



Deployment Phase Procedures

Version 1.1

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Version History

Version Number	Implemented By	Revision Date	Approved By	Approval Date	Description of Change
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1. Deployment Phase

The Department of Housing and Urban Development’s (HUD) Project Planning and Management (PPM) Life Cycle is the rigorous application of sound investment, project management principles and best practices for organizing and managing IT projects. As a component of HUD’s overarching Information Technology Management (ITM) Framework, it provides the context for the HUD IT governance process and describes the interdependencies between project management, investment management, and capital planning components.

The PPM Life Cycle covers all aspects of a project from the initial development of an idea through to its decommissioning. Because there is wide variance in the methods, techniques and tools needed to support an IT project, the PPM Life Cycle is flexible and can be tailored to address the needs and requirements of each individual project regardless of its size. It aims to capture the minimum level of detail necessary to ensure project success. Each project, working in conjunction with the Office of the Chief Information Officer (OCIO), will capture decisions around PPM Life Cycle tailoring in the *Project Process Agreement (PPA)*, which documents the reasons for using, combining, or skipping specific artifacts applicable to the project.

The PPM Life Cycle applies to all HUD IT projects, including but not limited to:

- New projects
- Major enhancements to existing projects
- Projects associated with steady state investments
- High-priority, fast-track IT projects
- New commercial-off-the-shelf (COTS) product acquisitions

There are seven major phases of the PPM Life Cycle; artifacts are created for each phase. These artifacts are interrelated, either rolling up other artifacts, or building upon a concept to define a lower level of detail.

This document addresses the processes and related procedures for the Deployment Phase, the fifth phase in the PPM Life Cycle.



Figure 1 - The Deployment Phase Relative to the Entire PPM Life Cycle

The purpose of this document is to:

- Provide a detailed description of the phase
- Identify the tasks and activities that take place during the phase
- Give guidance and templates on completing the tasks and activities required to exit the phase
- Detail the roles and responsibilities associated with completing each of the tasks and activities for this phase

1.1 Deployment Phase Description

During the Deployment Phase, the IT solution moves from the development/test environment to the production environment. The deployment process is dependent on the characteristics of the project and the IT solution, and thus may be synonymous with installation, rollout, or go-live. If necessary, data conversion, pilot testing, and training for using, operating, and maintaining the solution are accomplished during the Deployment Phase. From a security perspective, the solution must be certified and accredited for use in the production environment.

For some solutions, HUD may choose to deploy the solution to a pilot environment to ensure that the solution will perform all of its functions to meet full-scale operational requirements. The pilot serves as another vehicle for verifying that the solution is acceptable to the users. The minimum time for piloting a solution should be long enough to complete one full processing cycle. After the pilot has been deemed successful, the solution is deployed into the production environment.

The overall objective of the Deployment Phase is to make the solution operational and available to the business community and other stakeholders.

Based on information acquired in this phase, the IT project manager (PM) in collaboration with members of the integrated project team (IPT) updates the *Project Schedule* (WBS) to reflect modifications to previously-defined tasks, incorporate new tasks for current and future phases, adjust resource requirements and allocations, and record estimated and actual costs. The *Project Management Plan* and *Risk Log* are updated to reflect any impact that the deployment efforts may have on the project.

The IPT closes out the project and hands the solution over to the operations and maintenance support personnel.

