

ORNL Software Registration System Overview

Terry Scoggins

Tom Bundy

ORNL is managed by UT-Battelle, LLC
for the US Department of Energy



U.S. DEPARTMENT OF
ENERGY

History and Overview

- Custom developed in 2003 for software inventory
- Updated in 2011 for technical upgrade and SQA integration
- Contains ~1500 program registrations (including archives)
- Maintained by IT SQA SME and organization coordinators
- Registration of safety systems and general software rated moderate or higher is required. Research systems recommended

SQA Work Activity Matrix

General Software Work Activity Matrix																				
General Software	Severe Impact				Significant Impact				Moderate Impact				Minor Impact							
Software Types → SQA Work Activity ↓	Custom Developed	Configurable	Acquired	Utility Calculations	Custom Developed	Configurable	Acquired	Utility Calculations	Custom Developed	Configurable	Acquired	Utility Calculations	Custom Developed	Configurable	Acquired	Utility Calculations				
1. Software Project Management and Quality Planning	Full	Full	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	No action required	No action required	No action required	No action required
2. Software Project Risk Management	Full	Full	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	No action required	No action required	No action required	No action required
3. Software Configuration Management	Full	Graded	Graded	Graded	Full	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	No action required	No action required	No action required	No action required
4. Software Procurement and Supplier Management	Full	Full	Full	Full	Full	Full	Full	Full	Full	Full	Full	Full	Full	Full	Full	Full	No action required	No action required	No action required	No action required
5. Software Requirements	Full	Full	Graded	Graded	Full	Full	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	No action required	No action required	No action required	No action required
6. Software Design and Implementation																				
6a. Design Description	Full	Graded	No action required	Graded	Full	Graded	No action required	Graded	Graded	Graded	No action required	Graded	Graded	Graded	No action required	Graded	No action required	No action required	No action required	No action required
6b. Design and Code Review	Full	Graded	No action required	Graded	Full	Graded	No action required	Graded	No action required	No action required	No action required	No action required	No action required	No action required	No action required	No action required	No action required	No action required	No action required	No action required
6c. Developer Testing (Unit, Integration)	Full	Graded	No action required	Graded	Full	Graded	No action required	Graded	Graded	Graded	No action required	Graded	Graded	Graded	No action required	Graded	No action required	No action required	No action required	No action required
7. Software Failure Analysis (Software Safety)	Graded	Graded	No action required	No action required	Graded	No action required	No action required	No action required	No action required	No action required	No action required	No action required	No action required	No action required	No action required	No action required	No action required	No action required	No action required	No action required
8. Software Verification and Validation	Full	Full	Full	Graded	Full	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	No action required	No action required	No action required	No action required
9. Software Problem Reporting and Corrective Action	Full	Full	Graded	Graded	Full	Full	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	No action required	No action required	No action required	No action required
10. Software Training	Full	Full	Full	Full	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	Graded	No action required	No action required	No action required	No action required

SRS Data Contents

SRS contains the following categories of data for each registered system:

- Functional
 - Organizational, SQA, and CIA ratings

- Role
 - Owner, Functional/Technical Contacts

- Technical
 - Software type, Hardware devices, Software tools, documentation links (including the SQA plan if applicable)

Functional Information In SRS

(Items In Yellow Are From SQA Process)

- Functional Information

- Acronym
- Name
- Description
- Mgmt. System
- Owing Org.
- Managed by
- Software Category
- Category justification
- Software grading level
- Grading Level justification
- Software attributes
- Data Confidentiality
- Data Integrity Level
- Data Availability Level

Role Information In SRS

(Items In Yellow Are From SQA Process)

- Role Information
 - Software Owner
 - Functional Contacts
 - ITSD Technical Contacts
 - Other contact

Technical Information In SRS

(Items In Yellow Are From SQA Process)

- Technical Information

- Software Type
- Software Devices
- Software Tools
- Release History
- Other documentation
- Software URL
- SQA Plan Status
- SQA Plan

Automated Functions in SRS

- Emails sent on the following conditions to SME daily:
 - No valid contact for software owner
 - No valid contacts in any role
 - No valid contact in organizational coordinator role
- Emails sent to software owner and contacts on the following :
 - Annual review of all information for the application is due
 - Email on status change from draft to production or production to retired is sent to software owner
 - Applications that have been in draft mode for six months