Hot Java

Findings and Reporting Information Console (FRIC)

Software Requirements Specification

Version 1.1.0

05/18/20

Document Control

Approval

The Guidance Team and the customers will approve this document.

Document Change Control

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Distribution List

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Change Summary

The following table details changes made between versions of this document

Version	Date	Modifier	Description
1.0.0	05/03/2020	Cynthia Sustaita Lauren Eagan Jesus Gutierrez Joaquin Hidalgo	Joaquin: Section 3.2 Cynthia: Section 1.1

		Fernando Marquez	
1.0.1	05/13/2020	Jesus Gutierrez Lauren Eagan Cynthia Sustaita Joaquin Hidalgo Fernando Marquez	1.2 1.4 1.3 1.5 Ask Ms. Elsa for section 3.1.2, 3.1.3and 3.1.4
1.0.2	05/16/2020	Lauren Eagan	Replaced SRS sections with updated versions. Replaced diagrams with updated versions. Added SRS requirement numbers Added appendix descriptions Updated SRS numbering
1.0.3	05/16/2020	Cynthia Sustaita	Added User interface requirements. Modified Use case diagram level 1 Modified Use case diagram level 2 Updated Stimulus requirements
1.0.4	05/16/2020	Joaquin Hidalgo	Updated class diagram Added Event Use case scenarios Added role “Read-only” analyst to same class of user requirements
1.0.5	05/16/2020	Joaquin Hidalgo Cynthia Sustaita	Updated Notification state transition diagram based on final presentation feedback. Updated Configuration page on user interface requirements (prototype)

1.0.6	05/16/2020	Joaquin Hidalgo	Added intro sentences to appendix diagrams
1.0.7	05/17/2020	Cynthia Sustaita	Updated DFD level 2 subprocesses.
1.0.8	05/17/2020	Fernando Marquez	Updated table of contents Fixed typos, grammatical errors and any inconsistencies to document. Updated Document based off feedback
1.0.9	05/18/2020	Lauren Eagan	Updated document based off of feedback.
1.1.0	05/18/2020	Lauren Eagan Cynthia Sustaita	Converted from delete to archive throughout the entire system models and documents.

Table of Contents

1. Introduction

1.1. Purpose and Intended Audience

The purpose of the Software Requirement Specification (SRS) is to describe and clearly specify the functionality of the Findings and Reporting Information Console (FRIC). The intended audience of the SRS is the Cyber Experimentation & Analysis Division (CEAD) and the guidance team. This document serves as an agreement between both groups regarding the product to be developed.

1.2. Scope of Product

We are developing a system, Findings and Reporting Information Console (FRIC), whose mission is to identify critical cyber vulnerabilities that will include a software that will aid a CEAD lead analyst in creating systems, tasks, and sub-tasks following the assignation of tasks to other CEAD analysts.

When vulnerabilities are found, CEAD analysts must provide notes and the appropriate mitigation to the discovered vulnerability and the software shall allow to add a description, how it was discovered, a mitigation to the discovery, and add either an image or another file proving that the vulnerability exists. Furthermore, the software itself shall allow CEAD analysts to push and pull data to any other CEAD analyst and vice versa. Finally, the software shall allow the exportation of data to a predefined technical report.

1.3. Definitions, Acronyms, and Abbreviations

1.3.1. Definitions

This section provides a list of terms and its definitions as stated in Table 1.

Table 1: FRIC Terms and definitions

TERM	DEFINITION
System	The system is a set defining of a system under test. It is what you are allowed and are not allowed to touch/test. This is your scope. (For example, a certain IP address might be blacklisted, which means you cannot touch) [1].
Event	An event describes a natural assessment and penetration test depending on organization requirements [1].

Task	Task is the tools, applications or programs to assess the system on all or a set amount of systems. One or multiple tasks are needed to be done at an event which are the things that need to be completed by the analyst [1].
Subtask	Subtask can be looking at the critical and highs from the assessments performed. Of the tasks or tools performed on a system, the subtask are the findings which are vulnerabilities, exploits or general data of what happened. Subtask can be to look at the critical findings and verify that the findings are true positives [1].
Finding	Findings are vulnerabilities. A finding will either lead to a true vulnerability or just a data point that is not a vulnerability but something that appeared to show the client [1].
Working assignment	Refers to any Task, Subtask, or Event being worked on.
Archive	The ability to store for later reuse or viewing.
Data	Details from event, task, subtask, and finding.

1.3.2. Acronyms

This section provides a list of acronyms and its definition as stated in Table 2.

Table 2: FRIC Acronyms

TERM	DEFINITION
CEAD	Cyber Experimentation & Analysis Division [2].
SRS	Software Requirements Specification.
FRIC	Findings and Reporting Information Console [2].

UTEP	University of Texas at El Paso.
DOD	Department of Defense [2].
PM	Project Manager.
SME	Subject Matter Experts [2].
IR	Interview Report.
RDD	Requirements Definitions Document [2].
ER-B	Emerging Results Brief [1].
RA	Risk assessment [1].
QAS	Quality Attribute Scenario.
DFD	Data Flow Diagram.
UI	User Interface.

1.3.3. Abbreviations

This section provides a list of abbreviations and its definitions used throughout this document as stated in Table 3.

Table 3: Abbreviations used in this document

TERM	DEFINITION
E.g.	For example

1.4. Overview

The software requirements specification (SRS) document is intended to describe every aspect of what the desired system to be built shall include. This document is essentially a contract between the client and the design team. It will be divided into three major sections: Introduction, General description, and Specific Requirements. Additionally, the appendix section will include the diagram illustrations.

1. Introduction - The introduction section will include the purpose and who the intended audience is. It will additionally include the scope of the product, all relative definitions, acronyms, and abbreviations.
2. General Description - The intention of this section is to demonstrate the functionality of the end product as it relates to the company. We will describe the product features as well as the expected users of the systems and their use cases for the system. Furthermore, the user characteristics, general constraints, and assumptions will be discussed in this section.
3. Specific Requirements - Throughout this section we are describing the requirements for the system's user, software, and hardware interfaces. As well as behavioral requirements, and real-world objects that will be used by the system. Stimuli that will affect the responses of the system, and other additional related features. Finally, we will discuss non-behavioral requirements which are discussing the performance, qualitative, and design constraints for the section. Specifically, we will demonstrate the usability scenario for sync.

1.5. References

[1] C. V. Sustaita, L. Eagan, F. Marquez, J. Hidalgo, and J. Gutierrez, "Interview Report Team 11."

[2] O. Perez, H. Vasquez, T. Provencio, J. Rivers, A. Cuevas, and V. Fonseca, "RDD - Findings and Reporting Information Console (FRIC)." .

2. General Description

2.1. Product Perspective

Findings and Reporting Information Console (FRIC) is a system for Cyber Experimentation and Analysis Division (CEAD) analysts to document and efficiently store findings in an organized manner with regards to cyber vulnerability experiments as well as provide mitigation recommendations. The system will aid a CEAD lead analyst to come up with tasks, and subtasks as well to assign them to CEAD analysts. The system will also be allowed to have multiple analysts that are able to sync data together in order to complete the given assessment as a team. The team will be able to keep track of the work of the users that will allow the status of progress to the system. The FRIC system is an independent and self-contained product that doesn't depend on any other system.

2.2. Product Features

A Use Case diagram is a representation of a user's interaction with a specific system, in this case, FRIC. These Use Case diagrams are made to validate our understanding of the system along its primarily functionalities. This is a great way to model our assumptions of the system for the clients in order to ensure the system is in agreement by all parties when it is delivered and is exactly what the client wants and needs. A use case falls under the umbrella of a Unified Modeling Language (UML) which is a standardized way of using specific language to express ideas.

The ideas being expressed in the Use Case diagram (Fig. 4) refers to behaviors of the system that are acted upon by external actors in addition to the main functionalities provided by the system (FRIC). Actors (Fig. 1) represent external entities (E.g. humans and machines) that interact with the system by exchanging and/or providing information to the system with the goal of completing an event. A use case (Fig 2.) describes what happens in the system when an actor interacts with it to execute the use case as well as the abstract behavior of the system which is what the system is primarily used for. Generalization interactions between the actors and the system shown in Fig. 3. Association represents the interaction of an actor with specific use cases. An include relationship projects what common features that exist in 2 or more of the use cases. An extended relationship projects optional behavior to a base use case and lastly, a generalization relationship demonstrates inheritance from one element to another.

One last Use Case element that we're making use of is the Use Case scenario. Such an element represents a list of actions needed in order for an actor and the system to accomplish a certain goal. Each scenario contains the following: use case scenario name, description (brief description of use case), actors (list of actors involved in the system), pre-conditions (description of what must be true before entering the scenario), trigger condition (description of what initiates the scenario), flow of events (steps that occur as the actors and the system react while attempting to reach a goal) and optionally, an alternative (subflow of alternate steps, if applicable)

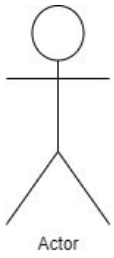


Fig 1: Actor notation

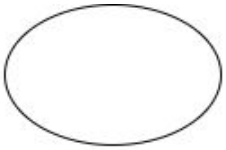


Fig 2: Use case notation

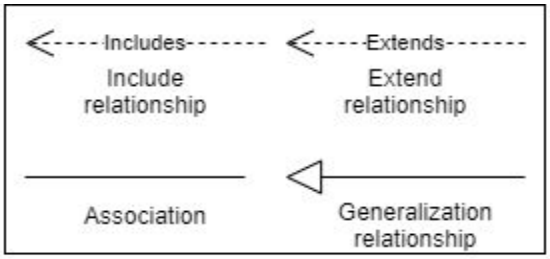


Fig 3: Relationship notation

2.2.1. Level 2 Use Case Diagram

The following figure (Fig. 4) represents a level 2 Use Case diagram to showcase the main functionalities of the FRIC system

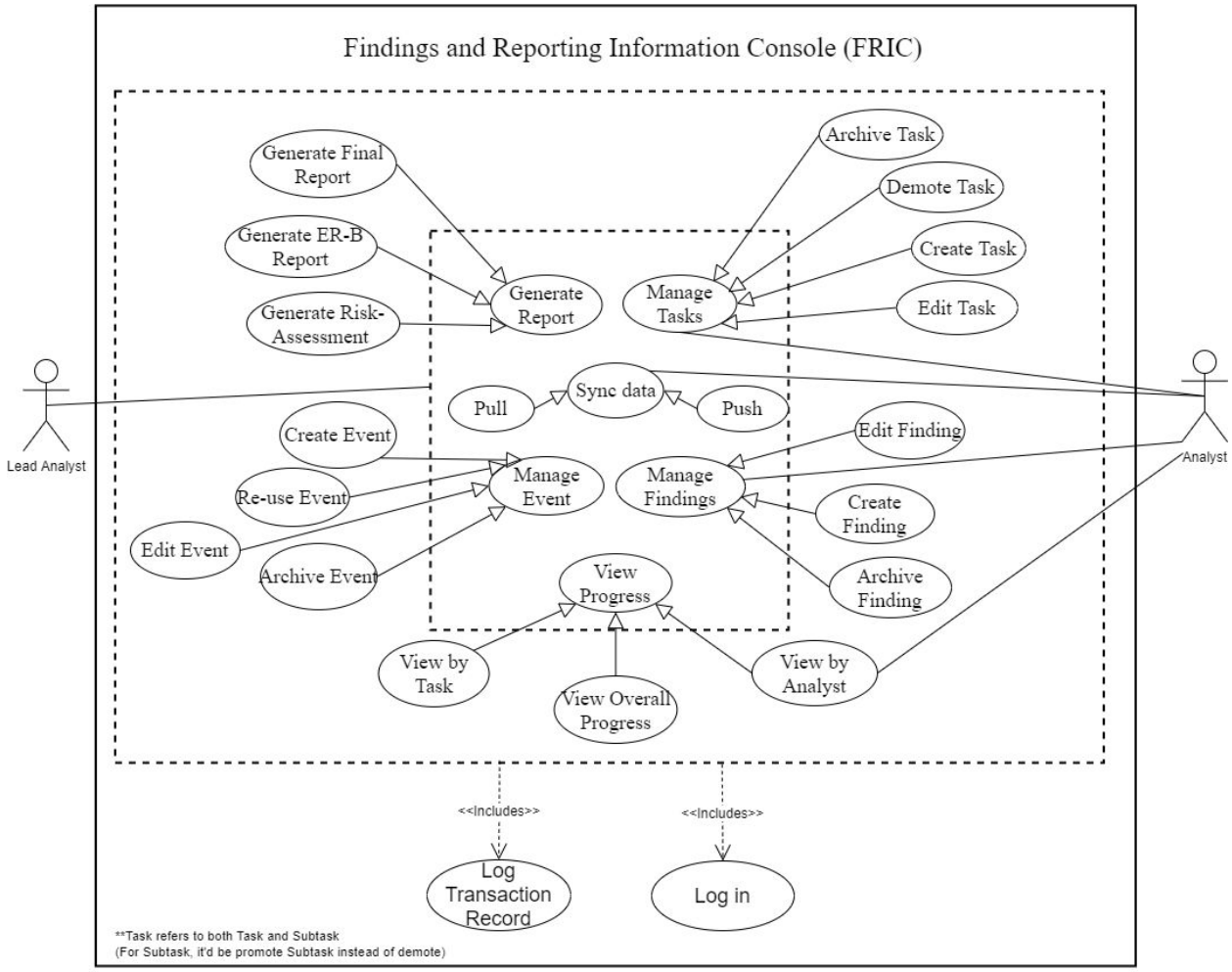


Fig 4: FRIC Level-2 Use Case diagram

2.2.2. Description of Actors

The following are detailed descriptions of our level 2 actors: Lead analyst and analyst.

- **Lead Analyst:** Lead analysts are a part of the Cyber Experimentation and Analysis Division (CEAD) that execute cyber experiments and create tasks based on such results and assign them to one analyst.
- **Analyst:** An analyst is a person from the CEAD that utilizes the FRIC system to work on tasks and to exploit and assess vulnerabilities that will be in sync with a lead analyst.

2.2.3. Description of Use Cases

The following are detailed descriptions of our level 2 use cases: Manage tasks, manage findings, generate report, sync data, view progress, and manage event:

- **Manage tasks:** The system allows a lead analyst to create/edit/archive tasks and sub-tasks, as well as relate a sub-task to a task, a task to a sub-task, or a task to a system. Additionally, this system allows a lead analyst to assign such tasks or sub-tasks to other analysts. While managing tasks, the lead analyst should be able to edit a task's or sub-tasks' attributes to help explain the progress of their work.
- **Manage findings:** The system allows any analyst to create/edit/archive a finding. Findings are to be tagged as vulnerable, informational or other. While managing findings, the analysts are allowed to edit a finding's attributes and search a finding by the type of tag it is or specific attribute. The system will also allow an analyst to attach a finding to a subtask. If no subtask exists under a task, the finding then can be attached to a task then be able to change that finding to a subtask later on, once created.
- **Generate report:** System allows analysts to generate an Emerging Result Brief (ER-B), a Risk assessment, or Final report and export a formatted technical report for PM use straight from the program. Such reports would be made up of observations regarding all the activities that were acquired during the event as either successfully or unsuccessfully, findings, its results and current progress.
- **Sync data:** The system allows all analysts to push data to the lead analyst or any other analyst and vice versa. This gives the opportunity for analysts to share what data they have and keep up to date with other people's data.
- **View progress:** The system allows analysts to view progress of the system, task or subtasks. The progress is the current state of the system, task or subtask. In-order to give analysts the ability to view the progress of the system, task or subtask as either not started, in progress, not do-able, completed or past due.
- **Manage event:** Manage events help the user's setup and organize the natural assessment and penetration tests performed over a time period. Since this involves touching the system, by keeping history of past events the lead is able to go back and duplicate certain events to reuse in the future in order to save time on future projects. A lead is also able to go back and edit past events for their own benefit to view or even rewrite data in past events. Lastly, events are able to be archived to remove unwanted events and projects to keep the system more maintainable over time.

2.2.4. Use Case Scenarios

This section contains the detailed description of our Use Case diagram (Fig. 4) use case scenarios:

Use Case Scenario Name: Create task (Lead analyst assigns tasks)

Description: Create task with denying permission analyst to sign up for tasks. The system allows the lead analyst to set the configuration page preferences by either making all tasks under this specific event with only allowing the analyst to be assigned a task.
Actors: Lead Analyst
Pre-condition: A user has logged in and authenticated as a Lead Analyst, there's an ongoing event, the Lead Analyst chooses to assign tasks and an analyst has to be added to the event that they are working on.
Trigger-condition: Lead analyst initiates create task.
Flow of events:

- Step 1: System updates the task template for this event to provide Lead analysts with the ability to assign tasks.
- Step 2: Lead Analyst selects create task under event.
- Step 3: Lead Analyst fills in information needed to describe the task (analyst assigned, title, description, status, priority and due date).
- Step 4: System creates the task on all systems, and set's the tasks progress category to assigned.
- Step 5: System updates the task on all systems.
- Step 6: Include <Record transaction log>
- Step 7: End of use case.

Use Case Scenario Name: Create task (only allowing analyst to pick tasks)
Description: Create task with permission for analyst to sign up for tasks. The system allows the lead analyst to set the configuration page preferences by either making all tasks under this specific event with only allowing all analysts to pick a task.
Actors: Analyst and Lead Analyst
Pre-condition: A user has logged in and authenticated as a Lead Analyst, there's an ongoing event, the lead analyst allows analysts to pick from a list of tasks and an analyst has to be added to the event they are working on.
Trigger-condition: Lead analyst initiates create task.
Flow of events:

- Step 1: System updates the task template for this event to only allow analysts to pick their own tasks.
- Step 2: Lead Analyst selects create task under event.
- Step 3: Lead Analyst fills in information needed to describe the task (title, description, status, priority and due date).
- Step 4: System creates the task on all systems for the task to have progress category of, not assigned
- Step 5: System updates the task on all systems.
- Step 6: System updates user, task data store, and timestamp
- Step 7: Include <Record transaction log>
- Step 8: End of use case.

