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## Executive Summary

This section will be completed after the study is conducted.

## RESEARCH PLAN

This section of the document, along with the appendices, contains the study plan content.

### Background and Study Objectives/Goals

This is a validation usability study to determine whether improvements and added features to the IRS2Go mobile application served the participant's needs and present any usability issues. The specific objectives for this study are as follows:

1. Measure new features including pay bank account, pay by credit card and find help nearby.
2. Assess usability of the app menu.
3. Test the app on various operating systems to assure that the interface does not conflict with native controls and functionality.
4. Observe and record participant behaviors while completing tasks
5. Obtain comments and feedback about the product, which can be fed into the design of future versions of the product.

### Investigators or Sponsors

IRS UX Team Lead: Andrew Hughey ([andrew.hughey@irs.gov](mailto:andrew.hughey@irs.gov))

IRS UX Team Member: William Woodard ([William.B.Woodard@irs.gov](mailto:William.B.Woodard@irs.gov))

IRS UX Team Support: Michael Weiss ([mweiss@mitre.org](mailto:mweiss@mitre.org))

Study Recruitment, Facilitation, and Data Analysis: Daniel Vickers ([dvickers@fluxforward.com](mailto:dvickers@fluxforward.com))

### Study Participants

*General description* - Individuals who are taxpayers will be recruited for participation. The recruited participants will represent a mix of demographics including age, gender, amount of internet usage, and mobile device platforms and operating system experience.

*Geographical location* – Testing will take place in Miami, Florida.

*Sample size* - A total of 16 participants will be recruited with a goal of segmenting the sampling into 8 iOS users and 8 Android users. Due to limitations presented with recruiting this segmenting may not be exact. The minimum sample size is 10.

*Inclusion Criteria* - Participants must be U.S. taxpayers. Participants can be government employees, but must participate in the study on their own time to in order to receive the incentive. Federal government participants cannot be paid incentives.

*Compensation* - Participants will be compensated with a \$40 Visa gift card for their participation.

## Study Methodology

### Design

*Method* - Testing will be performed using an in-person moderated study method and will consist of participants using the prototype and live version of IRS.gov to complete tasks. Participants will also be asked questions to learn more about their thoughts on the products.

*Measures* - Quantitative data will be gathered pertaining to time on task, number of clicks to complete each task, and task success rate. Qualitative data will be collected through contextual inquiry throughout the test, as well as a 7 point ease of use scale scored by the participant after each task.

*Equipment* – Testing will take place on either an Apple iPhone or an Android smartphone based upon the participant’s own experience. A laptop will be set up with Morae Recorder software running. The computer’s onboard camera will be used to record the participant’s reactions, while a lamp cam will be placed above the device to record activity on the device.

*Experimenter* - The facilitator of the testing will be Daniel Vickers of Flux Forward.

### Tasks

Participants will use the IRS2Go (v5.2) mobile application to complete four tasks:

1. Find and use the “Where’s My Refund” feature
2. Make a payment using a bank account
3. Make a payment using a credit card
4. Find a local IRS office to contact for help

During each task it should be noted how participants interact with the software (i.e., what menus are used, what options/information on the screen is noticed, etc.).

Participants will complete each task using test data, so that none of their personal information will be used during the study session. The test data will be added in a future version of this study plan.

*Task Order* - Tasks will be completed in procedural order.

*Task Success Criteria and Usability Metrics* -

### Task Success/Failure

Each task will require, or request, that the participant obtains or inputs specific data that would be used in course of a typical task. The scenario is completed when the participant indicates the scenario's goal has been obtained (whether successfully or unsuccessfully) or the participant requests and receives sufficient guidance as to warrant scoring the scenario as a critical error.

### **Critical Errors**

Critical errors are deviations at completion from the targets of the task. Obtaining or otherwise reporting of the wrong data value due to participant workflow is a critical error. Participants may or may not be aware that the task goal is incorrect or incomplete.

Independent completion of the scenario is a universal goal; help obtained from the other usability test roles is cause to score the scenario a critical error. Critical errors can also be assigned when the participant initiates an action that will result in the goal state becoming unobtainable. In general, critical errors are unresolved errors during the process of completing the task or errors that produce an incorrect outcome.

