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**Chapter 5: Installed files for the Managed Review & Approval Accelerator**
Chapter 1: About the Solution Accelerator

The Solution Guide for Managed Review & Approval Solution Accelerator 9.5 is intended to provide information for the extended project team including solution architects, business analysts, project managers, designers, and developers.

Understanding the business problem

Most organizations of all types deal with standardized review and approval workflows for collaboration, oversight, and approval of documents that range from general contracts to media.

As common as review and approval patterns are, though, they are often under-served by conventional enterprise systems. Usually people have an awareness of the content and people to include in a review, but do not know the details of running a compliant review. Compliant reviews often have review auditing requirements, specific schedule guidelines, and required participants.

Often, IT departments deploy solutions that include business process automation and enterprise content management (ECM) systems. Conventional ECM-based review and approval implementations are often system-centric, inflexible, and limited. For example, changes to the review process often required direct IT involvement and inclusion of review participants external to the organization was not possible.

As a result, most reviews are left to ad-hoc email steps and manual processes that lead to inefficient, high cost, and non-collaborative environments. In addition, these reviews cannot be easily audited for compliancy, which is a requirement in regulated industries.

Overview of the Managed Review & Approval Solution Accelerator

The Managed Review & Approval Solution Accelerator 9.5 supports a fully automated structured review and approval system. The solution accelerator supports a workflow that can be divided into six distinct phases as shown in the following illustration:

1. Development and planning of a managed review and approval solution. It is necessary to install the Solution Accelerator, a development environment, and plan the requirements of running review and approval processes. Requirements can range from determining auditing, integration of automated processes, and user configuration requirements.
Create a review template to automate review and approval processes. In this stage, business users define the parameters of the review without IT involvement. (See “Understanding review templates” on page 11.) The solution template provides a mechanism to define reviews of varying complexity without development tools. Usually, a subject matter expert or business owner creates the review template based on standard operating procedures. Typically, an organization or regulations that govern the organization create these procedures.

A business user can start a review workflow. The business user determines the content to send for review and who to include in the review. The review template determines the stages in the review, the duration of each stage, and the participants to involve in the review and approval of content. (See “Understanding review and approval stages” on page 10.)

The system automatically routes the document to participants and provides a collaborative, secure environment to add comments. Document versions are captured along with comments, and a real-time dashboard and reminders can be used to keep the review on track.

Typically, after a review workflow completes, an approval workflow starts. Participants can perform simple click-through approvals or apply digital signatures when they approve content. (See “Understanding review and approval stages” on page 10.)

The completion and delivery of the reviewed and approved content. At the end of a review and approval workflow, the system delivers a comprehensive audit trail. All review documents, with comments and versions are securely stored.

The Solution Accelerator helps to improve collaboration and simplify the management of the review stages, but allows business users to control review and approval workflow.

**Managed Review & Approval Solution Accelerator benefits**

Adobe® LiveCycle® Enterprise Suite 2.5 (ES2.5) software and the Managed Review & Approval Solution Accelerator 9.5 provides a framework for leveraging review and approval workflows. The Managed Review & Approval Solution Accelerator simplifies the creation of human-centric review and approval processes and provides the following benefits:

- Enables non-technical business users to automate user-centric review and approval workflows as predefined reviews (known as review templates) without intervention from IT or technical staff.
- Provides an environment for reviews where non-technical people can start, manage, and participate and collaborate in review and approval workflows.
- Provides audit trails that are readily accessed through business interfaces. Audit trails provide a mechanism for internal or external people to track and confirm process or regulatory compliance.
- Provides automation for interactive commenting, annotation, and digital signature tools that are secure. For example, commonly available tools, such as Adobe Acrobat® and Adobe Reader® are used.
- Delivers comprehensive document control to meet regulatory requirements without limiting users to constraints of typical ECM systems.
- Provides automatic PDF document generation that permits commenting and digital signatures using Adobe Acrobat and Adobe Reader. Acrobat and Adobe Reader are recognized industry standard tools.
- Facilitates extensible review and approval workflows outside of core systems and beyond the firewall.
About the Solution Accelerator

The Solution Accelerator allows business users to create repeatable review and approval processes. These processes do not require IT involvement for creation and are available for use, immediately. With the Managed Review & Approval Solution Accelerator, an organization can create a reliable, auditable reviews within minutes after installation.

What’s in the Managed Review & Approval Solution Accelerator

The Managed Review & Approval Solution Accelerator is a combination of reusable assets and best-practice methodologies that reduce development time and increase the quality of enterprise solutions.

The Managed Review & Approval Solution Accelerator contains a solution template and a building block, which are designed to work together. In addition, easy to use documents are provided to help accelerate your understanding of the Solution Accelerator and its components.

Solution template

The GlobalCorp solution template is a web application. Parts of the web application are developed with Adobe® Flex® technology. The solution template allows you to create review templates, initiate reviews, and provides a dashboard to monitor and manage reviews.

You can use reuse portions of the solution template or customize it directly for your solution. The source code and assets are provided. (See “Installed files for the Managed Review & Approval Accelerator” on page 59.)
Building blocks
The Review, Commenting, and Approval building block 9.5 provides the core functionality for the Managed Review & Approval Solution Accelerator. The building block contains services, assets, Flex APIs, and Java APIs to implement a managed review and approval solution. (See Review, Commenting, and Approval Building Block 9.5 Technical Guide.)

The building block can be used to implement a custom solution. The solution template provides a sample user interface that uses the functionality provided by the building block. You can use the solution template as a basis for your solution or to understand how to use the building block.

LiveCycle Modules
The following LiveCycle® modules are required to use the GlobalCorp solution template. When you choose to implement a solution with the Review, Commenting, and Approval building block, you can choose to use a subset of the modules. (See Using the Review, Commenting, and Approval building block in Review, Commenting, and Approval Building Block 9.5 Technical Guide.)

- Adobe® LiveCycle® Foundation
- Adobe® LiveCycle® Process Management 9
- Adobe® LiveCycle® Reader Extensions 9
- Adobe® LiveCycle® Content Services 9
- Adobe® LiveCycle® Digital Signatures 9
- Adobe® LiveCycle® Forms 9
- Adobe® LiveCycle® Output 9
- Adobe® LiveCycle® PDF Generator 9

Documentation and resources
The content provided in the documentation is meant to be used as a guide for planning, installing, developing, and delivering solutions for Managed Review & Approval Solution Accelerator using LiveCycle® ES2.5.

The Solution Accelerator content describes best practices at the time of authoring.

In addition to documentation, architects, designers, and developers have access to a range of support and resources through Adobe and its partner community.
<table>
<thead>
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<th>Resource</th>
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| Solution Guide for Managed Review & Approval | Solution architects, business analysts, project managers, designers, and developers | Introduces the Solution Accelerator and provides the following information:  
• Overview of the Solution Accelerator  
• Architecture  
• Components of the Solution Accelerator  
• User stories  
• Solution Template walk-through  
See Managed Review and Approval Solution Accelerator Solution Guide |
| Installation guide                           | Administrators, developers                                               | Describes how to install and configure the Solution Accelerator.  
See Installing and Deploying LiveCycle ES2.5 Solution Accelerators |
| Building Block Technical guide               | Developers                                                               | Provides technical details about how to implement the building block components in your solution. The building block guide includes this information:  
• Overview of the building block  
• Architecture  
• How the building block works  
• Detailed descriptions of building block assets such as services, processes, tooling, and schemas.  
• Implementation details about the user stories  
The following building block technical guide exists for the Managed Review & Approval Solution Accelerator:  
Review, Commenting, and Approval Building Block 9.5 Technical Guide |
| ActionScript 3.0 Reference                   | Developers                                                               | Contains the ActionScript language elements, core libraries, and component packages and classes for the tools, runtimes, services, and servers in the Flash Platform.  
See ActionScript 3.0 Reference for the Adobe Flash Platform. (Filter by LiveCycle ES2.5) |
| API Reference (Javdocs)                      | Developers                                                               | Describes the LiveCycle ES2.5 and Data Services version 3.1 Java API interfaces and classes.  
See LiveCycle ES2.5 API Reference Javadoc and Solution Accelerators API Reference |
| Adobe developer connection                   | Solution architects, business analysts, project managers, designers, and developers | The LiveCycle Developer Center includes Quick Start content, tutorials, videos, downloads, sample, technical guides, blogs, and much more.  
See LiveCycle Developer Center. |
Solution Accelerators Implementation Methodology

There are several phases that a project team needs to work through when implementing a solution to address the business objectives. A number of software development methodologies are appropriate for developing the solution. This Solution Guide uses a three phase project methodology to describe the steps a project team undertakes.

**Discover**  Capture insights about the business, the technology, and about the user community

**Define the solution**  Prioritize opportunities, develop user stories, associated wire frames, and visual designs, as well as estimates.

**Develop and deliver**  Develop a solution based on a selected set of stories and deploy the solution.

The Solution Accelerator provides best practices and code collateral to accelerate these phases.

**Discover**

The discover phase captures insights about the business, the technology, and the user community.

**Business discovery**

The business discovery stage involves discussions with the various business stakeholders. These discussions focus on gaining an understanding of the driving factors for the solution and success requirements that are not user-centric.

Some of the key considerations include:

- Discover the review and approval workflows to automate and prioritize them based on criteria such as return on investment and reduction in cycle times.
- Identify the participants involved in the review and the rules that drive the reviews and approvals.

**Technical discovery**

The technical discovery stage involves an examination of the current infrastructure, applications, and the technical staff. The goal is to understand what currently exists and the aspects of the current situation that can change.

Some of the key considerations include:

- The type of approval required. For example, click-through or digital signatures.
- Integration with existing systems to dynamically discover participants in a review/approval process.
- Integration with existing ECM and records management and archival systems.
- Deployment and integration within an existing Enterprise Intranet portal or corporate website.
- Deployment architecture required to securely support external reviewers.
- Application server, operating system, database requirements, and compatibility with LiveCycle ES2.5.
- The number of reviews initiated per day, the number of concurrent reviews, and the number of review templates defined.
- The skill sets required to compare against capabilities of the team or required to implement a project successfully.

**User experience audit**

The user experience audit stage investigates the users, their backgrounds, working environment, knowledge, skill sets, and expertise. The goal is to capture their needs, wants, likes, dislikes, limitations, and pain points with respect to their current tools.
This solution guide provides a list of personas that have been discovered and used to develop the solution template.

- Review Template Authors
- Review Initiators
- Review participants (reviewers, approvers, moderators.)
- Review Administrators
- Business Analysts
- IT Staff
- LiveCycle Developers
- LiveCycle Programmers

**More Help topics**

“Review and approval personas and user roles” on page 14

“Implementation team planning” on page 28

**Define the solution**

The goal of the definition phase is to prioritize the opportunities. Using this priority, develop the user stories, the associated wire frames or and visual designs and create estimates for various tasks.

**Story workshops**

The Solution Accelerator provides a number of user stories. These stories map to user requirements identified in the discovery phase and during story workshops. Plan on extending these stories with additional requirements or new stories to meet your needs:

- Create a review template
- Initiate a review
- Manage the review
- Review the content
- Approve the content
- Complete the review

**More Help topics**

“User stories for Managed Review & Approval Solution Accelerator” on page 27

**Experience architecture**

The Solution Accelerator provides a set of user interface components either within the solution template or as supported components within the building blocks. Leverage these components as part of developing the wire frames and visual designs for the selected stories.

- GlobalCorp solution template
- Review, Commenting, and Approval building block
Consider the following before you move into the deliver phase:

- Non-functional requirements such as performance requirements, load requirements, and configuration management.

- Requirements for configuring a development, build and testing environment, including setting up any required users and permissions. For complete installation instructions, see Installing and Deploying Solution Accelerators at http://www.adobe.com/go/learn_lc_install_sa_95.

  For information about setting up your development environment, see Installing Your Development Environment at http://www.adobe.com/go/learn_lc_installDevEnv_9.

- Training requirements for the team, based on the skills defined in the stories and building blocks.

