
QT4i Documentation

åŘŚåŸČ 3.3

QTA

2019 åžť 03 ælJĹ 12 æŮě

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QT4i(Quick Test for iOS)ĭĭjŇăşžăžŎQTAæŘŘă;ŽéİcăŘŚiOSăžŤçŤlçŽĐUİætŇèŕŤèĜlăĹlăŇŮætŇèŕŤèĝcăĚş

CHAPTER 1

ä;£çŤíæŮǦæąč

1.1 ä;£çŦíåL'■åĞẸåd'Ğ

QT4iä;ìetŰQTAFæíaaíUüijÑä;£çTíáL■èruáRĆèĂĈăĂŁTestbaseä;£çTíáL■ăĜEăd'GăĂNăyĂèŁĆăĂĆ

1.1.1 ăĖĖăd'ĖMacçTtēĎŚ

QT4içŽĐætNërTéIJÀèèAåIJÍMacäyŁæL'gèaŃiijŃéIJÀèèAåĠEad'ĠäyÅåRřMacăzúçñeåRĹLäzëäyŃèèAåśCii

- æŞ■ä;IJçşçzçşäyžiiŹMac OS X EI CapitaniiĹçL'LæIJñ10.11.6ăŔŁäzěäyĹiiŹNæŐlè■Ŕă■ĞçžğăĹŕæIJĂ
- äyNè;QT4içŻyăĖşçŽDăũěăĖũ

èa1 1: QT4iâuěaĚuæyĚa■T

ãüëäĖûâĤçğř	èřťæŸŎ
UISpy	æšëçIJNAppçŽDæŎğüzúæăSăzëăRĹæŎğüzúQPathçŽDăüëăĖüiijNëğčăŎNășăRfă;
QTA-IDE	PythonëDŽăIJñăiJĂăRŠçŎřăčĈ(ăRřéĂĹ'æŤŦ'eGĹăûsăŬIĴăñčçŽDIDE)
Xcode	QT4iă;ĹëtŬçŽDxctestăžTăšĆăüëăĖüiijNXcode6ăRĹăzëăÿNăÿăŤrăNă

1.1.2 ǎǦǦǎd'ǦiOSeǒǧǎd'Ǧ

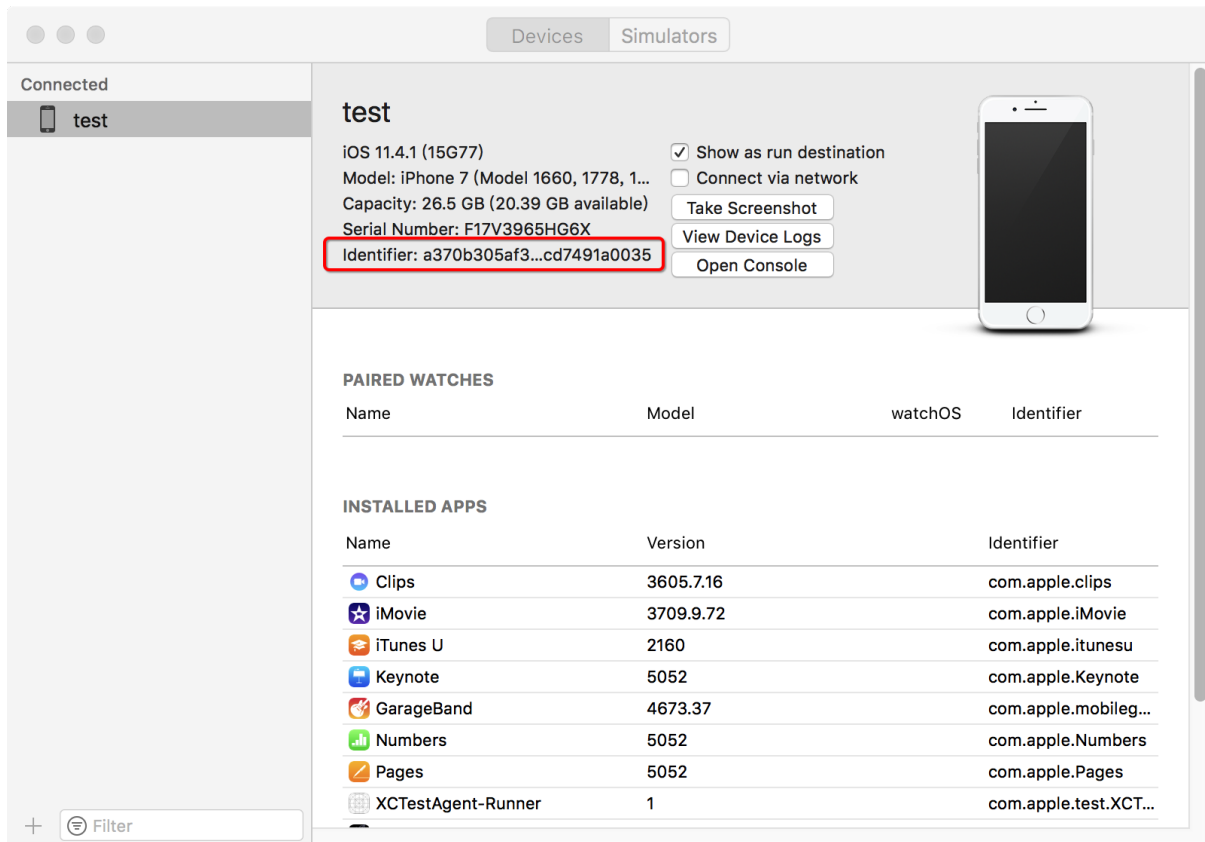
QT4ieĜsârSéIJĀèèAäyĂāRriOSèő;ăđ'ĜiijŃăRrăzëæYřcIJşæIJæLŨælaæNşăZlăĂĆ

ä;£çŤíiOSçIJ\$æIJž

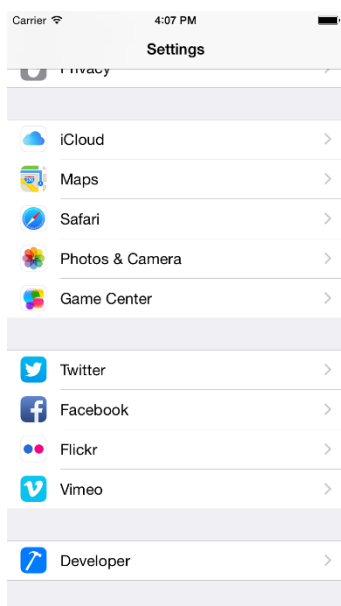
1. éĀŽēfGUSBēfđæŌēiŌSēō; ād' ĠāĹrMaciijŅāĻiæŋæfđæŌēæŮūēIJĀēēAç■Ļā; ĖæĹŅæIJžāĀIJæŸrāĻ

2. æšëèíOSèø¿áð' ĞçŽĐèø¿áð' ĞæăĜèrEçņęUDID

æL'ŠăijĂXcode, ä¿İæñæŁŽăĚèRIJăTWindow->Devices and SimulatorsiijŃæšëèíçèŎũăRŬiPhoneæL'ŃæIJçŽĐUDIDIiijŃăçCăyŃăZ¿æL'Ăçd'žiiž



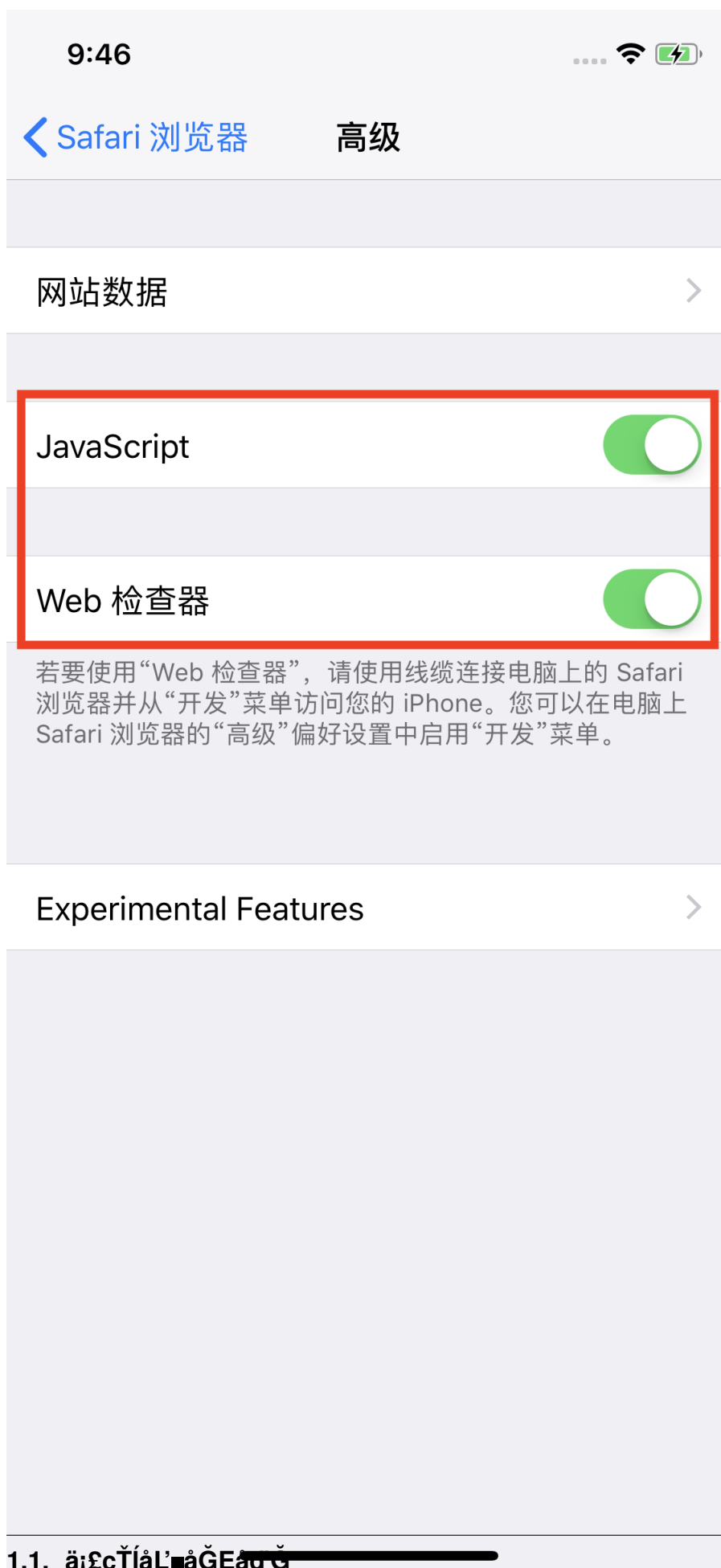
3. æL'ŠăijĂUI AutomationăŁšèĶ

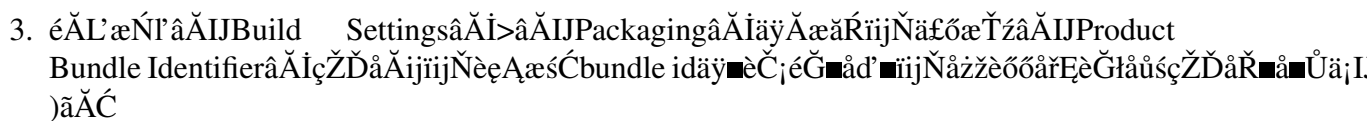


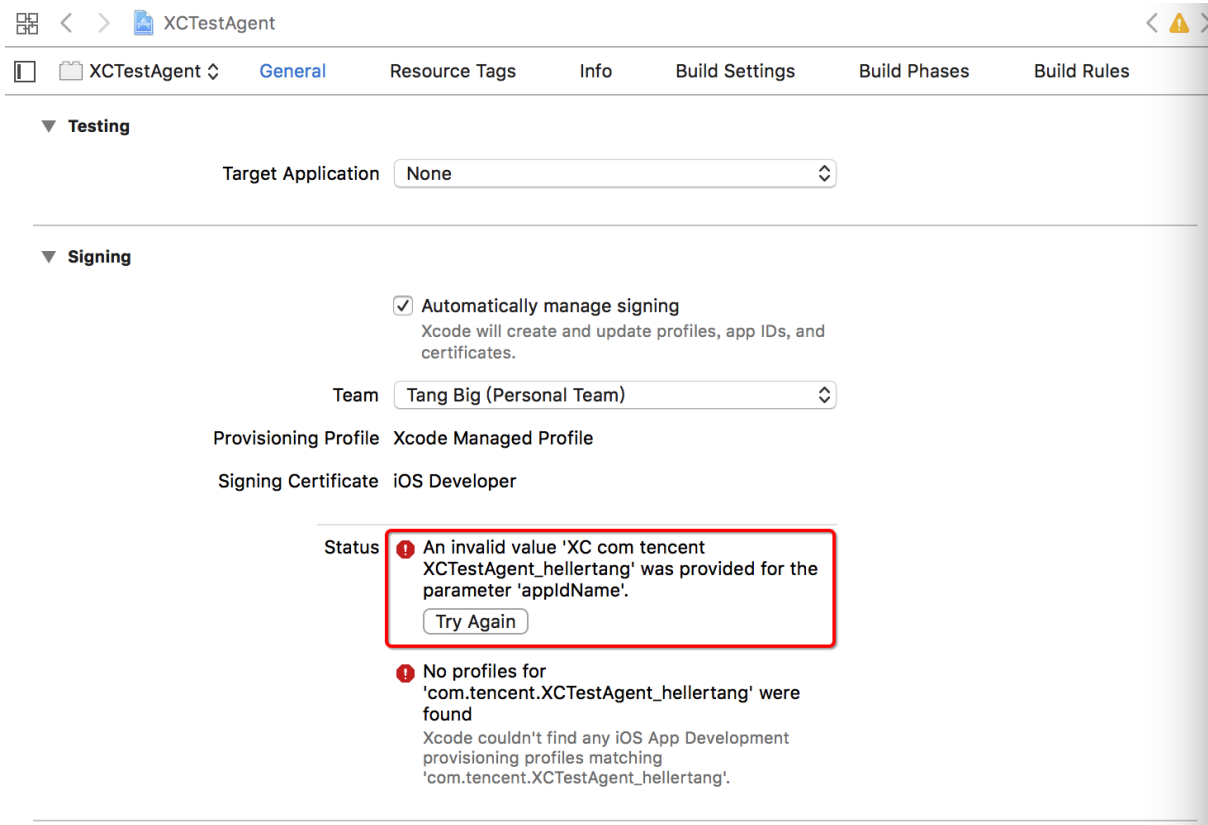
1. ăŕŕăĹiŌSăĹăæNşăŹĹ(ăşşăæIJĹ'çŹĐĕŕĹiijŃăŔŕăzěăŨŕăzž)
2. æĹ'ŞăijĂUI AutomationăĹşĕĈiijŃăŨzăşŤăŔŇçIJşăIJçŹĐăŨzăijŔăĂĈ

æCædIJä;fçTliOSëð;äd'GèrČèrTWebVieæ;éIćijNéIJăëeAæL'SajjĀSafariæ;RègĹLăZlćZDWebæčĂæšëăZ