Use Case Scenario Name: Archive task
Description: The system allows the lead analyst to archive a task under manage tasks. Archiving a task is given to the lead analyst to archive any unwanted tasks.

Actors: Lead analyst
Pre-condition: A user has logged in and authenticated as a Lead Analyst, there are tasks in the system.
Trigger-condition: Lead analyst logs in and has selected the tasks they wish to have archived.
Flow of events:

- Step 1: System displays a list of all tasks.
- Step 2: Lead Analyst selects the option to archive task(s).
- Step 3: System displays archive options: archive task, archive task and all associated subtasks, archive subtasks.
- Step 4: Lead analyst selects archive task and all associated subtasks or findings.
- Step 5: System displays confirmation message
- Step 6: Include <Record transaction log>
- Step 7: End of use case.

Use Case Scenario Name: Edit task (All access)
Description: The system allows the lead analyst to edit a task under manage tasks. Editing the task gives a lead analyst the ability to change the title, progress, description, status, priority and due date of a given task. Editing a task gives an analyst the ability to edit the progress of a given task.
Actors: Lead analyst
Pre-condition: A user has logged in and authenticated as a Lead Analyst, a task to edit must be available.
Trigger-condition: Lead analyst needs to modify a task.
Flow of events:

- Step 1: Lead Analyst selects the option to manage the tasks.
- Step 2: Lead Analyst selects to edit a certain task.
- Step 3: Lead Analyst overrides the previous edit and saves.
- Step 4: System displays confirmation message.
- Step 5: Include <Record transaction log>
- Step 6: End of use case.

Use Case Scenario Name: Edit task (Progress only)
Description: The system allows the Analyst to edit a task under manage tasks. Editing a task gives an analyst the ability to edit the progress of a given task.
Actors: Analyst
Pre-condition: A user has logged in and authenticated as an Analyst, a task to edit must be available.
Trigger-condition: Analyst needs to update the progress of a task.
Flow of events:

- Step 1: Analyst selects the option to manage the tasks.
- Step 2: Analyst selects to edit a certain task.
- Step 3: Analyst overrides the previous edit and saves.
- Step 4: System displays confirmation message.
- Step 5: Include <Record transaction log>
- Step 6: End of use case.

Use Case Scenario Name: Archive finding

Description: The system allows an analyst to archive a finding if and only if they are the author of such finding.
Actors: Lead Analyst, Analyst
Pre-condition: A user has logged in and authenticated as a Lead Analyst or Analyst
Trigger-condition: Analyst has reviewed the current findings and knows that this certain finding is no longer usable, thus archive finding.
Flow of events:

- Step 1: Analyst selects the option to manage findings.
- Step 2: Analyst selects the option to archive a finding.
- Step 3: Analyst selects the finding that is going to be removed.
- Step 4: System displays confirmation message.
- Step 5: System updates the new system with the certain finding archived.
- Step 6: Include <Record transaction log>
- Step 7: End of use case.

Use Case Scenario Name: Create finding
Description: The system should allow both a lead analyst and an analyst to create a finding. The new finding will consist of a title, description, status, priority, and due date of the given/new task.
Actors: Lead analyst, Analyst
Pre-condition: A user has logged in and authenticated as a Lead Analyst or Analyst
Trigger-condition: Lead analyst or analyst wants to create a new finding
Flow of events:

- Step 1: Lead Analyst or Analyst selects the option to create a new finding.
- Step 2: System gives reading and writing permission to lead analyst/ analyst.
- Step 3: Lead Analyst or Analyst: selects to add appropriate information towards the document.
- Step 4: Lead Analyst or Analyst submits the new finding into the system.
- Step 5: System displays confirmation message.
- Step 6: Include <Record transaction log>
- Step 6: End of use case.

Use Case Scenario Name: Edit finding
Description: The system allows any analyst to edit any specific findings that are under a task whether it was chosen or assigned to.
Actors: Lead analyst, analyst
Pre-condition: A user has logged in and authenticated as a Lead Analyst or Analyst.
Trigger-condition: Analyst has reviewed the current findings and knows that this certain finding is no longer up to date and wishes to edit any attributes about this finding.
Flow of events:

- Step 2: Lead Analyst or Analyst selects the option to manage findings.
- Step 3: Lead Analyst or Analyst selects the option to edit a finding.
- Step 4: Lead Analyst or Analyst selects the certain finding that is going to be edited.
- Step 5: System gives reading and writing permission to the user.
- Step 6: Lead Analyst or Analyst selects to re-write the previous text section.

- Step 7: Lead Analyst or Analyst confirms the changes and saves.
- Step 8: System displays confirmation message
- Step 9: Include <Record transaction log>
- Step 10: End of use case.

Use Case Scenario Name: Pull data
Description: Lead Analyst or Analyst are able to receive (pull) data that has been submitted by other analysts that differ from the current user's data on the local computer system they are working on.
Actors: Lead Analyst, Analyst
Pre-condition: A user has logged in and authenticated as a lead analyst or analyst, there must be a Lead Analyst or Analyst with data different from another Lead Analyst or Analyst.
Trigger-condition: A Lead Analyst or Analyst needs changes made to data by another analyst.
Flow of events:

- Step 1: Lead Analyst or Analyst selects to pull data from the system.
- Step 2: System verifies to the previously existing data.
- Step 3: System displays confirmation.
- Step 4: System updates the data.
- Step 5: Include <Record transaction log>
- Step 6: End of use case.

Use Case Scenario Name: Push data
Description: Lead Analyst or Analyst are able to share (push) data to other lead analysts or analysts.
Actors: Lead analyst, Analyst.
Pre-condition: A user has logged in and authenticated as a Lead Analyst or Analyst, there must be a Lead Analyst or Analyst with data different from another Lead Analyst or Analyst.
Trigger-condition: An Analyst makes changes to data and wishes to update other analysts.
Flow of events:

- Step 1: Lead Analyst or Analyst selects to push data.
- Step 2: System verifies changes to the previously existing data.
- Step 3: System displays confirmation.
- Step 4: System updates the data.
- Step 5: Include <Record transaction log>
- Step 6: End of use case.

Use Case Scenario Name: Generate report
Description: System allows Lead Analysts to generate an Emerging Result Brief (ER-B), Risk Assessment report, or a Final Technical Report, and export a formatted technical report for PM use straight from the program. Such reports will be made up of observations regarding all the activities that were acquired during the event as either successful or unsuccessful, findings, its results and current progress.
Actors: Lead analyst
Pre-condition: A user has logged in and authenticated as a Lead analyst, event is in progress and has some progress or findings.

Trigger-condition: Lead analyst needs to send a report of the event and its current progress.
Flow of events:

- Step 1: Lead analysts select the option to generate reports.
- Step 2: System displays properties to include: All findings/select findings successful/unsuccessful, results, and current progress.
- Step 3: Lead analyst selects all findings, and any current progress they would like to include.
- Step 4: Lead analyst submits the report.
- Step 5: System generates report and displays confirmation message.
- Step 6: Include <Record transaction log>
- Step 7: End of use case**.**

Use Case Scenario Name: View progress
Description: The system allows analysts to view progress of tasks, subtasks, or overall. The progress is the current state of the system: assigned, not do-able, not started, in progress, completed, past due or transferred.
Actors: Lead analyst
Pre-condition: A user has logged in and authenticated as a Lead Analyst, tasks have been created under an event.
Trigger-condition: Lead analyst wishes to view the current progress of a specific task.
Flow of events:

- Step 1: Lead analyst selects option to view progress.
- Step 2: System displays list of current tasks and any analysts they have been assigned to.
- Step 3: Actor selects the analyst they wish to view.
- Step 4: System displays current progress of the task to lead analyst.
- Step 5: Include <Record transaction log>
- Step 6: End of use case.

Use Case Scenario Name: Create event
Description: The system allows a Lead Analyst to create an event to store vulnerability testing and collect findings for other analysts as well.
Actors: Lead analyst.
Pre-condition: Lead Analyst must obtain requirements from the DOT&E and Lead Analyst must be logged into the system.
Trigger-condition: Lead analyst wants to set up an environment for the team to begin touching the test and selects, create event under the event page.
Flow of events:

- Step 1: System displays UI components for Lead to fill out.
- Step 2: Lead analyst fills out all required components, saves and confirms changes.
- Step 3: System updates the data.
- Step 4: Include <Record transaction log>
- Step 5: End of use case.

Use Case Scenario Name: Edit event

Description: The system allows a Lead Analyst to edit any event that falls under manage event.
Actors: Lead analyst
Pre-condition: A user has logged in and authenticated as a Lead Analyst, there are current events in progress.
Trigger-condition: Lead analyst must select manage events and pick a specific event to edit/view.
Flow of events:

- Step 1: System retrieves the event from the database.
- Step 2: System gives reading and writing permission to the user.
- Step 3: System displays event details.
- Step 4: Lead Analyst edits an event detail.
- Step 5: Lead Analyst saves and confirms changes.
- Step 6: System displays confirmation message
- Step 7: System updates the data.
- Step 8: Include <Record transaction log>
- Step 9: End of use case

Use Case Scenario Name: Re-use event
Description: The system allows a lead analyst to reuse previous events that fall under manage event. A lead analyst will be able to pull any event and reuse archived data.
Actors: Lead analyst
Pre-condition: A user has logged in and authenticated as a Lead Analyst.
Trigger-condition: Lead analyst must click on manage event and pick a specific event to reuse.
Flow of events:

- Step 1: Lead Analyst selects copy event.
- Step 2: System displays confirmation message
- Step 8: Include <Record transaction log>
- Step 4: End of use case.

Use Case Scenario Name: Archive event
Description: The system allows a Lead Analyst to archive an event, which will keep a history of completed events to allow them to be viewed and/or reused.
Actors: Lead analyst
Pre-condition: A user has logged in and authenticated as a Lead Analyst, and there are events in progress.
Trigger-condition: Lead analyst must click on manage events and pick a specific event to edit/view.
Flow of events:

- Step 1: Lead Analyst chooses to conclude the event
- Step 2: System displays option to archive an event
- Step 3: Lead Analyst clicks archive completed event
- Step 4: System displays confirmation message of archived event
- Step 5: Include <Record transaction log>
- Step 6: End of use case

Use Case Scenario Name: Login
Description: The authentication for CEAD analysts who log onto FRIC.
Actors: Lead analyst, Analyst
Pre-condition: Must be an authorized user, a CEAD analyst.
Trigger-condition: Lead analyst or analyst must input credentials.
Flow of events:

- Step 1: System displays fields to enter credentials.
- Step 2: Lead Analyst or Analyst enters credentials.
- Step 2: System authenticates the credentials.
- Step 3: System gives reading and writing permission depending on the user.
- Step 4: Include <Record transaction log>
- Step 5: End of use case

Alt: Step 1:

- Step 1.1: Analyst inputs wrong credentials
- Step 1.2: End of use case

Use Case Scenario Name: Log Transaction Record
Description: FRIC will keep a transaction record of any activity registered by both the Lead Analyst and Analyst.
Actors: Lead Analyst, Analyst
Pre-condition: A user has logged in and authenticated as a Lead Analyst or Analyst.
Trigger-condition: Lead analyst or analyst must input credentials
Flow of events:

- Step 1: System generates and saves records for any performed activities by the Lead analyst or analyst.
- Step 2: End of use case

Use Case Scenario Name: Promote subtask
Description: Lead Analyst and Analyst are able to promote a subtask to the status of task.
Actors: Lead Analyst, Analyst
Pre-condition: A user has logged in and authenticated as a Lead Analyst or Analyst, a subtask must exist in the system.
Trigger-condition: Analyst selects promote subtask.
Flow of events:

- Step 1: System displays area to enter reason for promotion.
- Step 2: Analyst enters the reason for promotion.
- Step 3: Analyst confirms and saves.
- Step 4: Include <Record transaction log>
- Step 5: End of use case

Use Case Scenario Name: Demote Task
Description: Lead Analyst will reduce the higher action task to subtask.
Actors: Lead analyst

Pre-condition: A user has logged in and authenticated as a Lead Analyst, a task must exist in the system
Trigger-condition: Lead analyst selects demote a task.
Flow of events:

- Step 1: System displays area to input reason for demotion.
- Step 2: Lead analyst enters reason for demotion.
- Step 3: Lead analyst selects task parent to assign to the task being demoted.
- Step 4: Lead analyst confirms and saves.
- Step 5: Include <Record transaction log>
- Step 6: End of use case.

2.3. User Characteristics

The users that will be making use of the FRIC system will be CEAD analysts and lead analysts that will have knowledge in cybersecurity and a variety of technical skills such as computer usage and operating systems.

2.4. General Constraints

The following are known constraints of the system, these constraints will describe the factors which will determine the choices made in the development of the system.

1. Authorized users cannot access the system.
2. The deadline for the FRIC system to be operable is the end of the Fall 2020 semester.
3. The FRIC system should not have external contact with the internet.

2.5. Assumptions and Dependencies

The teams' assumptions and dependencies for the FRIC system are the following:

1. The system can be accessed as a web application.
2. Python will be the primary language used in implementation.
3. FRIC data will be saved into provided hard drives

3. Specific Requirements

In this section we will describe the specific requirements for the development of FRIC. These specific requirements include: *External Interface requirements* which are composed of user interface, hardware, software, and communication requirements, *Behavioral requirements* which are composed of same class of user, related real-world objects, and stimulus requirements, and lastly, *Non-behavioral requirements* which will contain a Usability QAS.

3.1. External Interface Requirements

External interface requirements refer to the specific hardware, software, or communication elements that the system must showcase.

3.1.1. User Interfaces

The purpose of the user interface is to demonstrate every element of the user interface that the user will be interacting with while making use of the system.

[SRS 1]
Every page in the requirements include:

a. a web address bar.
b. froward.
c. backward forward aa.
d. refresh area.
e. the name of the system.
f. the tabs located as a navigation bar.

[SRS 2]
[UI System] The system shall include the following pages:

a. FRIC Login page. (Figure: 5)
b. Finding page. (Figure: 6)
c. Create a finding page. (Figure: 7)
d. Edit finding page. (Figure: 8)
e. Event page. (Figure: 9)
f. Create an event page. (Figure: 10)
g. Edit event page. (Figure: 11)
h. Task page. (Figure: 12)
i. Create a task page. (Figure: 13)
j. Edit task page. (Figure: 14)
k. Subtask page. (Figure: 15)
l. Create a subtask page. (Figure: 16)
m. Edit subtask page. (Figure: 17)
n. Generate report page. (Figure: 18)
o. Configuration page. (Figure: 19)

[SRS 3]: The FRIC Login page shall include the following section as shown in Figure 5:

a. Text label, labeled as “Finding and Reporting Information Console”.
b. Text box labeled as “Initials”.
c. Icon to demonstrate user registration.
d. Button labeled as “Submit”.

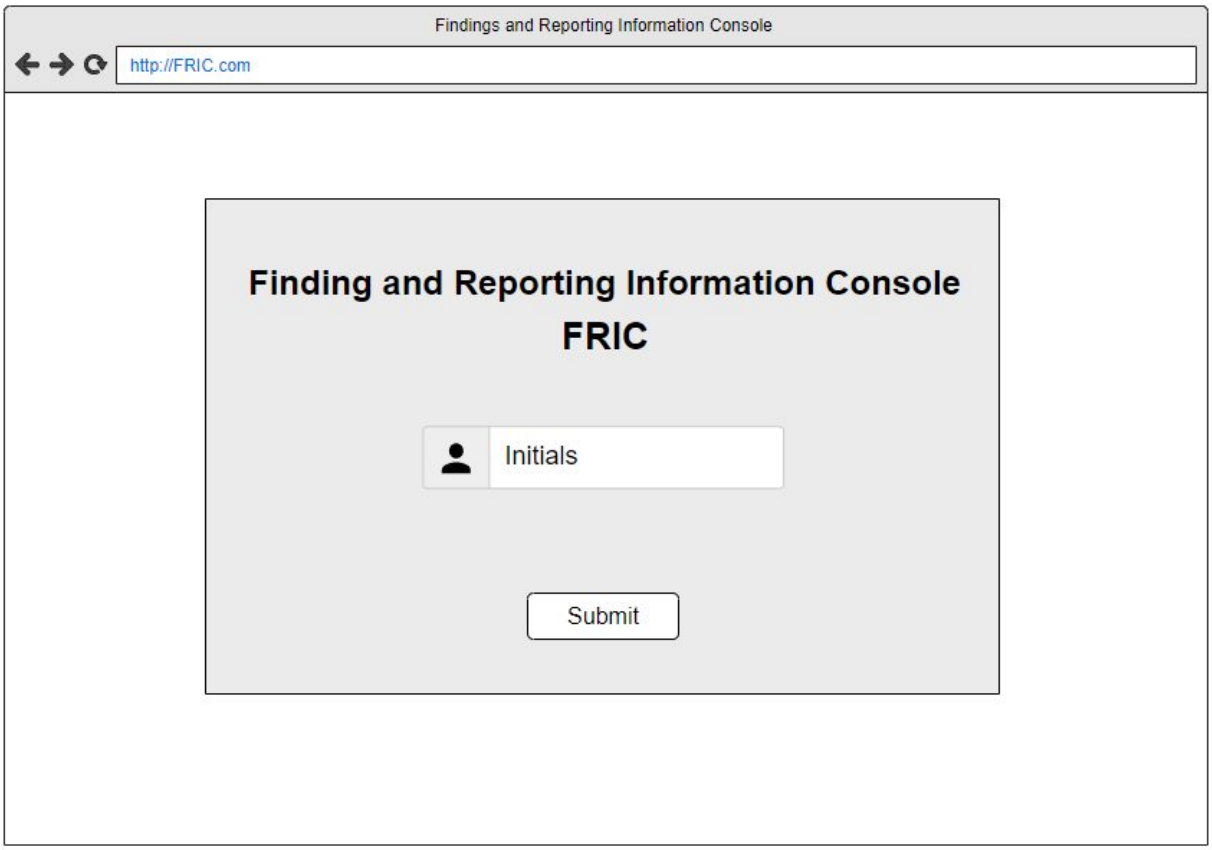


Figure 5: Login Page

[Findings Page]

[SRS 4]: The finding page shall include the following sections as shown in Figure 6:

a. Menu Section.
b. Button Section.
c. Content Section.
d. Report Section.

