Prevent, Mitigate, and Recover (PMR) Insight

Collective Knowledge System (PICK)

Test plan

Version 1.4

May 9, 2020

**Document Control**

**Approval**

The Guidance Team and the customer shall approve this document.

**Document Change Control**

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**Change Summary**

The following table details changes made between versions of this document

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# Introduction

The overview of the project and test plan is explained in this section, with more in-depth details explained in sections two through six. This section comprises the following subsections: Purpose, Scope, System Overview, Suspension and Exit Criteria, Document Overview and References.

## Purpose

The purpose of the Test Plan document is to provide detailed information on the testing approach and schedule conducted for the Prevent, Mitigate, and Recover (PMR) Insight Collective Knowledge System (PICK). The purpose of this document is to verify the functionality of the PICK system according to the requirements specified by the client, using a system test plan that describes the system from the customer’s point of view.

## Scope

The project software version encompassed by the test plan will be PICK version 0.0, which represents the latest released version.

## System Overview

The system is intended for an analyst to create reports of Log Files. The system ingests a mixture of Log Files types and with the help of Splunk, converts them to Log Entries. While Log Files are being processed by the system, they are going to be cleansed and validated. In the cleansing process, all of the redundant white space is going to be removed (includes empty lines). In the validation phase, the timestamp of the Log Entries is compared with the predefined date range by the analyst. If the Log Entry is outside of the range, the analyst is presented with the Action Report. The Action Report lists all of the Log Entries that failed the validation phase, giving the analyst the option to approve them.

## Suspension and Exit Criteria

The suspension and exit criteria implemented for the test plan will be applied as follows:

* + Suspension criteria:
    - All test cases will be executed
  + Exit criteria:
    - Critical tests must pass – 100% passing rate
    - Non-critical tests – at least 90% must pass

## Document Overview

The remainder of the Test Plan document is comprised of the following sections:

Section 2 – Test Items and Features, describes the test items and the features to be tested.

Section 3 – Testing Approach, describes the approach to be used to test the system.

This description includes specifying the types of tests to be performed.

Section 4 – Test, this area provides general notes concerning the test procedure.

Section 5 – User Interface Testing, this section focuses on the interaction between the user and the system.

Section 6 – Test Schedule, specifies the schedule for testing activities.

Section 7 – Other Sections, other sections that may appear in a test plan.

Section 8 – Appendix, might provide explicit directions for analysis of output.

## References

[1] Dr. Roach Tai et al, Prevent, Mitigate, and Recover (PMR) Insight Collective Knowledge System (PICK)

Software Requirements Specification, version 1.7, 2020.

# Test Items and Features

The main components that are going to be tested are the Intake component, Vector DB, and the UI component. The main feature that is going to be tested in the Intake component is the processing of Log Files. Log Files should be processed from the system in a way that they are, cleansed, validated, and converted to Log Entries. Each of the main services in the component should have testing items that they are responsible for doing. For example, the cleansing service should be tested that the unwanted characters are being removed from the Log Files that are being processed. Another service that is going to be tested is the validation service; testing that the service is validating the correct fields in the data being processed, furthermore, is the way of validating the correct one. The main two features of the Vector DB component are the pushing and pulling of data; is the data being synchronized in the two parties (the Analyst and the Lead). Finally, there should be testing done on the different UI components, for example, testing the addition and elimination of Nodes in a Graph View and Log Entries in a Table View.

# Testing Approach

|  |  |  |
| --- | --- | --- |
| **TEST SUITE <StartingProject>** | | |
| **Description of Test Suite** | **The functionality of the PICK graphical user interface shall be tested in order to ensure the analyst will be able to adequately use the PICK system.** | |
| **Test Case Identifier** | **Objective** | **Criticality** |
| **S01** | **Validation** | **Medium** |
| **S02** | **Generate action reports** | **High** |

