Hour Log – Test Cases

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# Revision History

|  |  |  |
| --- | --- | --- |
| Revision | Issued | Changes |
|  | 22 August 2014 | Initial version |
|  | 25 August 2014 | Clarified scope. |
|  | 25 August 2014 | Updated milestones |
|  | 04 September 2014 | Updated Data U effort and milestone. Updated references. |

# Authorizing Document

None.

# Authorized Documents

None.

# Authorized Committees and Boards

None.

# Project Overview

## Introduction

National Superconducting Cyclotron Laboratory (NSCL) is a world leader in rare isotope research and nuclear science education. NSCL scientists and researchers conduct advanced research in fundamental nuclear science, nuclear astrophysics, and accelerator physics. To facilitate the research, NSCL operates multiple particle accelerators. Operations Department at NSCL is responsible for delivery of isotope beams to NSCL’s users. It uses Hour Log software to manage activity logs, facility status, system breakdowns, shift change, and to generate reports for funding agencies. A new version of Hour Log (NHL) is needed to enhance functionality, improve maintainability, and to allow extensibility.

## Business Need

The current version of Hour Log (CHL) cannot accommodate the growing needs of the lab. It cannot manage multiple facilities and logbooks. It is difficult to maintain due to its architecture, technologies, and lack of documentation. It depends on external systems such as Approved Experiments, Trouble Reports, and Training System. When these external systems are upgraded Hour Log is unable to interface with them. The goal of this project is to develop a software system that:

* Meets the needs of CCF and ReA facilities, and eventually can be used for FRIB
* Can be easily sustained
* Can interface with external systems through supported Application Programming Interface (API)
* Provides API for integration with other systems

# Test Cases

## Activity Log

### Scope Description

This project will perform the following work [6]:

* Develop a new implementation of Hour Log that has
  + All the functionality of CHL
  + Ability to manage multiple Facilities
* Migrate data from CHL to NHL
* Interface with external systems (Approved Experiments, Trouble Reports, Training System, Logbook Service [5] etc) through respective APIs.
* Upgrade the following systems that depend on Hour Log:
  + Data U Display
* Develop API to interface with Hour Log programmatically
* Train users on NHL
* Switch over from NHL to CHL

### Product Acceptance Criteria

Acceptance criteria for NHL is defined in NHL Acceptance Criteria List [2].

### Project Deliverables

The project deliverables are:

* Source code, build scripts, and documentation for the following:
  + New Hour Log
  + Upgraded Data U Display
* Test Plans and Results
* User Training for NHL
* Switch over to NHL:
  + Deployment of the new system
  + Data migration from CHL
  + Testing of the new system

Documentation for NHL will include the following:

* Software Requirement Specifications
* Architecture Manual
* Developer Manual
* Installation Manual
* User Manual
* API Manual

### Project Exclusions (Out of Scope)

The following are not in the scope of this project:

* Upgrade of Hallway Display: Hallway Display application uses Hour Log data. NHL will provide access to such data through an API. However, upgrading of Hallway Display itself is not within the scope of this project.
* Upgrade of any system that is dependent on Hour Log but is not listed in the scope (Section 2.1.1)

### Assumptions

* Experiments may run on various configurations: CCF Only, ReA Only, and CCF and ReA. Accounting for breakdowns in these configurations is still not clear. It is assumed that the solution will not require a large amount of effort (compared to the current overall effort [1]).

### Project Constraints

* Scheduling: Switching over to NHL must occur during CCF shutdowns

## Work Breakdown Structure

The Work Breakdown Structure (WBS) and its elements are described in Table 1.

Table WBS

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **Name** | **Description** | **Owner** |
| HL | New Hour Log | Entire project | CCD |
| HL-FF | Develop Functional Features | GUI, Reports, External systems | CCD |
| HL-API | Develop API | API to access Hour Log data | CCD |
| HL-DS | Upgrade Dependent Systems | Data U Display | CCD |
| HL-QA | Quality Assurance | Test plans, automated tests | CCD |
| HL-DOC | Documentation | SRS, design, user, API, installation manuals | CCD |
| HL-TRN | Train users | Training of operators | CCD |
| HL-SO | Switch-over | Data migration, switch to new Hour Log | CCD |
| HL-PM | Project Management | Project management activities | CCD |
|  |  |  |  |

### Hallway Display

Hallway Display Application depends on Hour Log data but is not in the scope of this project. HL-API work package will develop API that Hallway Display Application can use to access Hour Log data. Business IT Department is responsible for upgrading Hallway Display Application, and shall provide requirements for the desired interfaces.

# Project Strategy

The overall strategy for this project is as follows:

* Develop a beta version with most of the functionality but with limited interfaces to external systems
* Get feedback from users on beta version
* Automate Data Migration
* Dependent Systems:
  + Identify systems that are dependent on Hour Log.
  + Find stakeholders, for upgrading them
  + Develop NHL APIs for them
* External systems:
  + Identify external systems that Hour Log depends on
  + Interface with them through APIs instead of directly accessing the databases
* Quality Assurance
  + Develop test plans
  + Develop automated and manual tests
* Switch over to NHL

The challenges for this project are:

* Dependencies on external systems
* Upgrading of dependent systems
* Data Migration.

# Project Schedule

The details of the schedule are available in the NHL Project Schedule [1]. Changes to the schedule are controlled by the Change Control process (Section 11.3).

## Project Milestones

The milestones for this project are shown in Table 2.

