automation for mobile apps

SeConf 13 Workshop

http://appium.io/seconf.pdf

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appium is the cross-platform solution for native and hybrid mobile automation

appium introduction

1 2 3 4 5 6

iOS	Android
calabash-ios	calabash-android
Frank	MonkeyTalk
UIAutomation	Robotium
ios-driver	UiAutomator
KeepItFunctional	selendroid

Philosophy

R1. Test the same app you submit to the marketplace

R2. Write your tests in any language, using any framework

R3. Use a standard automation specification and API

R4. Build a large and thriving open-source community effort

Framework	R1	R2	R3	R4
calabash-ios				
Frank				
UIAutomation				
ios-driver	●	●	●	
KeepItFunctional	●			
calabash-android				
MonkeyTalk				
Robotium			●	
UiAutomator				
selendroid		●	●	
appium	◕	◕	◕	◕

Platforms

- Real devices (iOS, Android)
- Simulators (iOS, Android, FirefoxOS)
- Hybrid apps (iOS, Android, FirefoxOS)
- Safari on iOS
- Chrome on Android
- Robot-controlled devices

Architecture

- Apple Instruments & UIAutomation for iOS
- Google UiAutomator for Android (4.2.1 up)
- Selendroid for older Android & hybrid
- Selenium WebDriver interface

Selenium WebDriver?

- this is SeConf, isn't it?

appium.app

1 2 3 4 5 6

Appium.app

- GUI for launching Appium server
  - Monitor status
  - Set preferences

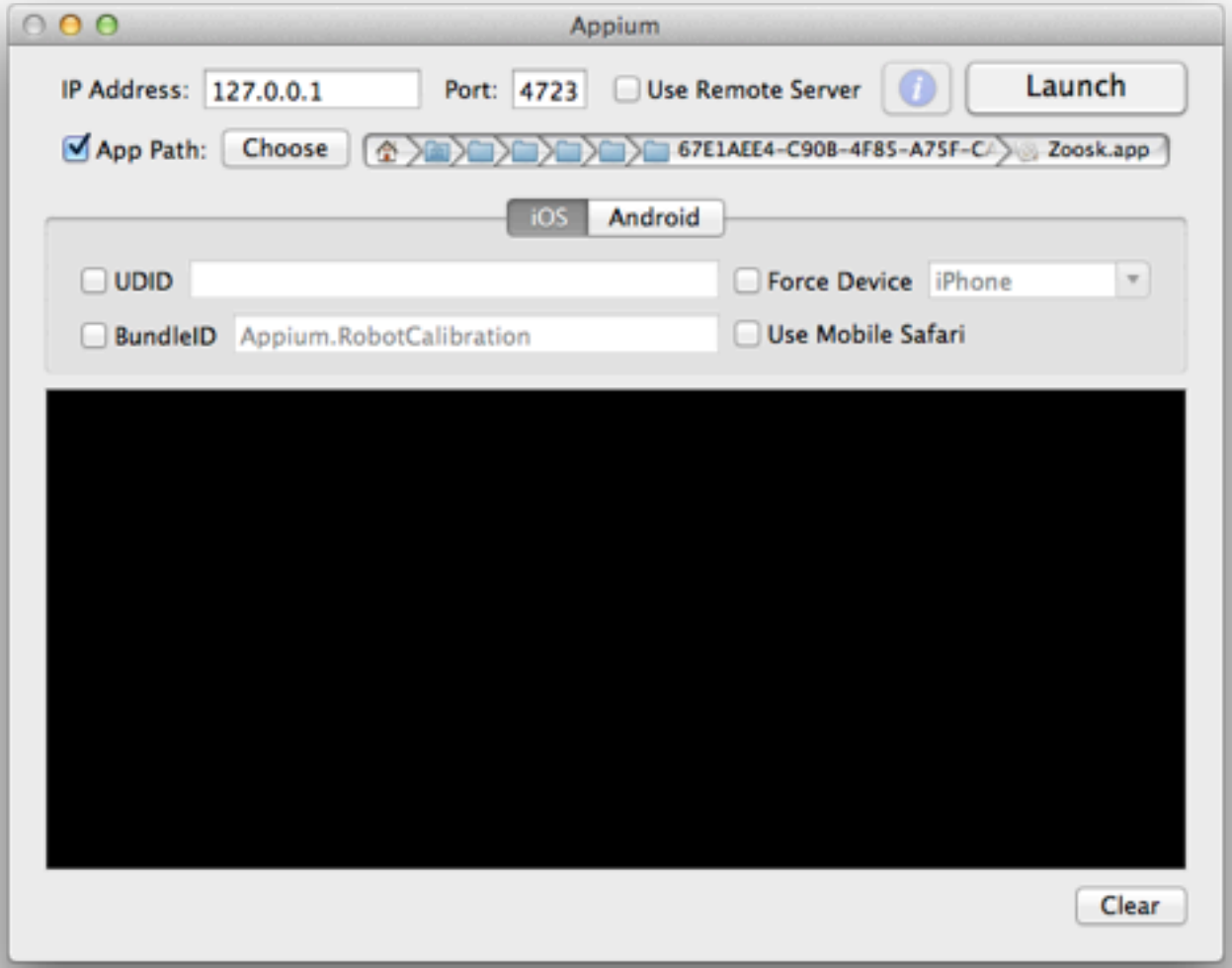
Appium.app

- Inspector for probing your app
  - Create hooks for UI elements in app
  - Try out actions
  - Record / playback actions
  - Convert UIAutomation JS to Appium code

