The CU*BASE/GOLD Software Development Life Cycle

Policy and Procedures

REVISION HISTORY

Date	*Changes Made By*
July 2004	--
May 12, 2005	D. Moore
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INTRODUCTION

The Software Development Life Cycle (SDLC) is intended to document the procedures for approving, tracking and communicating the status of software development including CU*BASE, **It's Me 247**, CU*TALK, GOLD, and custom requests. These procedures incorporate requests from clients, evaluation from CU*Answers team members, compliance and regulatory changes, and feedback from focus groups, sales staff, and other industry contacts.

GOALS AND OBJECTIVES

- To report software warranty issues and provide resolution in a timely manner.
- To obtain approval of development projects that will assure consistent management of software
- To track the progress of individual projects through the development, testing and implementation phases
- To assure that proper billing for custom projects is completed accurately and timely
- To communicate progress of projects to both internal staff and clients
- To provide a researchable database for development projects in progress
- To provide a communication tool between CU*Answers teams to report software issues and provide feedback on management decisions regarding these issues

PROJECT CLASSIFICATIONS

Software "projects" are classified into a number of different categories. This project classification determines the action needed to gain approval for programming changes and the timeline for development.

IDEA FORMS

These are suggestions submitted directly by clients to the CU*Answers CEO and are classified as a "pre-project." The forms are accessed via the Net button on the CU*BASE GOLD session, and are available for clients to submit ideas for either enhancement to the existing software or the development of new software. These forms are directed to the CEO via email for review. The CEO will respond back directly to the client within one month of receiving the request with one of the following actions:

1. Denial of request with comments.
2. Consideration of idea to be included with future development. Form would then be submitted to Writing Team to include with documentation for future spec work.
3. Approval of request for development.

   Form would then be submitted to Writing Team for specifications. Project would be initiated when specifications are complete.

   OR

   Form would be submitted to CSR to submit project if no further specifications are deemed necessary.

PROGRAM MODIFICATIONS (WARRANTY ISSUES)

These are issues reported by clients or staff regarding the normal operation of CU*BASE or other related software that cannot be quickly resolved using normal research and troubleshooting techniques. These are reports of issues in which the software is not working as it was intended or warranted to work through the online help.

The timeframe for completion of a program modification is 6 months from approval. If the change is not made within the 6 month period, the project will be re-evaluated to assure that it is still considered a viable change.

DESIGN CHANGES/ENHANCEMENTS

These are requests for changes to the existing software. They can be minor changes to screen layout or flow, requests for additional fields, options, or new applications. The scope can vary dramatically between these requests, and will often require project specifications to assist the technical staff in making the necessary changes.

Design changes will be *started* within 6 months of approval. After 6 months, any projects not meeting the timeframe will be reevaluated to determine if the project should remain outstanding for assignment or if they no longer fit in the CU*Answers business plan. Because our business is in a constant state of flux, we take the time to reconsider requests every 6 months to assure that the projects in the process are still viable considerations for CU*Answers.

Special Job Requests

These are client requests requiring intervention by Programming or Operations. Most development is included in the monthly pricing of the CU*BASE product. However, these are requests specifically for individual clients or new development requests that do not fit in with the normal timing or business plan for CU*Answers, but are approved based on the client's agreement to fund the cost of the development.

Common examples of special projects include custom forms, branding, data manipulation, and interfaces to 3rd party vendors. In most of these cases, work is billed to the credit union. Bid amounts are determined by our standard pricing policy. When outside the standard pricing, the bid amount is set and approved by the CIO. **The timeframe for completion of special projects is determined by those specified in the Bid Sheet.**

Conversions

These document new client conversions, mergers, and de-conversions managed by the Conversion team. These projects are similar to Special Job Requests as they are custom to one client, but are billed via a contract basis. They incorporate all of the changes needed to complete the conversion, but details of each conversion are managed within the Conversion Team through a separate process.

Only those processes requiring programming resources other than the conversion programmers will be written up as separate projects. Examples that remain independent of the main conversion project are branding, custom forms, and CU*CheckViewer interfaces. **The timeframe for completion of conversions is determined by the contractual agreement between the client and CU*Answers.**

ORIGINATION AND APPROVAL PROCESS

All requests for projects are entered into the Project Log Database. General information regarding client contact information and detailed information of either the reported issue or requested enhancement is required when originating the project in the database. A project number is provided to the client when entered into the system.