1.1.1 High-Level Deployment Phase Process Flow

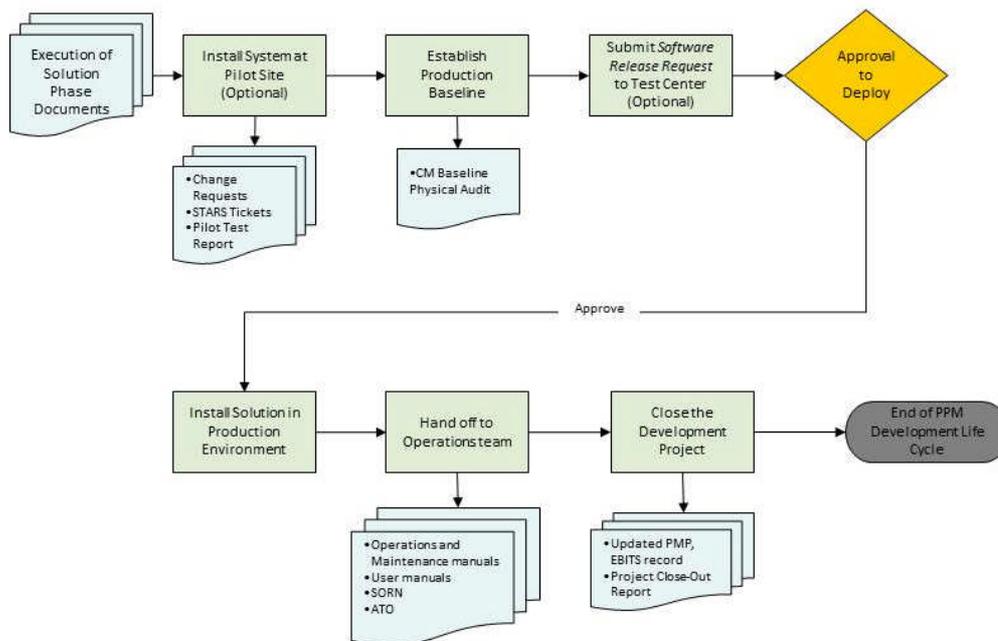


Figure 2 - High-Level Deployment Phase Process Flow



1.1.2 Entry Criteria/Input

Before the Deployment Phase can begin, the governance board(s) must have reviewed the Execution of Solution Phase package and given approval for the project to begin the Deployment Phase. The Execution of Solution Phase package varies depending on the size and complexity of the project, and may include:

- *Test Report*
- *Operations and Maintenance Manual*
- *User Manual*
- Training materials
- *Test Plan*
- Security and privacy artifacts
- Updates to the *Project Schedule* (WBS)
- Decision by TRC/CCC/EIB to proceed to the Deployment Phase

1.1.3 Control Gate Review Criteria

In order to pass through the Deployment Phase control gate, the project team must receive approval of the Deployment Phase Package from the governance board(s). The Deployment Phase package varies depending on the size and complexity of the project, and may include:

- Pilot environment baseline
- *Test report*
- HARTS submission
- EBITS record
- *Project Completion Report*

1.1.4 Tasks

The following tasks take place in the Deployment Phase:

- T5-1 Install Solution in Pilot Environment (Optional)
- T5-2 Submit Software Release Request (Optional)
- T5-3 Install Solution in Production Environment
- T5-4 Handoff to Operations and Maintenance Support
- T5-5 Create/Update the *Project Schedule* and Other Project Artifacts
- T5-6 Close-out Project



1.2 Deployment Phase Task Descriptions

T5-1 Install Solution in Pilot Environment (Optional)

What Happens?

The solution is installed at a pilot site. The development team monitors the solution during operation at the pilot site and documents the results. The IPT uses the documented results to determine the solution’s readiness for deployment to the production environment.

Who Does What?

The configuration manager, release manager, system development lead, database administrator, and other IPT members support the installation and configuration of the hardware and software. The team facilitates the pilot testing of the solution, assesses feedback, and generates recommendations for improvements and/or deployment to production.

What Comes in?

- Implementation Plan
- Operations and Maintenance Manual
- User Manual
- Training Plan
- Training Material

What Controls Need to be Used?

- Configuration management guidelines

What is Produced?

Work Product	Responsibilities		Must Create	Should Create	Should Update	Must Update	Must Complete
Pilot environment baseline	Responsible	Configuration manager	X				
	Accountable	IT PM					
	Consulted	IPT, HITS team					
	Informed	Project sponsor TRC/CCC/EIB					
Test Report	Responsible	IT PM	X				
	Accountable	Business PM					
	Consulted	IPT					
	Informed	Project sponsor TRC/CCC/EIB					

Detailed Tasks

The following defines the detailed sub-tasks that take place within this task:



T5-1.1 Ensure Pilot Environment is Correctly Established – The IT project manager, release manager, and configuration manager coordinate with the HUD Information Technology Service (HITS) team and any other relevant stakeholders to ensure that the pilot operation environment is ready for the installation of the hardware and software. The IPT notifies affected personnel and organizations about the upcoming installation and conversion, and schedules meetings to ensure that all affected personnel are aware of any procedural changes.