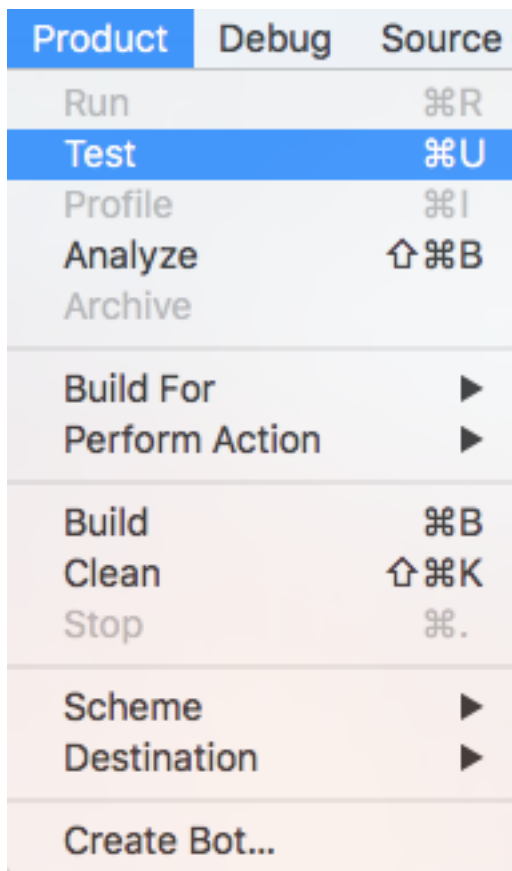
1. éĂĽæŇĭ'âĂĬĲèŃçĭŃ => SafariætŔèĝĽăŹĬ => énŸçžĝâĂĭ ĩĭžŹ



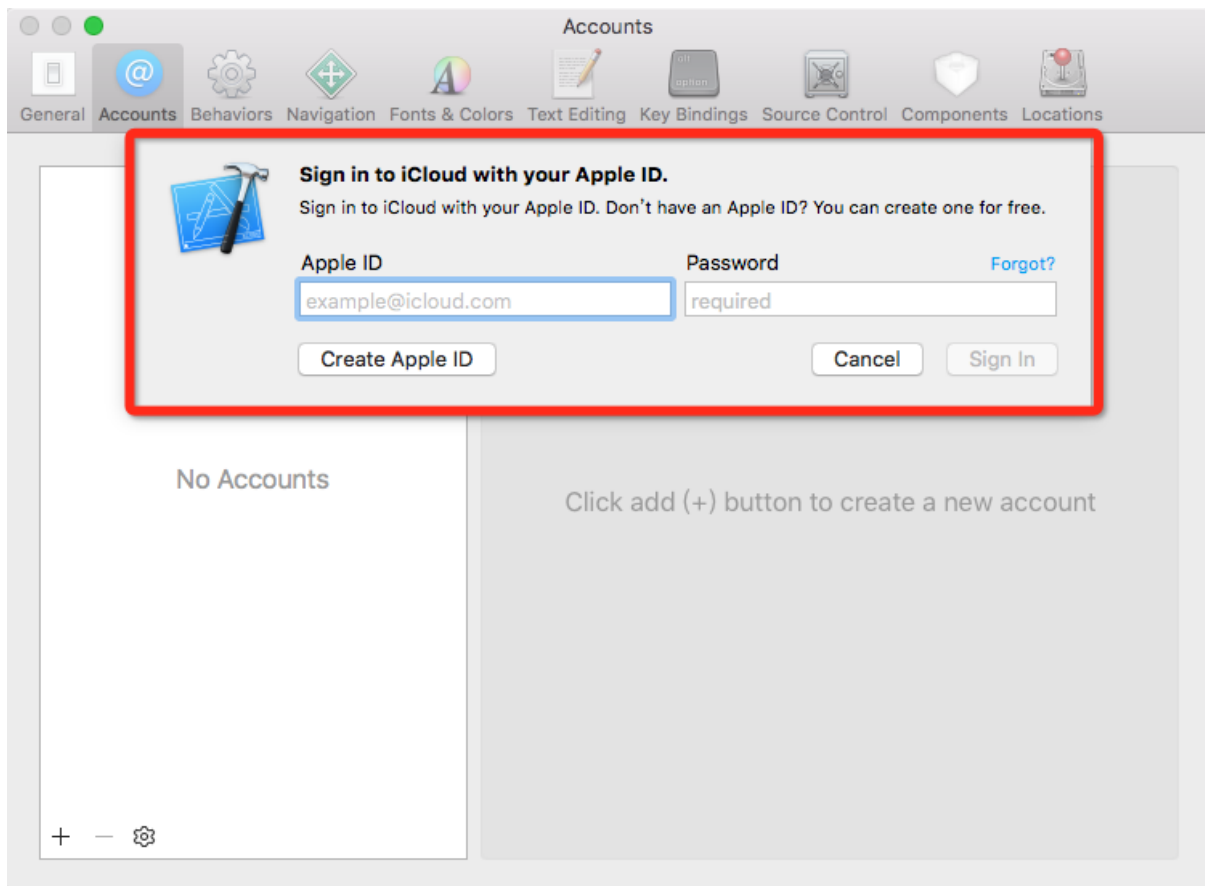




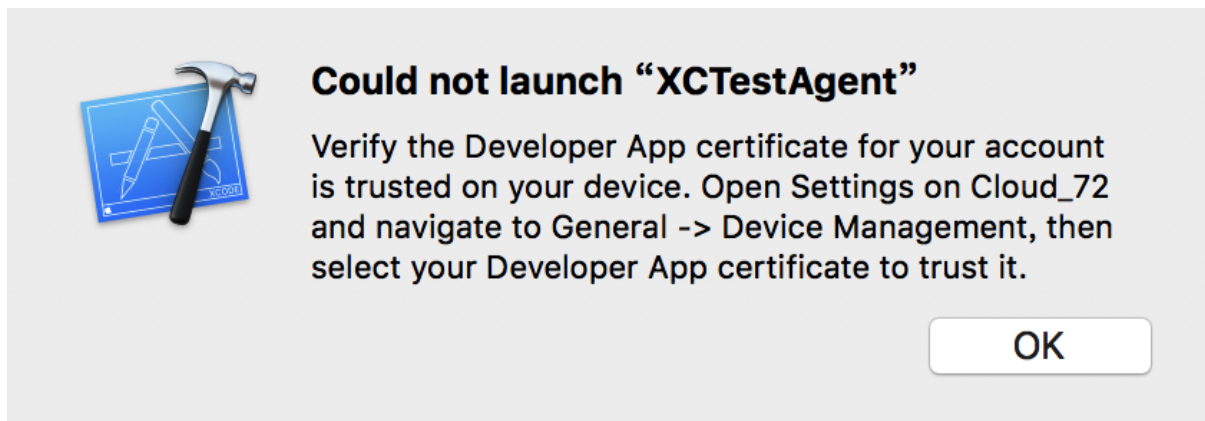
5. éÄL'æÑI'âÄIProductâÄI>âÄIITestâÄIijÑædĐázžâRŁè£RèaÑXCTestAgentâÄC



6. âæCædIJaĞžçÖřæCäyÑâijzæaErijÑæYçd'žç■;âR■ad'set'ërijÑéÄL'æÑI'âÄIIFix is-



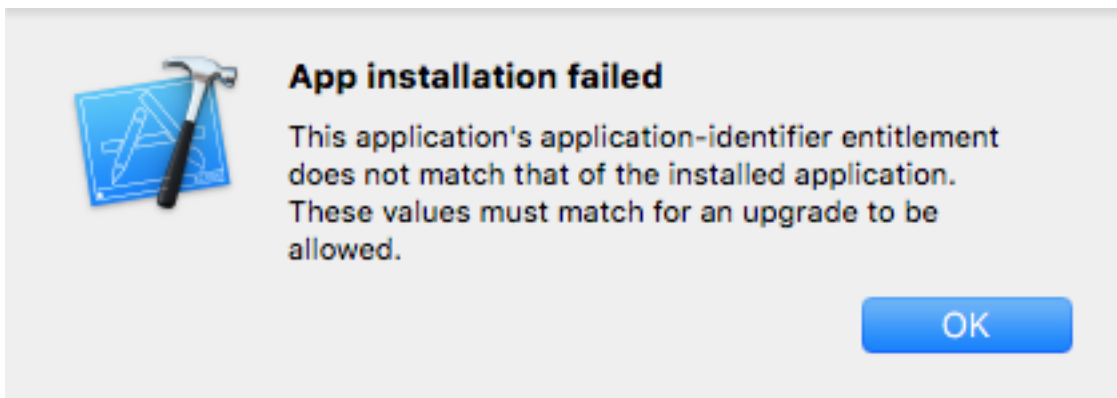
7. æĈæđĬJăĜžĉŎřăĈăyŇăijžæąEriĵŇéĬJĂêĉAăĬĬiPhoneăyĹèőĭĉ;őërĉèt'ĉæĹuăyžăĹăăžžăijĂăŖŚèĂĚăĂ



èĹZăĚĚiPhoneiĵZăĂĬJéĂZĉŤĭăĂĬ>ăĂĬJèőĭăđ'ĜĉőăĉŖĚăĂĬ>ăĂĬĬăijĂăŖŚăŤĚăžŤĉŤĭăĂĬiĵŇăĹăăžžèĹĉèt'ĉæĹ



8. æÇædIJaĞžçŒraçCäyNâijzæaEiijNèrt' æYŒbundle idäy■aŒzéE■iijNâŒEæL'NæIJzäyŁçŽDap-paŁæéZd'iijNâE■éG■æŪrèŁRèaŒtestāĂĆ



9. âj\$Xcode testæŁŒaŁšèŁRèaŒXCTestAgentiijNæşlæĐŒXcodeæL'Şa■ŕçŽDäŁæAŒiijNæYŒŒŒaŒĞžçŒŒtestāĂĆ

```

2016-10-08 20:25:48.970 XCTRunner[1430:4004609] Running tests...
20:25:50.134 XCTRunner[1430:4004645] _XCT_testBundleReadyWithProtocolVersion:minimumVersion: reply received
20:25:50.493 XCTRunner[1430:4004642] _IDE_startExecutingTestPlanWithProtocolVersion:16
2016-10-08 20:25:50.832 XCTRunner[1430:4004609] Continuing to run tests in the background with task ID 1
Test Suite 'All tests' started at 2016-10-08 20:25:51.748
Test Suite 'XCTestAgent.xctest' started at 2016-10-08 20:25:51.756
Test Suite 'XCTestAgent' started at 2016-10-08 20:25:51.758
Test Case '-[XCTestAgent testRunner]' started.
t = 0.00s Start Test
t = 0.01s Set Up
2016-10-08 20:25:51.811 XCTRunner[1430:4004609] Built at Sep 9 2016 10:59:55
2016-10-08 20:25:51.882 XCTRunner[1430:4004609] ServerURLHere->http://10.66.150.112:8100<-ServerURLHere
2016-10-08 20:25:51.884 XCTRunner[1430:4004609] Listening on USB

```

10. çāōāfIXcode testēČ;æ■čāyÿèfRēāŇXCTestAgentāRŌiijŇāAIJæ■céfRēāŇtestiijŇāžūāĚséŮ■XcodeāĚ

1.2.4 çĚĚèğčUIçzŞædĎ

iOSçŽĎUIçzŞædĎæŮL'āRĚāyL'āyġæēČāfġiijŇāžŤçŤí(App)āĚAçġŮāRč(Window)āĚAæŌğāžŮ(Control):

- **App:** æŖĚāyĚāyġiOSāžŤçŤíæŤŖāyĚāyġAppiijŇā■şāōL'èçĚāĚŖæL'ŇæIJžāyĚçŽĎāĚĚæŤŇāžŤçŤíiijŇApp
qt4i.app.App āōđçŌŖāĚĚ
- **Window:** āyĚāyġAppāŇĚāŖŇāđ'ŽāyġWindowiijŇWin-
dowēāġçđ'žāyĚāyġēčŇæŤŇçŽĎAppçġŮāRčçŤŇēġiijŇāĚŤsāžŇēIJĚēēAāŖžæŖĚāyġçġŮāRčēēfZēāŇāōžāžL
qt4i.icontrols.Window āōđçŌŖ āĚĚ
- **Control:** āyĚāyġWindowāŇĚāŖŇāđ'ŽāyġControliijŇā■şæŖĚāyĚāyġçġŮāRčāŇĚāŖŇāžĚāđ'ŽāyġæŌğāžŮ
æŌğāžŮāşžçşçŤŤs *qt4i.icontrols.Element* āōđçŌŖ

æL'ĚāžæĚĚŤsāžŇēIJĚēēAāžēQT4iāy■çŽĎāōđçŌŖāyžāşžçāĚiijŇēŤĚāŖžāyL'çg■UIāĚČçŤ'āāĚĚāĚŇēfZēāŇāŖA

1.2.5 çŇŇāyĚāyġæŤŇērŤçŤġāĚŇ

èĚşæ■đ'ġiijŇēfRēāŇQt4iæL'ĚāfĚēēAçŽĎçŌŖāčČŖiijŇāŮşçžŖæŖ■āžžāōŇæĚŖiijŇāžşāŖžUIçzŞædĎāžşæIJL'ā
āy■āēġāžēiOSçşçzçşèĚġāyēçŽĎēōġç;ōāžŤçŤġāyžāĚŇ(æġæŇşāžġāŇŇçIJşæIJžēČ;æIJL')ġiijŇāijĚāğŇāĚŽQT4
ērŮāĚĚĚāŖČēĚĚāĚĚTestbaseēōġēōāæŤŇērŤçŤġāĚŇāŇŇçĚşæĚĚçŤġāĚŇāşžæIJŇçzŞædĎāĚČçŤŤsāijĚāđŤ'āŖŖ

- demotest:æŤŇērŤçŤġāĚŇēZēāŖĚġiijŇēfZēĚŇā■ŤāĚĚæL'ĚæIJL'æŤŇērŤçŤġāĚŇçŽĎēĎŽæIJŇāĚĚ
- demolib:æŤŇērŤāyŽāĚāžŤiijŇēfZēĚŇā■ŤæŤġæL'ĚæIJL'æŤŇērŤāyŽāĚāġibāsČçŽĎāžççāĚiijŇāġāġŮ
- settings.py:ēāžçŽōēĚ■ç;ōæŮĚāžŮiijŇāŖŖāžēēĚ■ç;ōāġāæL'ĚēIJĚēēAçŽĎēāžāĚĚ

demotestçŽōāġŤāyŇāijŽēĚġāĚĚŤŤşæĚŖhello.pyæŮĚāžŮiijŇāĚŤsāžŇāIJġērææŮĚāžŮāōđçŌŖçŇŇāyĚāyġçōĚā■

```

from qt4i.device import Device
from demolib.demotestbase import DemoTestcase
from demolib.demoapp import DemoApp

class DemoTest(DemoTestcase):
    'DemoæŤŇērŤ'

```

(continues on next page)

è■ēāSŁ: āIJaetNērTçTlā; Nāy■āijzçČLāzžèōōāRlērČçTlilbārAèçĚçŽDæŌēāRcāSŇæŮ■ēlĀæŞ■ā; IJijŇNāžē
UIāRŸāNŮçTlā; ŇçŽDēĀžē; Šāy■ēlĀēçAæTzāLlījŇNāRŇæŮūāžşçlĀād' géŽRāžēād' ■çTlilbārAèçĚāĀC

ěčŮăĚĹiijŇčŤlăĹŇčzğæĹ'ăzžŎDemoTestBaseætŇĕrŤăşžçsziiŇĚšĹărŷætŇĕrŤăşžçszçŽďărAèçĚăŔřäzěăŔć

èŌũàRŪēŁđæŌěãIJÍMacäyŁçŽĐçzŁčńrëő;ăđ'ĜiijŃĂĹ'çŤĪ *qt4i.device.Device*
čsžăođä;ŃăŃŪăŃĜăoŽëő;ăđ'ĜăřzèsăăĂĈăĈăđIJæIJăŃĜăoŽëő;ăđ'ĜăĹŽëŌũàRŪēŁç;æŌěãIJÍMacäyŁçŽ

1.2. α ξnéÅşăĚěéŮí

1.3.3 áŕAèčEQPath

ăĭĚçŤíăĬžăŹŕ

æŎğăžŭçŽĎăŏŽăĭ■ăŠŇăšăæL'ĭăŕAèčĚăĬĬlibăŇĚăŸ■çŽĎxxx_win.pyăŸ■ĭĭĭŇăžžèŏŏAppăŸĂăŸĭçŤŇĒĭcăŔĬĚăžăŕAèčĚçşzçşşèŏĭçĭŏAppçŽĎăĬĬĚĂŽçŤĭăĬăŖŎğăžŭăŸžăĭŇ:

```
self.updateLocator('éĂŽçŤĭ': {'type': ElementĭĭĭŇ 'root': selfĭĭĭŇ
                                'locator': QPath("/classname = 'Cell' &
→label = 'éĂŽçŤĭ' & maxdepth = 7"))ĭĭĭŇ
```