Once the required information is entered, a project sheet is printed, supporting documentation attached, and the project sheet is routed to the Quality Control Department for review. QC then forwards the project to the appropriate person for approval. The approval process necessary to move a project forward is as follows:

TYPES OF APPROVAL

- **Project Approval** – Approval to make the necessary changes to the software.
- **Technical Resource Allocation** – Approval to assign the technical resources to the project.

APPROVAL REQUIREMENTS BY PROJECT CLASSIFICATION

Program Modifications	Must be approved by a Production Team Manager for the project approval and a Programming Manager for technical resource allocation. In normal circumstances, the CEO and CIO will approve program modifications. However, if they are unavailable and the project is time sensitive or considered a data integrity issue, a Programming or QC Manager may also approve the project to expedite its assignment. In this case, the project will be routed back to the CEO for signoff after completion. NOTE: Signature and email are both acceptable means of project approval.
Design Change/ Enhancements	Must be approved by the CEO for the project approval and the CIO or Programming Manager for technical resource allocation.
Special Job Requests	Must be approved by the CIO or VP of Software Development for technical resource allocation and would include approval of any billing required to fund and complete the project. Project approval is unnecessary for these projects. However, a completed bid sheet approved by the requesting client(s) must accompany the project sheet before programmer assignment.
Conversion	Projects must be approved by the CEO, CIO, or VP of Software Development for technical resource allocation. Project approval is unnecessary as the contract has already been completed.

TRACKING PROGRESS OF PROJECTS

As projects move through the system from approval, programming, testing, and implementation, the status is tracked using a "current stage" code located in the project database. As the stages change, email notification is sent out to the originator to update them of the project status. This status is also displayed in the *Monitor* website for inquiry purposes. The following statuses are used to designate the stages of each project:

- Currently being reviewed by Production Manager
- Currently being reviewed by the CEO
- With QC/custom programming
- With client for bid approval
- With originator or team expert for research
- Project to be assigned – waiting for Programming resources
- With a project leader to be assigned
- With programmer
- Waiting for QC testing assignment
- In QC testing process
- In Client beta testing
- Awaiting implementation
- In GOLD development
- Awaiting GOLD compile
- Awaiting GOLD release
- With Technical writers for specifications

The following resolution codes are used when the project is completed or closed:

- Non-technical Resolution: Client cancelled request
- Non-technical Resolution: Duplicate project already in database
- Non-technical Resolution: Educational issue with no change required
- Non-technical Resolution: No action taken
- Technical Resolution: Changes to Phone system completed
- Technical Resolution: GOLD change made
- Technical Resolution: Completed with no Source Code changes
- Technical Resolution: Programming Change Made
- Technical Resolution: Changes to CU*TALK Completed
- Technical Resolution: Web Changes completed

DATABASE MAINTENANCE SCHEDULE

To keep the database current and useful for staff and clients on a day to day basis, monthly archiving will be processed on the database for projects with resolution dates over 180 days. Projects will be purged from the display in the *Monitor* website 90 days after resolution.

SOFTWARE DEVELOPMENT LIFE CYCLE: STEP-BY-STEP PROCEDURE

1) PROJECT ENTRY

Following initial troubleshooting and investigation, a Project Sheet is generated and printed by a CSR or other staff member using the Project Log Database. Before entry, the staff member should verify the following:

- Issue is valid and can be recreated or backed with documentation of problem.
- Issue cannot be resolved with routine assistance from CSR staff.
- Issue has not already been entered into the database – if already entered, requesting client should be added to the existing project for notification of status changes.
- Online help or other reference material has been reviewed to see if explanation of issue is already documented.

The CSR will provide the project number to the requesting client when they enter the project into the database. This will allow the client to track the status in the *Monitor* site.

2) PROJECT SUBMISSION

The project sheet (along with all detailed documentation attached) is forwarded to the Quality Control Department (QC) to be evaluated. **Project documentation should be submitted to QC within 3 business days of entry into the database.**

3) PROJECT APPROVAL

After evaluating the project, QC distributes the project sheet to the appropriate parties designated to approve the project and technical resources. (See page 3 for a list of designated parties) QC is responsible for updating the "stage" in the Project Log Database as each of the subsequent steps is completed.