|  |  |  |
| --- | --- | --- |
| **TEST SUITE <Transcription>** | | |
| **Description of Test Suite** | **The functionality of the transcription tool used within PICK shall be tested in order to ensure correct transcription is being done across various file formats.** | |
| **Test Case Identifier** | **Objective** | **Criticality** |
| **T01** | **Audio file transcription testing** | **High** |
| **T02** | **Video file transcription testing** | **High** |

|  |  |  |
| --- | --- | --- |
| **TEST SUITE <Graph>** | | |
| **Description of Test Suite** | **The graph view shall be tested to ensure proper functionality.** | |
| **Test Case Identifier** | **Objective** | **Criticality** |
| **GPH01** | **Create new node** | **High** |
| **GPH02** | **Delete node** | **High** |
| **GPH03** | **Correct node information** | **High** |
| **GPH04** | **Node relationship** | **High** |

|  |  |  |
| --- | --- | --- |
| **TEST SUITE <Log entries>** | | |
| **Description of Test Suite** | **Log entries using Splunk shall be tested to ensure proper functionality.** | |
| **Test Case Identifier** | **Objective** | **Criticality** |
| **L01** | **Proper ingestion of information testing** | **High** |
| **L02** | **Correlation of Log entries** |  |

|  |  |  |
| --- | --- | --- |
| **TEST SUITE <Optical Character Reader>** | | |
| **Description of Test Suite** | **The OCR will be tested in order to observe the correctness and consistency of its performance.** | |
| **Test Case Identifier** | **Objective** | **Criticality** |
| **OCR01** | **The OCR reads a jpeg file for characters and produces satisfactory results.** | **High** |
| **OCR02** | **The OCR reads a png file and is again observed for accurate results.** | **High** |

# Testing

The purpose of this section is to:

* document test input, specific test procedures, and outcomes.
* establish test methods,
* explain the nature and extent of each test

## 4.1 Test I01

**Objective:** Conversion of Log Files to Log Entries.

**Notes:** The test would see if Log Entries are being extracted correctly from a given Log File. This process will involve the usage of Splunk, which accepts Log Files and returns a set Log Entries.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test No.: I01 | | | | Current Status: Passed | | |
| Test title: Extraction of Log Entries. | | | | | | |
| Testing approach: Given a predefined Log Files, we are going to ingest it to the system. From there the test is going to check if the correct Log Entries were extracted. | | | | | | |
| STEP  1 | OPERATOR ACTION  Initialize the system, start a new project, and navigate to the next window. In the validation window, put dummy data in the “Event Name” and “Event description”. Finally, click the “Save Event” button and advance to the next window. | PURPOSE  Initial Condition. | | | EXPECTED RESULTS  Analysts should be able to successfully create a project and navigate to the next screen. | COMMENTS  No comments. |
| 2 | Once on the page where the analyst selects the directories, input the “*<path-to-project>/example/*” to all inputs. Finally, click on the “Start Data Ingestion” button. | Initialization of the Intake process. | | | Intake Service should be able to gather the Log Files that are within the directories that were defined. | This step defines the directories whose Log Files are going to be ingested. In this case, the example directory will include a single example Log File. |
| 3 | Wait for the Log File to be processed by the ETL service (upload and retrieved by Splunk). | Process the Log File and extraction of Log Entries. | | | The Intake service waits for Splunk to process the data. | No Comments. |
| 4 | We are going to compare the number of Log Entries that are returned by the Intake Service. Compare the number of Log Entries whose host comes from the *example\_log.txt* Log File. | Making sure the correct number of Log Entries are being extracted. | | | The number of Log Entries that are from *example\_log.txt* Log File should be 141 Log Entries. | The host property in a Log Entry has a path to the original Log File. |
| Concluding Remarks:  The test passed and all the log entries were retrieved successfully. | | | | | | |
| Testing Team:  Eduardo H, Michael S, Leslie G, Jazmin P, Jorge F. | | | Date Completed:  5/4/2020 | | | |

