iOS Automation:

The Trifecta

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Agenda

- Introduction
- Why automate
- What to automate
- How to automate using Xcode Instruments
  - The Trifecta
  - Sample Code examples
  - Demo

iPad 12:10 PM 78 %

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INSTALL

Category: Lifestyle
Updated: Sep 27, 2012
Version: 3.7
Size: 3.9 MB
Language: English
Seller: Digimarc Corporation

Rated 4+

Requirements:
Compatible with iPhone 3GS, iPhone 4, iPhone 4S, iPhone 5, iPod touch (4th generation), iPod touch (5th generation), iPad 2 Wi-Fi, iPad 2 Wi-Fi + 3G, iPad (3rd generation) and iPad Wi-Fi + 4G.
Requires iOS 5.0 or later.

Developer Web Site

App Support

Application License Agreement

Digimarc

Digimarc Discover

Developer Page ›

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Description

Digimarc® Discover lets you use your iPhone, iPad or iPod Touch to detect imperceptible digital watermarks, QR codes or barcodes in printed materials and to identify songs. Read a watermark or QR code to link you to information, video, and related content through many different types of network services. Identify songs to learn the title and artist, see cover art, and shop for the son… More ▼

What's New in Version 3.7 Updated Sep 27, 2012

+ Optimized for iOS 6 and the new iPhone 5
+ Fix for in-app browser scrolling issue

Customer Ratings

Current Version | All Versions

Tap to rate ☆ ☆ ☆ ☆ ☆

Average rating for all versions: 58 Ratings

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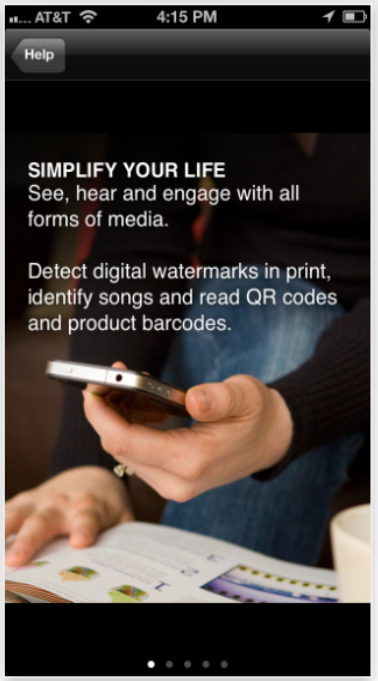
Digimarc Disc…
Digimarc
Lifestyle
★★★☆☆ (58)
OPEN



1 of 1

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Why Automate?

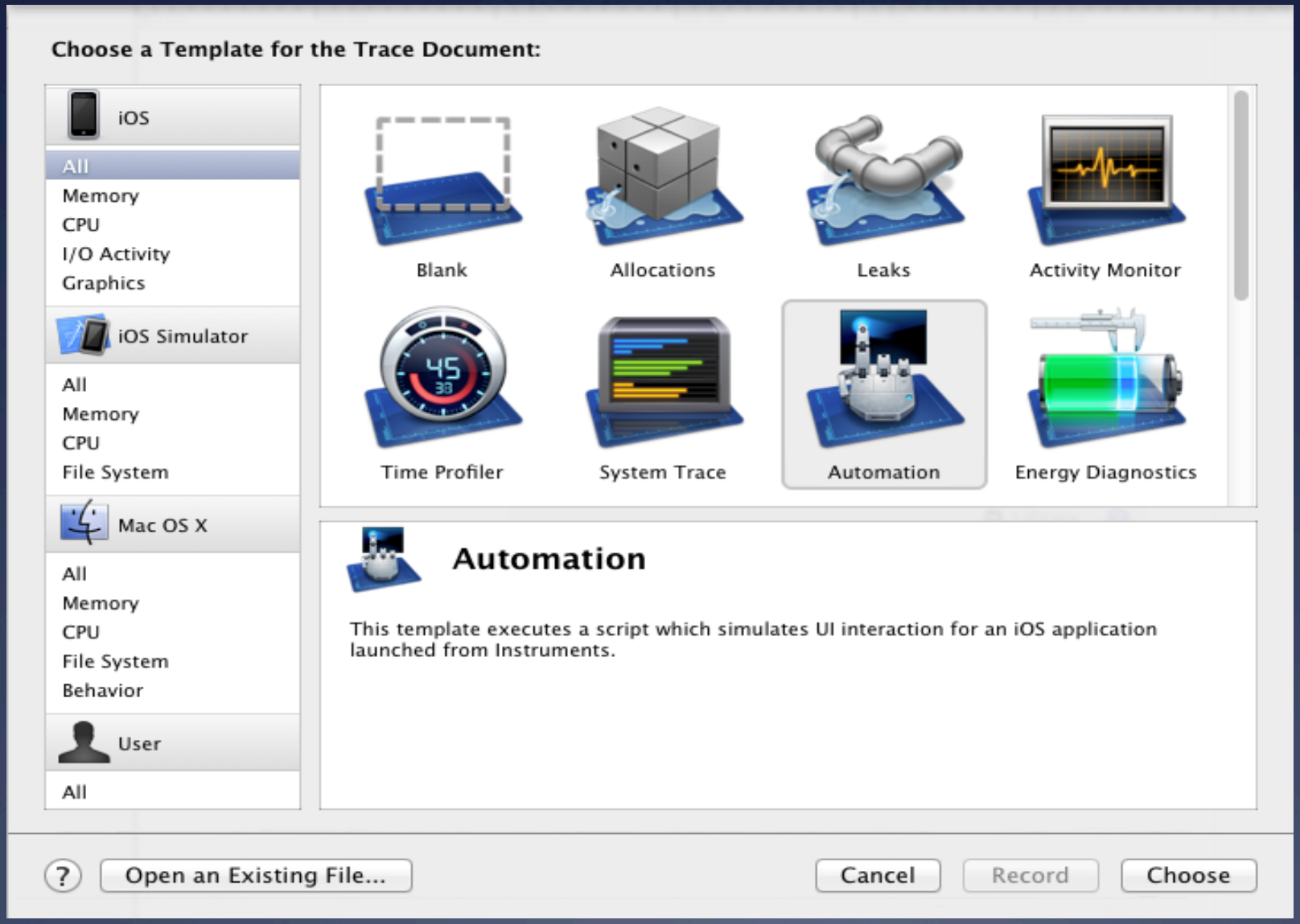
- Integration testing
- Catches bugs manual testing can miss
- Exploratory Testing
- Automation <3 Stress Tests!
- Tie it to build system for check-in
- Regression testing
- Fast < 10 min per functional area
- And most of all … it's FUN ☺

What to automate?

- Ask…. is it BBB?