T5-1.2 Execute Implementation Plan and Data Conversion Plan – The IT project manager, release manager, and configuration manager coordinate with the HITS team and any other relevant stakeholders to install the solution in the pilot environment. They ensure that the installation is carried out in accordance with the procedures described in the *Configuration Management Plan* and *Implementation Plan*. The IPT also coordinates and verifies the loading and conversion of the data required to support the pilot testing of the solution. The procedures described in the *Data Conversion Plan* are used to guide the data conversion activities.

The team conducts initial tests to verify correct integration of the installed components.

T5-1.3 Provide Access to the Test Environment – The IT and business project managers ensure that the pilot testers have access to all resources required to participate in the test activities. These resources include access privileges, user manuals, and other documentation. When installation is complete, the team notifies the project sponsor and test participants that piloting activities are ready to begin.

T5-1.4 Conduct Pilot Site Training (Optional) – If necessary, the business project manager and other relevant IPT members schedule and conduct training classes for all pilot test participants in accordance with the *Training Plan*. They monitor training activities to determine if the selected training techniques are achieving the desired results. The IPT analyzes feedback received from personnel attending the pilot training sessions and, based on this analysis, refines training procedures or materials to ensure that training objectives are met.

T5-1.5 Operate Solution in the Pilot Environment – IPT members, including but not limited to, the IT project manager, solution development lead, IT security specialist, and database administrator operate the newly installed solution in the pilot environment. The team closely monitors all aspects of solution performance, including the effectiveness of security controls, for compliance with relevant documentation, and reports and corrects any deviations before a full-scale production release.

The pilot testers execute the test scenarios and report all deviations detected to the project's development team using the agreed-upon discrepancy reporting procedures.

During day-to-day operations, the project team follows the procedures described in the *User Manual* and *Operations and Maintenance Manual*. If the pilot operation is being run parallel to an existing solution, the data output from the two solutions can be compared to ensure the new solution is operating correctly. The team monitors the solution to ensure the following:

- It performs the transactions or functions for which it is designed
- Its performance meets or exceeds established requirements
- Security controls function effectively and as intended
- Resources necessary for the solution to run correctly are available (e.g., disk space, and tapes)



- Personnel are available to run the pilot solution in parallel with the existing solution(s)

The IT PM ensures that the IPT maintains proper system logs that identify problems found or changes implemented during pilot activities. The system logs are to be used to verify that all problems have been identified, corrected, or deferred to a future system release. The team may use existing HUD automated tools for maintaining the system logs.

The IPT ensures all changes made to the solution in the pilot environment are reflected in the project documentation.

T5-1.6 Document Results and Make Recommendations – The IPT documents the problems that surface as a result of diagnostic checks, performance or security tests, user or operations personnel complaints, or detected errors. The team documents the results in a *Test Report* that captures any errors detected as well as the actions taken to resolve errors. At a minimum, this documentation should include the following:

- Function being performed and segment of the solution in use at the time of the error
- Detailed description of the nature of the problem
- List of any error messages that may have been received
- Description of the data being input when the problem occurred
- Time and date of the occurrence

The team reviews the test results and documents any recommendations for improving system performance. They analyze problems determined to have an impact on system security and collaborate with an IT security specialist to address the associated risks and the potential need for additional controls.

T5-1.7 Make Decision to Move Pilot into Production – The IPT decides whether to move the solution from the pilot environment into a production environment, extend the pilot testing activities, or complete another iteration of the design, development, and test activities.



T5-2 Submit Software Release Request (Optional)

What Happens?

If the solution is a system or an application, the software release request is submitted to the HUD Test Center (HTC) for processing.

