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# **Software Requirements Specification**

**for**

## **Electronic Field Input System to a Fish Survey Database**

**Version 1.0**

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**Team 5**

**October 11, 2014**

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## Revision History

Name	Date	Reason For Changes	Version
Stacy Carlson, Thomas Flores, and Ralph Parkison	10/11/14	Initial Draft	1.0 draft 1

# 1. Introduction

## 1.1 Purpose

This SRS describes the software functional and nonfunctional requirements for release 1.0 of the Electronic Field Input System to a Fish Survey Database, hereafter referred to as the Creel Input System. This document is intended to be used by the client and the members of the project team to ensure that the system is implemented and functioning in accordance to the client's requirements. All requirements specified here are of high priority to the client and committed for release 1.0.

[Optional] Raw Fish Survey

[Optional] FWIN Survey

## 1.2 Document Conventions

[Highlight][Light Blue] – Optional if time allows.

## 1.3 Intended Audience and Reading Suggestions

This document is intended for both the client and the developers. The rest of this SRS defines the features of the software. Both the client and the developers should read the SRS in the order provided with particular care being given to the System Features.

## 1.4 Project Scope

The Creel Input System will allow creel clerks to complete Angler creel surveys electronically. The client had previously relied on paper surveys with transcription, so the goal of the electronic system is to minimize data entry errors. Since the system will be fully functional with the Fish Survey Database, the client will also benefit from user-friendly and time efficient data access.

## 1.5 References

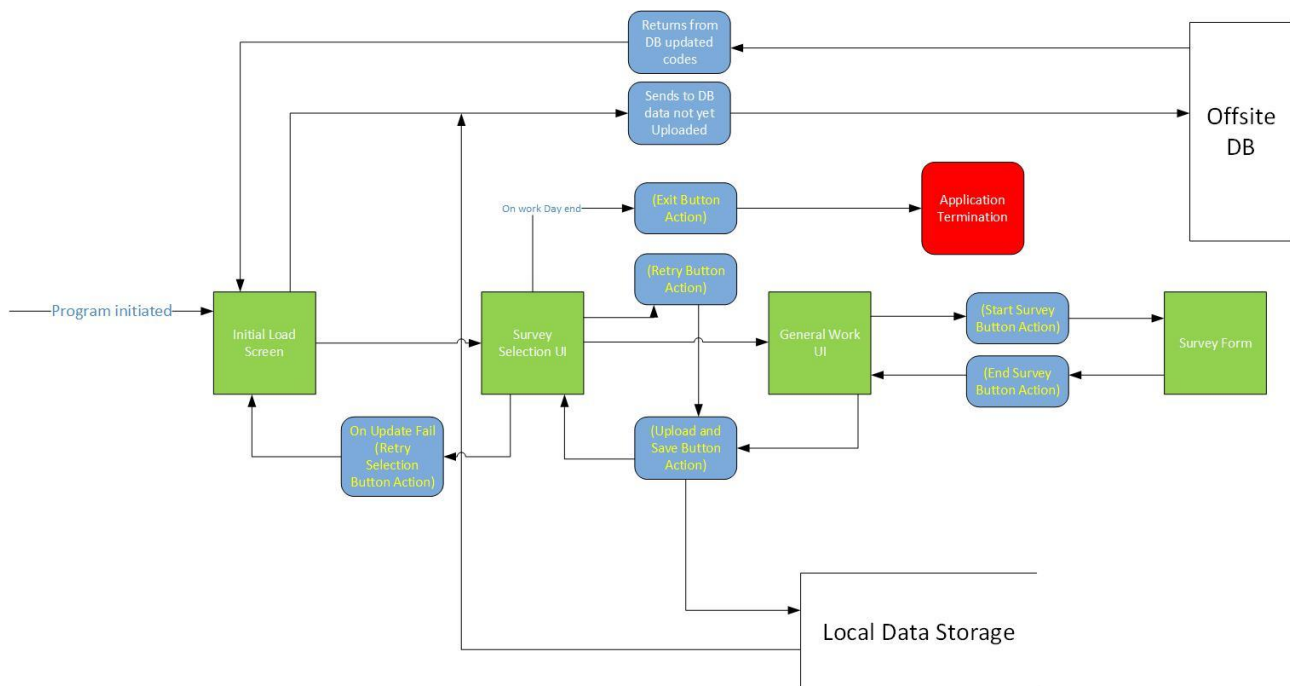
1. Franklin D Roosevelt Lake Creel Survey Form, LRFEP, 2/8/05
2. Lake Roosevelt Recreational Creel Survey 2014 Survey Design And Protocol, 7/27/14
3. Lake Roosevelt 2004 recreational survey design, ??/04

## 2. Overall Description

### 2.1 Product Perspective

The Creel Input System is the electronic replacement of the paper Franklin D. Roosevelt Lake Creel Survey Form. (See Appendix C) The system provides a user interface to collect data and stores it internally. When an Internet connection is available the system connects with the Fish Survey Database for offsite data storage.