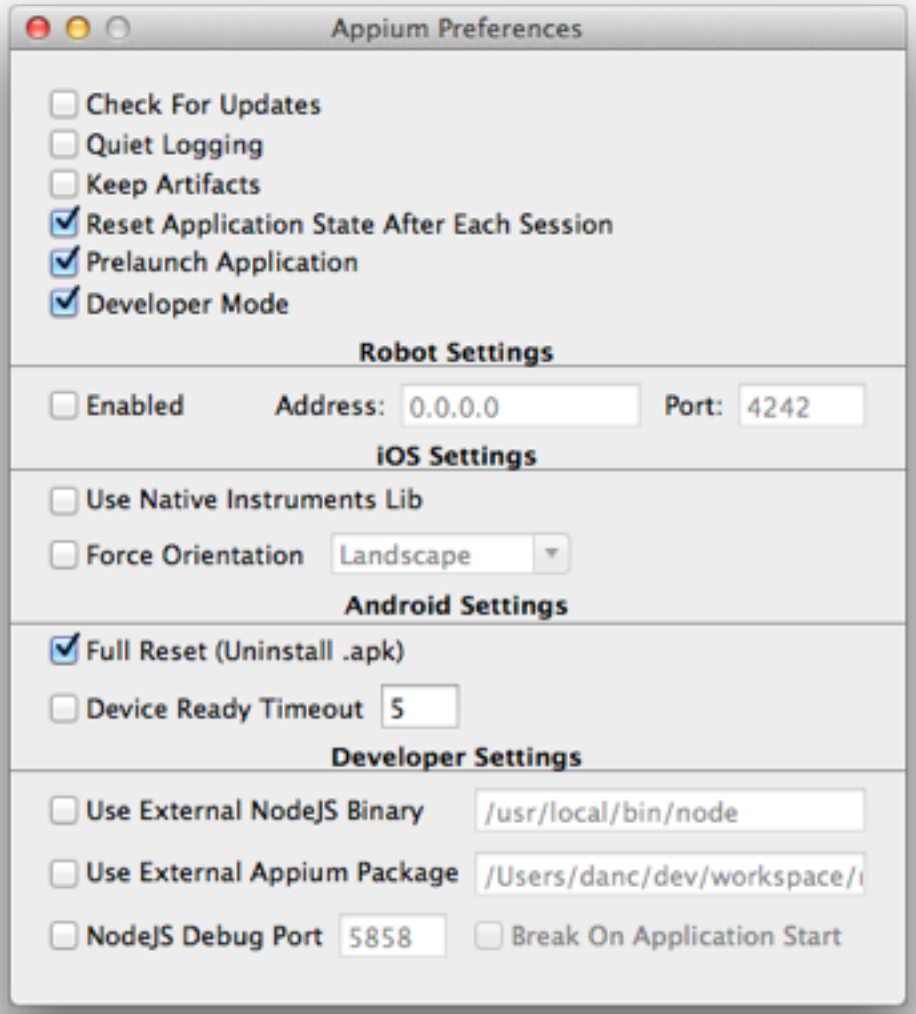
Appium.app

- Mac: stable
- Windows: under development

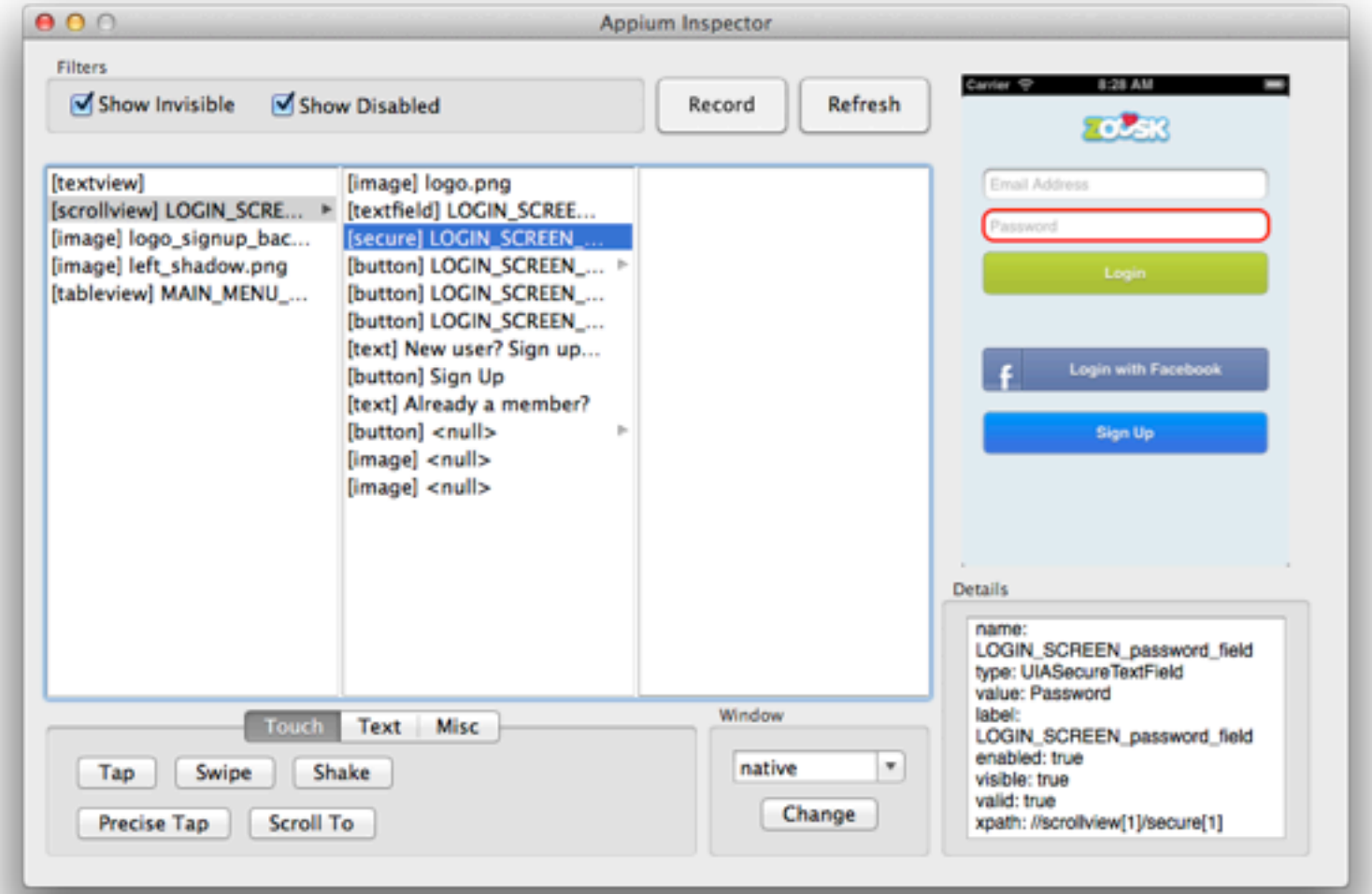
Monitor


Appium
IP Address: 127.0.0.1
Port: 4723
Use Remote Server
Launch
App Path:
Choose
67E1AEE4-C90B-4F85-A75F-C
Zoosk.app
iOS
Android
UDID
Force Device
iPhone
BundleID
Appium.RobotCalibration
Use Mobile Safari
Clear