[SRS 5]: The menu section of the findings page shall include the following components as shown in Figure 6:

a. System menu.
b. Tasks sub-menu.
c. Subtasks sub-menu.
d. Findings sub-menu.
e. Events sub-menu.
f. Additional Systems sub-menu.

g. Search bar.
h. Sorting sub-menu.

[SRS 6]: The button section of the findings page shall include the following components as shown in Figure 6:

a. Button labeled as “View Archived”
b. Button labeled as “Sync”.
c. Button labeled as “Create +”.
d. Button labeled as “Edit”.
e. Button labeled as “Archive”.

[SRS 7]: The content section of the findings page shall include the following components as shown in Figure 6:

a. Text label labeled as “Findings”.
b. Text label as the title of the finding.
c. Text label as the event under the system.
d. Attribute table with a cell for each finding attribute. Please refer to [SRS 8] for the finding attributes.
e. Description table; table that contains finding’s description.
f. Mitigation table; table that contains finding’s mitigation.
g. Attachment table; table that contains finding’s attachments.
h. Associations table; table that contains finding’s associations.

[SRS 8]:

a. This section will include all the finding’s attributes shown in Figure 6:
    i. Analyst attribute
    ii. Host Name attribute
    iii. IP Port attribute
    iv. Type attribute
    v. Impact Score attribute
    vi. CAT attribute
    vii. CAT Score attribute
    viii. VS-Score attribute
    ix. VS attribute
    x. Status attribute
    xi. Likelihood attribute
    xii. Impact attribute
    xiii. Risk attribute
    xiv. CM attribute
    xv. Posture attribute
    xvi. C I A attribute
    xvii. Description attribute
    xviii. Notes attribute
    xix. Mitigation attribute
    xx. Collaborators attribute
    xxi. Attachments attribute
    xxii. Associations attribute

[SRS 9]: The report section of the findings page shall include the following components as shown in Figure 6:

a. Button labeled as “Generate ER-B Report”.
b. Button labeled as “Generate Risk Assessment”.
c. Button labeled as “Generate Final Report”.

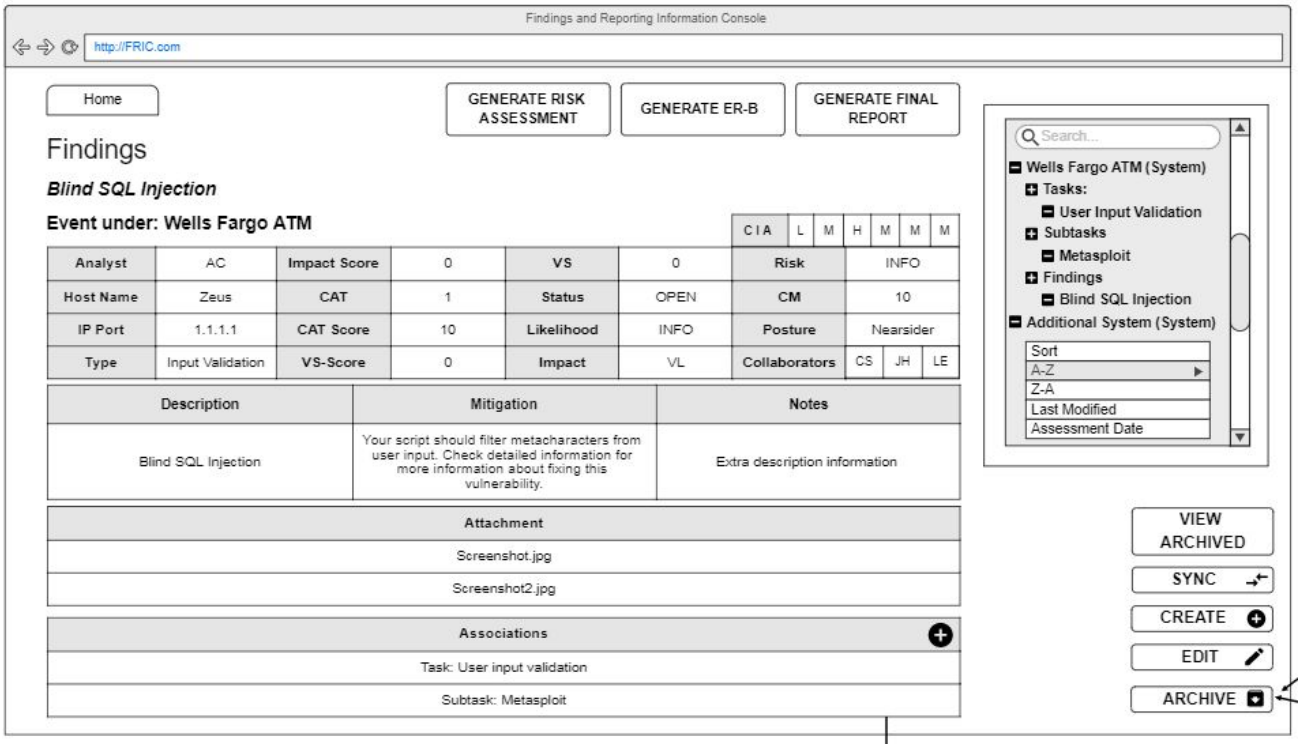


Figure 6: Findings Page

[Create Findings Page]

[SRS 10]: The create findings page shall include the following sections as shown in Figure 7:
a. Text fields section.
b. Drop down selection section.
c. Checklist section.
d. Import file(s) section.
e. Table section.
f. Button section.

[SRS 11]: The text section of the create findings page shall include the following components as shown in Figure 7:
a. Text box labeled as “Finding Title:”.
b. Text box labeled as “Host Name”.
c. Text box labeled as “IP Port”.
d. Text box labeled as “Description”.
e. Text box labeled as “ID”.
f. Text box labeled as “Analyst”.
g. Text box labeled as “IMP Score”.
h. Text box labeled as “CAT Score”.

i. Text box labeled as “Mitigation”.
j. Text box labeled as “VS Score”.
k. Text box labeled as “VS”.
l. Text box labeled as “Notes”.

[SRS 12]: The drop-down selection section of the create findings page shall include the following components as shown in Figure 7:

a. Drop down box labeled as “Status”.
b. Drop down box labeled as “Finding Type:”.
c. Drop down box labeled as “Posture”

[SRS 13]: The checklist selection section of the create findings page shall include the following components as shown in Figure 7:

a. Checklist box labeled as “Assign to Analyst”.

[SRS 14]: The import file section of the create findings page shall include the following components as shown in Figure 7:

a. Button labeled as “Attach file”.
b. Button labeled as “Open file”.

[SRS 15]: The button section of the create findings page shall include the following components as shown in Figure 7:

a. Button labeled as “Save”.
b. Button labeled as “Attach File”.

[SRS 16]: The table section of the create findings page shall include the following components as shown in Figure 7:

a. Table labeled as “CIA”.

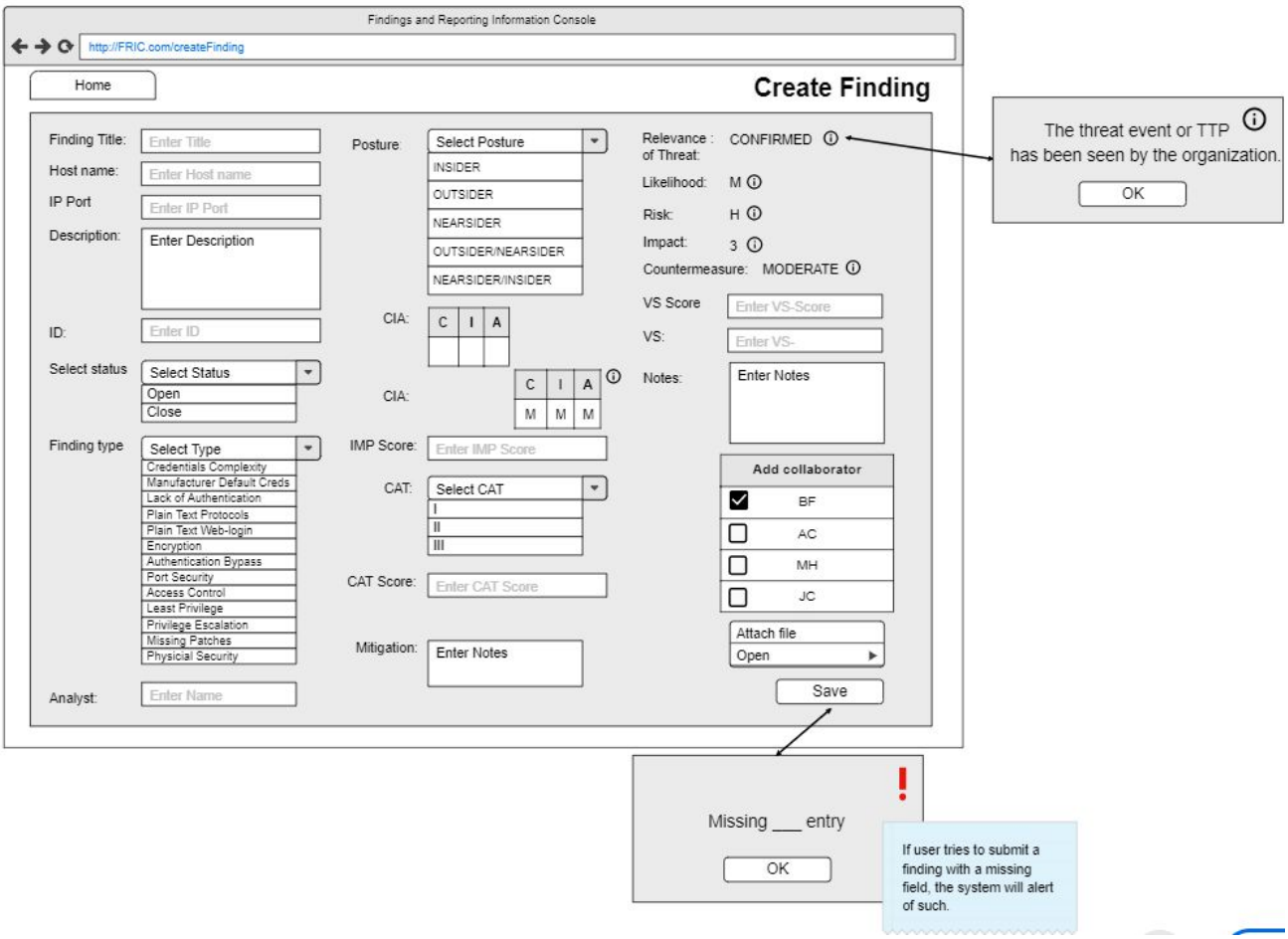


Figure 7: Create Findings Page

[Edit Findings Page]

[SRS 17]: The edit findings page shall include the following sections as shown in Figure 8:

a. Text fields section.
b. Drop down selection section.
c. Checklist section.
d. Import file(s) section.
e. Table section.
f. Button section.

[SRS 18]: The text section of the edit findings page shall include the following components as shown in Figure 8:

a. Text box labeled as “Finding Title:”.
b. Text box labeled as “Host Name”.
c. Text box labeled as “IP Port”.
d. Text box labeled as “Description”.
e. Text box labeled as “ID”.
f. Text box labeled as “Analyst”.
g. Text box labeled as “IMP Score”.
h. Text box labeled as “CAT Score”.

i. Text box labeled as “Mitigation”.
j. Text box labeled as “VS Score”.
k. Text box labeled as “VS”.
l. Text box labeled as “Notes”.

[SRS 19]: The drop-down selection section of the edit findings page shall include the following components as shown in Figure 8:

a. Drop down box labeled as “Status”.
b. Drop down box labeled as “Finding Type:”.
c. Drop down box labeled as “Posture”

[SRS 20]: The checklist selection section of the edit findings page shall include the following components as shown in Figure 8:

a. Checklist box labeled as “Assign to Analyst”.

[SRS 21]: The import file section of the edit findings page shall include the following components as shown in Figure 8:

a. Button labeled as “Attach file”.
b. Button labeled as “Open file”.

[SRS 22]: The button section of the edit findings page shall include the following components as shown in Figure 8:

a. Button labeled as “Save”.
b. Button labeled as “Attach File”.

[SRS 23]: The table section of the edit findings page shall include the following components as shown in Figure 8:

a. Table labeled as “CIA”.

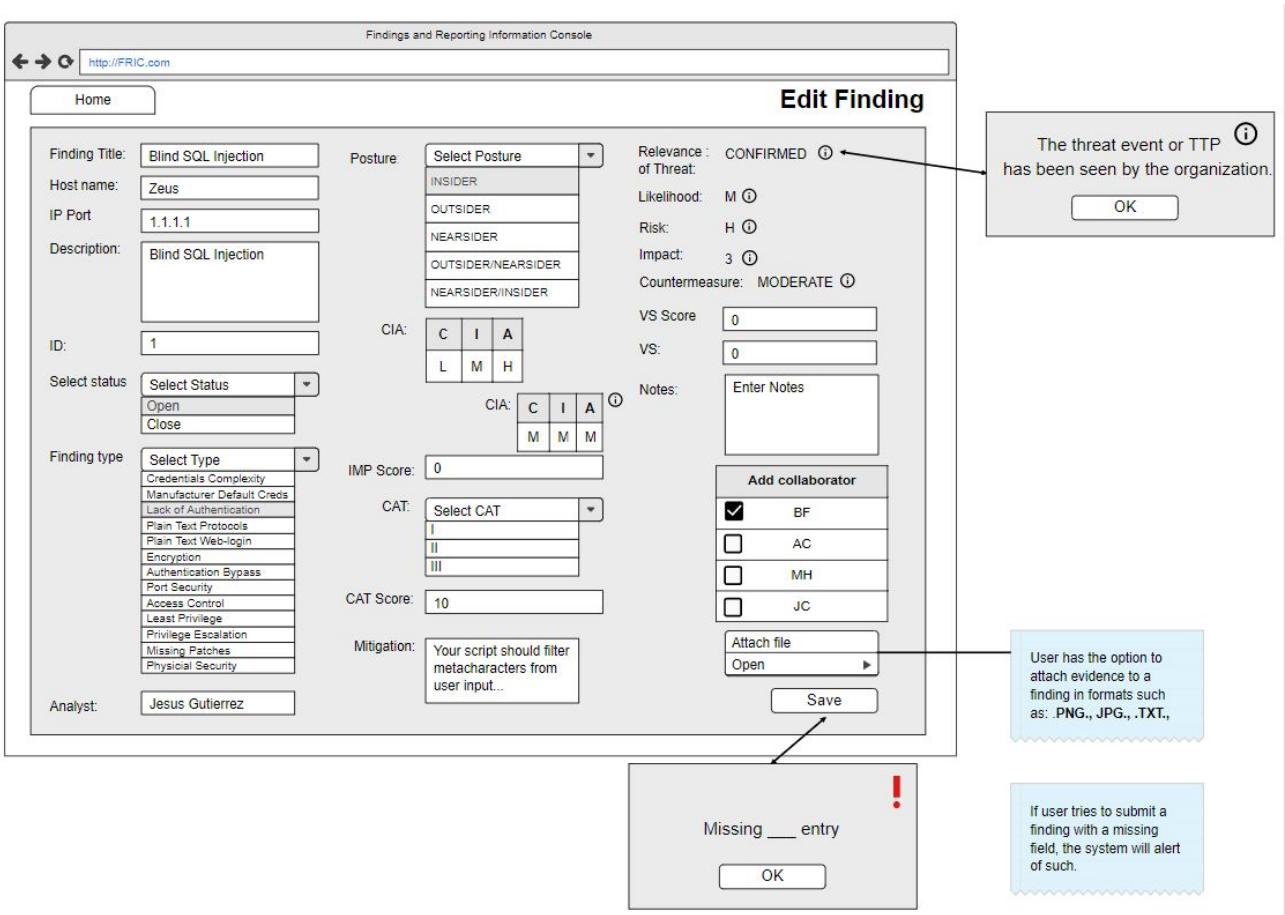


Figure 8: Edit Findings Page

[Event Page]

[SRS 24]: The event page shall include the following sections as shown in Figure 9:

a. Menu Section.
b. Button Section.
c. Content Section.
d. Report Section.

[SRS 25]: The menu section of the event page shall include the following components as shown in Figure 9:

b. System menu.
c. Tasks sub-menu.
d. Subtasks sub-menu.
e. Findings sub-menu.
f. Events sub-menu.
g. Additional Systems sub-menu.
h. Search bar.
i. Sorting sub-menu.

[SRS 26]: The button section of the event page shall include the following components as shown in Figure 9:

a. Button labeled as “View Archived”
b. Button labeled as “Sync”.
c. Button labeled as “Create +”.
d. Button labeled as “Edit”.
e. Button labeled as “Archive”.

[SRS 27]: The content section of the event page shall include the following components as shown in Figure 9:

a. Text label labeled as “Event”.
b. Text label as the title of the finding.
c. Text labeled as the event under the system.
d. Attribute table with a cell for each event attribute. Please refer to [SRS 28] for the event attributes.
e. Description table; table that contains event’s description.
f. Associations table; table that contains event’s associations.