- The roles of the different participants and how to configure the user profiles in Adobe User Management.

- Planning the different review templates to represent the review and approval workflows. Additional considerations can include:
  - The requirements to provide audit reports, such as database access.
  - How to process the completed reviews, such as archival requirements.
  - Integration of existing processes that occur before and after stages in a review. For example, processes can include watermarking a review document before a stage in a review starts.

More Help topics
“Using the solution template” on page 17

Develop and deliver

The goal of this phase is to develop and deliver a solution that meets the objectives outlined in the discover stage.

During the develop and deliver phase, consider these points:

- Story selection: The discover and definition phases can lead to tasks that leverage the out-of-the-box features in the solution template or more development-oriented tasks.

- Development: The building blocks provide components to accelerate the development of the selected stories. The building block technical guide provide detailed information on how to use the components and extend the frameworks.

- Testing: Use standard testing methodologies to ensure that your application is ready for production use.

- Release to production environment: Complete the following packaging steps before releasing your application. For more information, see the steps outlined in the Application Development Workflow. (See http://www.adobe.com/go/learn_lc_appdevworkflow_9)
Chapter 2: Managed Review & Approval Solution Accelerator Concepts and Technologies

In the Managed Review & Approval Solution Accelerator 9.5, reviews are started using a review template. The term *review* is used to encapsulate processes that contain approval stages, review stages, or both.

The review template defines a review and approval process. It defines the stages in a review, review participants, review duration, supporting documents, and other parameters for a review. The Solution Accelerator creates a means for business users to generate review templates in a web browser environment rather than a development tool. Review participants can include reviewers, approvers, or moderators who contribute to the review. Reviews consist of one or more stages, for example, a review stage and an approval stage.

Participants complete their tasks by using LiveCycle Workspace 9 and Adobe Reader or Adobe Acrobat to add comments and apply digital signatures to reviews.

Reviewers are connected to the review using Acrobat Shared Review, which stores content provided in a *review zone*. A review zone is provided by a component of the Review, Commenting, and Approval building block 9.5 called a review zone provider. The review zone is used to store reviews, review documents, supporting documents, and other review artifacts.

Review initiators and moderators manage reviews to ensure that they run to completion. After a review completes, reviewers can retrieve the reviewed and approved content and other review artifacts. Optional retention policies can be enforced and applicable archival procedures applied to the review assets. At any time during the process, a review can be audited for compliance.

It is necessary for you to understand reviews, stages, and review templates to understand how review and approval processes function.

Understanding reviews

Reviews involve the review and approval of one or more documents. When multiple documents are specified for a review, the documents are merged into a single PDF document. Reviews can include supporting documents that supplement the review but are not part of the collateral that requires review.

The Managed Review & Approval Solution Accelerator utilizes the following two main concepts to define review and approval processes:

- Stages, which define the phases of a review or approval.

  Reviews execute according to defined parameters. Each review has at least one review or approval stage; however, it is common to have multiple phases in a review. Each phase in a review is called a stage. In addition, each stage can have different characteristics, such as different durations and a different set of review participants. A review completes when all stages complete. Reviews, when not completed within the allocated time expire, and end.

  The stages of a review, the parameters of a review, and the name of review are defined in a review template. Review templates provide a review and approval process that supports reuse.
• Review templates, which collect the review and approval stages into a process that executes sequentially. Every review is unique. For each review, there is an allowance for some level of variance in the number of reviewers, the supporting documents, and the duration of a stage. Any variation that is allowed should not change the business rules or regulation that the process automates.

Understanding review and approval stages

A review consists of one or more review or approval stages. A stage represents a phase in a review and approval workflow defines the people, duration, instructions, and parameters that control how the stage executes. Each stage has a review type and has a set of parameters that dictate how it executes. Review parameters define how a stage executes and how each stage progresses to another stage.

Review and approval stage types

The Solution Accelerator provides a number of stage types to encapsulate the types of workflows you can execute as follows:

• Serial review: Each reviewer in the stage comments and completes the review one at a time, sequentially. The order in which reviewers participate in the review depends on the order that they were listed in the review template.

• Parallel review: All reviewers in the stage can add comments and complete reviews at the same time.

• Serial Approval: Each approver participates in the approval process one at a time, sequentially. The order in which approvers participate in the review depends on the order that they were listed in the review template.

• Parallel Approval: Approvers in the stage can approve or reject the review at the same time.

There is flexibility to define the number, sequence, and mix of review and approval stages to reflect varying review and approval workflow requirements. For example, the review template can define the stages as parallel review- serial review-serial approval review. Then, in another review template, the stages can be defined as parallel review- serial approval-parallel review-serial approval.

Stage parameters

Each stage can define one or more of the following parameters:

• Review stage identifier: The name for the stage.

• Stage Duration: The length of time the participants have to complete the review or approval of the content. The time frame can be days, hours, minutes, or business days. The minimum duration is 10 minutes.

• Expiring stage: Specifies whether the stage expires after the time for the stage duration has past. When disabled, it allows reviewers who missed the deadline to complete their task and lets the review continue instead of ending.

• Task Type: Defines whether the review is completed using LiveCycle Workspace 9, a connected review using Email, or a Custom Task Type. Custom tasks are optional processes that you create in Workbench 9.5. The custom processes can change how a task is assigned to and completed by participants.

• Custom processes: LiveCycle processes that execute before and after the stage. They do not modify the review behavior but perform tasks to enhance the review process, such as watermarking review documents.

• Reminders: Specifies whether reminders are sent and when they are sent relative to the stage duration.

• Wait for expiry: Specifies to wait until the stage duration expires before marking a stage complete or expired. By default, a stage is considered complete when all required participants have completed their review or approval task.

• Participants in the review: The reviewers, moderators, and approvers in a stage that are automatically added to the review. Only participants assigned to a stage can access the review document.

A set of review participants is defined for each stage. Each stage can have a different set of review participants.
**Stage completion and progression**

Reviews are considered complete when all stages defined in it are complete. A stage is considered completed when all mandatory reviewers have either completed their tasks by clicking Mark Review Complete, Needs Rework, or Declined.

In the scenario where the wait for expiry option is set, the stage does not complete until the time duration is reached.

For example, five mandatory reviewers and three optional reviewers are given three days to review a document. All mandatory reviewers complete the review in the first day. Though the stage is technically considered complete, the next stage in the review does not start until the duration for the stage expires. In this scenario, the wait for expiry option is useful to give optional reviewers an opportunity to provide feedback.

When the stage duration expires, completion criteria is evaluated to determine whether the next stage is executed. For example, in the case of an approval stage, if any one approver selects reject, the stage and review terminates. A review can only progress to the next stage when all approvers select approve. Voting capabilities are not used in the Solution Accelerator.

If the wait for expiry parameter is set, then completion is evaluated when the duration of the stage has elapsed. A stage can also expire if the required participants do not complete the review before the deadline date. An expired stage ends, or expires the review. Any subsequent stages are not started. When stages are set as non-expiring, a stage that expires does not end the review.

**Comment visibility**

Comments in one stage can be visible to participants in other stages if a parameter in the review template is configured to allow so. Alternatively, participants can be limited to seeing comments only in the stage in which they participate.

For approval stages, approvers do not see comments entered during review stages.

**Stage execution flow**

When a stage completes successfully, the next stage starts when the review initiator starts it. Alternatively, stage progression can be configured to automatically start the next stage once the preceding stage completes, called straight-through processing. Straight-through processing is useful in reviews where no requirements exist for manual intervention by a review initiator. When straight-through processing is not used, the review initiator is required to start each stage manually.

**Stage Revision**

If any required reviewers indicate that changes are required to the document, it is returned to the review initiator. The review initiator makes the appropriate adjustments based on the comments provided by the reviewers. After the review initiator adjusts the content of the document, they can generate a new version of the content and upload it to the review. Review initiators can either revise (restart) the review stage or the entire review. After a stage or review has been revised, participants are notified that a new version of the content is available for review. If necessary, older versions of the content can be made available for reviewers to reference.

**Understanding review templates**

Review templates are important for using the functionality provided by the Review, Commenting, and Approval building block. Review templates provide a mechanism to centralize, structure, and repeat reviews. It is critical that members of the implementation team understand how to create and manage review templates. It is recommended that a person that understands the regulatory or business process, such as a business analyst, be involved in defining the review rules and parameters.
Review templates provide the notion of predefined reviews that help to ensure compliance to business rules and standard operating procedures (SOPs). Review templates define the rules and parameters, which mirror regulations and rules in a review and approval workflow.

Review templates, once created, can be modified to support changes in compliance standards or an organization’s standard operating procedures (SOPs).

**Technical overview of review templates**

A review template is an XML file. The review template defines the parameters for how the review executes. It also defines the number and type of stages in the review, as well as the parameters for each stage. The XML structure of a review template is defined by an XML Schema Definition file. (See Review template schema in Review, Commenting, and Approval Building Block 9.5 Technical Guide.)

Review templates can be created concurrently on the same LiveCycle server that runs the reviews. Review templates, when saved, can be made available immediately to review initiators. You can control the availability of the review template by permitting users to see review templates that are set as active. A review template can be set as active using a parameter in the review template.

Since review templates encapsulate the rules for a review and approval process, when invoked, it is called a review instance. A unique review context identifier identifies each review instance. Once a review is initiated, the review continues until all stages complete or expire.

**Understanding Acrobat shared reviews**

Review participants use Adobe Acrobat and Adobe Reader to add comments and sign review documents. Acrobat and Adobe Reader uses a feature called Acrobat Shared Review. Acrobat Shared Review provides online review capabilities and facilitates collaborative commenting on a document.

Acrobat Shared Review allows multiple users to provide comments to a review document and allows users to see each others comments. The ability to see comments from others in real time facilitates a collaborative environment in a safe and secure manner. Collaborative commenting also has the benefit of reducing the number of review iterations as the resolution of disputes and answers to questions occurs in real time.

An email address identifies each review participant when they access the review. The email address is configured in Acrobat and Adobe Reader. If the email address does not match an email address of a participant in a given stage, the review comments are not saved.

The Acrobat Shared Review features requires access to a Web-based Distributed Authoring and Versioning (WebDAV), Common Internet File System (CIFS), or network share location. LiveCycle Content Services 9 provides a WebDAV location. (See “Understanding content repositories and review zones” on page 13.)

*Note:* Adobe Reader requires that usage rights are applied to the PDF document for users to using commenting and signing features.
Understanding review documents and supporting documents

Review documents are PDF documents that are displayed to users in LiveCycle Workspace 9. Users add comments and apply digital signatures as required. Review initiators can submit one or more documents to review. Multiple documents are combined into a single PDF document for the review.

Review initiators are not limited to submitting PDF documents for review. Review initiators can submit any document format that can be converted to a PDF document, such as Microsoft® Office® documents. Conversion of non-PDF documents to PDF document is provided by LiveCycle PDF Generator service on the LiveCycle server.

Participants access supporting documents in Workspace 9 as task attachments. Supporting documents provide supplemental information (instructions, specifications, or URLs) and can range from traditional file formats such as Microsoft Office, to SWF files for video. Supporting documents can be added when you create a review template or initiate reviews. Supporting documents are not converted to PDF documents.

Both review documents and supporting documents are stored in the content repository.

Understanding approval routing slips and review tracking sheets

In traditional paper-based review and approval workflows, cover sheets, known as approval routing slips and review tracking sheets, were often attached to review documents. In managed reviews, the review tracking sheet (RTS) and the approval routing slip (ARS) are optional documents that can be attached to a review document. IT Staff and LiveCycle Developers can modify the appearance of RTS and ARS.

The purpose of RTS and ARS documents is as follows:

- Capture validation that reviewers and approvers completed each stage of the review.
- Capture the final comments of reviewers and approvers.

Some review processes require a review tracking sheet where every reviewer that completed the review is listed. Other review processes do not have such requirements.

If a review includes an approval stage, an ARS can be used to capture comments. When an ARS is not provided, a signing sheet is attached to the review document when digital signatures are required for the approval stage.