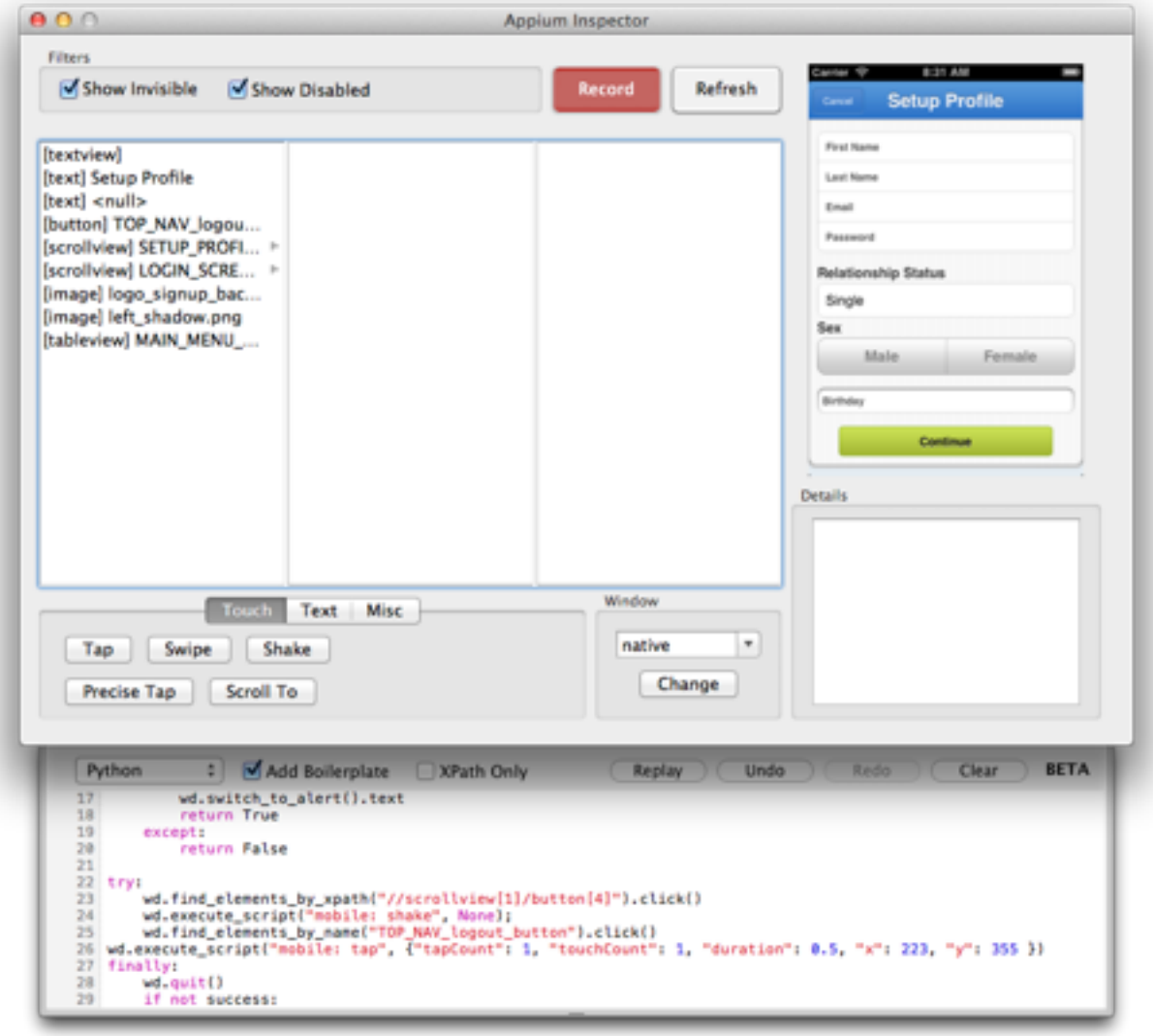
Preferences



Inspector


Appium Inspector
Filters
Show Invisible
Show Disabled
Record
Refresh
[textview]
[scrollview] LOGIN_SCRE...
[image] logo_signup_bac...
[image] left_shadow.png
[tableview] MAIN_MENU_...
[image] logo.png
[textfield] LOGIN_SCREE...
[secure] LOGIN_SCREEN_...
[button] LOGIN_SCREEN_...
[button] LOGIN_SCREEN_...
[button] LOGIN_SCREEN_...
[text] New user? Sign up...
[button] Sign Up
[text] Already a member?
[button] <null>
[image] <null>
[image] <null>
Carrier
8:28 AM
Email Address
Password
Login
Login with Facebook
Sign Up
Details
name:
LOGIN_SCREEN_password_field
type: UIASecureTextField
value: Password
label:
LOGIN_SCREEN_password_field
enabled: true
visible: true
valid: true
xpath: //scrollview[1]/secure[1]
Touch
Text
Misc
Tap
Swipe
Shake
Precise Tap
Scroll To
Window
native
Change

Recorder


Appium Inspector
Filters
Show Invisible
Show Disabled
Record
Refresh
[textview]
[text] Setup Profile
[text] <null>
[button] TOP_NAV_logou...
[scrollview] SETUP_PROFI...
[scrollview] LOGIN_SCRE...
[image] logo_signup_bac...
[image] left_shadow.png
[tableview] MAIN_MENU_...
Setup Profile
First Name
Last Name
Email
Password
Relationship Status
Single
Sex
Male
Female
Birthday
Continue
Details
Touch
Text
Misc
Tap
Swipe
Shake
Precise Tap
Scroll To
Window
native
Change
Python
Add Boilerplate
XPath Only
Replay
Undo
Redo
Clear
BETA
wd.switch_to_alert().text
return True
except:
return False
try:
wd.find_elements_by_xpath("//scrollview[1]/button[4]").click()
wd.execute_script("mobile: shake", None);
wd.find_elements_by_name("TOP_NAV_logout_button").click()
wd.execute_script("mobile: tap", {"tapCount": 1, "touchCount": 1, "duration": 0.5, "x": 223, "y": 355 })
finally:
wd.quit()
if not success:

Robot support

- Bitbeambot Delta-2
  - http://www.bitbeam.org
- Tapster
  - https://www.tindie.com/products/hugs/robot-that-plays-angry-birds/

Robot support

- Redirects touch actions to robots
  - tap
  - swipe
  - etc

Robot support

- Moving beyond UIAutomation for iOS
  - home button
  - task switching
  - etc

Robot support

- Check out the showroom in the back!

appium setup

1 2 3 4 5 6

Requirements (1/3)

- Mac (10.8 preferred)
  - If you're not on Mac, talk to us, we can still get you going for Android
- Python >= 2.7
- Xcode 4.6 with CLI tools and iOS 6.1
- Download Appium.app
  - http://appium.io

Requirements (2/3)

- Android Developer Tools >= 21
  - http://developer.android.com/sdk/index.html
  - mv to `/usr/local/adt`
  - `export ANDROID_HOME=/usr/local/adt/sdk`
  - add (.bashrc, .zshrc, etc):
    `$ANDROID_HOME/tools`
    `$ANDROID_HOME/platform-tools`
    to `$PATH`

Requirements (3/3)

- Set up Sauce Labs demo account credentials
- ```
  export SAUCE_USERNAME=”AppiumUser”
  export SAUCE_PASSWORD=”appiumrocks”
  export SAUCE_ACCESS_KEY=”e4c82f68-cf00-40af-a8bc-5c78df0511a9”
  ```
- This is for automating the test app; not an Appium requirement