[SRS 28]:

b. This section will include all the event’s attributes shown in Figure 9:
    i. Event name attribute.
    ii. Type attribute.
    iii. Security classification attribute.
    iv. Declassification attribute.
    v. Declassification date attribute.
    vi. Organization name attribute.
    vii. Customer name attribute.
    viii. Assessment date attribute.
    ix. Test plan title attribute.
    x. Switches attribute.
    xi. Routers attribute.
    xii. Access attribute.
    xiii. Building access attribute.
    xiv. Room accessed attribute.
    xv. Findings classification attribute.
    xvi. Description attribute.
    xvii. Associations attribute.
    xviii. Lead Analyst(s) attribute.

[SRS 29]: The report section of the event page shall include the following components as shown in Figure 9:

d. Button labeled as “Generate ER-B Report”.
e. Button labeled as “Generate Risk Assessment”.
f. Button labeled as “Generate Final Report”.

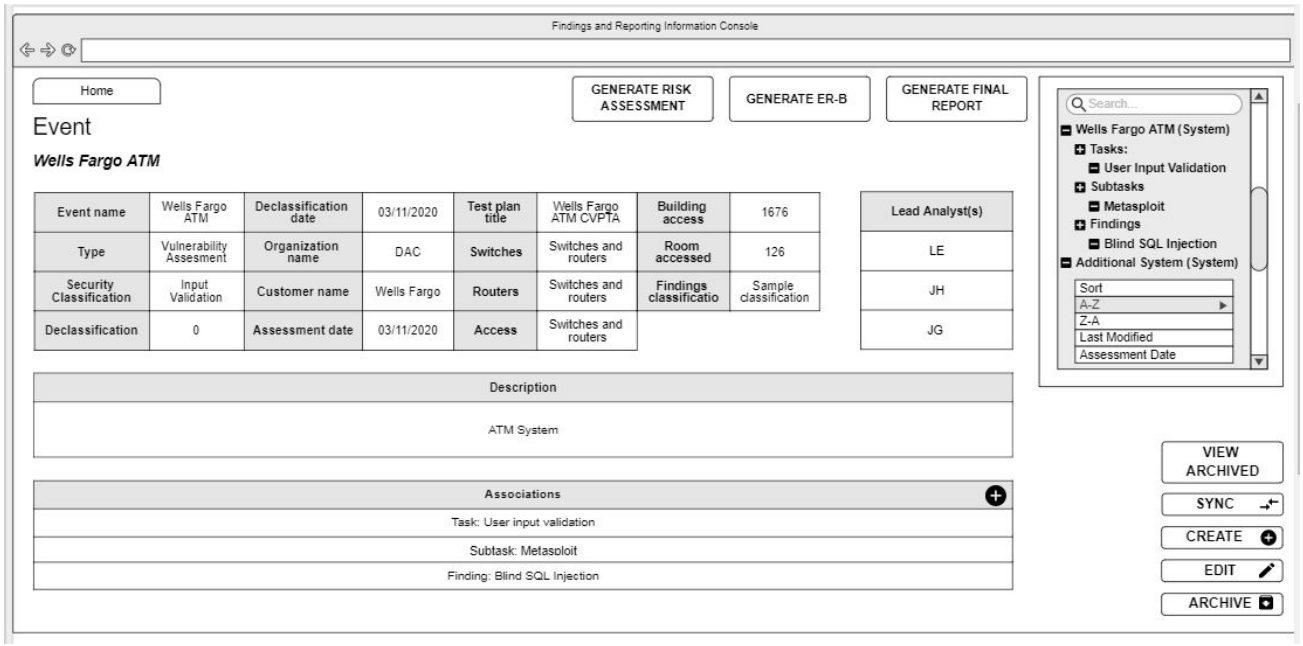


Figure 9: Event Page

[Create Event Page]

[SRS 30]: The create event page shall include the following sections as shown in Figure 10:

a. Text fields section.
b. Drop down selection section.
c. Button section.

[SRS 31]: The text section of the create event page shall include two sections with components as shown in Figure 10:
It shall have a label “Event Attributes”.

a. Text box labeled as “Event Name:”.
b. Text box labeled as “Description (Event)”.
c. Text box labeled as “Security Classification Guide Title”.
d. Text box labeled as “Declassification”.
e. Text box labeled as “Organization Name”.
f. Text box labeled as “Customer Name:”.

It shall have a label “System Attributes”

g. Text box labeled as “System Name”.
h. Text box labeled as “Descriptions”.
i. Text box labeled as “Switches”.
j. Text box labeled as “Routers”.
k. Text box labeled as “Building access”
l. Text box labeled as “Room accessed”

[SRS 32]: The drop-down selection section of the create event page shall include the following components as shown in Figure 10:
It shall have a label “Event Attributes”.

a. Drop down box labeled as “Lead Analyst:”.
b. Drop down box labeled as “Event Type:”.
c. Drop down box labeled as “Locations”.
d. Drop down box labeled as “Assessment Date”.
e. Drop down box labeled as “Declassification Date”.

It shall have a label “System Attributes”

f. Drop down box labeled as “System Confidentially:”.
g. Drop down box labeled as “System Integrity:”.
h. Drop down box labeled as “System Availability:”.
i. Drop down box labeled as “Findings Classification:”.

[SRS 33]: The button section of the create event page shall include the following components as shown in Figure 10:

a. Button labeled as “Save”.

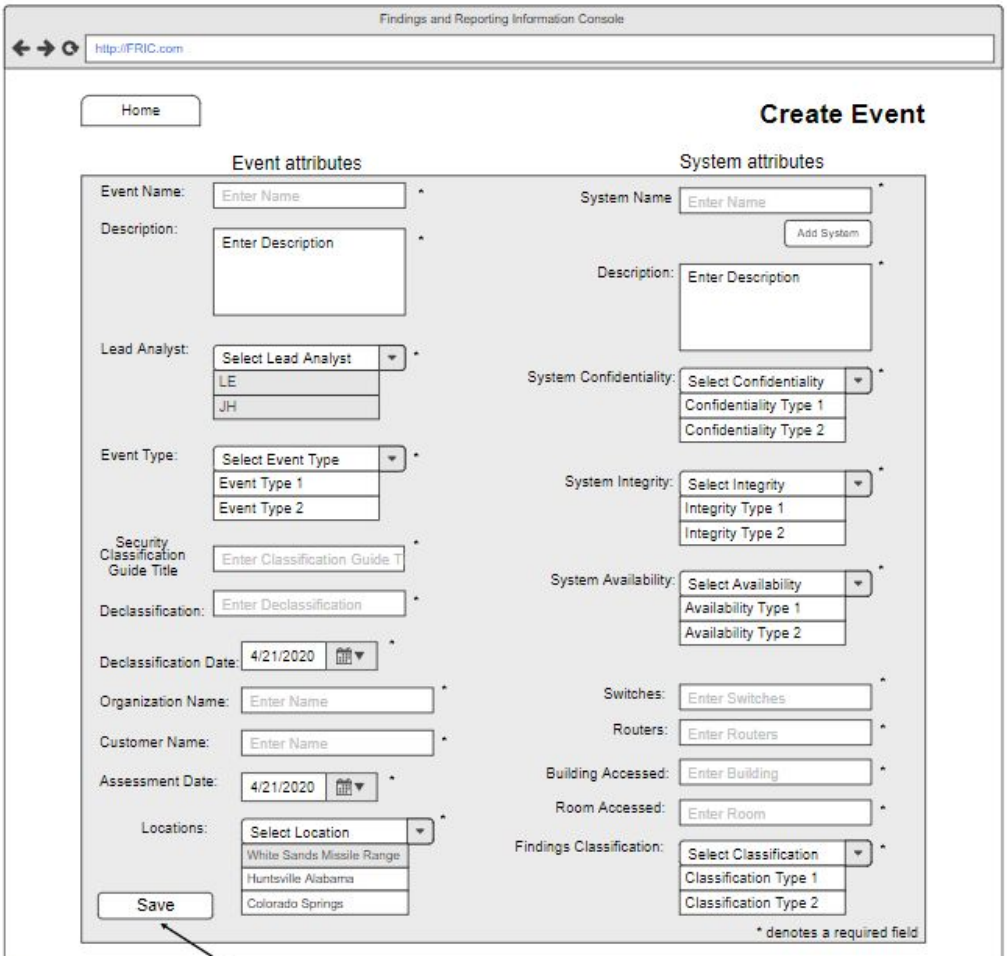


Figure 10: Create Event Page

[Edit Event Page]

[SRS 34]: The edit event page shall include the following sections as shown in Figure 11:

d. Text fields section.
e. Drop down selection section.
f. Button section.

[SRS 35]: The text section of the edit event page shall include two sections with components as shown in Figure 11:

It shall have a label “Event Attributes”.

m. Text box labeled as “Event Name:”.
n. Text box labeled as “Description (Event)”.
o. Text box labeled as “Security Classification Guide Title”.
p. Text box labeled as “Declassification”.
q. Text box labeled as “Organization Name”.
r. Text box labeled as “Customer Name:”.

It shall have a label “System Attributes”

s. Text box labeled as “System Name”.
t. Text box labeled as “Descriptions”.
u. Text box labeled as “Switches”.
v. Text box labeled as “Routers”.
w. Text box labeled as “Building access”.
x. Text box labeled as “Room accessed”.

[SRS 36]: The drop-down selection section of the edit event page shall include the following components as shown in Figure 11:

It shall have a label “Event Attributes”.

j. Drop down box labeled as “Lead Analyst:”.
k. Drop down box labeled as “Event Type:”.
l. Drop down box labeled as “Locations”.
m. Drop down box labeled as “Assessment Date”.
n. Drop down box labeled as “Declassification Date”.

It shall have a label “System Attributes”

o. Drop down box labeled as “System Confidentially:”.
p. Drop down box labeled as “System Integrity:”.
q. Drop down box labeled as “System Availability:”.
r. Drop down box labeled as “Findings Classification:”.

[SRS 37]: The button section of the edit event page shall include the following components as shown in Figure 11:

b. Button labeled as “Save”.

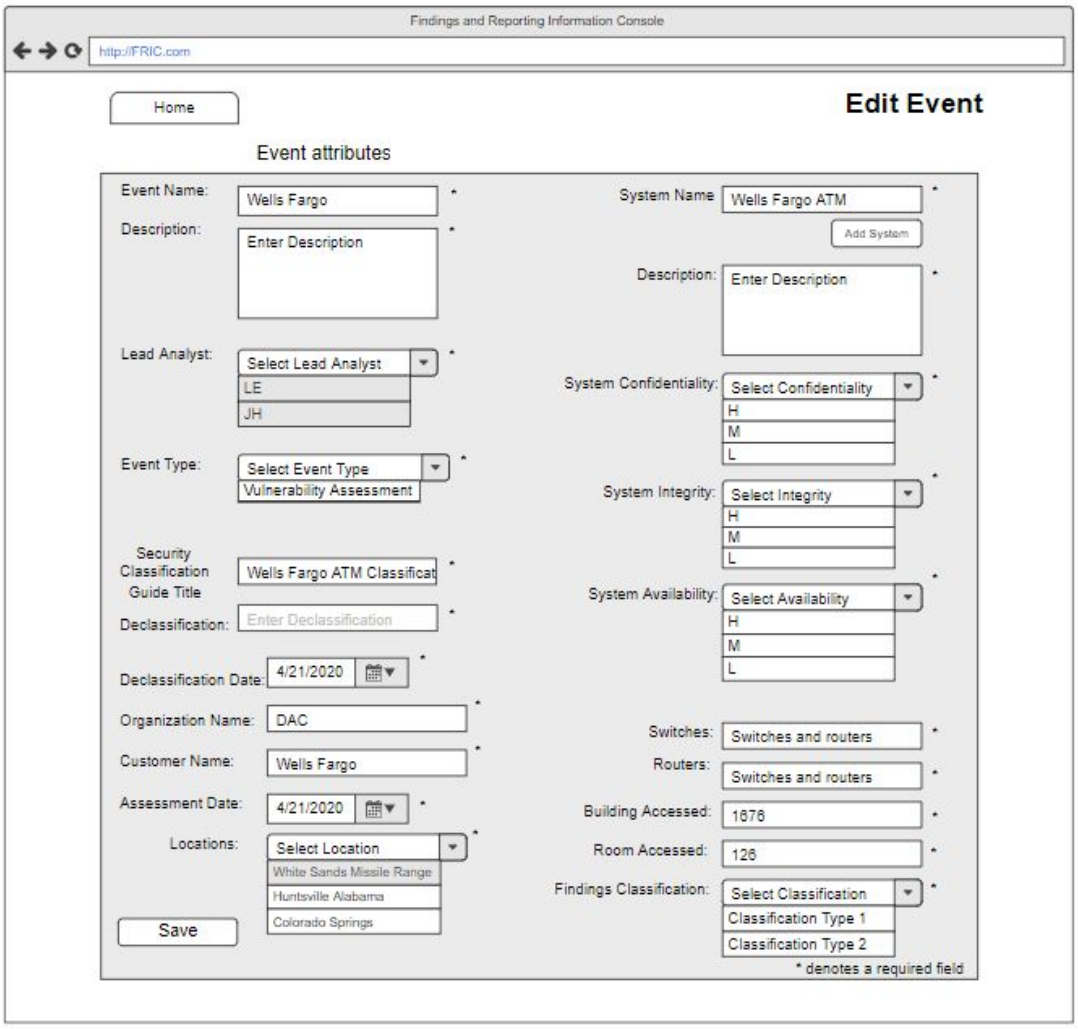


Figure 11: Edit Event Page

[Task Page]

[SRS 38]: The task page shall include the following sections as shown in Figure 12:

a. Menu Section.
b. Button Section.
c. Content Section.
e. Progress Section.
f. Report Section

[SRS 39]: The menu section of the task page shall include the following components as shown in Figure 12:

a. System menu.
b. Tasks sub-menu.
c. Subtasks sub-menu.
d. Findings sub-menu.
e. Events sub-menu.

f. Additional Systems sub-menu.
g. Search bar.
h. Sorting sub-menu.

[SRS 40]: The button section of the task page shall include the following components as shown in Figure 12:
a. Button labeled as “View Archived”
b. Button labeled as “Sync”.
c. Button labeled as “Create +”.
d. Button labeled as “Edit”.
e. Button labeled as “Archive”.

[SRS 41]: The content section of the task page shall include the following components as shown in Figure 12:
a. Text label labeled as “Tasks”.
b. Text label as the title of the task.
c. Text label as the task under the system.
d. Attribute table with a cell for each task attribute. Please refer to [SRS 42] for the task attributes.
e. Description table; table that contains task’s description.
f. Associations table; table that contains task’s associations.

[SRS 42]: This section will include all the task’s attributes shown in Figure 12:
a. Status attribute.
b. Priority attribute.
c. Due date attribute.
d. Analyst attribute.
e. Collaborators attribute.
f. Description attribute.
g. Associations attribute.

[SRS 43]: The progress section of the task page shall include the following components as shown in Figure 12:
a. Progress Task-bar.
b. Text label for current progress (under Progress bar).

[SRS 44]: The report section of the task page shall include the following components as shown in Figure 12:
a. Button labeled as “Generate ER-B Report”.
b. Button labeled as “Generate Risk Assessment”.
c. Button labeled as “Generate Final Report”.

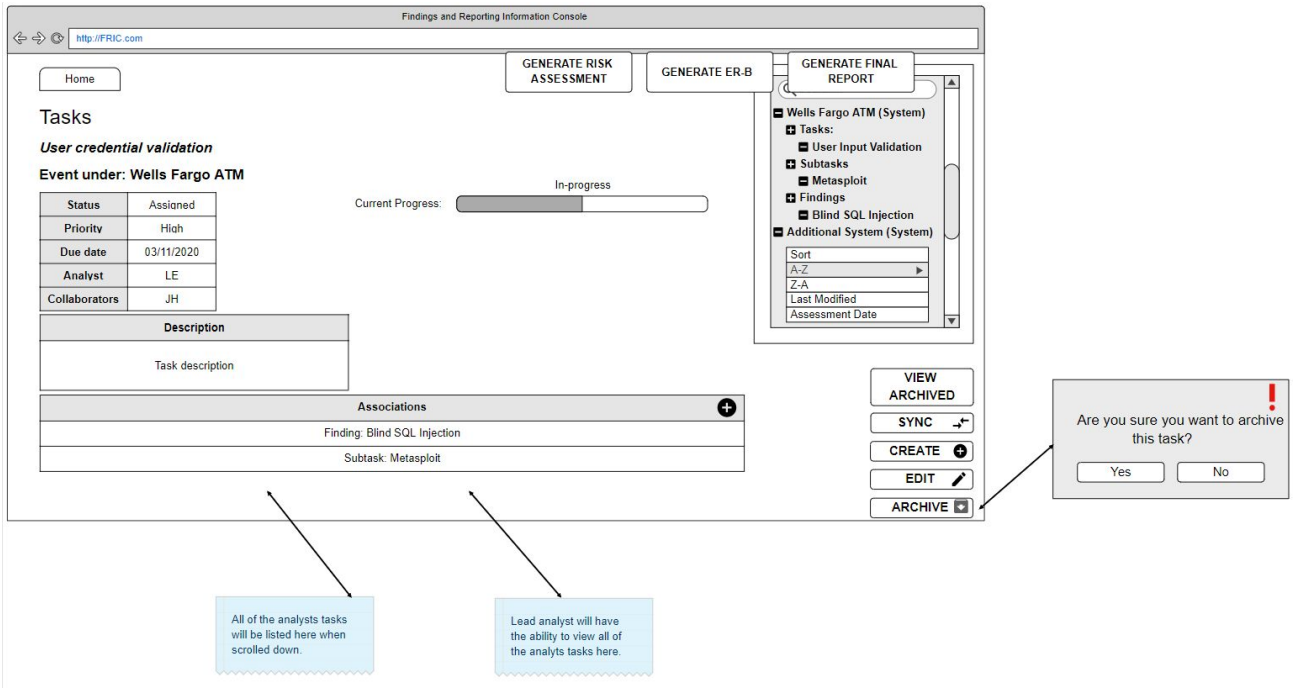


Figure 12: Tasks Page

[Create Task Page]

[SRS 45]: The create task page shall include the following sections as shown in Figure 13:

a. Text fields section.
b. Drop down selection section.
c. Checklist section.
d. Import file(s) section.
e. Button section.

