THE SOFTWARE DEVELOPMENT LIFE CYCLE

SDLC

Understanding the CU*Answers Development Factory

CU*ANSWERS
A Credit Union Service Organization

Revised: March 13, 2018

INTRODUCTION

A brief introduction of why the SDLC document was written and what it's intended to accomplish from a big-picture standpoint.

THE CU*ANSWERS DEVELOPMENT FACTORY

The Software Development Life Cycle (SDLC) documents the rules and procedures for approving, tracking and communicating the status of software development as it moves through the CU*Answers production "factory" – from initial request all the way through final implementation for clients.

The SDLC slows us down so we can respond more quickly…and more effectively

The rules and guidelines in the SDLC are intended to force the organization to slow down and make prudent decisions about how CUSO resources should be spent on software development. At the same time, as a client-owned cooperative we are driven by the goals, agendas, and challenges of our clients, and as such must remain flexible and responsive to their changing needs. Rather than adding layers of bureaucracy or roadblocks, the SDLC provides a solid, predictable foundation which actually makes it easier for us to flex with our clients and the market while still remaining true to the standards they've come to expect.

With greater transparency comes greater responsibility

We welcome the scrutiny of our clients and even the general marketplace when it comes to the projects being pushed through our factory. But with that transparency comes a greater need to ensure every project is thoroughly researched and accurately stated so that our intent is clearly understood. On occasion a good idea may be rejected and the originator asked to submit it again with a more concise description or more complete research.

For a discussion of the benchmarks used in our decision-making process, refer to "Project Approvals: What makes it to the assembly line?" starting on Page 18.

Justifying the right to say No, so that we can say Yes more often

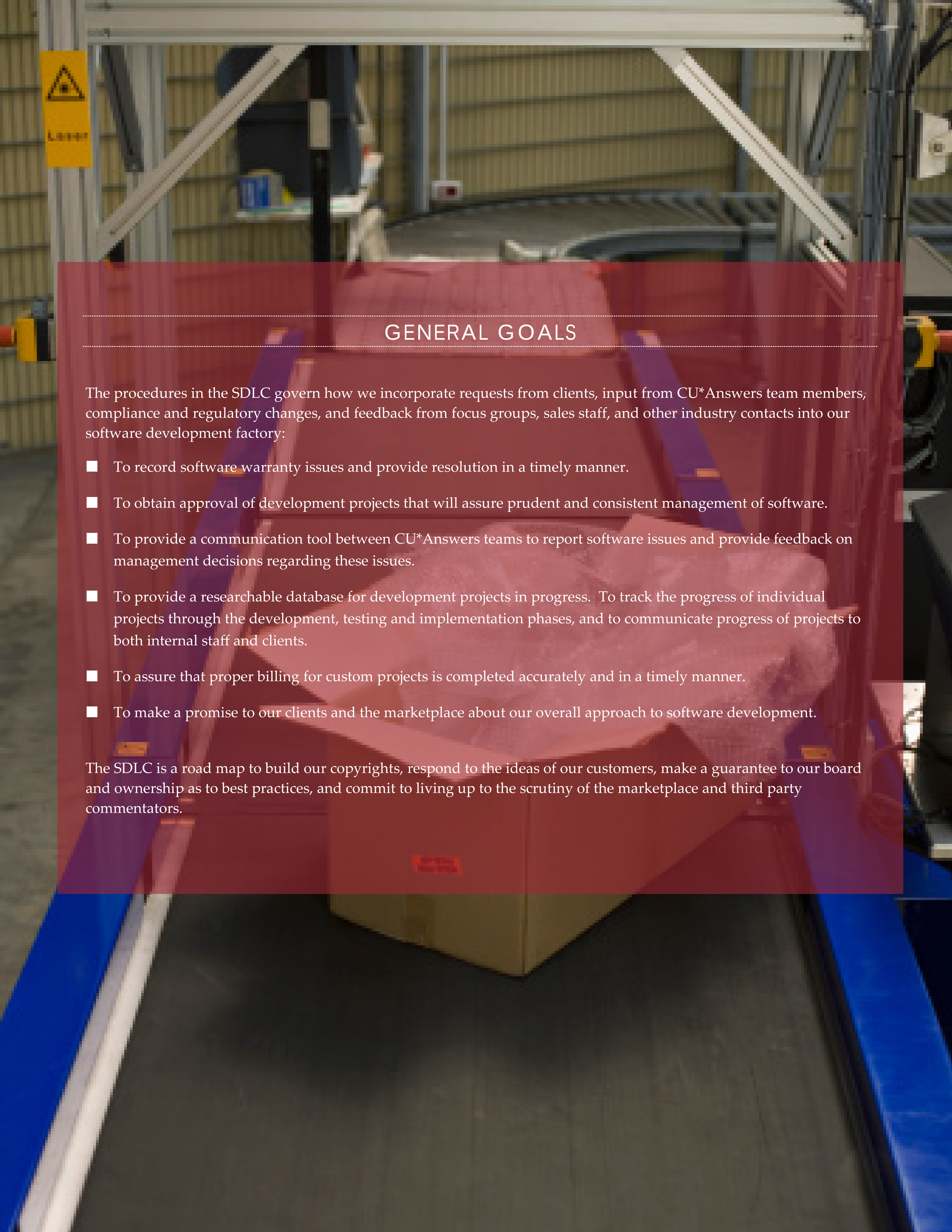
One of the biggest responsibilities we have as a CUSO is to be good stewards of our clients' investment. By using a proven set of guidelines in our decision-making processes, we help make sure we spend our resources on the right things.

Today's No might just be tomorrow's Yes…if we're willing to do the work

While denying a project lets us focus our resources on the right things for today, a no doesn't necessarily mean no *forever*. But even when a no really means, "not right now," the sheer volume of work flowing through the factory means we need the process to help us remain focused on today's priorities. That means we do not keep a backlog of every project idea that has ever come up to be revisited later. Denied projects are periodically purged, and in order to be resurrected a client or other stakeholder must be willing to start all over again and make a new case. Yes, it takes a lot of time and effort to do the research, develop a design, and do the due diligence for an idea. But if it's not worth doing that work, then perhaps the project isn't worth doing at all.

A hallway approval doesn't take precedence over a formal one

Requiring the SDLC rules to be followed in every case, for every project, means that an off-the-cuff decision made during a chance conversation will still receive the same due diligence as any other project.



GENERAL GOALS

The procedures in the SDLC govern how we incorporate requests from clients, input from CU*Answers team members, compliance and regulatory changes, and feedback from focus groups, sales staff, and other industry contacts into our software development factory:

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

The SDLC is a road map to build our copyrights, respond to the ideas of our customers, make a guarantee to our board and ownership as to best practices, and commit to living up to the scrutiny of the marketplace and third party commentators.

ASSEMBLY LINES COVERED BY THE SDLC

The function and responsibilities of the Product Team and its role in the development process. Rules for how development teams get mainstreamed into the SDLC flow.

WHO MANAGES THE CU*ANSWERS DEVELOPMENT ASSEMBLY LINES?

Unlike a traditional department or specific group of staff, software development at CU*Answers is driven by a network of leaders from many areas of the organization as well as external players from partners to clients and even credit union members.

The Product Team

Driving the day-to-day work is the Product Team. This team consists of the key leaders for the development factory – meaning all of the different phases in the development of software tools, from design and programming to QC and documentation. Our planning includes CU*BASE, EFT, online and mobile banking, imaging, audio response, and other ancillary product lines. (More on that in a moment.)

The Product Team meets on a regular basis to discuss project status, deadlines and contractual commitments. A broad spectrum of views are represented on this team, including product design, technical development, documentation, testing, management, operations, and client support. This team is responsible for making decisions and maintaining the official Release Schedule, which is published online weekly to communicate up-to-date release target dates to development teams and clients.

The Product Team meeting schedule is outlined on the Product Team page of the CU*Answers Portal.

Quarterly Strategic Planning

To ensure that our development efforts are overseen by the organization's executive management, on a quarterly basis all development teams participate in Quarterly Team Strategic Planning sessions. These are attended by the programming team leader as well as the CEO, EVP of Software Development, VP of Writing Team/Product Design, VP of Quality Control, and Project Coordinator, and other interested parties as appropriate.

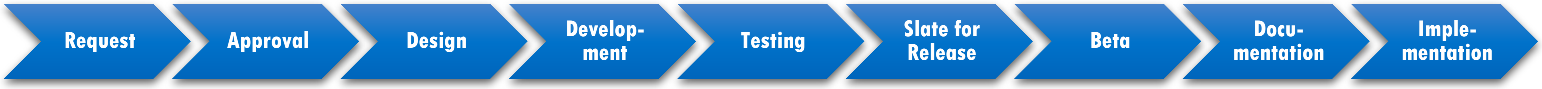
The purpose of these meetings is to review the team's priorities and status for the current and coming calendar quarters. These meetings are useful for keeping leadership apprised of the team's progress and challenges, and for making sure everyone is on the same page as to what is being worked on and what's next on everyone's plate. These meetings often include preliminary discussions and planning for major design changes coming down the road.

The Quarterly Programming Team Strategic Planning meeting schedule is outlined on the Product Team page of the CU*Answers Portal.

Day-to-Day Administration

The VP of Quality Control, with the assistance of the Project Coordinator, is responsible for ensuring that a status report on any individual project is readily available to CU*Answers staff. This is facilitated by special tracking software referred to as **Track*IT**.

STANDARDIZING OUR ASSEMBLY LINES



Much like a manufacturer that has multiple assembly lines for different products, the CU*Answers software development factory has several distinct yet interrelated assembly lines for the many software products we produce. Tasks, timelines, and techniques do vary from one product to the next, but they often intertwine and share resources.

In the past, the SDLC focused primarily on the management of our core copyright, CU*BASE®, and the GOLD user interface layer. Although ancillary products such as **It's Me 247** online banking and CU*Talk audio response do use a similar technique for project tracking, they have not formerly been incorporated into the entire SDLC workflow. Fiscal year 2016 marks the beginning of a new standard for adopting consistent standards across all of our copyrights.

We need to be more aggressive in merging new properties and important assets, both technical and people, into SDLC policies so that the leaders of these new efforts are encouraged to buy in to the larger goals of the CUSO. Merging these leaders and ideas in and bonding them more closely with the Product Team will encourage the next generation of leaders to feel a sense of ownership for the overall direction of the organization.

Adding Assembly Lines to the Factory Floor

New efforts that start out small, in order to develop new capabilities for the organization, may one day become the foundation for expanding our current ones. For example, today's web services and .NET thinking for My CU Today, Image Solutions, UCI, and Mobile just may be the concepts that lead to the next long-term generation of core processing solutions, such as the development of new modules for member and staff mobility, the evolution of the CU*BASE look and feel, and continued expansion of third-party integrations.