### **Non-critical Errors**

Non-critical errors are errors that are recovered from by the participant or, if not detected, do not result in processing problems or unexpected results. Although non-critical errors can be undetected by the participant, when they are detected they are generally frustrating to the participant.

These errors may be procedural, in which the participant does not complete a scenario in the most optimal means (e.g., excessive steps and keystrokes). These errors may also be errors of confusion (ex., initially selecting the wrong function, using a user-interface control incorrectly such as attempting to edit an un-editable field).

Noncritical errors can always be recovered from during the process of completing the scenario. Exploratory behavior, such as opening the wrong menu while searching for a function, selecting help text links, selecting the “Contact Us” links, and footer links will be coded as a non-critical error.

### **Subjective Evaluations**

Subjective evaluations regarding ease of use and satisfaction will be collected via questionnaires, and during debriefing at the conclusion of the session. The questionnaires will utilize free-form responses and rating scales. Combined with the interview/debriefing session, these data are used to assess attitudes of the participants.

### **Task Completion Time (time on task)**

The time taken to complete the task (including each page the participant uses during a task), not including subjective evaluation durations, will be recorded. This data will be captured using time stamps from recorded session videos.

*Task Error Severity* - To prioritize recommendations, a method of problem severity classification will be used in the analysis of the data collected during evaluation activities. The approach treats problem severity as a combination of two factors - the impact of the problem and the frequency of participants experiencing the problem during the evaluation.

### **Impact**

Impact is the evaluation of the severity of an error and how much it affects the participant's ability to complete a task. There are three levels of impact:

High - prevents the participant from completing the task (critical error)

Moderate - causes participant difficulty but the task can be completed (non-critical error)

Low - minor problems that do not significantly affect the task completion (non-critical error)

### **Frequency**

Frequency is the evaluation of how often an error occurs. It is measured by the percentage of participants who experience the error.

High: 30% or more of the participants experience the problem

Moderate: 11% - 29% of participants experience the problem

Low: 10% or fewer of the participants experience the problem

[For studies with less than ten participants in a group, the percentages may need to be adjusted. For example, for a study with 8 participants the low frequency should be 12.5% ( $1/8 = .1250$ )]

### **Procedure**

The study will begin with the participant executing permission to record the session. The facilitator will begin the recording and then ask the introductory and demographic questions included in the test plan. The participant will then be asked to perform a series of tasks. After each task they will be asked to score the ease of use on a scale of 1-7 with 1 being most difficult and 7 being easiest.

### **Study Schedule**

The objectives addressed by this study are needed to validate the development of additional features within IRS2Go v5.2 and develop recommendations for future releases. Completion of data collection, analysis, and reporting is planned for September 4th, 2015.

## RESEARCH REPORT

*For **Plan** release: Remove all information below and provide the following statement: “This section will be completed after the study is conducted. This section will provide the evaluation of the usability metrics collected and provide formal recommendations.” For **Report** release: Use the statement below.*

This section of the document contains the study report content. Because it was created after the study was completed, it is written in the past tense. Transcribed raw data can be found in <document name/location>, and all audio/video files can be in found <document name(s)/location>.

## Execution

*For **Plan** release: Remove section. For **Report** release: Provide a paragraph explaining when the study occurred, who conducted the session, where the sessions were conducted, and who performed the analysis.*

The study was conducted between <start date> and <end date> by <experimenter name and title> in <city and state/country names>. <Add any additionally executions detail>

## Plan Deviations

*For **Plan** release: Remove section. For **Report** release: Provide a paragraph that indicates whether the study was conducted as planned or whether deviations in objectives, participants, methods, deliverables, or data collection tools occurred. If deviations were made, list all deviations and provide rationale for why the changes occurred.*

<The study was conducted as described in the “Research Plan” section of this document, with no deviations. - Or - The study was conducted as described in the “Research Plan” section of this document, with the exceptions listed below. List deviations with rationale.>