If the project is classified as a Special Project, a completed bid sheet signed by the requesting client should also accompany the project before moving to the next step. The project should be **delivered to the CEO or authorized person for approval within 2 business days**, and the **approval process should be completed within 10 business days**.

> *NOTE: At this or any of the following stages, if the project is determined to have an effect on data integrity, the project will immediately be escalated and delivered to a programming manager for immediate assignment.*

- If approval is denied, the project sheet is updated to the appropriate non-technical resolution code and the client is notified of the decision via email or phone contact.
- If approval is denied pending more information, the project sheet status is updated and forwarded to the person (originator or team expert) designated to research the issue. This person is responsible to gather and resubmit the necessary information with the project for reevaluation. **Research should be complete and the project should be resubmitted or closed within 2 weeks.**
- If approval is granted, but resources are not available immediately, the project is updated as "Project to be assigned" and filed in a central area for periodic evaluation of resources. **Any project in this file will be reviewed at a minimum of every 6 months** to determine if the project will remain active and if programming resources are available.
- If approval is granted, the project sheet status is updated and forwarded to one of the following:
    - If the project is classified as a Design Change/Enhancement, it is forwarded to the Writing Team to complete specifications if not already attached to the project or filed in the specification folder on the shared drive.
    - If the project is classified as a modification, special job, conversion, or is a minor design change not requiring additional specifications, it is forwarded to the Programming Manager or project leader for assignment. The project leader also designates a target date for programming completion at this time.

4) PROGRAMMING

During the programming stage for all projects other than major design changes, the programmer completes the coding and submits the project sheet with an implementation sheet approved by their project leader to the QC department for testing.

If the project involves major development, the Production Team reviews the status of upcoming projects, assigns them to the Release Schedule, and may require review sessions prior to the submission to QC. This allows members of the Production team or other staff to give additional feedback to the software and add any needed changes prior to the program completion.

5) TESTING

The Quality Control department then assigns a tester to the project to test against specifications in accordance with the *CU*BASE Software Testing and Quality Control Procedures*. Any defects found are returned to the assigned programmer for changes until the tester signs off with their testing report and submits the project to the QC Manager.

6) Implementation Process

The QC Manager reviews the testing results, determines if either a GOLD collector or documentation changes are required for the project, and if the project warrants testing in a client beta environment before general release. One of the following steps will be taken to prepare for final implementation.

- **Project requires no collector and no release documentation** – Project is given to Programming Manager for next available "on-demand" release. These are usually done once a month over a weekend, but can be done at any time that is warranted by the project. Projects affecting data integrity would be implemented as soon as possible.
- **Project requires a collector for screen changes, but does not require specific release documentation** – Project is moved to the CUBASEBETA library for the next collector run, screens are tested, and implementation is completed with the next scheduled GOLD update.
- **Project requires that implementation be coordinated with a change to Online Banking** – Notation is made on the project sheet and is submitted to Programming manager to coordinate the change with the ASP team.
- **Project requires notification and training for the clients** prior to implementation, has been scheduled by the Production Team for a specific release to ensure proper marketing of the change, or requires client beta testing due to the high impact of the changes. In this case, the project is held and merged with other projects for the release in CUBASEBETA, a collector is run, screens and regression testing are done in the merged library, and changes are released to selected beta clients according to *CU*BASE Software Testing and Quality Control Procedures*. Once the beta period is complete, the changes are moved into full production according to the guidelines set forth in the *CU*Answers Programming Standards and Guidelines.*

7) Resolution

After implementation, the project sheet is returned to QC and updated to the appropriate resolution. All clients requesting the change are notified by email or phone contact, and any applicable billing is entered into the system at completion. **Documentation is retained in the Quality Control department for a period of 12 months following completion of each project.**

MISCELLANEOUS PROCEDURES/NOTES

QC is responsible for ensuring all project sheets are funneled through the system in a timely fashion and that a status report on any individual project can be ascertained through the inquiry function of the Project Log *Monitor* by CU*Answers staff.