[SRS 46]: The text section of the create task page shall include the following components as shown in Figure 13:

a. Text box labeled as “Task Title”.
b. Text box labeled as “Description”.

[SRS 47]: The drop-down selection section of the create task page shall include the following components as shown in Figure 13:

a. Drop down box labeled as “Progress”.
b. Drop down box labeled as “Priority”.
c. Drop down box labeled as “Due Date”.

[SRS 48]: The checklist selection section of the create task page shall include the following components as shown in Figure 13:

b. Checklist box labeled as “Assign to Analyst”.

[SRS 49]: The import file section of the create task page shall include the following components as shown in

Figure 13:

c. Button labeled as “Attach file”.
d. Button labeled as “Open file”.

[SRS 50]: The button section of the create task page shall include the following components as shown in Figure 13:

a. Button labeled as “Save”.

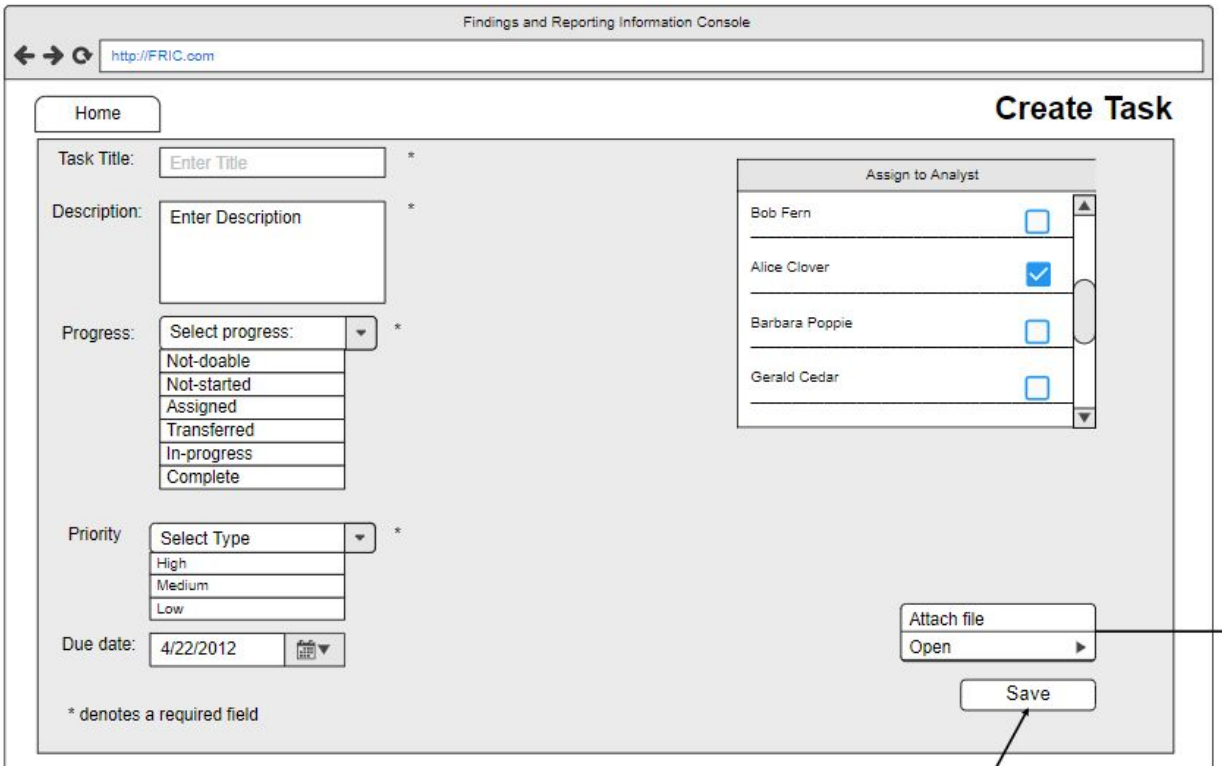


Figure 13: Create Task Page

[Edit Task Page]

[SRS 51]: The edit task page shall include the following sections as shown in Figure 14:

a. Text fields section.
b. Drop down selection section.
c. Checklist section.
d. Button section.

[SRS 52]: The text section of the edit task page shall include the following components as shown in Figure 14:

a. Text box labeled as “Task Title”.
b. Text box labeled as “Description”.
c. Text box labeled as “Reason for task demotion”.

[SRS 53]: The drop-down selection section of the edit task page shall include the following components as shown in Figure 14:

a. Drop down box labeled as “Progress”.
b. Drop down box labeled as “Priority”.
c. Drop down box labeled as “Due Date”.

[SRS 54]: The checklist selection section of the edit task page shall include the following components as shown in Figure 14:

a. Checklist box labeled as “Assign to Analyst”.

[SRS 55]: The button section of the edit task page shall include the following components as shown in Figure 14:

a. Button labeled as “Save”.
b. Button label as “Demote”.
c. Button label as “Submit”.

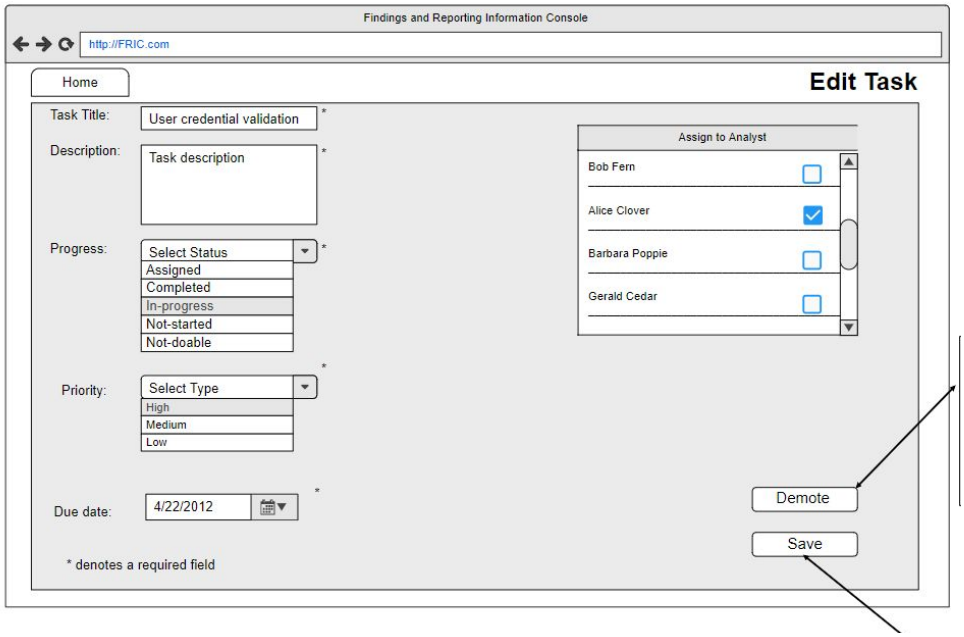


Figure 14: Edit Task Page

[Subtask Page]

[SRS 56]: The subtask page shall include the following sections as shown in Figure 15:

a. Menu Section.
b. Button Section.
c. Content Section.
d. Progress Section.
e. Report Section.

[SRS 57]: The menu section of the subtask page shall include the following components as shown in Figure 15:

a. System menu.
b. Tasks sub-menu.
c. Subtasks sub-menu.
d. Findings sub-menu.
e. Events sub-menu.
f. Additional Systems sub-menu.
g. Search bar.
h. Sorting sub-menu.

[SRS 58]: The button section of the subtask page shall include the following components as shown in Figure 15:

a. Button labeled as “View Archived”
b. Button labeled as “Sync”.
c. Button labeled as “Create +”.
d. Button labeled as “Edit”.
e. Button labeled as “Archive”.

[SRS 59]: The content section of the subtask page shall include the following components as shown in Figure 15:

a. Text label labeled as “Subtasks”.
b. Text label as the title of the subtask.
c. Text label as the subtask under the system.
d. Attribute table with a cell for each subtask attribute. Please refer to [SRS 60] for the subtask attributes.
e. Description table; table that contains subtask’s description.
f. Associations table; table that contains subtask’s associations.

[SRS 60]: This section will include all the subtask’s attributes shown in Figure 15:

a. Status attribute.
b. Priority attribute.
c. Due date attribute.
d. Analyst attribute.
e. Collaborators attribute.
f. Description attribute.
g. Associations attribute.

[SRS 61]: The progress section of the subtask page shall include the following components as shown in Figure 15:

a. Progress Task-bar.
b. Text label for current progress (under Progress bar).

[SRS 62]: The report section of the subtask page shall include the following components as shown in Figure 15:

a. Button labeled as “Generate ER-B Report”.
b. Button labeled as “Generate Risk Assessment”.
c. Button labeled as “Generate Final Report”.

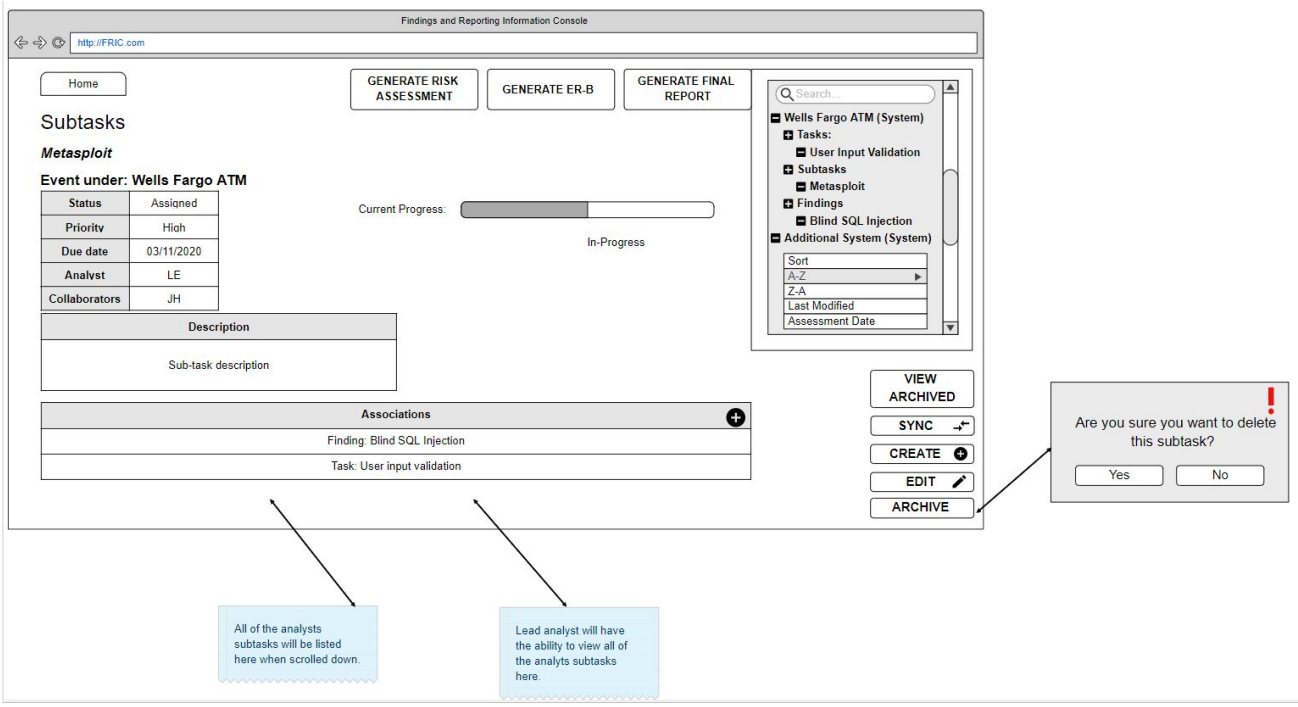


Figure 15: Subtask Page

[Create Subtask Page]

[SRS 63]: The create subtask page shall include the following sections as shown in Figure 16:

a. Text fields section.
b. Drop down selection section.
c. Checklist section.
d. Import file(s) section.
e. Button section.

[SRS 64]: The text section of the create subtask page shall include the following components as shown in Figure 16:

a. Text box labeled as “Subtask Title”.
b. Text box labeled as “Description”.

[SRS 65]: The drop-down selection section of the create subtask page shall include the following components as shown in Figure 16:

a. Drop down box labeled as “Progress”.
b. Drop down box labeled as “Priority”.
c. Drop down box labeled as “Due Date”.
d. Drop down box labeled as “Task Under”.

[SRS 66]: The checklist selection section of the create subtask page shall include the following components as shown in Figure 16

a. Checklist box labeled as “Assign to Analyst”.

[SRS 67]: The button section of the create subtask page shall include the following components as shown in Figure 16:

a. Button labeled as “Attach file”.
b. Button labeled as “Open file”.

[SRS 68]: The button section of the create subtask page shall include the following components as shown in Figure 16:

a. Button labeled as “Save”.

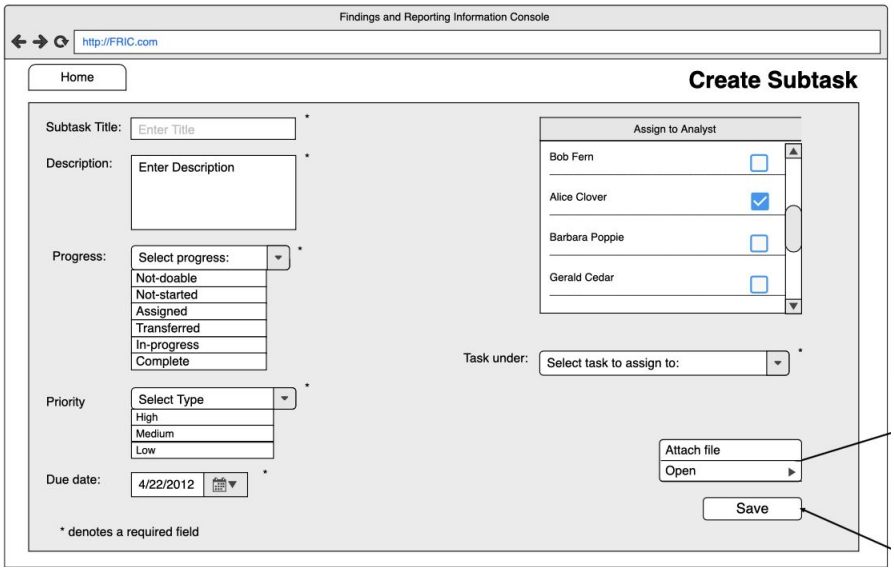


Figure 16: Create Subtask Page

[Edit Subtask Page]

[SRS 67]: The edit subtask page shall include the following sections as shown in Figure 17:

a. Text fields section.
b. Drop down selection section.
c. Checklist section.
d. Import file(s) section.

e. Button section.

[SRS 69]: The text section of the edit subtask page shall include the following components as shown in Figure 17:

a. Text box labeled as “Subtask Title”.
b. Text box labeled as “Description”.

[SRS 70]: The drop-down selection section of the edit subtask page shall include the following components as shown in Figure 17:

a. Drop down box labeled as “Progress”.
b. Drop down box labeled as “Priority”.
c. Drop down box labeled as “Due Date”.
d. Drop down box labeled as “Task Under”.

[SRS 71]: The checklist selection section of the edit subtask page shall include the following components as shown in Figure 17:

a. Checklist box labeled as “Assign to Analyst”.

[SRS 72]: The button section of the edit subtask page shall include the following components as shown in Figure 17:

a. Button labeled as “Attach file”.
b. Button labeled as “Open file”.

[SRS 73]: The button section of the edit subtask page shall include the following components as shown in Figure 17:

a. Button labeled as “Save”.
b. Button labeled as “Promote”.
c. Button labeled as “Submit”.

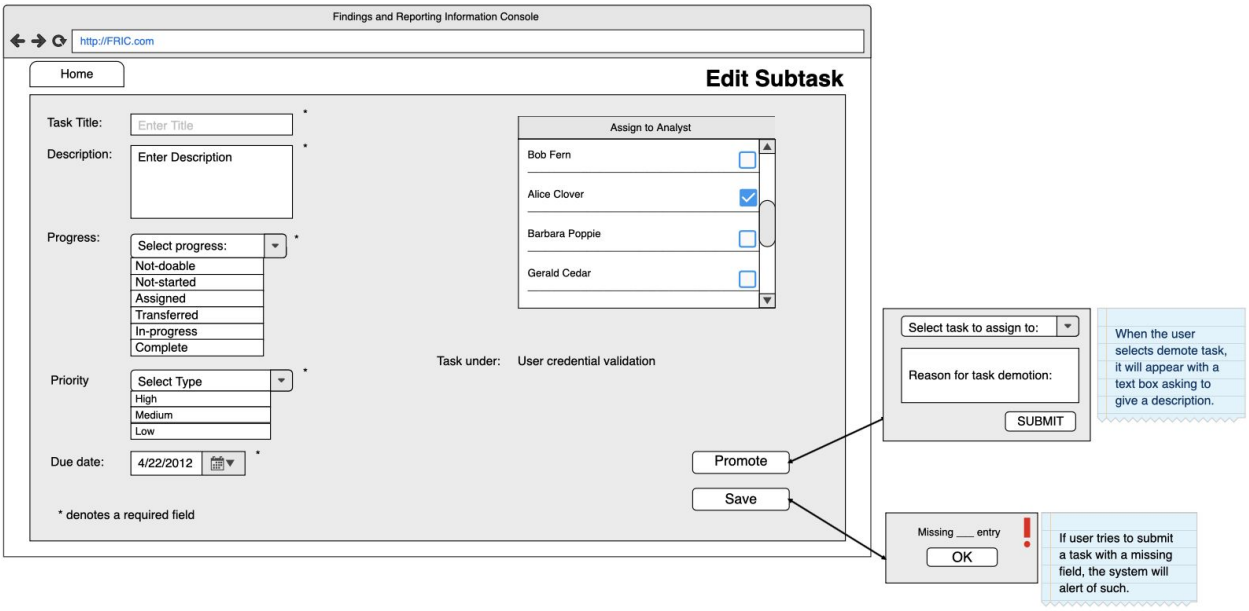


Figure 17: Edit Subtask Page

[Generate Report Page]

[SRS 74]: The generate report page shall include the following sections as shown in Figure 18:

a. Drop down selection section.
b. Checklist section.
c. Button section.

