



Department of Education

Office of Student Financial Assistance

Rational Tool Implementation Support Team
ClearQuest Implementation Guide

STUDENT FINANCIAL ASSISTANCE (FSA)
RATIONAL TOOL IMPLEMENTATION SUPPORT TEAM –
CLEARQUEST IMPLEMENTATION GUIDE

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1. Background

The purpose of Task Order 51 is to establish a Rational Tool Implementation Support Team to deploy the use of the Rational Software Development Tool Suite at the U.S. Department of Education, Office of Federal Student Aid (FSA). This team will deliver support, training, and consulting services to FSA and Modernization Partner software development projects and other teams with Rational needs. Specifically this initiative will deliver the following:

- Prepare and rollout Rational Tool Support Program
- Implementation Guide: Tool rollout to pilot project(s)
- Activity reports of ongoing Tool Support
- Provide ongoing coaching, mentoring and training support of projects
- Ensure the Implementation Guide and Tool Support Program is in accordance with FSA Solution Life Cycle (SLC) which FSA uses as an outline to manage IT projects
- Rational Suite Project Repository (*.rsp), ClearCase, ClearQuest Administrator support
- Support the establishment of standard Rational operating procedures, such as standard file naming conventions, uniform project user account creation and management
- Support in the manageability and maintainability of finite Rational software licenses available for FSA modernization initiatives

1.1 Purpose

The ClearQuest Implementation Guide outlines the stages and tasks necessary to deploy Rational ClearQuest to project teams. The topics covered in the implementation guide include:

- Conduct of the Awareness Presentation
- Training project tool teams on all major components of the ClearQuest implementation (User Guide)
- Documented configuration design, processes, and procedures for project (User Guide)
- Coaching effort for core project team members on the use of ClearQuest and measurements to collect and report data (through meetings and the User Guide)
- Effort, Estimating model
- Deployment activities with the project team and the VDC
- Definition of project tool requirements (hardware and software) and costs needed for implementation
- Design and configure tool environment and appropriate repositories for designated project
- Coaching of core project team members on the use of ClearQuest and measurements to collect and report data (through meetings and the User Guide)
- Implementation and training schedule and identify exit criteria
- Ongoing mentoring support functions
- Facilitate knowledge transfer to the project administrator and their core team members

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1.2 Scope

This implementation guide focuses on the ClearQuest pilot projects. The data included in this document are examples of work done on the Pilot Projects. The standard documents used are based on Pilot Projects and will be used on future efforts. The ClearQuest Pilot Projects referred to in this document are listed below:

- VDC Communications
- COD
- FSA Security

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2. ClearQuest Implementation Support

This section covers the different stages and tasks necessary to implement ClearQuest. The estimated duration necessary for each stage is identified. For each task, the approximate duration in business days is in parenthesis next to the task name. Estimates are based on concurrent development with several projects. It is subject to change in order to accommodate individual project pace and progress. The current work plan is included in Appendix A to show actual dates and times for each task in each Pilot Project.

2.1 Pre-Implementation

The duration for this process is approximately 6 business days.

2.1.1 Kickoff Meeting and Preliminary Analysis (4 hours for preparation and conduct a meeting)

During the kickoff meeting, the Rational Tool Implementation Support Team gains an understanding of the project and access their need for ClearQuest. The Rational team reviews the Awareness Presentation with the project to help them gain an understanding of ClearQuest and its benefits. The Awareness Presentation is included in Appendix E. If after the meeting it is decided that ClearQuest would benefit the project, the Rational team provides the project with a standard list of questions for requirement definition. The ClearQuest Implementation Requirements Planning document is included in Appendix B.

2.1.2 Identify CQ Administrators (less than 1 hour – Project Manager)

Each project must identify one or two project ClearQuest administrators to handle administration after the Rational team completes the initial implementation and support. The administrator(s) will need to attend the 3 day ClearQuest Administration course.

2.1.3 ClearQuest Demonstration (4 hours total)

The Rational team will give a demonstration on ClearQuest to the project team. Several sample schemas are available to present to the project. As the project team formulates requirements, these requirements can be prototyped in existing sample schemas for the team.

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2.1.4 Develop Requirements for Schemas (5 business days – Project Team)

Requirements for the schema are determined after the kickoff meeting by the project team. A review will be held between the Rational and project teams during this task to make sure that requirements are feasible and to prioritize the requirements.

The requirements template is shown in Appendix C – Implementation Requirements Template. This template shows the requirements for the VDC Communications implementation, and the template was used to also create the COD requirements.