  - Basic App Functionality
  - Boring stuff – copy & legal
  - “Break it” stuff – stress tests & bugs

Automation Framework



Script Framework - Trifecta

1. Navigate Functions

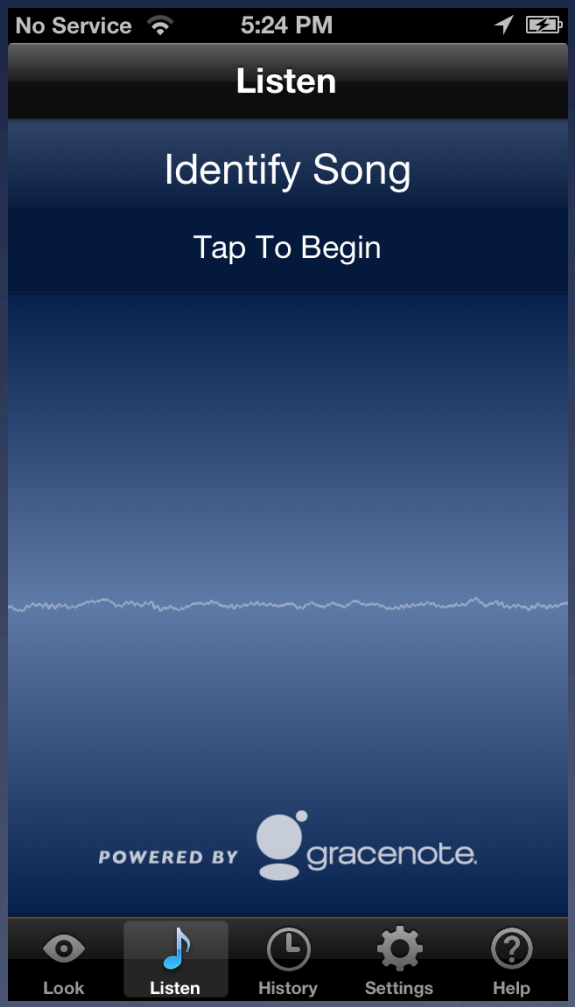
2. Validate Functions

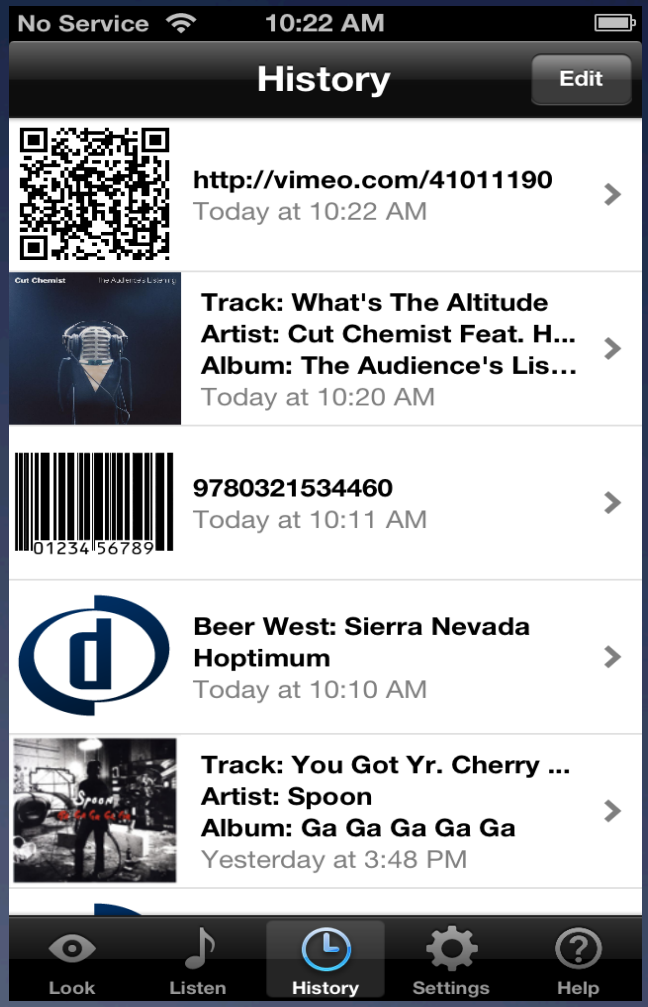
3. Test Suite

Script Framework - Trifecta

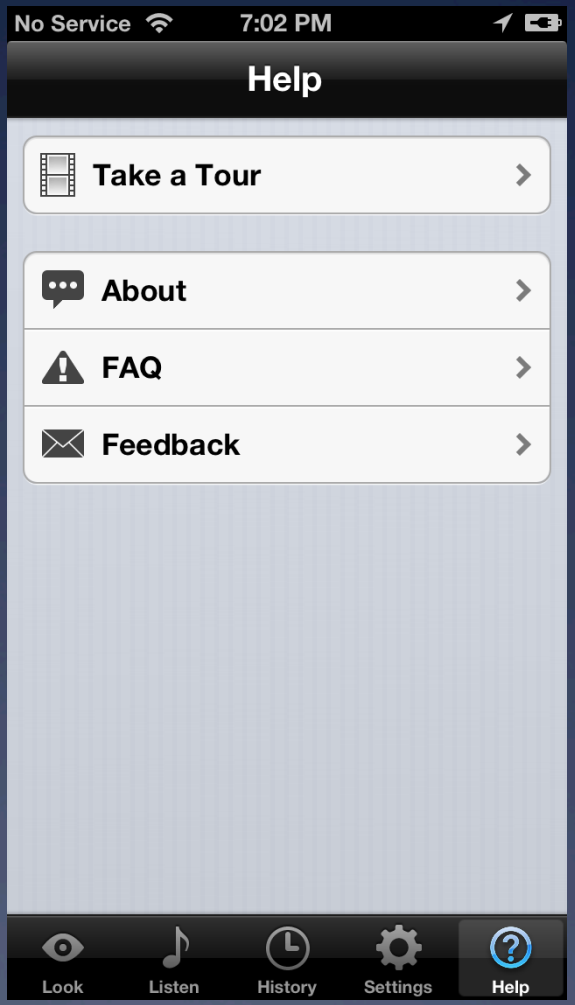
1. Navigate functions
    - Identify UI Elements
    - common navigation paths
    - wrap functions
2. Validate functions
    - UI element validation
    - functional tests
    - stress tests
3. Test Suite
    - import libraries – navigate and validate
    - list validate functions

Digimarc Discover UI





Digimarc Discover UI



Navigation Functions

Navigation Functions - Purpose

- Frequently used paths, actions
- Separate test setup v. feature test
- Contain iPhone v. iPad UI differences

Creating Nav Functions

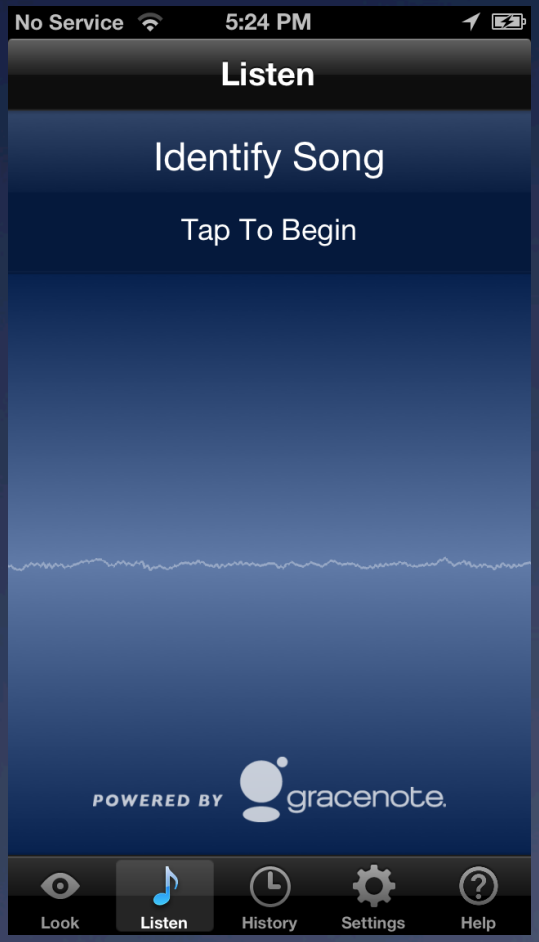
1. ID App UI elements
2. Write functions - code, debug, code
3. Wrap functions