## 4.2 Test S01

**Objective:** Checking for correct Validation process

**Notes:** The test will check that the timestamp given from the user matches the ones given from the files selected from the user.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test No.: S01 | | | | Current Status: failed | | |
| Test title: Validating entries from timestamp | | | | | | |
| Testing approach: Given timestamp from the user, we will test that the log files chosen to ingest shall be in the correct timestamp. | | | | | | |
| STEP    1 | OPERATOR ACTION  Begin testing with the PICK system on the starting page.  Operator clicks on the “New Project” button. | PURPOSE  Initial condition to force the PICK system to start a new project when the user presses the new project. | | | EXPECTED RESULTS  A new window Event configuration will appear.  A text box to choose the source path shall be displayed.  A timestamp configuration shall display. | COMMENTS    This step worked successfully. |
| 2 | Operator enters description in the description box. | The purpose is to verify that the desired text is saved into the new project. | | | Description input box will hold the “Description” to the new project created. | This step works successfully |
| 3 | Operator chooses timestamps for that do not match the timestamps for the files to be chosen | The purpose of this is to verify action report will report invalid dates on files | | | Timestamp input box will hold the chosen timestamps from the calendar/time. | Correct output. |
| 4 | Operator clicks on the “save event” button to continue to Directory Configuration. | To continue to Directory Configuration. | | | Opens Directory Configuration. |  |
| 5 | Operator chooses source files that will not pass validation to create the project. | Upload source files with errors to the system to trigger action. | | | Display of the machines directory to select desired folders/files to. |  |
| 6 | Operator clicks on the “create” button. | This will create the ingestion portion of the files selected. | | | Event Viewer shall open notifying the Operator of log files that have failed validation. | This is where it fails. |
| Concluding Remarks:  Validation is not working correctly. | | | | | | |
| Testing Team:  Eduardo Herrera, Michael Sansone, Leslie Gomez, Jazmin Paz, Jorge Flores | | | Date Completed:  5/4/2020 | | | |

## 4.3 Test L01

**Objective:** Checking for invalid log files being ingested

**Notes:** The test will check to see if any unsanitized or invalid log files are being ingested.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test No.: L01 | | | | Current Status: Passed | | |
| Test title: Cleansing Log Files | | | | | | |
| Testing approach: Given a predefined set of log files including invalid files, the system shall cleanse the files and ingest valid files into the system. The test shall check if any invalid files are being ingested into the system anyway despite the cleansing process. | | | | | | |
| STEP  1 | OPERATOR ACTION  Operator will create new project | PURPOSE  Initial condition | | | EXPECTED RESULTS  Ability to select the folder(s) of log entries from the file system. | COMMENTS  N/A. |
| STEP  2 | OPERATOR ACTION  Operator will select the folder(s) where the log entries are | PURPOSE  To specify what files will be ingested | | | EXPECTED RESULTS  Specified files should be selected | COMMENTS  N/A. |
| STEP  3 | OPERATOR ACTION  Operator will create project by clicking button and cleanse data | PURPOSE  To begin cleansing process | | | EXPECTED RESULTS  Cleansing process should begin | COMMENTS  N/A. |
| Concluding Remarks:  This test was completed successfully, files were cleanse after the cleansing process. Output shows successful completion. | | | | | | |
| Testing Team:  Eduardo H, Michael S, Leslie G, Jazmin P, Jorge F. | | | Date Completed:  5/4/2020 | | | |

## 4.4 Test L02

**Objective:** Testing the correlation of the log entries.

**Notes:** Ensures that log entries are correlated correctly to its specified vector.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test No.: L02 | | | | Current Status: Passed | | |
| Test title: Correlation of log entries. | | | | | | |
| Testing approach: Given a predefined vector, log entries will be correlated to it. | | | | | | |
| STEP  1 | OPERATOR ACTION  Operator will select log entry. | PURPOSE  The purpose is to select Log entries. | | | EXPECTED RESULTS  Desired log entry from the log entry operator will be selected. | COMMENTS |
| 2 | Operator will click the “correlate” button. | The purpose for this is to ensure that the log entries selected are correlated to predefined vector. | | | Log entries shall be correlated to its predefined vector. |  |
| Concluding Remarks:  Test was successful. Log entries are successfully correlated to chosen vector. | | | | | | |
| Testing Team:  Eduardo H., Michael S., Leslie G., Jazmin Paz., Jorge F. | | | Date Completed:  5/4/2020 | | | |