Table Milestones

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | **Name** | **Description** | **Owner** | **Expected Completion** |
| 1 | Hour Log Release | Periodic Releases (Sep, Oct, Nov, Dec 2014, and Jan 2015) | CCD | Every Month |
| 2 | Data U Display | Upgrade of Data U [7] | CCD | 3rd week of December |
| 3 | API for Hallway Display | Requirements to be provided by BIT. | CCD | 3rd Week of September |
| 4 | APIs for Trouble Reports and Training Systems | See requirements for the interface [4] | BIT | 1st Week of October |
| 5 | User Training |  | CCD | 1st Week of December |
| 6 | UAT | User Acceptance Test | Operations | 2nd Week of December |
| 7 | Switch over |  | CCD | January 2015 Shutdown |
| 8 | Project Completion |  | CCD | February 2015 |
|  |  |  |  |  |

# Project Budget

The details of the budget are available in the NHL Project Schedule [1]. Changes to the budget will be controlled using the Change Control process (Section 11.3).

# Resource Management

## Organization

Organization of the project team is described in Appendix A. The resource loading and release schedule is given in the NHL Project Schedule [1].

## Roles and Responsibilities

Controls and Computing Department will develop NHL, upgrade Data U Display, and manage the project. Business IT Department will develop APIs for Trouble Reports and Training System

# Quality Management

The following activities will be performed to manage quality:

* Develop test plans
* Develop automated and manual tests
* Perform tests and report results with major releases of NHL
* Determine quality audit schedule
* Perform design and code reviews as per quality schedule

# Risk Management

## Risk Register

Table Risk Register

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **#** | **Risk** | **Root Cause** | **Probability** | **Impact** | **Response** |
| 1 | Unknown Systems Dependent on Hour Log | Known Unknowns. | Medium | High | 1. Announce Hour Log changes to the entire lab in September or October. |
| 2 | Systems Hour Log Depends on: TR, Training, Olog, Experiments | Interfaces not ready | Medium | High | 1. Weekly progress report (EVM) 2. Stakeholder escalation |
|  |  |  |  |  |  |

## Environment, Safety, and Health (ESH)

This project does not have any environmental, safety, or health related risks, and does not pose any risk to the environment, as per NSCL’s ESH Management System [3].

# Communications

The project team will meet periodically to discuss project performance. The frequency of such meetings may change with project’s progress. Sometimes these meetings may be combined with the status meetings held with the Customer. Communications plan for the project is shown in Table 4.

Table Communications Plan

|  |  |  |  |
| --- | --- | --- | --- |
| Information | Recipients | Medium | Frequency |
| Performance Report (PR) | All Stakeholders | Redmine | Weekly |
| Project Status (contents of PR) | Customer | Meeting | Bi-Weekly |
| Project Management Documents | All Stakeholders | Redmine | As Available |

# Procurement Management

No procurement, in terms of material or outsourced services, is expected for this project.

# Configuration Management

## Configuration Items

The configuration items are:

* Source code
* Product documentation: SRS, Architecture, User, API Manuals etc
* Project documentation: Project Plan, Change Requests, Project Closure Report
* Build Information: Build procedure and scripts, platform, dependencies (libraries) etc
* Deployment Information: Supported operating systems, application servers, runtime systems etc
* Test Information: Methodology, test plans, test cases, and test results.

## Configuration Management Plan

The configuration items (Section 11.1) will be tracked in CCD’s Source Code Management (SCM) system. NHL will be built using automated scripts that will compile the source, link to appropriate versions of libraries, and run automated tests. Each release of NHL will be tagged in the SCM. Major releases of NHL will be kept in CCD’s software repository.

## Change Control

Any change that may delay the Switch Over (see Section 4.1) or add to the project budget (Section 5) must be approved by the Change Control Board (refer Appendix A).

# Glossary

|  |  |
| --- | --- |
| Item | Description |
| BIT | Business Applications IT Department |
| CCB | Change Control Board |
| CCD | Controls and Computing Department |
| CCF | Couple Cyclotron Facility |
| EPICS | Experimental Physics and Industrial Control System |
| ESH | Environment, Safety, and Health |
| EVM | Earned Value Management. A technique for measuring project performance. |
| NSCL | National Superconducting Cyclotron Laboratory |
| ReA | The Re-Accelerator Facility |
| WBS | Work Breakdown Structure |
|  |  |

# References

1. *Hour Log – Project Schedule Baseline*, MS Project File, N20000-PL-000179-R001, DCC
2. *Hour Log – Acceptance Criteria List*, DCC
3. *NSCL ESH Management System*, ESH&Q Page, FRIB Portal, http://portal.frib.msu.edu
4. *Hour Log – TR and Training Interface Specifications*, DCC
5. *Hour Log – Olog Interface Specifications*, DCC
6. *Hour Log – Software Requirement Specifications,* DCC
7. *Data U – Software Requirement Specifications,* DCC

# Appendix A

Organization of the project team is as follows:

* Customer: NSCL Operations – CCF & ReA
  + Daniela Leitner, Andreas Stolz
* Sponsor: NSCL Operations – CCF & ReA
  + Andreas Stolz
* Change Control Board:
  + Larry Hoff, Daniela Leitner, Andreas Stolz, Vasu Vuppala
* Project Lead: Controls and Computing Department
  + Vasu Vuppala
* NHL and Data U Development Team: Controls and Computing Department
  + Eric Berryman, Dong Liu, Vasu Vuppala
* Trouble Report and Training System Interfaces Development Team: Business Applications IT Department
  + Clint Jones