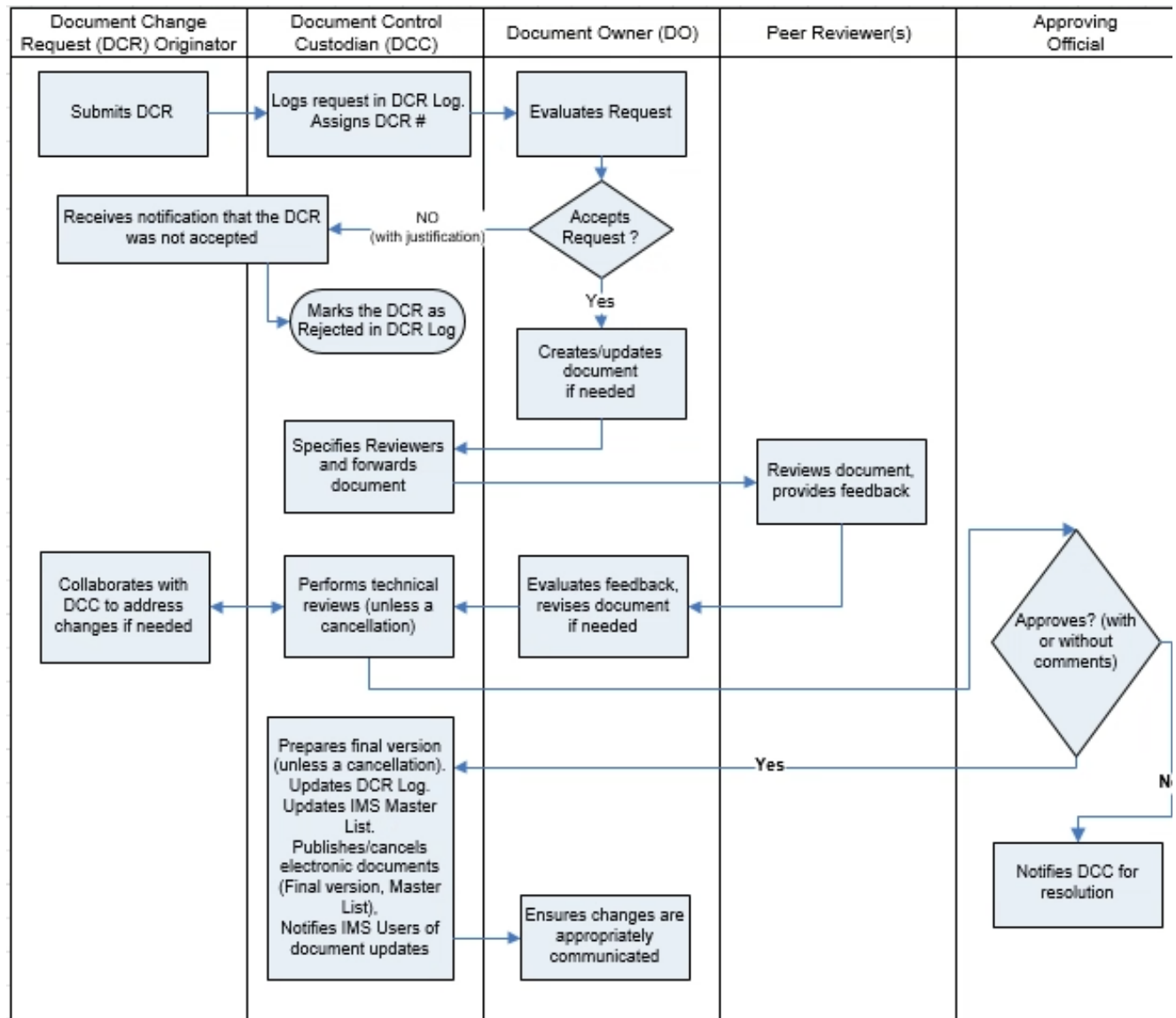
Procedure Flow Diagram

The following diagram depicts procedures and steps described in this document, and the responsibilities and actions that shall be performed by process participants or their designees.

Any supplemental information will appear after the diagram.