To help us develop a template for this new philosophy, in the spring of 2015 we launched an aggressive effort to formalize the integration of Imaging Solutions development into the SDLC policy. During fiscal year 2016 we will use this effort as a template to mainstream all development teams:

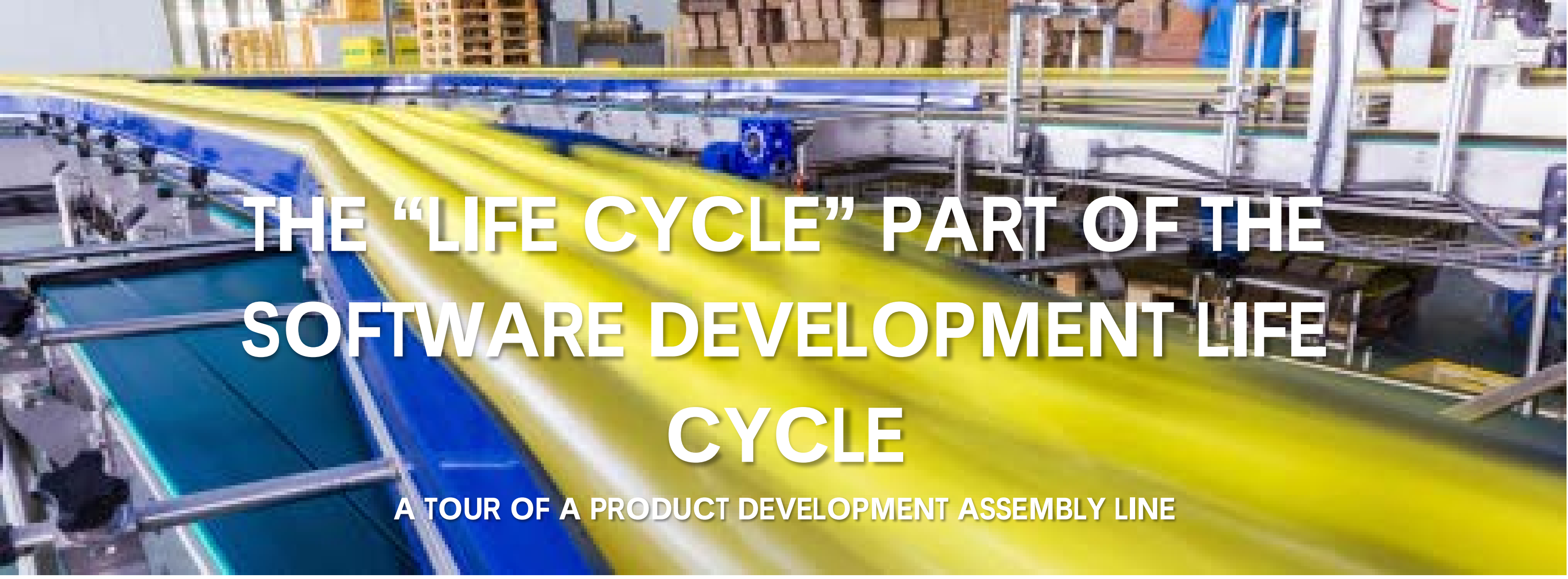
- Imaging Solutions such as CU*Spy and in-house imaging products
- Mobile App and API Development
- Unified Core Integrations (UCI)
- Web Services properties such as My CU Today
- External data warehouses such as **It's My Data 247**
- **It's My Biz 247** business online banking
- Custom development
- Forms

For more details, see the "Adding a New Assembly Line to the SDLC" document on the Product Team portal page.

Fledgling Product Lines and the SDLC

As new product lines emerge, it's expected that there will be an initial incubation period during which the formality of SDLC rules are not possible and in fact might hinder the evolution of an initiative that's still in its infancy. At the same time, being able to adapt the tried-and-true techniques from SDLC will relieve the burden of having to reinvent the wheel when it comes to getting the new assembly line up to full speed. Therefore, Product Team leaders, along with Executive Management, are responsible for monitoring new initiatives as they develop and making the decision about when these new efforts will formally begin being incorporated into the SDLC guidelines and auditing processes.

The first step is for the EVP of Software Development to incorporate the new team into the Quarterly Strategic Planning sessions. During those sessions a decision will be made as to the point at which the new product or team will launch the formal process to be integrated into the SDLC.

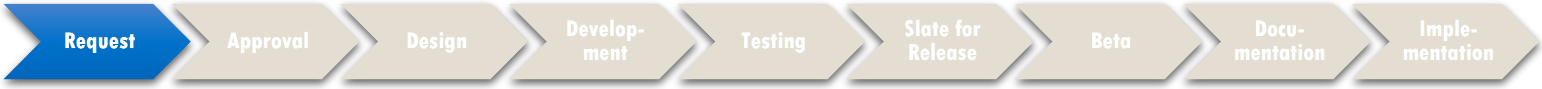


THE "LIFE CYCLE" PART OF THE SOFTWARE DEVELOPMENT LIFE CYCLE

A TOUR OF A PRODUCT DEVELOPMENT ASSEMBLY LINE

The meat of the policy, outlining guidelines for each of the tasks in the assembly line. These rules allow for decisions to be made prudently and consistently, and for the decisions to be documented so the thought process can be understood by an outside observer.

PROJECT CREATION/SUBMISSION



What happens during this stage	Project is created in the Track*IT system which initiates the SDLC workflow
Who is responsible	Projects can be created by most data center employees (see Appendix B)
Controls for this stage	Projects added to Track*IT are subject to the rules outlined in the instructions posted on the CU*Answers Portal. Urgent projects may be fast-tracked through the process; see Pages 6 and 18 for rules about escalating high-priority projects.
Where to learn more	Project Requests: Where do the ideas come from? (Page 16) Instructions for using Track*IT are available from the Product Team portal page

Project Entry/Submission

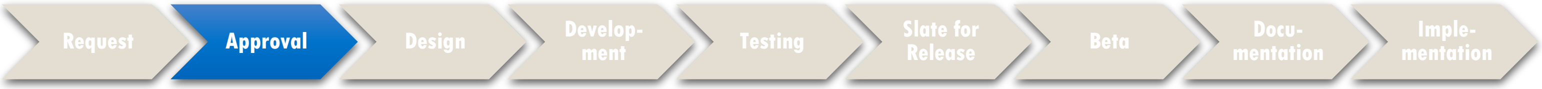
Following initial troubleshooting and investigation[1], a project is generated via Track*IT by a CSR or other staff member. The originator is responsible for verifying that:

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

General information regarding client contact information and details about the reported issue or requested enhancement are required when originating the project in the database. A project number is assigned by Track*IT. The CSR will provide this number to the requesting client to allow the client to track the project status going forward. (See Page 27.)

[1] Refer to the "Defining the Work that the Factory Produces" section (see Page 12) for guidelines as to what types of requests should become an official project in the first place.

PROJECT APPROVAL


Request
Approval
Design
Develop-ment
Testing
Slate for Release
Beta
Docu-mentation
Imple-mentation

What happens during this stage	The submitted project is approved by one or more authorized staff, flowing through a standard approval matrix according to project type
Who is responsible	Project Coordinator
Controls for this stage	Approval is required to be logged via Track*IT for all projects, except for CU Conversions/Mergers and Custom Forms (these have a separate client bid/approval mechanism), as well as GOLD Screen Modifications.
Timing rules	Final approval must be logged within 30 business days of project submission
Where to learn more	Project Approvals: What makes it to the assembly line? (Page 18)

Initial Triage

Once a project is submitted, it begins moving through the default approval workflow assigned according to project type, as explained below. For most[2] project types, someone in the Quality Control team will perform an initial triage to ensure that the project has been properly categorized, to monitor for and escalate time-sensitive projects and warranty issues that require urgent attention, and for other administrative review.

Fast-Tracking a High-Priority Project

If the initial triage determines that a project should be fast-tracked due to special urgency, the SDLC approval process and other workflow stages will still apply, but the Project Coordinator will expedite all of the tasks. In some cases such as issues involving data integrity or direct member impact it may be necessary for development work to begin concurrently with the formal approval process being completed in Track*IT.

For more details on the process of fast-tracking a project, refer to "Project Approvals: What makes it to the assembly line?" on Page 18.

Standard Approval Workflow

Track*IT is set up to move a project through the approval list one person at a time, with approval required by each designated name, in order, before the project is passed on to the next person in the list. (It is not possible to bypass a name nor to change the order of the names in the list for an individual project.) A project must be marked as approved by every name in the Track*IT approval list before work can commence and development time can be logged. If additional subject-matter experts are added by anyone on the default approval list, then those approvals are also required.

For more details on what is involved in approvals, including timing benchmarks used in decision-making, refer to "Project Approvals: What makes it to the assembly line?" on Page 18.

Final approval must be logged within 30 business days of project submission. The following chart outlines the default approval flow that will be assigned automatically to new projects as they are submitted:

Project Type[3]	**Default Approval Workflow**
Architectural	VP Quality Control → EVP Software Development
Card Conversion	Project Coordinator → COO
CU Conversion/Merger	Project Coordinator
Custom Forms	Project Coordinator

[2] Some project types are automatically routed into the approval workflow, bypassing this initial QC triage. Examples include new client conversions/mergers and custom forms.

[3] See Page 16 for an explanation of these project classifications.

Custom Request	Project Coordinator → Programming Team Leader → EVP Software Development
Generic Forms	VP Quality Control → COO
GOLD Screen Modification	VP Quality Control
Program Modification[4]	VP Quality Control → VP Writing Team/Product Design → EVP Software Development
Software Enhancement	VP Quality Control → EVP Software Development → CEO → VP Writing Team/Product Design
Warranty Adjustment	VP Quality Control → VP Writing Team/Product Design → EVP Software Development

To ensure projects move through the queue in a timely fashion, approvers can also designate authorized **proxy** representatives who are authorized to log approvals in their place. This might be a short-term arrangement, such as to fill in during a vacation, or longer-term as someone prepares to transition another leader into the mix as part of a succession planning process.

Accountability in the Approval Process

Because of the way the Track*IT system requires approvals to be granted in a certain order, the ultimate accountability for approval usually falls to the second and in some cases third person on the default approval list. This allows for an initial administrative triage, simply to ensure that projects are being created and routed properly, with ultimately accountability for the decision falling on someone with appropriate authority to make decisions about allocating resources for development.

Approvals and Resource Estimates from Subject-Matter Experts (SMEs)

In addition to the default approval list, additional subject-matter experts can be added at any point during the approval process, by anyone on the approval list as they review the project. For example, if the COO would like someone from the Lender*VP team to review and approve a project request that involves lending software, he can add that person's name to that specific project and approval must be logged by that person before it proceeds to the next approver in the list. In addition, programming team leaders may be added to the workflow to assist in estimating programming hours and other resource needs to assist other decision-makers when logging their approvals. Although no special permissions are required to log approval for a project that has been assigned this way, the person must at least have basic access to the Track*IT system. (See Appendix B for a sample of Track*IT users throughout the organization.)

Project Denials

If any person in the list marks the project as denied ("disapproved"), then the workflow ends and the project will not be routed to any of the remaining names on the list. In situations where one of the approvers is unsure whether or not to grant final approval, a comment is logged along with the approval and the project continues on to the next name in the list (might be an added subject-matter expert), explaining that approval is tentative based on agreement by others on the approval list. This ensures that projects can be reviewed by other parties even if one of the approvers has reservations about granting final approval and needs additional input to make a decision.

[4] Although the CEO is not formally in the workflow for approving Program Modifications, a weekly summary of all projects submitted the prior week is sent to the CEO for review and comment.

Approvals for Research Only

This is a special type of approval intended to give us a better way of handling and tracking large-scale projects that require intensive design and feasibility study before the CUSO commits to the investment in development. An approval for research means that a specified amount of research and initial design work must first be completed, and that the work will not be assigned for development until the results of that research have been evaluated by appropriate Product Team leaders. See also "Design Specifications" below and "Approvals for Research" on Page 19.

For examples of research projects and more details about this special approval type, refer to "Project Approvals: What makes it to the assembly line?" on Page 18.

Approvals at Capacity

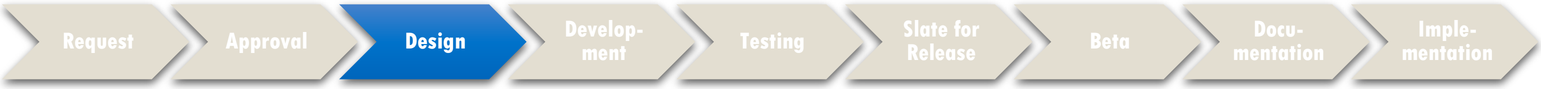
Introduced during 2017, this is a special approval workflow used by the EVP of Software Development and the CEO to assist with resource allocation and more effective tracking of major development projects. Although it can be used with any project approval, the workflow currently is applied only to software enhancements that have an estimated development time of 100 hours or more. Here's how it works:

When reviewing the project for approval, the EVP of Software Development looks at current resource allocation to estimate if it will be feasible to begin work on the project within the next 90 days. If not, the project is marked approved but "at capacity." When the project is reviewed by the CEO, Track*IT will prevent the project from being approved and instead offer three choices:

- **Discuss and prioritize** – This will prompt the EVP of Software Development to discuss with the CEO and other programming team leaders a possible reprioritization of other projects already in the queue in order to allow the new project to proceed.
- **Approve for research only** – This allows the project to be placed into the queue but with a different expectation as to how quickly it can be assigned and what progress will be made. A programmer may be assigned for preliminary research or to make recommendations on a plan of attack, or perhaps to work with the Writing Team or other experts to develop more detailed specifications. *(See also "Approvals for Research" on Page 19.)*
- **Disapprove** – The CEO may choose to simply disapprove the project due to availability of programming resources.