## 4.5 Test S02

**Objective:** Checking for correct action report functionality

**Notes:** The test will check to see if approval and disapproval of a file for ingestion works.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test No.: S02 | | | | Current Status: Pending | | |
| Test title: Approval or Disapproval of files for ingestion | | | | | | |
| Testing approach: Given there has been an issue validating files they will be approved or not approved. | | | | | | |
| STEP    1 | OPERATOR ACTION  Operator clicks approve on a file. | PURPOSE  To approve a file for ingestion. | | | EXPECTED RESULTS  File is ingested. | COMMENTS |
| 2 | Operator clicks Invalidate on a file. | To deny a file for ingestion | | | File is not ingested and the location and reason for failing validation is added to a text file. |  |
| Concluding Remarks: | | | | | | |
| Testing Team:  Eduardo Herrera, Michael Sansone, Leslie Gomez, Jazmin Paz, Jorge Flores | | | Date Completed: | | | |

## 

## 4.6 Test GUI02

**Objective:** Testing the main functionality of the Graph component.

**Notes:** The test would be testing the main functionality of the Graph, it includes: the addition of new Nodes, removal of Nodes, addition of Node Relationship, removal of Node Relationship, and the exportation of the graph.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test No.: GUI02 | | | | Current Status: Passed | | |
| Test title: Graph | | | | | | |
| Testing approach: With a few nodes derived from Log Entries, we are checking that the main features of the Graph are working correctly. | | | | | | |
| STEP  1 | OPERATOR ACTION  Initialize the system, start a new project, and navigate to the next window. In the validation window, put dummy data in the “Event Name” and “Event description”. Finally, click the “Save Event” button and advance to the next window. | PURPOSE  Initial Condition. | | | EXPECTED RESULTS  Analysts should be able to successfully create a project and navigate to the next screen. | COMMENTS  No comments. |
| 2 | One in the Log Entry Table View, click on the button that says “Vector”. Now, click on the “Graph” button that appears in the new Vector Table View. | Navigate to the Graph UI. | | | Graph should be able to successfully display itself alongside the Table View to the left. Furthermore, there should be Nodes derived from the Log Entries present. | We are navigating to where the Graph UI is located. |
| 3 | Select one of the three Nodes present and click the letter “d” in the keyboard. | Testing the removal of Nodes from the Graph UI. | | | The Node should disappear from the Graph UI. Furthermore, the single Node Relationship connected to it would disappear along with the Node. There should only be two Nodes in the Graph now. | No Comments. |
| 4 | From the far left side of the first node, drag a Node Relationship to the far right side of the remaining Node. | Testing the addition of new Node Relationships between two Nodes. | | | There should be a new Node Relationship that connects both of the nodes. In total there are two Node Relationships between the two remaining Nodes. | No Comments. |
| 5 | Select the Node Relationship that was created in *step 4* and click “d” in the keyboard. | Testing for the removal of Node Relationships. | | | The Node Relationship that was created in the previous step should’ve disappeared. In total there should be the two Nodes with now, one Node Relationship. | No Comments. |
| 6 | From the Table View (to the left of the Graph), grab a Log Entry and drag it to the Graph. | Testing the creation of Nodes by drag and drop. | | | There should be a new Node that appears in the Graph. The Node should include the name of the Log Entry in its body. | No Comments. |
| 7 | Left click in the mouse and select “Add a Node”. | Testing the creation of Nodes by the mouse menu. | | | There should be a new Node appearing in the Graph. However, the information in the body is going to be empty. In total there should be four Nodes and a single Node Relationship in the Graph. | No Comments. |
| 8 | Right-click in the top left corner of the Graph and select all of the Nodes and Node Relationships. Once everything is selected, click “d” on the keyboard. | Testing for the removal of all the UI elements from the Graph. | | | The graph should be empty of Nodes and Node Relationships. | No Comments. |
| 9 | Add a node by the mouse menu. Next, open the mouse again and select the “export graph” button. Once the popup for exporting the graph appears, click in “PNG”. | Testing the exportation of the graph. | | | There should be a PNG file that was generated that depicts what the Graph contained. | Only portion of the graph that did not pass. |
| Concluding Remarks:  Graph does not export to a PNG. However, manipulation of the graph works accordingly. | | | | | | |
| Testing Team:  Eduardo H, Michael S, Leslie G, Jazmin P, Jorge F. | | | Date Completed:  5/4/2020 | | | |