Addition, Revision, or Cancellation of an IMS Document

This section applies to the addition, revision, or cancellation of IMS Documents, which includes: SLPs, WIs, templates, supporting documents, and forms.



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The IMS Manager shall assign a Document Owner (DO) for any new IMS Document. If necessary, the IMS Manager shall reassign DOs for existing documents.

Initiating

The Document Change Request (DCR) Originator shall propose the addition, revision, or cancellation, of an IMS Document by notifying the Document Control Custodian (DCC). Notification methods include: email, SCO-JIRA action item, or completing Form 1000, Document Change Request. The Originator shall include the following information: document number and title, comments clearly identifying any modifications to be made, and the rationale for why these changes are being proposed.

Minor and editorial changes may be made by directly editing the IMS Document in Confluence. Draft versions of new documents may be added by following the instructions in Confluence [here](#) or at <https://confluence.ivv.nasa.gov:8445/display/IMS/Creating+a+new+IMS+Document>. Major changes should be made by using the "Export to Word" feature and then editing with Track Changes ON.

To facilitate notification, document owners will use the "Watch" feature of Confluence to monitor their documents and the DCC shall "Watch" all IMS documents.

Preparing

The DCC may save an electronic copy of the DCR notification and any working drafts in the IMS directory on the Enterprise Content Management (ECM) System. If the DCR is associated with a new IMS Document, the DCC will assign a document number and confer with the IMS Manager to assign a DO.

If the document is determined to be an INTERNAL USE ONLY document, the DCC shall ensure that suitable cover page, footers, etc. are created and used.

The DCC shall also specify Peer Reviewers. Only minor and editorial updates to a document are exempt from the Peer Review process. In all other instances of addition, revision or cancellation to the IMS, the DCC shall identify one or more peers to perform the Peer Review. If the Document Owner is not an Office Lead, then the relevant Office Lead will be assigned as one of the Peer reviewers. If the DCR is associated with a Corrective Action Request (CAR) or Preventive Action Request (PAR), the DCC will specify that the CAR/PAR Originator is included as a Peer Reviewer, if not already part of the review/approval process.

The DO shall evaluate the DCR to determine if the DCR is acceptable and applicable.

Acceptance

If the DO accepts the DCR, the DO will incorporate the modifications into the document, and return the modified document to the DCC. The DCC will notify peer reviewers. As part of preparation, the DCC will create a working subfolder in the IMS Documents folder on the ECM System as a place to store associated documents in electronic format.

Rejection

If the DO rejects the DCR, the DO shall provide rationale for the rejection to the DCR Originator and DCC. For tracking purposes the DCC will document the rejection in the DCR Log.

Peer Review

Peer Reviewers shall review and provide comments on the additions, revisions, or cancellation being proposed in the Review Draft. After commenting, they should notify the DO, Peer Reviewers and the DCC.

The DO shall evaluate the Peer Review comments and modify the document accordingly. If the DO decides not to address some or any of the Peer Review comments, he/she shall provide rationale to the Peer Reviewer(s) as to why the comments would not result in modifications to the document. After all modifications are completed, the DO shall notify the DCC. The Review Draft from the DO may be in physical or electronic format.

IMS Technical Edit Review

The DCC shall conduct a technical edit review of the draft IMS document. The technical edit review includes:

- Review the "Pending changes and considerations" block at the top of the document (more info on that concept [here](#)) for any changes that need to be incorporated.
- Inspection of the Review Draft for technical and grammatical deficiencies and make modifications where needed.
- Review of the Records Table in the Records section, to verify that all records pertinent to the documented process have been captured in the table, and that all records' retention periods and locations are correct and up to date.
- If useful, move Version History information that has exceeded its retention period to the Version History Overflow Document.

If any modifications resulting from the technical edit review significantly alter the logic or process of the document, the DCC shall return the Review Draft to the DO for verification of correctness and approval. After addressing any such modifications, the DO shall notify the DCC.

The DCC shall update the Compliance Matrix during the Technical Edit Review as needed.

Changes to the Compliance Matrix:

1. If the changed content is not mapped to any requirements in the Compliance Matrix, proceed with finalization.
2. If the changed content is mapped to a requirement from the Compliance Matrix, determine if the requirement is still satisfied.
 - a. If the requirement is no longer satisfied, check with the document owner or the IMS Manager to determine a course of action.
 - b. If the requirement is still satisfied, update the Compliance Matrix with the new language.