Understanding content repositories and review zones

Review templates, review documents, supporting documents, and review artifacts are stored in a repository on the LiveCycle server. The review zone is provided by a review zone provider. The review zone provider is a component of the Review, Commenting, and Approval building block. The review zone provider uses LiveCycle Content Services 9, which is required to use the Managed Review & Approval Solution Accelerator and the Review, Commenting, and Approval building block functions. However, you can configure the review zone provider to use other repositories that exist in an IT infrastructure. Permissions required to access and use Content Services are configured in Adobe User Management.
The review document and comments are accessed by review participants using the Acrobat Shared Review feature available in Acrobat or Adobe Reader. Acrobat Shared Review connects to the review zone using WebDAV. Users must be configured with the proper user roles to participate in reviews, which are configured in Adobe User Management. (See “Review and approval personas and user roles” on page 14.)

If your organization has an enterprise content management system available, you can use it as a content repository if it supports WebDAV, CIFS, or network share. (See "User story for archiving reviews" on page 56.)

**Review and approval personas and user roles**

There are a number of personas involved who can contribute to a managed review and approval process:

- Template authors.
- Review initiators.
- Review participants, which include reviewers, approvers, and moderators.
- Review administrators.

To use the Managed Review & Approval Solution Accelerator, it is necessary to create user profiles in Adobe User Management. (See *LiveCycle ES2.5 Administration Help*.)

It is necessary that each user profile, or persona, is configured with an email address and at least one of the following user roles:

- RCA Administrator: A person assigned this role can administer managed reviews. They can also participate in reviews, initiate reviews, and create review templates. People with this role can register external users. External users can participate in reviews after they are registered in LiveCycle as users in Adobe User Management.
- RCA Review Initiator: A person assigned this role can initiate reviews.
- RCA Template Author: A person assigned this role can create, update, and delete review templates.
- RCA User: A person assigned this role can participate as a reviewer, approver, or moderator in a review.

**Template authors**

Template authors (also known as review template developers) are familiar with the business process. They understand the procedures necessary to comply with regulated or audited reviews. To create and edit review templates, the user must be assigned the RCA Template Author role in Adobe User Management.

The template author performs the following tasks:

- Creates review templates to automate review and approval workflows.
- Identifies the stages and the business processes that trigger upon review completion.
- Understands the appropriate standard operating procedures (SOPs) required to define review templates.

**Review initiators**

Review initiators start review and approval processes. The review initiator is usually the content owner of the document under review. In some cases, however, the content owner may not be the same person. For example, a scientist submits his paper to a publishing house. The paper is reviewed internally. The review initiator in this case is the person in the department of the publication house.
To initiate reviews, the user must be assigned the RCA Review Initiator role in Adobe User Management. Review initiators perform the following tasks:

- Starts reviews by choosing a review template, provides review details, selects review and supporting documents for the review, and chooses the review participants.
- Manages reviews that they start, which can include tasks such as, revising reviews, updating reviews with new versions of content, modifying the schedule, and modifying the review participants.
- Starts the next stage in a review when straight-through processing is not configured. (See “Understanding review and approval stages” on page 10.)

**Review participants**

Review participants can contribute to one or more stages in a review. Individuals outside the organization (or outside the firewall) can be configured to participate in review and approval workflows. External individuals can be provided access to Workspace and complete reviews in the same manner as internal users. Alternatively, if access to Workspace is not possible, external users can participate in reviews using email.

Review participants can be reviewers, approvers, or moderators. To participate in reviews and approval workflows, the user must be configured with the RCA User role in Adobe User Management.

**Reviewers**

Reviewers are subject matter experts (SMEs), who validate the document content and provide feedback. Depending on the review requirements, one or many reviewers can participate in a review stage at the same time. Reviewers can be optional or mandatory (required). Required reviewers determine whether the document proceeds to the next level in the review.

Keep in mind that the actual review and approval workflow (as defined in the review template) determines the meaning of the term next level. The **next level** can mean performing one of the following tasks:

- Start next review stage: More than one level of reviews can be conducted, such as legal, management, external, peer, or executive.
- Send document for approval: No more changes are required and the document is sent to an approval stage for sign-off.
- Publish the document: The document under review is ready to be published. No additional review or approval stages are required. In this case, *publish* can mean the initiation of any number of business workflows as follows:
  - Check the reviewed content into a submissions management, ECM, or version control system.
  - Pass the content to another system as part of another business process.

If reviewers cannot finish a review in a single session, they can publish their comments and complete the review at a later time. When reviewers complete a review, they can add final comments or observations about the content. The final comments and observations are recorded in an optional review tracking sheet (RTS). The RTS generated in a previous stage is typically attached to the review document for the next stage.

**Approvers**

Approvers are involved in deciding whether a document continues along in an approval workflow. Usually, approvers are people who conduct supervisory analysis of the document. A reviewed document often requires subsequent approval - though approval stages can occur between review stages as required. Approvers do not interactively provide feedback to review documents. They review the document from a high-level point of view based on a business, regulatory, and legal perspective. An approver can be a person who has already participated in an earlier review stage as a reviewer.
Typically, approvers receive the document after a review of the content as been completed in a prior review stage. After they view the document, they can do one of the following actions:

- Approve: If the approver chooses to approve the document, they can optionally apply a digital signature. Digital signatures can be applied to an attached signing sheet or approval routing slip.
- Reject: If the document is rejected, approvers can enter a reason why they did not approve, when an approval routing slip is available. The document is then returned to the review initiator.

The review initiator can adjust the content, and restart the approval stage as required.

**Moderators**

Moderators are people who have been delegated the responsibility for overseeing a review. They ensure that ongoing and pending reviews operate in an effective and efficient manner. Moderators can ensure that the document is reviewed in a timely manner and change review parameters as required. For example, moderators can modify the duration or expiry date of a review stage if reviewers require more time.

Moderators are responsible for the same tasks as review initiators, except that they do not start the review and cannot start a stage.

**Review administrators**

Review administrators set user preferences for review participants and add external users to reviews.

In addition, they can create and edit review templates, initiate reviews, and participate in reviews. To administer reviews, the user must be assigned the RCA Administrator role in Adobe User Management.
Chapter 3: Using the solution template

After you install the Managed Review & Approval Solution Accelerator 9.5, you can use the GlobalCorp solution template to create review templates, initiate, and monitor reviews. The solution template uses functionality provided by the Review, Commenting, and Approval building block 9.5. You use LiveCycle Workspace 9 to participate in reviews. You can view the review documents and review artifacts in the GlobalCorp solution template and LiveCycle Contentspace 9.

Optionally, the review template can be customized. For example, you can brand it to use the colors and graphics from your organization. The Flex, HTML, and Java Server Page (JSP) source code is provided for you to use as a basis for implementations. (See “Installed files for the Managed Review & Approval Accelerator” on page 59.)

Preparing to use the solution template

The following tasks must be completed to use the GlobalCorp solution template. Consider these tasks when it becomes necessary to deploy your solutions.

Setting up users and groups

It is a requirement that user profiles are configured in Adobe User Management with Review, Commenting, and Approval building block user roles and an email address. (See “Review and approval personas and user roles” on page 14.)

Sample users profiles

When you install the Managed Review & Approval Solution Accelerator, the following sample user profiles can be configured as part of the installation.

Note: Use the sample user profiles to understand how the solution template implementation works. It is recommended that you do not configure the sample user profiles in production environments:

<table>
<thead>
<tr>
<th>User Profile</th>
<th>User ID/Password</th>
<th>Roles</th>
<th>email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alex Pink</td>
<td>apink/password</td>
<td>RCA Administrator</td>
<td><a href="mailto:apink@globalcorp.com">apink@globalcorp.com</a></td>
</tr>
<tr>
<td>Conrad Simms</td>
<td>csimms/password</td>
<td>RCA Template Author</td>
<td><a href="mailto:csimms@globalcorp.com">csimms@globalcorp.com</a></td>
</tr>
<tr>
<td>Rye Woodard</td>
<td>rwoodard/password</td>
<td>RCA User</td>
<td><a href="mailto:rwoodard@globalcorp.com">rwoodard@globalcorp.com</a></td>
</tr>
<tr>
<td>Tony Blue</td>
<td>tblue/password</td>
<td>RCA Review Initiator</td>
<td><a href="mailto:tblue@globalcorp.com">tblue@globalcorp.com</a></td>
</tr>
</tbody>
</table>

Configure email addresses and digital signatures.

Before you start the walkthrough, it is necessary that you configure Acrobat or Adobe Reader 9.2 or later with an email address and create a digital signature for approving documents.

Configure Adobe Acrobat or Adobe Reader with an email address

1 In Acrobat or Adobe Reader, select Edit > Preferences.
2 In the Preferences dialog box, select Identity.
Add a digital signature in Acrobat or Adobe Reader
1. In Acrobat or Adobe Reader, select Advanced > Security Settings.
2. In the Security Settings dialog box, click Add ID.
3. In the Add Digital ID dialog box, select A New Digital ID I Want To Create Now and click Next.
4. Ensure the With New PKCS#12 Digital ID File option is selected and click Next.
5. Fill the Name, Organization Name, Email Address field and click Next. For example, use Alex Pink, GlobalCorp, and apink@globalcorp.com, respectively.
6. In the Password and Confirm Password field, type password, and click Finish.

Walking through the review creation and review process

You can use this section to understand how to use the GlobalCorp solution template and get an idea of how to implement the Managed Review & Approval Solution Accelerator for your organization.

The source code is provided with the solution template. You can use it as a basis to start the development of your solution. (See “Installed files for the Managed Review & Approval Accelerator” on page 59.)

Scenario
GlobalCorp, has a design review and approval workflow, named GC-ENG-100-001 to review engineering designs before releasing them to manufacturing. The workflow consists of a review stage (five days) and an approval stage (two days). In the review stage, designs are reviewed collaboratively by whomever the review initiator chooses. After the review completes, the design immediately routes to Alex Pink for approval. In the approval stage, Alex Pink, the chief engineer applies a digital signature to approve the design. After the review completes, Alex can refer to the design document as necessary.

Conrad Simms is the owner of the review and approval process. Conrad is a process manager. He creates a review template to automate the GC-ENG-100-001 process. Each review must include a support document called DesignReviewPolicies.doc.

Tony Blue is new to the GlobalCorp and is submitting his first design document. The file name is MyFirstDesign.doc. Supervising managers review all designs made by their subordinates. Rye Woodard is Tony’s supervising manager.

Walkthrough of creating managed review and approval process
1. Creating a review template using the GlobalCorp solution template as Conrad Simms.
2. Initiating a review using the newly created review template as Tony Blue.
3. Reviewing the content in Workspace as Rye Woodard.
4. Approving the content in Workspace as Alex Pink.
5. Viewing the reviewed document with comments and review artifacts in the GlobalCorp solution template or optionally in Contentspace as Alex Pink.
Create a review template as Conrad Simms

1. In a web browser, access the GlobalCorp solution template at http://<livecycle server name>:<port>//reviewportal. For example, http://localhost:8080/reviewportal.

2. In the Username box, type csimms and, in the Password box, type password.

3. Click Templates and then click the New.

4. In the Template Definition page, provide the following information and click Next:
   - In the Template Name box, type Global Corp. Design Review and Approval.
   - In the Regulation (SOP) box, type GC-ENG-100-001.
   - In the Description box, type Review and Approval process for all engineering designs.
   - Because the approval stage is starts immediately after the review stage, select the Enable Straight-through Processing check box.
   - Ensure the Active check box selected so the template is available for use after it is saved.

   The following illustration shows the Template Definition page.

