



# MANUAL TRANSMITTAL

Department of the Treasury  
Internal Revenue Service

2.110.1

JULY 26, 2024

## EFFECTIVE DATE

(07-26-2024)

## PURPOSE

- (1) This transmits revised IRM 2.110.1, Requirements Engineering, Requirements Engineering Directive.

## MATERIAL CHANGES

- (1)
- IRM 2.110.1.1 - Modified RE Directive per IRM internal control requirements.
  - Throughout IRM sections 2.110.1.1, 2.110.1.2, and 2.110.1.3 - Deletion of references to the Enterprise Life Cycle to language pertaining to the OneSDLC Delivery Model.
  - IRM 2.110.1.1.6 - Added and updated terms.
  - IRM 2.110.1.1.7 - Under Related Resources, updated the Requirements Engineering Program Office Website information.
  - IRM 2.110.1.2 - Under Organizational Directives, updated Tools Management and Support.
  - IRM 2.110.1.3 - Under Program/Product Directives, updated Tool Usage.
  - IRM 2.110.1.3 - Under Program/Product Directives, Visualization language was refined.

## EFFECT ON OTHER DOCUMENTS

IRM 2.110.1 dated August 12, 2019 is superseded.

## AUDIENCE

The Requirements Engineering Directive is applicable to all IRS business units and information technology (IT) organizations, including other partners, having responsibility for developing business/IT solutions.

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Chief Information Officer



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2.110.1

Requirements Engineering Directive

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2.110.1.1  
(07-26-2024)  
**Program Scope and  
Objectives**

- (1) Purpose - The purpose of this directive is to establish the Requirements Engineering Program Office's (REPO) authority and responsibility for the definition, execution, and oversight of the requirements development and requirements management process areas, hereafter referred to as Requirements Engineering (RE). This directive clarifies expectations for REPO to support the establishment and advancement of the RE discipline, and the expectations of all programs and products that develop or maintain systems within the Internal Revenue Service (IRS).
- (2) Audience - The Requirements Engineering Directive is applicable to all IRS business units and information technology (IT) organizations, including other partners, having responsibility for developing business/IT solutions.
- (3) Policy Owner - REPO under Business Planning and Risk Management.
- (4) Program Owner - REPO is responsible for the development, implementation, and maintenance of this directive. Approval of this directive, including updates, rests with the REPO Office.
- (5) Primary Partners - All programs and products that develop or maintain systems are required to perform requirements engineering processes and associated activities in accordance with this directive.
- (6) Program Goals - REPO is responsible for defining, developing, updating, and institutionalizing the RE discipline to facilitate program/product implementation of quality requirements that accurately reflect the needs of the business and its customers. The RE discipline includes, but is not limited to, requirements elicitation, definition, and management leveraging traditional and agile methods, lean principles, supported by model-based approaches, business rules, visualization, and textual-based requirements. This directive, along with REPO training, guidance, coaching, material, and tools, supports all One Solution Delivery Life Cycle (OneSDLC) delivery approaches at the IRS.

2.110.1.1.1  
(07-26-2024)  
**Background**

- (1) Inefficiencies and gaps in program and project RE execution as recognized through external and internal process audits necessitated having established guidelines and principles that help minimize waste, training to disseminate knowledge, and coaching for individualized assistance and support.

2.110.1.1.2  
(07-26-2024)  
**Authority**

- (1) REPO is responsible for the development, implementation, and maintenance, of this directive. Approval of this directive, including updates, rests with the REPO Office. All proposed changes to this directive must be submitted to REPO.

2.110.1.1.3  
(07-26-2024)  
**Responsibilities**

- (1) The Chief Information Officer ultimately is responsible for this program. REPO responsibilities are noted in Organizational Directives section and program/product responsibilities are noted in Program/Product Directives section.

2.110.1.1.4  
(07-26-2024)  
**Program Management  
and Review**

- (1) Program Reports - Policies outline a set of plans or courses of action that are intended to influence and determine decisions or actions of a process. Policies provide an element of governance over the process that provides alignment to business vision, mission and goals. The RE program is based on industry standards and best practices.

- (2) Program Effectiveness - The effectiveness in meeting program objectives is evaluated and communicated by the products and our partners.

2.110.1.1.5  
(07-26-2024)  
Program Controls

- (1) Program controls represent the policies and guiding principles on how the process will operate. The primary policies for RE is the RE Directive Internal Revenue Manual (IRM) and RE Process IRM. These policies provide direction over the operation of processes and defines constraints or boundaries within which the process must operate.

