# The Functional test of uploading data in the Image Capture system

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**Key Words:** Upload data , Functional test , Finite State Machine

**Abstract:** This paper analyzed whole workflow of this system, and pay attention to detailed the function of upload data to system by using the analysis method of Finite State Machine for testing. Introduction

With the development of global economic integration, supply chain management has been the companies to reduce production costs, reduce transaction risks, improve the competitiveness of the fundamental elements. This paper based on Image Capture System is a B2B of the supply chain system, primarily for the production of digital cameras in the supply and demand control. Production Supplier (digital camera parts provider) and Consumer (digital cameras builders), and other business partners can use the systems share the same data analysis [1], which is especially important in data uploading Image Capture, also focus function test.

**The analysis of Image Capture System data upload workflow**

Image Capture system features users to upload data involve a complex process, and to pay attention to the function point test is included in the following processes **.**

1)In the business partner own ERP system to update the data according to a recent business activity .
2)To give the desired data by querying the database to perform database where business partners. At this point the data is described by the XML .
3)To convert the query to get the data into a format recognized by Image Capture System data formats, such as UDF or XML format.
4)By the client-side business partners in the system configuration Image Capture System agent sends the data in the correct format to Image Capture system over the network.
5) Import Operations in Image Capture System, the uploaded data can be truly integrated into the system.
6) The system verifies the validity of the data, such as information and business partner information components are the same or not.
7) The data presented in the system out, each business partner can view the data in the Image Capture system to control production .

**Test Function Point Analysis**

According to the user to upload data workflow induction, the system can upload data in two ways, one is through Client Agent automatically uploaded, the other is to enter data in Excel table by hand, then upload in the web page this Excel table. Both of these methods for the Image Capture work to be done is the same, the only difference is automatically uploaded need to create a client in the client uploads drive, the drive to complete the system from the user's own export the required data, and then convert the data format and automatically complete the Image Capture to transfer data to the system. Because there is Image Capture system testing, so this part of the function module is only for uploading data from the web were tested [2].

1) Transfer is successful, this is mainly need to test whether the operating element to upload run correctly.
2) The format and data content meets the system requirements.
3) Whether data successfully or not is imported into the database system.

**Test Case development**

Because this system many operations are carried out on the web, the occurrence of the event will be converted from one state to another, according to such a feature, an analysis of the test case method uses finite state machine [3]. In the method of finite state machines, it is possible to test the function depending on the complexity of the hierarchical finite state machines, top level describes the overall flow situation, and then to a state in which the key will be described in detail, that is subdivided into another more detailed finite state machine.

First, from the overall consideration, the analysis shown in Figure 1 below the top of the finite state machine, the entire finite state machine diagram is composed by a system of state, each state information conversion between different events, thus forming a different clues, then test case also with the formation of a clue.
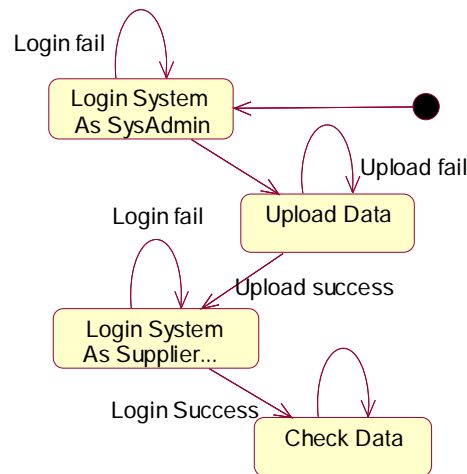
**Test Case Design**