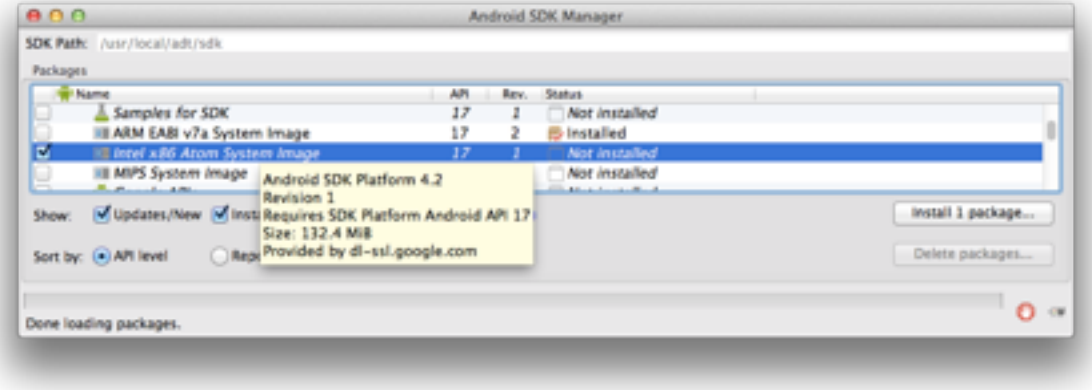

  ```

Install HAXM for Android Speed!

- `open /usr/local/adt/sdk/extras/intel/Hardware_Accelerated_Execution_Manager/IntelHAXM.dmg`

Make an Android Device

- `android`
- Check ‘Intel x86 Atom System Image’ - Android (4.2.2)
- Click ‘Install 1 package...’



- Tools > Manage AVDs
- New...

Create the Image

- AVD Name: workshop
- Device: Nexus S
- Target: Android 4.2.2
- CPU: Intel/Atom
- Host GPU

Launch AVD

- In a new terminal window:
- `emulator @workshop -netfast`
- Go through the new device tour

```
~  emulator @workshop -netfast
HAX is working and emulator runs in fast virt mode
emulator: emulator window was out of view and was recentered
```

- `$ANDROID_HOME/sdk/tools/emulator @workshop -netfast (without env)`

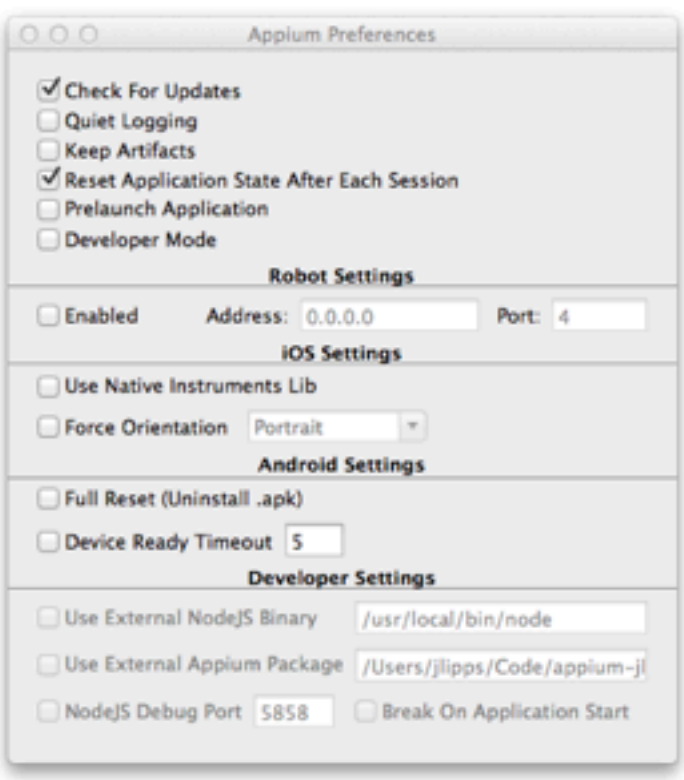
Get the workshop code

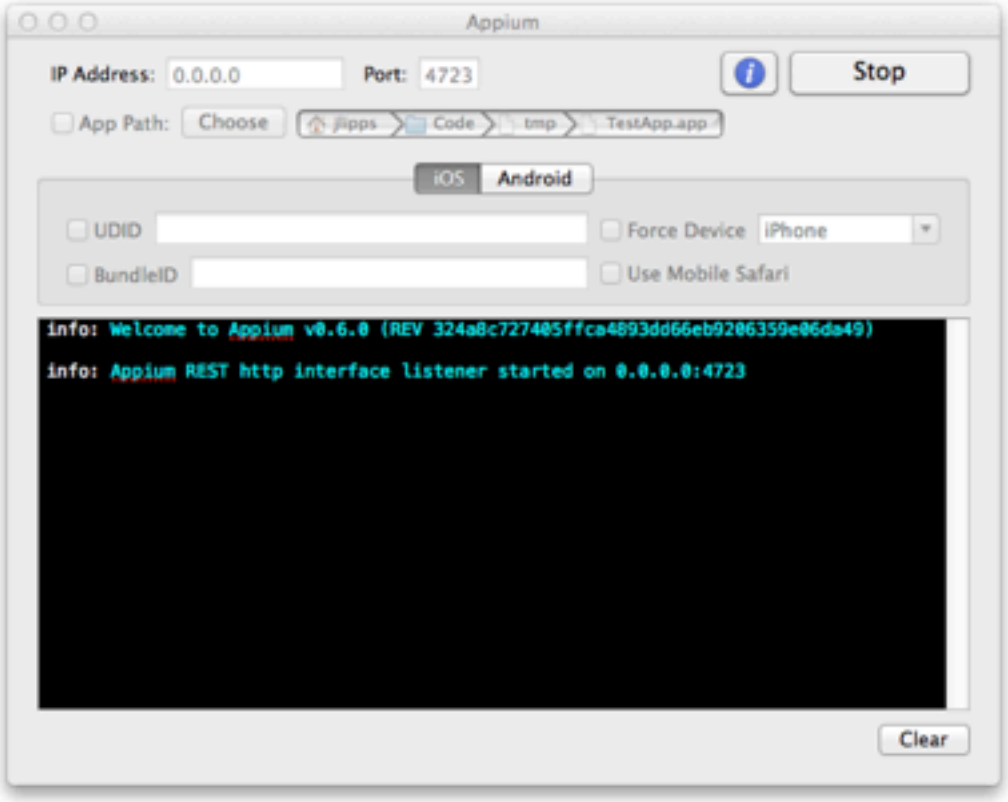
- `git clone https://github.com/appium/workshop.git appium-workshop`
- `cd appium-workshop`

Install dependencies

- `mkvirtualenv workshop  # optional`
  - `deactivate && workon workshop`
- `pip install -r requirements.txt`
- `apps/download.sh`

Launch Appium





- `open /Applications/Appium.app`

Moment of truth...

- `cd python`
- `nosetests ios/step1.py`
- `nosetests android/step1.py`

appium test model

1 2 3 4 5 6

Start/stop a session