## Results

*For **Plan** release: remove section. For **Report** release: Start with a presentation of demographic data for the participant sample. Then describe the outcomes for each task. When describing the outcome for each task state the exact number of participants that performed each reported action. Subsections, headings, may be added, removed or retitled as needed.*

## Participant Background Information

<Participant demographic and pre-session question results go here>

**Task 1**

TASK DESCRIPTION	SUCCESSFUL WITH NO ERRORS	SUCCESSFUL WITH NON-CRITICAL ERRORS	FAILURE/CRITICAL ERROR	AVERAGE TIME ON TASK (SECONDS)
List the task details/description	xxx% (xxx)	xxx% (xxx)	xxx% (xxx)	xx

*List task events* – <describe and assess the reason of each failure listed in the table above. Discuss non-critical errors and if applicable, describe how the participant was able to recover from their mistake. Include in each assessment a presentation of the subjective details provided by the participants (i.e., probing results). Also, provide quotes and comments from participants that completed the task successfully and describe participant behaviors while completing the task (e.g., yelling at the system when trying to complete the task).>

**Post-Session Questions**

<Post-session question results go here>

**Discussion**

*For Plan release: remove section. For Report release: Provide a discussion of the results with expert interpretation of why particular outcomes occurred (e.g., design issues, study method, limitations of prototype, product issues). This is where you qualify, justify, and/or interpret outcomes. Include information about how reported deviations affected the study results.*

**RECOMMENDATIONS**

*For Plan release: remove section. For Report release, complete the table below. Recommendations should be solution free statements where possible so the implementation team has room to work out a feasible approach. List the priority of each action. Consider the severity of the error(s) that led to the recommendation when determining a recommended action's priority.*

<The following recommendations have been made based on the results described above.>

NO.	ACTION	FROM	PRIORITY
1	Design product to user's need to accurately understand how to make a tax payment	Task 1	High
2	Add instructional information to help users find the appropriate form.	Task 1, 2, and 3	High

**CONCLUSION**

*For Plan release: remove section. For Report release: This section should provide a clear statement of whether or not your objectives were met. If objectives were not met, you should discuss whether redesign and/or retesting is needed. Provide any recommended actions or next steps for the product development team.*

<conclusions content goes here>

## Appendix A – Consent Form

I agree to participate in the study conducted and recorded by the Internal Revenue Service (IRS). I understand that the study will take approximately <enter time>.

I understand and consent to the use and release of the audio, video, and/or digital recording by the IRS. I understand that the information and recording is for research purposes only and that my name and image will not be used for any other purpose. I relinquish any rights to the recording and understand the recording may be copied and used by IRS without further permission.

I understand that participation in this usability study is voluntary and I agree to immediately raise any concerns or areas of discomfort during the session with the study administrator.

The Paperwork Reduction Act requires that the IRS display an OMB control number on all public information requests. The OMB Control Number for this study is **1545-2256**. Also, if you have any comments regarding the time estimates associated with this study or suggestions on making this process simpler, please write to:

**Internal Revenue Service  
Tax Products Coordinating Committee  
SE:W:CAR:MP:T:T:SP  
1111 Constitution Ave. NW  
Washington, DC 20224**

Please sign below to indicate that you have read and you understand the information on this form and that any questions you might have about the session have been answered.

**Date** \_\_\_\_\_

**Please print your name** \_\_\_\_\_

**Please sign your name** \_\_\_\_\_

*Thank you! We appreciate your participation.*



## Appendix B – Introduction Script

### Welcome and Purpose

Thank you so much for coming in today. I want to give you a little information about what you will be looking at and give you time to ask any questions you might have before we get started. Today we will be asking you to complete a set of tasks. These tasks were derived from actual business scenarios. Our goal is to use the results of this study to provide us with insights that will help us improve the design of our online services. The overall goal of our testing is to provide better services to the American public.

### Test Facilitator's Role

Our role is to record your reactions and comments about the tasks we will present. My colleague(s) will be helping me to take notes and observe your interactions and responses. We will not be able to offer any suggestions or hints, but from time to time, we may ask you to clarify what you have said or ask you for information on what you were looking for or what you expect to have happened.