The purpose of this tool is to drive the conversations about resources and prioritization earlier in the process, during the approval stage. The goal is to better manage expectations and prevent key projects from languishing in the queue with no forward momentum.

DESIGN SPECIFICATIONS

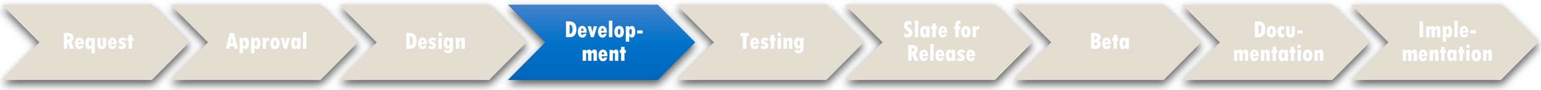


What happens during this stage	If necessary based on project scope and other factors, project requirement specifications ("specs") are written, explaining the end-user requirements for the project and as much technical detail as appropriate to explain the desired technique and outcome
Who is responsible	VP of Writing Team/Product Design
Controls for this stage	Specs are not required for every project, nor for every project type. If a spec is deemed necessary, the project will not be assigned until a completed specification is attached to the project.
Timing rules	Target deadlines are set on a case-by-case basis depending on the project.
Where to learn more	"Writing Project Specs" on the Writing Team Portal page "User Interface Style Guide" on the Programming portal page

A written outline explaining the project requirements and more detailed instructions may be necessary before the project can be assigned to a developer. The need for specs is determined on a case by case basis and depends on the product line, complexity of the project, the need for client and market input, and other factors. Any project can be routed to this stage by any of the authorized approvers or based on the evaluation by Product Team members.

For a discussion of our spec-writing process and how client input is incorporated into the design process, refer to "Project Specifications: Getting Our Clients' Vision Into Our Products" on Page 20.

DEVELOPMENT



What happens during this stage	A programmer or other technical resource works on coding the software changes
Who is responsible	EVP of Software Development
Controls for this stage	Projects are assigned by Programming Assistant Managers, overseen by the EVP of Software Development.[5]
Timing rules	If work does not commence within 12 months after approval (or 18 months if design specifications or other research are required), then before the programmer begins working on the project, an evaluation should be scheduled with appropriate Product Team leaders.[6]
Where to learn more	"User Interface Style Guide" on the Programming portal page "Developer Guidelines" on the Programming portal page "Programming Standards and Guidelines" on the Programming portal page

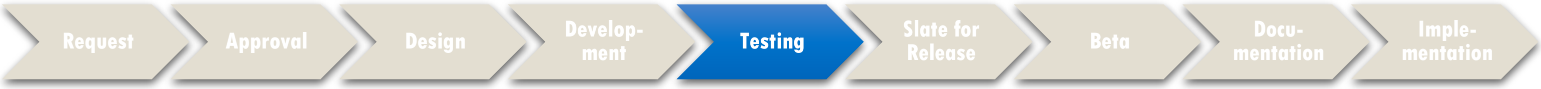
During the programming stage for all projects other than major design changes, the programmer completes the coding, documenting the changes that were made and submitting the project for testing. In some cases a Project Review session may be necessary to allow subject-matter experts and other interested parties to give additional feedback on the software and add any changes needed prior to program completion.

For details about CU*BASE development standards, refer to the "User Interface Style Guide" and "Developer Guidelines" documents on the Programming portal page. For more details on Project Review Sessions and how they are scheduled, refer to the EPP presentation available on the Product Team portal page.

[5] If appropriate, an evaluation is done against FASB guidelines for capitalization of project costs. Refer to the "Capitalized Improvements (FASB)" section (see Page 16) for more details.

[6] Refer to the "Guidelines for Making Approvals" section (see Page 17) for more details.

QUALITY CONTROL TESTING


Request
Approval
Design
Development
Testing
Slate for Release
Beta
Documentation
Implementation

What happens during this stage	Software changes are tested to ensure they match the original project intent and follow current development standards
Who is responsible	VP of Quality Control
Controls for this stage	All projects must either have a QC sign-off or completion of an approved alternative testing process.
Timing rules	Target deadlines for testing are determined by the release scheduling process (see next stage).
Where to learn more	"CU*BASE Software Testing and Quality Control Procedures" on the Quality Control portal page "Quality Control Design: CU*Answers QC Design and Process" on the Quality Control portal page "Quality Control SOP for High Risk Software Changes" on the Quality Control portal page

Although not every product line is tested by the official Quality Control team, all software products that are covered by the SDLC **must include a QC testing component** that is approved by the VP of Quality Control and Product Team leadership.

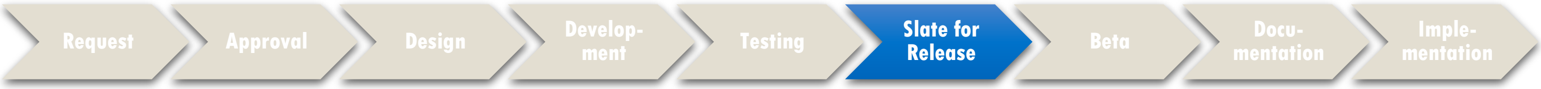
For projects involving changes to our core software tools (CU*BASE, **It's Me 247** online and mobile web banking, CU*Talk audio response, or related software products that interface with these), the Quality Control department assigns a QC Tester to test the changes against specifications, in accordance 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 VP of Quality Control. During this stage additional Project Review sessions may also be scheduled, as needed.

For complete details about the QC team, additional participants in the testing process, traditional and non-traditional QC testing methods, decision factors used to determine test methods, and tools used for QC testing, refer to the "Quality Control Design: CU*Answers QC Design and Process" document.

Starting in October 2016, for projects that have been flagged as **external exposure**, refer to the "Basic Standards of Secure Software Development" section starting on Page 23. Depending on the project, additional evaluations may be needed to determine of the project should undergo additional security reviews, whether via an internal project review team or a third-party external security review with possible penetration test.

Starting in March 2018, the Quality Control team implemented a standard procedure related to projects or software applications flagged as **high risk**, defined as, "*changes that have high impact on critical areas of data and functionality…[to] assure that proper measures are taken to reduce the risk of lost integrity of critical data and reduce the possibility of lost income, unnecessary expense or compromised reputation.*" This procedure, which is available on the Quality Control portal page, explains the additional evaluation, general testing, and special regression testing that is included on projects identified as falling under this designation.

SLATING FOR RELEASE



Request

Approval

Design

Development

Testing

Slate for Release

Beta

Documentation

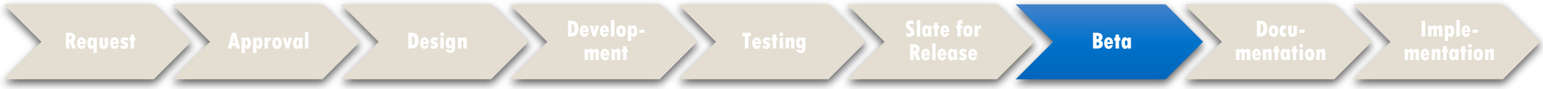
Implementation

What happens during this stage	During this stage a decision is made on a date when the project will be moved from a development environment and become part of live production
Who is responsible	VP of Quality Control, EVP of Software Development, VP of Writing Team/Product Design, and other key Product Team leaders
Where to learn more	"Release Schedule" (published on the Release Planning page of our website; available internally from the Product Team and Quality Control portal pages)

During their weekly meetings, the Product Team reviews projects that are nearing completion and makes decisions on targeted release dates, documenting these decisions on the official Release Schedule where applicable. Smaller, lower-impact projects can be organized for release on demand, in cases where advance notification to clients is not needed.

For more details about the decision-making process used by the Product Team and other key leaders when scheduling project release dates, refer to "Implementation Planning: How are deployment decisions made?" on Page 21.

BETA-TESTING IN THE FIELD

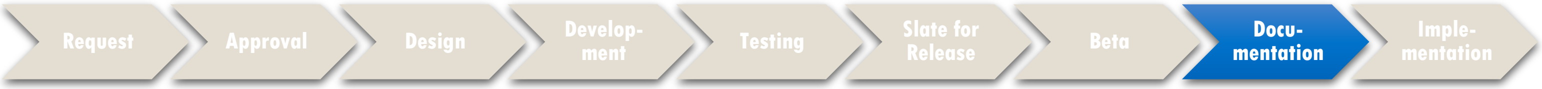


What happens during this stage	Software changes are deployed in a limited, controlled environment to selected clients, who agree to work with our teams to test the changes and give feedback on the enhancements
Who is responsible	VP of Quality Control or designated project leader
Controls for this stage	Not all projects require beta-testing; this determination is made by the Product Team. For major releases where CUs receive CollabRebate rewards for beta-test participation, CUs must agree to abide by specific requirements for using the tools and documenting feedback.
Timing rules	Target deadlines vary for each release, but in general a normal beta-test period begins 6 weeks prior to the target release date.
Where to learn more	Jump in the Beta Pool page on our website Active Beta Study Groups page on our website "Developer Guidelines" on the Programming portal page "Release Schedule" (published on the Release Planning page on our website; available internally from the Product Team and Quality Control portal pages)

At its weekly meetings the Product Team makes decisions about projects that are extensive or high-impact enough to warrant beta testing in the field with credit union clients. Not every project will require beta-testing. The Product Team also determines which beta-test will be used, if any: normal beta as part of a major release, passive-only beta, active (live) beta, or special beta for a specific CU.

For details about beta tests and deployment methods, refer to "Implementation Planning: How are deployment decisions made?" on Page 21.

DOCUMENTATION/CLIENT COMMUNICATION



What happens during this stage	Documentation is written to explain the changes to clients and support staff
Who is responsible	VP of Writing Team/Product Design or designated project leader
Controls for this stage	All software changes must be documented and clients notified via an appropriate communication channel.
Where to learn more	“Writing Team Guidelines” on the Writing Team portal page “Writing Team Demystified” on the Writing Team portal page Release Summaries page on our website Client News page on our website

One of the tenets of the relationship CU*Answers has with its clients and partners is that *we communicate*. There are several avenues by which those clients are notified about software changes, such as release summaries, alerts, and broadcast emails. The method used for a particular project is determined by the Writing Team or appropriate project leader with input from participants at weekly Product Team meetings.

Another tenet is that *we document our tools*. **This documentation represents the warranty we present to our clients and the marketplace about how our software tools and services will perform, and the standards to which we agree to be held.** This information is delivered via many different mechanisms depending on the audience, whether credit union end-user, other technical teams, partner organizations, or third-party vendors. The method used for a particular project is determined by the Writing Team or appropriate project leader with input from participants at weekly Product Team meetings.

For details about the roles the Writing Team plays throughout the entire software development process, refer to the “Writing Team Demystified” document, available on the Writing Team portal page.

IMPLEMENTATION/FINAL RESOLUTION

Request
Approval
Design
Develop-ment
Testing
Slate for Release
Beta
Docu-mentation
Imple-mentation

What happens during this stage	Software is moved from the development or beta-test environment into production
Who is responsible	EVP of Software Development and appropriate Programming Team Leader(s) or other authorized users, according to the specific software product
Controls for this stage	The development team for each software product selects one or more team members who are authorized to implement software changes. Each team is responsible for documenting their implementation rules and procedures for auditing purposes. Documentation is also required showing what is deployed during a release.
Timing rules	Project documentation is archived 90 days after implementation. Archived project information is retained for at least 12 months.
Where to learn more	"Developer Guidelines" on the Programming portal page (for the CU*BASE software product)

There is at least one designated team leader in the Programming department who is authorized to handle implementation for CU*BASE releases. Teams for other products (**It's Me 247**, Imaging Solutions, etc.) have their own procedures and may even use a team approach to handle implementation duties. Each team is responsible for documenting their procedures as well as which team members are authorized to move software to a live production environment.