- **type:** æŇĜăŏŽăŖŎğăžŭçŽĎçşzăđŇĭĭŇăŇŇŇiosăŸ■ăŏŽăžL'çŽĎăŖŎğăžŭçşzăđŇçŽŸăŕăžăŹŤĭĭŇăĖĆTableVSliderĭĭŇ ActionSheetç■ĬăĂĆ
- **root:** æŇĜăŏŽăŖŎğăžŭçŽĎçĬŭèĬĆçĆzĭĭŇăŇĜăŏŽçĬŭèĬĆçĆzăŔŎĭĭŇăšăæL'ĭăŖŎğăžŭăŸŭĭĭŇăĭĭŇăĖĆăđĬăŇĜăŏŽăŸžselfĭĭŇăĬĬŽăĭçđ'žăĭĭŇăžăŖŎăŤŕ'écŬăŖŎğăžŭăŖăšăžèĬĆçĆzăĭĭĂăĝŇăšăæL'ĭçŽŏă
- **locator:** æŇĜăŏŽQPath

QPathèŕ■ăşŤçŽĎă■çăžăăŔŕăŔĈèĂĈăĂĬQPathèŕ■ăşŤăŇăĭĭçŤŭăŇăĂĈqt4ieĂŽèĬĜQPathăŏŽăĭ■ăŖŎğăžŭ

è■çăŖĬ: æşăçĬĬŇăŖŎğăžŭăŖăŖĭĭŇĒĬĬĂèçĂăĬĬĬçĭşXCTest
DriverèĬŔĕăŇçŎŕăçĈĭĭŇăŇĚăăĭşăŔŕăŔĈèĂĈăĂĬĬçĭşXCTest
DriverèĬŔĕăŇçŎŕăçĈăŇ

ăĭĬçŤĭŬISpyă■şăŔŕèŎŭăŔŬèŏĭăđ'ĜăĭşăĬ■éăŖĬcăŖŎğăžŭăŖăŖĭĭŇŽ

(çz■äŸŁéą)

```

        'locator': QPath("/classname = 'Cell' & label =
→ 'éĀžçŤĺ' & maxdepth = 7"))}iijŇ
        'ăĚşăžŎæIJŇæIJž': {'type': ElementiijŇ 'root': selfiijŇ
            'locator': QPath("/classname = 'StaticText' &
→ label = 'ăĚşăžŎæIJŇæIJž' & visible = true & maxdepth = 12"))}iijŇ
        'ăŔ■çğř': {'type': ElementiijŇ 'root': selfiijŇ
            'locator': QPath("/classname = 'StaticText' &
→ label = 'ăŔ■çğř' & visible = true & maxdepth = 11"))}iijŇ

        # "Table": {"type": ElementiijŇ "root": selfiijŇ
        #             "locator": QPath("/classname = 'Table' &
→ visible = true & maxdepth = 10"))}iijŇ
        # "ăŔ■çğř": {"type": ElementiijŇ "root": "@Table"}iijŇ
        #             "locator": QPath("/classname='StaticText' &
→ label = 'ăŔ■çğř' & maxdepth = 1"))}iijŇ

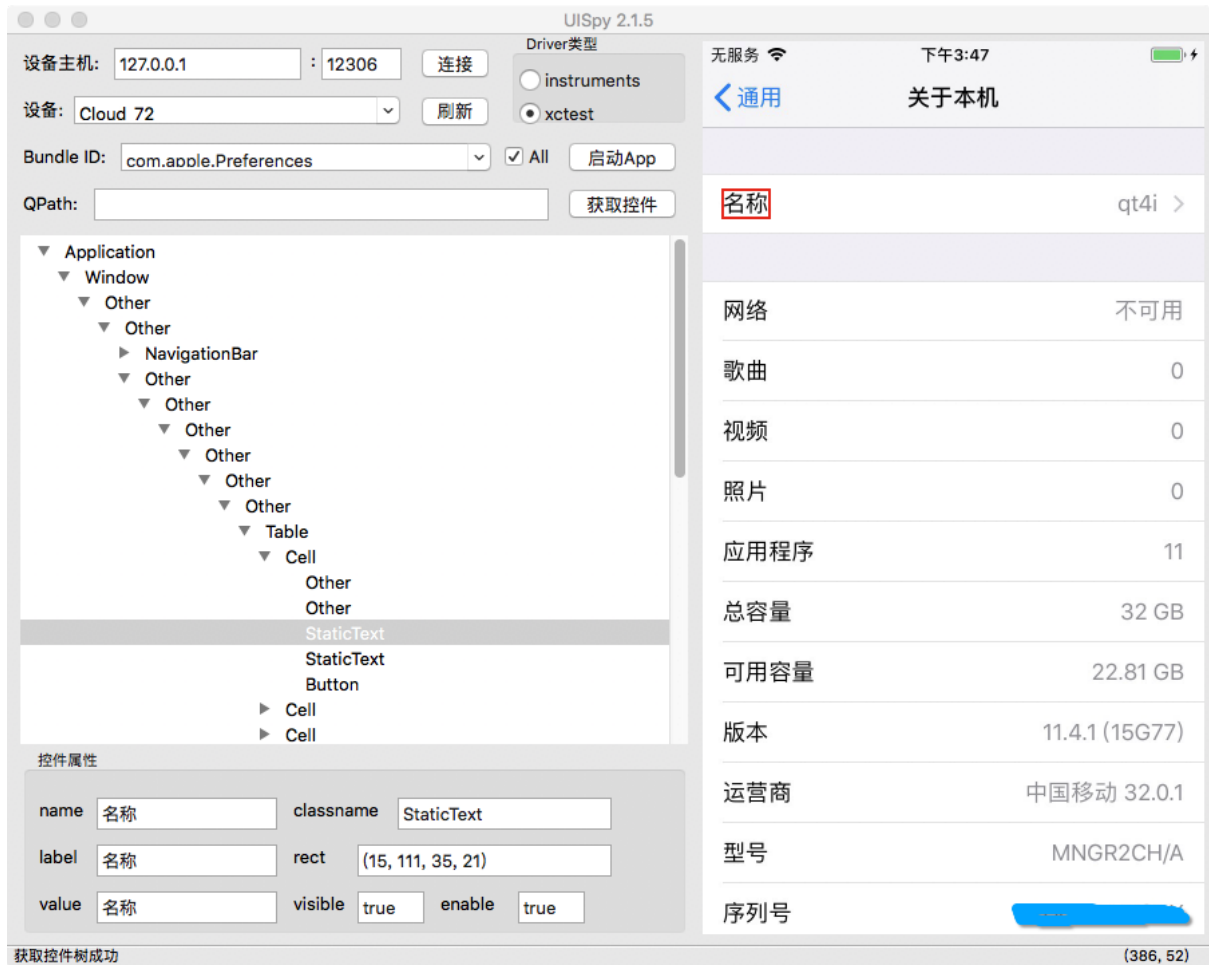
    }

    self.updateLocator(locators)

def enter_info(self):
    '''èt'ęăŔŭărEçăAèçŞăĚçŻză;ŦăĜ;æŦř
    '''
    self.Controls['éĀžçŤĺ'].click()
    self.Controls['ăĚşăžŎæIJŇæIJž'].click()
    return self.Controls['ăŔ■çğř'].exist()

```

ăžčŤĺăçŦăŸ■çŽĎăŸăŔ■çğřăĀŽăŸžăçŦiijŇUISpyæšçIJŇăŖŇèŎŭăŔŮæŎğăžŭçŽĎQPath:



æŒgäzũçŽĐQPathãŒŽä;■āŔřäzēāšžāžŒāĖüçzłāržēũŕā;ĐēŒũāŔŪ(āšžāžŒŒWindowæšēæL;ĭ)ĭĭjNāzšāŔřäzēāšž

```
"Table": {"type": ElementĭĭjN "root": selfĭĭjN
    "locator": QPath("/classname = 'Table' & visible = true &
    ↪maxdepth = 10")}}ĭĭjN
"āŔř■çğŕ": {"type": ElementĭĭjN "root": "@Table"ĭĭjN
    "locator": QPath("/classname='StaticText' & label ='āŔř■çğŕ
    ↪' & maxdepth = 1")}}ĭĭjN
```

QPathāy■ēŽd'āžĖæŒgäzũēũŕā;ĐāēlēēŽŔāŁūāŒŒä;■çņēāzNād'ŪĭĭjNēĤŸāŔřäzēēĀŽēĤGnameāĀAlabelç■Łāš
~ = *āĀĭāĀĈ

æšlēgç: āšžāžŒŒŦNēĭcçŽĐæš■ā;ĪJāšNāŁd'æŪēĈ;āžŦērēārAēçĖāĪĪlibāNĖçŽĐxxxwin.pyāy■ĭĭjNāzēçāŒā

āŔēād'ŪĭĭjNāçĈāđĪJæŒgäzũāĖũāĪJLnameāšđæĀğ(āŦŕāyĀ)ĭĭjNāŔřäzēçŽt'æŒēä;ĤçŦĭnameā;ĪJāyžQPathāĀŒ

æšlēāĐŔ: āŒŽä;■çņēæŸŕQPathçŽĐāĤĖēāzæNĖĀŒŒāđ'ğæšēæL;æũsāžēĭĭjNāŔēāŁŽāŔŕāĭjŽāĪĪWindo

āĪĪāyŁēĤŕçññāyĀāyŁçŦĭā;Nāy■æŔŔāŔŁçŽĐNameWinçŦNēĭcārAēçĖ:

```

from qt4i.icontrols import Window
from qt4i.icontrols import Element
from qt4i.qpath import QPath

class NameWin(Window):
    '''DemoApp æšléŤĂçŽžâ;Ťéąęéíć'''

    def __init__(selfïijŇ app):
        Window.__init__(selfïijŇ app)
        self._device = self._app.device

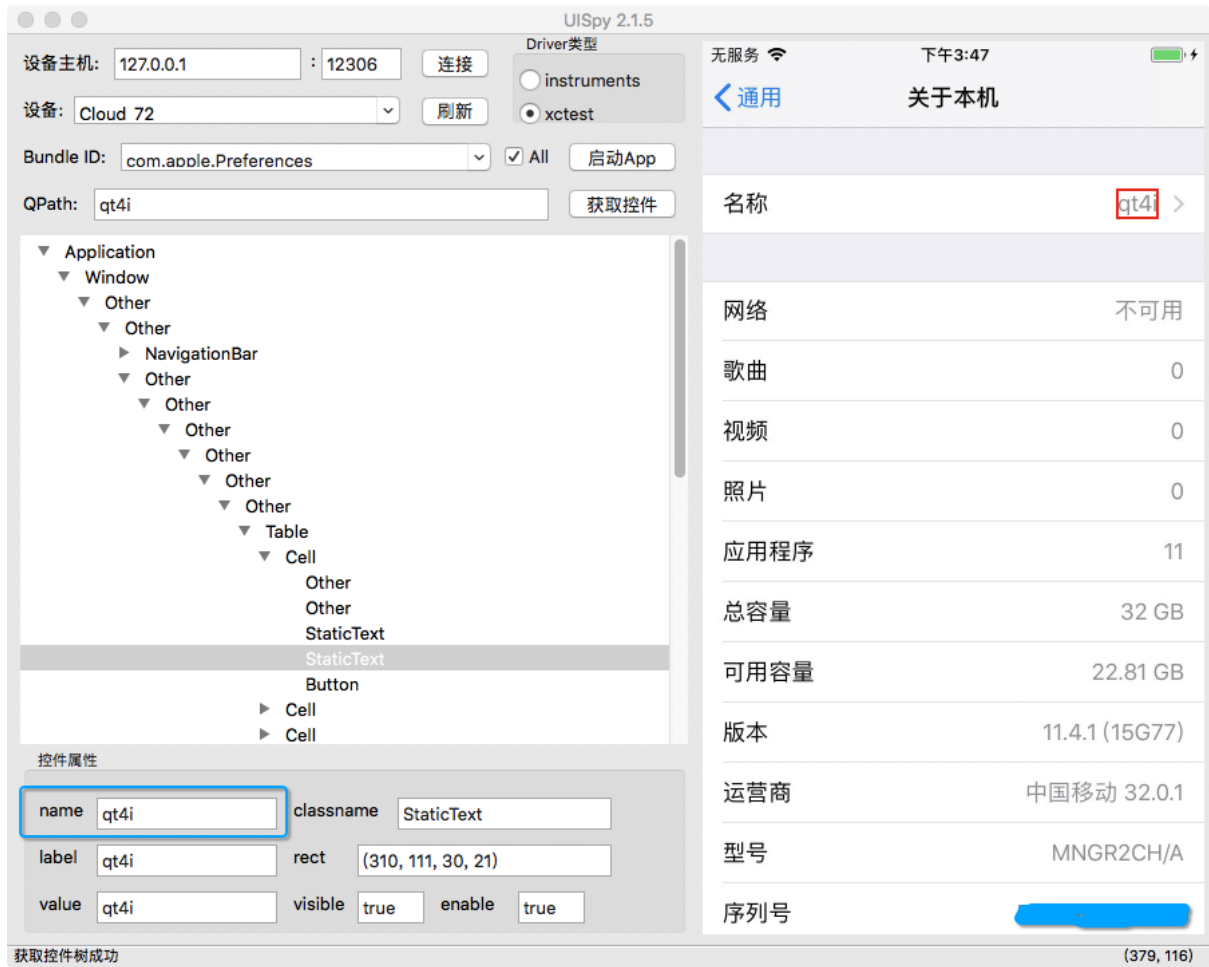
        locators = {
            'æŽt'âd'ŽăfaæAŕ': {'type': ElementïijŇ 'root':
↪selfïijŇ
                                'locator': QPath("/classname = 'Button' &
↪label = 'æŽt'âd'ŽăfaæAŕ' & visible = true & maxdepth = 11")}}ïijŇ
            'è¿ŠăĚěæaE': {'type': ElementïijŇ 'root': selfïijŇ
                            'locator': QPath("/classname = 'TextField' &
↪visible = true & maxdepth = 11")}}ïijŇ
            'âŖ■çğŕăĂij': {'type': ElementïijŇ 'root': selfïijŇ
                            'locator': 'qt4i'}}ïijŇ
        }

        self.updateLocator(locators)

    def modify_name(selfïijŇ name):
        '''
        '''
        self.Controls['æŽt'âd'ŽăfaæAŕ'].click()
        name_text_field = self.Controls['è¿ŠăĚěæaE']
        name_text_field.click()
        name_text_field.value = name
        name_text_field.send_keys('\n')
        return self.Controls['âŖ■çğŕăĂij'].exist()

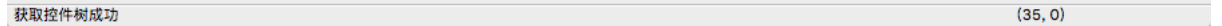
```

äžęçŤlă;Ňăy■çŽĐăĂŸâŖ■çğŕăĂijâĂŽăŸžă;ŇïijŇUISpyæšęçIJŇăŠŇëŎŭăRŮæŎğăžŭçŽĐQPath:



çŖEèğçUlçzŞædĐ

iOS UlçzŞædĐæIJĀād' ŪāsĆæŸrWindowiijNçDūāRŌæŸŕæŌğāzūéĀŖāsĆātNāēŪiijNèçAèőŁéŪőæNĜăōŽæ



- `Alert` widget class in `QtGui` namespace. `Alert` widget class in `QtGui` namespace. `Alert` widget class in `QtGui` namespace. `Alert` widget class in `QtGui` namespace.
- `Slider` widget class in `QtGui` namespace. `Slider` widget class in `QtGui` namespace. `Slider` widget class in `QtGui` namespace. `Slider` widget class in `QtGui` namespace.
- `ActionSheet` widget class in `QtGui` namespace. `ActionSheet` widget class in `QtGui` namespace. `ActionSheet` widget class in `QtGui` namespace. `ActionSheet` widget class in `QtGui` namespace.
- `TableView` widget class in `QtGui` namespace. `TableView` widget class in `QtGui` namespace. `TableView` widget class in `QtGui` namespace. `TableView` widget class in `QtGui` namespace.