Please remember, as you perform the tasks, there are no right or wrong responses. You are helping us test our programs and designs. If you have a problem it is our problem and we appreciate you letting us know.

### Test Participant's Role

- Your role today is to perform a series of tasks that we give you.
- There is no right or wrong answer. We are not testing you, we are testing our services.
- If you have any questions, comments or areas of confusion while performing a task, please let us know. Any problem you have points to a problem we have with our services.
- As you perform a task, please do so as you would at home or your office. I ask that you work through the tasks based on what you see on screen. If you reach a point where you are not sure where to go or how to proceed, please feel free to ask one of us.
- We will be recording this session. We will record your expressions, your voice and what you see on the screen. Your identity will not be associated or reported with any data or findings from this evaluation.
- I may ask questions as you work and then we will finish up with questions at the end.
- Remember: Your decision to participate is completely voluntary. You are free to stop participating at any time.

Do you have any questions before we begin?

Okay, one last thing before we continue. I need to have you to read the following:

### Paperwork Reduction Act Statement Notice

The Paperwork Reduction Act requires that the IRS display an OMB control number on all public information requests. The OMB Control Number for this study is **1545-2256**. Also, if you have any comments regarding the time estimates associated with this study or suggestions on making this process simpler, please write to:

**Internal Revenue Service  
Tax Products Coordinating Committee  
SE:W:CAR:MP:T:T:SP  
1111 Constitution Ave. NW  
Washington, DC 20224**

## Appendix C – Data Collection Sheets

1. Which option best describes your race?

- |  |  |
|--|--|
| <input type="checkbox"/> Asian                     | <input type="checkbox"/> Native American or American Indian        |
| <input type="checkbox"/> Black or African American | <input type="checkbox"/> Native Hawaiian or Other Pacific Islander |
| <input type="checkbox"/> Hispanic or Latino        | <input type="checkbox"/> White                                     |

2. What is your gender?

- Female       Male

3. What category describes your current age?

- |   |  |
|---|--|
| <input type="checkbox"/> 18 to 24 years | <input type="checkbox"/> 55 to 64 years    |
| <input type="checkbox"/> 25 to 34 years | <input type="checkbox"/> 65 to 74 years    |
| <input type="checkbox"/> 35 to 44 years | <input type="checkbox"/> 75 to 84 years    |
| <input type="checkbox"/> 45 to 54 years | <input type="checkbox"/> 85 years and over |

4. What is the highest level of education you have completed?

- |  |  |
|--|--|
| <input type="checkbox"/> Less than 9 <sup>th</sup> grade                             | <input type="checkbox"/> Some college, no degree |
| <input type="checkbox"/> 9 <sup>th</sup> grade to 12 <sup>th</sup> grade, no diploma | <input type="checkbox"/> Associate Degree        |
| <input type="checkbox"/> High school graduate (or GED)                               | <input type="checkbox"/> Bachelor's Degree       |
| <input type="checkbox"/> Some technical or vocational school                         | <input type="checkbox"/> Master's Degree         |
| <input type="checkbox"/> Technical or vocational school graduate                     | <input type="checkbox"/> Post-Master's Degree    |

5. What category best describes your annual household income?

- |  |   |
|--|---|
| <input type="checkbox"/> Less than \$15,000              | <input type="checkbox"/> \$50,000 but less than \$75,000  |
| <input type="checkbox"/> \$15,000 but less than \$25,000 | <input type="checkbox"/> \$75,000 but less than \$100,000 |
| <input type="checkbox"/> \$25,000 but less than \$35,000 | <input type="checkbox"/> \$100,000 or more                |
| <input type="checkbox"/> \$35,000 but less than \$50,000 |   |

6. What is the primary language spoken at home? (Please select one)

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/> English    | <input type="checkbox"/> Korean                        |
| <input type="checkbox"/> Spanish    | <input type="checkbox"/> Russian                       |
| <input type="checkbox"/> Chinese    | <input type="checkbox"/> Other (please specify): _____ |
| <input type="checkbox"/> Vietnamese |  |

7. Have you ever made a payment online to the IRS?

Yes

No

8. If yes, what methods have you use?

Pay by card

Electronic Funds Withdrawal

Same Day Wire

Check or Money Order

Other

9. Have you ever used the IRS2Go mobile app?

Yes

No

**Task 1 – Where’s My Refund**

You have completed and filed your taxes and are due a refund. You would like to find the status of your refund. Using the app, find the status of your refund. Please use the tax information to review your refund information.