As part of the implementation process the person handling deployment is responsible for documenting what is deployed. This may be by project or even more granular if appropriate (such as the method used for CU*BASE releases which documents specific programs that are deployed).

For details about change control procedures for implementing CU*BASE software changes, refer to the "Developer Guidelines" document on the Programming portal page, as well as the "Technical Policy Manual" on the Policies portal page.

For details about beta tests and deployment methods, refer to "Implementation Planning: How are deployment decisions made?" on Page 21.

When a project is deployed, the Track*IT system is used to log when and by whom the software was implemented. After implementation, the Project Coordinator verifies that appropriate tasks have been completed and updates the project to the appropriate resolution status. Project documentation is archived 90 days after implementation, and archived information is retained for at least 12 months.

DEFINING THE WORK THAT THE FACTORY PRODUCES

Expanding on the more complex concepts from the previous section. A big-picture overview of how project ideas make it into the development pipeline in the first place. Techniques we use to organize the considerable volume of projects that are managed via the SDLC development queue.

PROJECT REQUESTS: WHERE DO THE IDEAS COME FROM?

There are many factors that control what projects can make it past the "what an interesting idea" stage into actual design specifications and programmer development. Key drivers that influence these decisions (in no particular order):

Business Drivers	Event Drivers	Client Drivers
Professional Services that push software development	**Annual or periodic events that prompt changes in software**	**Client-related needs that push software development**
▪ Xtend SRS Bookkeeping ▪ Audit Link ▪ Lender*VP (including Lender RE, Collections, Retailer Direct, Payday Lending, etc.) ▪ Xtend (including Member Reach, Shared Branching, CU*OverDrive, Xtension, etc.) ▪ Earnings Edge ▪ Imaging Solutions ▪ SettleMINT EFT ▪ OpsEngine	▪ Leadership Conference ▪ CEO Strategies ▪ Focus Groups	▪ Industry and regulatory directives ▪ Sales contacts and contractual obligations ▪ Custom work ▪ Changes by 3rd-party vendors ▪ Direct requests from clients, including via Idea Forms[7], focus groups and other special events, training contacts, daily client service interactions, etc.

The Custom Request Process

CU*Answers clients periodically submit requests for special development work related to their CU*BASE membership data. Although these projects can take many different forms, we generally refer to them as either "custom programming" or "special jobs." Examples include a one-time exchange of data with a third-party vendor, the development of new functionality or a unique new tool for CU staff and members, interfaces to check imaging vendors, custom branding for online and mobile products, Retailer Direct interface projects, and the like.

These types of projects are generally billed to clients on either an hourly or per-project basis according to a number of factors. The Initiating a Special Project Request page of our website describes the standard procedure we use to evaluate, price, and process most of these types of requests, from the original inquiry by a client through the research, bid, and approval process, all the way through final implementation.

[7] See Appendix C for an overview of how Idea Forms work.

PROJECT CLASSIFICATIONS: HOW IS THE WORK ORGANIZED?

Projects are organized into **project type** classifications, which determines the action needed to gain approval for programming changes, the development timeline and prioritization, and reporting and auditing guidelines:

Project Types	Description
Architectural Change	Projects that adjust the performance of a software product or its core infrastructure.
Card Conversion	This includes conversions for card portfolios, including new online clients or an existing client moving from one vendor to another for ATM/debit or credit cards.
CU Conversion/ Merger	For new client conversions, mergers, and de-conversions managed by the Conversions Delivery Services team. Similar to Custom Requests as they are custom to one client, but billed based on a contractual agreement. *NOTE: This should be used for the main conversion projects only; other related projects should be classified as Custom Requests.*
Custom Forms	Requests for new or changes to custom forms (loan, membership, etc.) for individual clients. Generally submitted by Lender*VP. Billing is determined by our standard pricing procedures and pricing is quoted to the client by Lender*VP. Client approval for any billable amounts is required prior to the submission of the project for programming work.
Custom Request	Projects done specifically for an individual or limited group of clients. Examples include custom fee programs, batch database maintenance ("floods"), custom reports or programs, branding, interfaces to 3rd-party vendors, custom branding for online and mobile products, Retailer Direct interface projects, and other development requests for a client (excluding custom forms) that fall outside the normal programming priorities but which are approved based on the client's agreement to fund all or part of the development costs. These projects can also include generic programming deployed as a part of the core software but only used by a limited group of clients. In most of these cases, work is billed to the credit union. Bid amounts are determined by our standard pricing policy. Client approval for any billable amounts is required prior to the submission of the project for programming work.
Generic Forms	Projects that affect the standard loan forms available to all CU*BASE clients and which reside in CU*BASE rather than in custom libraries. Approvals and other handling procedures are similar to Program Modifications.
GOLD Screen Modification	Projects that affect the GOLD user interface/presentation layer only and do not require related host program changes. Project handling procedures are similar to Program Modifications.
Program Modification	These are requests for minor changes to the existing software, such as adjustments to screen layout or flow, requests for additional sort and selection options, adjustments to report output or layout, or other changes not directly covered by our warranty documentation. (See also "Warranty Adjustment.") *Note: These projects are included in the **Owner's Voice** online voting site (see Page 29).*
Software Enhancement	(Formerly referred to as "Design Change.") These are requests for new functionality or significant enhancements to existing software. The scope can vary dramatically, and project specifications are generally required. Also see "Capitalized Improvements (FASB)" below. *Note: These projects are included in the **Owner's Voice** online voting site (see Page 29).*
Warranty Adjustment	Issues reported by clients or staff regarding the normal operation of CU*BASE or other software that cannot be quickly resolved using normal research and troubleshooting techniques or education. Projects are typically accompanied by excerpts from online help or other published documentation that demonstrate the software is not working as warranted. (See also "Program Modification.")

Capitalized Improvements (FASB)

Before they are assigned for development, all projects categorized as Software Enhancements are evaluated based on Financial Accounting Standards Board (FASB) requirements for the capitalization of development costs. Evaluations are done by the EVP of Software Development and VP of Quality Control, with input as needed from corporate officers and other key leaders to determine the appropriate classification, based on the scope and type of work being done.

PROJECT APPROVALS: WHAT MAKES IT TO THE ASSEMBLY LINE?

Guidelines for Making Approvals

The previous sections of this policy explain the timing rules that govern how projects are moved through the system (doing the paperwork). While these rules are important to ensuring we respond to clients in a timely fashion, there are also rules of thumb for deciding whether a project should proceed at all. These benchmarks make it possible to say no to ideas that might be well worth doing, but that don't necessarily fit *today's* priorities and client agendas. Some basic rules of thumb our approvers use when making the go-or-no-go decision:

- For Program Modifications and Warranty Adjustments: With the exception of fast-tracked projects already described, to get a yes it must be realistic that the **work can begin within the next 12 months** after the project is approved.
- For Software Enhancements and Architectural Changes: Initial approval is based on our estimate that it is feasible for **preliminary research and/or design work to be completed within 18 months** of project approval.
- For Custom and Conversion projects: Initial approval is based on separate client approval and contractual agreement processes.

Other factors in the decision-making process include regulatory deadlines, pressure from marketplace environmental changes, contractual obligations, and long-term strategic demands from technological advances and security-related concerns.

Of course despite our best intentions, priorities do shift and projects get delayed. Therefore, we require that when a designer or programmer is ready to begin working on a project that has moved outside of those time frames, a quick review session should be scheduled with key leaders and subject-matter experts to determine if the idea is still timely, or if another round of due diligence may be warranted. (In other words, the trigger for the evaluation is that someone is available to begin the work, as opposed to a periodic review just based on the project's approval date.)

Escalating a Project to be Fast-Tracked Through the SDLC

If a project is determined to have an effect on data integrity or a direct effect on members, the project will immediately be escalated and delivered to a Programming Assistant Manager for immediate assignment.

- *Data integrity projects* are those that address a critical need for clients with an impact on income or where critical data is being corrupted.
- Projects with a *direct member effect* include performance of member-facing tools like online or mobile banking, audio response, and the like, or communication channels such as statements, alerts, and notices.

These projects are addressed immediately and deployed on demand as soon as testing has been completed. This could include a program change, a user-interface/screen change, or both, and updates would be made to impacted clients as soon as possible. In some cases the programming work may need to begin immediately, even before formal project creation and approvals can be processed.

This may also at times include making repairs on affected data and notification would be given to clients through the Alert process as to progress, action taken, and documentation of impact. This type of project is driven by the need to get out to clients as soon as possible and both the programming and QC teams will move these projects ahead of other priorities. We may also enlist the help of other staff to quickly review repaired functionality or to coordinate with clients.

With the exception of design specifications and beta-testing, however, the project will still be run through all of the usual approvals and other SDLC steps, just at a significantly faster pace or concurrent with initiation of development.

> *Why would a Warranty Adjustment ever be disapproved?* You might wonder what circumstances, if any, would result in a project of this type ever being denied. After all, if software behavior doesn't match up with how it's documented, wouldn't we automatically change it? While it is rare, there are a number of reasons why an individual Warranty Adjustment project request might end up being disapproved.
>
> The most common reason is that the project was inadequately researched and/or documented prior to being submitted, so that there was not enough information to determine whether a repair was actually needed, or enough direction for the programmer to begin analysis. (Most of these are usually re-submitted later, after additional research is documented.) Another common reason is that the project is a duplicate of another project submitted. This can happen if multiple clients report something and more than one CSR ends up writing it up at the same time, unbeknownst to the others.
>
> There are also times when the change would actually entail a higher risk to clients or the software's integrity, and therefore a decision is made to instead alter the warranty to explain how the software actually was intended to work. And there are cases where the documentation is ambiguous or incorrect through an inadvertent error on the part of the writer, and simply needs to be corrected.

Approvals for Research

An approval for research means that a specified amount of research and initial design work must first be completed, and that the work will not be assigned for development until the results of that research have been evaluated by appropriate Product Team leaders.

The most common example of this type of project is one where we need to look for an external partner for joint development. For example, credit unions might want us to begin providing a tool for members to make loan payments using a credit card they have at another financial institution. This would require an interface to an external partner for credit card fulfillment (Intuit is one example of such a vendor). An Approval for Research in this case would include the requirement of a preliminary design spec and selection of the partner(s) to which the interface would be built. From that research any ancillary project costs would be ascertained and all of these would be used to make the final go-or-no-go decision.

Another example would be research for technical feasibility. Sometimes we are asked to add a process or service but after initial research, it is decided that based on security considerations or basic compatibility with existing infrastructure, the project scope must be changed significantly, or, in rare cases, abandoned altogether. An Approval for Research in this case would involve technical analysis and brainstorming to determine feasibility and an appropriate approach to be used in the formal design stage.

Another aspect of the Research process is often estimating the cost of the development effort. This can include co-development costs from third-party partner arrangements, the purchase of special software or hardware tools, an estimate of the number of anticipated development hours, potential hiring of external contract developers, and the like. As with the preliminary design work, the results of this research would be used to make the final go-or-no-go decision.

> NOTE: Custom projects, where the client is agreeing to fund all or part of the development costs, may be subject to a Research & Design Fee, intended to cover the cost of doing in-depth feasibility research and sketching out a design outline for how the project could proceed. This fee is subtracted from the complete project cost once final authorization from the client to proceed with development is obtained. For more details, refer to the Initiating a Special Project Request page of our website.

Once research has been completed, depending on the scale of the project the research project is usually marked as closed and a new project initiated specifically for the development work. The normal approval workflow would apply to this new project.