[Optional] Raw fish and FWIN survey entry



### 2.2 Product Features

The Creel Input System features all fields that appear on the paper Franklin D. Roosevelt Lake Creel Survey Form. Users can fill out the form by selecting the angler answer from drop down menus or enter information via the onscreen keyboard.

[1] The application will sync with the database updating various codes i.e. [location, fish...]

[2] The application will upload survey data to database

## **2.3 User Classes and Characteristics**

Creel Clerk (favored)

A Creel Clerk is the user who interviews anglers and records the answers in the Creel Input System. All Creel Clerks have been trained how to do a Creel survey. Creel Clerks possess a varying range of technical expertise, some may need basic computer skill training.

## **2.4 Operating Environment (OE)**

OE-1: The Creel Input System shall operate on the following operating system: Windows 7 Professional (64 bit)

OE-2: The Creel Input System shall operate on the following hardware platform: Getac Tablet (Model F110)

OE-3: The Creel Input System shall be fully compatible with the Fish Survey Database.

## **2.5 Design and Implementation Constraints (CO)**

CO-1: The Fish Survey Database must be used.

CO-2: The Creel Input System must use JSON to communicate with the Fish Survey Database.

CO-3: All code must be written in a language that allows for modification and upgrades.

## **2.6 User Documentation (UD)**

UD-1: The team will demonstrate the software to the client upon completion.

UD-2: The team will create help files for the software.

UD-3: The client will be responsible for training the Creel Clerks on use of the system.

## **2.7 Assumptions and Dependencies (DE)**

DE-1: The Creel Input System depends on the Fish Survey Database being implemented in the manner described by Team 4.

# **3. System Features**

## **3.1 Welcome Screen User Interface**

### **3.1.1 Description and Priority**

An options menu is displayed. Priority: High

### **3.1.2 Stimulus/Response Sequences**

Stimulus: A Creel Clerk selects the Creel Survey. [Optional]Raw fish and FWIN  
Response: The application launches the survey.

Stimulus: A Creel Clerk selects upload/update.  
Response: The application follows the upload/update procedures. (See 3.4 and 3.5)

### 3.1.3 Functional Requirements (REQ)

REQ-1: Creel Survey User Interface

## 3.2 General Work Information Entry User Interface

### 3.2.1 Description and Priority

A Creel Clerk enters general work information. Priority: High

### 3.2.2 Stimulus/Response Sequences

Stimulus: A Creel Clerk enters their initials, selects the survey type and section, and presses start day.  
Response: Information is saved in internal memory. Creel Clerk is given the option to add a location.

Stimulus: A Creel Clerk clicks end upon ending work.  
Response: Ending work time is saved in internal memory. Welcome screen is displayed.

### 3.2.3 Functional Requirements (REQ)

REQ-1: Internal Log Files

## 3.3 Angler Creel Survey Entry User Interface

### 3.3.1 Description and Priority

A Creel Clerk completes an angler creel survey. Priority: High

### 3.3.2 Stimulus/Response Sequences

Stimulus: A Creel Clerk selected bus route.  
Response: Location time will count down and prompt the clerk to leave the location when time is up.

Stimulus: A Creel Clerk will enter angler party information.  
Response: Information is saved in internal memory.

Stimulus: A Creel Clerk clicks the add fish button.  
Response: A new fish line is added to the screen with the fields, species caught and kept/released.

Stimulus: A Creel Clerk marks the fish as kept.  
Response: The fish details fields are added to the fish line.

Stimulus: A Creel Clerk marks the fish as released.  
Response: The total field is added to the fish line.

Stimulus: A Creel Clerk clicks the add party button.  
Response: Information is stored in internal memory and the fields are cleared. Previous parties are accessible via arrow buttons.

Stimulus: A Creel Clerk clicks the end location button.  
Response: The system returns to the general work information entry screen. A summary of the location is displayed.