PATHWAY(S)	SUCCESS (CIRCLE ONE)	ERROR INFORMATION
TBD	0 Failure/Critical Error  1 Completed with non-critical error  2 Completed with no errors	Possible critical error: TBD  Possible non-critical error: TBD
<b>NOTES/OBSERVATIONS</b>		
(Note: why was the participant successful or not successful, e.g., wrong pathways, confusing page layout, navigation issues, terminology, record number of times an incorrect/unexpected button or link is pressed)		

1. Overall, how difficult or easy was it to complete that process?

Very Difficult							Very Easy
1	2	3	4	5	6	7	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	



**Task 3 – Make a payment by credit card**

You've decided that you would rather make your payment by credit card. Using the provided credit card payment information, how would you go about doing this?

PATHWAY(S)	SUCCESS (CIRCLE ONE)	ERROR INFORMATION
TBD	0 Failure/Critical Error  1 Completed with non-critical error  2 Completed with no errors	Possible non-critical error: TBD
<b>NOTES/OBSERVATIONS</b>		
(Note: why was the participant successful or not successful, e.g., wrong pathways, confusing page layout, navigation issues, terminology, record number of times an incorrect/unexpected button or link is pressed)		

1. Overall, how difficult or easy was it to complete that process?

Very Difficult							Very Easy
1	2	3	4	5	6	7	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

**Task 4 – Find local help**

You have questions about your taxes and would like to talk to someone in person. Using the app find the closest place to you to accomplish this. Please use the provided personal information when determining the closest IRS office location.

PATHWAY(S)	SUCCESS (CIRCLE ONE)	ERROR INFORMATION
TBD	0 Failure/Critical Error  1 Completed with non-critical error  2 Completed with no errors	Possible non-critical error: TBD
<b>NOTES/OBSERVATIONS</b>		
(Note: why was the participant successful or not successful, e.g., wrong pathways, confusing page layout, navigation issues, terminology, record number of times an incorrect/unexpected button or link is pressed)		

1. Overall, how difficult or easy was it to complete that process?

Very Difficult							Very Easy
1	2	3	4	5	6	7	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	



## Appendix D – Study Materials

TBD

## Appendix E – Recruitment Email

**SUBJECT LINE:** Internet Study: Let the IRS pay to serve you better!

Hello,

My name is Daniel Vickers. I do research for the IRS and we plan to conduct a usability study. The goal of this study is to improve our services by asking people to try out our mobile app and give us feedback. If you qualify, you will receive **\$40** to participate.

### **What will you do in the usability study?**

You will be asked to do several short tasks to test a mobile software application. We may also ask you questions about your thoughts and perceptions of the website.

### **How long is a session?**

The testing will take about 30 minutes.

### **When and where?**

The study will be held August 16th and 17th 2015. You will be asked to participate at 350 Lincoln Rd., Miami Beach.

### **Interested in participating?**

Please reply to this email with your contact information. When we talk I will ask you a short list of questions to help decide if you qualify for the study.

If you have questions, please contact me at [info@fluxforward.com](mailto:info@fluxforward.com).

Thank you for interest,

Daniel Vickers  
Flux Forward

## Appendix F – Reminder Email (In Person Study)

**SUBJECT LINE:** Reminder: Website study tomorrow

Dear <PARTICIPANT NAME>:

Thanks again for agreeing to help test the IRS2Go. We are looking forward to talking with you.