Intellectual Property Rights Guidelines

Software development carries the inherent risk of infringement on the intellectual property rights of others. CU*Answers will not knowingly develop software or use third-party software that infringes on the intellectual property rights of others. These guidelines are intended to reduce the risk of intellectual property infringement during the course of developing software. Anyone involved with software development:

- Will not approve a project that knowingly infringes on the intellectual property rights of others.
- Will not incorporate software, including Open Source software, into a project unless CU*Answers has a license to use this software or proof that a license is not needed.

Upon suspicion[8] that upon completion a project would infringe on the intellectual property of others, work on that project will be stopped and the Executive Council will be alerted. The Executive Council will determine whether a patent search is required or whether the risk is acceptable or non-existent.

Guidelines for Data Exchanges

CU*Answers cares deeply of the privacy and security of our credit union clients and their members, and endeavors to avoid negligence that could result in monetary or reputation loss to our CUSO. CU*Answers will not approve projects or will stop development on projects where:

- CU*Answers would be grossly negligent in the protection of non-public personally identifiably financial information, such as transfer in open text over a public network (see also “Basic Standards of Secure Software Development” starting on Page 23);
- CU*Answers knows or should know that transmitting the data is a violation of federal or state law;
- CU*Answers knowingly or recklessly contravenes its authority to act on behalf of a credit union, such as providing personally identifiable information to a party CU*Answers knows would not be authorized to see this information.

The Executive Council will ultimately determine whether a project would violate any of these guidelines.

PROJECT SPECIFICATIONS: HOW DO WE GET OUR CLIENTS’ VISION INTO OUR PRODUCTS?

To Spec or Not to Spec

Although not all project types are routed through this stage, a project specification is generally required for all projects involving CU*BASE that are classified as Software Enhancements, and occasionally for CU*BASE projects designated as Program Modifications. Some other project types and product lines may also need a basic project spec if more detailed instructions are needed to proceed with the work.

[8] Suspicion means that an employee has some evidence that the resulting project could infringe on the property rights of others.

Design specifications allow us to be more specific about the expectations that clients and the marketplace have for how the product will look and what the end-user experience will be. Although some technical details are included, these specs are primarily an end-user requirements document that spells out in plain language how the finished product should behave when used by clients.

Whether or not a spec is written depends on the scope and complexity of the project, the areas of the software that are involved, and how much detail was provided by the originator of the project. For example, an enhancement involving the CU*BASE Teller software will usually require a spec, while one that tweaks a navigation feature on a screen might not need anything further than what the originator explained when submitting the project.

This is one of the reasons why the VP of Writing Team/Product Design is included as one of the default approvers on Software Enhancements, so that a decision can be made as to whether specs are appropriate or not.

Spec Review Sessions

An important component of the Design stage is the spec brainstorming/review session. Useful for creating a better design, these brainstorming sessions allow for executive management, specific subject-matter experts, and even credit union representatives to be involved in the design process, without having to physically handle the detailed spec-writing chores.

These sessions can occur prior to design specs being started, as well as at a few points during the spec-writing process, to allow designers to consult with technical and market-facing resources on certain aspects of the project design. Attendees vary depending on the project but usually include the VP of Writing Team/Product Design and/or the designated spec writer along with the CEO and/or COO, the EVP of Software Development, the assigned programmer and/or Programming Team Leader, along with all other subject-matter experts and resources who can provide input and assistance with design decisions.

A Word About the Timing for Writing Project Specs

Although the Design phase is shown as stage 3 for the SDLC, in the case of major Software Enhancements it is actually far more likely that a spec will be written in advance of the project officially being submitted for approval. This is due in part to the amount of time required to develop design specs. By waiting to start the project in the system until after the initial design work is complete, we can avoid a project languishing for too long at a pending status, causing confusion and unrealistic expectations when clients review the database for projects in progress.

Although it is rare, it is also possible that a spec could be written but the project ultimately not be approved for further work. Examples would be when a client that was championing a project (whether financially or otherwise) decides not to proceed, or the industry environment changes so that the demand for the enhancement falls off.

IMPLEMENTATION PLANNING: HOW ARE DEPLOYMENT DECISIONS MADE?

Standard Release Schedule

For CU*BASE, there are generally two releases per year, one in the spring and the other in the fall, plus a minor year-end tax release every December. Additional minor releases are also scheduled as needed between the major releases. Because of the way they intertwine with CU*BASE and the core membership database, changes to other software products may also be included in these releases, most commonly **It's Me 247** online and mobile web banking or Imaging Solutions. Releases for other product lines are scheduled as needed. Release dates are tracked on the official Release Schedule.

Deployment Options

Many factors go into making the decision for the method by which a particular project will be implemented. The Product Team and its key leaders and subject-matter experts are responsible for choosing and documenting the appropriate deployment method selected for each project:

Deployment Method	Typical Uses
Major Release	Includes advance notice to clients, traditional beta, training and documentation. This is the method used for larger enhancements, especially where client notification and training is necessary.
Release Without Beta	Similar to major release, but with tighter timelines, lighter documentation and lower-risk projects. The year-end release usually falls into this category as we have regulatory changes for year-end processing and other minor enhancements.
GOLD Update	Minor CU*BASE release done between scheduled major releases, with client notification but no training or advance notice needed.
On-Demand – Priority Mods	Deployed to all as soon as possible, with full disclosure of impact and action taken.
On-Demand – Minor Mods	Deployed as soon as practical with a monthly summary to document the changes. Communication is made directly with client requesting change, if applicable.
Active (Live) Beta	Applies to CU*BASE enhancements with minimal or no impact on client activities or data, such as analysis dashboards. Active beta-testing streamlines the testing process by getting the tools directly into clients' hands for real-life field testing. These projects undergo only minimum QC testing and are deployed for all clients via the "Active Beta Tests" menu. Clients can participate in training sessions where software is explained and participants can give feedback for future changes/development.
Custom Releases	These projects are done on demand, in coordination with the client. These are normally billable projects with a timeline determined between the client and CU*Answers.
Special Beta	This type of deployment is used for CU*BASE (often including a special GOLD version) and sometimes for other tools such as online/mobile banking, imaging tools, etc., to allow one or more specific clients to use new software, separate from a major release. The QC on these projects can be varied from minimal to full testing, but the beta will run in a special timeline other than a normal release beta environment. When Product Team leaders are satisfied that it is ready to deploy to all clients, the project will then be merged into a release.
Passive Beta	This involves releasing the updated software but not activating the new functionality, to allow for regression testing to reveal any unintended consequences to existing software.

Making the Decision

Below are some of the considerations that drive the decision process for deployment:

- **What is the priority of the project?** Is this a project that repairs a critical issue for clients? Is it data integrity?
- **What is the risk of delaying the implementation?** Is there an impact on a high volume of members, high volumes of transactions, member facing, or possible impact on income?
- **Which clients are needing or demand the change?** This could be a new client agreement or special needs for existing clients. These are often driven by promises to clients or part of a custom bid agreement.
- **What is the impact on end-users?** How much change will the user see and how many users will be impacted in their work. How much notice needs to be given?

- **Are there GOLD changes?** Refers to screen changes on a CU*BASE-related project. These projects need to consider GOLD development and versioning.
- **Will the change require documentation or online help changes?** If needed, is an Alert sufficient for the notification?
- **Are there file changes or other core structural changes?** Generally refers to CU*BASE-related projects, but could also apply to other products that have versioning requirements that affect deployment. File changes can impact other areas such as shared branching and need to be considered in how deployment is best attained.
- **Will clients need training?** Depending on scope, release training may be necessary or there could be targeted training for segments of users.
- **Are there any regulatory deadlines?** This is always a consideration for compliance to credit union or CUSO regulation requirements.
- **Are there any restrictions on running as a beta?** For instance, EFT changes often have to be deployed to all clients at one time.
- **Is it a passive or an active change?** Is this a change that has to be initiated by clients to activate? Can it be deployed with no immediate impact?
- **What kind of QC effort is necessary for this project?** Depending on the other considerations, there are different levels of QC for various types of projects.
- **Will this have an impact on Operations**? Is there other internal staff that will need to make adjustments for the changes?

BASIC STANDARDS OF SECURE SOFTWARE DEVELOPMENT

Introduction

CU*Answers is both contractually and, as a Credit Union Service Organization, ethically bound to protect the non-public financial information of credit union members. As a software developer, CU*Answers agrees to provide reasonable security to member information. Following good security practices protects the company and its employees from actual losses and reputation losses as a result of the misuse or theft of member information. After all, most CU*Answers employees are members of credit unions within our network and are therefore in the business of protecting their own personal financial information from harm.

CU*Answers cannot guarantee that breaches of member information can always be prevented, either through machine or human error. CU*Answers can only agree to take reasonable measures to protect this information and to act responsibly in the event that a breach does occur.

CU*Answers will use reasonable methods to protect the personally identifiable financial information and nonpublic personal information of credit union members. CU*Answers is not permitted to fall below this standard even if an offer of indemnification is made by the credit union. (Members may be able to sue CU*Answers for violations of law irrespective of any separate indemnification made by the credit union). *Reasonable methods to protect information are defined as methods that do not wantonly or recklessly endanger member information by insecure storage or transmission.*

Secure Software Development Standards

There are basic standards of programming and encoding that CU*Answers will adhere to in order to protect member information. These basic standards are intended as guidelines for programmers to comply with the requirements of securing member information. CU*Answers may always exceed these guidelines, but should never fall below them unless approved by Executive Management.

Authentication and Password Management	CU*Answers will require authentication for all pages and resources, except those specifically intended to be public.
Cryptographic Practices	CU*Answers will not rely on weak cryptography controls or methods, and will update insecure methods of encryption whenever practical.
Input Validation Principles	All data validation shall be conducted on a trusted system. All validation failures should result in input rejection.
Error Handling and Logging	CU*Answers will avoid disclosing sensitive information in error responses, including system details, session identifiers or account information.
Data Protection	Whenever possible, programming teams will implement "least privilege," meaning that users will be restricted to only the functionality, data and system information that is required to perform their tasks. CU*Answers will avoid storing passwords, connection strings or other sensitive information in clear text or in any non-cryptographically secure manner on the client side. Applications should support the removal of sensitive data (e.g. personal information or certain financial data) when that data is no longer required.
Communication Security	CU*Answers will implement reasonable encryption methods for the transmission of all sensitive information.
Change Control	CU*Answers will implement a software change control system to manage and record changes to the code both in development and production.
Database Security	Programmers will use secure credentials for database access, and will secure member information on the database (through encryption or other reasonable means) when practical.
File Management	Programmers will require authentication before allowing a file to be uploaded, and limit the type of files that can be uploaded to only those types that are needed for business purposes. Validation that uploaded files are the expected type will be done by checking file headers.
Updates	CU*Answers will implement secure updating as is practical. If the application will utilize automatic updates, then we will use cryptographic signatures for the code and ensure download clients verify those signatures. We will use encrypted channels to transfer the code from the host server.
Education	CU*Answers programmers will take reasonable steps to remain educated on updates with respect to security best practices and will implement such practices when practical or as required by law.

Secure Development Standards and the CU*Answers Development Environment

Effective October 1, 2016, when a project is assigned to a team for development, the EVP of Software Development will be responsible for flagging the project as to its exposure from a security standpoint:

- *Internal only* – for example, a CU*BASE software feature that has no exposure to the Internet nor direct third-party interactions.

- *External exposure* – for example, online or web banking tools, APIs, third-party integrations, etc., where additional security evaluations or components may need to be built into the design, testing, and/or implementation process.

For projects flagged with an external exposure, the secure development standards outlined in this section will be evaluated along with our usual testing standards during the QC testing phase of the project life cycle.