2.110.1.1.6  
(07-26-2024)  
Terms/Definitions/  
Acronyms

(1)

Defined Terms	
Term	Definition
Artifact	A work product created by a process or procedure step (e.g., plans, design specifications). Also refers to repository artifact types (RE artifacts maintained in a requirements repository).
Backlog	An ever-evolving list of items relating to needed product functionality or actions (e.g., bug fix), prioritized by the Product Owner, that conveys to an agile team what functionality is decided to be implemented first. Agile initiatives typically employ a top-level backlog, known as a product backlog, a release backlog, and an iteration backlog or sprint backlog.
Justinmind	A visualization/prototyping tool currently available at IRS, sponsored by REPO, that can be used to both quickly and collaboratively assemble working prototypes of business software that mimic the exact look, feel and behavior of the final product. Product – something designed to provide tangible benefits to end users, organizations, or markets. It is characterized by a clear boundary, involving well-defined users and partners. Products can take various forms, including services, physical goods, or more abstract solutions.
Lean Principles	The Project Management Institute sums it up: “To be Lean is to provide what is needed, when it is needed, with the minimum amount of materials, equipment, labor, and space.” The core idea of lean is to eliminate/reduce non-value-added activities (termed “wastes”) and thus increase customer value.
One Solution Delivery Lifecycle	A flexible delivery model created by and for the IRS that provides guardrails for quality, compliance, and executive oversight.
Process	A collection of activities that begin with inputs and produce outputs.

Term	Definition
Product	Something designed to provide tangible benefits to end users, organizations, or markets. It is characterized by a clear boundary, involving known partners and well-defined users. Products can take various forms, including services, physical goods, or more abstract solutions.
Product Review	An OneSDLC event held at the end of each product cycle to share outcomes and gather feedback on work completed in the current product cycle. The appropriate governance body reviews and approves the plan for the next product Cycle and the completed compliance documents as part of the product cycle compliance process, enabling teams to release more frequently.
Program	A group of related products managed in a coordinated way to obtain benefits and control not available from managing them individually. Programs may contain elements of work outside of the scope of the discrete products in the program.
Readiness Exit Review	An OneSDLC event that signifies the end of the Readiness State. The goal of the event is to create awareness and answer any questions or concerns about the initiative before it enters the Execution State.
Release	A delivery of software into a production environment for use by actual users.
Requirement Management Allocation	These are user defined groupings/designations that allow the management of allocated artifacts, especially for anything deployed into production.
Requirements Elicitation	The process of collaborating with key partners in understanding and identifying the needs for the system, product or service. It may include techniques like brainstorming, interviews, surveys/questionnaires, document analysis, prototypes, workshops, and observations. The practice is sometimes referred to as requirement gathering.
Reusable Enterprise Level Requirement	Common, high-level requirements that products must implement to carry out an enterprise strategic and architectural direction. As IT Governance and compliance policies evolve, they produce a slate of generic requirements that most, if not all, products must put into effect.
Scope	The features and functions that characterize a product, service, or result.

Term	Definition
Solution	An implementation of people, processes, information, and product(s) that solve one or more organizational needs.
Traceability	A discernable association among two or more logical entities such as requirements, system elements, verifications, or tasks. A trace relationship is simply a relationship between two items that shows that one item supports, is derived from, or further develops another.
Validation	Process to ensure that the solution being developed or changed will satisfy intended need. In other words, validation ensures that you built the right thing.
Verification	Ensures that each step in the process of building the solution components yield the right products. Verification ensures that you built it right.
Visualization	Visualization is the process by which product teams assemble visual models to represent the desired features (i.e., requirements) of a user interface. Visualization is a collaborative approach that allows partners to define requirements, describe how they appear on a screen, and demonstrate how they interact with other requirements on that screen or across screens. Visual requirements reduce the dependency on text requirements while providing a clearer, shared vision of the desired end state. Visualizations are not intended to evolve into fully functional solutions but are meant to help users visualize requirements and consider the user experience of the final product.

### Acronyms

Acronym	Definition
IRM	Internal Revenue Manual
OneSDLC	One Solution Delivery Life Cycle
RE	Requirements Engineering
REPO	Requirements Engineering Program Office



2.110.1.1.7  
(07-26-2024)  
**Related Resources**

- (1) Agile Central Hub Website - An enterprise level, cross-functional initiative established to support the coordination, integration, and progression of agile efforts to enable an efficient and effective IRS transformation. It provides a forum for online training, guidance, open sharing, improvement communities, outreach to the Agile Central Team, and other information.
- (2) Agile Manifesto, Values, and Principles, 2001
- (3) Lean Principles, 2000-2018
- (4) Requirements Engineering Program Office (REPO) Website – Provides requirements engineering guidance, Requirements Engineering Learning Center, RE Resource Library, RE Compliance Artifacts, training and information sharing, RE Tools information, Reusable Enterprise Level Requirements information, REPO Front Doors (accessed through an IRWorks ticket), and access to the IT Internal Management Documents Office, the Life Cycle management Office, and the OneSDLC.