Creating Nav Functions

1. Identify UI elements

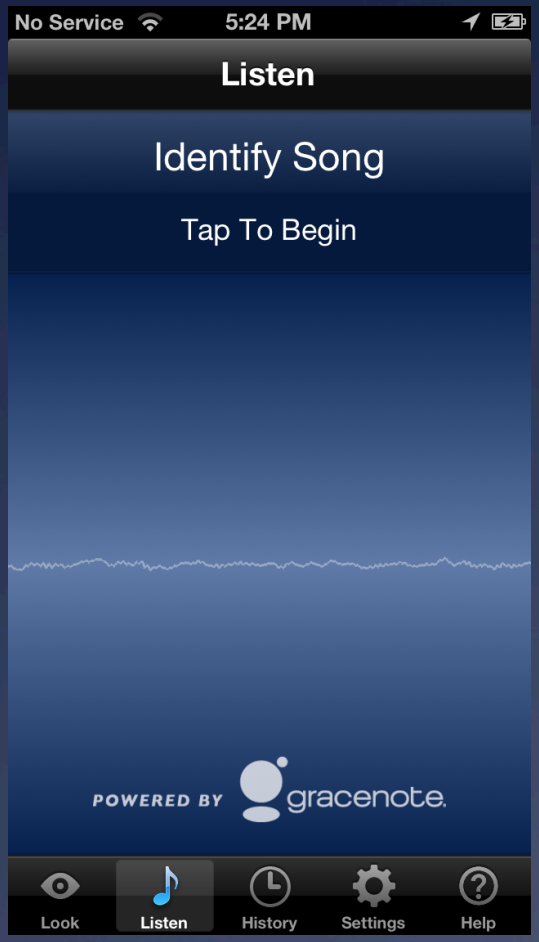
```
logElementTree();
```

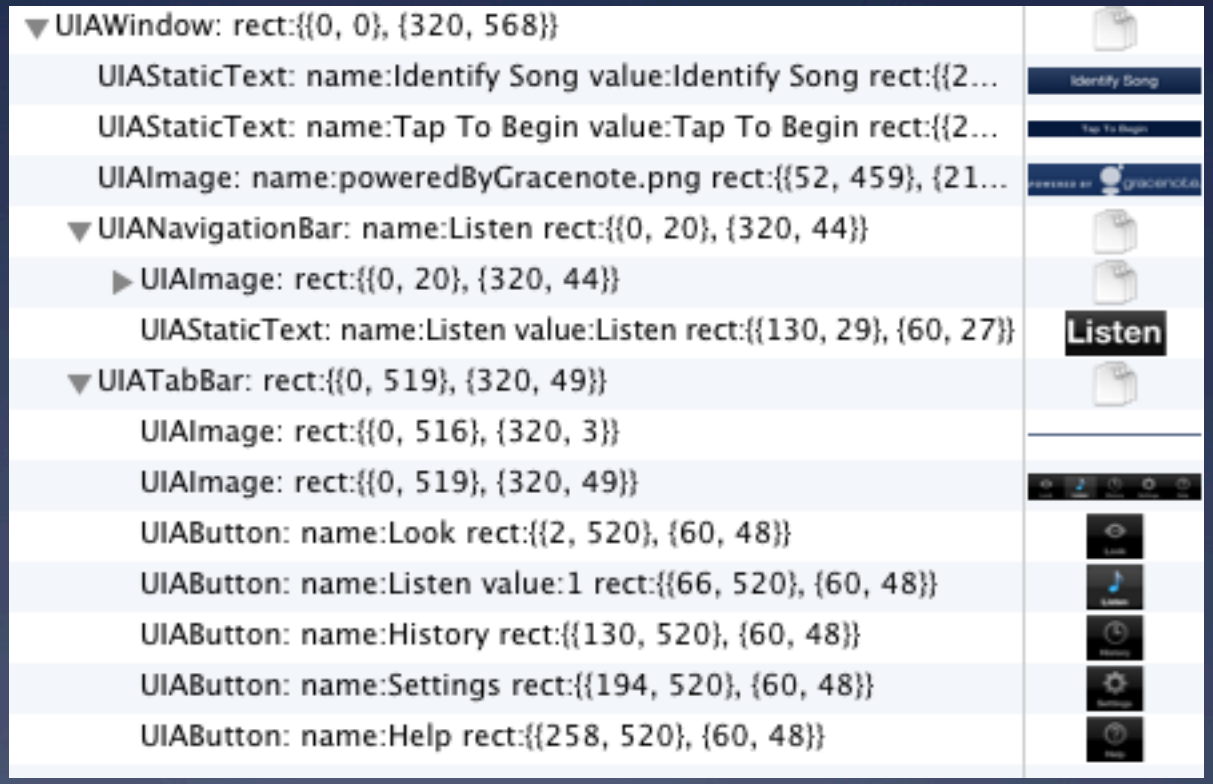
ID UI Elements




```
var target = UIATarget.localTarget();
var app = target.frontMostApp();
var mainWindow = app.mainWindow();

mainWindow.logElementTree();
```

Listen – UI Elements





Navigate Function - goToTab

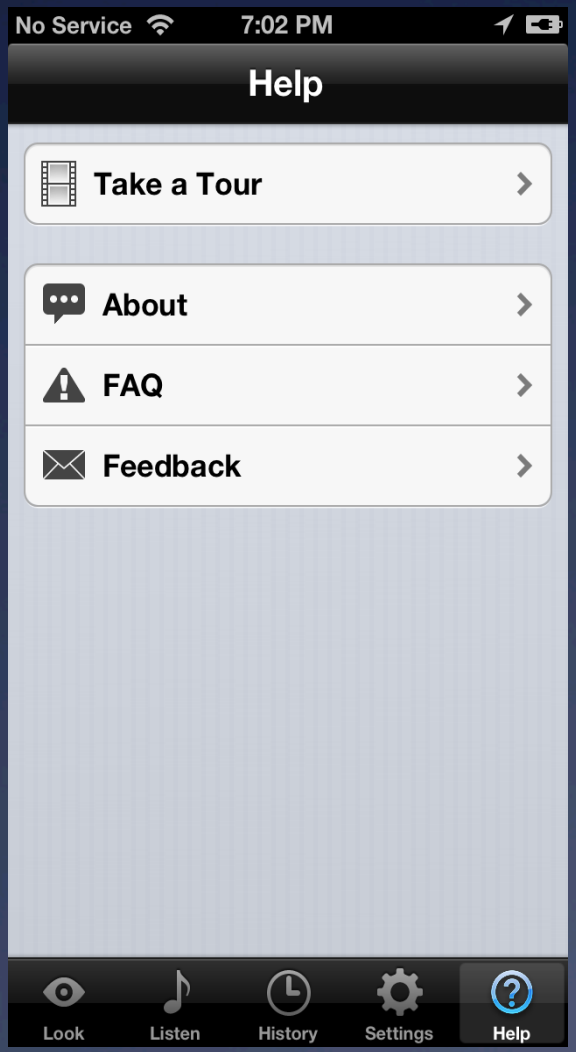
- Frequently used paths, actions

```
function goToTab(tabName)
{
    "use strict";
    var target = UIATarget.localTarget();
    var app = target.frontMostApp();
    var tabBar = app.tabBar();

    // Select Tab if not already selected
    if (tabBar.selectedButton().name() != [tabName])
    tabBar.buttons()[tabName].tap();
    UIALogger.logMessage("Tap "+ tabName);

}
```