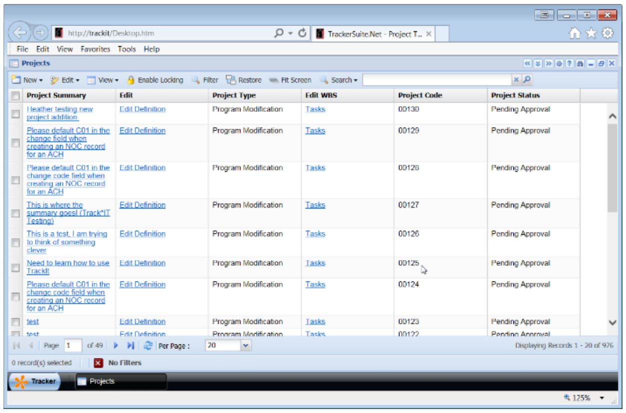
TRACKING PROGRESS

Technical tools we use for managing the development project queue.

DAY-TO-DAY ADMINISTRATION

The primary mechanism for tracking projects as they flow through the SDLC is the **Track*IT** online project tracking tool (replaces a previous in-house tool called PLM or Project Log Manager).

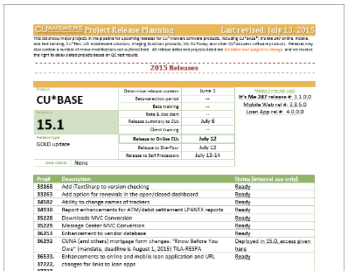
As projects move through the various stages they are marked in Track*IT with a status code. As the stages change, email notification is sent to the originator to update them of the project status. This status is also reported to clients via the *Monitor* website.



http://trackit/Desktop.htm
TrackerSuite.Net - Project T...
File Edit View Favorites Tools Help
Projects
New Edit View Enable Locking Filter Restore Fit Screen Search

□	Project Summary	Edit	Project Type	Edit WBS	Project Code	Project Status
□	Heather testing new project addition	Edit Definition	Program Modification	Tasks	00130	Pending Approval
□	Please default C01 in the change field when creating an NOC record for an ACH	Edit Definition	Program Modification	Tasks	00129	Pending Approval
□	Please default C01 in the change code field when creating an NOC record for an ACH	Edit Definition	Program Modification	Tasks	00128	Pending Approval
□	This is where the summary goes! (Track*IT Testing)	Edit Definition	Program Modification	Tasks	00127	Pending Approval
□	This is a test, I am trying to think of something clever	Edit Definition	Program Modification	Tasks	00126	Pending Approval
□	Need to learn how to use TrackIt	Edit Definition	Program Modification	Tasks	00125	Pending Approval
□	Please default C01 in the change code field when creating an NOC record for an ACH	Edit Definition	Program Modification	Tasks	00124	Pending Approval
□	test	Edit Definition	Program Modification	Tasks	00123	Pending Approval
□	test	Edit Definition	Program Modification	Tasks	00122	Pending Approval

The **Release Schedule** compiles major projects being slated for specific releases. To keep the document size manageable, only major projects are listed on this summary. A PDF copy of this schedule is posted weekly on the Release Planning page of our website for clients to view: http://www.cuanswers.com/resources/doc/release-planning/



CU ANSWERS Project Release Planning Last revised: July 13, 2015

This list shows major projects in the pipeline for upcoming releases for CU*Answers software products, including CU*BASE®; It's Me 247 online, mobile, and text banking; CU*Tell; UCI middleware solutions; imaging solutions products; My CU Today; and other CU*Answers software products. Releases may also contain a number of minor modifications not outlined here. All release dates and projects listed are tentative and subject to change, and we reserve the right to delay slated projects based on QC test results.

2015 Releases

Product: CU*BASE

Release #: 15.1

Release type: GOLD update

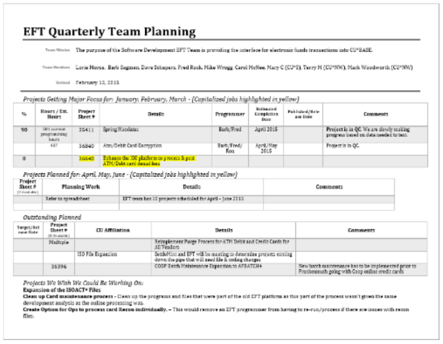
Determine release content	June 1
Beta-selection period	--
Beta training	--
Beta & doc start	--
Release summary to CUs	July 6
Client training	--
Release to Online CUs	**July 12**
Release to Site-Four	July 12
Release to Self Processors	July 13-14

Beta clients: None

Notes (internal use)
It's Me 247 release #: 3.1.0.0
Mobile Web rel #: 3.8.5.0
Loan App rel #: 4.0.0.0

Proj#	Description	Notes (internal use only)
33168	Add iTextSharp to version checking	Ready
33263	Add option for renewals in the open/closed dashboard	Ready
34582	Ability to change names of trackers	Ready
34930	Report enhancements for ATM/debit settlement LPANTX reports	Ready
35228	Downloads MVC Conversion	Ready
35229	Message Center MVC Conversion	Ready
36253	Enhancement to vendor database	Ready
36292	CUNA (and others) mortgage form changes: "Know Before You Owe" (mandate, deadline is August 1, 2015) TILA-RESPA	Deployed in 15.0, access given here
36533, 37222,	Enhancements to online and mobile loan application and URL changes for links to loan apps	Ready

For the **Quarterly Strategic Planning** sessions, each programming team leader is responsible for summarizing their team's current activities, projects slated for the next calendar quarter, and outstanding projects that are waiting in the wings.



EFT Quarterly Team Planning

Team Mission The purpose of the Software Development EFT Team is providing the interface for electronic funds transactions into CU*BASE.

Team Members Lorie Morse, Barb Sagman, Dave Schepers, Fred Rock, Mike Wrogg, Carol McNew, Mary C (CU*S), Terry M (CU*NW), Mark Woodworth (CU*NW)

Revised February 12, 2015

Projects Getting Major Focus for: January, February, March - (Capitalized jobs highlighted in yellow)

%	Hours / Est. Hours	Project Sheet #	Details	Programmer	Estimated Completion Date	Published/Release Date	Comments
90	581 current programming hours	35411	Spring Mandates	Barb/Fred	April 2015		**Project is in QC.** We are slowly making progress based on data needed to test.
	487	36840	Atm/Debit Card Encryption	Barb/Fred/Ron	April/May 2015		Project is in QC.
0		36640	Enhance the ISO platform to process & post ATM/Debit card denial fees				

Projects Planned for: April, May, June - (Capitalized jobs highlighted in yellow)

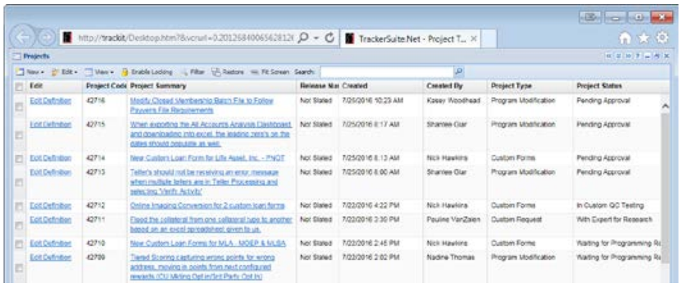
Project Sheet # (If Available)	Planning Work	Details	Comments
	Refer to spreadsheet	EFT team has 10 projects scheduled for April – June 2015	

Outstanding Planned

Target/Release Date	Project Sheet # (If Available)	CU Affiliation	Details	Comments
	Multiple		Reimplement Purge Process for ATM Debit and Credit Cards for All Vendors	
		ISO File Expansion	SettleMint and EFT will be meeting to determine projects coming down the pipe that will need file & coding changes	
	36396		COOP Batch Maintenance Expansion to APBATCH4	New batch maintenance has to be implemented prior to Frankenmuth going with Coop online credit cards

Projects We Wish We Could Be Working On:
Expansion of the ISOACT* Files
Clean up Card maintenance process - Clean up the programs and files that were part of the old EFT platform as this part of the process wasn't given the same development analysis as the online processing was.
Create Option for Ops to process card Recon individually. – This would remove an EFT programmer from having to re-run/process if there are issues with recon files.

Track*IT monitoring reports and tools are utilized to keep on eye on project progress and investment, especially when it comes to allocation of programming resources. For example, the EVP of Software Development receives regular email notifications from the online tool showing projects that are exceeding certain levels of development time, and reports are monitored regularly for capitalized projects that have not been assigned. *See also the "Guidelines for Making Approvals" section on Page 17.*



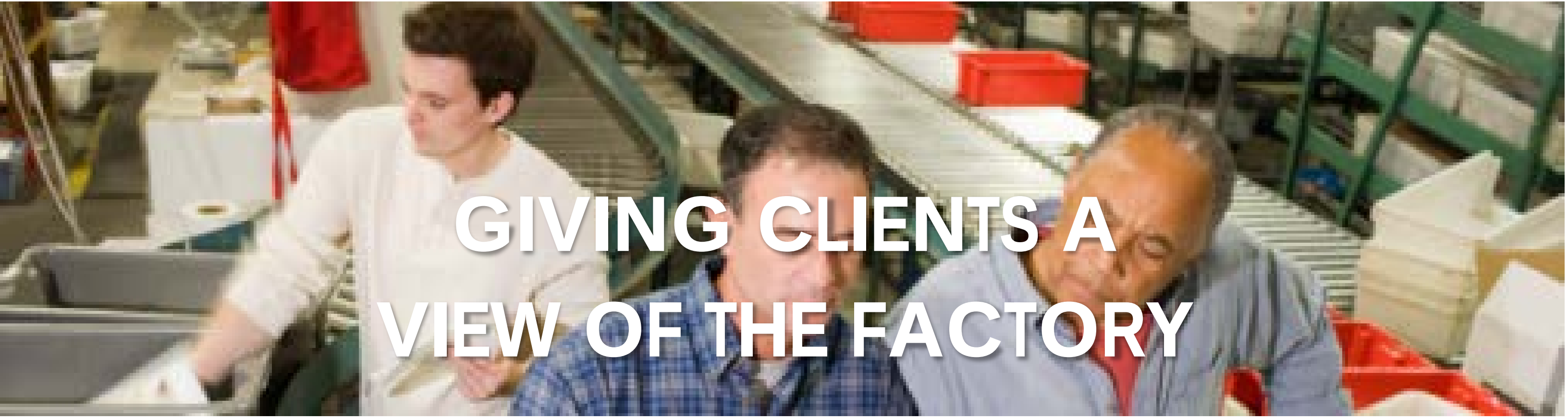
http://trackit/Desktop.htm?&vcrurl=0.2012684006562812(
TrackerSuite.Net - Project T...
Projects
New
Edit
View
Enable Locking
Filter
Restore
Fit Screen
Search:

	Edit	Project Code	Project Summary	Release Nu	Created	Created By	Project Type	Project Status
□	Edit Definition	42716	Modify Closed Membership Batch File to Follow Payvera File Requirements	Not Slated	7/25/2016 10:23 AM	Kasey Woodhead	Program Modification	Pending Approval
□	Edit Definition	42715	When exporting the All Accounts Analysis Dashboard and downloading into excel, the leading zero's on the dates should populate as well.	Not Slated	7/25/2016 8:17 AM	Shantee Clar	Program Modification	Pending Approval
□	Edit Definition	42714	New Custom Loan Form for Life Asset, Inc. - PNOT	Not Slated	7/25/2016 8:13 AM	Nick Hawkins	Custom Forms	Pending Approval
□	Edit Definition	42713	Teller's should not be receiving an error message when multiple tellers are in Teller Processing and selecting 'Verify Activity'	Not Slated	7/25/2016 8:00 AM	Shantee Clar	Program Modification	Pending Approval
□	Edit Definition	42712	Online Imaging Conversion for 2 custom loan forms	Not Slated	7/22/2016 4:22 PM	Nick Hawkins	Custom Forms	In Custom QC Testing
□	Edit Definition	42711	Flood the collateral from one collateral type to another based on an excel spreadsheet given to us.	Not Slated	7/22/2016 3:30 PM	Pauline VanZalen	Custom Request	With Expert for Research
□	Edit Definition	42710	New Custom Loan Forms for MLA - MOEP & MLSA	Not Slated	7/22/2016 2:45 PM	Nick Hawkins	Custom Forms	Waiting for Programming R
□	Edit Definition	42709	Tiered Scoring capturing wrong points for wrong address, moving in points from next configured rewards (CU Mailing Opt in/3rd Party Opt In)	Not Slated	7/22/2016 2:02 PM	Nadine Thomas	Program Modification	Waiting for Programming R

Developed by participants in the "Building Solutions in a Cooperative" Boot Camps, **Owner's View** is a new online resource that will allow clients to review the current status of all projects currently in the pipeline. Formerly referred to as "Monitor," this new website is being designed by the 2017-2018 Boot Camp participants and will be introduced to all clients during 2018.