After the technical edit review is completed, the DCC shall notify the Approving Official.

Final Review

The Approving Official shall review the modifications proposed. If the Approving Official approves the changes (or approves with comments), he/she shall notify (with any comments) the DCC for further processing.

If the Approving Official does not approve, he/she shall notify the DCC for resolution.

If needed, the DCC shall modify the Review Draft, collaborating with the DO as needed to address the Approving Official's concerns. The modified document shall be returned to the Approving Official for further review.

Finishing

The DCC shall post electronic copies of final versions of new and updated documents to [the IMS Confluence pages](#). The DCC shall also post the latest versions to the public IMS website. If these are INTERNAL USE ONLY documents, they shall be excluded from public access. If a cancellation is approved the DCC shall remove the prior posted documents and show the document as canceled in the lists; after a reasonable period, the document shall be removed completely from the lists.

The DCC shall update the IMS Master List and IMS Version History Overflow Document as needed. For public lists and diagrams, INTERNAL USE ONLY documents shall either be excluded completely, or document Titles shall be excluded and replaced with "FOR INTERNAL IV&V PROGRAM USE ONLY".

The DCC shall publish the final draft and IMS Master List and notify document users of all document updates via email.

Upon publication, the Document Owner shall ensure that the changes are appropriately communicated. As a minimum, the DO should consider the following items:

- magnitude of the change(s)
- the target audience(s)
- communication mechanism(s)
- potential training sessions

Controlled Versions

Electronic versions of documents made available through the [IMS Confluence pages](#) are the official, controlled versions. Copies printed from these versions are considered uncontrolled and must bear a notice analogous to: "Verify that this is the correct version before use."

The DCC shall verify that published documents match the current IMS Master List and shall resolve any discrepancy by auditing Master List revisions and the DCR Log. The DCC shall remove obsolete versions of all IMS Documents when posting revised documents to the public IMS website.

Controlling External Changes

All NASA and Center directives – e.g., NASA Policy Directives (NPDs), NASA Procedural Requirements (NPRs), Goddard Procedural Requirements (GPRs), etc. – are available electronically from the NASA Online Directives Information Service (NODIS) repository (<https://nodis3.gsfc.nasa.gov>). If any procedure, method, or step in the IMS conflicts with any document in NODIS, the IMS document shall be superseded by the NODIS document. Any external reference shall be monitored by the Document Owners for current versioning.

Document Owner Monitoring

This procedure applies to all DOs that use external documents or other references (e.g., websites...) in their IMS documents.

DOs shall ensure that their IMS documents reference any external sources used in the enactment of those procedures.

For a given external reference:

- If only the most current version is applicable, the DO shall include only the source for verifying that current version (e.g., the publisher or originator).
- If any version older than the most current version is applicable, the DO shall specify which version is being referenced.

The DO shall be responsible for monitoring all external references captured in his/her IMS Documents to ensure that his/her IMS procedures maintain correct references and proper adherence to applicable standards.

IMS Annual Document Review

The IMS Annual Document Review is a control mechanism to ensure IMS documents are reviewed by their respective Document Owners on a regular basis to ensure accuracy of the documents and for areas of potential improvement. The DCC shall inform DOs of any modifications that were noted in the "Pending changes and considerations" block at the top of the document (more info on that concept [here](#)), including both exclusive modifications and blanket modifications that apply to all or many documents.

During the IMS Annual Document Review, as a minimum, DOs shall review their IMS document(s) for the following:

- Inaccuracies
- Organizational changes affecting the document
- Procedure, method, or step changes
- Metric changes
- New or obsolete external references
- Reference Document changes including titles
- Links, Uniform Resource Locators (URL), or email address changes
- Changes to databases or other data repositories used
- Potential areas of improvement

Refer to the [IMS Master List](#) for IMS document DOs.

Contingency Plan

If the IMS electronic repository file is temporarily inaccessible, document users shall contact the DCC to determine the current versions of documents and forms.

Definitions and Acronyms

Official NASA IV&V Program roles and terms are defined in the [Quality Manual](#). Specialized definitions identified in this SLP are defined below.