Who Does What?

The configuration manager creates the production baseline.

The release manager submits the HUD Application Release Tracking System (HARTS) request and coordinates with the HTC to obtain Test Center approval.

The HTC forwards the software release to the HUD Information Technology Systems (HITS) team for deployment.

What Comes in?

- Configuration Management Plan
- Installation Release Notes

What Controls Need to be Used?

- Application Release Request Form (Test Center)
- LAN Release Test Checklist (Test Center)
- Checklist for Release Acceptance Process (Test Center)

What is Produced?

Work Product	Responsibilities		Must Create	Should Create	Should Update	Must Update	Must Complete
HARTS submission	Responsible	Release manager	X				
	Accountable	IT PM					
	Consulted	IPT					
	Informed	Business PM					

Detailed Tasks

The following defines the detailed sub-tasks that take place within this task:

T5-2.1 Submit HARTS Request – The release manager completes an *Application Release Request Form* in HARTS and submits it to the Test Center. The HARTS request must be submitted at least 14 calendar days prior to the scheduled deployment date and include test scripts, documentation, and configuration management instructions. The release manager and other IPT members coordinate with the Test Center staff to resolve any issues with the submitted request.

T5-2.2 Obtain Test Center Approval –The HTC specialist installs the software using the installation instructions submitted by the release manager and verifies that the software meets all



installation and connectivity requirements. Based on the application, the HTC specialist may perform other tests including stress, field installation, acceptance, functionality, environment impact, security, and deployment test before the application is released. If the application receives HTC approval, the Test Center Manager forwards the software release to the HITS team for deployment.



T5-3 Install Solution in Production Environment

What Happens?

The solution is deployed in the production environment.

Who Does What?

The release manager posts system alerts regarding the scheduled deployment.

The HITS team releases the solution into the HUD production environment.

The IPT (development and business personnel) verifies that the installed solution meets expectations.

The governance bodies conduct an operations readiness review (optional.)

The business and IT PMs oversee the process.

What Comes in?

- Implementation Plan
- Data Conversion Plan
- Approved HARTS submission

What Controls Need to be Used?

- Installation standards and guidelines
- Configuration management standards and guidelines
- IT announcement guidelines

What is Produced?

Work Product	Responsibilities		Must Create	Should Create	Should Update	Must Update	Must Complete
Deployed solution	Responsible	HITS team	X				
	Accountable	IT and business PMs					
	Consulted	IPT					
	Informed	TRC/CCC/EIB					

Detailed Tasks

The following defines the detailed sub-tasks that take place within this task:

T5-3.1 Notify Affected Organizations –The release manager notifies the affected organizations and user groups to ensure they are aware of the cutover date for the production release. The release manager ensures that alerts are posted on applicable HUD intranet and internet sites accessible to internal and external stakeholders. The alerts communicate the release schedule and any expected disruptions to existing systems.

T5-3.2 Ensure Production Environment is Correctly Established – The release manager and configuration manager coordinate with the HITS team and any other relevant stakeholders to ensure that the production environment is ready for the installation of the hardware and/or



software. If applicable and appropriate, existing related solutions are taken offline to facilitate the production release.

T5-3.3 Execute Implementation Plan and Conversion Plan – The IT PM, release manager, and configuration manager coordinate with the HITS team and any other relevant stakeholders to install the solution in the production environment. They ensure that the installation is carried out in accordance with the procedures described in the *Configuration Management Plan*, *Installation Release Notes*, and *Implementation Plan*. The IPT also coordinates and verifies the loading and conversion of any data required to support operation of the solution. The procedures described in the *Data Conversion Plan* are used to guide the data conversion activities.

T5-3.4 Conduct Operational Readiness Review – The release manager coordinates with the HITS team to provide limited access to the production environment for testing. The designated testers (typically, representatives of the development team and the business community) conduct tests to verify correct integration and functioning of the installed components. The objective is to determine if the IT solution that has been installed is ready for release into the production environment for sustained operations. At the discretion of the project sponsor or the governance bodies, this may be a more formal and detailed review.