Owner's VIEW

COMING IN 2018

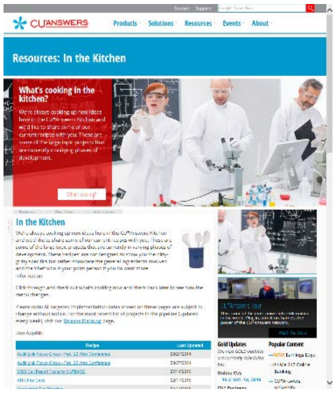


GIVING CLIENTS A VIEW OF THE FACTORY

Tools that explain software changes to our clients and help them keep up with work as it moves through the factory.

Updates on Projects In the Design Stage

The Kitchen page on our website contains project outlines and news about major projects that are currently in the design stage or early stages of development.



Resources: In the Kitchen

What's cooking in the kitchen?

We're always cooking up new ideas here in the CU*Answers Kitchen and we'd like to share some of our current recipes with you. These are some of the large topic projects that are currently in varying phases of development.

What's cooking?

In the Kitchen

We're always cooking up new ideas here in the CU*Answers Kitchen and we'd like to share some of our current recipes with you. These are some of the large task projects that are currently in varying phases of development. These recipes are not designed to show you the nitty-gritty specifics but rather showcase the general ingredients involved and the "chef" who is your point person if you do want more information.

Click through and check out what's cooking now and check back later to see how the menu changes.

Please note: All targeted implementation dates shown on these pages are subject to change without notice. For the most recent list of projects in the pipeline (updated every week), visit our Release Planning page.

Bon Appetit!

Recipe	Last Updated
Audit Link Focus Group - Feb. 23 Web Conference	[illegible]
Audit Link Focus Group - Feb. 23 Web Conference	[illegible]
[illegible] Call Report Tools for CU*BASE	[illegible]
[illegible]	[illegible]

CU*Answers Tour

Gold Updates

The next GOLD updates are currently scheduled for:

Online CUs

15.2 Oct. 18, 2015

Popular Content

NEW! Earnings Edge

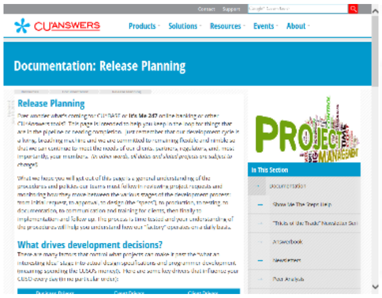
It's Me 247 Online Banking

CU*Answers University

Release Planning Materials

The Release Planning page on our website outlines upcoming CU*BASE release dates and provides links to the SDLC, current Release Schedule, and other release planning materials.

Also, a GOLD Release Dates recap showing next upcoming CU*BASE release date appears as a sidebar on most of our website pages.



Documentation: Release Planning

Release Planning

Ever wonder what's coming for CU*BASE or It's Me 247 online banking or other CU*Answers tools? This page is intended to help you keep in the loop for things that are in the pipeline or nearing completion. Just remember that our development cycle is a living, breathing machine and we are committed to remaining flexible and nimble so that we can continue to meet the needs of our clients, partners, regulators, and, most importantly, your members. In other words, all dates and slated projects are subject to change!

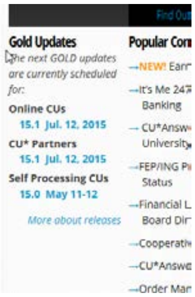
What we hope you will get out of this page is a general understanding of the procedures and policies our teams must follow in reviewing project requests and monitoring how they move between the various stages of the development process: from initial request, to approval, to design (the "specs"), to production, to testing, to documentation, to communication and training for clients, then finally to implementation and follow up. The process is time tested and your understanding of the procedures will help you understand how our "factory" operates on a daily basis.

What drives development decisions?

There are many factors that control what projects can make it past the "what an interesting idea!" stage into actual design specifications and programmer development (meaning spending the CUSO's money). Here are some key drivers that influence your CUSO every day (in no particular order):

In This Section

- Documentation
- Show Me The Steps Help
- "Tricks of the Trade" Newsletter Sur
- Answerbook
- Newsletters
- Post Analysis



Gold Updates

The next GOLD updates are currently scheduled for:

Online CUs

15.1 Jul. 12, 2015

CU* Partners

15.1 Jul. 12, 2015

Self Processing CUs

15.0 May 11-12

More about releases

Popular Con

NEW! Earn

It's Me 247 Banking

CU*Answ University

FEP/ING P Status

Financial L Board Dir

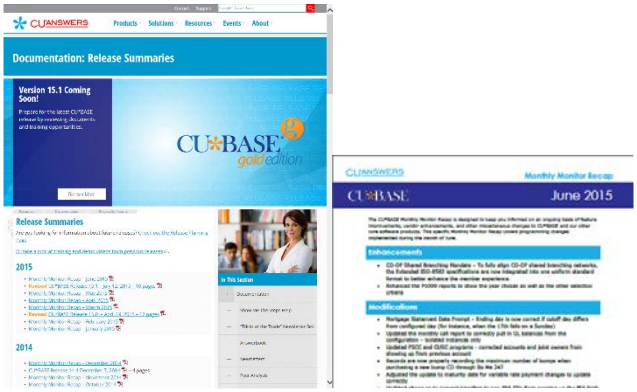
Cooperati

CU*Answe

Order Mar

Release Documentation

The Release Summaries page on our website includes release communications about major releases as well as the monthly Monitor Recap newsletter summarizing minor projects implemented between releases.



CU*ANSWERS

Documentation: Release Summaries

Version 15.1 Coming Soon!

Prepare for the latest CU*BASE release by reviewing documents and training opportunities.

Release Summaries

2015

- Monthly Monitor Recap - June 2015
- Revised CU*BASE Release 15.1 - July 12, 2015 - 10 pages
- Monthly Monitor Recap - May 2015
- Monthly Monitor Recap - April 2015
- Monthly Monitor Recap - March 2015
- Revised CU*BASE Release 15.0 - April 19, 2015 - 12 pages
- Monthly Monitor Recap - February 2015
- Monthly Monitor Recap - January 2015

2014

- Monthly Monitor Recap - December 2014
- CU*BASE Release 14.1 December 7, 2014 - 4 pages
- Monthly Monitor Recap - November 2014
- Monthly Monitor Recap - October 2014

CU*ANSWERS Monthly Monitor Recap

CU*BASE June 2015

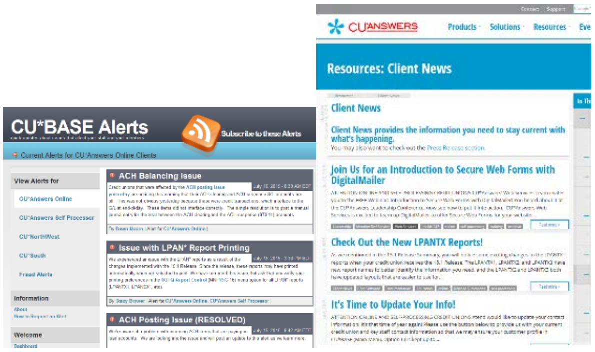
Enhancements

Modifications

Direct Client Communications

The Client News page on our website is used to post the contents of all broadcast email communications sent to clients.

Other communication tools include the **CU*BASE Alerts** page, available to clients only and accessed via a link in CU*BASE, and email notifications to the originating credit union, initiated by the Track*IT tracking tool when project statuses are changed.



CU*BASE Alerts

Current Alerts for CU*Answers Online Clients

ACH Balancing Issue

Issue with LPAN* Report Printing

ACH Posting Issue (RESOLVED)

CU*ANSWERS

Resources: Client News

Client News

Client News provides the information you need to stay current with what's happening.

You may also want to check out the Press Release section.

Join Us for an Introduction to Secure Web Forms with DigitalMailer

Check Out the New LPANTX Reports!

It's Time to Update Your Info!

Online Project Tracking

Developed by participants in the "Building Solutions in a Cooperative" Boot Camps, **Owner's View** is a new online resource that will allow clients to review the current status of all projects currently in the pipeline. Formerly referred to as Monitor, this new website is being designed by the 2017-2018 Boot Camp participants and will be introduced to all clients during 2018.

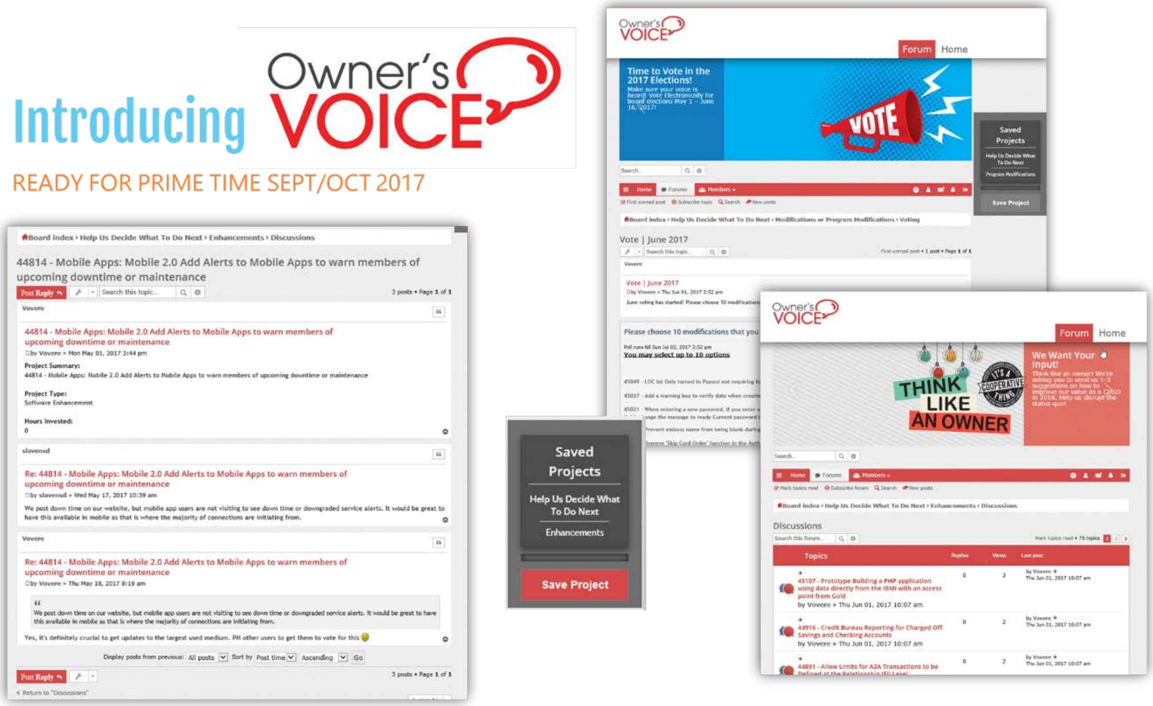
Owner's VIEW

COMING IN 2018

GIVING CLIENTS A VOICE

An online tool that gives clients a voice in CUSO software development investments.

Developed by participants in the "Building Solutions in a Cooperative" Boot Camps, **Owner's Voice** is a new online tool that lets clients vote for what development projects they think should be moving through the factory.