```
class AppiumTestCase(unittest.TestCase):

    def setUp(self):
        appium = "http://localhost:%s/wd/hub" % 4723
        self.desired_caps = {
            device: 'iPhone Simulator',
            app: '/abs/path/to/my.app',
        }
        self.driver = webdriver.Remote(appium, self.desired_caps)

    def tearDown(self):
        self.driver.quit()
```

Find elements

```
# by accessibility label
el = self.driver.find_element_by_name("Sign In")

# by element type
el = self.driver.find_element_by_tag_name("button")

# by hierarchy
el = self.driver.find_element_by_xpath("//button[@text='Hi']")

# by Android ID
el = self.driver.find_element_by_id("myId")
```

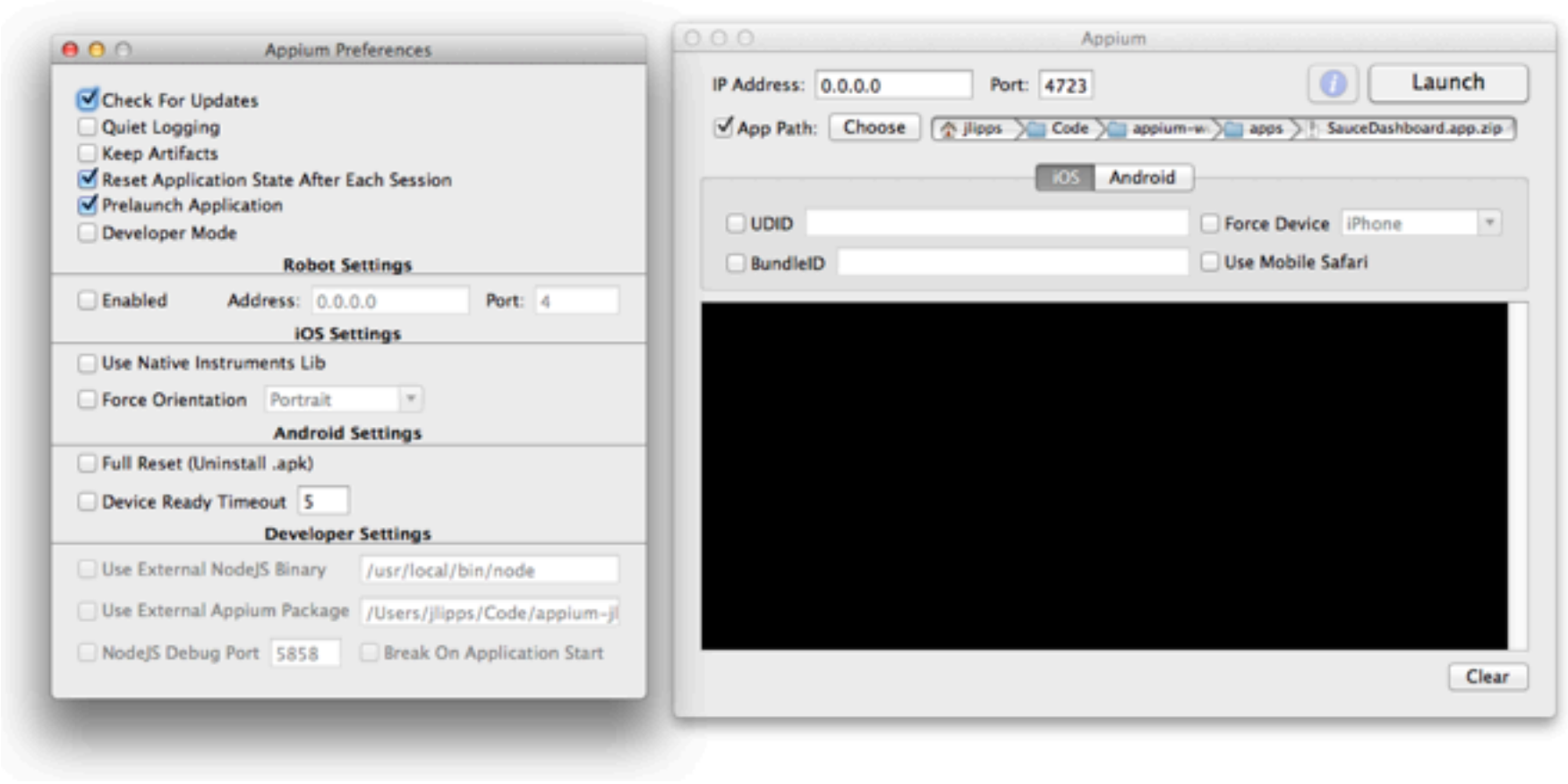
Interact with elements