   ![Template Definition page in GlobalCorp solution template.](image)

5. In the Commenting page, select Reviewers Can View Comments Made By Others Within The Stage Only.
   a. In the Define Type list, select Parallel Review.
   b. In the Name box, type Collaborative Design Review, and click Create.
   c. In the Expected Stage Duration box, type 5.
   d. Click Next.
   e. Click Add New Stage.
In the Stage Building page, complete the following steps to create an approval stage:

- In the Define Type list, select **Serial Approval**.
- In the **Name** box, type **Design Approval**, and click **Create**.
- In the **Expected Stage Duration** box, type **2**.
- Select the **Enable Reminders** option and select **1 day** before the stage duration ends.
- In the **Signature** box, select **Client-Side**, and click **Next**.
- In the **Design Approval:Approvers** review stage, type **alex** and click **Search**.
- In the Search Results list, select **Alex Pink**, click **Add Approver**, and then click **Next**.

In the Supporting documents page, click **Browse**.

In the Select File To Upload by `<livecycle server name>`, navigate and select a file, and click **Open**. For example, select a file named **DesignReviewPolicies.doc**.

Click **Attach** and then click **Next**.

In the Configuration page, from the Approval Routing Slip list, select **Managed ReviewAndApproval-Sample/processes/Approval Routing Slip Creation**, and then click **Next**.

In the Audit Levels page, select **Level 2** and click **Select**.

Click **Finish**.

Click **Logout**.

**Initiate a review as Tony Blue**

- In a web browser, access the GlobalCorp solution template at http://<livecycle server name>:<port>//reviewportal. For example, http://localhost:8080/reviewportal.
- In the **Username** box, type **tblue** and, in the **Password** box, type **password**.
- Click **Initiate Review**, select the **Global Corp Design Review and Approval** review template icon, and then click **Start Review**.

The following illustration shows the Initiate Review page.
In the **Review Title** box, type *MyFirstDesign* and in the **Description** box, type *Designs to magically save the world*, and then click **Next**.

The following illustration shows the page to enter the review information:

![Review Title and Description](image)

*Initiate a review in the GlobalCorp solution template.*

5 In the Stages page, click **Add Participant**.

6 In the Add Participants page, complete the following steps:
   a Ensure that the Collaborative Design Review (Parallel Review) is selected in the Add to Stage list.
   b In the Search for an individual or Group, type *Rye* and click **Search**.
   c In the Search results, select *Rye Woodard* and click **Add Reviewer**, and then click **OK**.
   d Click **Next**.
   e In the Supporting Documents page, click **Next**.
   f In the Documents for Review, click the plus sign and select a PDF document or other document, and click **Open**. For example, *MyFirstDesign.doc*.
   g Click **Finish** and then in the popup window, click **OK**.

7 Click **Logout**.

**Review the content as Rye Woodard**

1 In a web browser, access Workspace at http://<livecycle server name>:<port>/workspace. For example, http://localhost:8080/workspace.

2 In the **User ID** box, type *rwoodard* and, in the **Password** box, type *password*.

3 Click **To Do**.

4 Click the **Reviewer Task** card.

The following illustration shows the Reviewer Task in Workspace.
Using the solution template

Reviewer Task in Workspace.

5 In the Adobe Acrobat Shared Review dialog box, click Connect.
6 In the Welcome To Shared Review dialog box, click OK.
7 In the form tab, add comments, click Publish Comments. Click Publish so others connected to the review can see your comments.

The following illustration shows comments being added in Workspace and Adobe Reader.

Adding comments in Workspace.

8 Click Mark Review Complete.
   
   Note: If you did not publish all your comments, an Adobe Acrobat dialog box appears. Click Publish.
9 Click Logout.

Approve the content as Alex Pink

1 In a web browser, access Workspace at http://<livecycle server name>:<port>/workspace. For example, http://localhost:8080/workspace.
2 In the User ID box, type apink and, in the Password box, type password.

3 Click To Do.

4 Click the Approval Task card.

   The following illustration shows an Approver Task in Workspace.

![Approver Task in Workspace.](image)

**Note:** If you get an Acrobat Security Settings dialog box, click Yes.

5 In the form, click the pencil icon below the Signature field.

6 In the Sign Document dialog box, select Alex Pink, type password in the Password box, and then click Sign.

   The following illustration shows the form being digitally signed using Workspace and Adobe Reader.

![Signing the approval routing slip in Workspace.](image)
Using the solution template

**Note:** If you do not have a digital signature, create one in Acrobat using the provided wizard.

7 Click Approve.
8 Click Logout.

**View the reviewed content in the GlobalCorp solution template as Alex Pink**

1 In a web browser, access the GlobalCorp solution template at http://<livecycle server name>:<port>/reviewportal. For example, http://localhost:8080/reviewportal.
2 In the **Username** box, type **apink** and, in the **Password** box, type **password**.
3 In the Search pane on the left, select **Completed**, deselect **In Progress**, and click **Search**.
4 In the search results, click **MyFirstDesign**.
5 Click **Documents**.
6 Click one of the links and click **OK**. The PDF document with the comments from Tony Blue appears or the signed copy appears, depending on which link you click.

The following illustration shows the signed approval routing slip displayed in the GlobalCorp solution template.

![Signature Panel](image)

**(Optional) View the reviewed content and assets in LiveCycle Contentspace 9 as Alex Pink**

1 In a web browser, access Contentspace at http://<livecycle server name>:<port>/contentspace. For example, http://localhost:8080/contentspace.
2 Click login, and in the **User Name** box, type **apink** and, in the **Password** box, type **password**.
3 Select Company > RCA > R-<date><number>-<number>-<number> where R-<date><number>-<number>-<number> is a string that represents your review.
The following illustration shows the review artifacts and review document listed in Contentspace.

Troubleshooting the solution template

The GlobalCorp solution template is an example solution that you can use as a basis for development. You can also use it to experiment with functionality provided by the Managed Review & Approval Solution Accelerator and the Review, Commenting, and Approval building block.

The following descriptions provide information about common issues and suggested resolutions when you experiment with the GlobalCorp solution template.

**Issue: Cannot initiate reviews**

**Symptom:**
You log in using two user profiles to GlobalCorp solution template and Workspace in the same web browser session. For example, using different user profiles, you initiate a review in the GlobalCorp solution template and participant in a review in Workspace. When you return to initiate another review in the GlobalCorp solution template, an error occurs. The following error log is generated that indicates that you do not have the required permissions:

```
2010-08-11 12:06:42,882 INFO [STDOUT] [LCDS][ERROR] Exception when invoking service 'remoting-service': flex.messaging.MessageException: com.adobe.idp.dsc.DSCInvocationException: Invocation error. : ALC-RCA-253-000: com.adobe.livecycle.rca.common.exception.RCAException: Access restricted on update for ReviewId R-20100811-120310-210-3405, Revision 1 in StageNo 0. Only Initiator and/or Moderator(s) are allowed to update a review.
```

**Resolution:**
The GlobalCorp solution template uses single session sign-on (SSO), which maintains session credentials in each web browser session. When you logged in using a second user profile, the user profile overwrote the credentials. When you return to the GlobalCorp solution template, the second user profile had fewer privileges and therefore you were not able to initiate the review.
Consider logging out of the session when you switch users for testing. You can also consider using multiple browsers. For example, use Mozilla Firefox to initiate reviews and Microsoft Internet Explorer to participate in reviews.

**Issue: Initiating a review fails**

**Symptom:**
An error occurs when initiating a review using the GlobalCorp solution template. The error occurs when a group is added the review. The server log is as follows:

```
```

**Resolution:**
The GlobalCorp solution template cannot handle long names due to an issue that is specific when LiveCycle Content Services 9 (See Error while adding permissions to a group having a long group name in Adobe LiveCycle ES2.5 Release Notes).

Ensure that you do not have principals with long names in the group that you select to initiate the review.
Chapter 4: User stories for Managed Review & Approval Solution Accelerator

User stories are narratives that describe the user experience, requirements, and benefits of using the Managed Review & Approval Solution Accelerator 9.5. User stories also provide:

- The skill sets and tools required to implement your solution.
- Best practices and options for planning your implementation.
- A high-level implementation overview.
- A screen shot when the implementation is provided in the GlobalCorp solution template, LiveCycle Workspace 9, or LiveCycle Contentspace 9.

Understanding Managed Review & Approval user stories

Though most implementations tend to be more iterative in nature, it is recommended that you follow the suggested user story flow. Most stories are broad and can consist of substories.

When you are ready to implement the Solution Accelerator, use the following flow diagram as a guideline.

![User story flow diagram](image)

Complete the user stories in the flow diagram in the following order:

1. Create a review template: In order to manage a review and approval workflow, template authors create a review template in the GlobalCorp solution template. The review template maps the workflow to the required participate and the duration of each stage of the review. (See “User stories for creating review templates” on page 28.)

2. Initiate the review: Using a review template, a review initiator starts a review using a review template. (See “User stories for initiating reviews” on page 38.)
3 The following user stories execute in parallel and in an iterative fashion:

- Review the content: Reviewers review the content and add comments using Acrobat or Adobe Reader from within Workspace, or using email. (See “User story for reviewing content” on page 47.)
- Approve the content: Approvers review and approve the content using Acrobat or Adobe Reader from within Workspace or email. Approvals can require simple click-through approval or require that approvers provide a digital signature, such as a PKI signature. (See “User stories for approving content” on page 49.)
- Manage the review: Review initiators and moderators can manage the review in the solution template to revise the review and manage the scheduling. (See “User stories for managing reviews” on page 44.)

4 Complete the review: After the review completes, reviews are stored and archived for later retrieval. Audits reports can be generated to monitor reviews for compliance. (See “User stories for completing reviews” on page 53.)

Implementation team planning

When you implement your solution, plan to include the following people with the following roles and knowledge in your team:

**Business Analysts** Individuals who understand the business processes and regulations required for review and approval processes. More technical business analysts are familiar with creating forms and XML technologies, but in general are non-technical in nature. In an implementation team, these people represent process owners and manage requirements to drive requirements for your solution. Knowledge can include but is not limited to:

- The workflow of reviews that occur in the organization and how they are started.
- Requirements of review participants to review and approve content, people who administer and moderator reviews, and people who initiate or start reviews.
- The versioning, archiving processes, and auditing requirements for each review.

**IT Staff** Individuals who are technologists that provide support and deploy applications to users on a day-to-day basis. They are familiar with XML, databases, and various technologies to maintain the IT infrastructure. IT staff own and understand the technology infrastructure to which you deploy your solution. They can help you to recognize current technical challenges and to architect a successful solution.

**LiveCycle Developers** Individuals who are familiar with automating business processes in LiveCycle. LiveCycle Developers have the knowledge to create processes using LiveCycle Workbench 9.5, create forms in LiveCycle Designer 9 and Acrobat 9.2, and other application assets. LiveCycle developers are knowledgeable with XML and scripting languages that include JavaScript, MXML, and ActionScript.

**LiveCycle Programmers** Individuals who are familiar with a number of programming languages and can implement client-side and server-side applications for your solution. LiveCycle Programmers are familiar with programming technologies, such as Flex, Java, and .NET. They are also familiar with databases, XML, web services, and various protocols required to implement solutions.

User stories for creating review templates

The review template is a representation of the managed review and approval workflow that you automate. The Managed Review & Approval Solution Accelerator provides three ways to work with review templates:

- Use the GlobalCorp solution template to author review templates, typically in minutes.
• Take ownership to create a review template and use functionality directly from the Review, Commenting, and Approval building block 9.5 to manage the review template. Use this option to integrate Solution Accelerator functionality into existing applications.

• Use provided extension points within the review template to extend functionality that includes:
  • Adding pre and post processes to stages.
  • Using custom review tracking and approval slips.
  • Modifying the default review and approval tasks to change the review routing.

The extension points are exposed when you create a review template using the GlobalCorp solution template or when you author the template.

Planning the review template requirements

Before you create a review template, it is recommended that you meet with business owners and review participants to understand the requirements for a managed review. Business owners, content owners, and review participants have expertise and knowledge that help you to plan the specifics for a managed review that include:

• The number of stages and flow of the review.
• The requirements to review and approve content.
• The people who initiate and moderate reviews, and the people who review and approve content.
• The people in the review and approval process who:
  • Initiate and moderate reviews.
  • Review and approve content.
• Regulations a review must adhere to, such as storage and auditing requirements.