4.3.3. Qt4i Documentation, 4.3.3

4.3.3. Qt4i Documentation, 4.3.3



2. æĈædIJlāy■ǎōŽăzL'çŽĐëğĐǎŁZăy■æzaëûşiiŋŇǎŁZæŃL'çĔğflag_alert_auto_handledèø¿ç;őçŽĐëğĐǎŁ
3. â¡Ş rules_of_alert_auto_handle èø¿ç;ïöÿžTrueiijŇâ¡EæYřáRŁăyŇæIJZæŞŘăyłaijżçłUçTšç
rules_of_alert_auto_handle äy■æúzăŁăăRłăŇěăŘńmes-
sage_textçŽĐëğĐǎŁZăôđçÖřăĂĈ

ä;£çŦłçd'žä;ŦăęĆăyŦ:

```

class DemoApp(App):
    '''èćńætŃAppă$žčśš
    '''

    def __init__(self, device, app_name=settings.APP_BUNDLE_ID,
↳ trace_template=None, trace_output=None):
        App.__init__(self, device, app_name, trace_template, trace_
↳ output)
        self.set_environment()
        self.start()

    def set_environment(self):
        '''éĚ■ç;ôèĠłâŁłâd'ĎčŘĚAlertâijžæaĚèğĎăĹŽ
        '''
        self.rules_of_alert_auto_handle = [

            # æťŃèřťèt'ęăŔŭ
            {
                'message_text' : 'æťŃèřťăŔŭćăA', #
↳ æťŔăŃăæ■čăĹŽèăĹèç;ăijŘ
                'button_text' : '^çăăăăžš' # æťŔăŃăæ■čăĹŽèăĹèç;ăijŘ
            },

            # éĂĂăĜžčŽžă;ť
            {
                'message_text': 'éĂĂăĜžčŽžă;ť',
↳ #ăśŔèť;éĂĂăĜžčŽžă;ťčŽĎèĠłâŁłâd'ĎčŘĚ
            },
        ]
        self.flag_alert_auto_handled = False

```

æslēgč: æĆcādIJaijzčtUècñád'DčŘEäzEiijNä;EæYřécDæIJščŽDæŎgäzúaGžčŎřæL;äy■āLřčŽDāIJzæŽřiiijN

1.5.2 ĄďŽćŁćńŕćŁ'źæǺğ

ǎd'ŽčzĹčnrčL'záĂgăYrăNĞâIĴlăRŃăyĂăylætNěrTçTłlă;Năy■ăĂăeoÿçTşeruad'ŽăRñOSèő;ǎd'GêŁZëaNæt

ǎžŤčŤíǎIžæŽr

ǎd'ŽčzLčnrčL'zæǞgéǞCčTlǎžŎǎd'ŽǎRrěočǎd'ĠǎzNéU'ǎ■RǎIJǎǎNǎLŔčŽDǎjNěŕTǎIJǎžZřiiJǎčǎNǎčCiiJŽ



ä;£çŦíæŬzæşŦ

ǎIǐǎtNèrTçǒŦlă; NăLZăzzăyĂăyĭæŨrçŽDDeviceărzēsajijNășçTșērūăyĂăRrçZŁçnrêō; ǎd' GĭijNăLZăzzăd' Žă
çTșērûçŽDcñnăyĂăRrêō; ǎd' GăyžæIJnăIJrēfđæŌēcŽDêō; ǎd' GĭijNăRŌç; ǎEűăzŪeō; ǎd' GăyžēfIJçnrçŽDǎ

```
from qt4i.device import Device

device = Device() #-----#
device2 = Device() #-----#
```

å■Rä¡Jèó¿åd'GçŽĐetĐæžŘéĚ■ç¡ó

ǎ■Rä;IJēō;ǎd'GčŽĐetĐæzŘěĚ■;ōæŮzæšTǎNLčĚğçTlā;NæLgēaNǎlǎaiRčŽĐäy■ǎRñijNǎLEäyžæIñǎIJ

æJñáJřerČerTčTlāzN

1. áJlāRä;IJMacæIJzāZlāyŁāRřāLÍDriver: èĚŘēāNāuēčlNčZōā;Tāy■manage.pyèDŽæIJñijNāS;āzd'āēČ

```
python manage.py qt4i.restartdriver -t xctest
```

2. áJlāIJñáJřMacæIJzāZlāyŁčŽDāuēčlNčZōā;Tāy■settings.pyæŮGāzūāy■éĚ■č;ōæ■ēēld'1āy■čŽDā■Rā

```
QT4I_REMOTE_DRIVERS = [{'ip': '10.68.64.128'},]
```

1.5.3 áĚĚātNwebviewčŽDēGłāLāNŮ

éŠLārZāĚĚātNwebviewčŽDiOS AppiijN QT4iæRřā;ZāZĚāyd'čg■UIèGłāLāNŮætNērTæŮzæāŁ:āšzāZōāŮŮ

āšzāZōāŮŮčTšæŮgāzūæāSčŽDætNērTæŮzæāŁ

āšzāZōāŮŮčTšæŮgāzūæāSčŽDætNērTæŮzæāŁāzšā■sæŁŁwebviewā;šāAžāŮŮčTšæŮgāzūiijNæNL'čĚgQT
āRřāRCèĀCUIāĚČčř'āārAēčĚ *UIāĚČčř'āārAēčĚāĀC*

āšzāZōH5ēātēlčDOMæāSčŽDætNērTæŮzæāŁ

æšlēgč:

āijĀāgNæIJñēŁČā■ēāzāāL■iijNērūčĚšæČŁ qt4w
āšzāčāčšēēřEiijNāRñæŮūāRCèĀČāĀŁēřČērTāĚĚātNWebVewāzTčTlāĀNāyĀēŁČāĚĚād'Gāē;iOSēč;ād'Ĝ
AppāAžēGłāLāNŮčŽDāĀŁdemoāĀNčd'žā;NiiNāRřā;ZāRCèĀČāĀC

āšzāZōāŮŮčTšæŮgāzūæāSčŽDætNērTæŮzæāŁāIJlæšRāžZætNērTāIJzæŽřāy■āRřēČ;ā■ŸāIJlāyĀāzZāy■ēū;
āzūæāSārijēĜt'āyĀāzZæŮgāzūāĚČčř'āāyčād'sč■Ł■LāĀČāZāæ■d'iijNæLSāznæRřāGzāZĚāšzāZōH5ēātēlč
čŽDæšēæŁ;āōZā;■iijNāy■ā;IēŮāŮŮčTšæŮgāzūæāSīijNāRřāzēæIJL'æŮLāIJřēgčāĚšāŮŮčTšæŮgāzūæāSčŽ

- éĀžēŁGæš■ā;IJāŮŮčTšæŮgāzūiijNēŁZāĚēH5ēātēlč
- āōdā;NāNŮIOSWebView
- āRĀēčĚWebPage
- éĀžēŁGWebPageēŁZēāNWebæŮgāzūčŽDæšēæŁ;āšNæš■ā;IJ

āōL'ēčĚQT4W

āIJlāōL'ēčĚāZĚQT4iāRŮiijNāēČædIJēIJĀēēĀēŁZēāNWebēGłāLāNŮætNērTīijNēŁŸēIJĀēēĀēŁZēŁĜpipāōL

```
pip install qt4w
```



```

from qt4w import XPath
from qt4w.webcontrols import WebElement, WebPage, ui_list

class LifePrivilegePage(WebPage):
    '''çĤæt'zçL'zæİČéąťéİć'''
    ui_map = {
        'éŽŘæŮúçęŘáĹĹ'áĹŮèąĹ': {
            'type': ui_list(WebElement),
            'locator': XPath('//div[@class="mod-list list-welfare"]/'
→ul/li'),
            'ui_map':{
                'ăŘ■çğř': XPath('//div[@class="info"]/h3'),
                'æŘŘèfř': XPath('//div[@class="info"]/p[1]'),
                'æĹŚèęAæĹć': XPath('//p[@class="surplus-time"]/'
→button')
            }
        }
    }

```

æşlēğç: webæŌğäzúçŽDXPathăŘřäzëéĂŽèĤĞèŤzæđĲăŏŸæŮžçŽĐăũčăĚũ Safari Technology Preview æşëçĲĲ

webæŌğäzúçŽĐæşëæĹĹăŞŇæŞ■ăĲĲ

ăĲĲăzŇçz■ăŏŇæĹŘwebviewăŏŽăzĹ'ăŞŇWebPageăŖAèçĚăzŇăŘŌĲĲĲŇæŌăyŇæĲăŖşçzŽăđ'ğăŏũèŏşèğçăĲăĲă

1. éęŮăĚĹèĤZăĚăAppçŽĐH5éąťéİć
2. áĹĲăğŇăŇŮwebview
3. äĲçĤĲă■čéĹđ'2ăy■çŽĐwebviewăĹĲăğŇăŇŮWebPage
4. äĲçĤĲăcontrol(ăĲŸæŌğäzúăŘ■ăĂŽ)çŽĐæŮžăĲĲăşëæĹĹwebæŌğäzú
5. âşzăžŌWebElementăŘŘăĲçŽĐæŌčăŘçèŮăŖŮwebæŌğäzúçŽĐăşđăĂğăŞŇăŖzwebæŌğäzúèĤZăăŇă

ăyŇéĲćçŽĐăžčçăAçĹĲăŏťăşĤçđ'žăžEwebæŌğäzúçŽĐæşëæĹĹăŞŇæŞ■ăĲĲçŽĐăĚăăĲşă■čéĹđ':

```

device = Device()
app = DemoApp()
app.enter_h5_page() # èĤZăĚăĚH5éąťéİć
webview = BrowserWindow(app).Controls['webview'] # Ĳ
→ăĹĲăğŇăŇŮwebview
page = LifePrivilegePage(webview) # Ĳ
→ăĹĲăğŇăŇŮWebPage
for elem in page.control('éŽŘæŮúçęŘáĹĹ'áĹŮèąĹ'): # Ĳ
→æŞëæĹĹ'ç'éŽŘæŮúçęŘáĹĹ'áĹŮèąĹ'
    name = elem.control('ăŘ■çğř').inner_text

```

(continues on next page)

```
description = elem.control('æŘèłř').inner_text
```



2. 来自WLoginSDK的强烈提醒
3. 你使用的是一个测试号码。



如何设置 Qt4i 的无障碍功能

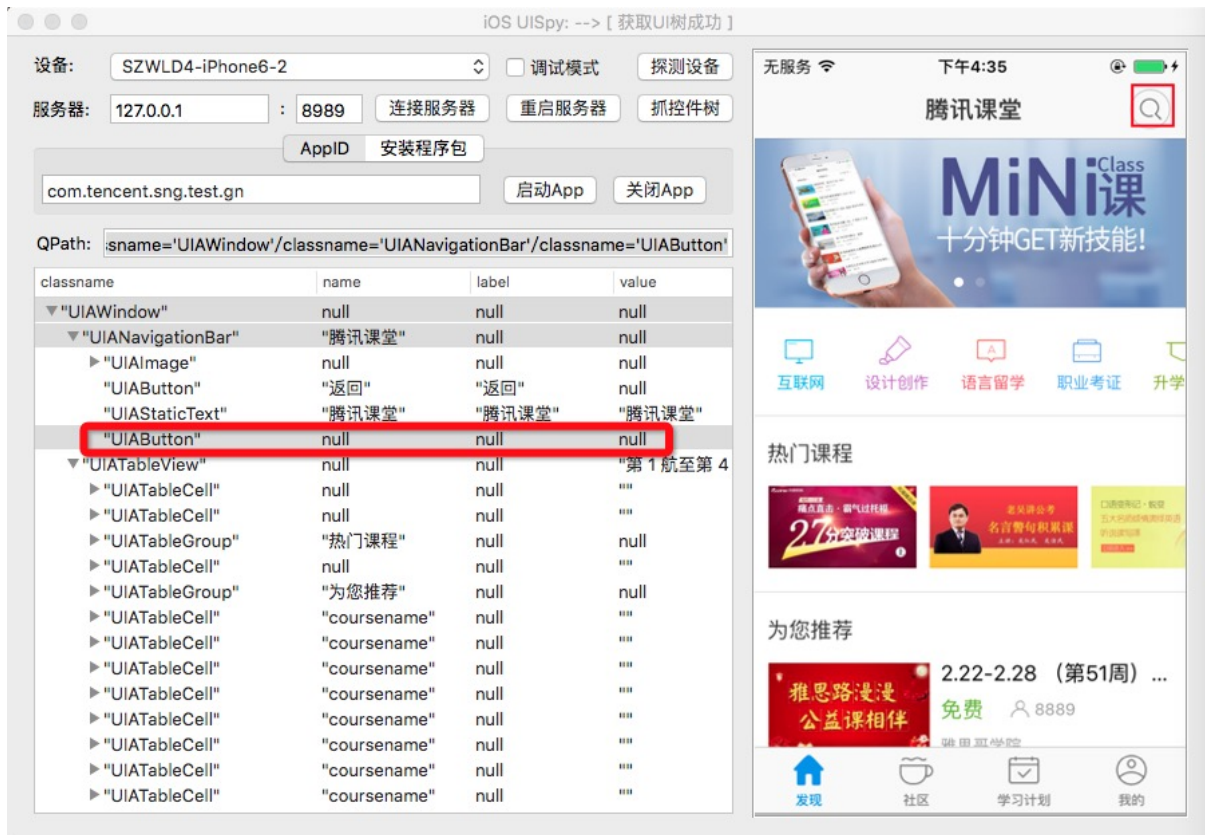
在 iOS 设备上，您可以通过以下步骤设置 Qt4i 的无障碍功能：

- 打开“设置”应用。
- 点击“辅助功能”。
- 点击“语音控制”。
- 将“语音控制”开关打开。
- 按照屏幕上的提示进行设置。

完成以上步骤后，您就可以使用语音控制来操作 Qt4i 应用了。

- æŒğăžŭçşăđŇăŸ■ēČ;ǎŦŕăŸĂăăĜērĒæŒğăžŭ:

