



# User Testing 2

## Staff Deployment Simulation Software

25<sup>th</sup> October 2012

SATS Office, Changi Airport Terminal 1

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## 1. Document Overview

This document describes a test plan for conducting a usability test during the development of SATS Staff Deployment Simulation Software.

### **The goals and objectives of usability testing:**

- Record and document general feedback and first impressions
- Identify any potential concerns to address regarding application usability, presentation, and navigation.
- Get feedback on the usefulness and accuracy of the functions developed.
- To match client expectations on the system developed.

Test Day : Thursday, 25 October 2012

Test Venue : SATS Office, Changi Airport Terminal 1

## 2. Methodology

### 2.1 User Testing Environment

Computer platform	:	Intel Pentium Processor
Screen resolution	:	1028 x 768
Operating System	:	Windows XP
Set-up required	:	Computer date format (English (Australia)) of d/MM/yyyy

### 2.2 Participants

The participants will attempt to complete a set of scenarios presented to them and to provide feedback regarding the usability and acceptability of the application.

1. Kevin Choy, SATS Airline Relations Manager
  - PIC from SATS for this project
2. Ray Liang, SATS Airline Relations Manager
  - New PIC from SATS for this project
3. Chia Yee Han, SATS Airline Relations Manager

## 3. Procedure

### *Instructions*

1. Each user will be accompanied by 1 facilitator.
2. Users are encouraged to verbalize their movements, purpose, and problems.
3. Facilitators will record obstacles and questions made by users during testing.
4. To start the test, click on the file named "START.bat" found in folder named "SATS\_Bumblebee\_Beta\_v14".
5. All sample files needed for testing are found in: SATS\_Bumblebee\_Beta\_v14/data
6. Database used to store imported data is also found in ROOT folder.
7. Users are allowed to change their input(s) to verify data validity.
8. Users are to complete the tasks stated below. After completing all tasks, users will be filling in overall evaluation form.
9. Date time format of the computer has to be in: English (Australia) (d/MM/yyyy)

### *Tasks*

Below are tasks for users to complete.

1. **Import File(s)** (by starting a simulation process)  
This task is for user to import data from excel files such as Flight Schedule Departure, Flight Schedule Arrival, Staff Records, etc. into the application. The application will then use these data for simulation purpose in the later step.

## **2. Edit Airline Requirements**

Airlines have several different requirements on number of CSA and CSO needed.

This task is to record the individual requirements into the database. The input data will be used for simulation purpose in the later step.

## **3. Edit Cost Parameters**

This task is to record various costs in hiring staff into the application.

## **4. Edit Simulation Parameters**

This task is to record the mean and standard deviation of different uncertainties that will affect the initial schedule prepared by the application.

## **5. Start Simulation (and view result in pie chart)**

Run simulation to start assigning staff to different job assignments.

Please record the OT Hours, Recall Hours, Airline Requirement Coverage, Staff Utilization Rate.

## **6. View Staff Schedule (in Gantt Chart)**

This allows user to view and compare between a staff's roster and actual assigned working time.

## **7. View Past Results**

This task is to view the result generated in PDF format. Development of this function is still in progress.

## **2.3 Team Roles**

### **Overall in-charge (Yosin Anggusti)**

- Provide training overview prior to usability testing
- Defines usability and purpose of usability testing to participants

### **Facilitators (Glorya Marie, Suriyanti, Yosin)**

- Evaluate on the application and user interaction with the application, rather than evaluating on the user
- Facilitator will observe and enter user behavior and user comments.
- Responds to participant's requests for assistance

### **Test Observers (Nguyen Nhat Minh)**

- Silent observers
- Assists the data logger in identifying problems, concerns, coding bugs, and procedural errors

## **4. Usability Metrics**

### **3.1 Critical Errors**

Critical errors are deviations of results from the actual result. These errors will cause the task to fail. Facilitators are to records there critical errors.

### **3.2 Non-Critical Errors**

Non-critical errors are usually procedural, in which the participant does not complete a task in the most optimal means (e.g. excessive steps, initially selecting the wrong function, attempting to edit an un-editable field).

These errors may not be detected by the user himself. Facilitators have to record these errors independently.