It is necessary to consider the requirements to plan and create review templates, which include:

• Providing a name and description.
  Names and descriptions help review initiators to choose the review template to use.
• Determining the number of review and approval stages in the review.

  For each stage, you can determine whether participants complete the stage serially or in parallel, and whether stages start immediately after another stage completes. For example, the review content requires an update before the next stage. After the comments have been incorporated and the content updated, reviewers in the next stage are only required to assure that their comments have been incorporated. The Solution Accelerator accommodates both workflows to allow review initiators to receive the comments or allow for straight-through processing, typical for later stages.

  A review has at least one review stage or approval stage. You can add more stages, depending on the complexity of your review and approval workflow. Each stage has a set duration or time limit, but can be changed when circumstances of the review change.

  For each stage, it is necessary to specify how the stage executes. You can configure the stage to have participants review or approve the document in parallel or in a particular sequence. It is also necessary to determine how participants complete the stage. For example, you can permit participants to provide comments or approve the document, or both.

  When a review consists of more than one stage, you can specify whether the next stage starts immediately after another completes. Alternatively, you can require that review initiators manually start the next stage in the review.
• Determining the duration or schedule for a stage.
For each stage, you can specify the duration in minutes, hours, or days. You can also specify whether to use business days or absolute days.

As part of stage duration, you can configure a stage to run until all participants review or approve the content. Alternatively, the stage can be configured to continue and not expire until all required participants complete their tasks.

- Configuring whether reminders are sent to participants.

Often, it is necessary for reviews to complete in a predetermined time frame. Time sensitive reviews often require that reminders are sent and tasks for incomplete reviews are reassigned. For example, if a review participant is not in the office, the review can be routed to the review participant’s supervisor or delegate.

- Configuring whether users review or approve content using Workspace or email.

- Determining whether participants see comments from other participants from different stages.

When multiple review stages occur, you can permit comments to be visible to other reviewers in subsequent stages. Alternatively, you can configure the review so that comments from a stage are only visible to participants in current stage.

- Determining whether there are default participants or supporting requirement.

Regulated review and approval workflows often have requirements that are complex. For example, in regulated environments, it is necessary to include default users and supporting documents. For example, a standard disclosure document can be attached for the review of documents containing sensitive intellectual property information.

- Adding auditing to the review.

It is important for managed reviews to log actions that occur to build an audit trail. Audit trails record and monitor that review processes are compliant with established standard operating procedures. For example, you can build audit trails of when each stage starts and ends during a review. Then, you can use the audit trail to ensure that reviews complete in the time frame specified by your standard operating procedure.

**Common questions to ask to clarify requirements**

- What information is required to identify the review template and what format do you want the review templates displayed?
- Is there a naming convention used at your organization?
- How many review templates do you plan to have?
- Are reminders required?
- Are audit trails required for the reviews?
- Is it necessary for users to see comments made by participants in previous stages?
- Do stages require a manual intervention? For example, is it necessary for review initiators to revise a review stage?
- Are custom LiveCycle processes required to run before or after a stage?
- Are template authors required to configure reusable, optional processes as part of a review template?
- Is additional metadata required to improve searchability of review templates and the reviews?
- Is additional functionality presented to review participants, such as extra buttons to complete a review in Workspace?
- Are approval routing slips or review tracking sheets required?
Requirements addressed

- Provide a mechanism to define reusable, scalable review and approval processes.
- Provide a mechanism to define number of stages in a review.
- Provide flexibility to define review duration, such as reviews that are less than a day or reviews that do not expire (no deadline).
- Provide a mechanism to allow participants to review documents in parallel or in a particular order.
- Add supporting documents for each review.
- Specify review participants (reviewers, approvers, or moderators) for each stage.
- Send reminders for review and approval stages.
- The visibility of comments can be controlled for participants in subsequent stages.
- Stages can be started immediately after a stage completes (straight-through processing) or requires manual intervention.
- Add auditing to managed review and approvals.
- Provide a note when rejecting an approval.
- Automatic routing of review or approval task and scheduling of authorized reviewers.
- Permit prereview and postreview processes (sometimes called pre-processing and post-processing hooks) to execute before and after a stage.

Best practices, tips, and tricks

- Plan time to meet with your users to identify naming schemes and descriptions to use for review templates. Doing so helps business users to create review templates that are easy to find and use.
- Use a naming convention that is consistent and easy to use. For example, if you automate human resources (HR) and information technology (IT) review and approval workflows, prefix the review template names with HR and IT, respectively.
- Include internal URLs or information in the review template description to let users understand the review and approval process being managed. Alternatively, attach the information as supporting documents.
- Identify and set common information used to initiate reviews as defaults. Setting defaults help to make starting reviews easier. For example, you can add the entire legal department as default users for review and approval processes that require legal reviews.
- It is common to integrate processes to run before and after a review or approval stage completes, respectively called prereview and postreview processes. When you create processes in Workbench, plan, develop, and test the processes separately before you integrate them with your reviews.

The following are example prereview processes (sometimes called pre-processing hooks) to consider integrating with a review:

- Watermark the file with the version and stage number.
- Indicate which pages are new by changing the header or footer of that page.
- Bates number the pages for legal judicial review.
- Save a copy of the file to a version repository.
- Use optical character recognition on image files to allow reviewers to search the image.
- Set up PDF settings to configure initial view for the review document.
- Attach review instructions page as the first page in the review document.
• Add RSS feeds to indicate that a review has started.

The following are postreview (post-processing) processes to consider integrating with a review:
• Remove any of the artifacts inserted above.
• Save a copy of the file and its comments to a special repository.
• Archive the comments separately from the file.
• Add RSS feeds to indicate that a review has ended.
• Provide an analysis, such as the time or number of comments, people who participated in the review, and create a report.
• When content is approved, generate a final copy with a version number, archive it with other artifacts of a completed document.

User story for authoring review templates using the solution template

Narrative
The provided GlobalCorp solution template is a web application that allows you to author a review template immediately.

Estimated time to implement
To implement this story, expect to spend one hour to author and test the review template. The solution template provides a mechanism for you to quickly create review templates without technical staff involvement.

Note: The time to implement the story depends on the skill sets of your staff and how well you know your requirements. The estimates are broad guidelines and differ for each organization.

Implementation overview
Using a web browser, log in to the GlobalCorp solution template using a user profile that has the RCA Template Author role. In the Template tab, complete the following tasks.

1 Define the name and description of the review template. Also specify whether the review template is active. An active review template is available for use by review initiators.

2 Configure how a stage completes and progresses. Options are available to configure whether a stage starts immediately after another stage ends. Alternatively, you can specify that the review initiator manually starts each stage.

3 Specify whether users see the comments of other participants from other stages or only the stage in which they participate.

4 Define the number of stages in the managed review and approval workflow. You set the following parameters for each stage in an iterative manner:
   • Define the name of the stage, whether it is a review or approval stage, and whether users participate in parallel or in sequence.
   • Define the number of days, hours, or minutes the stage runs. The minimum timeframe for a stage is 10 minutes.
   • Configure whether users complete their task using Workspace or email.
   • (Optional) Configure the stage to run for the full duration period, regardless of whether all required participants complete the review or approval.
   • (Optional) Set the stage as a non-expiring stage.
• (Optional) Send reminders 1 or more days before a stage expires.
• (Optional) Add default reviewers, approvers, and moderators to your review. Each user can be set as optional or mandatory for the review.
• (Optional) For approval stages, specify whether digital signatures are required.
5 (Optional) Add supporting documents.
6 (Optional) Configure auditing for a review using the provided audit levels.
7 Save the review template.

The following illustration shows the Template tab in the solution template, which is a Flex application. Use the functionality in the Template tab to create and edit review templates.

Create a review template using the Templates tab in the solution template.

**Tools used**
• A web browser with Flash Player 9 or later.

**Team members and skill sets**
• Using web applications and understanding business processes. (Business Analyst or business user.)
User story for taking ownership of authoring review templates

**Narrative**

When the functionality provided in the solution template does not satisfy your requirements, you can take ownership to author the review template. The following are common reasons to author your own review template:

- Your organization has simple, static review and approval workflows that are not modified often. In this case, it is unnecessary to provide non-technical users the option to author review templates.
- You want to further simply the user experience and therefore want to take on development of the review template within the IT organization.
- You are not planning to use the GlobalCorp solution template and plan to create your own user interface.
- You want to integrate or invoke Managed Review & Approval functionality into an existing application or custom LiveCycle processes.

When you are required to satisfy one of the mentioned reasons, you are taking ownership of creating and handling the XML file representing the review template. You can programatically author the review template or author it using an XML editor. When you handle the creation of the review template, you are required to add, modify, and set values of the XML elements in the review template.

Use functions provided by the Review, Commenting, and Approval building block to handle and manage the review template. For example, after you author a review template, it is necessary for you to store it to make it available to review initiators. In this scenario, invoke building block services in custom processes created in Workbench or use the Java APIs or Flex APIs to store the review template.

**Estimated time to implement**

To implement this story, expect to spend one to two days. The estimate presumes that you have a good understanding of the review and approval workflow and expertise working with XML files. The implementation includes:

- Authoring the review template, either programatically or using a simple XML editor.
- Determining and setting the XML elements to define the review template.
- Understanding the review template schema.

Additional time to create a user interface is not part of the estimate. Consider reusing portions of the GlobalCorp solution template where applicable.

*Note: The time to implement the story depends on the skill sets of your staff and how well you know your requirements. The estimates are broad guidelines and differ for each organization.*

**Implementation overview**

To author a review template using XML editing tools or develop applications to create a review template, complete the following tasks:

1. Define the name and description of the review template.
   
   Include a description of the review and approval workflow or standard operating procedure (SOP) in the review template. Since each review template is stored on the same system, a status to indicate whether it is available (or Active) for use is available. (See Creating review templates in *Review, Commenting, and Approval Building Block 9.5 Technical Guide*.)

2. Configure how stages start after one completes and whether comments are visible from one stage to another.
You can configure your stages to start immediately after another stage completes, which is called *straight-through processing*. Alternatively, you can configure your review so that review initiator or moderator intervention is required to start the next stage. (See Configuring straight-through processing for stages in *Review, Commenting, and Approval Building Block 9.5 Technical Guide*.)

You can configure whether reviewers can see comments from previous stages and whether stages execute immediately after one completes. (See Setting comment visibility in *Review, Commenting, and Approval Building Block 9.5 Technical Guide*.)

3 Define the number of stages in the review.

When you define a stage, you typically assign a name. The name of the stage typically provides details to its purpose. (See Adding review and approval stages in *Review, Commenting, and Approval Building Block 9.5 Technical Guide*.)

4 Configure how a stage executes and whether the stage is a review or approval stage.

The type of stage that you configure determines how it executes. You can choose to implement a stage as a parallel stage, which allows participants to add comments collaboratively. Alternatively, you can configure your stage as a serial stage that lets one participant at a time review or approve the content. You can also configure how users complete tasks for review and approval stages and whether digital signatures are required for approval stages. Users can complete tasks using Workspace or email.

It is common to use both types of stages together. For example, in a two stage review, a review document is sent for feedback in the first stage. In the last stage, an approval is required. (See Adding review and approval stages in *Review, Commenting, and Approval Building Block 9.5 Technical Guide*.)

5 Define the length of time to complete each stage.

You can set time frames for each stage to complete. The duration can be expressed in minutes, hours, or days. A stage is considered expired when required review participants do not complete the review. If you do not want the stage to expire in an absolute time frame, you can set the stage to never expire. (See Setting schedules for stages in *Review, Commenting, and Approval Building Block 9.5 Technical Guide*.)

6 (Optional) Add participants and reminders to each stage.

You set reminders, add supporting documents, and add review participants. (See Add default participants, Add default supporting documents, and Adding reminders to stages in *Review, Commenting, and Approval Building Block 9.5 Technical Guide*.)

7 (Optional) Add supporting documents.

You can add supporting documents to review template, which adds a document or URL that is not part of the review content to every review. (See Add default supporting documents in *Review, Commenting, and Approval Building Block 9.5 Technical Guide*.)