When client notification is needed, it is usually done directly to the requesting client or through release documentation and training. However, in some cases it may be deemed appropriate to notify clients via a special announcement or other communication, especially if the project is of interest to multiple clients. This judgment will be made primarily by the CSR Manager and Writing Team Manager as needed.

Completed projects are documented by month for a 12-month period on the Quality Control Intranet site. This can be referenced by all departments for research and client documentation.

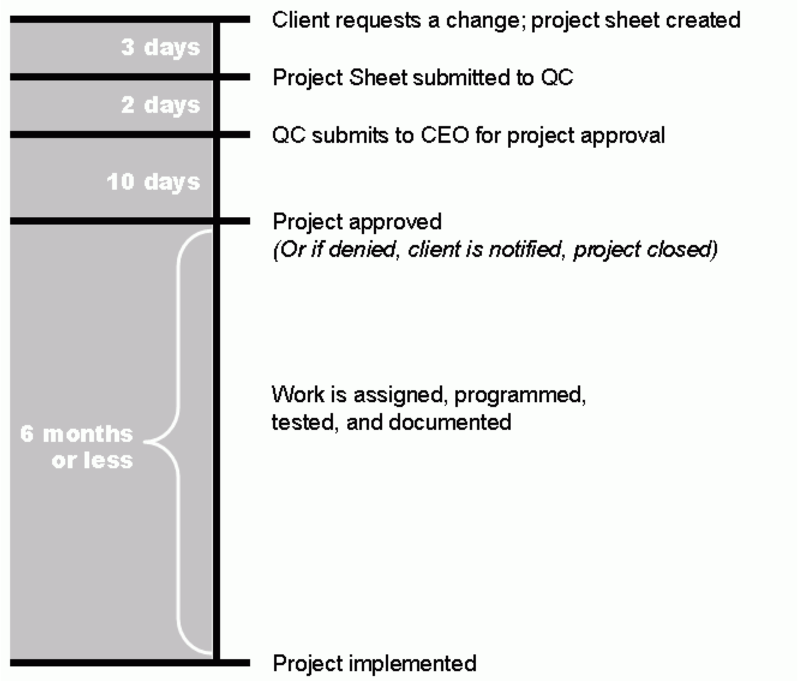
The *Monitor* website allows clients and the general public to view the status of projects in process from the database. Because of the public nature of this site, information entered into the “public” fields of the database will abide by CU*Answers privacy policy and no information related to individual members’ accounts are allowed. All detail information disclosing specific account information is restricted to the fields not disclosed in any public forum. For specific projects that should not be displayed on the general website, a flag is set to indicate that the project is viewed only within CU*Answers.

RELATED REFERENCE

Production Team Meetings and the Design Team are described in a separate document available on the Production page of the CU*Answers Intranet website.