[SRS 75]: The drop-down selection section of the edit subtask page shall include the following components as shown in Figure 18:

a. Drop down box labeled as “Event”.
b. Drop down box labeled as “Select Finding/s”.

[SRS 76]: The checklist selection section of the edit subtask page shall include the following components as shown in Figure 18:

a. Checklist box labeled as “Select finding”.

[SRS 77]: The button section of the edit subtask page shall include the following components as shown in Figure 18:

a. Button labeled as “Generate Report”.

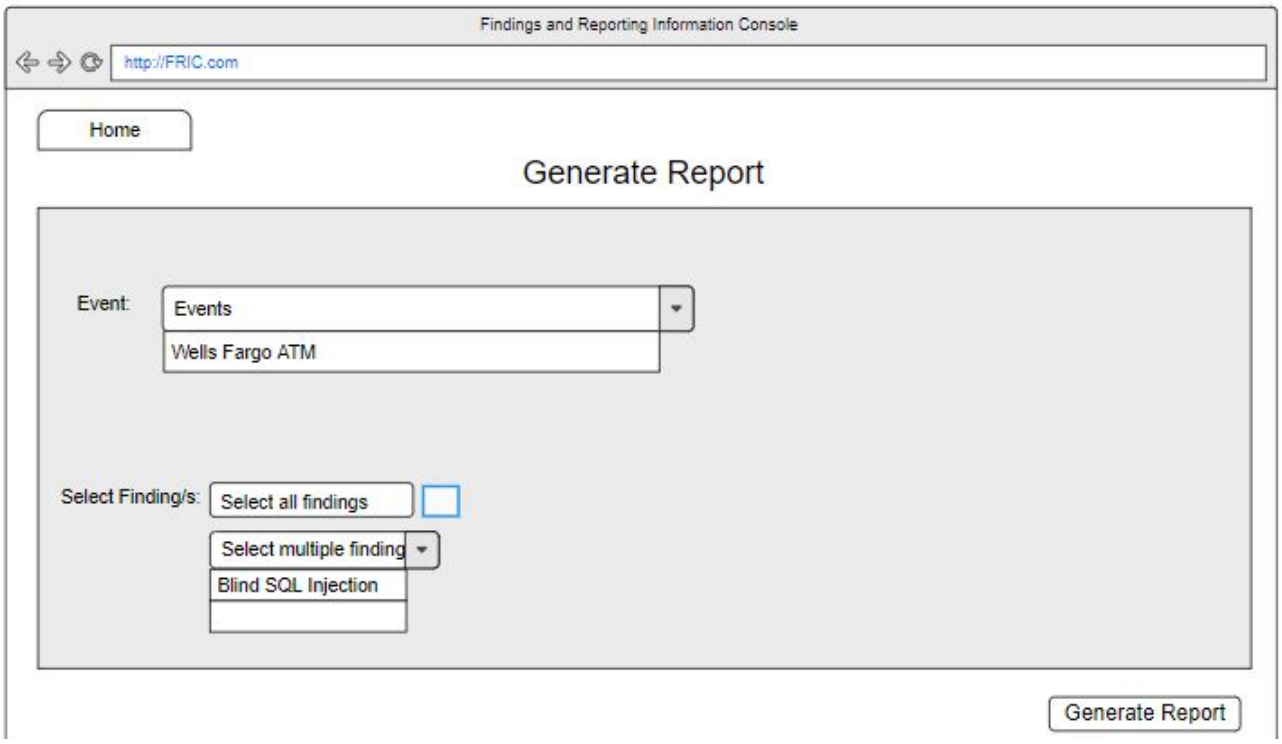


Figure 18: Generate Report Page

[Configuration Page]

[SRS 78]: The configuration page shall include the following sections as shown in Figure 19:

a. Text fields section.
b. Drop down selection section.
c. Button section.
d. Tables section.

[SRS 79]: The text fields section of the configuration page shall include the following components as shown in Figure 19:

b. Text field labeled as “Reference Tables”.
c. Text field labeled as “Notifications”.
d. Text field labeled as “Frequency”.
e. Text field labeled as “Templates”.
f. Text field labeled as “Event Rules”.

[SRS 80]: The button section of the configuration page shall include the following components as shown in Figure 19:

a. Button labeled as “Add Type”.
b. Button labeled as “Add”.
c. Button labeled as “Archive”.
d. Button labeled as “Save”

[SRS 81]: The tables section of the configuration page shall include the following components as shown in Figure 19:

a. Table labeled as “Findings Type”.
b. Table labeled as “System Categorization”.
    i. Confidentiality attribute.
    ii. Integrity attribute.
    iii. Availability attribute.
c. Table labeled as “CAT”.
d. Table labeled as “Level”.
e. Table labeled as “Posture”.
f. Table labeled as “Status”.
g. Table labeled as “Levels”.
h. Table labeled as “Relevance”.

[SRS 82]: The drop-down selection section of the configuration page shall include the following components as shown in Figure 19:

a. Drop down box labeled as “Send task/subtasks notification”.
b. Drop down box labeled as “Notification frequency”.
c. Drop down box labeled as “Tasks assigning”.

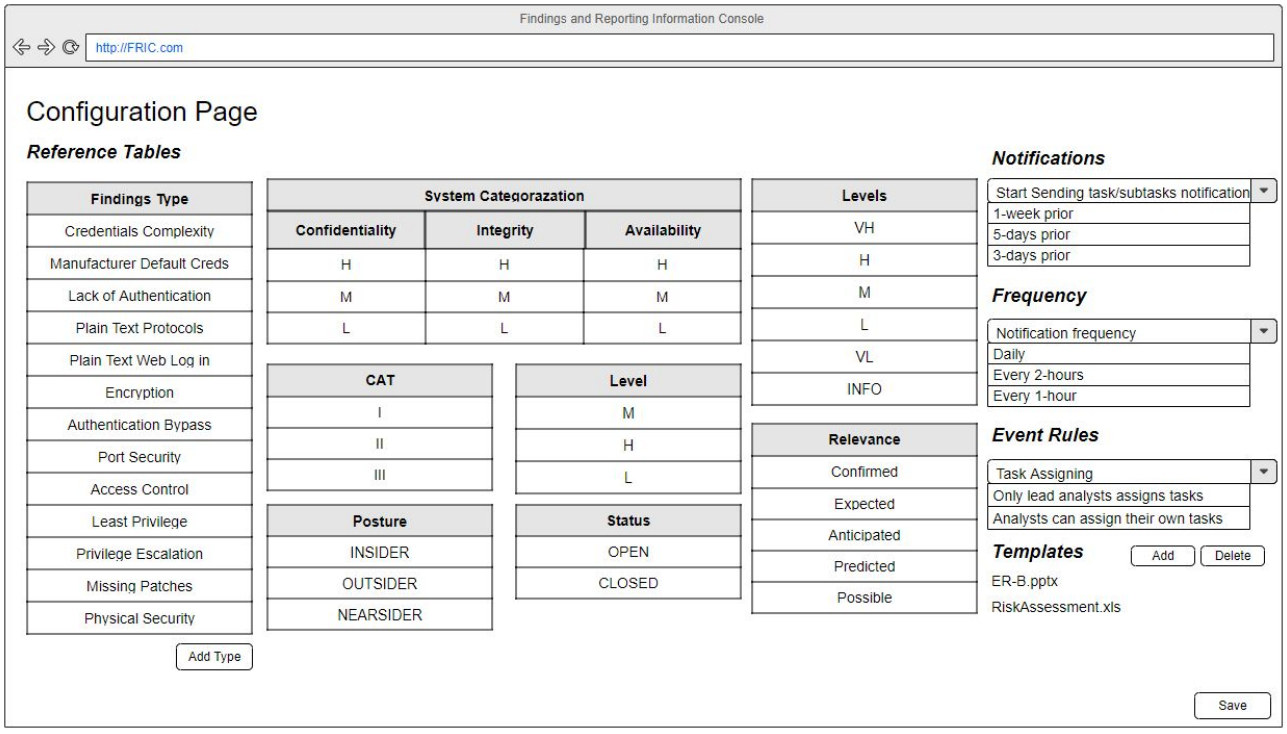


Figure 19: Configuration Page

3.1.2. Hardware Interfaces

There are no Hardware Interface requirements for the development of FRIC.

3.1.3. Software Interfaces

There are no Software Interface requirements for the development of FRIC.

3.1.4. Communications Interfaces

There are no Communication Interface requirements for the development of FRIC.

3.2. Behavioral Requirements

This section describes the behavioral requirements of the system. For complete requirements associated with behavioral functionality, please refer to the given tables below (Table 1 - Table 15).

3.2.1. Same Class of User

The purpose of the Same Class of User section describes and displays which roles have access to the behavioral functions of the system. Please refer to Table 1 - Table 7.

[SRS 83] The system shall have four roles:

a. Lead.
b. Analyst.
c. Collaborator.
d. Read-only analyst.

[SRS 84] The system shall have four types of access:

a. Append access.
b. Associate access.
c. Read access.
d. Write access.

[SRS 85] The roles in [SRS 1] shall be further detailed with each associated type of access in [SRS 2], demonstrated in Tables 1-7 below:

Manage Task (Table 1)

Privilege/Role	*Lead*	*Analyst*	*Collaborator*	*Read-only analyst*
Create Task	Read access Write access	N/A	N/A	N/A
Edit Task	Read access Write access	Read access Write access: - An analyst shall be assigned to the task to gain write access to the progress field of a	Read access Write access. - A collaborator shall only be able to edit the progress field of a task if the task does not have any subtasks	Read access.

		task - An analyst shall only be able to edit the progress field of a task if the task does not have any subtasks.		
Archive Task	Read access Write access	N/A	N/A	N/A
Demote Task	Read access Write access	N/A	N/A	N/A

Manage Subtask (Table 2)

Privilege/ Role	*Lead*	*Analyst*	*Collaborator*	*Read-only analyst*
Create Subtask	Read access Write access	Read access Write access	Read access Write access	N/A
Edit Subtask	Read access Write access	Read access Write access	Read access Write access	Read access
Archive Subtask	Read access Write access	Read access Write access	Read access Write access	N/A
Promote Subtask	Read access Write access	Read access Write access	Read access Write access	N/A

Manage Finding (Table 3)

Privilege/Role	*Lead*	*Analyst*	*Collaborator*	*Read-only analyst*
Create Finding	Read access Write access	Read access Write access	N/A	N/A

Edit Finding	Read access Write access	Read access Write access	Read access Associate access Append access. - A collaborator shall not be able to edit any attribute of a finding.	Read access
Archive Finding	Read access Write access	Read access Write access	N/A	N/A

Manage Event (Table 4)

Privilege/Role	*Lead*	*Analyst*	*Collaborator*	*Read-only analyst*
Create event	Read access Write access	N/A	N/A	N/A
Edit event	Write access Read access	N/A	N/A	N/A
Re-use event	Read access Write access	N/A	N/A	N/A
Archive event	Read access Write access	N/A	N/A	N/A

Generate Report (Figure 5)

Privilege/Role	*Lead*	*Analyst*	*Collaborator*	*Read-only analyst*
Generate Risk Assessment	Read access Write access	Read access Write access	N/A	N/A
Generate ERB	Read access Write access	Read access Write access	N/A	N/A
Generate Final Report	Read access Write access	Read access Write access	N/A	N/A

View Progress (Table 6)

Privilege/Role	Lead	Analyst	Collaborator	Read-only analyst
View by Task	Read access	Read access	Read access	Read access
View by Analyst	Read access	Read access	Read access	Read access
View Overall	Read access	Read access	Read access	Read access

Sync Data (Table 7)

Privilege/Role	*Lead*	*Analyst*	*Collaborator*	*Read-only analyst*
Sync all data	Read access Write Access	Read access Write Access	Read access Write Access	N/A

3.2.2. Related Real-World Objects

The purpose of the Related Real-World Objects below, describes the association that our classes have with one another. Under each class, we have a list of attributes that contain the type of data it represents, a description, the values and the constraints if any, please refer to Table 8 - Table 15.

[SRS 86] The Event class shall have an association with System, where one event shall have one to many Systems.

[SRS 87] The Event class shall have an association with Lead analyst, where one to many events is created by one Lead analyst.

[SRS 88] The system shall store the attributes as defined in Table 8 for an event.

Table 8 : Event

Attribute	Data Type	Values and Constraints	Description
Event Name	String	Required; Editable	Name of the event.
Event Description	String	Required; Editable;	Description of the event.
Event Start	String	Required; Editable; Must be in Zulu Time; Format: HH:MM MM/DD/YY AM/PM	Event's starting date
Event Type	Object	Required; {CPVA, AA, CVI}	Name of tests being performed by this event.
Security Classification	String	Required; Editable	Gives the event the security classification to build at desired scope.

Declassification Date	String	Required; Editable; Must be in Zulu Time; Format: HH:MM MM/DD/YY AM/PM	Start date and time of declassification.
Organization Name	String	Required; Editable	The organization name of whose event is for.
Customer Name	String	Required; Editable	The customer name of the event.
Assessment Date	String	Required; Editable; Must be in Zulu Time; Format: HH:MM MM/DD/YY AM/PM	Start date and time of the event.
Tested System	String	Required; Editable	System to be tested under event.
Version	String	Required; Editable	Keeps track of updates being changed in iterations, incrementally.

[SRS 89] The Findings class shall have an association with System, where one System shall have zero to many Findings.

[SRS 90] The Findings class shall have an association with Subtask, where one Subtask shall have zero to many Findings.

[SRS 91] The Findings class shall have an association with Task, where on Task shall have zero to many Findings.

[SRS 92] The Findings class shall have an association with User, where a User shall create zero to many Findings.

[SRS 93] The Findings class shall have a compositional relationship with Report, where a Report shall have one to many Findings.

[SRS 94] The system shall store the attributes as defined in Table 9 for Findings.

Table 9: Findings

Attribute	Data Type	Values and Constraints	Description
Finding Title	String	Required; Editable	Title of the finding
IP Port	String	Required; Editable	Specific Port for the IP
Host Name	String	Required; Editable	Name of the host
ID	Integer	Required; Editable	Finding's unique identifier
Analyst	String	Required; Editable	Finding's author initials
Status	Object	Required; {Open, Closed}	Finding's current status
Finding Type	Object	Required; {Credentials Complexity, Manufacturer Default Creds, Lack of Authentication, Plain Text Protocols, Plain Text Web-Login, Encryption, Authentication Bypass, Port Security, Access Control, Least Privilege, Privilege Escalation, Missing Patches, Physical Security}	List of available finding types

Posture	Object	Required; {INSIDER, OUTSIDER, NEARSIDER}	Level of access used by analyst in order to attack the system
System Categorization (CIA)	Object	Required; {H, M, L}	Level of unauthorized access achieved, data alteration, and user access
IMP Score	Integer	Required; Editable	Impact Score description
CAT	String	Required; {I, II, III}; Derived; CIA Must be in system prior to generating CAT	Finding's severity
CAT Score	Integer	Required; {10, 7, 4}; Derived; CAT Must be in system prior to generating CAT Score	Finding's severity score based on CAT
Relevance	String	Required; {Confirmed, Expected, Anticipated, Predicted, Possible}; Pre-defined	Description of the relevance of a threat to the system
Likelihood	Integer	Required; {VH-6, H-5, M-4, L-3, VL-2}; Derived; Impact must be in system prior to generating Likelihood	Finding's probability of affecting a system
Risk	Integer	Required; {VH-6, H-5, M-4, L-3, VL-2}; Derived;	Finding's probability of exposure

		VS Score, Raw, Impact, Countermeasure, Relevance of Threat, and Likelihood must be in system prior to generating Risk	
Impact	Integer	Required; {VH-10, H-7-9, M-4-6, L-1-3, VL-0}; Derived; System configuration must be in system prior to generating Impact	Impact of a vulnerability
Countermeasure	Integer	Required; {VH-6, H-5, M-4, L-3, VL-2}; Derived	Effectiveness of a countermeasure against a discovered vulnerability.
VS Score	Integer	Required; {VH-6, H-5, M-4, L-3, VL-2}; Derived; Raw, Impact, Countermeasure, must be in system prior to generating VS Score	Vulnerability Severity
Mitigation	String	Required; Editable	Description of mitigation for vulnerability
Description	String	Required; Editable	Description of vulnerability.
Notes	String	Required; Editable	Additional information that the description field does not have.

Evidence	Object	Not Required; Editable	Any attachment the analyst would like to append to show evidence.
Collaborators	Object	Required; Editable	Analysts that have been assigned as collaborators to a specific finding.

[SRS 95] The Task class shall have an association with System, where one System shall have one to many Tasks.

[SRS 96] The Task class shall have an association with User, where the role Lead Analyst (one) shall create one to many Tasks.

[SRS 97] The Task class shall have an association with User, where the role Analyst (one) shall have one to many Tasks.

[SRS 98] The Task class shall have an association with User, where the role Collaborator (one) shall have one to many Tasks.