8 (Optional) Add auditing to reviews.

When auditing is important for reviews, take time to understand your auditing requirements. You can customize the auditing and create different levels of audits for reviews. After you implement audit levels, you can add auditing to a review by adding an XML element to the review template. (See Configuring audits in *Review, Commenting, and Approval Building Block 9.5 Technical Guide*.)

9 After you complete your review template, use building block services to save the review template to the server. (See Creating review templates in *Review, Commenting, and Approval Building Block 9.5 Technical Guide*.)

To further enhance your review, add addition XML elements to the review template. (See “User story for extending review template functionality” on page 36.)
**Tools used**

- To manually author a review template, use a text editor or XML editor. Alternatively, build an application similar in functionality to the solution template to author the review template.
- To store the review template to the LiveCycle server, use provided building block Java APIs or Flex APIs. Alternatively, create a Workbench 9.5 process and invoke it using Email, Watched Folders, web services, Java EJB, or LiveCycle Remoting.
- To use Java Server Pages, HTML, Java, Flex, and .NET, use integrated development environments such as Flash Builder, Eclipse, or DreamWeaver.

**Team members and skill sets**

- XML, W3C XML schemas. (IT Staff, LiveCycle Developer, LiveCycle Programmer.)
- Building processes using Workbench 9.5 or applications to store the review template. (LiveCycle Developer, LiveCycle Programmer.)

**User story for extending review template functionality**

**Narrative**

Whether you create review templates using the GlobalCorp solution template or manually, the same development effort is required to extend the review template to:

- Integrate custom processes.
- Modify how tasks are assigned to participants.
- Add approval routing slips (ARS) and review tracking sheets (RTS).
- Add custom attributes to review templates to enhance searching.

Depending on the size of your organization, numerous reviews can occur. You can add additional metadata to the reviews, such as key words, the name of review documents, and the name of the review initiator. Adding this metadata facilitates searching.

Review stages function in a standard manner. You can create custom tasks to add buttons to tasks that are displayed to participants or change the business rules for how review tasks are assigned. For example, you can add a fourth button that requires participants to enter a reason when they decline a review.

It is common for an organization to have automated processes that run before, during, or after a review. You can integrate these automated processes to ensure that you are compliant with your organization’s practices. For example, you can integrate LiveCycle processes to watermark review documents with the date before a review document is displayed to participants.

Reviews often require a summary of reviewers and approvers. You can add review tracking sheets (RTS), which provide a list of the participants who reviewed the content. In addition, you can add approval routing slips (ARS), which provides a summary of the participants who approved the review document. It is necessary to create LiveCycle processes to add RTS and ARS to reviews.

**Estimated time to implement**

To implement this story, expect to spend 1-3 days for each process. The estimates include the time to develop processes and presume you understand your requirements.

The time to integrate them into a review template depends on whether you used the solution template or took ownership to create the review template.
When you use the solution template, the user interface allows you to configure the review template to specify the custom processes to use in minutes. You can add custom processes to extend the review template to add:

- Prereview and postreview processes.
- Custom tasks to assign review and approve tasks.
- Review tracking sheets for review stages.
- Approval routing slips for approval stages.
- No functionality in the solution template is provided to support custom attributes. Customization of the solution template is required.

Adding additional review parameters to the review template.

When you take ownership to create a review template, it is necessary to add and modify XML elements to extend the functionality of the review template. (See “User story for taking ownership of authoring review templates” on page 34.)

**Note:** The time to implement the story depends on the skill sets of your staff and how well you know your requirements. The estimates are broad guidelines and differ for each organization.
Implementation overview

Whether you use the solution template or take ownership of creating the review template, you require LiveCycle Developers and IT Staff. The following list describes the tasks required to create processes to extend your review template:

1. Add custom attributes that act as additional metadata to make your reviews searchable.
   You can also add additional metadata to make your review template searchable. (See Adding custom attributes in Review, Commenting, and Approval Building Block 9.5 Technical Guide.)

2. Create custom tasks to customize how tasks are assigned to users or how reviews complete.
   To add additional functionality, such as buttons that display participants, you can add a custom task using Workbench. (See Creating custom task types in Review, Commenting, and Approval Building Block 9.5 Technical Guide.)

3. Integrate processes to run before and after a stage.
   When you want to integrate processes into the review, you create a process using specific input and output parameters in Workbench. After you create and deploy your process, add XML elements in your review template to indicate whether to invoke processes before or after a stage. (See Integrating custom processes before and after a review stage completes in Review, Commenting, and Approval Building Block 9.5 Technical Guide.)

4. Add Review Tracking Sheets (RTS) and Approval Routing Slips (ARS) to reviews.
   You can add routing tracking sheets (RTS) and approval routing slips (ARS) in your reviews. (See About review tracking sheets and approval routing slips in Review, Commenting, and Approval Building Block 9.5 Technical Guide.)

Tools used

To build approval routing slips, review tracking sheets, custom tasks, and prereview and postreview processes (sometimes called pre-processing hooks and post-processing hooks) to integrate into the review, use Designer, and Workbench.

The tools you use to integrate the processes depends on whether you used the GlobalCorp solution template or took ownership to create the review templates. (See “User story for authoring review templates using the solution template” on page 32 and “User story for taking ownership of authoring review templates” on page 34, respectively.)

Team members and skill sets

Building processes using Workbench or applications to store the review template. (LiveCycle Developer, LiveCycle Programmer).

The team members and skill sets to integrate the processes depends on whether you used the solution template or took ownership to create the review template. (See “User story for authoring review templates using the solution template” on page 32 and “User story for taking ownership of authoring review templates” on page 34.)

User stories for initiating reviews

After you have a review template, you can start a review using one of the following two options:

- Use the GlobalCorp solution template or Workspace. Both options are provided when you install the Solution Accelerator and are ready to use. You can use this option if you created the review template using the solution template.
• Use a custom implementation. A custom implementation can invoke building block services to initiate reviews. The review template you choose to initiate a review contains most of the parameters to start a review. In addition, a review initiator provides the following information to start the review:
  • A description and name for the review. Optional metadata can be added to improve searchability for the review.
  • Content for participants to review or approve, which include both PDF documents and non-PDF documents, such as Microsoft Word files.
  • Additional participants can be added to the review as required or optional reviewers and approvers.
  • Supporting documents, which include documents or URLs that are not part of the review content, but provide additional context to the review.

After a review is started, review documents are secure and inaccessible to users not listed as a review participant in the review. Lightweight Directory Access Protocol (LDAP) or Active Directory systems can be used to provide secure login and authentication mechanisms and are integrated with Adobe User Management.

As multiple reviews can be started using the same review template, additional metadata can be added to the review to improve searchability. For example, you can add metadata based on the user profile of the review initiator, the name of the document, or keywords.

Requirements addressed
  • A single review team is responsible for the review of multiple documents. A mechanism is required to define predefined reviews. Predefined reviews ensure that reviews follow a consistent process.
  • It is a requirement to add review content varying file formats for reviews. Different types of content are used in reviews.
  • Provide secure access to review content. Reviews and review content must be easy find based on the name, document, time that document started.
  • Add internal and external review participants to a review. Participants require access to Workspace or email to complete reviews.
  • Add additional search attributes to reviews to enhance the search experience. Reviews and review content must be easy find. Searches criteria can include the author, name, document name, or review period (start date and end date).

Common questions to ask to clarify requirements
  • What type of review parameters do you want the review initiator to specify?
  • What file formats do you want users to use to submit review content?
  • What type of content is uploaded to support reviews?
  • Is it necessary to add additional metadata to the review to make it searchable?
  • Are reviewers and approvers external to the company?

Best practices, tips, and tricks
When you add additional metadata to your reviews, consider standardizing the keys you use to provide an optimal search experience.
User story for initiating reviews using the solution template and Workspace

Narrative
You can use the GlobalCorp solution template and Workspace to initiate a review after you have created a review template.

Estimated time to implement
To implement this story, expect to spend 10-15 minutes. The solution template and Workspace provide a mechanism for you to quickly initiate reviews once you have a review template.

Note: The time to implement the story depends on the skill sets of your staff and how well you know your requirements. The estimates are broad guidelines and differ for each organization.

Implementation overview
Using a web browser, log in to the GlobalCorp solution template using a user profile that has the RCA Review Initiator role. As the review initiator, in the Initiate Review tab, complete the following tasks:

1. Select a review template to initiate a review.
2. Provide a title and description for the review.
3. Add reviewers, approvers, and moderators as required for each stage.
4. Specify supporting documents to add to the review.
5. Specify one or more documents to add to the review.

You can use the same steps in Workspace. Instead of using the Initiate Review tab, in the Start Process tab, initiate the review using the Initiate Review card.

The following illustration shows the Initiate Review tab in the solution template, which is a Flex application. Use the functionality provided in the Initiate Review tab to initiate reviews.
Initiate a review in the GlobalCorp solution template.

In Workspace, you can also initiate reviews using the Start Process tab as shown in the following illustration:
**Tools used**
A web browser with Flash Player 9 or later.

**Team members and skill sets**
Using web applications and understanding business processes. (Business Analyst or business user.)

**User stories for initiating reviews using a custom implementation**

**Narrative**
When the functionality provided in the solution template or Workspace does not satisfy your requirements, you can create a custom implementation. The following are common reasons for you to create a custom implementation to initiate reviews:

- You have custom LiveCycle processes that you use to initiate static reviews automatically. For example, in your organization, users drop review documents into watched folders and reviews are automatically initiated for them.
- You have backend processes that simplify the user experience and start reviews for them. For example, when users submit new versions in a Document Management system, reviews are automatically created for the new content.
- You have requirements to create your own user interface to initiate reviews.

When you initiate reviews, you are responsible for retrieving the review templates to initiate the review. For some implementation-specific situations, you are required to upload the review documents and supporting documents to the review zone.
Because multiple reviews can be started using the same review template, consider adding additional metadata to the review to improve searchability. For example, you can add metadata based on the user profile of the review initiator, the name of the document, or keywords.

**Estimated time to implement**
To implement this story, expect to spend one to three days. The implementation includes:

- Adding the XML elements to start the review.
- Understanding the review template schema.
- Developing processes in Workbench that prepare the review document for review.

Additional time is required to create a user interface and to implement file formats that are not converted to PDF documents by the PDF Generator service.

*Note: The time to implement the story depends on the skill sets of your staff and how well you know your requirements. The estimates are broad guidelines and differ for each organization.*

**Implementation overview**
You can create a custom implementation to initiate reviews by completing the following tasks:

1. **Initiate the review providing the review content.**
   Retrieve a review template and in Workbench, use the invoke operations from the Review Commenting & Approval Core service to initiate the review. Alternatively, you can use methods from the Review, Commenting, and Approval building block Java API or Flex API. After you initiate the review, a review context identifier (ID) (sometimes called review instance) that uniquely identifies the review is returned. The review context ID is required to access the review and to perform subsequent tasks to the review. (See Starting the review in [Review, Commenting, and Approval Building Block 9.5 Technical Guide](#).)

2. **Add additional review participants.**
   In Workbench, use the review context ID and invoke operations from the Review Commenting & Approval Core service to add review participants. Alternatively, you can use methods from the building block Java API or Flex API in your custom applications. (See Adding reviewers and participants in [Review, Commenting, and Approval Building Block 9.5 Technical Guide](#).)

3. **Add additional metadata to the review.**
   Optionally, you can create key value pairs to add metadata to reviews. The metadata can be used for searching or creating dashboards. In Workbench, use the review context ID to invoke operations from the Review Commenting & Approval Core service to add custom attributes. Alternatively, use the building block Java API or Flex API. (See Adding custom attributes in [Review, Commenting, and Approval Technical Guide](#).)

**Tools used**
- Workbench to create processes that invoke the Review Commenting & Approval service.
- Integrated development tools, such as Adobe Flash Builder to write user interfaces using Flex. You can also use other development environments, such as Eclipse to create your applications in Java or Microsoft Visual Studio to implement .NET applications.