2.2 Implementation and Initial Setup

Approximately 6 business days of ClearQuest work will pass before this process begins. The duration for this entire process is approximately 11 business days.

2.2.1 Create Schema based on Requirements (3 days)

The Rational team will design, customize, and build a schema to meet project needs and requirements.

Schema customization includes:

1. Build the State Transition Matrix (States and Actions)
2. Enter the fields and metadata
3. Setup the record types
4. Build the form (tabs, fields, and permissions)
5. Specify required fields in the Behavior table
6. Create hook scripts

The team will also create:

1. Reference data
2. Initial queries
3. Report formats
4. Any specific requirements such as Email Rules

Unit testing will be run on the schema at this point.

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2.2.2 Setup Test and Production Databases (1 hour)

An Access database will be created to test work being done on the schema before it is checked in and a production database is created in Oracle. This allows the Rational team to test what they are implementing before the current schema version is checked in and put into production. Data, queries, and reports entered into the test database are completely separate from the production database. This database can be used to enter unlimited sample records, queries, and reports without using the production database.

An Oracle database is setup by the Rational team to store production data after initial test are completed on the test database. Any sample records entered into the production database can be deleted before the schema goes live.

2.2.3 Report Generation (2 days)

Generating report formats in Crystal Reports is time intensive, especially if the reports require totaling of fields or formatting for the web client. Reports are built by combining a query (what data to select) and a report format (the layout of the report). After the report is built, it can be run at any point in time after that and will reflect the current data in the database. Reports in ClearQuest are dynamic since they pull data based on a particular query. If a user wants to save a particular report and its data at a specific point in time, they must export the report to another application.

2.2.4 Schema Design Review with Project Team (2 hours)

After the initial revisions of the schema are complete and the production database is setup, the Rational team and the project team will review the schema. Changes to the schema or the requirements can be made at this point based on the meeting.

2.2.5 Make Modifications to the Schema based on Review/User Acceptance Test (4 days)

Any schema modifications, including altering reports, discussed during the schema design review are completed during this task. Additional reviews and user acceptance tests are conducted as the modifications are finished to access whether or not the schema is acceptable.

2.2.6 ClearQuest Installation on Project Team Members Computers (1 day)

Three applications need to be setup on the end user's machine:

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1. Rational AnalystStudio or Enterprise Suite (includes ClearQuest 2001A)
2. Seagate Crystal Reports
3. Oracle 8.0 client

All desktop client users should be using Windows 2000 with Service Pack 1 the recommended service pack for Windows 2000. Windows 2000 is the preferred OS for users using ClearQuest 2001A.

Projects will differ on who needs the desktop client. Some projects may only require the administrator(s) to use it if the end users are only using the web client.

2.2.7 User Administration (2 hours)

Users and user groups are controlled through User Administration in the ClearQuest Designer tool. Each user and user group is given access privileges that are used to allow and restrict actions and field access within each schema.

In order to be given a ClearQuest account, a user must have submitted the following paperwork to a FSA Security Officer:

1. SF-85
2. OF-306
3. Fingerprint card

The forms are available on the web at <http://www.opm.gov/forms/>.

The project schema is in production and operational approximately 17 business days after the start of the effort.

2.3 Rational Support Team Exits the Project

Approximately 17 business days of ClearQuest work will pass before this process begins. The duration for this process is approximately 13 business days.

2.3.1 Create User Guide (3 days)

A user guide will be created by the Rational team for each project. It will assist the end users in using the project's ClearQuest implementation. It will document:

1. Login procedures
2. The work flow (based on the State Transition Matrix)

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3. Submitting change requests
4. Modifying change requests
5. Creating and modifying queries
6. Creating and modifying reports

The user guide will be tailored for each project but based on the template used to create the VDC Communications User Guide. The guide is in Appendix D. This is the general template that will be used for all future user guides. The user guide template will take about 2 days to modify for a specific project's implementation. One day will be used for review and modifications.

2.3.2 Provide Desk-side Support (5 days)

The Rational team will support the initial users of ClearQuest as they begin using the tool in production. Someone from the Rational team will be available for the whole week during normal business hours. This task can include an overview of the project implementation to the project user group to show them how to use the tool.

2.3.3 Complete Unplanned Fixes (10 days)

The Rational team will be available to correct any problems or inconsistencies with the requirements found after the project schema goes live. This overlaps with the Desk-side Support Task for the first week. This task is not a full-time effort, it is only done as necessary.

2.3.4 Complete ClearQuest Administration Process (5 days)

This task overlaps with the second week of the Complete Unplanned Fixes task. For this task, the Rational team will work with the project administrator(s) to get them to where they can handle on-going project administration. After this point, the project administrator(s) will handle future revisions to the schema and user administration.