Navigate Function - Back

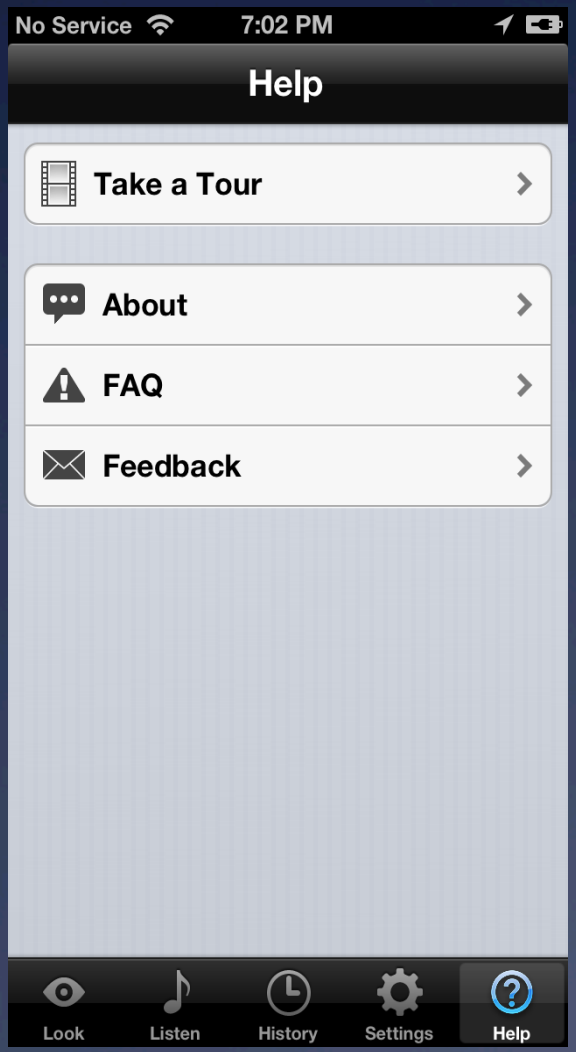
```
function back()

{
    "use strict";
    var target = UIATarget.localTarget();
    var app = target.frontMostApp();
    var mainWindow = app.mainWindow();
    var navBar = mainWindow.navigationBar();
    var backButton = navBar.leftButton();


    while (backButton.isValid())
    {
        backButton.tap();
        target.delay(1);

        backButton = navBar.leftButton();

    }
}
```

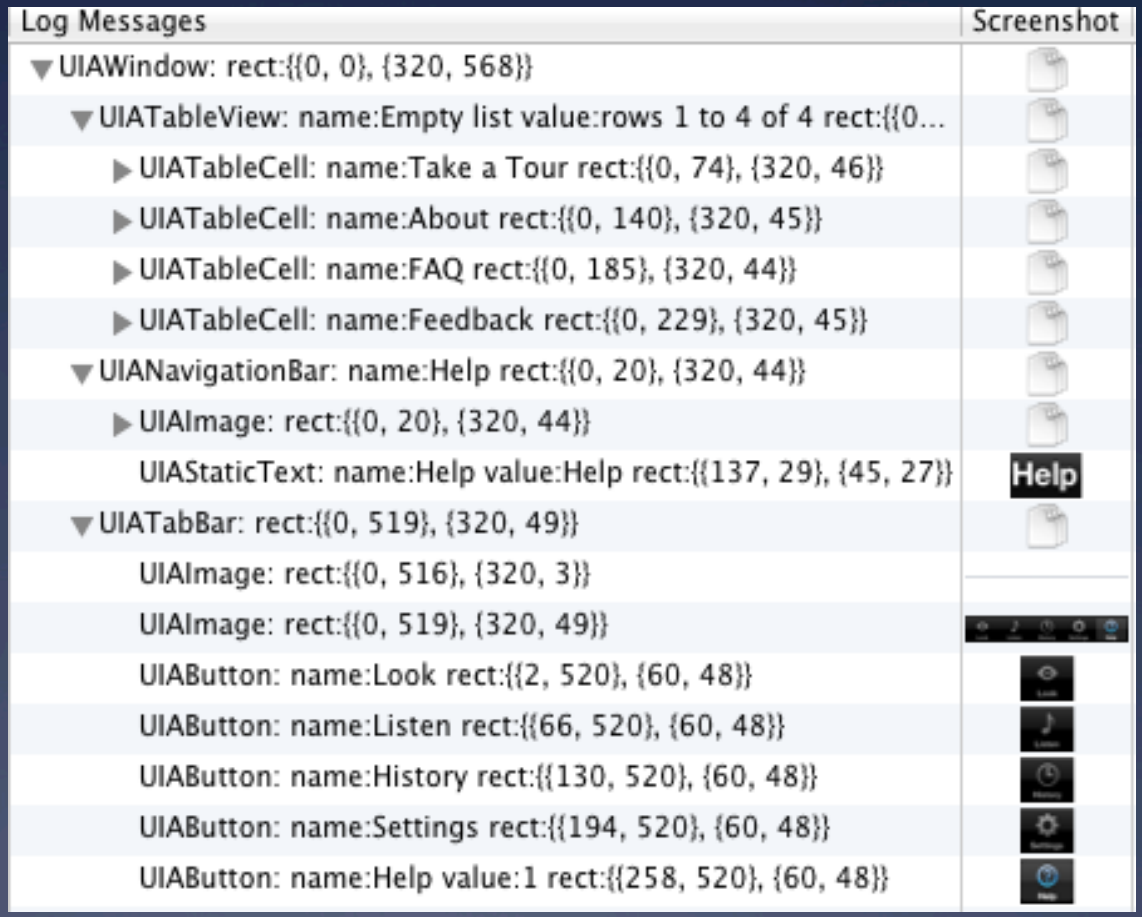
ID UI Elements




```
var target = UIATarget.localTarget();
var app = target.frontMostApp();
var mainWindow = app.mainWindow();

mainWindow.logElementTree();
```

Help UI Elements





Navigate Function – Tap Cell

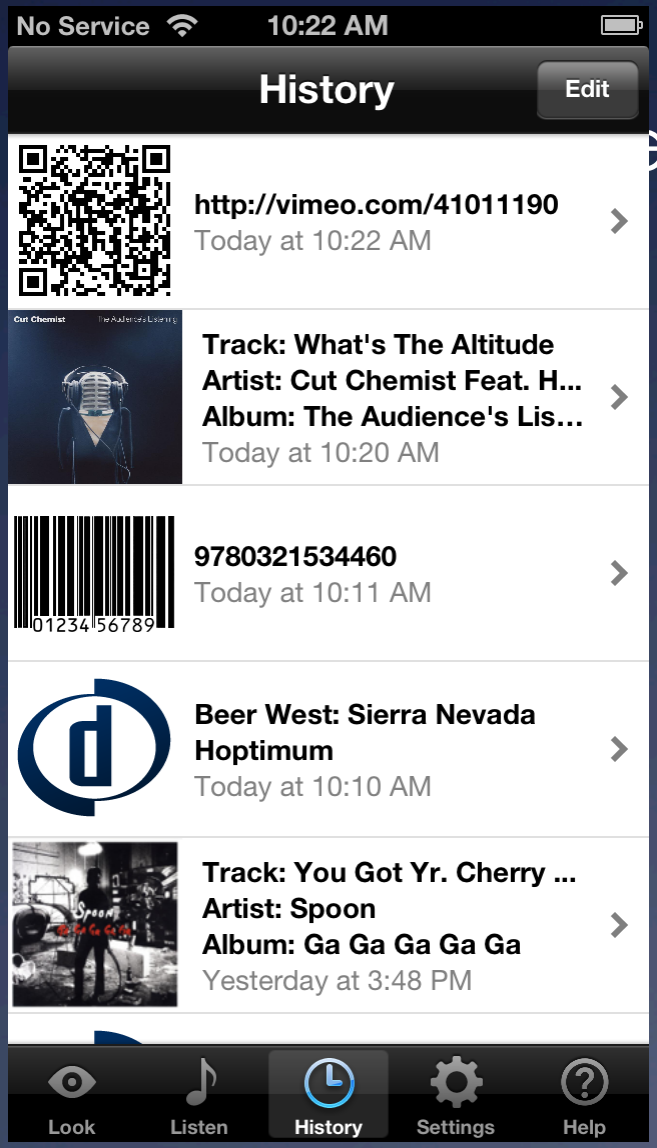
- Separate test setup v. test logic

```
function tapCell(cellName)
{
    "use strict";
    var target = UIATarget.localTarget();
    var app = target.frontMostApp();
    var mainWindow = app.mainWindow();
    var table = mainWindow.tableViews()[0];
    var cell = table.cells()[cellName];

    // Select Cell
    if (cell.isValid())
    {
        table.cells()[cellName].tap();
        UIALogger.logMessage("Tap "+ cellName);
    }
}
```