T5-4 Handoff to Operations and Maintenance Support

What Happens?

The official handoff from the development project team to the operations and maintenance (O&M) support team occurs.

Who Does What?

The IT PM, business PM, and/or IT security specialist verify that the *System of Record Notice* (SORN) has been issued as appropriate.

The IT PM, business PM, and/or IT security specialist verify that the solution has received an *Authorization to Operate* from the HUD Office of IT Security.

The IPT ensures that all documentation required for supporting the operations and maintenance activities have been forwarded to the O&M team.

What Comes in?

- Operations and maintenance manual(s)
- User manuals

What Controls Need to be Used?

The team uses the controls listed below to create the relevant artifacts or complete the task activities:

- HUD IT operations standards and guidance

What is Produced?

- Documentation of solution ownership hand off

Detailed Tasks:

The following defines the detailed sub-tasks that take place within this task:

T5-4.1 Verify SORN Issued and ATO Received – The IT security specialist, with input from other IPT members, verifies that the *System of Record Notice* has been issued as required and that the solution has received an *Authorization to Operate*.

T5-4.2 Coordinate Handoff to O&M – The release manager and other IPT members coordinate with the HITS team to make the deployed solution accessible to the intended user community and update system notices accordingly. The IPT officially hands over the solution to the operations manager.



T5-5 Create/Update the Project Schedule and Other Project Artifacts

What Happens?

The *Project Schedule* (WBS) and *Risk Log* are updated. Applicable enterprise architecture-related documents/repositories are updated.

Who Does What?

The IPT uses the steps laid out in the *Project Schedule* (WBS) *Instructions* and *Earned Value Management Instructions* to update the *Project Schedule* (WBS).

The IPT uses the steps laid out in the *Risk Management Plan* template, checklist, and template instructions, and the *Risk Management Log Template Instructions* to update the *Risk Management Log*.

If applicable, the IT PM and enterprise architecture (EA) representative creates/updates the solution's record in Enterprise Business Information Transformation System (EBITS), HUD's repository for EA artifacts and EA modeling tool.

What Comes in?

- *Project Schedule* (WBS)
- *Risk Log*
- *Risk Management Plan*
- EBITS record

What Controls Need to be Used?

The team uses the controls listed below to create the relevant artifacts or complete the task activities:

- *Risk Management Plan* template, checklist, and instructions
- *Risk Management Log Template Instructions*
- *Project Schedule* (WBS) *Instructions*
- *Earned Value Management Instructions*
- EBITS instructions

What is Produced?

Work Products	Responsibilities		Must Create	Should Create	Should Update	Must Update	Must Complete
<i>Project Schedule</i> (WBS)	Responsible	Business and IT PMs					
	Accountable	Project Sponsor			X		
	Consulted	IPT					
	Informed	TRC/CCC/EIB					
<i>Risk Management Plan and Log</i>	Responsible	Business and IT PMs					
	Accountable	Project sponsor			X		
	Consulted	IPT					
	Informed	TRC/CCC/EIB					



Work Products	Responsibilities		Must Create	Should Create	Should Update	Must Update	Must Complete
EBITS record	Responsible	EA representative					
	Accountable	IT PM			X		
	Consulted	IPT					
	Informed	TRC/CCC/EIB					

Detailed Tasks

The following defines the detailed sub-tasks that take place within this task:

- T5-5.1 Update Project Schedule** – The IPT uses the steps laid out in the *Project Schedule (WBS) Instructions* and *Earned Value Management Instructions* to update the *Project Schedule (WBS)*. The *Project Schedule (WBS)* is updated to reflect the final status of all project tasks.
- T5-5.2 Update Risk Log** – The IPT uses the steps laid out in the *Risk Management Plan* template, instructions, and checklist, and the *Risk Management Log Template Instructions* to update the *Risk Management Log*. The *Risk Management Log* is updated to reflect outstanding risks that may impact the solution’s performance in the operations environment.
- T5-5.3 Create/Update EBITS record** – If the solution has any enterprise architecture implications, the EA representative creates or updates the solution’s record in EBITS.