### 3.3.3 Functional Requirements (REQ)

REQ-1: Internal Log Files  
REQ-2: Internal Log File naming convention  
“Initials-SurveyType-TimeDate-Fail/Success”  
REQ-3: Movement between views with various selections  
REQ-4: Entry responses informing user of result

## 3.4 Upload Data to the Fish Survey Database

### 3.4.1 Description and Priority

The Creel Clerk submits the data they collected via JSON object to the Fish Survey Database. Priority: High

### 3.4.2 Stimulus/Response Sequences

Stimulus: The Creel Clerk chooses to upload the data.  
Response: The Creel Input System attempts to connect to the Fish Survey Database. If a connection is made the Creel Clerk is prompted for their username and password. Otherwise the Creel Clerk is prompted to either try the connection again or skip it.

Stimulus: Username or password isn't validated by the Fish Survey Database.  
Response: The Creel Clerk is informed of the error and prompted to try again.

Stimulus: Username and password are validated by the Fish Survey Database.  
Response: Data transfer begins.

Stimulus: Data uploads to the Fish Survey Database.  
Response: The Creel Clerk is informed of the success.

Stimulus: Data fails to upload to the Fish Survey Database.  
Response: The Creel Clerk is informed of the failure and is prompted to try again or exit.

### 3.4.3 Functional Requirements (REQ)

REQ-1: Internet Connection  
REQ-2: Fish Survey Database

### 3.5 Download Data From the Fish Survey Database

#### 3.5.1 Description and Priority

Updates from the Fish Survey Database are received in JSON object format and applied to the application's fields.

#### 3.5.2 Stimulus/Response Sequences

Stimulus: The Creel Clerk chooses to update the system.

Response: The Creel Input System attempts to connect to the Fish Survey Database. If a connection is made the data transfer begins. Otherwise the Creel Clerk is prompted to either try the connection again or skip it.

Stimulus: Data downloads from the Fish Survey Database and the updates are applied.

Response: The Creel Clerk is informed of the success.

Stimulus: Data fails to download from the Fish Survey Database.

Response: The Creel Clerk is informed of the failure and is prompted to try again or skip it.

#### 3.5.3 Functional Requirements (REQ)

REQ-1: Internet Connection

REQ-2: Fish Survey Database

## 4. External Interface Requirements

### 4.1 User Interfaces (UI)

The user interface will be split into 3 different views.(See Appendix B)

UI-1: Initial view will be a welcome screen that will provide choices for surveys and updating/uploading. If updating/uploading is selected the user will be presented with a progress indicator. (TBD)

UI-2: The general work entry information view will collect information about the general workday. Users will be able to add a new location from this view. A day summary will appear on this screen as the day progresses. (See Appendix B, 2.1 and 2.2)

UI-3: The angler creel survey entry view will collect information about the angler party being interviewed. Users will be able to add fish, view previous parties, add another party, and end the location. If the survey is a bus type the application will prompt the user when time is up at the location. (See Appendix B, 3.1 and 3.2)



## **4.2 Hardware Interfaces (HI)**

- HI-1: Getac Tablet running windows 7(64bit)
- HI-2: Touch screen using a virtual keyboard
- HI-3: Stylus
- HI-4: Web based Server (ASP.Net) running MYSQL (Fish Survey Database)

## **4.3 Software Interfaces (SI)**

- SI-1: Windows 7 (64 bit) installed on Getac (Connected via Windows Libraries on C#)
- SI-2: Offsite MySQL server (ASP.Net) where the database is stored (Connected via JSON Package Transfers)

## **4.4 Communications Interfaces (CI)**

- CI-1: Be able to package up data into a JSON object and send it to a web server
- CI-2: Be able to unpack a JSON object to update local data from the web server
- CI-3: Be able to reinitialize any unsuccessful data back into the application and attempt to repackage and retry upload

# **5. Other Nonfunctional Requirements**

## **5.1 Performance Requirements**

Our system does essentially no heavy processing so the application should run at an extremely fast rate where once the user submits data, they should be immediately greeted with the appropriate screen. The only exception would be when sending data to the DB which is reliant on internet connectivity.

## **5.2 Security Requirements (SR)**

- SR-1: Username and password will be entered on the client side
- SR-2: Username and password will be verified on the server side
- SR-3: Client side will display pass/fail of credentials and allow/deny upload

## **5.3 Software Quality Attributes**

Reliability: The application must be extremely reliable and so testing will have to be done to ensure this.

Correctness: Additionally the application must be able to interact appropriately with the Fish Survey Database and submit data correctly.

Maintainability: The software must be able to update itself as the list of fish species, locations, etc. changes.

Usability: The interface must be intuitive, easy, and quick to use.