Logging

UIAlogger.logMessage(“Song Selected”);

Navigate Function – History List




```
function goToHistoryList()
{
    "use strict";
    var target = UIATarget.localTarget();
    var app = target.frontMostApp();

    // Select History Tab
    goToHistory();
    target.delay(2);
    if ((target.model() == "iPad")
        &&
        (appIsPortrait()))
    {
        var histButton = app.navigationBar().leftButton();
        if (histButton.isValid())
        app.navigationBar().leftButton().tap();
    }
    // Wait for List to Populate
    target.delay(2);
}
```

Wrapping Functions

1. Readability of test script
2. Fix or change in one place

```
function goToHelpFAQ()

{
    "use strict";
    var target = UIATarget.localTarget();

    // Select Help Tab
    goToHelp();

    // Tap FAQ in Help Menu
    tapCell("FAQ");

    // allow time for FAQ to render
    target.delay(2);

}
```

Target.delay(#)

Shift + to Zoom In, Control + to Zoom Out, Option + to Time Filter

Editor Log

Index	Timestamp	Log Messages	Log Type	Screenshot
0	5:25:55 PM PDT	Help Test Suite	Start	
1	5:25:55 PM PDT	▶ Validate Help About Legal	Pass	
7	5:25:59 PM PDT	target.captureRectWithName("{orig…	Debug	
8	5:26:01 PM PDT	HelpAboutLegal	Screenshot	
9	5:26:05 PM PDT	target.frontMostApp().mainWindo…	Debug	
10	5:26:06 PM PDT	target.frontMostApp().mainWindo…	Debug	
11	5:26:14 PM PDT	target.frontMostApp().mainWindo…	Debug	
12	5:27:03 PM PDT	Help Test Suite	Start	
13	5:27:03 PM PDT	▶ Validate Help About Legal	Pass	
19	5:27:04 PM PDT	target.captureRectWithName("{orig…	Debug	
20	5:27:07 PM PDT	HelpAboutLegal	Screenshot	

Navigate Functions ctd.

1. Rotation
2. Set App state at end of test

Script Framework - Trifecta

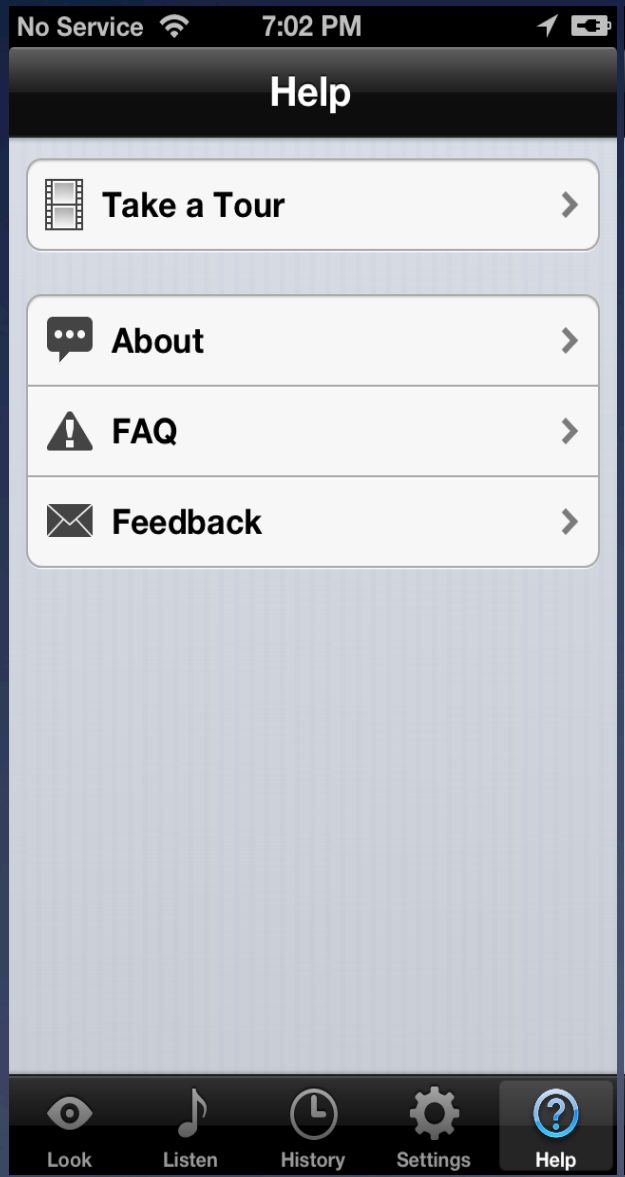
- ✓ Navigate functions
  - Identify UI Elements
  - common navigation paths
  - wrap functions
2. Validate functions
  - UI element validation
  - functional tests
  - stress tests
3. Test Suite
  - import libraries – navigate and validate
  - list validate functions