QPath: /classname=ǎĂŸUIAWindowǎĂŽ/classname=ǎĂŸUIButtonǎĂŸ



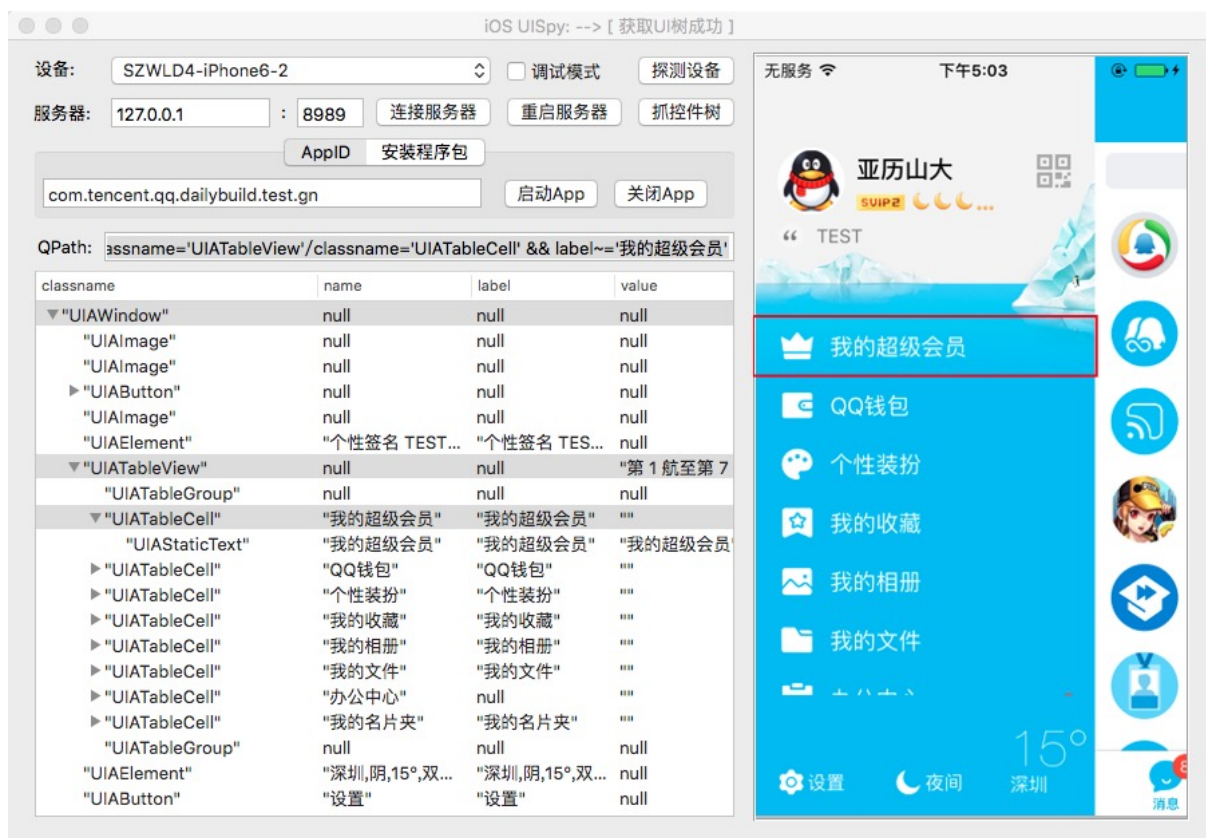
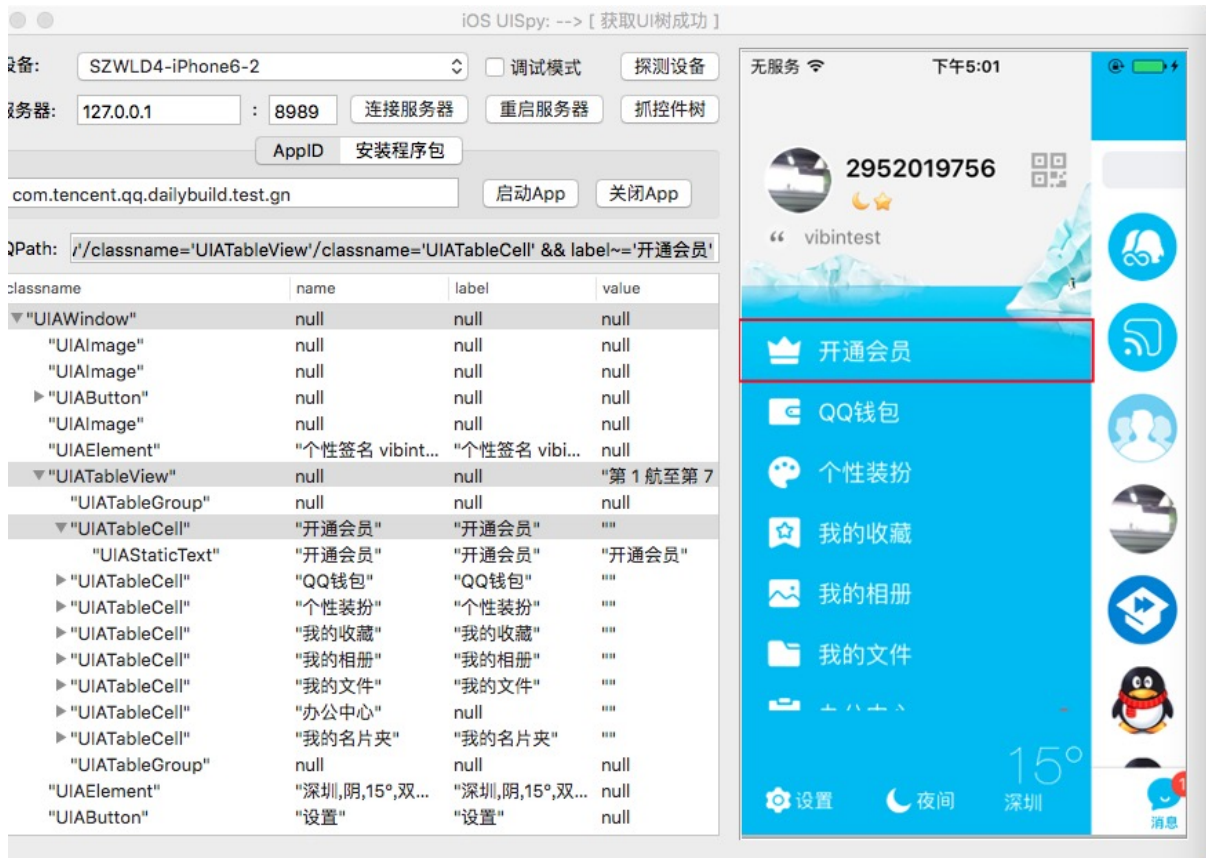
ǎĂŖēğčǎĒşæŰzæşŦǎĂŦiOS AppăžččǎĂăŸ■ēŒ;ç;ŒăŒğăžŭçŽĐaccessibilityIdentifierǎşđæĂĝŕijLēğĂăŸŇǎŽç; çăžččǎĂŕijLŕijŇ çşşǎŦLæŒğăžŭçşăđŇǎŦŇæŒğăžŭnameǎşđæĂĝă;IJăŸzæŒğăžŭçŽĐQPathǎĂČ

customView.accessibilityIdentifier = @"ǎŦIJçŦ'ć";

ēŒ;ç;ŒăŦŒçŽĐQPath: /classname=ǎĂŸUIAWindowǎĂŽ/
→classname=ǎĂŸUIButtonǎĂŸ & name=ǎĂŸǎŦIJçŦ'ćǎĂŽ

- æŒğăžŭçŽĐlabelǎşđæĂĝăŦLæĂăŦŕŸǎŦŰ:

QPath:
/classname=ǎĂŸUIAWindowǎĂŽ/classname=ǎĂŸUITableViewǎĂŽ/
→classname=ǎĂŸUITableViewCellǎĂŽ & label=ǎĂŸǎijĂéĂžăijžǎşŸǎĂŽ
/classname=ǎĂŸUIAWindowǎĂŽ/classname=ǎĂŸUITableViewǎĂŽ/
→classname=ǎĂŸUITableViewCellǎĂŽ & label=ǎĂŸǎŦŦçŽĐăijžǎşŸǎĂŽ
/classname=ǎĂŸUIAWindowǎĂŽ/classname=ǎĂŸUITableViewǎĂŽ/
→classname=ǎĂŸUITableViewCellǎĂŽ & label=ǎĂŸǎŦŦçŽĐēŰĒçžăijžǎşŸ'



ãĀŘëğcãEşæŮzæşTãĀŚApppäzčçãÄäy■ëö¿ç¿öæŌğäzúçŽDaccessibilityIdentifierãđæĂgüijLëö¿ç¿öæŮzæşTãĀ

1. æYãârĎäyžnativeæŒğăžũčŽĎæŰžaijRijŽæIJL'textæăĢčŽĎijNaccessibilityLabelèĠăĹĹčžğæL'ŕte
labelăšđæĂğășăRřăĂĈ

<div id="fkbx-hspch" tabindex="0" aria-label="æ■čāIŬlæŦŭāŘñ"></div>

1. `ajjYäĚĹēøç;ç;øiOSæŒgäzũçŽĐaccessibilityIdentifieräšdæÄgrijĹæŒgäzüidrijĹrijNäzüârEäĚüa;IJayžQI`
2. `iOS AppçŽĐUIäyççTŒéicçŽĐäĚëäRçæŒgäzüäĹŪëÄĚéÄžçŦĹæŒgäzüçŽĐaccessibilityIdentifieräšdæÄgär;éGRäZžäNŪäyNæĹërijNäŦĹæNÄäy■äRŸrijNäçNäçCrijŽ iPhoneQQäy■çŽĐäijŽäSŸäĚëäRçæŒgäzüäÄÄAIOäijŽerŦçŦŪäRççŽĐæŦäŽdæNĹéšøç■ĹrijŽ`
3. `äržäžŒhybrid App, äjjYäĚĹēÄÇèŽSéGççŦĹQT4WërEäĹnWeb ViewrijNäŦĹerAWebViewçŽĐæäGécŸä`

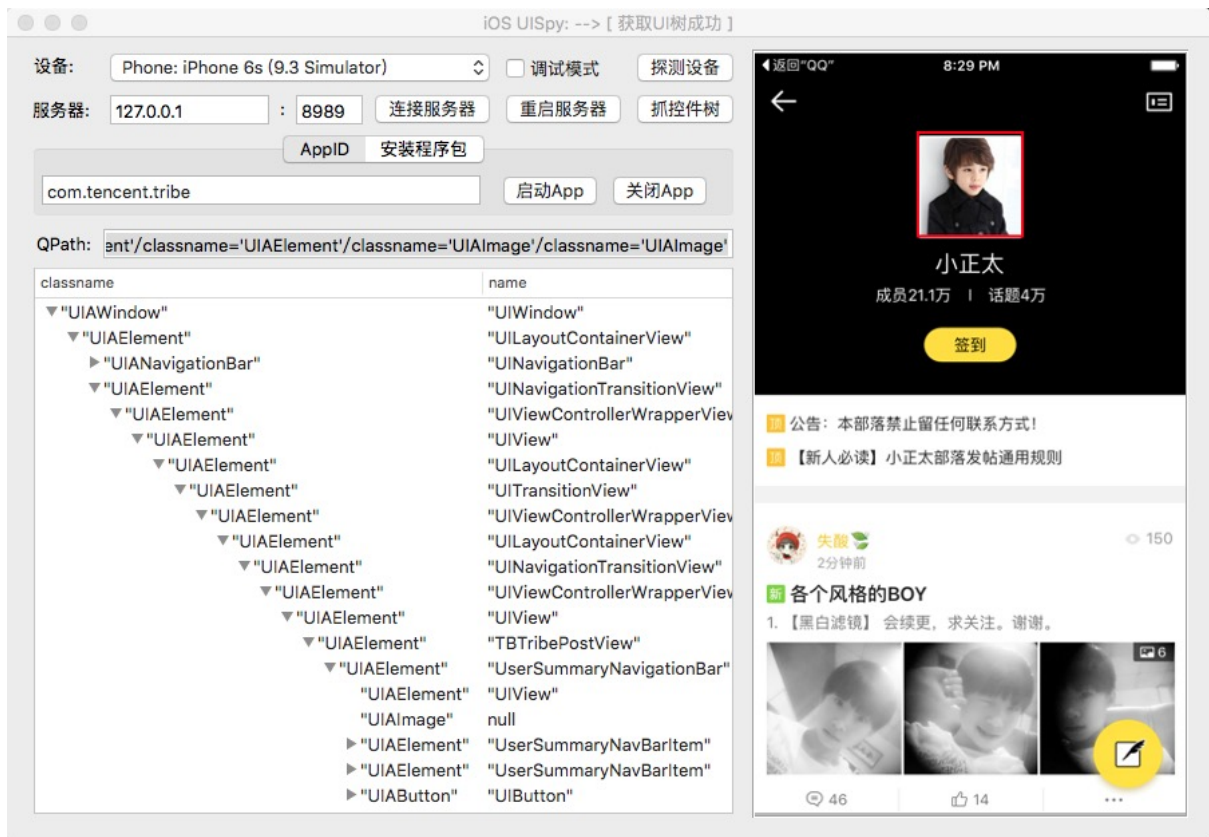
```
- (void)swizzled_viewDidAppear:(BOOL)animated
{
    // èřČčŤĺăŎŠæŮžæşȚ
    [self swizzled_viewDidAppear:animated]; //␣
    ↪ æ'd'äd'Däy■æŸrĖĂšă;ŞèřČčŤĺii jNăIŢÍèŁŘèąNæŮűäijžěćnæŽfx■cælŔăŎŠæŮžæşȚ
    // æL'l'ášȚălŞëÇ;ii jNæ■d'äd'DăzĚæL'Şă■řæŮěăfŮ
    NSLog(@"swizzled:%0", NSStringFromClass([self class]));
}
```

- 42

- ```
+ (void)load
{
 SEL origSel = @selector(viewDidAppear:);
 SEL swizSel = @selector(swiz_viewDidAppear:);
 static dispatch_once_t onceToken;
 dispatch_once(&onceToken, ^{
 [UIViewController swizzleMethods:[self class]_
originalSelector:origSel swizzledSelector:swizSel];
 });
}
```

äzŇčz■æŎğäzúidçŽĐçŤşæŁŘèğĐǎŁŽ

43



- ǎŽăæ■d'īijŇéĀL'æŇŕǎŕĹéĀĈĉŽĎidĉŤšæĹŖëğĎĀĹŽǎŕsæŸĹ;ǎĹŮǎrd'ăŷžéĜ■èĉAīijŇăĔă;ŞëğĎĀĹŽæŇĹăijŸ
1. IdīijĹaccessibilityIdentifierīijL'ăŷ■ăŷžĉĹ'žīijŇăžšǎ■şidăĔĔăǎžǎĬĹăžĉĉăAăŷşĉžŖëðĹĉ;ōīijŇĉŽŕ'æŌëèŤŦ
  2. èŇëidăŷžĉĹ'žīijŇăĹŽéĀL'æŇŕŮiæŮŌğăžăăđăĹŇĉŽĎăŕŸéĜŕăŕ■ăĬJăŷžæŮŌğăžăŷidīijŇăĔă;ŞëŌăăŕŮ

```

- (NSString *)getVarNameWithInstance:(UIView *) instance {
 unsigned int numIvars = 0;
 NSString *key=nil;
 Ivar * ivars = class_copyIvarList([self class], &numIvars);
 for(int i = 0; i < numIvars; i++) {
 Ivar thisIvar = ivars[i];
 const char *type = ivar_getTypeEncoding(thisIvar);
 NSString *stringType = [NSString stringWithCString:type_
→encoding:NSUTF8StringEncoding];
 if (![stringType hasPrefix:@"@"]) { //
→èĹĜăžd'æŌĹ'éİđŌĈĉşžăđŇ
 continue;
 }
 if ((object_getIvar(self, thisIvar) == instance)) {
 key = [NSString stringWithUTF8String:ivar_
→getName(thisIvar)];
 break;
 }
 }
 free(ivars);
 return key;
}

```



- 扩展QT4i Stub

## 扩展QT4i Stub



在扩展QT4i Stub时，需要实现以下接口：

```

qt4i.device.Device.download_file

```

1. 实现QT4i Stub接口

```

- (BOOL) createFile:(NSString *)filename withPath:(NSString *)path
 size:(NSInteger) size
{

}

```

在实现QT4i Stub时，需要实现以下接口：

```

- (BOOL) application:(UIApplication *)application
 didFinishLaunchingWithOptions:(NSDictionary *)launchOptions {

}

```

- 实现QT4i Stub接口

在实现QT4i Stub时，需要实现以下接口：

```

#import <QT4iStub/QT4iStub.h>

@implementation AppDelegate

- (BOOL) application:(UIApplication *)application
 didFinishLaunchingWithOptions:(NSDictionary *)launchOptions {

 ViewController * vc = [[ViewController alloc] init];

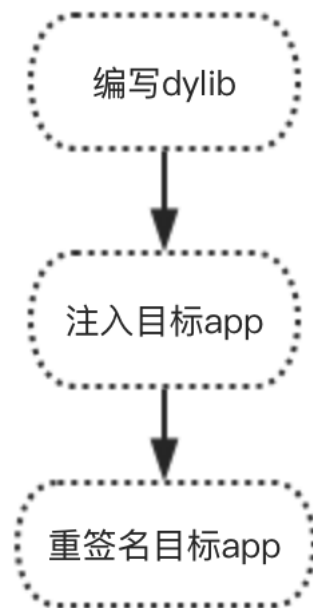
 [self.window makeKeyAndVisible];
 [[QT4iManager sharedManager] startExplorer]; //
 return YES;
}