- **Document Change Request (DCR) Log**
 - The DCR Log is a spreadsheet used by the Document Control Custodian (DCC) to track DCRs. The DCR Log captures information including the assigned DCR number, DCR number assignment date, IMS Document number and name, approval date, and Document Owner (DO). The DCR Log helps to ensure that there is only one DCR open per IMS Document at a time.
- **Document Change Request Originator (DCR Originator)**
 - A DCR Originator is any NASA IV&V civil service or contract employee who requests an addition, revision, or cancellation of an IMS Document.
- **Document Package**
 - Used in the prior versions of this procedure (June 2017 and earlier), the Document Package consisted of the DCR (documented on form 1000) and copies of the Review Drafts that contain reviewer comments.
- **Document User**
 - A document user is any NASA IV&V employee who uses the IMS.
- **IMS Documents**
 - IMS Documents are all IMS Processes, SLPs, WIs, templates, supporting documents, and forms.
- **Review Draft**
 - A Review Draft is a copy of a revised IMS Document that is evaluated in accordance with this SLP.
- **Reviewer**
 - A Reviewer is anyone who reviews a revised or new IMS Document or a cancellation request. Types of Reviewers may include: Peer Reviewer, Technical Reviewer, and Records Reviewer. The Document Owner (DO) and the Approving Official also serve as Reviewers providing input and approval during the document change procedure.

Acronyms

| | |
|-----|---------------------------------|
| CAR | Corrective Action Request |
| DCC | Document Control Custodian |
| DCR | Document Change Request |
| DO | Document Owner |
| ECM | Enterprise Content Management |
| GPR | Goddard Procedural Requirements |
| IMS | NASA IV&V Management System |

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| ISO | International Organization for Standardization |
| NODIS | NASA Online Directives Information Service |
| NPD | NASA Policy Directive |
| NPR | NASA Procedural Requirements |
| PAR | Preventive Action Request |
| QM | Quality Manual |
| SLP | System Level Procedure |
| URL | Uniform Resource Locator |
| WI | Work Instruction |

Metrics

Any metrics associated with this SLP are established and tracked within the NASA IV&V Metrics Program.

Records

The following records will be generated or updated and filed in accordance with this SLP and IVV 16, *Control of Records*, and in reference to NPR 1441.1, *NASA Records Management Program Requirements*.

| Record Name | Original | Essential | Responsible Person | Retention Requirement | Location |
|-----------------|----------|-----------|--------------------|---------------------------------------|---|
| DCR Log | Y | N | DCC | Destroy when 7 years old (01/026.5.A) | ECM System |
| IMS Master List | Y | N | DCC | Destroy when 7 years old (01/026.5.A) | Confluence, Public IMS Web Site, ECM System |

References

| REFERENCES | |
|---|--|
| Document ID/Link | Title |
| Compliance Matrix | Compliance Matrix |
| Form 1000 | Document Change Request |
| IMS Master List | NASA IV&V Management System Documentation Master List |
| IMS Version History | IMS Version History Overflow Document |
| ISO 9001 | International Organization for Standardization Quality management systems - Requirements |
| IVV QM | NASA IV&V Quality Manual |
| IVV 16 | Control of Records |
| NPR 1441.1 | NASA Records Management Program Requirements |
| https://nodis3.gsfc.nasa.gov/ | NASA Online Directives Information System (NODIS) |
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If any procedure, method, or step in this document conflicts with any document in the NODIS, this document shall be superseded by the NODIS document. Any external reference shall be monitored by the Document Owner for current versioning.