## **6. Other Requirements (R)**

R-1: Testing and documentation of testing should be done to ensure the reliability of the product.

R-2: Additionally the client will need full documentation on how to run the application, upgrades and/or maintenance.

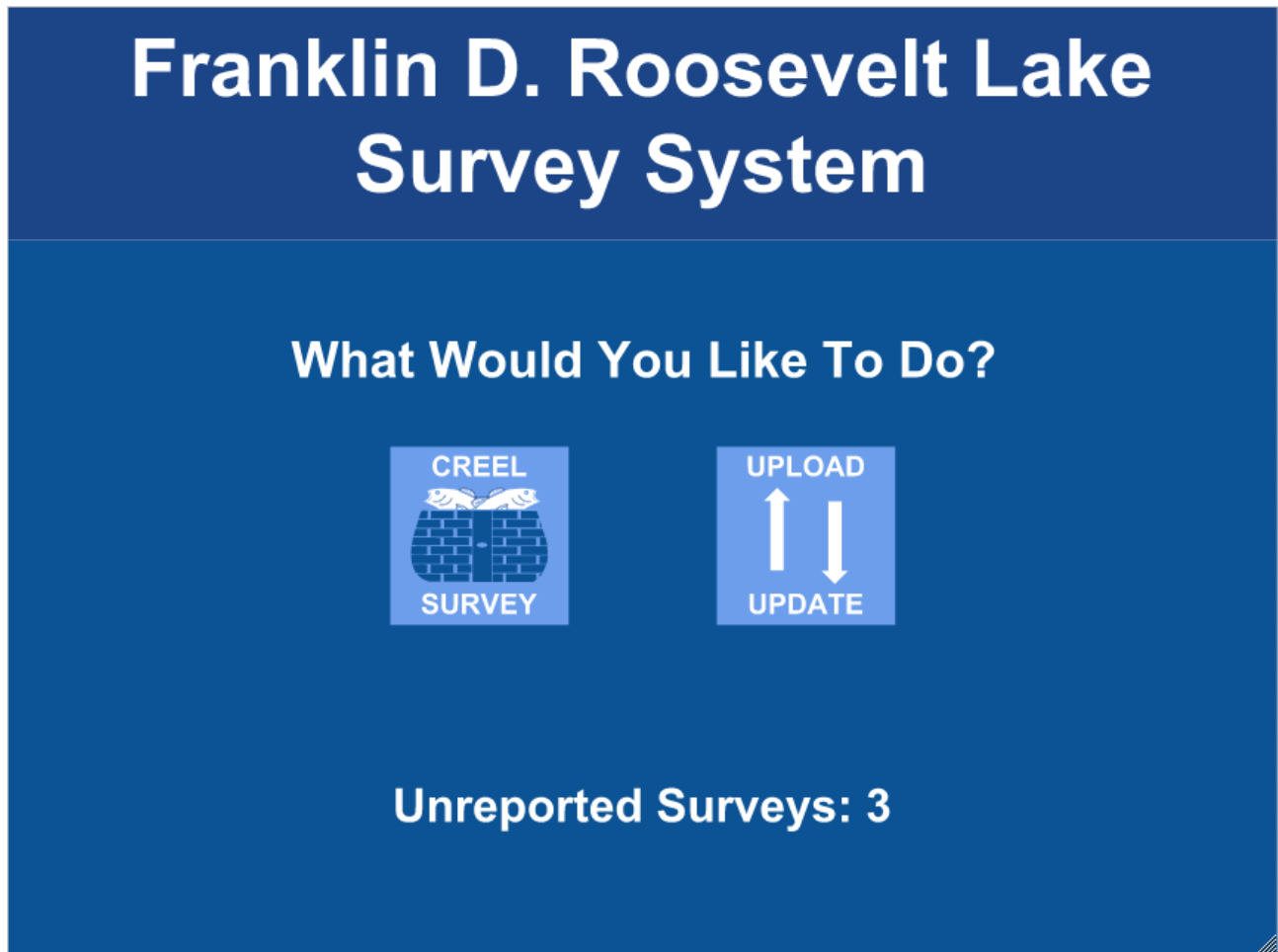
## **Appendix A: Glossary**

[Angler] – Fisherman

[CREEL Survey] – An interview where the surveyor asks fishermen questions regarding their fishing activities and records their responses.