```

在实现QT4i Stub时，需要实现以下接口：

- 实现QT4i Stub接口

çTšäyŁéÍcāRřçšěāLíæĀAæRŠæal'ijNæYřéŠLárzæšæIJL'æžŘçăAçŽDæČĚāEřijNéĀŽèŁGăũěāĚũçTšæLŘ



- āLăăĚěäyŁèŁræL'āsTāRŎçŽDframeworkijNāLŭä;IJdylib
- æšlāĚěçŽōæăGappijNăĬērAçŽōæăGāRrāLíæŬüäijŽāLăè;hookçŽDāLíæĀAăžŠ
- éĜ■;āR■ŽōæăGappijNăĬērAăŁōăTžāRŎçŽDappèČ;āIJléİdèŭŁçNšçŽDæL'NæIJžäyŁèČ;ăŁ'èčĚ

āIJlæRŠæal'ăŎšçŘĚäy■äijŽāržāLíæĀAæRŠæal'ăAžēřçžĚērt'æYŎăĂĆ

3ăĀAéĀŽèŁGăIJçTlă;Năy■ērČçTlqt4iæRŘă;ŽçŽDéĀŽçTlæal'ērČçTlæŎěāRčijŁçăŁăĬăijăăĚěæŬzæşTāR  
StubæL'āsTçŽDæŬzæşT:

```

def download_file(self, file_url, dst_path):
 '''ăžŎç;ŠăyŁăyNè;æNĜăŎŽæŬĜăžŭăĬræIJnăIJř

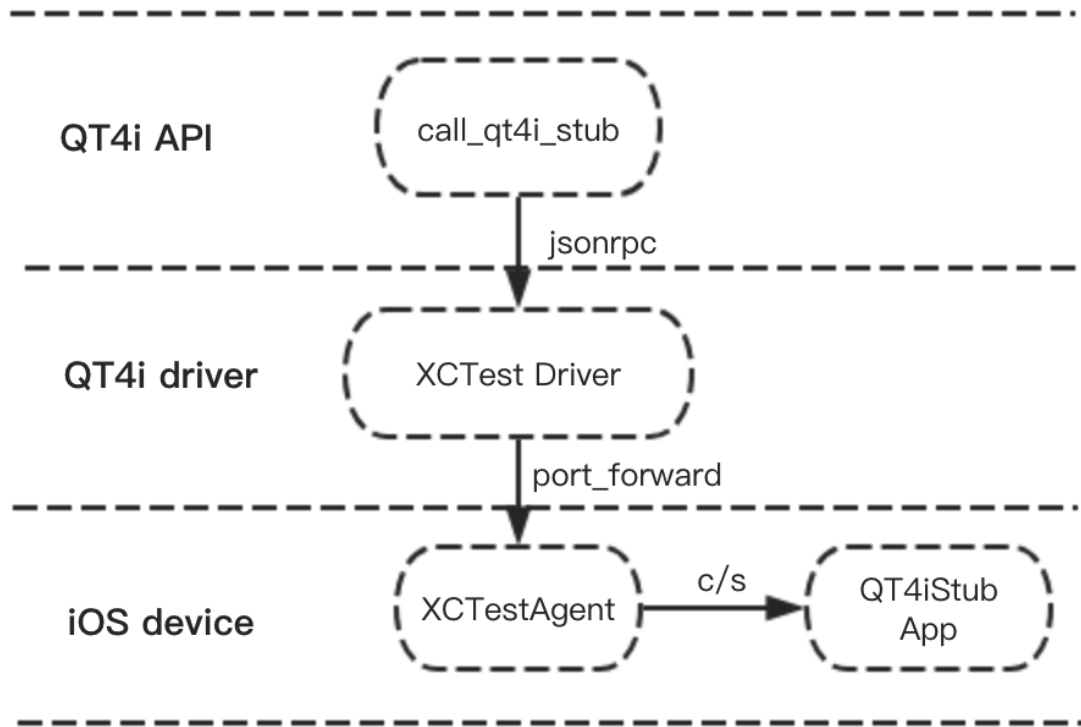
 :param file_url: æŬĜăžŭçŽDurlèŭră;ĎiijNæTřæNăhttpăŠNhttpsèŭră;Ď,
 →éIJĀèçAărzappæRŠæal'
 :type file_url: str
 :param dst_path:
 →æŬĜăžŭăIJlæL'NăIJžäyŁçŽDă■YăĆÍèŭră;ĎiijNă;NăçĈiijŽ/Documents
 :type dst_path: str
 '''
 method = 'createFile:withPath:size:'
 params = [file_url, dst_path, 1]
 self.call_qt4i_stub(method, params)

```

æşlēğç: QT4i StubæYřāRræL'āsTçŽDijNăRlėIJăNLçĚğäyŁèŁrætAçĬNijNăŏđçŎræL'ĂéIJăæŬzæşTijN

## æŕŠăŷĈăŎŝĉŔĚ

æIJăăŔŎĭĭjNăzNĉz■QT4iéĂŽĉŦĭæŕŠăŷĈăŷĎăŏđĉŎŕăŎŝĉŔĚĭĭjNăŧAĉĬNăŽĭăĉCăŷNĭĭjŽ



QT4iæăĚăđŭëŏĭëŏăĉĜĭăŷĹëĂNăŷNăŷŕAPIăŝCăĂAđriverăŝCăŠNđeviceăŝĈ:

éŠĹăŕăŷæŕŠăŷĈăŷĭĭjNăĬĬAPIăŝCăŔŔăĭŽcall\_qt4i\_stubăŰăŷĤĭĭjNăĭĭjăăĚăŕCăŦŕăŠNăŰăŷĤăŕ■ăĹŰĉŝăĹă  
ăĬĬĭOSëŏĭăđ'ĜăŷĹĭĭjNXctestAgentăĬJăŷĹclientĉŕĭĭjNăŕĚăĚăăŕăŔŖŖŖĂăĉăŽZAPPăĹăĉĭĭ;ăŰăŕăŕăĹĭĉŽĎQT  
ServerĉŕĭĭjNăžŎëĂNĉĭăĹŕĕŕĈĉŦĬAPPëĚŽĉĬNăĚĚĉŽĎăŰăŷĤĉŽĎĉŽĎăĈ

ëĚŽéĜNĭĭjNĉĬĂéĜ■ăzNĉz■ăŷNăĹăĂăæŕŠăŷĈăŷĎăŷĈŔĚĭĭjNăžăŷĹëĹCăĹŦăŝŦéĂŽĉŦĭæŷĈăŷăĭN:

ăŝă éĉŰăĚĬĭĭjNéĂŽëĚĜăŭëăĚŭăĂĹtheosăĂNăĹŰăĂĹMonkeyDevăĂNăĹZăžĭOS  
tweakăŭëĉĬNĭĭjNăžëtheosăŷăĭNĭĭjŽ

```

➔ ~ - ~/theos/bin/nic.pl
NIC 2.0 - New Instance Creator

[1.] iphone/activator_event
[2.] iphone/application_modern
[3.] iphone/cydyget
[4.] iphone/flipswitch_switch
[5.] iphone/framework
[6.] iphone/ios7_notification_center_widget
[7.] iphone/library
[8.] iphone/notification_center_widget
[9.] iphone/preference_bundle_modern
[10.] iphone/tool
[11.] iphone/tweak
[12.] iphone/xpc_service
Choose a Template (required): 11
Project Name (required): demoweak
Package Name [com.yourcompany.demoweak]: com.tencent.demotweak
Author/Maintainer Name [HellerTang]:
[iphone/tweak] MobileSubstrate Bundle filter [com.apple.springboard]:
[iphone/tweak] List of applications to terminate upon installation (space-separated, '-' for none)
[SpringBoard]: -
Instantiating iphone/tweak in demoweak/...
Done.

```

**æslēgč:** ä;Täyztweak? Tweakåóðet'läyLæYriOSázšåRřčŽDåLlæĀAāžŠiijNāžedylibèŁŻçg■ā;ćaijRā■YāIłiij  
äyŃčŽD .dlliiijNLinux äyŃčŽD .soāĀĆäyŌéIŽæĀAāžŠčŽyāR■iijNāLlæĀAāžŠāIłčijUērSæŪūāžūäy■aijŽecr

çĐũãŘŎiĵŇãřĚæĹĲ'ãšŤçŽĐQT4iStub frameworkãĹããĚëãĹřäýĹãŽçŤšæĹŘçŽĐtweakãũëçĹŇäý■çŽĐiĵŇãĹ  
çãöãĹĲappaŘřãĹĹãŮiĵŇãŘřãĹĹãŘšæãĲ'çŽĐserver:

```
#import <QT4iStub/QT4iStub.h>
#import <objc/runtime.h>

__attribute__((constructor)) static void entry() {
 NSLog(@"QT4iManager starting...");
 [[QT4iManager sharedManager] startExplorer];
}
```

æCædIJeIJĂeçAhookæžŘčAäy■čŽDæšŘäyľæŮzæšTijjNăRărzěä;ŁçŤltheosæRŘă;ŽçŽDäyĂăeŮăĂŁLogos

```
%hook AppDelegate

// Hooking an instance method with an argument.
- (void)applicationDidEnterBackground:(UIApplication *)application {
 NSLog(@"App entered background!!!");
 %orig; // Call through to the original function with its
 ↪original arguments.
}

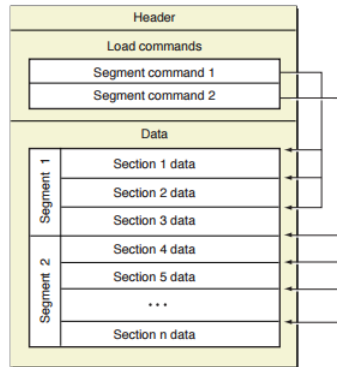
%end
```

ǎRĕIJǎZt æŎěaIJtweakũečĭNǎyNéIcmakeävǎyNĭijNǎ; ǎRǎzēcTšæLRæL'ǎeIJǎZǎdylibæŬGǎzúcZĭ

**æslēgč:** ä;TäyžLogosiišāIJÍLogosāŚ;äzd'eČŇāRŎiiĴŇtheosāōŽāzL'āžEäyÄçşzāLŰÇŽDāōRāŚŇāĜ;æTŗiiĴŇ  
cçŽDruntimeçL'zæĀğælēæŽ£■cçşzçzşæLŰèĀĖçŽōæāĠappçŽDāĜ;æTŗ(Method Swiz-  
zlingĵiiĴŇāzŎèĀŇāōđçŎrārzcŽōæāĠappçŽDhookāĀČ

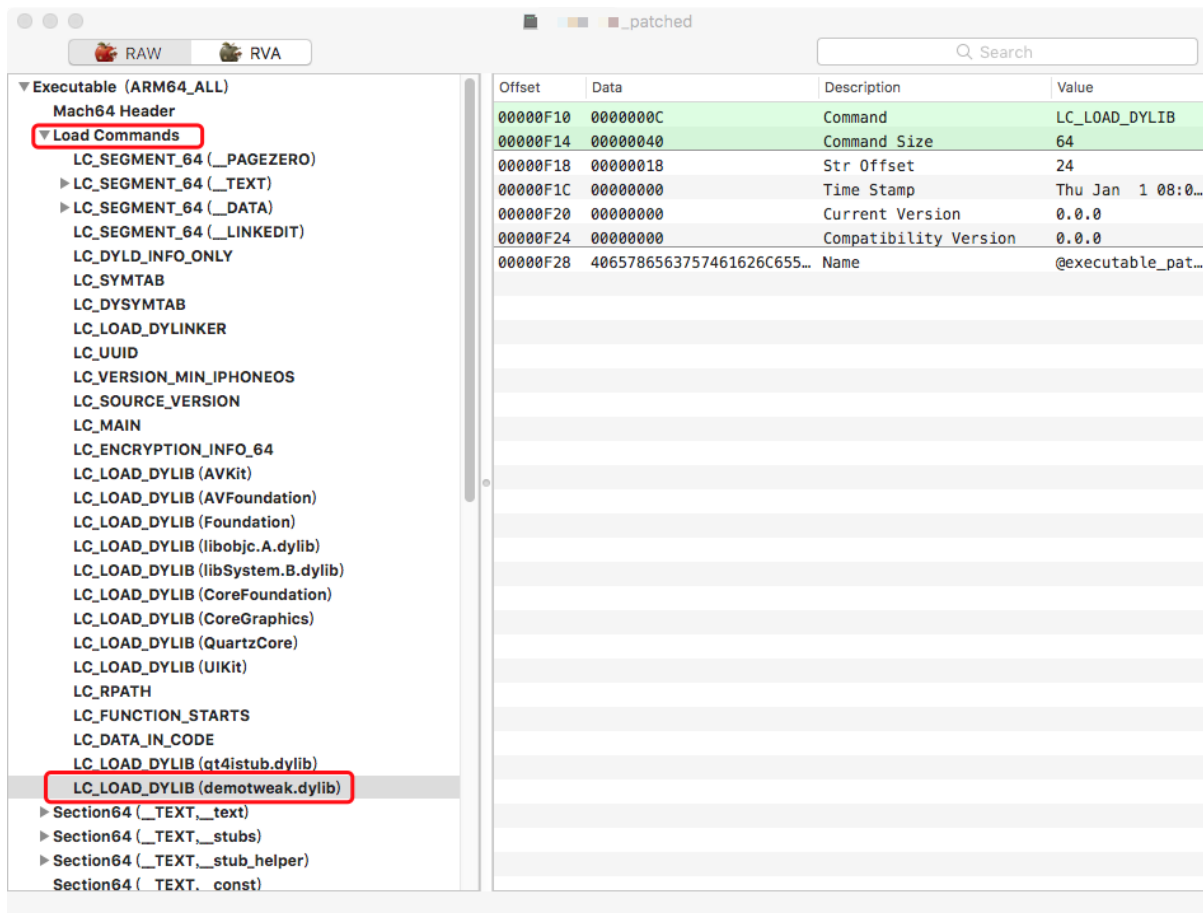
âŞă äyžăẼĖäſİerAçZõæǻGappèŁŘèąÑæŮúǎŁăèj;çTşæŁŘçŽDdylībīijÑāſĚéazăſİerAappäy■ǎYǎĆıəIJL æÑ  
ǎIJǎſôæTżăzÑǎL■īijÑǎĚŁăẼğçăyŊiOSăy■Mach-OǎRřæL'gèąÑæŮĞăzûçŽĐăījājīRīijÑăēĆăŻ;

Figure 1 Mach-O file format basic structure



- Mach-Oad't' éČłiijŁmach headeriijL':æŘŘèřřäZĚMach-OčŽĎcpuæđũæđDāĀAæŮĜäzũčšzādŇäzěăŘŁăŁăèĵĵăŚĵăzd'č■L'ăăqæAřăĀĆ
- ăŁăèĵĵăŚĵăzd'iijŁload commandiijL':æŘŘèřřäZĚæŮĜäzũäŷ■æŤřæ■čŽĎăĚũăĵšczĎčzĜczšæđĎiijŇäŷ
- Data: Dataäŷ■čŽĎæřŘäŷłæŏiijŁsegmentiijL'čŽĎæŤřæ■ŏčČĵăřĬăŸăĬJĲēřŽēĜŇiijŇăŏččŽĎæčĀłřäŷ

äZËëġčăžËMach-OæŮĠăžũăĭjăĭjŔăŔŎĭjŊă;£æŸŎçŽ;æĹŚăžňăŔĹéIJăăIJĹçŽŏăăĠappçŽĎăŔŕæĹ'gèaŊăŮ  
CommandéĹăĹĚæũăžăĹăăŸăăŸăĹăĹă;ĭăŚ;ăžďLC\_LOAD\_DYLIBæŊĠăŔŚçŤşăĹŔçŽĎdylibĭjŊă;£ăŔŕăžă



âŞc æIJĀăRŌă;ŁçŤlĕrAăžęăržăyŁęŁřæŨĠăžăűęŁZęăŃęĠă;ăŖăăřăăRăžęăžEĭĭjŃęĠă;ăŖăăűęăĚűă;Ĺăđ' app-signerăĂŃăŞă;IJăăĕĕł'ăęĆăyŃĭĭŻ

- ä;£cŦlcodeſign -fs +ërAäze + dylibaŠ;äzd'iiiŦärzçŦſæLŦdylibèfZèaŦèĜ■c■;år■iiŦZ

- `app` is a `QObject` derived class that inherits from `QObject` and `QAbstractNativeEventLoop`. It is a subclass of `QObject` and `QAbstractNativeEventLoop`. It is a subclass of `QObject` and `QAbstractNativeEventLoop`.
- `app` is a `QObject` derived class that inherits from `QObject` and `QAbstractNativeEventLoop`. It is a subclass of `QObject` and `QAbstractNativeEventLoop`.