### **3.3 Scenario Completion Time**

The time to complete each scenario, not including subjective evaluation durations, will be recorded.

## 5. Reporting Results

Results will be reported on scenario basis. All **recommendations** made in the reporting results are to be amended by team. Items mentioned in the **concern** areas will be discussed further on the necessary improvements.

### Task 1: Import File(s)

Bootstrap/import file(s)	Concern	Recommendations
Critical Errors	-	-
Non-Critical Errors	-	-
Scenario Completion Time	2.5 minutes	

### Task 2: Edit Airline Requirements

Add staff costs	Concerns	Recommendation
Critical Errors	-	-
Non-Critical Errors	-	- Do on-spot cell value validation when edited (optional)
Scenario Completion Time	2 minutes 15 seconds	

### Task 3: Edit Cost Parameters

Add uncertainties	Concerns	Recommendation
Critical Errors	-	-
Non-Critical Errors	-	- Check on the latest input and update them into the fields (done)

<b>Scenario Completion Time</b>	30 seconds
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**Task 4: Edit Simulation Parameters**

Run simulation	Concerns	Recommendation
<b>Critical Errors</b>	-	-
<b>Non-Critical Errors</b>	-	-
<b>Scenario Completion Time</b>	1 minute	

**Task 5: Start Simulation (and view result in pie chart)**

View staff schedule (in Gantt chart)	Concerns	Recommendation
<b>Critical Errors</b>	-	-
<b>Non-Critical Errors</b>	-	<p>- Exclude staff roster that are not relevant:  Group E  DM Group  Group F  Group G  SAMS group  MBCC Group  EY Group  MBS Group  (done)</p> <p>- YeeHan: Can consider adding 1 CSA to turn up earlier for counter job (earlier by 15mins – 30 mins) and 1 CSA to stay later by 15-30 mins after counter close (to clean up).</p>



		<p>-Add loading bar when running simulation to know that the system is not hanged.</p> <p>- Allow flight history (arrival and departure schedule and delay rate) to be kept separately from the newly bootstrapped data. (KIV, optional)</p> <p>-Remove command prompt for final delivery.</p>
<b>Scenario Completion Time</b>	5 minutes	

### Task 6: View Staff Schedule (in Gantt Chart)

Add airline requirements	Concerns	Recommendation
<b>Critical Errors</b>	-	-
<b>Non-Critical Errors</b>	-	<ul style="list-style-type: none"> <li>- Add gridline if possible</li> <li>- Show flight number for particular task assignment if possible</li> <li>- Add beside staff number the list of systems the staff is trained in</li> <li>- Identify why certain old staff (with staff number beginning with 1), who is supposed to be trained is more system, works more for gate tasks. (done)</li> <li>- Vertical gridline</li> <li>- Microline for detailed time scale</li> </ul>

<b>Scenario Completion Time</b>	8 minutes
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### Task 7: View Past Results

Generate result	Concerns	Recommendation
<b>Critical Errors</b>	-	-
<b>Non-Critical Errors</b>	-	- Check on the figures as some do not tally with the input variables given by users still. But the actually result calculation is correct.
<b>Scenario Completion Time</b>	5 minutes	

## 6. Functional Testing Result

For the questions below, users are given 2 choices: Agree = 10 pts, and Disagree = 0 pt.

An average of all the answers given by testers will be computed and compared with previous user testing.

1) Import File(s)	UT1	UT2
The function works well	10	10
The function takes reasonable amount of time	10	10
The function provides right amount of information	10	10

2) Edit Airline Requirements	UT1	UT2
The function works well	10	10
The function takes reasonable amount of time	10	10
The function provides right amount of information	10	10

3) Edit Cost Parameters	UT1	UT2
The function works well	10	10
The function takes reasonable amount of time	10	10
The function provides right amount of information	10	10

4) Edit Simulation Parameters	UT1	UT2
The function works well	10	10
The function takes reasonable amount of time	10	10
The function provides right amount of information	10	10

5) Start Simulation (and view result in pie chart)	UT1	UT2
The function works well	10	10

The function takes reasonable amount of time	10	10
The function provides right amount of information	10	10
The result/outcome of the function is right (pie chart)	10	10