## Appendix B: User Interfaces

UI-1: Welcome Screen



UI-2.1: General Work Information

Tuesday 10/14/2014			
Survey Type	Section	Work Day Start	Work Day End
<input type="text" value="Bus"/>	<input type="text" value="Upper"/>	<input type="text" value="Start"/>	<input type="text" value="End"/>

## UI-2.2: General Work Information With Day Summary

Tuesday 10/14/2014

Survey Type

Bus

Section

Upper

Work Day Start

8:06

Work Day End

End

Location	Start	End	Parties	Fish
Bus Route 94	8:05	8:55	4	37
Bus Route 95	9:37	10:19	7	31
Bus Route 96	10:53	11:45	2	6
Bus Route 97	12:13	13:08	10	53

Start New Location

## UI-3.1: Angler Creel Survey Entry

### Creel Survey #5

Creel Survey Start

8:06

Location

3

Creel Survey End

14:37

◀

Party #3

▶

Party Size	No. of Anglers	Angler Type	Start Time	End Time	Complete Trip	Zip Code	Target Species 1	Target Species 2
6 2	7 2	8 Boat	9 6:30	13:06	10 Y N	99801	10 Rainbow Trout	Kokanee Salmon

+ Fish

New Party

End Survey

## UI-3.1: Angler Creel Survey Entry With Bus Route Timer

5th Location

Location Start Time

8:06

Location

3 - Location Name

Time At Location

0:50

Party #3

Party Size	No. of Anglers	Angler Type	Start Time	End Time	Complete Trip	Zip Code	Target Species 1	Target Species 2
2	2	Boat	6:30	13:06	<div>Y</div> <div>N</div>	99801	Rainbow Trout	Kokanee Salmon

Species Caught	Kept / Released	Total / Length	Weight (g)	Hatchery Origin	Mark / Tag	Fin Clip	Tag Type	Tag Number	Notes
Rainbow Trout	<div>K</div> <div>R</div>	380 mm	380	<div>Y</div> <div>N</div>	<div>Y</div> <div>N</div>	<div>Y</div> <div>N</div>	Floy	ABCDEFGHIJ 1234567890	
Kokanee Salmon	<div>K</div> <div>R</div>	230 mm	97	<div>Y</div> <div>N</div>	<div>Y</div> <div>N</div>	<div>Y</div> <div>N</div>	Add-Fin	ABCDEFGHIJ 1234567890	
Rainbow Trout	<div>K</div> <div>R</div>	7							
Kokanee Salmon	<div>K</div> <div>R</div>								

+ Fish

New Party

End Location

## Appendix C: Legacy Forms

2/8/05

### Franklin D. Roosevelt Lake Creel Survey Form

Date (mm/dd/yy) 2 8 05

Weekday 6

Section 1

Survey Type 1

Start Work 0 7 0 0

Finish Work 2 1 0 0

Start Creel 1 0 0 0

Finish Creel 2 0 0 0

Creel Clerk Initials J E M

Page 1 of 2

Comment #	Location	Party #	Party Size	Time Checked	No. of Anglers	Angler Type	Start Time	End Time	Complete Trip	Zipcode	Target Species 1	Target Species 2	Species Caught	Released / Kept	Total Length (mm)	Weight (g)	Species Origin	Mark	Fin Clip	Tag Color	Tag Number
	9		4	13:30	2	1	06:30	13:15	1	99206	3	0	3	1/1	625	385 mm	2	0	0	0	
						1	06:20	13:15	1	99206	3	0	3	1/1	625	385 mm	2	0	0	0	
						1	06:30	13:15	1	99206	3	0	3	1/1	625	385 mm	2	0	0	0	
	5		2	13:41	3	1	07:00	13:20	1	99206	3	0	3	1/1	625	385 mm	2	0	0	0	
						1	07:00	13:20	1	99206	3	0	3	1/1	625	385 mm	2	0	0	0	
						1	07:00	13:20	1	99206	3	0	3	1/1	625	385 mm	2	0	0	0	
	5		2	14:10	2	1	07:00	13:30	1	99206	3	0	3	1/1	625	385 mm	2	0	0	0	
						1	07:00	13:30	1	99206	3	0	3	1/1	625	385 mm	2	0	0	0	
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						1	08:00	15:10	1	99206	3	0	3	1/1	625	385 mm	2	0	0	0	
	5		2	15:53	2	1	08:00	15:10	1	99206	3	0	3	1/1	625	385 mm	2	0	0	0	
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	5		2	16:40	2	1	08:00	16:20	1	99206	3	0	3	1/1	625	385 mm	2	0	0	0	
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						1	08:00	16:20	1	99206	3	0</									



## **Appendix D: Issues List**

1. (DB Schema)**TBD**