**Example:** `app` is a `QObject` derived class that inherits from `QObject` and `QAbstractNativeEventLoop`. It is a subclass of `QObject` and `QAbstractNativeEventLoop`.

## 1.6 Q&A

For more information, see the [FAQ](#) page.

### 1.6.1 3.3.1

3.3.1 is a `QObject` derived class that inherits from `QObject` and `QAbstractNativeEventLoop`. It is a subclass of `QObject` and `QAbstractNativeEventLoop`.

```

rn -builtin -outdir /private/var/folders/rs/84z2dj6972xcmh8kbcmp2s800000gn/T/pip
-install-_nSzsQ/m2crypto/M2Crypto -o SWIG/_m2crypto_wrap.c SWIG/_m2crypto.i
SWIG/_m2crypto.i:54: Error: Unable to find 'openssl/opensslv.h'
SWIG/_m2crypto.i:60: Error: Unable to find 'openssl/safestack.h'
SWIG/_evp.i:12: Error: Unable to find 'openssl/opensslconf.h'
SWIG/_rc4.i:5: Error: Unable to find 'openssl/opensslconf.h'
SWIG/_ec.i:7: Error: Unable to find 'openssl/opensslconf.h'
error: command 'swig' failed with exit status 1

```

```

if (PyType_Ready(tp) < 0)
 ^~~~~~
SWIG/_m2crypto_wrap.c:2911:10: note: uninitialized use occurs here
 return res;
 ^~~~
SWIG/_m2crypto_wrap.c:2887:5: note: remove the 'if' if its condition is always false
 if (PyType_Ready(tp) < 0)
 ^~~~~~
SWIG/_m2crypto_wrap.c:2868:10: note: initialize the variable 'res' to silence this warning
 int res;
 ^
 = 0
SWIG/_m2crypto_wrap.c:3541:10: fatal error: 'openssl/err.h' file not found
#include <openssl/err.h>
 ^~~~~~
1 warning and 1 error generated.
error: command 'cc' failed with exit status 1

```

For more information, see the [FAQ](#) page.

## MacOSX

Apple does not provide on more recent versions of Mac OS X (at least certainly [since 10.11](#)) install third party packages. A Mac OS X users suggested, that this series of commands ga

```
$ brew install openssl && brew install swig
$ brew --prefix openssl
/usr/local/opt/openssl
$ LDFLAGS="-L$(brew --prefix openssl)/lib" \
CFLAGS="-I$(brew --prefix openssl)/include" \
SWIG_FEATURES="-I$(brew --prefix openssl)/include" \
pip install m2crypto
```

### 1.6.2 æL'NæIJçşžçž\$aijzæaE

åŘráĹÍAPPåd'sèt'ëijNæŁěåŚŁäy■æŸçd'žéŤŽèrråäEæăĹ:

```
Fault: <Fault 1: <type 'exceptions.Exception':DeviceDisabled>
```

æšëçIJNæĹăŽ;



èğčǎEşæŮzæşT:

ǎžžǎũěçĆzǎĜzæŃL'éŠõǎǎIJǎě;ǎǎİrijŃǎĖşéŮ■ǎijzæǎE

### 1.6.3 çİŚçZIJéŮőécŸ

çŤlǎĭŃçZzǎ;Ťǎd'sèt'ě



èġčăEşæÚzæşŦ:

æčĂæşěæL'NæIJžWiFièŁđæŎěæŸrăŘæ■čăŸŷiijNăęĆæđIæIJlèŁđæŎěçŸŚçzIJiijNěIJĂèęAæL'NăLléČ■èŁđæ

### 1.6.4 MacèġčæđRhostnameăijČăŸŷ

èŁŘèąNăĠžçŎřăžěăŸNéŦŽèřř:

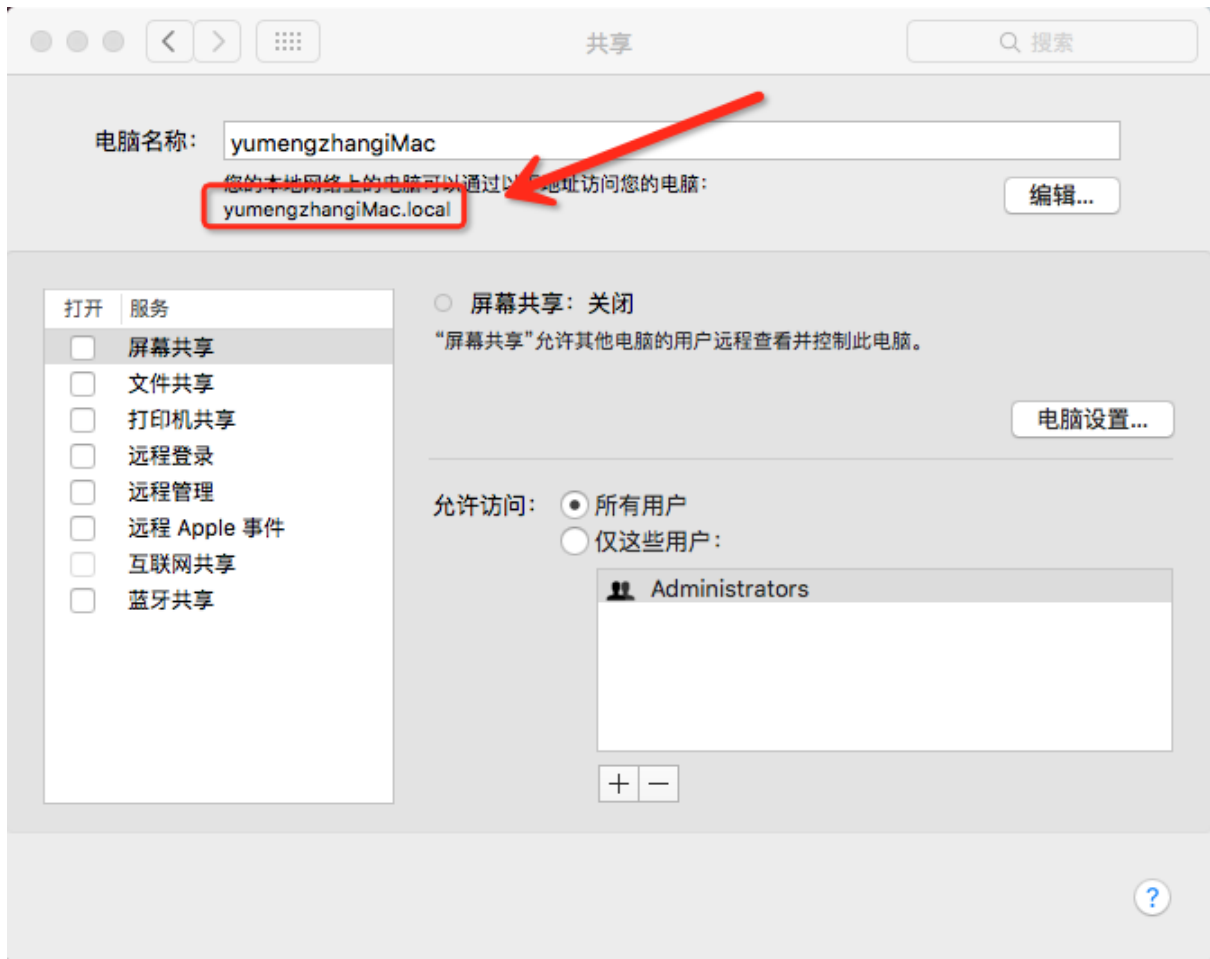
```

Search Console History
<terminated> /Users/zhaojingjing/Documents/eclipse-workspace/iPhonePCQCTest/debug/start.py
Traceback (most recent call last):
 File "/Users/zhaojingjing/Documents/eclipse-workspace/iPhonePCQCTest/debug/start.py", line 6, in <module>
 from qt4i._driver.driverserver import DriverManager
 File "build/bdist.macosx-10.11-intel/egg/qt4i/_driver/driverserver.py", line 36, in <module>
 socket.gaierror: [Errno 8] nodename nor servname provided, or not known

```

错误信息:

- 错误信息: [Errno 8] nodename nor servname provided, or not known



```

caseloader -bash - 80x24
[yumengzhangMac:caseloader yumengzhang$ hostname
yumengzhangMac.local
yumengzhangMac:caseloader yumengzhang$

```

- 错误信息: [Errno 8] nodename nor servname provided, or not known
- 错误信息: [Errno 8] nodename nor servname provided, or not known

```
$ sudo scutil --set HostName newName.local
```

- 错误信息: [Errno 8] nodename nor servname provided, or not known
- 错误信息: [Errno 8] nodename nor servname provided, or not known



(çz■äyŁéąŧ)

```
File "build/bdist.macosx-10.13-intel/egg/qt4i/driver/xctest/
→agent.py", line 287, in start
 self._tcp_relay()
File "build/bdist.macosx-10.13-intel/egg/qt4i/driver/xctest/
→agent.py", line 205, in _tcp_relay
 raise self._relay_error
error: [Errno 48] Address already in use
```

èġčåĖşæŮžæşŦ ïijŽ

âŠăăRréĂŽèŁĠăŚĵăzd'æšęçIJN8100çnrăRčècńăŠłăyłèřŻçłNă■ăçTł:

```
$ lsof -i :8100
```

âŠąæăžæ■œ£ŽčlŃPID iijŃkillæŎL'ă■ăçŤlè£ŽčlŃ:

```
$ kill -9 ïïjŁè£ŽçĺŃPIDïïjL'
```

âŠcéĜ■æŮřèŮŠčŤlă;Ńă■șăŔrăĂĆ

### 1.6.6 UISpyè£đæŎěåd'sèt'ěæŁěéŤŽ

æL'ŞaijÄUISpyijŇçĆzãĞzè£đæŎëijŇæŁěéŤŽ:

```
File "build/bdist.macosx-10.13-intel/egg/qt4i/driver/rpc.py", line 64, in _dispatch
 return m(*params)
File "build/bdist.macosx-10.13-intel/egg/qt4i/driver/rpc.py", line 41, in __call__
 return self.method.__get__(self.instance, self.owner)(*args, **kwargs)
File "build/bdist.macosx-10.13-intel/egg/qt4i/driver/host.py", line 65, in list_devices
 return DT().get_devices()
File "build\bdist.win32\egg\testbase\util.py", line 158, in __call__
File "build/bdist.macosx-10.13-intel/egg/qt4i/driver/tools/dt.py", line 77, in __init__
 self.xcode_version = DT.get_xcode_version()
File "build/bdist.macosx-10.13-intel/egg/qt4i/driver/tools/dt.py", line 96, in get_xcode_version
 raise Exception('get_xcode_version error:%s' % e.output)
Exception: get_xcode_version error:xcode-select: error: tool
'xcodebuild' requires Xcode, but active developer directory '/
Library/Developer/CommandLineTools' is a command line tools
instance
```

åŠ;äzd'èaÑäv■åRræšëcIJŃçszçšéZŸèód'XCodeåöL'èčĚëûrå;Ď:

```
$ xcode-select -p
/Library/Developer/CommandLineTools
```

安装 Xcode 的默认位置:

```
/Applications/Xcode.app/Contents/Developer
```

验证安装:

安装 Xcode 的默认位置:

```
$ sudo xcode-select -s +Xcode
$ xcode-select -p
/Library/Developer/CommandLineTools
```

安装 Xcode 的默认位置:

```
$ xcode-select -p
```

## 1.6.7 安装 Xcode

Xcode 是 Apple 为 Mac 平台开发的应用程序。它包含用于开发 iOS、macOS 和 tvOS 应用程序的所有工具。Xcode 是免费的，可以在 Apple 网站上下载。



安装 Xcode 的默认位置:

```
$ cd ~/Library/Developer/Xcode/DerivedData/
```

安装 Xcode 的默认位置:

```
QTA-macmini6:Test qta$ cd ~/Library/Developer/Xcode/DerivedData/
QTA-macmini6:DerivedData qta$ ls
ModuleCache XCTestAgent-dnbqgkxqjynhwxcjhljhfdzwvrcr
```

安装 Xcode 的默认位置:

```
QTA-macmini6:Test qta$ cd ~/Library/Developer/Xcode/DerivedData/
QTA-macmini6:DerivedData qta$ ls
ModuleCache XCTestAgent-dnbqgkxqjynhwxcjhljhfdzwvrcr
QTA-macmini6:DerivedData qta$ rm -r XCTestAgent-dnbqgkxqjynhwxcjhljhfdzwvrcr/Logs/Test/*
QTA-macmini6:DerivedData qta$
```





### 1.6.9 ǎĕCă;ŦĕŸzæ■ciOSèő;ǎd'ĜčŽDčșzčzšǎ■ĜčžǎijzčlŮ

iOSèő;ǎd'ĜčŽDčșzčzšǎ■ĜčžǎijzčlŮécŚczAǎĜčŖŔăijŽǎ;śǎŠ■ĕĜlǎLǎNŮăzzaLăŦijNǎĕCă;ŦǎIJlăŸ■ǎ■Ĝčžǎ  
1ǎĀǎIJlăL'NǎIJăŸLăL'ŠăijĂsafariiijNǎIJrǎlĂăăRĕ;ŠăĔĕ:

[https://beta.thuthuatios.com/tvos12/tvOS\\_12\\_Beta\\_Profile.  
➔mobileconfig](https://beta.thuthuatios.com/tvos12/tvOS_12_Beta_Profile.mobileconfig)

2ǎĀǎŽđĕ;ĕăzNǎŖŔŔēNL'čĔĕĕĕAăśĆăđL'ĕčĔă■d'provisionăŮĜăzŭă■șǎŖŦiijNǎIJĂăŖŔŔēĜ■ǎŖŔăL'NǎIJă

### 1.6.10 XCTestAgentčijŮĕŖŠăĽĕéŦŽ

čŦšăžŖUSBăŖŠăŖčĕŮĕčŸiijNǎŦijĕĜŖ'ĕĔăĔŖĕĔĂŽĕAșŖĕŭăśĆĕcŕăNŖșczlŦiijNǎŖŔăžĕĕĂŽĕĔĜăŽŦ'ă■USB