2.110.1.2  
(08-12-2019)  
**Organizational Directives**

- (1) Definition: REPO is responsible for defining, developing, updating, and institutionalizing the RE discipline to facilitate program/product implementation of quality requirements that accurately reflect the needs of the business and its customers. REPO's definition of the RE methodology supports all agile and waterfall development/delivery solutions through OneSDLC delivery approaches.
- (2) Education and Training: REPO is responsible for making education and training available to personnel in overall RE methodology, supporting best practices, tailoring, RE methodology implementation as applicable to solution delivery, and use of supporting requirements tools.
- (3) Mentoring and Coaching: REPO assists and partners with program and product teams to effectively implement the RE discipline and raise the team's RE skill level. REPO provides available support for the development and management of requirements through all periods of system development, and for any delivery approach the product may employ. The level of assistance for Above Core Support (fee for service) is tailored to criticality, scope of need, and resources.
- (4) Tools Management and Support: REPO supports products by ensuring RE methodology and standards are enforced by various Commercial Off the Shelf tools. These tools include but are not limited to: IBM Engineering Lifecycle Management's DOORS Next and Engineering Workflow Management tools, Engineering Lifecycle Management Report Builder, and Justinmind. These tools aid product teams with business solutions planning, analysis, business process modeling, operational concept development, business solution architecture, business rules and requirements development, visualization and simulations for requirements development, collaboration among the product team and partners, management of lifecycle activities throughout development, product/program and organizational improvement, and strategic planning.
- (5) Quality Assurance and Process Compliance, Including Review: REPO will assist programs and products in assuring adherence of RE processes and RE products against REPO methodology and process guidance. REPO holds compliance approval authority of RE work products and artifacts identified as deliverables for OneSDLC's Readiness and Execution States. At its discretion or by authorized REPO management request, REPO will review selected

system initiatives for RE quality and compliance with RE process and methodology guidance. Feedback will be provided by REPO aimed towards process improvement and subject to disposition by the project. Significant findings will be communicated to the governing organization(s) and may result in a product/program improvement action, and/or a condition(s) for the Readiness Exit Review or Product Review documented in the OneSDLC Memorandum to the governance committee and recorded as a risk(s) by the product.

- (6) Process Improvement: REPO will revise and extend the RE process, including activities, roles, responsibilities, methods, tools, and templates. It will continue to improve education and training material, delivery and availability, and coaching and consulting services execution, based on feedback, lessons learned, and ongoing industry analysis. REPO will work with all process owners to further improve the RE discipline.

2.110.1.3  
(07-26-2024)  
**Program/Product  
Directives**

- (1) To ensure compliance to REPO guidance, all programs and products shall do the following:
- Follow the OneSDLC Delivery Model: Complete all requirements activities and RE deliverables.
  - Training: Prior to conducting RE activities, ensure training is received by personnel on the objectives, guidance, principles, and engineering approaches for performing RE activities, and proper use and application of RE Tools according to REPO defined methodologies.
  - Scope: Define, analyze, and document scope and requirements using models, rules, visualization, user stories, and statements, etc., in a way that maximizes understandability, completeness, maintainability, and aligns with REPO guidance.
  - Tool Usage: Manage all requirements, IBM Engineering Lifecycle Management functions, and trace relationships using a REPO supported tool in conjunction with a REPO defined template and usage model. Functional equivalents must be approved by REPO and meet established RE criteria.
  - Requirement Management Allocation: Prioritize requirement artifacts and allocate them against Product Cycle, Mid-Range, and Iteration Backlogs associated with a Release Plan in Engineering Lifecycle Management's Engineering Workflow Management tool or a Release Collection in Engineering Lifecycle Management's DOORS Next tool. Requirement management artifacts help manage and control requirements and requirement-related artifacts through development and into production and is supported by configuration management and version control (e.g., release designations such as year and product cycle number, date and/or numerical identifier).
  - Monitor RE Execution: Monitor execution of the RE process against the plans and processes that define and control development activities and take appropriate corrective action when necessary. This includes responding to all feedback from REPO reviews.
  - Analyze Requirements: Utilize modeling, rules, visualization, and other REPO supported techniques to elaborate and decompose requirements to a level that can be understood by the business and built against by the development team. Reusable Enterprise Level Requirements must be assessed to ensure they are incorporated into the system design and development to include third-party solutions.

- Visualization: Products with user interfaces may utilize visualization techniques including wireframes, flows charts, and functional prototypes to specify interface requirements, screen flows, and design specifications. Additionally, these visualizations may act as a sample for testing and evaluating design ideas before finalizing the product. When employed, these visualizations will serve as the user interface and/or design requirements.
- Traceability: Create and maintain requirement trace relationships that results in an integrated set of requirements, work products, and components. Trace relationships will be established and maintained in a REPO supported repository in adherence to that repository's REPO standard.
- Validation: Involve partner(s) in validating the RE artifacts throughout the life cycle to make sure the user's needs are met. Partner(s) should also be involved in validation activities, such as the Iteration Review and Mid-Range Review.
- Verification: Engage in Peer Reviews of RE work products throughout the product lifecycle to identify defects or issues early. Establish trace relationships to test cases to verify that the requirements have been met.
- Change Management: Incorporate change management into the development process through ongoing validation and iterations. Leverage requirements-related measures as appropriate to monitor and control progress against the project plans and identify scope creep. Apply appropriate change management processes when the degree of change exceeds the defined scope of the effort.
- Configuration Management: Allocate RE artifacts under configuration management levels of control in accordance with IRS configuration management policies, directives, processes, and procedures and in support of the reporting standards established within the ELC Data Item Descriptions.