T5-6 Close-out Project

What Happens?

The project is closed and the *Project Completion Report* is created.

Who Does What?

The IT PM performs the required administrative and contract closure activities and creates the *Project Completion Report*.

What Comes in?

- *Project Schedule* (WBS)
- *Lessons Learned* document
- Contracts and task orders
- *Issues Log*

What Controls Need to be Used?

The team uses the controls listed below to create the relevant artifacts or complete the task activities:

- *Project Completion Report* template, checklist, and instructions

What is Produced?

Work Products	Responsibilities		Must Create	Should Create	Should Update	Must Update	Must Complete
<i>Project Completion Report</i>	Responsible	Business and IT PMs	X				
	Accountable	Project sponsor					
	Consulted	IPT					
	Informed	TRC/CCC/EIB					

Detailed Tasks

The following defines the detailed sub-tasks that take place within this task:

T5-6.1 Complete Administrative Closure Activities – The IT PM collects project records, analyzes project success or failure, gathers lessons learned, transfers the solution’s product to operations, and validates that completion and exit criteria have been met, and archives solution information for future use by the organization.

T5-6.2 Complete Contract Closure Activities – The IT PM verifies that all contracted work has been completed correctly and satisfactorily, updates contract records to reflect final results, confirms the project has addressed the terms and conditions of all related contracts, formally closes out all contracts associated with the completed project, and archives information for future use.

T5-6.3 Create Project Completion Report – The IT PM uses the steps laid out in the *Project Completion Report* template, instructions, and checklist to create the *Project Completion Report*.



T3-1 Compile and Submit Deployment Phase Package for Go/No Go Decision

The completed and reviewed project documents are compiled into the Deployment Phase Package and are presented to the governance bodies for a Go/No Go control gate decision.

Who Does What?

The IPT compiles the Deployment Phase project documentation into the Deployment Phase Package. The package varies depending on the size and complexity of the project, and may include:

- Pilot environment baseline
- *Test report*
- HARTS submission
- EBITS record
- *Project Completion Report*

Along with this package, the IPT submits a formal request to the IT governance bodies to review and approve the project completion.

After reviewing the project artifacts, the TRC approves the project to move into the Operate and Maintain Phase, allows the project to proceed into the Operate and Maintain Phase subject to certain conditions, or rejects the project. If the project is rejected the IPT follows the appeals process to re-submit the project for review.

If the project requires additional oversight from the CCC and/or the EIB, the TRC forwards the project artifacts to the relevant governance body along with a complete *Control Gate Decision Form* containing the TRC's recommendation.

What Comes in?

- Deployment Phase package

What Controls Need to be Used?

Users of the PPM Life Cycle utilize the controls listed below when creating the relevant artifacts:

- Project Deployment Phase Go/No Go decision meeting guidelines
- *Control Gate Review Decision Form Template*
- *Control Gate Review Appeal Form Template*

What is Produced?

- Approved Deployment package
- Decision by TRC/CCC/EIB to Proceed to Operate and Maintain Phase

Detailed Tasks:

The following defines the detailed sub-tasks that take place within this task:

T3-1.1 Assemble Deployment Phase Package – The IPT compiles the Deployment Phase documentation into a Deployment Phase package and forwards it, along with a formal request for review and approval to the TRC.



T5-1.1 Obtain Deployment Phase Go/No-Go decision – The TRC reviews the Deployment Phase package and:

- Approves the project to move into the Operate and Maintain Phase
- Approves the project to move into the Operate and Maintain Phase with conditions
- Rejects the project

If the project requires additional oversight from the CCC or EIB as identified in Tier 2 of the *Project Process Agreement*, the TRC communicates with the chair of the appropriate body and provides the necessary documentation for review.

T3-1.2 Resolve any Conditions for Project Approval – If the TRC, CCC, or EIB has approved the project with conditions, the IPT adjudicates their comments and re-submits the changes for approval prior to moving into the Operate and Maintain Phase.