**Team members and skill sets**
- XML, W3C XML schemas. (IT staff, or Business Analyst)
- Building processes using Workbench and Designer. (LiveCycle Developer)
User stories for Managed Review & Approval Solution Accelerator

User stories for managing reviews

You can manage initiated reviews using one of the following two options:

- Use the GlobalCorp solution template to manage reviews.
- Build a custom implementation. A custom implementation can invoke building block services to manage reviews.

During the review duration, review initiators can monitor a review to ensure that it gets completed. Review moderators can also be assigned to manage a review. Both review initiators and moderators can make audited parameter changes to the review, such as add participants, extend the duration for a review, and revoke a review (end the review).

In addition to managing participation and scheduling for a review, review initiators can reconcile comments and revise a review stage as necessary. When a stage is revised, it is updated with a new version of the content and restarted. Revising a review allows for a stage to iterate through multiple cycles as required to improve the content.

Review initiators and moderators often manage more than one review. Providing a mechanism to search for reviews and display reviews in a dashboard is desirable.

Common questions to ask to clarify requirements
- Do customers require the ability to restart a review stage?
- How often do you want reminders sent to reviewers?
- What notifications do you want sent to participants?
- What scheduling changes do you want to permit?

Requirements addressed
- Handle comments and provide a mechanism to revise review content.
- Manage the review cycle to extend or shorten review duration, force restart of next review stage, and end a review before it expires or completes.
- Add additional review participants after the review has started.

Best practices, tips, and tricks
Provide only the functionality required to keep a review and process from expiring. Avoid adding functionality that deviates from the business rules that you are trying to follow. For example, when a review is required to complete in a specific time frame, limit the scheduling changes that review initiators can make.

User story for managing reviews using the solution template

Narrative
You can use the GlobalCorp solution template to manage the review. The GlobalCorp template allows review initiators and moderators to manage a review as follows:

- Update the document for a selected stage and revise a stage or the entire review.
- View the review document and its comments for a stage.
- Add reviewers to review stages and designate them as mandatory or optional.
User stories for Managed Review & Approval Solution Accelerator

- Add approvers to approval stages and designate them as mandatory or optional.
- Revoke a review.
- Update the duration for a stage.
- Display a dashboard that permits to see reviews that are in progress, expired, completed, terminated, or revised.
  You can also search on reviews based on the review title or the start and end dates.

**Estimated time to implement**

To implement this story, expect to spend 5 minutes to manage a review. The time depends on the number of stages you have to manage and the number of documents to update.

*Note: The time to implement the story depends on the skill sets of your staff and how well you know your requirements. The estimates are broad guidelines and differ for each organization.*

**Implementation overview**

Using a web browser, log in to the GlobalCorp solution template using a user profile configured with the RCA User user role. When you use want to manage reviews that you initiate, you require a user role of RCA Review Initiator. In the Dashboard tab, you can search and select the reviews to manage by performing one or more of the following tasks:

1. Select a stage in the review and add or remove participants (reviewers or approvers).
2. View review documents for in-progress or completed stages.
3. For a stage, update review documents, add and remove reviewers and approvers.
4. Revoke a review.

The following illustration shows the Dashboard tab in the solution template. Use the functionality in the tab to manage the review.

*Manage reviews using the GlobalCorp solution template.*
Tools used
- A web browser with Flash Player 9 or later.

Team members and skill sets
- Using web applications and understanding business processes. (Business Analyst or business user.)

User story for managing reviews using a custom implementation

Narrative
When the functionality provided in the solution template does not satisfy your requirements, you can create a custom implementation. The following are common reasons for you to create a custom implementation to manage reviews:

- You have backend processes that simplify the user experience to manage reviews for users.
- You have requirements to create your own user interface to manage reviews.
- You want to use an existing application or portal to manage reviews.

Estimated time to implement
To implement this story, expect to spend 3-5 days. The time depends on the management tasks that you allow users to and the user interface you provide. For example, if you do not permit users to end or extend stage duration, there is no requirement to spend time implementing the functionality. The time estimates include:

- Developing processes in Workbench or writing code to provide the review management tasks.

Additional time to create a user interface is not part of the estimate. Consider reusing portions of the GlobalCorp solution template where applicable.

Note: The time to implement the story depends on the skill sets of your staff and how well you know your requirements. The estimates are broad guidelines and differ for each organization.

Implementation overview
You can create a custom implementation to manage a review by completing the following tasks:

1. Manage the review time schedule
   In Workbench, use the review context ID and invoke operations from the Review Commenting & Approval Core service to manage the review time. The following tasks are permitted:
   - Extend or shorten the time frame before a stage expires using Update Stage Duration operation.
   - You can end a stage to force the next stage in the review to start.
   - Revoke or end the entire review.

   Alternatively, you can use methods from the Review, Commenting, and Approval building block Java API or Flex API to provide the same functions. (See Extending the stage duration and Revoking a review in Review, Commenting, and Approval Building Block 9.5 Technical Guide.)

2. Add review participants.
   You can add additional reviewers and approvers to the review. In some limited instances, you can remove reviewers from the review. The limitation is a recommendation but is not enforced from a technical perspective. (See Adding and removing participants from the review in Review, Commenting, and Approval Building Block 9.5 Technical Guide.)
3 Handling comments and revising the review.

During the review, review initiators and moderators can see comments applied to the review document. To revise a review, you require the review context ID and an updated revision of the review document. (See Viewing reviewed documents and supporting documents and Creating a new revision of the review and updating content in Review, Commenting, and Approval Building Block 9.5 Technical Guide.)

4 Searching for reviews.

To search for reviews, you provide search criteria using a search template. You can pass the search criteria in a process in Workbench or programmatically use the building block Java API or Flex API calls to implement the functionality. (See Searching for reviews in Review, Commenting, and Approval Building Block 9.5 Technical Guide.)

Tools used
- Workbench to build processes to provide functions to manage reviews.
- Integrated development tools, such as Adobe Flash Builder to write user interfaces using Flex. You can also use other development environment, such as Eclipse to create your applications in Java or Microsoft Visual Studio to implement .NET applications.

Team members and skill sets
- Building processes using Workbench and Designer. (LiveCycle Developer)
- Flex, Java, web services to build user applications to initiate reviews. (LiveCycle Developer, LiveCycle Programmer)

User story for reviewing content

Narrative

After a review has been initiated, participants are notified by email that they have an approval task to complete in Workspace. Review participants also receive emails that provide information about actions that occur during a review. For example, in a review stage, participants receive email when another reviewer has been added.

Reviewers can participate in a review stage that a review initiator or moderator has added them to. Reviewers use Workspace to participate in and complete reviews. Alternatively, they can use email and click links in the email to indicate that the review is complete.

When reviewing content, reviewers provide comments using Adobe Acrobat or Adobe Reader. Reviewers typically log in to Workspace and can provide review comments and then click Mark Review Complete to complete their task.

Estimated time to implement

No implementation time is required to implement this story because the Solution Accelerator provides the mechanisms for reviewing content.

The following are configuration and deployment options for review workflows that require additional implementation time:
- Configure how reviews execute in the review template. Optionally, a review tracking sheet can be attached to the review content (See “User stories for creating review templates” on page 28.)
- Add and configure users in your organization using Adobe User Management to participate in reviews. Each user must be configured with the RCA User role and an email address. For existing users in LiveCycle, time is required to add the user roles for each user profile.
User stories for Managed Review & Approval Solution Accelerator

- Create and modify a review tracking sheet (RTS).

**Note:** The time to implement the story depends on the skill sets of your staff and how well you know your requirements. The estimates are broad guidelines and differ for each organization.

**Common questions to ask to clarify requirements**

- How do you want users to review and complete reviews? In Workspace or using email?

**Requirements addressed**

- Provide a collaborative experience where users can see the comments of others during a review and add comments to a review document.
- Provide a mechanism to users to complete reviews.

**Implementation overview**

Reviewing functionality is provided with the Solution Accelerator and uses Acrobat Shared Review. JavaScript is added to the PDF document to enable commenting. (See “Understanding Acrobat shared reviews” on page 12.)

You participate in reviews using Acrobat or Adobe Reader in Workspace. You can add comments to the review document as show in the following illustration.

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Note: Reviewers are required to use Acrobat or Adobe Reader 9.2 or later. They must configure Acrobat or Adobe Reader to use the same email address as configured in Adobe User Management. (See "Configure Adobe Acrobat or Adobe Reader with an email address" on page 17.)
Tools used

- Web browser with Flash Player 9 or later.
- Workspace and email to participate in review and approval tasks.
- Adobe Reader or Adobe Reader 9.2 or later for users to add comments and apply digital signatures.
- LiveCycle Administration Console to configure users with email addresses and user roles. (See “Review and approval personas and user roles” on page 14.)

Team members and skill sets

- Configure user profiles with email addresses and user roles. (IT Staff)

Best practices, tips, and tricks

When you want reviews to display with additional buttons, it is necessary to create a custom task and configure the review template to use it. (See “User story for extending review template functionality” on page 36.)

When you deploy your solutions in an environment where LiveCycle is new, consider allowing users the option to complete review tasks using email to ease migration. (See Alternate tools for interacting with processes in LiveCycle Workbench 9.5 Help.)

User stories for approving content

After a review has been initiated, participants are notified by email that they have an approval task to complete in Workspace.

Approvers also receive emails that provide information about actions that occur during an approval. For example, in an approval stage, participants receive email when another approver has been added.

You can approve content using Workspace and Acrobat or Adobe Reader using one of the following options:

- Use simple click-through approval.
- Use digital signatures as part of the approval.

Common questions to ask to clarify requirements

- Are digital signatures required for an approval?
- How do you want users to approve content? In Workspace or using email?
- Do you require an approval routing slip to capture final comments from approvers?

Requirements addressed

- Support for digital and electronic signatures.
- Use digital signatures to closing and signing off a review.
- Support simple click-through approvals.

Tools used

- Web browser with Flash Player 9 or later.
- Workspace and email to participate in review and approval tasks.
• Adobe Reader or Adobe Reader 9.2 or later for users to add comments and apply digital signatures.
• LiveCycle Administration Console to configure users with email addresses and user roles. (See “Review and approval personas and user roles” on page 14.)

Team members and skill sets
• Configure user profiles with email addresses and user roles. (IT Staff)
• Modify approval routing slips (ARS) and signing sheets. (IT Staff, LiveCycle Developer)

Best practices, tips, and tricks
Approval stages are often configured at the end of the review and approval process but are not mandatory. Use click-through approval in approval stages in the middle of your workflow to simply the workflow.

When you deploy your solutions in an environment where LiveCycle is new, consider allowing users the option to complete approval tasks using email to ease migration. (See Alternate tools for interacting with processes in LiveCycle Workbench 9.5 Help.)

Apply digital signatures near the end of the review and approval workflow. For example, apply a digital signature after the review completes.

When you work with digital signatures, care must be taken to ensure that the signatures do not become invalid. For example, caution is required when you use postreview processes (sometimes called post-processing processes) after a digital signature has been applied to the review document. Any operation that changes the file, such as adding watermarks or adding pages must be done before applying the digital signature. In addition, some operations such as applying usage rights to a document, requires that digital signatures be applied in a specific order. Understanding how to use digital signatures is non-trivial. Take time to understand how digital signatures are used in LiveCycle and PDF documents by referring to the following resources:
• PDF Reference
• Signature Service in LiveCycle ES2.5 Overview
• Working with certified signatures in forms with Workspace in LiveCycle Workbench 9.5 Help.

User story for using digital signatures in approval stages

Narrative
A range of electronic signature technologies are available. Adobe works extensively with organizations in industries and government to define mechanisms to capture and associate identity with electronic documents. LiveCycle supports digital signatures within PDF files and has partnerships with various security vendors to provide you several options. You can use digital signatures to capture attestations that the review occurred.