[SRS 99] The Task class shall have an association with Findings, where one Task shall have zero to many Findings.

[SRS 100] The Task class shall have an association with Notifications, where one Task shall have zero to many Notifications.

[SRS 101] The Task class shall have a compositional relationship with Subtask, where one Task shall have zero to many Subtasks.

[SRS 102] The system shall store the attributes as defined in Table 10 for a Task.

Table 10: Task

Attribute	**Data Type**	**Values and Constraints**	**Description**
Task Title	String	Required; Editable	Name of the task.

Task Description	String	Required; Editable;	Description of the task.
Priority	Object	Required; {High, Medium, Low}	The priority tells the user what is important to work on and if a notification should be sent out
Progress	Object	Required; {not-doable, not started, assigned, transferred, in-progress, complete}	The current status of the task.
Due Date	String	Required; Editable; Must be in Zulu Time; Format: HH:MM MM/DD/YY AM/PM	Due date and time of the current task.
Supporting Material	Object	Not Required; Editable	Any attachment the analyst would like to make to the finding, to show evidence.

[SRS 103] The Subtask class shall have an association with User, where one User creates one to many Subtasks

[SRS 104] The Subtask class shall have an association with Findings, where one Subtask shall have zero to many Findings.

[SRS 105] The Subtask class shall have an association with Notifications, where one Subtask shall have zero to many Notifications.

[SRS 106] The Subtask class shall have a compositional relationship with Task, where one Task shall have zero to many Subtasks.

[SRS 107] The system shall store the attributes as defined in Table 11 for a Subtask.

Table 11: Subtask

Attribute	Data Type	Values and Constraints	Description
Subtask Title	String	Required; Editable	Name of the subtask.
Subtask Description	String	Required; Editable	Description of the subtask.
Progress	Object	Required; {not-doable, not started, assigned, transferred, in-progress, complete}	The current status of the subtask.
Due Date	String	Required; Editable; Must be in Zulu Time; Format: HH:MM MM/DD/YY AM/PM	Due date and time of the current subtask.
Supporting Material	Object	Not Required; Editable	Any attachment the analyst would like to make to the finding, to show evidence.

[SRS 108] The Reports class shall have an association with User, where the User (one) shall create zero to many Reports.

[SRS 109] The Reports class shall have a compositional relationship with Findings, where the Report shall have zero to many Findings.

[SRS 110] The Reports class shall have a compositional relationship with Event, where the Report shall have one Event.

[SRS 111] The Reports class shall have a compositional relationship with System, where the Report shall have one to many Systems.

[SRS 112] The system shall store the attributes as defined in Table 12 for a Report.

Table 12: Reports

Attribute	Data Type	Values and Constraints	Description
Report Template	Object	Required at least one; {Risk Assessment, ERB, Final Report}	The template that will be used depending on the Report Type that is entered by the User.
Report Type	Object	Required at least one; {Risk Assessment, ERB, Final Report}	Lead analysts will be able to select which kind of report will be generated.

[SRS 112] The User class shall have an association with Subtasks, where the role Lead Analyst/Analyst shall create zero to many Subtasks.

[SRS 113] The User class shall have an association with Notifications, where the role Analyst shall create zero to many Notifications.

[SRS 114] The User class shall have an association with Tasks, where the role Lead Analyst shall create one to many Tasks.

[SRS 115] The User class shall have an association with Findings, where the role Lead Analyst/Analyst shall create zero to many Findings.

[SRS 116] The User class shall have an association with Tasks, where the role Analyst shall have zero to many Tasks.

[SRS 117] The User class shall have an association with Tasks, where the role Collaborator shall have zero to many Tasks.

[SRS 118] The User class shall have an association with Event, where the role Lead Analyst shall create one to many Events.

[SRS 119] The User class shall have an association with Reports, where the User (one) shall create one to many Reports.

[SRS 120] The system shall store the attributes as defined in Table 13 for a User.

Table 13: User

Attribute	Data Type	Values and Constraints	Description
Initials	String	Required; Editable;	Lead analyst or analyst's initials for authentication purposes.
IP	String	Required; Editable;	Lead analyst or analyst's IP for authentication purposes.

[SRS 121] The System class shall have an association with the Event, where one Event shall have one to many Systems.

[SRS 122] The System class shall have an association with the Task, where one Task shall have one System.

[SRS 123] The System class shall have a compositional relationship with the Report, where one Report shall have one to many Systems

[SRS 124] The System class shall have an association with Findings, where one System shall have zero to many Findings.

[SRS 125] The system shall store the attributes as defined in Table 14 for a System.

Table 14: System

Attribute	Data Type	Values and Constraints	Description
System Name	String	Required; Editable	Name of the System
System Description	String	Required; Editable	Description of System

Confidentiality	Object	Required; {High, Medium, Low}	Level of unauthorized access achieved
Integrity	Object	Required; {High, Medium, Low}	Level of unauthorized data alteration
Availability	Object	Required; {High, Medium, Low}	Level of unauthorized user access
Locations	Object	Required; Editable	Location of System
Switches	String	Required; Editable	IP address of System
Routers	String	Required; Editable	IP address of System
Building/Room Accessed	String	Required; Editable	Location of where System is being accessed
Finding Classification	Object	Required; Editable	Type of classification for System

[SRS 126] The Notification class shall have an association with the Task class, where one Task shall have zero or more notifications

[SRS 127] The Notification class shall have an association with the User class, where one user shall have zero or more notifications

[SRS 128] The Notification class shall have an association with the Subtask class, where one Subtask shall have zero or more notifications

[SRS 129] The system shall store the attributes as defined in Table 15 for a Notification configuration

Table 15: Notifications

Attribute	Data Type	Values and Constraints	Description
Frequency	String	Required; Editable;	Frequency of notification

3.2.3. Stimulus

The purpose of this section is to describe the system's behavior in response to user's interaction with the system. This section contains two different types of stimulus: *User Interface Stimulus* and *System Stimulus.*

3.2.3.1. User Interface Stimulus (Stimulus requirement for UI)

User Interface Stimulus represents the behavior the system will have in response to the user's actions.

3.2.3.1.1 General

The following requirements are the Stimulus requirements for UI when creating a finding within the system.

[SRS 130] When the user clicks on the "Findings" tab under the "Navigation Menu", the system shall display the finding page under "Manage Findings".

[SRS 131] When the user clicks on the "Sync" button on the finding page under "Manage Findings", the system shall display the sync data page under "Sync Data".

[SRS 132] When the user clicks on the "Create" button on the finding page under "Manage Findings", the system shall display the create page under "Create Finding".

[SRS 133] When the user clicks on the "Edit" button on the finding page under "Manage Findings", the system shall display the edit page under "Edit Finding".

[SRS 134] When the user clicks on the "Archive" button on the finding page under "Manage Findings", the system shall display a "pop-up" window requesting user confirmation.

[SRS 135] When the user clicks on the "Yes" button on the "pop-up" window requesting archive confirmation, the system shall archive the currently selected finding.

[SRS 136] When the user clicks on the "No" button on the "pop-up" window requesting archive confirmation, the system shall display the "Manage Findings" page.

[SRS 137] When the user clicks over the "Info" icon next to the derived values on the "Create Finding" page, the system shall display a "pop-up" window that displays the description of the selected derived value.

[SRS 138] When the user clicks on the "OK" button on the "pop-up" window describing the selected derived value, the system shall display the page under "Create Finding".

[SRS 139] When the user clicks on the check boxes labeled as “Collaborators” on the create finding page under “Create Finding”, the system shall display the appropriate collaborators which the user can add to the new finding.

[SRS 140] When the user clicks on the “Attach a File” button on the create finding page under “Create Finding”, the system shall give the user ability to browse for files.

[SRS 141] When the user clicks on the appropriate text fields on the create finding page under “Create Finding”, the system shall expect an appropriate input.

[SRS 142] When the user clicks on the appropriate drop-downs on the create finding page under “Create Finding”, the system shall expect an appropriate drop down option to be selected.

[SRS 143] When the user clicks on the “Save” button on the create finding page under “Create Finding”, the system shall display a “pop-up” window stating “Missing __ entry” if and only if the user tries to save a new finding with a missing field. Note that such fields are labeled with a “*” if they are required.

[SRS 144] When the user clicks on the “Save” button on the create finding page under “Create Finding”, the system shall save the newly created finding with all of the attributes filled correctly.

[SRS 145] When the user clicks on the “Save” button on the create finding page under “Create Finding”, the system shall display the “Manage Findings” page.

3.2.3.2. System Stimulus

System Stimulus requirements represent the system’s behavior when certain actions are performed by the user and it transitions from one state to another. The models illustrating the state transitions for Notification, Data Sync, and Findings can be found in Appendix 5.

3.2.3.2.1. Finding

System stimulus requirements for the Finding State Transition diagram:

[SRS 146] When the authorization operation is complete, the system shall grant the corresponding accesses to the analyst as defined in [SRS 85].

[SRS 147] When the creation of finding is complete, the system shall perform the verification of inputs.

[SRS 148] When the verification of inputs in complete, the following properties of finding shall be true:

1. All required properties of a finding are inputted/meets the constraints as defined in [SRS 94].

[SRS 149] When the association operation is complete, the system shall associate the findings to the

corresponding working assignment.

[SRS 150] When the edit finding operation is complete, the system shall perform the verification of inputs.

[SRS 151] When the archive finding operation is complete, the following properties shall be true:
1. If the system received a confirmation to archive request, the system has archived the finding.
2. If the system did not receive a confirmation to archive request, the system has not archived the finding.

3.2.3.2.2. Notification

System stimulus requirements for the Notification State Transition diagram:

[SRS 152] When the retrieve frequency and notifications start time operation is complete, the following components shall be true:
1. The system has received and saved the notification's frequency.
2. The system has received and saved the notification's start time.

[SRS 153] When the inactive operation is complete, the following components shall be true:
1. The system has confirmed that the current date is the same as the notification's start time.

[SRS 154] When the is active operation is complete, the following components shall be true:
1. The system has notified the corresponding analysts as frequent as saved in [SRS 152]
2. The system has confirmed that the current date is past the notification's due date.

3.2.3.2.3. Data Synchronization

System stimulus requirements for the Synchronization State Transition diagram:

[SRS 155] When the "Verify Data" operation is completed with no new data found; the system shall end the process.

[SRS 156] When the "Verify Data" operation is completed with new data found; the system shall do the following:
a. Pull data
b. Push data

[SRS 156] When the "Push Data" operation is complete the system will be notified and the Data Synchronization process will end.

[SRS 157] When the "Pull Data" operation is complete the system will be notified and the Data Synchronization process will end.

3.3. Non-Behavioral Requirements

This section describes the qualities while operating and attributes of how it performs. Our non-behavioral requirement is made up of one specific quality attribute: *Usability*. Usability will define how easy it is for the user to accomplish their desired goal or task. Quality attributes scenarios (QAS) are a way to state a QA specific requirement. The QAS is made up of a source of stimulus, stimulus, environment, artifact, response and response measure. The source of the stimulus is who or what generates the stimulus. The stimulus is the event when arrived at the system or condition requiring a response, a user's operation. The environment is the set of circumstances or conditions in which the stimulus takes place. An artifact is a portion of the system to which the requirement applies. The response is how the system should respond to the stimulus being performed. Response measure is how the requirement can be tested and measured. The QAS is to test and measure part of the system to ensure our FRIC system meets the needs of the client.

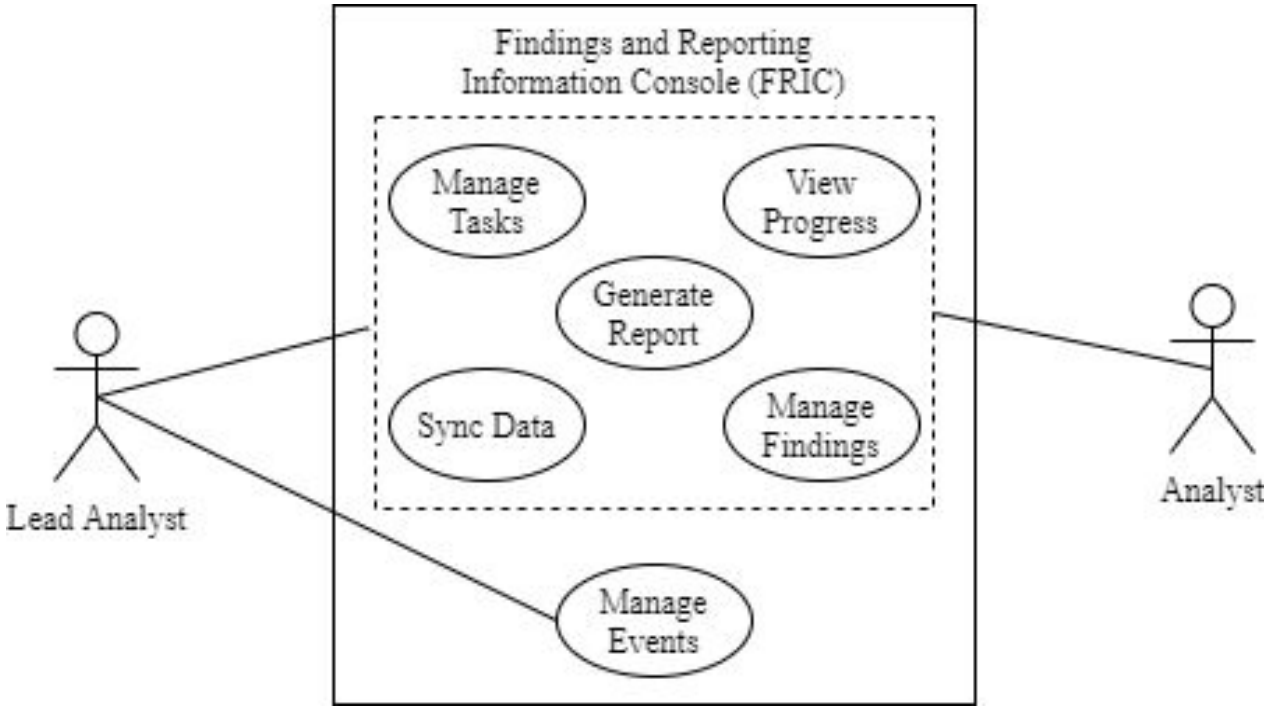
Usability Scenario:

End users will efficiently make a sync request between all analysts under event. The users will transfer and receive data within the system in 2 steps.

Portion of scenario	**Values**
Source	End User.
Stimulus	Sync between all analysts under event.
Environment	Runtime.
Artifacts	System.
Response	Users transfer and receive data.
Response measure	Within 2 steps.

Appendix 1: Use Case Diagram Level 1

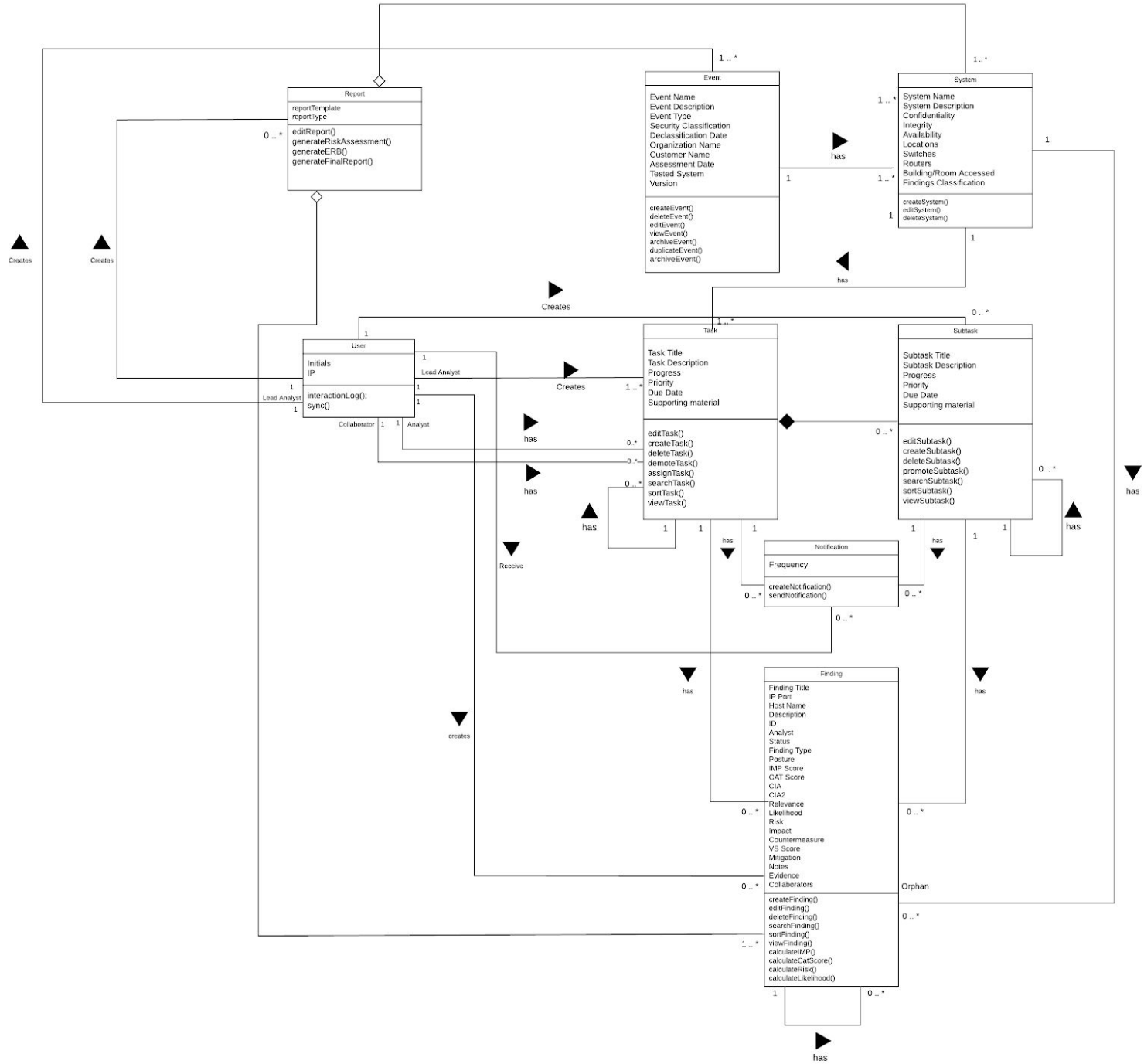
The level 1 Use Case Diagram demonstrates a user's interaction with a specific system, in this case, FRIC.