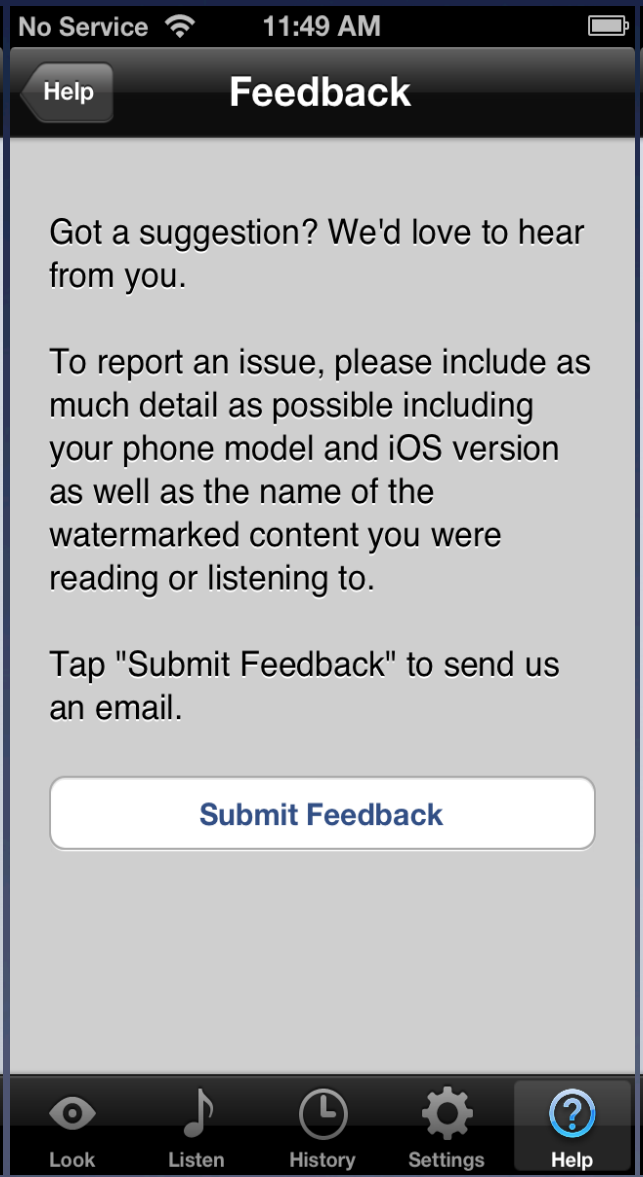
Validation Functions

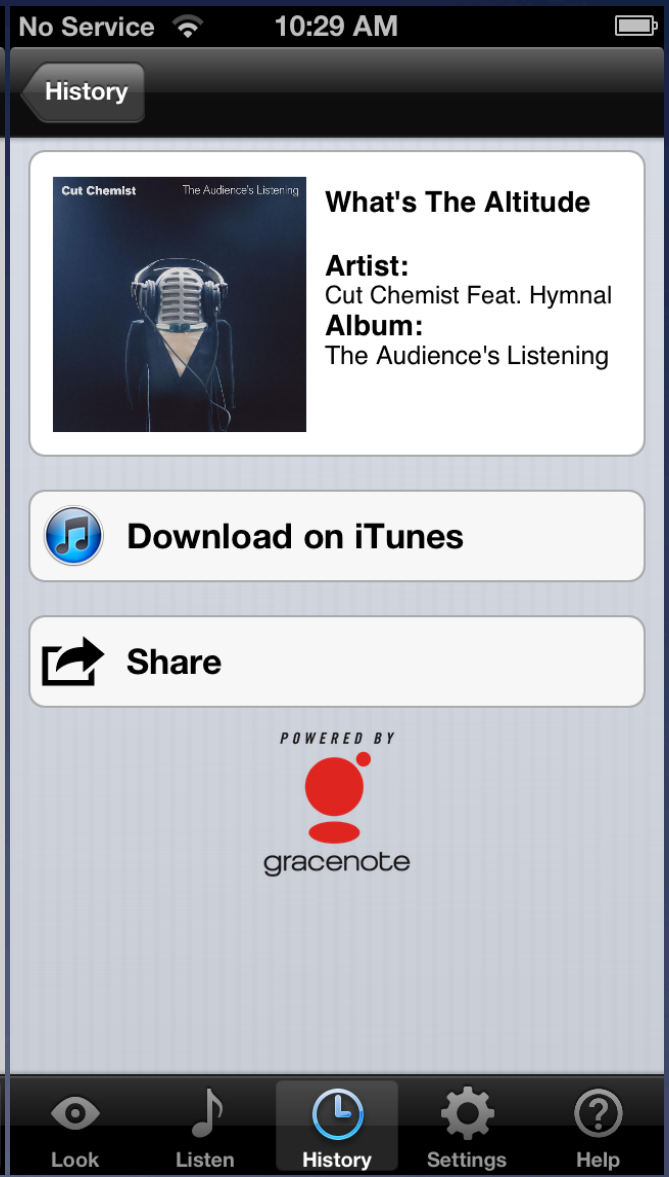
Validation Functions - Purpose

1. Validate UI elements are correct
   - Buttons, Headers
   - Copy / Strings
   - Images
2. Validate functionality
3. Stress tests

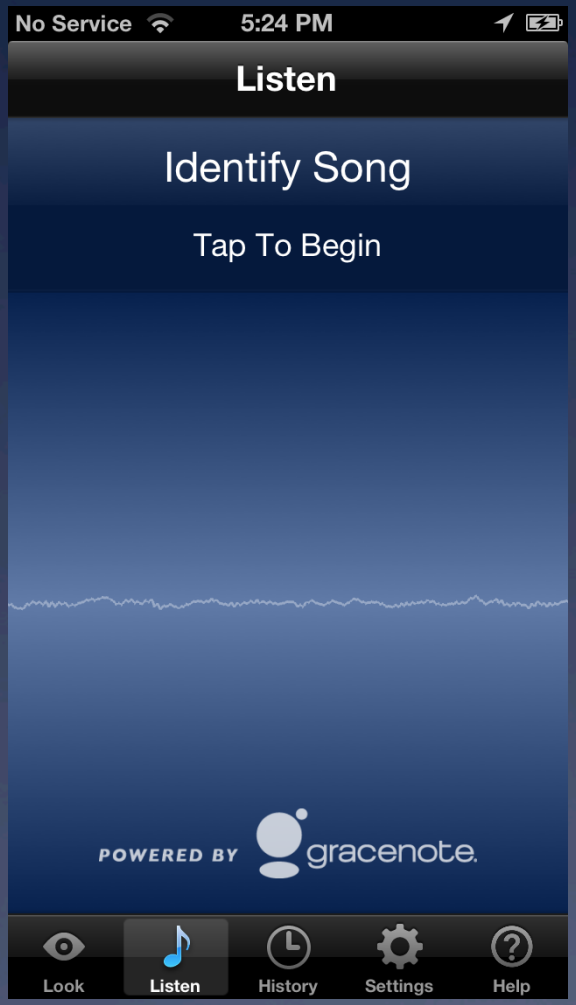
Validate – UI Elements





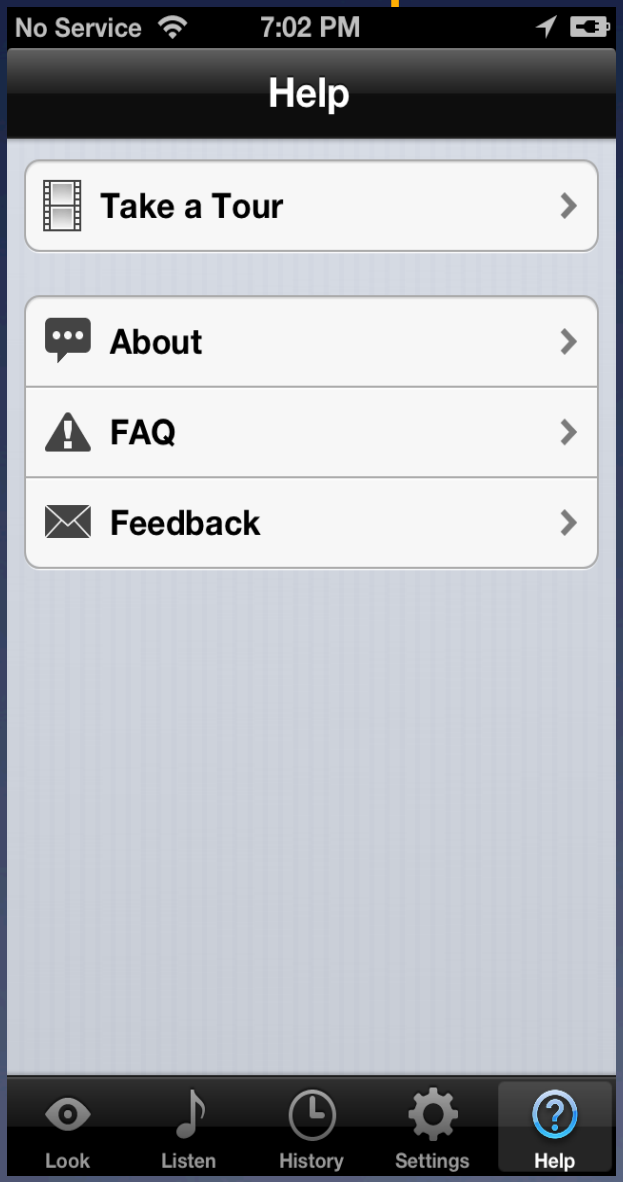


Validate - Listen UI Elements



```
function validateListenUI()
{
    // declare test name
    var testName = "TEST:  Validate Listen UI";
    UIALogger.logStart (testName);

    // Call function to get to Listen mode
    goToListen();

    target.delay(2);

    // Validate UI elements: Nav Bar, Buttons, Gracenote Logo and copy
    var graceLogo = mainWindow.images()[GRACENOTE_IMAGE_FILENAME_LISTEN];
    var idSong = mainWindow.staticTexts()["Identify Song"];
    var idTapToBegin = mainWindow.staticTexts()["Tap To Begin"];
    if ((graceLogo.isValid()) &&
        (idSong.isValid()) &&
        (idTapToBegin.isValid())&&
        (app.navigationBar().name() == "Listen"))
    {
        UIALogger.logPass(testName);
        target.delay(2);
        target.captureScreenWithName("Listen UI");
        iPadRotate();
    }
    else
    {
        UIALogger.logFail(testName);
    }

    // reset to look mode
    resetAppToLookModePortrait();
}
```