```
el = self.driver.find_element_by_tag_name("button")
print el.text  # text of button
el.click()     # click button
```

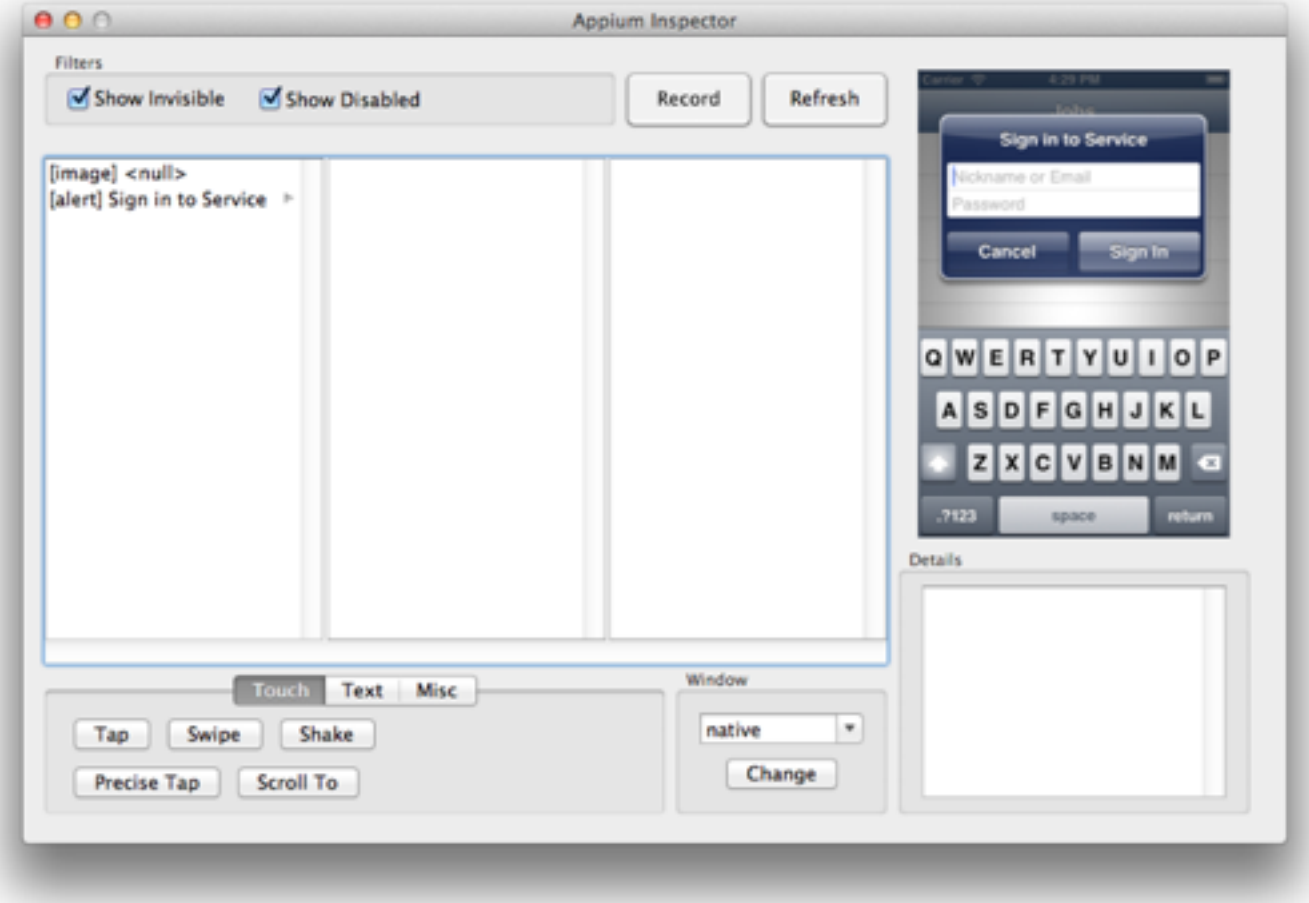
appium test building

1 2 3 4 5 6

Pre-launch app to inspect



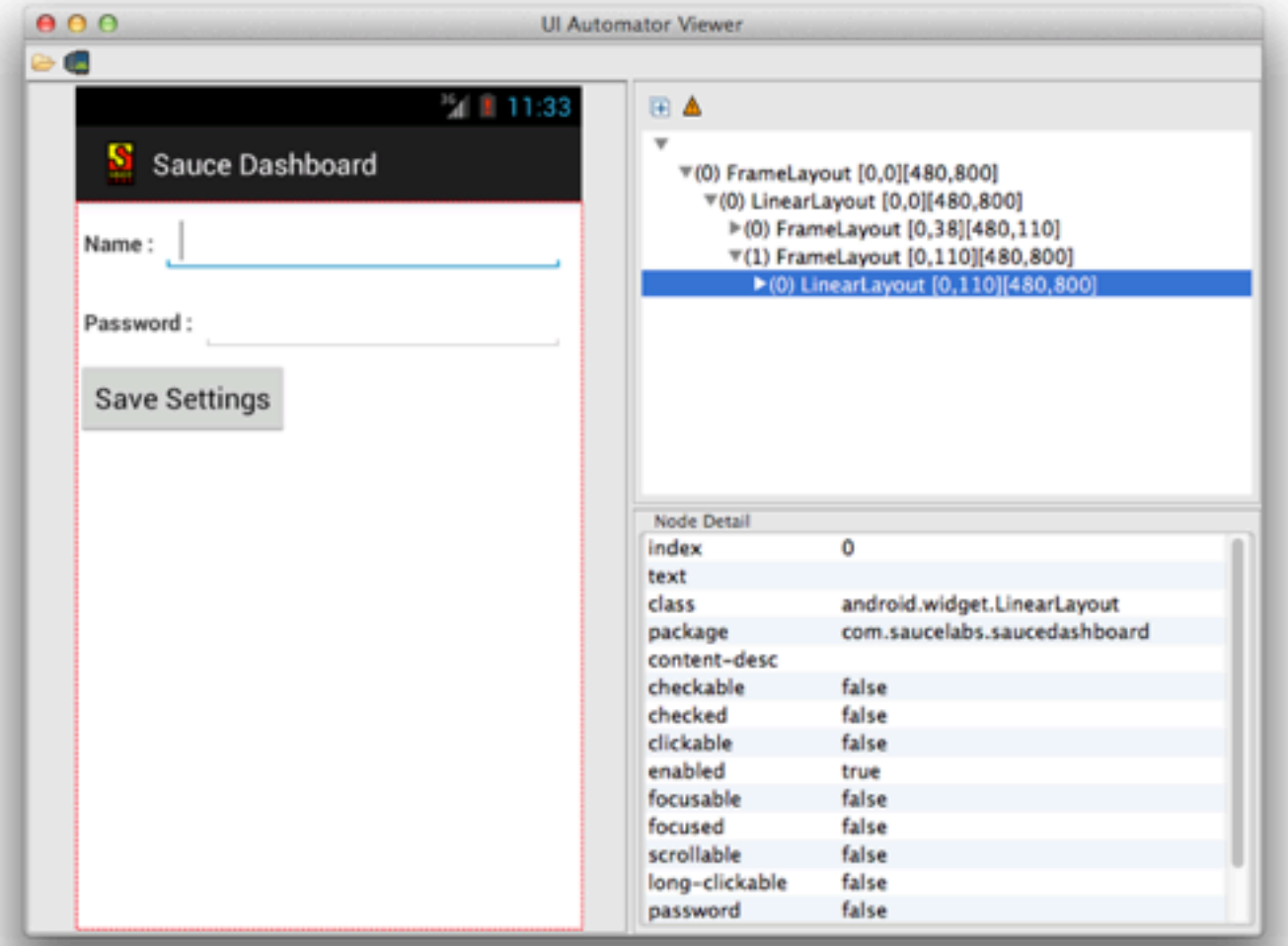
Inspector helps!



edit python/common.py

edit python/ios/step1.py

uiautomatorviewer for Android



edit python/android/step1.py

appium cross-platform

1 2 3 4 5 6

vim python/both.py
nosetests python/both.py

appium real devices

Android

- Device must be in developer mode
- USB debugging must be enabled

IOS

- Choose the UDID option in Appium.app
- Can also bundle ID of app installed on device

appium scale

appium **is great for local** test development, but has limitations when scaling up for use in CI

Sauce Labs is great for scale
when you need to run a lot of
appium tests in your build

saucelabs.com/appium

Run tests on Sauce

```
# LOCAL
def setUp(self):
    appium = "http://localhost:%s/wd/hub" % 4723
    self.desired_caps = {
        device: 'iPhone Simulator',
        app: '/abs/path/to/my.app',
    }
    self.driver = webdriver.Remote(appium, self.desired_caps)

#SAUCE
def setUp(self):
    appium = "http://%s:%s@ondemand.saucelabs.com"
    appium = appium % (SAUCE_USERNAME, SAUCE_PASSWORD)
    self.desired_caps = {
        device: 'iPhone Simulator',
        app: '/abs/path/to/my.app',
    }
    self.driver = webdriver.Remote(appium, self.desired_caps)
```

appium mobile web

appium committers

We need you...

- Node.js devs (for Appium server)
- Obj-c devs (for Appium.app)
- C#.Net devs (for Appium.exe)
- Java devs (for Appium's Android bootstrap)

Thanks!

appium.io

github.com/appium/appium

@AppiumDevs | @jlipps | @saucelabs

with @TheDanCuellar and @maudineormsby