Introducing Owner's VOICE

READY FOR PRIME TIME SEPT/OCT 2017

Board index › Help Us Decide What To Do Next › Enhancements › Discussions

44814 - Mobile Apps: Mobile 2.0 Add Alerts to Mobile Apps to warn members of upcoming downtime or maintenance

3 posts • Page 1 of 1

Vovere

44814 - Mobile Apps: Mobile 2.0 Add Alerts to Mobile Apps to warn members of upcoming downtime or maintenance

by Vovere » Mon May 01, 2017 3:44 pm

Project Summary:
44814 - Mobile Apps: Mobile 2.0 Add Alerts to Mobile Apps to warn members of upcoming downtime or maintenance

Project Type:
Software Enhancement

Hours Invested:
0

slavensd

Re: 44814 - Mobile Apps: Mobile 2.0 Add Alerts to Mobile Apps to warn members of upcoming downtime or maintenance

by slavensd » Wed May 17, 2017 10:39 am

We post down time on our website, but mobile app users are not visiting to see down time or downgraded service alerts. It would be great to have this available in mobile as that is where the majority of connections are initiating from.

Vovere

Re: 44814 - Mobile Apps: Mobile 2.0 Add Alerts to Mobile Apps to warn members of upcoming downtime or maintenance

by Vovere » Thu May 18, 2017 8:19 am

> We post down time on our website, but mobile app users are not visiting to see down time or downgraded service alerts. It would be great to have this available in mobile as that is where the majority of connections are initiating from.

Yes, it's definitely crucial to get updates to the largest used medium. PM other users to get them to vote for this

Display posts from previous: All posts Sort by Post time Ascending Go

3 posts • Page 1 of 1

Return to "Discussions"

Time to Vote in the 2017 Elections!
Make sure your voice is heard! Vote Electronically for board elections May 1 – June 16, 2017!

Board index › Help Us Decide What To Do Next › Modifications or Program Modifications › Voting

Vote | June 2017

First unread post • 1 post • Page 1 of 1

Vovere

Vote | June 2017

by Vovere » Thu Jun 01, 2017 2:52 pm

June voting has started! Please choose 10 modifications

Please choose 10 modifications that you

Poll runs till Sun Jul 02, 2017 2:52 pm
You may select up to 10 options

45049 - LOC int Only turned to Payout not requiring fu

45027 - Add a warning box to verify date when creatin

45021 - When entering a new password, if you enter a … nge the message to ready Current password i

Prevent emboss name from being blank durin

Remove 'Skip Card Order' function in the Auth

Saved Projects

Help Us Decide What To Do Next

Enhancements

Save Project

We Want Your Input!
Think like an owner! We're asking you to send us 1-3 suggestions on how to improve our value as a CUSO in 2018. Help us disrupt the status quo!

Board index › Help Us Decide What To Do Next › Enhancements › Discussions

Discussions

Mark topics read • 75 topics

Topics	Replies	Views	Last post
45107 - Prototype Building a PHP application using data directly from the IBMi with an access point from Gold by Vovere » Thu Jun 01, 2017 10:07 am	0	3	by Vovere Thu Jun 01, 2017 10:07 am
44916 - Credit Bureau Reporting for Charged Off Savings and Checking Accounts by Vovere » Thu Jun 01, 2017 10:07 am	0	2	by Vovere Thu Jun 01, 2017 10:07 am
44891 - Allow Limits for A2A Transactions to be Defined at the Relationship (EI) Level	0	2	by Vovere Thu Jun 01, 2017 10:07 am

Starting in the fall of 2017, clients will be encouraged to vote in regular monthly elections on projects currently in the queue that are classified as either **Software Enhancements** or **Program Modifications** (see Page 17). Based on their current status in the pipeline, the voting site will organize projects for voting in 3 major groupings:

- **Help Us Decide What To Do Next** – Projects that have been approved but are awaiting availability of programming resources.
- **Help Us Decide What To Stay Focused On** – Projects that are currently in a developer's hands but programming is not yet complete and submitted for testing.
- **Help Us Decide What's On The Chopping Block** – projects in development that clients think we should pull off the table altogether.

The goal of **Owner's Voice** is to add another point of view that will aid our design and development leaders in making the best decisions possible for our clients, our CUSO, and our network.

APPENDICES

APPENDIX A: RELATED POLICY AND PROCEDURE DOCUMENTS

A handy list of other policies, websites, and procedure documents that supplement and support the SDLC and specific areas of the development factory.

Document	Where
Active Beta Study Groups page on our website	http://study.cuanswers.com/
Adding a New Assembly Line to the SDLC	On the Quality Control portal page
Client News page on our website	http://www.cuanswers.com/resources/news/
CU*BASE Software Testing and Quality Control Procedures	On the Quality Control portal page
Developer Guidelines	On the Programming portal page
Initiating a Special Project Request page of our website	http://www.cuanswers.com/resources/project-management/initiating-a-special-project-request/
Jump in the Beta Pool page on our website	http://www.cuanswers.com/resources/beta/
Quality Control Design	On the Quality Control portal page
Release Planning page on our website	http://www.cuanswers.com/resources/doc/release-planning/
Release Schedule	X:\Quality Control\Public\Quality Control\Intranet\CurrentReleaseSchedule.docx
User Interface Style Guide	On the Programming portal page
Writing Project Specs	On the Writing Team portal page
Writing Team Demystified	On the Writing Team portal page
Writing Team Guidelines	On the Writing Team portal page

APPENDIX B: TRACK*IT AUTHORIZED USERS

*A list of job descriptions for which Track*IT access will be allowed, and basic parameters for what those employees will be allowed to do in the online tool.*

Access Type	Job Title
Can adjust configuration and administrative settings in the Track*IT tool and control other user access. Can create, approve, and assign projects, modify statuses, log activity, adjust project settings, and all other tasks necessary to manage projects in the pipeline.	VP Quality Control VP Software Development Project Coordinator
Can approve and deny projects, including attaching notes and special instructions.*	CEO, and COO VP Quality Control and Project Coordinator VP Software Development VP Writing Team/Product Design Programming Assistant Managers VP Professional Services Other key subject-matter experts as needed
Can assign projects.	VP Quality Control VP Software Development Programming Assistant Managers
Can create projects** and attach project documentation.	Programming Assistant Managers QC Testers VP Client Services & Education Assistant Manager of Client Services & Education Account Executives/CSRs VP Writing Team/Product Design Technical Writers
Can log project activity.	Programmers QC Testers

*Anyone in the default approval flow can add a subject-matter expert to the approval list for a specific project. That person does not require any special permissions other than basic access to the Track*IT software in order to log approval.

**The ability to create a project also includes the ability to adjust the project settings (not including approval or project status), but only for those same projects.

This is a general outline only and is subject to change. Exceptions may be granted as needed according to job responsibilities and project workflow requirements. A current list of employees with access to the Track*IT online tool can be obtained via the Quality Control portal page or via the VP of Quality Control or the Project Coordinator.

APPENDIX C: THE IDEA FORM

A brief overview of the Idea Form process and how it is used by clients to provide input and make suggestions for changes and new software tools.

The Idea Form: An Online Suggestion Box

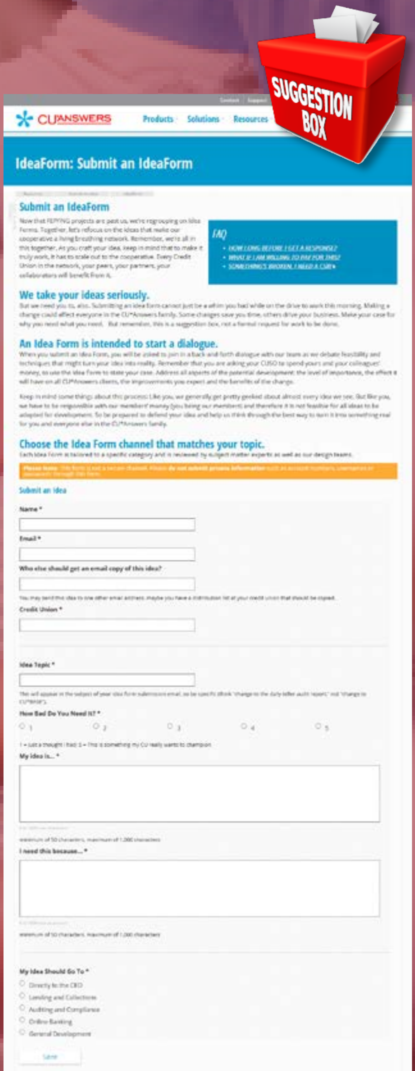
The Idea Form is an online suggestion box for our clients to submit ideas and recommendations for enhancements to our software tools, whether CU*BASE, **It's Me 247**, or other product line.

An Idea Form is intended to start dialogue with our design and development teams. Unlike an official project under the SDLC, this channel is not intended for reports of warranty issues or specific requests for custom work a credit union wants done. It's a place for blue-sky dreaming about what we *could* do.

Idea Forms can be directed to one of several product leaders, including the CU*Answers CEO, based on general subject matter. Our cuasterisk.com partners also receive copies of their own clients' submissions.

Idea Forms must be accessed via a link in the CU*BASE software, which limits them to current clients, but any employee can use this channel to submit their ideas. No formal buying powers are implied by the submission of an Idea Form. Idea Forms are not tracked in any way, and there is no mechanism for following up on ideas that do not result in a formal project.

Although many ideas submitted via an Idea Form do eventually make their way into the SDLC as a project, the Idea Form itself is not a direct access point for initiating one. Even if the consensus from the team's initial dialogue is to proceed with development, that project still must go through the entire SDLC flow, including the formal approval process.



IdeaForm: Submit an IdeaForm

Submit an IdeaForm

Now that FEPYNG projects are past us, we're regrouping on Idea Forms. Together, let's refocus on the ideas that make our cooperative a living breathing network. Remember, we're all in this together. As you craft your idea, keep in mind that to make it truly work, it has to scale out to the cooperative. Every Credit Union in the network, your peers, your partners, your collaborators will benefit from it.

FAQ

- HOW LONG BEFORE I GET A RESPONSE?
- WHAT IF I AM WILLING TO PAY FOR THIS?
- SOMETHING'S BROKEN. I NEED A CSR»

We take your ideas seriously.

But we need you to, also. Submitting an idea form cannot just be a whim you had while on the drive to work this morning. Making a change could affect everyone in the CU*Answers family. Some changes save you time, others drive your business. Make your case for why you need what you need. But remember, this is a suggestion box, not a formal request for work to be done.

An Idea Form is intended to start a dialogue.

When you submit an Idea Form, you will be asked to join in a back and forth dialogue with our team as we debate feasibility and techniques that might turn your idea into reality. Remember that you are asking your CUSO to spend yours and your colleagues' money, so use the Idea Form to state your case. Address all aspects of the potential development: the level of importance, the effect it will have on all CU*Answers clients, the improvements you expect and the benefits of the change.

Keep in mind some things about this process: Like you, we generally get pretty geeked about almost every idea we see. But like you, we have to be responsible with our members' money (you being our members) and therefore it is not feasible for all ideas to be adopted for development. So be prepared to defend your idea and help us think through the best way to turn it into something real for you and everyone else in the CU*Answers family.

Choose the Idea Form channel that matches your topic.

Each Idea Form is tailored to a specific category and is reviewed by subject matter experts as well as our design teams.

Please Note: This form is not a secure channel. Please **do not submit private information** such as account numbers, usernames or passwords through this form.

Submit an Idea

Name *

Email *

Who else should get an email copy of this idea?

You may send this idea to one other email address. maybe you have a distribution list at your credit union that should be copied.

Credit Union *

Idea Topic *

This will appear in the subject of your idea form submission email, so be specific (think "change to the daily teller audit report," not "change to CU*BASE").

How Bad Do You Need It? *

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

1 = Just a thought I had; 5 = This is something my CU really wants to champion

My Idea is... *

minimum of 50 characters, maximum of 1,200 characters

I need this because... *

minimum of 50 characters, maximum of 1,200 characters

My Idea Should Go To *

○ Directly to the CEO
○ Lending and Collections
○ Auditing and Compliance
○ Online Banking
○ General Development

Submit