Validate – Help UI Elements

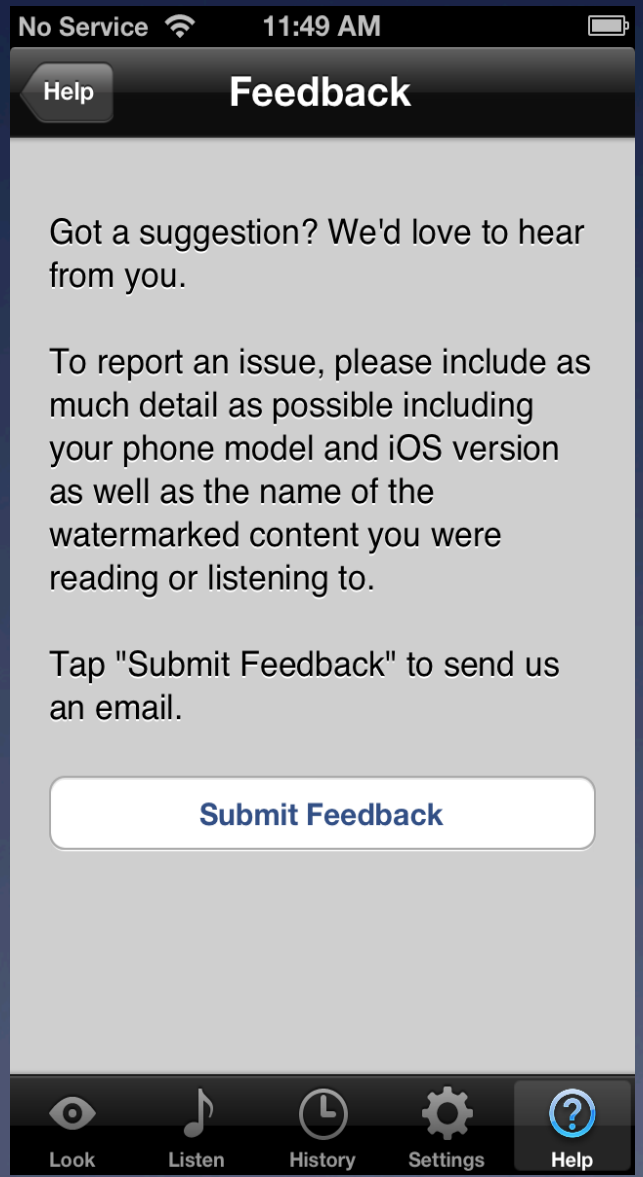


```
function validateHelpUI()
{

    // declare test name
    var testName = "TEST: Validate Help UI";
    UIALogger.logStart (testName);

    // Call function to go to help
    goToHelp();
    target.delay(4);

    // declare variable for cell and validate
    var tutorial = mainWindow.tableViews()["Empty list"].cells()["Take a Tour"];
    var about = mainWindow.tableViews()["Empty list"].cells()["About"];
    var faq = mainWindow.tableViews()["Empty list"].cells()["FAQ"];
    var feedback = mainWindow.tableViews()["Empty list"].cells()["Feedback"];
    if (
        (tutorial.checkIsValid())
        &&
        (about.checkIsValid())
        &&
        (faq.checkIsValid())
        &&
        (feedback.checkIsValid())
        &&
        (app.navigationBar().name() == "Help")
        )
    {
        UIALogger.logPass(testName);
        target.delay(2);
        target.captureScreenWithName("Help UI");
        iPadRotate();

    }
    else
    {
        UIALogger.logFail(testName);
    }

    target.delay(1);

// reset to look mode
    back();
    resetAppToLookModePortrait();
}
```

Logging

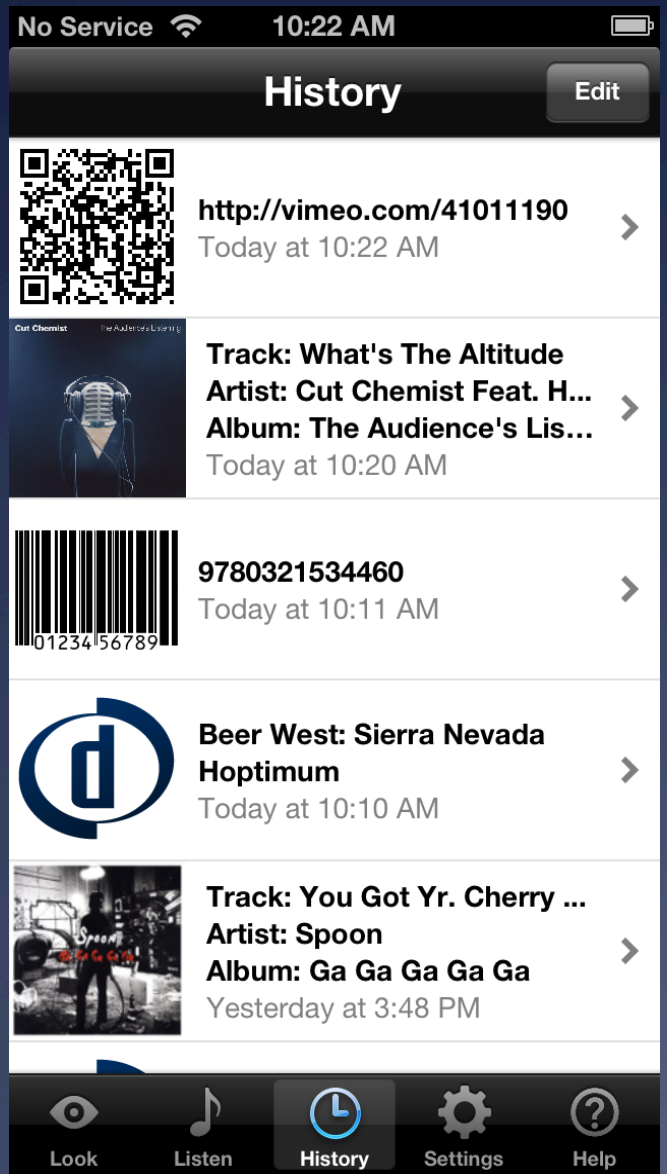
1. Make results easy to view
   - Test name w/in each function
2. Create using Log Message
3. Pass fail logging
4. Screen shots
5. Output name of test

Validate – Feedback UI Elements



```
function validateSubmitFeedbackUI()

{
// Declare Test Name
var testName = "TEST:  Validate submitFeedbackUI";
UIALogger.logStart (testName);

// Go to feedback page
goToHelpFeedback();
target.delay(1);

// Validate Feeback elements: Nav Bar, Buttons and Copy
var body = mainWindow.staticTexts()["Got a suggestion? We'd love to hear from you.\n\nTo report an is
if (
    (body.checkIsValid())
    &&
    (app.navigationBar().name() == "Feedback")
    &&
    (app.navigationBar().leftButton().name() == "Help")
    &&
    (mainWindow.buttons()[0].name() == "Submit Feedback")
    )
{
        UIALogger.logPass(testName);
        target.delay(2);
        target.captureScreenWithName("Submit Feedback UI");
        iPadRotate();
}
else
{
    UIALogger.logFail(testName);
}
    target.delay(1);
// reset for next test
    back();
    resetAppToLookModePortrait();
}
```