Figure 1 Hierarchical finite state machine

Hierarchical finite state machine, so that doubling the number of clues. Above the "upload data" itself is a complex interactive process, tend to have a lot of clues to handle input errors and exceptions, it contains more paths. Based on this, on the "upload data" detailed finite state machine shown in Figure 2. The last part of the figure, "check the data content and format, to view the system log" can also be subdivided into the next layer of finite state machines. The finite state machine in each case is the formation of a path, and the upper nodes combine to form a plurality of clues, these clues to all the states traversed these state machines [4].
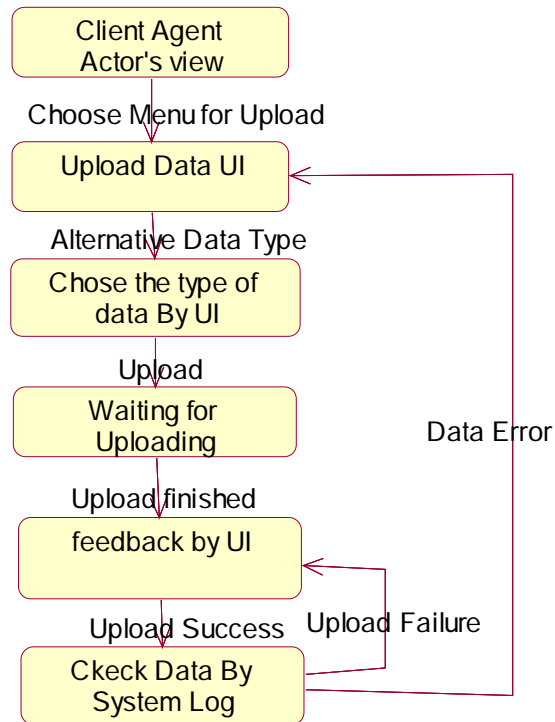
Figure 2 State Diagram for Upload Data

According to a portion of the above for the data upload function point analysis of finite state machines, and point-based coverage metrics to analyze the test case in Table 1 below, the table can be seen in this test case of test procedures of the analyzed finite state machine of the function point edge midpoint and have reached a good coverage [5].

Table 1 Test case for data upload

| | | | |
|---|---|---|---|
| | **Test Case name:** | Upload data | |
| | **Description:** | Creating a data user (can be done by good data in the file format of the actual data has been defined to achieve), and then upload the data into the system.<br><br>Can be used to test the upload data are: current inventory (BOH), Production Planning (PP), invoice (ASN), delivery schedules (SP), GRN (GRN) and the purchase order (PO). | |
| | **Test environment:** | 1.The role of the existing system to be used.<br><br>2.To upload the data table has been filled in. | |
| **Step** | **Action** | **The desired result** | **Test Status** |
| 1 | In <User> Roles login to the system | Successful login system. | √ |
| 2 | Click on the left menu in the Upload Policies Integration | Upload Policies page appears and displays the data type so this role can upload. Such as: BOH, SP, ASN, PO, GRN and the like. | √ |
| 3 | Select the type of data you want to upload, and then click List "Upload" button below. | A dialog box appears, navigate to the address requested data files to be uploaded. | √ |
| 4 | Click "browse" button. | A dialog box prompts being uploaded processed. Wait a few seconds, the dialog box display changes to "uploaded successfully." | √ |
| 5 | Close the dialog. Verify that the data exists. | In view of the appropriate data type Integration under, you should see the contents of the uploaded data. Such as: The upload is BOH, then Integration-> On Hand Inventory of view can be seen in this BOH uploaded data. | √ |
| 6 | Exit system. | Exit system successfully. | √ |

**Summary**

In the test work in practice, based on the set of test cases based on finite state machine for data upload function test results to achieve the desired objectives. However, the re-analysis found that system requirements, test cases there are some flaws, that is, at the same time eliminating redundant testing coverage is reduced. Because the user's role in addition MarketAdmin, Planner, Supplier and Consumer, there are many roles, such as SystemAdmin also checking operation can be performed in the system, it is clear in the above test case designed to ignore this point. And if, as a test in front of it, to each and every one of the different Supplier Consumer are different as a clue, then this will be more of a test case on several times. However, this redundancy and to reduce the resulting coverage compared to the more important of which is necessary according to the different function points to analyze the characteristics of their own.

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