## 

## 4.7 Test OCR01

**Objective:** Checking for proper OCR performance.

**Notes:** The test will check that the OCR works correctly transcripting the log files.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test No.: OCR01 | | | | Current Status: Pending | | |
| Test title: Checking OCR works correctly. | | | | | | |
| Testing approach: Given log files in picture form. | | | | | | |
| STEP    1 | OPERATOR ACTION  Operator starts from directory configuration. | PURPOSE  Initial condition to start the intake of log files to the system. | | | EXPECTED RESULTS  Opens Directory Configuration. | COMMENTS  No comments. |
| 2 | Operator chooses source files that are of type png, jpeg, etc. Ex. *logEntry.png* | The purpose of this is to ensure that the system takes in a file that is a picture. | | | The system should upload the file picked by the operator. |  |
| 3 | The operator presses the  “create” button. | This will send the file to the OCR system. | | | The system will send the file to the OCR and extract the content. |  |
| 4 | The operator is redirected to the log entry view. | The purpose of this is for the operator to see all the log entries. | | | The system should display the log entry from the image. |  |
| Concluding Remarks: | | | | | | |
| Testing Team:  Eduardo Herrera, Michael Sansone, Leslie Gomez, Jazmin Paz, Jorge Flores | | | Date Completed: | | | |

## 4.8 Test S01

**Objective:** Checking for proper transcription performance.

**Notes:** The test will check that the transcriber works correctly transcripting the log files.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test No.: S01 | | | | Current Status: Pending | | |
| Test title: Checking transcription works correctly. | | | | | | |
| Testing approach: Given log files in audio form transcribe to text. | | | | | | |
| STEP    1 | OPERATOR ACTION  Operator starts from directory configuration. | PURPOSE  Initial condition to start the intake of log files to the system. | | | EXPECTED RESULTS  Opens Directory Configuration. | COMMENTS  No comments. |
| 2 | Operator chooses source files that are of type audio or video file. | The purpose of this is to ensure that the system takes in a file that is a audio. | | | The system should upload the file picked by the operator. |  |
| 3 | The operator presses the  “create” button. | This will send the file to the transcriber system. | | | The system will send the file to the transcriber and extract the content. |  |
| 4 | The operator is redirected to the log entry view. | The purpose of this is for the operator to see all the log entries. | | | The system should display the log entry from the audio. |  |
| Concluding Remarks: | | | | | | |
| Testing Team:  Eduardo Herrera, Michael Sansone, Leslie Gomez, Jazmin Paz, Jorge Flores | | | Date Completed: | | | |

# User Interface Testing

Located on Section 4.

# Test Schedule

Specification for the schedule used for testing activities.

|  |  |  |
| --- | --- | --- |
| **Task and date** | **People** | **Description** |
| I01 | Eddie, Leslie | Conversion of Log Files to Log Entries. |
|  | Michael, Jazmin | Testing Cleansing process. |
|  | Jorge, Eddie | Testing identification of log entries in Image files. |
|  | Eddie, Michael | Testing the identification of log entries in Audio files. |
|  | Jazmin, Leslie | Testing the correct validation of log entries. |
| GUI02 | Michael, Jorge | Testing the removal and addition of nodes to the Graph UI element. |
| GUI01 | Jorge, Leslie | Testing the correlation functionality of Log Entries. |

# Other Sections

none

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