Validate – UI Elements



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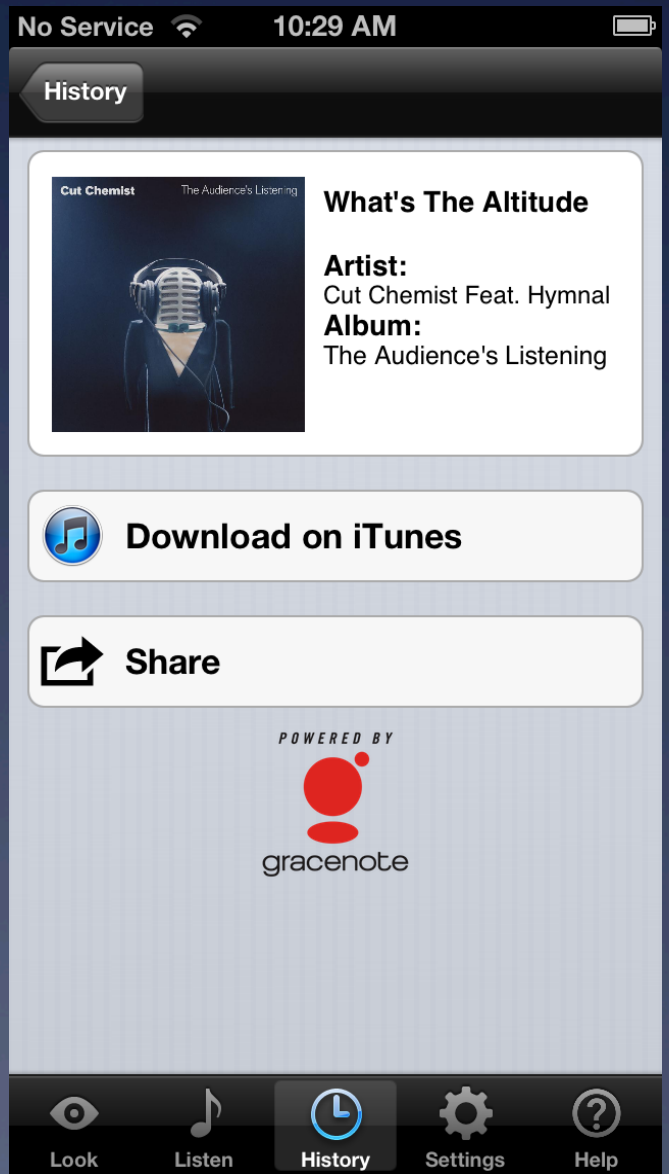

Validate Functions ctd.

1. Help –
   - Submitting Feedback email
2. History –
   - Payoff rendering in-app browser
   - Sharing functionality
   - Deleting history list items
3. Stress Tests

Stress Test Candidates

1. Repeated navigation across the app
2. Drilling down into nested views
3. Adding Rotation into the mix
4. Exit and returning to the application
5. Repeated item selection - history list*

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  - wrap functions
- ✓ Validate functions
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  - functional tests
  - stress tests

3. Test Suite
   - import libraries – navigate and validate
   - list validate functions

Test Suites

Test Suites

1. Import Navigation lib
2. Import Validation lib for area
3. Organize by functional areas*
4. Simple list of validation functions
5. Logging for output readability

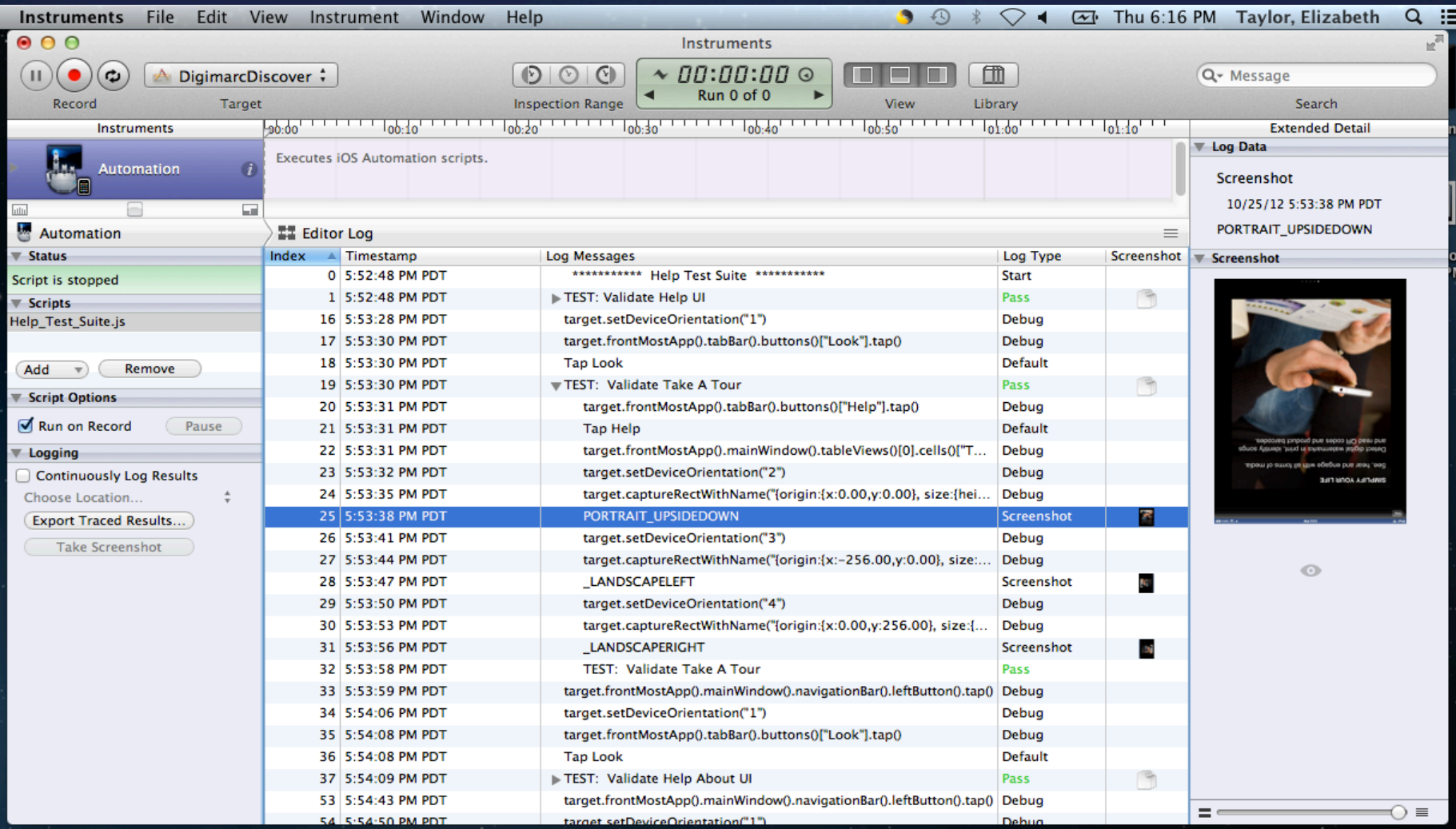
Help - Test Suite

```
// import functionlibs
#import "../FunctionLibs/navigateFunctionLib.js";
#import "../FunctionLibs/validateHelp_FunctionLib.js";

// Declare Test Suite Name
var suiteName = "  ***********  Help Test Suite  ***********";
UIALogger.logStart (suiteName);

// Call Validation Functions
validateHelpUI();
validateTakeATour();
validateHelpAbout();
validateHelpAboutLegal();
validateDigiEULA();
validateFBEULA();
validateZXingEULA();
validateFAQ();
validateSubmitFeedbackUI();
validateSubmitFeedbackEmail();
```

Help Test Suite Results



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Demo

Questions & Feedback

Thank you!

@blackstonefinn