Version History

| VERSION HISTORY | | | | |
|-----------------|--|--|-----------------------|-----------------------------------|
| Version | Description of Change | Rationale for Change | Author | Effective Date |
| Basic | Initial Release | | John Griggs IT/204 | 1/29 /1998 |
| A – AA | Older revision information may be located in the Version History Overflow Document | | Various | 04/30 /1998 –07/14 /2010 |
| AB | Updated Section 4.3 to remove necessity of Master List hard copy; clarified the content of Section 4.6.1 | Electronic copy is the official version. Electronic backup copies exist. | Sara Cain | 9/15 /2010 |
| AC | Updated Section 4.2, 4.2.2, and 4.2.3 to reflect actual review process. Technical and Records Reviews may be performed in parallel. | Process changes for efficiency have been tried and found to be effective. | Richard Grigg | 1/6/2011 |
| AD | Updated Section 4.0 for clarity (flow). Added IMS Reviews in section 4.2.2 to encompass Technical, Records and Final reviews. Removed MLC. Removed CAR/PAR Originator. | Simplifying for easier user comprehension | Richard Grigg | 3/14 /2011 |
| AE | Renamed to "Document Control"; removed Data section. Updated Section 4.0 for clarity (flows). Added Annual Document Review PO responsibilities. Removed Technical Reviewer, Records Liaison/Custodian. | No actual data controlled by this SLP. Some POs had questions about ADR. Continued simplification. | Richard Grigg | 10/24 /2011 |
| AF | Remove cancellation flow; incorporate Office Lead as one of the Peer Reviewers when the Process Owner is not the Office Lead. Add IMS Modifications Needed Spreadsheet references. | PAR: 2012-P-343. Cancellation handled the same as any other revision. Eliminated the possibility that changes would be made without Office Lead being aware. | Richard Grigg | 4/20 /2012 |
| AG | Add capture of rationale. Clarify process of DCR rejection by PO. | PAR: 2012-P-375. Rationale for changes is frequently lost or documented in email or other hard to retrieve documents. | Richard Grigg | 1/31 /2013 |
| AH | Add a requirement for process owners to provide training or familiarization to their users when a document is updated. | Updates may be made without users being aware; then processes may not be properly followed. | Richard Grigg | 3/10 /2014 |
| AI | Add blanket modifications to ADR process. Update external references to include websites and any other references. Update flow to add PO requirement to communicate changes. Add references to Version History Overflow Document. | PAR: 2014-P-415. Blanket modifications may be overlooked if not deliberately implemented at ADR. External references are not just documents anymore. Version history overflows are captured in an IMS document that is published. | Richard Grigg | 10/16 /2014 |
| AJ | Add reference to IVV 16 in sections 4.1 flow and 4.1.6, Final Processing. Address INTERNAL USE ONLY documents. Remove "2008" from ISO 9001 references. | Add clarity for filing DCR package. Raise awareness of new type of published documents and handle appropriately. Current ISO 9001 version has changed. | Richard Grigg | 10/20 /2016 |
| AK | Remove references to the Document Package and signing the DCR form. Remove references to Templates (T2002, T2003, and T2004). Update handling of editorial changes. Change "Process Owner (PO)" to "Document Owner (DO)"; also "Process" to "procedure" or "method". | Older DCR method is replaced by a more streamlined, efficient, and effective method. Official versions of IMS documents are now on Confluence. Per ISO 9001:2015, "Process" now refers to a higher level grouping of procedures, WIs, and methods. | Richard Grigg | 08/02 /2017 |
| AL | Remove references to ISO Mapping Diagram and Reference Mapping Diagram | This mapping is now being done within the Compliance Matrix | Alex Ayers | 05/10 /2019 |
| AM | Including information on the Compliance Matrix and how to check for compliance | Instructions needed for the addition for the Compliance Matrix after removing the mapping diagrams | Alex Ayers | 07/22 /2019 |
| AN | Tweak the language in IVV 05 to make the use of the Version History Overflow Document optional. | We can still move content to the overflow document at any time if we think that will help simplify and clean things up, but we're not bound to a particular time period. | Jeff Northey | 03/10 /2020 |
| AO | Update filing location for Document Package to ECM System | We no longer have physical records at the program. All have been converted to electronic and no more are being kept as physical | Michael Asbury | 01/18 /2023 |

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|----|--|--|--------------|-------------|
| AP | Removed "Document Package" and "IMS Version History Overflow Document" from the records table. Added the requirement to post all updated documents to the IMS website. | "Document Package" and "IMS Version History Overflow Document" were older record types that only needed to be officially maintained for 7 years (ending in 2024). Posting documents to the public IMS website now seems like an appropriate standard practice, because it's common for IV&V personnel to point external people to these documents for reference. | Jeff Northey | 05/14 /2024 |
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