The project schema is deployed and administration is turned over to the project after approximately 30 business days of ClearQuest work. At this point, the project administrator(s) should be handling all administrative tasks.

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2.4 Deployment Review/Follow-Up Support

Approximately 30 business days of ClearQuest work will have passed before this process begins. This stage is spread over several weeks through meetings and other work detailed below. It will last about 2 weeks, but will not be continuous.

2.4.1 Meeting to Track Effectiveness and Offer Support (2 meetings 2 hours each)

Shortly after the Rational team exits the project, the Rational team and end users shall meet and discuss how ClearQuest is working for the project. If anything is not working properly, the two sides can discuss possible solutions. The project administrators shall be in charge of implementing the changes, but the Rational team can support that effort if necessary. There should be two of these meetings, taking place one or two weeks apart shortly after the project administrator(s) take over project administration. While these timeframes are recommendations, the Rational deployment team will work with individual project teams to provide a "best fit" transition plan.

2.4.2 Conduct Lessons Learned Review (2 hours)

The Rational team will meet with the initial project team to get feedback on the ClearQuest deployment effort. This will give the Rational team a chance to find out what was effective and areas for improvement in implementing future solutions.

2.4.3 Document Lessons Learned (4 hours)

The Rational team will document items addressed in the Lessons Learned meeting for use on future deployment efforts.

2.4.4 Identify Open Items and Schedule Next Session (as appropriate) (2 hours)

This meeting can take place after the second meeting to track effectiveness. Any open items can be documented and future review sessions can be setup if necessary. If any additional work is needed from the Rational team, this should be addressed at this time.

2.5 Other Stages and Tasks

This section will look at stages and tasks not included as part of the timeline. An explanation for why the stages are not part of the timeline is included for both stages.

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2.5.1 ClearQuest Training for Administrators

This stage is not included in the deployment timeline since it does not directly involve the Rational team. Project administrator(s) should complete the ClearQuest Administration course before the Implementation and Initial Setup stage is complete.

2.5.1.1 Schedule CQ Administrator Training Course (2 hours)

FSA contact Frank Kidd or the project team lead will confirm their project ClearQuest Administrator into the ClearQuest Administration class.

To see available dates for Rational ClearQuest Administration classes, use the following link:

<http://www.rational.com/university/schedule/index.jsp>

Select a time criteria for Step 1, "All US" for Step 2, and "Rational ClearQuest Administration" for Step 3 and click on the Search button. This will show available dates and locations for classes. The two closest locations are McLean, VA and Columbia, MD.

2.5.1.2 Attend ClearQuest Administrator Training Course (3 days)

The project administrator(s) needs to attend this training class. The project administrator is responsible for administrative tasks after the initial implementation is complete.

For more information on the ClearQuest Administration class, use the following link:

<http://www.rational.com/university/description/22.jsp>

2.5.2 Prototype Schema

A prototype may be built for the project. This was done for the COD team to allow them to pilot the tool before full implementation. Based on the pilot, COD modified their requirements to better use ClearQuest functionality and improve COD's change management process.

The approximate time to complete a prototype is 5 days. The project team will then use the prototype for 5 to 10 days. The results of the prototype will be used to modify the requirements. Some of the tasks required to complete a prototype overlap with the Implementation and Initial Setup stage. For this reason, the time required to complete a prototype is not included in the timeline for a typical project since most projects will not use a prototype.

2.5.2.1 Create Prototype Schema (2 days)

The Rational team will customize a schema for the project and associate it with an Access database.

Schema customization includes:

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1. Build the State Transition Matrix (States and Actions)
2. Enter the fields and metadata
3. Setup the record types
4. Build the form (tabs, fields, and permissions)
5. Specify required fields in the Behavior table
6. Create hook scripts

The Rational team will also create:

1. Reference data
2. Sample queries
3. Sample report formats
4. Sample reports
5. Any specific requirements such as Email Rules

2.5.2.2 Setup Prototype Database on the VDC (1 hour)

A prototype database will be created in Access by the Rational team to store the prototype data. This database can be used to enter unlimited sample records, queries, and reports, but the data will not be part of the production database after full implementation. Any queries or reports created in the test database will have to be recreated on the production database.

2.5.2.3 ClearQuest Installation on Clients (1 day)

Three applications need to be setup on the end user's machine:

4. Rational AnalystStudio (includes ClearQuest 2001A)
5. Seagate Crystal Reports
6. Oracle 8.0 client

All desktop client users should be using Windows 2000 with no Service Pack or Service Pack 1 on the machine. This is the preferred OS for users using ClearQuest 2001A.