Depending on the type of document, varying degrees of rigor are required to authenticate a user and maintain a tamper-proof record of the event. Support for various levels and technologies for electronic signatures exist from simple click-to-sign to industry standards high assurance cryptographic digital signatures. The level of security in the digital signature is dependent on the implementation and technology you use.

For regulated approval processes, validation of the approving user is required. If you have configured your approval stage to include digital signatures, approvers can sign the document in Acrobat or Adobe Reader. Digital signatures can be used at any point in a review, but typically, are used to close and finalize a document. For example, approving a document for publication.
In approval stages, approvers typically do not comment on the content itself as in review stages. Instead, an approval routing slip (ARS) is included in the review to capture the list of approvers and any comments they have. If an ARS is not attached, a signing sheet is attached for the approver to sign. Typically, at the end of a review, the ARS, and signing sheets are stored as records.

Digital signatures can be applied by the user (client-side) or using server-side processes. The result of signing is the creation of metadata that captures the version, date and time, and identify of the person signing document. Complex algorithms ensure that digital signatures can be later verified for integrity and permit audits to determine dates, times, and identities of signers.

**Estimated time to implement**

No implementation time is required to implement the signing mechanism for your review documents. Included is the capability to add digital signatures using Acrobat or Adobe Reader. However, time is required to implement digital signatures and the time varies based on your organization’s implementation and requirements.

The following are configuration and deployment options for approval workflows that require implementation time when you configure digital signatures:

- Configure how approvals function in the review template. You can configure whether to use digital signatures (server-side or client-side). Optionally, an approval routing slip (ARS) can be attached to the review content to capture final comments from the approver. (See “User stories for creating review templates” on page 28.)

- Add and configure users in your organization using Adobe User Management. Each user must be configured with the RCA User role and an email address. For existing users in LiveCycle, time is required to add the user roles for each user profile.

- Modify the signing sheet or approval routing slip.

**Note:** The time to implement the story depends on the skill sets of your staff and how well you know your requirements. The estimates are broad guidelines and differ for each organization.

**Implementation overview**

When approvers log in to Workspace, the approval routing slip (ARS) or signing sheet is included as the cover page to the review content. Approvers can navigate and review the document.

Content can be signed using a signing sheet or approval routing slips in an approval stage before the approver clicks Approve. When an ARS is available, approvers can add comments before they click Approve or Reject.

The following illustration shows using Adobe Reader and Workspace to digital sign and approve content.
User story for click-through approval

**Narrative**
Simple click-through approval can be used to complete an approval stage. Use click-through approve when digital signatures is not a requirement for your approval workflows.

**Estimated time to implement**
No implementation time is required to implement click-through approval. Click-through functionality is provided when you install the Solution Accelerator. Optionally, when an approval routing slip is required, 1 day is required to create and modify the approval routing slip. Approval routing slips are not typical for click-through workflows.

*Note:* The time to implement the story depends on the skill sets of your staff and how well you know your requirements. The estimates are broad guidelines and differ for each organization.

**Implementation overview**
Approvers log in to Workspace and click Approve or Reject. An optional approval routing slip can be attached to the review document to capture comments from the reviewer.

Content can be approved with a simple click of the Approve button in Workspace as shown in the following illustration:
User stories for Managed Review & Approval Solution Accelerator

Simple click-through approval in Workspace.

User stories for completing reviews

After a review completes, it is saved for later retrieval in LiveCycle Content Services 9 module. You can choose to integrate the Solution Accelerator with an existing enterprise content management (ECM) systems to store reviews. You can manage the stored reviews according to the retention policies specified by your organization.

When auditing is a requirement for reviews, it becomes necessary at some point to generate audit logs. You can generate audit reports by querying a database.

User story for generating audit reports

The Solution Accelerator uses auditing to support electronic records and regulatory requirements. The requirements are intended to assure document authenticity, integrity, validity, and confidentiality.

For example, the Solution Accelerator supports the requirements of the Code of Federal Regulations 21 Part 11 Subpart C Section 11:300(e), which requires:

“Use of secure computer, computer-generated, time-stamped audit trails to independently record the date and time of operator entries and actions that create, modify, or delete electronic records...changes shall not obscure previously recorded information.”

Audit information is stored in a database. To generate an audit report, you can create tools or use industry standard report generation tools, such as Crystal Reports.

Narrative

It is often necessary to log consistent information for reviews. After you log the information, typically, audit reports are created to monitor reviews for compliance.

Last updated 1/12/2011
When you are ready to generate reports, implement a mechanism that is applicable for your organization. All audit information for the Solution Accelerator is stored in a database. Audit trails are built for reviews that have auditing enabled in the review template.

Before you can generate reports, decide what levels of auditing are required for your review and approval processes. After you have created the necessary audit levels, you enable audits by modifying the review templates.

The solution template provides a mechanism for you to add auditing to a review template but does not provide capabilities to generate reports.

The following illustration shows the GlobalCorp solution template page that allows users to add auditing to the review template. (See “User stories for creating review templates” on page 28.)

Adding auditing to the review template.

**Estimated time to implement**

To implement this story, expect to spend 1-2 days create SQL queries and test them. Additional time is required to create or modify existing audit levels and build presentable and user friendly reports.

**Note:** The time to implement the story depends on the skill sets of your staff and how well you know your requirements. The estimates are broad guidelines and differ for each organization.

**Common questions to ask to clarify requirements**

- What information do you require?
- Who requires access to the audit reports?
• What are the required actions to audit for reviews and approval workflows?
• How many audits levels are sufficient and how are they identified?
• How often are audits used for reviews?

Requirements addressed
• Audit reports can be created based on a review or certain actions that occurred for all reviews. Audit reports can also be used to generate a history of actions that occurred during the review.
• Audit reports can be created based on a review or certain actions that occurred for all reviews.

Implementation overview
The GlobalCorp solution template does not provide an implementation to generate reports.

Audit information is stored in a database. Knowledge of SQL databases and experience with building database queries is required to retrieve the information. Consider using industry standard tools to make it easier for you to get the information from the database. (See Retrieving Audit logs in Review, Commenting, and Approval Building Block 9.5 Technical Guide.)

Before you can generate an audit report, complete the following tasks:
1 Define audit levels
   You modify an audit configuration file to add more levels or modify existing audit levels to configure the actions that are logged. The audit configuration file is implemented as an XML file and adheres to a predefined schema. The solution template provides two default audit levels. You can use one as your standard if it fulfills your auditing requirements and configure the actions you want to log. (See Adding a new audit level in Review, Commenting, and Approval Building Block 9.5 Technical Guide.)

2 Configure review templates to use auditing
   After you set up the auditing to meet your requirements, you can add auditing to reviews by configuring them in review templates. (See “User stories for creating review templates” on page 28.)

Tools used
• An XML editor and tools for query relational databases and to edit the review template.
• Database query tools to build queries to retrieve information from the database.
• Workbench to retrieve and deploy the changes to the audit configuration file.

Team members and skill sets
• Understanding of entity relationship diagrams and SQL knowledge. (LiveCycle Developer)
• XML, W3C XML schemas. (IT staff, or Business Analyst)

Best practices, tips, and tricks
The GlobalCorp solution template provides default audit level names, such as Level 1 and Level 2. Consider using meaningful names such as Audit For ISO Processes or Internal Process Audits. Meaningful names help to identify the context of the audit.

The information is stored in a database and returned as tables. When reports require formatting, additional tools are required. Consider using industry standard tools to build reports, such as Crystal Reports.
Auditing for review and approval workflows is important to ensure that reviews are compliant with an organization’s standard operating procedures. When you use auditing, the following are some considerations to help with your planning:

- The actions that are recorded as part of the audit.
- The presentation of the reports.
- Access to audit information.
- The amount of auditing to use.

Since the audit information is stored in a database, consider planning to get permissions to query the database. Typically, you require only read permissions to the database to generate reports. Contact your database administrator to familiarize yourself with your organization’s policies on database access.

**User story for archiving reviews**

**Narrative**

After a review is completed all review comments, review documents (all versions), supporting documents, and other review artifacts are stored. Often, in regulated environments, record retention policies exist and require that documents are stored and archived for years or even decades. Typically, a business owner in the organization establishes the applicable standards.

For example, your organization requires that reviews are stored as records for later audits and reference. You can integrate the Solution Accelerator with existing Enterprise Content Management (ECM) systems in your organization to handle the storage and archival of reviews.

By default, LiveCycle Content Services 9 module is provided for storage in the Solution Accelerator. You can access the collateral and artifacts from reviews using LiveCycle Contentspace 9, provided you have the proper permissions. With Content Services, you can specify the length of time and the security levels for storing reviews content as well as configure retention policies. (See Document Management Service in *LiveCycle ES2.5 Overview.*) The following illustration shows the review document and review artifacts in Contentspace 9.
User stories for Managed Review & Approval Solution Accelerator

Stored review documents and review artifacts in Contentspace.

**Estimated time to implement**

To implement this story, expect to spend six to ten days when you want to integrate into an existing content management system (ECM) in your organization. The time can increase depending on the complexity of your content management system and the ease of integration with LiveCycle to your production systems.

Alternatively, use the provided LiveCycle Content Services 9 module, which requires no time to implement. The Content Services provides the required functions to provide long-term retention of records that are secure. Content Services can also be modified to fit your organization’s requirements.

*Note: The time to implement the story depends on the skill sets of your staff and how well you know your requirements. The estimates are broad guidelines and differ for each organization.*

**Common questions to ask to clarify requirements**

- Are there requirements to adhere to records retention policies in your organization?
- What level of security is required documents that are reviewed?
- What are the file formats requirements for review documents and associated review artifacts? For example, PDF/A, PDF or native format?

**Requirements addressed**

- Saving reviews, review comments, and other collateral.
- Long-term retention of electronic documents.
- Records retention and auditing.

**Implementation overview**

You integrate an existing ECM system to support long-term retention polices and provide access to content from completed reviews.
To integrate an existing ECM system, you create a custom review zone provider. To implement a custom review zone provider, you create a custom LiveCycle component to replace the implementation in the Review, Commenting, and Approval building block. (See Implementing review zone providers in Review, Commenting, and Approval Building Block 9.5 Technical Guide.)

**Tools used**
- Workbench to build processes to use the new review zone provider you create. You can also use Workbench to configure the review zone provider.
- Integrated development tools, such as Eclipse, to implement a custom review zone provider in Java.

**Team members and skill sets**
- Building processes using Workbench and Designer. (LiveCycle Developer)
- Flex, Java, web services to build user applications to initiate reviews. (LiveCycle Developer, LiveCycle Programmer)

**Best practices, tips, and tricks**
If your long-term retention policies require that you apply digital signatures to documents, convert the documents to a PDF/A file format after applying the digital signatures.

When your documents require a particular format, consider implementing a postreview process that executes after the last stage in your review. (See “User story for extending review template functionality” on page 36.) For example, save your documents in accepted long-term electronic formats, such as PDF/A.
# Chapter 5: Installed files for the Managed Review & Approval Accelerator

<table>
<thead>
<tr>
<th>File</th>
<th>Location and File</th>
<th>Description</th>
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</thead>
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| The Review, Commenting, and Approval component | [LiveCycleES2 root]/sa_resources/SA_SDK_9.5/BuildingBlocks/ReviewCommentAndApproval/dsc/adobe-rca-core-services-dsc.jar | Contains the Review, Commenting, and Approval building block services, which includes the following services:  
- Review Commenting & Approval Core  
- Review Commenting & Approval Util  
- Review Commenting & Approval (system)  
- Email Templat |
| The Review Zone Provider component | [LiveCycleES2 root]/sa_resources/SA_SDK_9.5/BuildingBlocks/ReviewCommentAndApproval/dsc/adobe-rca-reviewzoneprovider-dsc.jar | Contains the provided review zone provider (ReviewZoneProvider service) to store review assets to LiveCycle Content Services 9. |
| The Global Corp. solution template | [LiveCycleES2 root]/sa_resources/SA_SDK_9.5/ManagedReviewAndApproval/GlobalCorpReviewAndApproval.zip | The Global Corp. solution template source code and LiveCycle applications to implement solutions. |