Appendix 2: Class Diagram

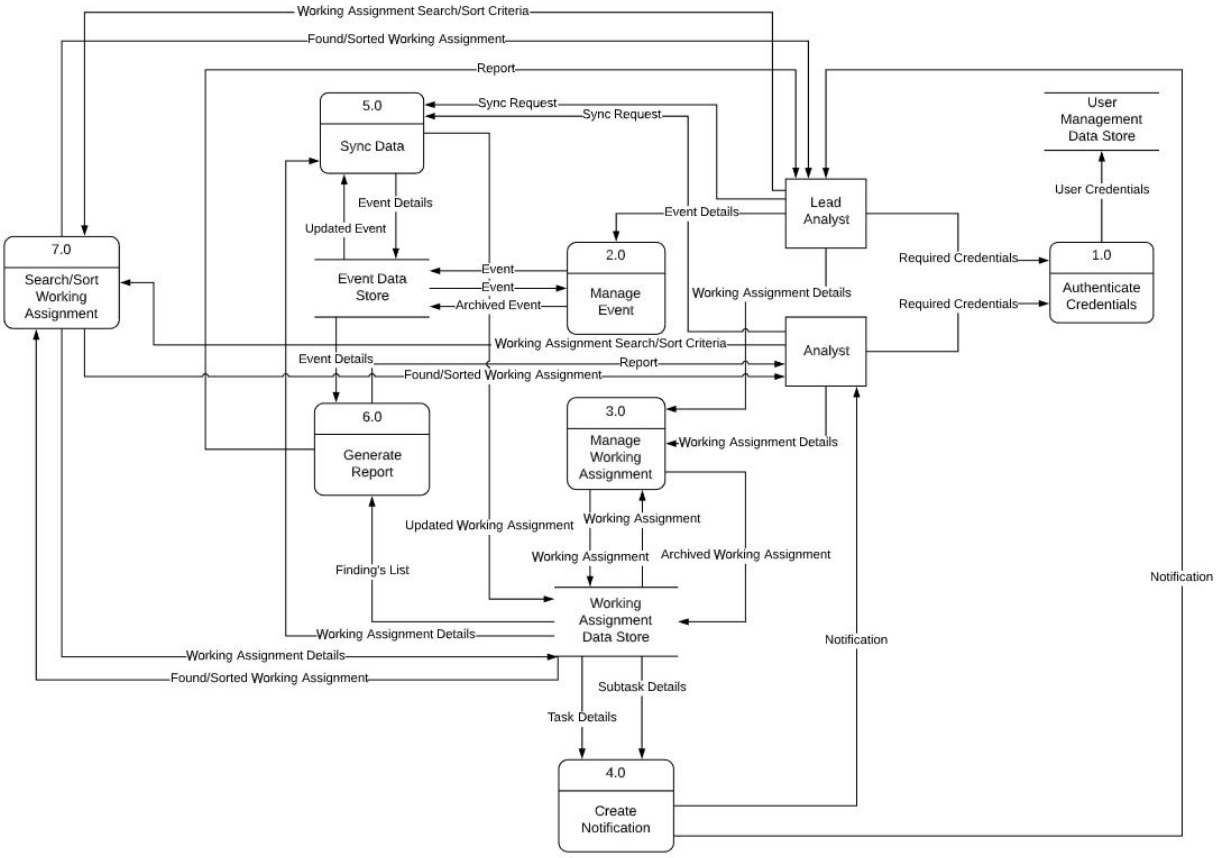
The Class Diagram demonstrates the structure of the system and the relations of each aspect of the system to each other.

https://app.lucidchart.com/documents/edit/904a67fd-5b67-4049-b120-e3cea3c8b181/0_0



Appendix 3: Data Flow Diagram Level 1

The Data Flow Diagram Level 1 demonstrates the flow of data from each process in the system to one another.



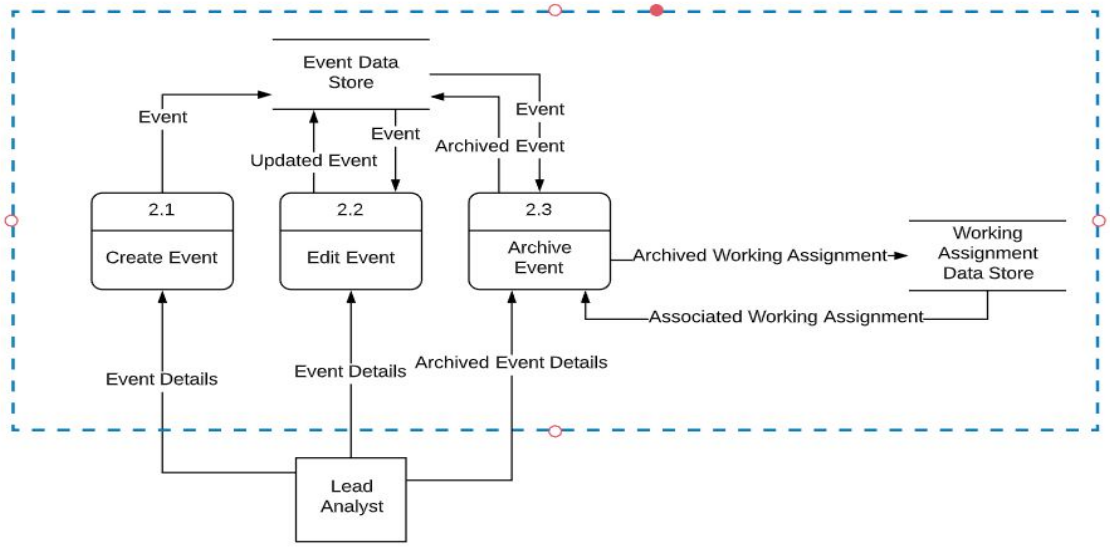
Data dictionary:

- ***Working assignment:***
  - *Represents any task, subtask, or finding.*
- ***Working assignment details:***
  - *Working Assignment details refers to the attributes of the corresponding working assignment.*
- ***Event Details:***
  - *Event details refers to the event's tested system, Lead analyst, security classification guide title, declassification, declassification date, organization name, customer name, assessment date, locations, test plan title, switches, routers, access, building accessed, room accessed, event type.*
- ***Task/Subtask's Details:***
  - *Refers to the required task/subtask's attributes in order to create a notification.*
- ***Report:***
  - *A report can be an ER-B, risk assessment, or final report.*
- ***Required Credentials:***
  - *Refers to the analyst's Initials in order to get system access granted.*

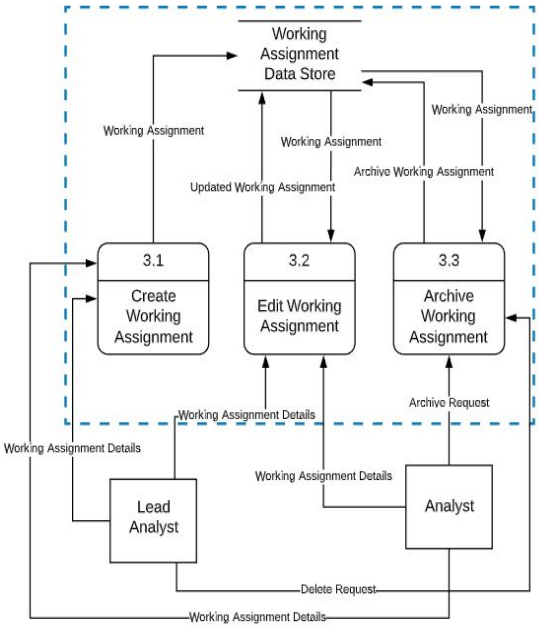
Data Dictionary

Appendix 4: Data Flow Diagram Level 2

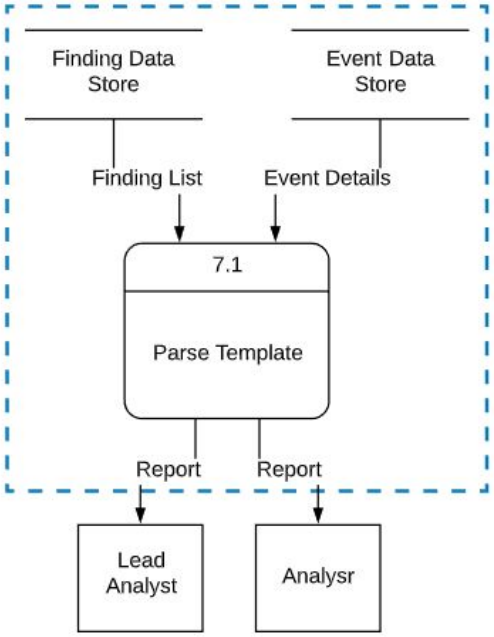
The level 2 Data Flow Diagram demonstrates the data flow inside the processes illustrated in the level 1.



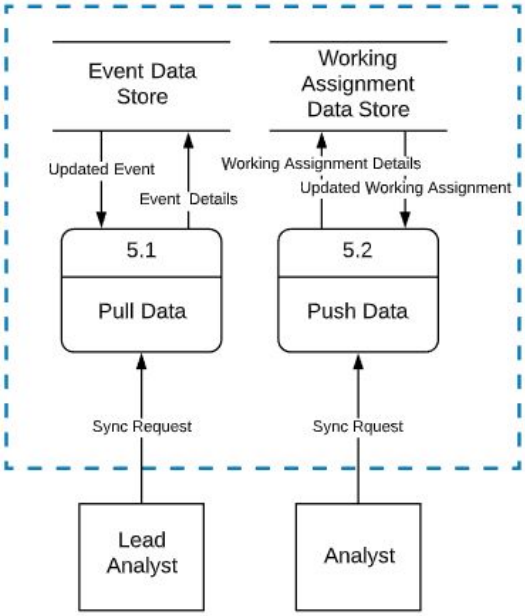
Manage Event



Working Assignment



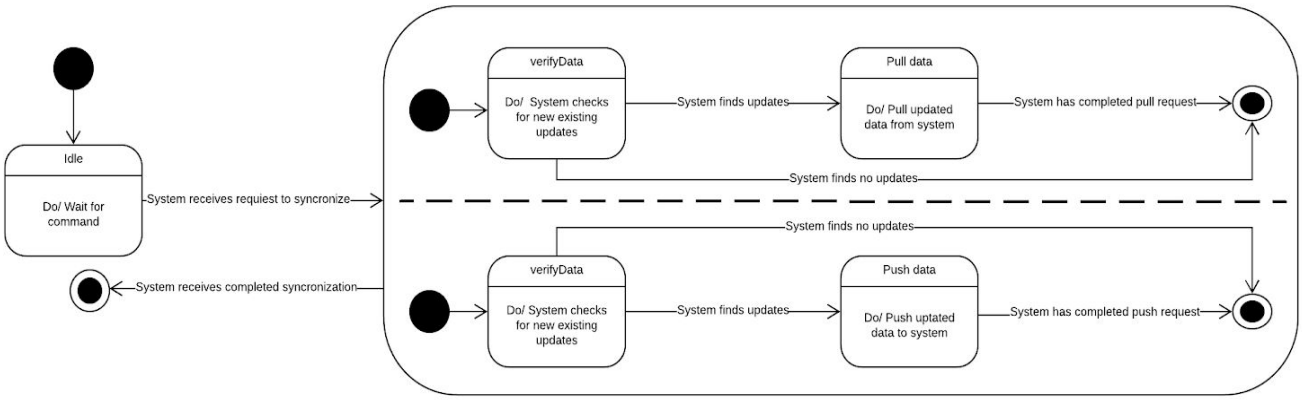
Generate Report



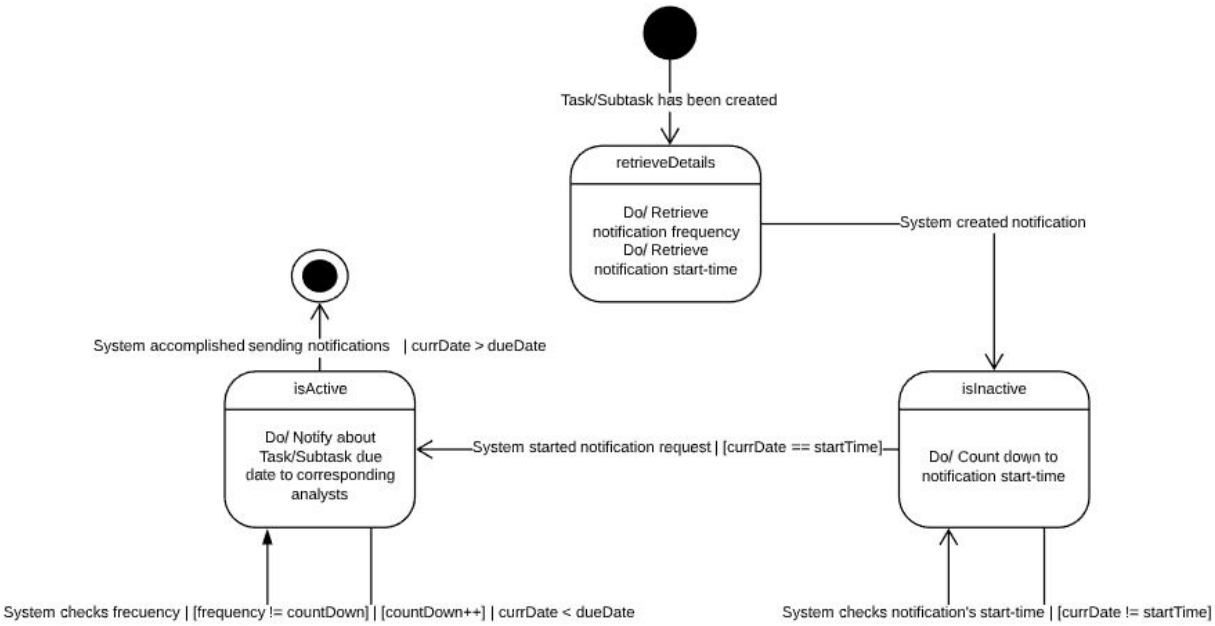
Sync Data

Appendix 5: State Transition Diagram

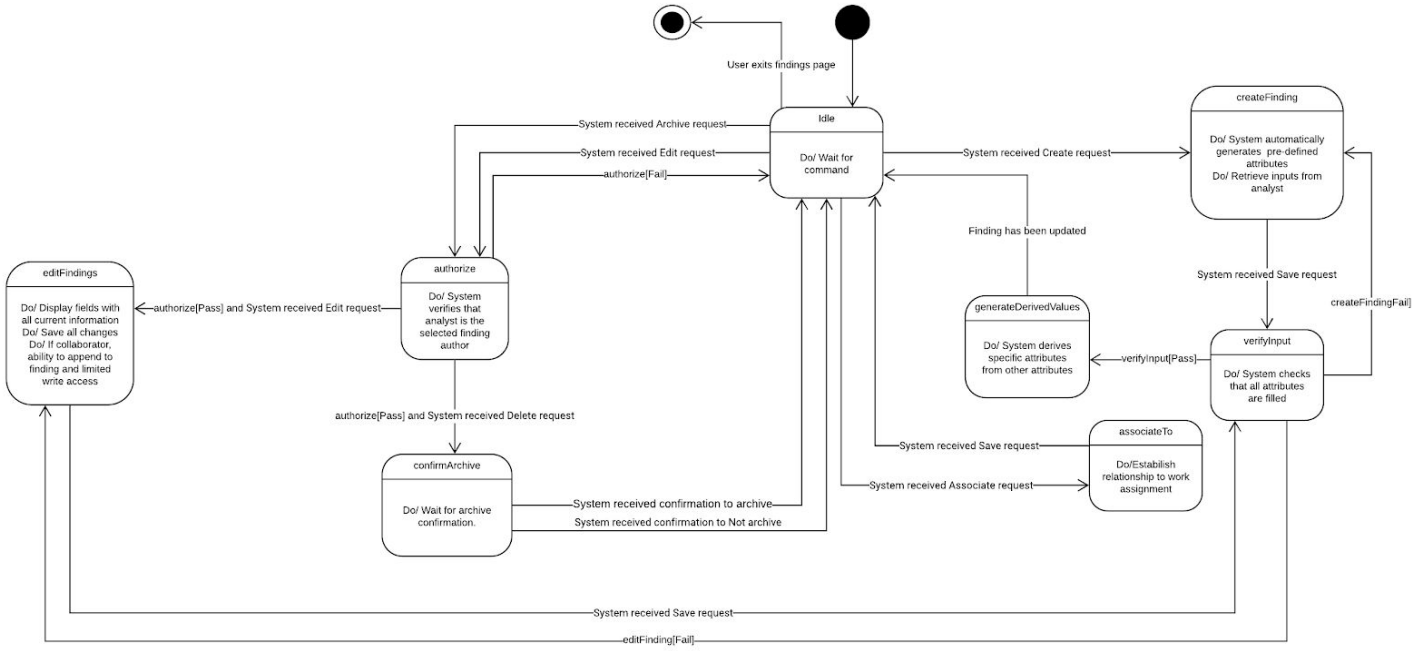
A state transition diagram illustrates events and states of the system, and the behavior of the system in reaction to events



Data Synchronization State Transition Diagram



Notification State Transition Diagram



Finding State Transition Diagram

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