2.5.2.4 User Administration (2 hours)

Users and user groups are controlled through User Administration in the ClearQuest Designer tool. Each user and user group is given access privileges that are used to allow and restrict actions and field access within each schema.

2.5.2.5 Conduct User Review of Prototype (4 hours)

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The functionality of the schema is reviewed with the project team to determine if the requirements have been met. Any necessary modifications can be made at this point before the project team begins using the prototype.

2.5.2.6 Prototype (3-20 days – Project Team)

The project team enters data into the prototype schema. Based on the results of the prototype, the project team will adjust the requirements before the production schema is built.

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3. Miscellaneous Information

Rational Tool Implementation Support Team:

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Key Links:

FSA ClearQuest Login Page – <https://www.casetool.sfa.ed.gov/cqweb>

Rational Homepage – www.rational.com

Rational University Homepage - www.rational.com/university/index.jsp

Hardware and Software:

Rational Server: Windows NT 4.0 with Microsoft IIS in the VDC

Oracle: Stored on a UNIX server in the VDC

Rational ClearQuest: Version 2001A, desktop client requires Seagate Crystal Reports 8.0 to have been installed on the user's machine

ClearQuest Schema Repository: Stored in an Oracle8 database in the VDC

ClearQuest User Databases: Stored on either Access97 or Oracle8 in the VDC

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Appendix A – ClearQuest Implementation Work Plan

The work plan attached shows the effort required to deploy ClearQuest to the Pilot Projects. It shows the same stages and tasks that were detailed in Section 2 of this document. Many tasks took longer on the Pilot Projects than what was approximated in Section 2. The following list shows things that have been done or resolved with the Rational ClearQuest setup to improve implementation efforts:

1. The Rational team has developed broad skills in using and deploying ClearQuest.
2. A requirements template and user guide template now exist that can be reused with moderate modifications for new projects.
3. New users no longer need a VDC account to gain access to the tool.
4. SSL has been installed on the VDC Rational host for ClearQuest.
5. The Rational host and Oracle host are production servers with associated service levels.

NOTE: The page numbers in the work plan document do not match up with this document. The work plan is an updated copy of the work plan from Deliverable 51.1.1.



"TO 51 ClearQuest
Implementation.mpp"

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Appendix B – ClearQuest Implementation Requirements Planning

The Requirements Planning template is used by projects to identify and document change control and tracking requirements for their solution. Requirements are documented and broken into categories and typically include the following items:

- Identify time windows for when ClearQuest can be implemented.
- Identify the number of users that will be using ClearQuest and using a license. Separate these people by who will need the client installed and who is just using the web.
- Identify the people who will be on-going administrator(s) for the tool.
- Figure out your state transition matrix - what states do you want and what will be the actions to get from state to state?
- Identify what fields you will want in the schema(s). Also identify which fields will be required by state.
- Access rights: create necessary groups and identify which users will be in the specific groups. Identify which tabs, records, and/or record types each group can see, as well as what actions each group can do.
- Identify what rules you want (email rules, what projects/groups can do what, and so forth).
- Identify how many of your users will need the 3 day admin class, and how many will benefit from a short class on how to use the tool.

See the requirements template in Appendix C for a sample requirements spreadsheet.

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Appendix C – Implementation Requirements Template

The attached document shows the template for requirements that was developed for the VDC Communications effort. Bruce Bruning of Mod Partner developed it. This template was used to develop the COD requirements and will be used to develop the SLC requirements.

NOTE: The page numbers in the requirements document do not match up with this document. The requirements document is the actual VDC Communications Requirements Document.



"VDC
Communications Too

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Appendix D – User Guide Template

The attached document shows the user guide template that was built while creating the VDC Communications User Guide. This user guide was used to create the COD User Guide.

NOTE: The page numbers in the user guide document do not match up with this document. The user guide document is the actual VDC Communications User Guide, and will be used as the basic template for future efforts.



"VDC
Communications Too

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Appendix E – Awareness Presentation

The attached document shows the Awareness Presentation used during the Kickoff meeting. It was developed as part of Deliverable 51.1.1.

NOTE: The page numbers in the Awareness Presentation do not match up with this document.



"TO 51 Awareness
Presentation.ppt"

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Appendix F – ClearQuest User Databases

The attached document lists the current ClearQuest user databases, the associated schema, and the physical location. Some of the user databases are databases created before the task order began and are for teams other than the pilot projects. Other user databases are for demonstrations or test work.



Database_Inventory
.doc