SDLC TIMELINES

PROGRAM MODIFICATIONS

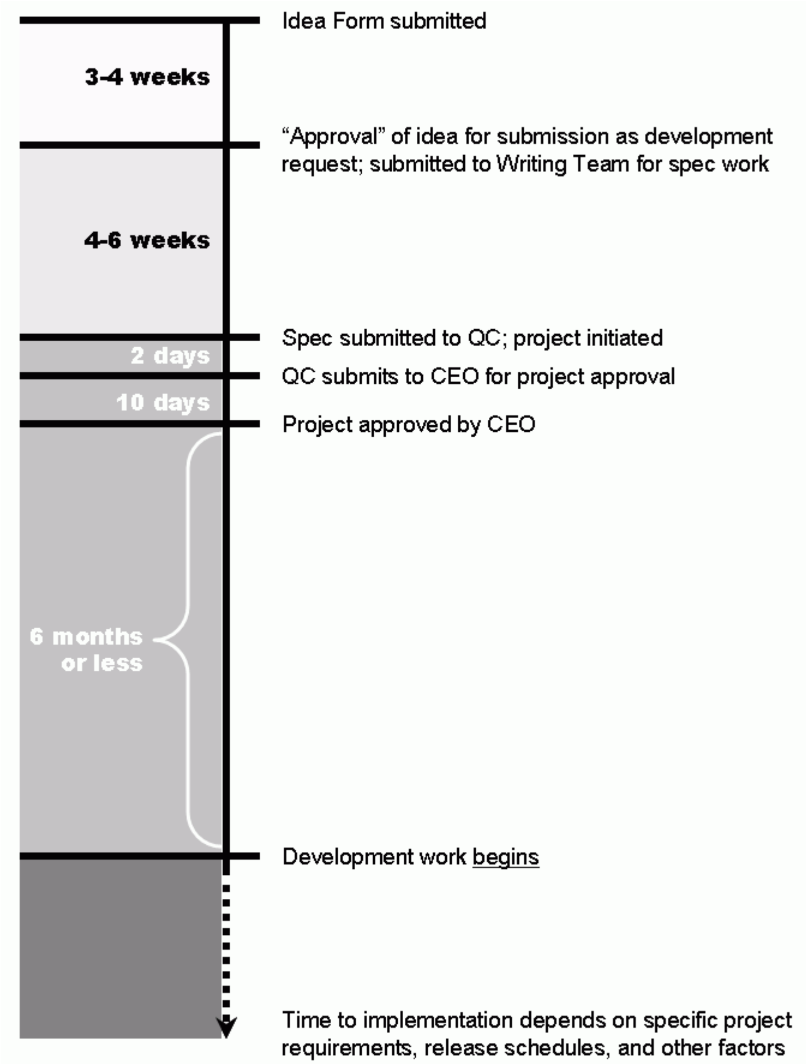


SPECIAL JOB REQUESTS / CONVERSION PROJECTS

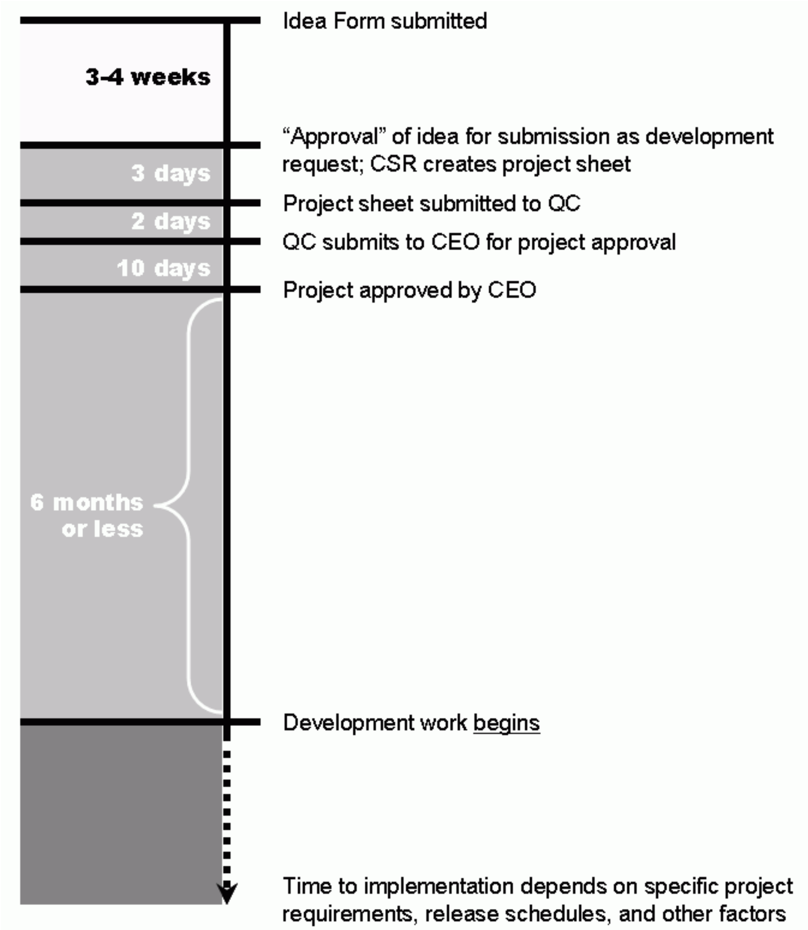
Timeline is variable depending on the specific job, contractual obligations, and other parameters negotiated with the specific credit union client.

DESIGN CHANGES/ENHANCEMENTS

If specs are required:



If specs are not needed:



In cases where resources cannot be assigned to begin work within 6 months from the approval date, projects will be flagged and reevaluated by QC at intervals of no more than 6 months.