You are scheduled to participate as follows:

**DATE:** <DAY, DATE>

**TIME:** <TIME>

**PLACE:** <ADDRESS, LINK TO MAP>

A few key reminders:

- You will be given \$40 in exchange for your participation. (**NOTE: Government employees and/or grantees are not eligible for the honorarium unless you are participating on your own time**)
- During the study, we will ask you to complete some tasks using a mobile software application. We may ask you to talk out loud as you work so the facilitator can follow along.
- With your permission, the session will be recorded. We will only use the recording to decide how to improve the website. Your name will not be used for any purpose beyond this session and your data will be anonymized for reporting.

Also, we have only one person scheduled at a time for these sessions so if you find that you cannot participate on your scheduled day, please contact us as soon as possible so we can reschedule your session.

Thanks again!

Daniel Vickers  
info@fluxforward.com

## Appendix G – Confirmation Email (In Person Study)

**SUBJECT LINE:** Confirmation: Your participation in our usability study

Dear <PARTICIPANT NAME>:

Thank you for agreeing to test the IRS2Go. As I mentioned, you will be asked to interact with the IRS2Go mobile application and give us your thoughts about your experience. You won't need to prepare anything before the session.

You are scheduled to participate as follows:

**DATE:** <DAY, DATE>

**TIME:** <TIME>

**PLACE:** <ADDRESS, LINK TO MAP>

A few key reminders:

- You will be given \$40 in exchange for your participation. **(NOTE: Government employees and/or grantees are not eligible for the honorarium unless you are participating on your own time)**
- During the study, we will ask you to complete some tasks using a mobile software application. We may ask you to talk out loud as you work so the facilitator can follow along.
- With your permission, the session will be recorded. We will only use the recording to decide how to improve the website. Your name will not be used for any purpose beyond this session and your data will be anonymized for reporting.

Also, we have only one person scheduled at a time for these sessions so if you find that you cannot participate on your scheduled day, please contact us as soon as possible so we can reschedule your session.

Thanks again!

Daniel Vickers  
info@fluxforward.com

## Appendix H – Usability/User Research Brief

### Introduction to the Project

The IRS2Go sponsor team completed documentation that defined their usability study on July 28<sup>th</sup>, 2015. The UXD team reviewed the documentation and conducted a review meeting with the project leadership on July 30<sup>th</sup>, 2015. During the review meeting preliminary guidelines were discussed for how the continued development of the study would proceed.

The IRS2Go team would like to evaluate new features within the software application. The team's high level goal is to validate their design decisions and provide comments/recommendations for future product iterations.

The goals for the IRS2GO Features Study are as follows:

- Assess and validate new design features (navigation and content layout) for WMR, Payments and VITA tasks
- Capture participant's feedback and recommendations while using the product, which can be used to help with design future version of the product
- To find out if there anything else participant want to be able to accomplish with the interface

### Study Method

The study participants will consist of 10-16 individual taxpayers that have experience using mobile devices (iOS and/or Android). No specific age range is being targeted for this study. The participants will be recruited from the Miami, Florida area.

The study will be conducted via a "think aloud" moderated usability evaluation technique and will be conducted in-person. Quantitative (i.e., task success/error rates, task completion time, and questionnaires) and qualitative (i.e., recorded participant behaviors and comments and open ended questions) data will be captured. Participants will complete the tasks while using a provided iOS or Android mobile device. The participants will be interacting with a live version of IRS2Go (v5.2), but will complete the required tasks using test data instead of their personal information.

Flux Forward, represented by Daniel Vickers will lead the study planning, recruitment, facilitation, and analysis. The IRS OLS UX team will assist with the study planning and analysis.

### Study Timeline and Schedule

The timeline and schedule for the study has not been finalized, but tentatively:

- 8/17-21: Perform testing
- 8/28: Draft report ready

### Study Contact Information

The sponsoring organization for the study is Online Services. The sponsoring organization will be represented by the project lead, Matt Leibner ([leibner\\_mattthew@bah.com](mailto:leibner_mattthew@bah.com)).

The UX representatives for the study are Andrew Hughey ([andrew.hughey@irs.gov](mailto:andrew.hughey@irs.gov)), William Woodard ([william.b.woodard@irs.gov](mailto:william.b.woodard@irs.gov)), and Michael Weiss ([mweiss@mitre.org](mailto:mweiss@mitre.org)).