<b>6) View Staff Schedule (in Gantt Chart)</b>	<b>UT1</b>	<b>UT2</b>
The function works well	0	10
The function takes reasonable amount of time	10	10
The function provides right amount of information	10	10
The result/outcome of the function is right (Gantt Chart)	0	10

<b>7) View Past Results</b>	<b>UT1</b>	<b>UT2</b>
The function works well	5	10
The function takes reasonable amount of time	10	10
The function provides right amount of information	10	10
The result/outcome of the function is right	0	10

## 7. Subjective Evaluations

Subjective evaluations regarding ease of use and satisfaction will be collected via questionnaires. Participant will be asked to respond “Agree”, “Neutral”, and “Disagree” against the questions below. Agree = 10 pts, Neutral = 5 pts, & Disagree = 0 pt.

An average of all the answers given by testers will be computed and compared with previous user testing.

Navigation Impression	UT1	UT2
It is easy to find my way around the system	0	5
It is easy to remember where to find things	5	10
The system is well-suited to first-time users	0	7.5
Look and Feel	UT1	UT2
The interface design is simple and clear	10	10
The size and layout of the application is optimal	5	10
The font style and size are easy to read	NA	10
Functions	UT1	UT2
Each page/step has a clear purpose	7.5	10
Overall Impression	UT1	UT2
The user will be satisfied with the system	10	10
Why did you say so?	“LOT OF IMPROVEMENT [FROM UT1]” “It is a useful tool and UI is not too difficult to navigate”	

\*only 2 testers answered this section.

**Did you notice the edit button when importing Airline Requirements?**

Yes.

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YeeHan: saw the button, but failed to realize that it is one of the required task.

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**Do you know the difference between View Result and View Past Results?**

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Kevin: Yes.

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YeeHan: It is very useful for review.

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Ray: No.

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**What do you think this system can be used for? What are the benefits of this software?**

Kevin: MANPOWER PLANNING \*thumbs up\*

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YeeHan: Currently it is useful as a counter-check to the deployment, as well as gauging the potential cost/expenses. Upon improving, this system has the potential to replace with current rostering section.

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Ray: Good for manpower planning.

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**List 3 good things and 3 bad things about this system**

GOOD	BAD
Functional	Certain UI can be better
Flight Demand almost 100%	Gridline not sufficient
Drastic Improvement	
UI is okay	
System is useful	

**Do you have any questions or comments about the system or your experience with it?**

Yeehan: good to have loading bar while waiting for the simulation. Clear up irrelevant rosters. Make some changes to Gantt Chart as suggested.

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**How useful is this system to your company?**

<b>Very useful</b> , the result helps me to identify the staffing problem and how to solve it	66.6%
<b>Useful</b> , the result helps me to understand the actual staffing effectiveness	33.3%
<b>Neutral</b> , the result is useful but I am not sure how I can use it	
<b>Not useful</b> , I have other means of assessing staffing issue, which is _____	
If others, please specify: _____	

**Please rate our software from 1 to 10 in terms of:**

Value to your work	9.3/10
Ease of use	8.7/10
Accuracy of result	8.7/10

**Will you use this software?**

Yes	No
100%	0%

**Simulation Result:**

Simulation Result	1 day	7 days	30 days	30 days – client data
<b>Completion Time</b>	NA, unable to run simulation for 1 day. (fixed)	2.63 mins	3.27 mins	NA
<b>Total Staff Working Hours</b>		9,236 hrs	35,777 hrs	NA (491 staff)
<b>Staff Utilization Rate</b>		44.95%	40.63%	NA
<b>Overtime Hours</b>		369 hrs	1,841 hrs	8164.48 hours

<b>Recall Hours</b>		359 hrs	2,309 hrs	
<b>Meal Allowance Compensation</b>				NA
<b>Flight Demand Coverage</b>		95.01%	88.83%	Try to meet as far as possible (no data)

## 8. Reporting Conclusion

- ✓ Client was satisfied with the system.
- ✓ Current result seems close and better than the actual result under manual scheduling. However, close monitor of result with client is highly needed to ensure that the result is indeed valid.
- ✓ Team will consistently send the latest file to client for independent testing.