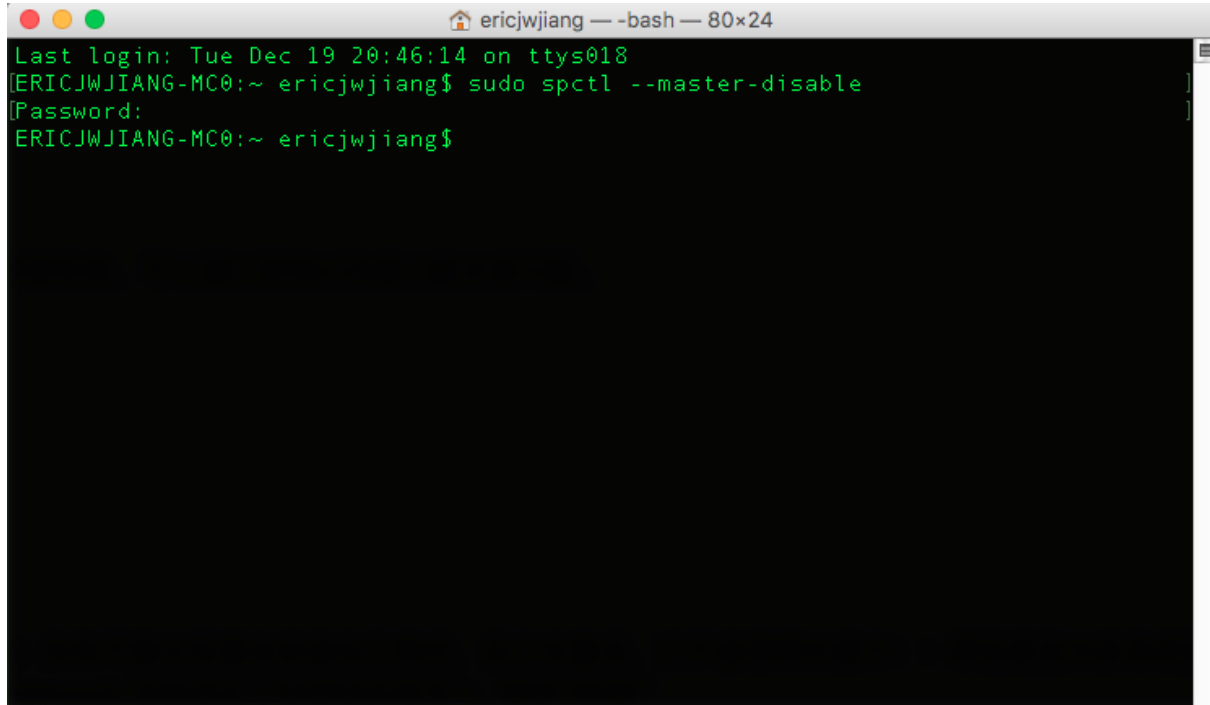
```
2017-07-24 15:44:50.629703+0800 XCTRunner[229:5667] Running tests...
2017-07-24 15:44:50.969966+0800 XCTRunner[229:5700] Connection peer refused
channel request for "dtxproxy:XCTestDriverInterface:XCTestManager_IDEInterface";
channel canceled <DTXChannel: 0x17409ced0>
Failed to run tests: The operation couldn't be completed. (DTXProxyChannel error 1.)
```

### 1.6.11 UISpyăĽŮĕĂĔEclipseăđL'ĕčĔăL'ŠăijĂăĽĕéŦŽ

ĕŦĕă;ŠăL■MacșșzčzšăŸž10.12ǎŖĽăžĕăŸLčL'LăIJŦiijNǎĽŽĕĕŮăŕăăIJL'ăŖŖĕČ;ăĜčŖŔășŖăžŽăđL'ĕčĔăNĔ  
ĕIJĂĕĕAăđ'ĕăđŭăL'ŠăijĂăIJăĔĂăĕđŸăžă;ŦăĬăăŖăĂăŮăăŖăđL'ĕčĔĕiijNǎĔŮă;Šă■ĕĕĔd'ăĕCăŸNŦiijŽ

- æL'SâijĂăŞ;ăzd'èaŇçzŁçńfâĂtâĂTSpotlightæRIJçt'ć(ă£ńæ■űéTőijŽcommand+çl'žæăijæLŰăRşăyLèğ
- èŁŞăĚăŞ;ăzd'iijŇăŽđè;ęăŔŎèŁŞăĚă;ăçŽĐMacçTtèĐŚăfEçăĂ:

```
sudo spctl --master-disable
```



```

ericjwjiang — -bash — 80x24
Last login: Tue Dec 19 20:46:14 on ttys018
ERICJWJIANG-MC0:~ ericjwjiang$ sudo spctl --master-disable
Password:
ERICJWJIANG-MC0:~ ericjwjiang$

```

- âZđăĹŕçşzçzşăĂŔăë;èőŁç;őçŽĐăĂIJăŏL'ăĚlăyŎéŽŔçğĂăĂiijŇăŇŁéĂĹ'ăĂIJăĚĂèőyăzza;TæĹěæžŔă



- 在“系统设置”中，选择“安全性与隐私”，然后点击“隐私”。在“隐私”设置中，选择“App Store 和被认可的开发者”，然后点击“任何来源”。

### 2.1 æŒœåŖčæŮĜæąč

#### 2.1.1 qt4i.app Package

iOS App

```
class qt4i.app.App(device, bundle_id, trace_template=None,
 trace_output=None, **params)
```

åšžćśziiĴobject

iOS Appåšžćśż

```
add_rule_of_alert_auto_handle(message_text, button_text)
```

èĜłåŁłåđ'ĎçŘĚAlertèĝĎåŁŻiiĴŅæŮŕåćđäÿĂéąż

åŖČæŤŕ

- **message\_text** (*str*) – AlertåĚĚæŮĜæIJñçŁĜæőĵiiĴŅæŤŕæŅĀæ■čåŁŻèąłèłłåijŖ
- **button\_text** (*str*) – AlertåĚĚæŅĹ'éŠóçŽĎæŮĜæIJñiiĴŅæŤŕæŅĀæ■čåŁŻèąłèłłå

**device**

èĚŤåŽđappæŁ'ĂåIJłçŽĎèőłåđ'Ĝ

èĚŤåŽđćśżåđŅ *qt4i.device.Device*

**driver**

èĚŤåŽđappæŁ'ĂäłçŤłçŽĎdriver

èĚŤåŽđćśżåđŅ RPCClientProxy

**flag\_alert\_auto\_handled**

èĜłåŁłåĚşéŮ■AlertæąĚ :rtype: boolean



```

class qt4i.app.Safari (device=None, url_scheme=False)
 SafariApp

 find_by_url (url, page_cls=None, timeout=10)
 Return a list of objects of class page_cls that match the url.
 If page_cls is None, return a list of all objects of class
 Qt4iWebPage that match the url.

 Parameters:
 url (str) – The url to search for.
 page_cls (Qt4iWebPage) – The class of objects to return.
 timeout (int/float) – The timeout in seconds.

 Returns:
 A list of Qt4iWebPage objects.

 open_url (url, page_cls=None)
 Open the url in the Safari application.

 Parameters:
 url (str) – The url to open.
 page_cls (Qt4iWebPage) – The class of objects to return.

 Returns:
 A Qt4iWebPage object.

```

## 2.1.2 qt4i.device Package

iOS 8.0 and later

```

class qt4i.device.Device (attrs={}, devicemanager=None)
 Device

 call_qt4i_stub (method, params, clazz=None)
 Call a Qt4i stub method.

 Parameters:
 method (str) – The method name.
 params (list) – The parameters.
 clazz (str) – The class name.

 Returns:
 The return value of the method.

 call_qt4i_stub (method, params, clazz=None)
 Call a Qt4i stub method.

 Parameters:
 method (str) – The method name.
 params (list) – The parameters.
 clazz (str) – The class name.

 Returns:
 The return value of the method.

```





- **to\_y** (*float*) – çžŁçĆż yǎĀŔçğżçŻłǎĹĒǎŕŦiijŁăżŎăŸĹĚĞşăŸŊăŸż0.0ĚĞş1.0iijŁ
- **repeat** (*int*) – æžŚǎĹłçŻĐǎñǎĕŦŕ
- **interval** (*double*) – æžŚǎĹłçŻĐĕŮŕĕŽŦǎŮŭĕŮŕiijŁçğŖiijŁ
- **velocity** (*double*) – æžŚǎĹłçŻĐĕĂşǎžĕ

**get\_app\_list** (*app\_type*='user')  
ĚŎŭǎŔŮĚŏĵǎđŦĜăŸŁçŻĐǎppǎĹŮĚǎĹ

ǎŔĆǎŦŕ **app\_type** (*str*) – appçŻĐçşǎđŊŊ(user/system/all)

ĚŖŦǎŹđ list

ĚŖŦǎŹđçşǎđŊŊ appǎĹŮĚǎĹiijŊăĹŊǎĕĆ: [{ǎĂŸcom.tencent.demoǎĂŹ:  
ǎĂŸDemoǎĂŹ}]

**get\_crash\_log** (*procname*)  
ĚŎŭǎŔŮǎŊŊǎŏŹĚŖçĹŊçŻĐǎĪǎǎŮŕçŻĐcrashǎŮĚǎĹŮ

ǎŔĆǎŦŕ **proc\_name** (*str*) – appçŻĐĚŖçĹŊŊǎŔŊiijŊǎŕŕĕĂŹĚŖĞxcodeǎŖĕçĪŊŊ

ĚŖŦǎŹđ crashǎŮĚǎĹŮĚŭŕǎĹĐ

ĚŖŦǎŹđçşǎđŊŊ string or None

**get\_device\_detail** ()  
ĚŎŭǎŔŮĚŏĵǎđŦĜǎđŊǎŔŮiijŊĕçĪĹĚĹŖiijŊǎĒĒǎŮŸǎđŦĝǎŕŔçĹĚŖççĒǎĹǎĕĀŕ

**get\_driver\_log** (*start\_time*=None)  
ĚŎŭǎŔŮdriverǎŮĚǎĹŮ :param start\_time çŦĹăĹŊǎĹĹĝĕǎŊçŻĐǎijĂǎĝŊǎŮŭĕŮŕ  
:type str

try-catch ěŕŦ æŸŎiijŹăŸžăžĒǎĒĪijǎŏŹclientăžĕǎŔĹserverçŋŕiijŊǎŕŕǎŔŮǎđŦŕĕŦĕçŦĹăĹŊǎŮĚǎĹŮçŻĐ

**get\_foreground\_app\_name** ()  
ĚŎŭǎŔŮǎĹŮǎŔŕappçŻĐǎŔŊçĝŕ

**get\_foreground\_app\_pid** ()  
ĚŎŭǎŔŮǎĹŮǎŔŕappçŻĐPID

**get\_icon\_badge** (*app\_name*)  
ĚŎŭǎŔŮĚŏĵǎđŦĜăŸŮappǎŮĹǎĀŕǎĪĤĕŕǎŦŕ

**get\_log** (*start\_time*=None)  
ĚŎŭǎŔŮǎžđŦăžŖǎŮĚǎĹŮ :param start\_time çŦĹăĹŊǎĹĹĝĕǎŊçŻĐǎijĂǎĝŊǎŮŭĕŮŕ  
:type str

try-catch ěŕŦ æŸŎiijŹăŸžăžĒǎĒĪijǎŏŹclientăžĕǎŔĹserverçŋŕiijŊǎŕŕǎŔŮǎđŦŕĕŦĕçŦĹăĹŊǎŮĚǎĹŮçŻĐ

**get\_syslog** (*watchtime*, *process\_name*=None)  
ĚŎŭǎŔŮǎĹŮŊǎĪççşççşǎŮĚǎĹŮ

**install** (*app\_path*)  
ǎŏĹĕĕĒǎžŦçŦĹçĹŊǎžŔ

ǎŔĆǎŦŕ **app\_path** (*str*) – ipǎĹĹŮap-  
pǎŏĹĕĕĒǎŊĒĕçŻĐĚŭŕǎĹĐ(ǎşĹǎĒŕŕiijŹçĪŖǎĪŖǎŖǎĹǎŖşǎŹĹçŻĐǎŏĹĕĕĒǎŊĒĕžŖşŸŮǎĒ



ǎŖŤǎŹđ æŇűèť ĩǎĹŕǎĪŇǎĪŕĉŽĐæŰĜǎžűǎĹŰèǎĹ

ǎŖŤǎŹđĉśǎđŇ list or None

**push\_file** (*bundle\_id, localpath, remotepath*)

æŇűèť ĩMacǎĪŇǎĪŕǎŰĜǎžűǎĹŕǎĹŇǎĪŹǎŷ■sandboxĉŽĐæŇĜǎŏŽĉŽŏǎŹŤǎĪŕ

ǎŖĈǎŤŕ

- **bundle\_id** (*str*) – appĉŽĐbundle id
- **localpath** (*str*) – æŰĜǎžűèűǎŹĐĭĭŷŇǎŤŕǎŇǎǎĪŇǎĪŕǎŰĜǎžűèűǎŹĐǎŖŇhttpèű
- **remotepath** (*str*) – ĩPhoneǎŷĹĉŽĐĉŽŏǎŹŤǎĹŰèǎŖæŰĜǎžűĭĭŷŇǎŹŇǎĉĈĭĭŹ/Docu

ǎŖŤǎŹđĉśǎđŇ boolean

**reboot** ()

éĜ■ǎŖŕǎĹŇǎĪŹ

**rect**

ǎŖŕǎŹŤǎđ ĝǎŕŔ

ǎŖŤǎŹđĉśǎđŇ *Rectangle*

**release** ()

éĜĹǎŤŹèŏŹǎđŖĜ

**remove\_file** (*bundle\_id, file\_path*)

ǎĹǎéŹđ' æĹŇǎĪŹǎŷĹappǎŷ■ĉŽĐæŰĜǎžűǎĹŰèǎŖĉŽŏǎŹŤŹŷèèAĉŤĭǎŹŎappĉŽĐæŰèǎŷŰǎĹŰè

ǎŖĈǎŤŕ

- **bundle\_id** (*str*) – appĉŽĐbundle id
- **file\_path** (*str*) – sandboxǎŷĹĉŽĐĉŽŏǎŹŤǎĹŰèǎŖæŰĜǎžűĭĭŷŇǎŹŇǎĉĈĭĭŹ/Librar

**remove\_files** (*bundle\_id, file\_path*)

ǎĹǎéŹđ' æĹŇǎĪŹǎŷĹappǎŷ■ĉŽĐæŰĜǎžűǎĹŰèǎŖĉŽŏǎŹŤŹŷèèAĉŤĭǎŹŎappĉŽĐæŰèǎŷŰǎĹŰè

ǎŖĈǎŤŕ

- **bundle\_id** (*str*) – appĉŽĐbundle id
- **file\_path** (*str*) – sandboxǎŷĹĉŽĐĉŽŏǎŹŤǎĹŰèǎŖæŰĜǎžűĭĭŷŇǎŹŇǎĉĈĭĭŹ/Librar

**reset\_host\_proxy** ()

ǎŖŖéŰ■hostǎžĉĉŖĒ

**screenshot** (*image\_path=None*)

ǎĹĭǎŖŕĭĭŷŇèŖŤǎŹđǎŖĈĉžĐĭĭŷŇǎĹĭǎŖŕǎŷŕǎŖǎĹŕǎĹŖŭĭŷŇǎŹŹŹĹŖĜǎŖĭǎŷèűǎŹĐ

ǎŖĈǎŤŕ **image\_path** (*str*) – ǎĹĭǎŖŕǎŹŹĹŖĜĉŽĐǎŷŖǎŹűűǎŹĐ

ǎŖŤǎŹđĉśǎđŇ tuple (boolean, str)

**set\_host\_proxy** (*server, port, wifi*)

èŏŹĉŹhostǎžĉĉŖĒ

ǎŖĈǎŤŕ



```

 bool
 unlock()
 void

 upload_photo(photo_path, album_name, cleared=True)
 void

 class Qt4iDeviceManager(QObject)
 {
 public:
 Qt4iDeviceManager(QObject *parent = 0) : QObject(parent) {}

 static void update_local_devices()
 {
 // ...
 }

 private:
 Qt4iDeviceResource *resource;
 Qt4iDeviceServer *server;
 };

 class Qt4iDeviceResource(QObject)
 {
 public:
 Qt4iDeviceResource(QObject *parent = 0) : QObject(parent) {}

 Qt4iDeviceResource(QObject *parent = 0, const QString &host,
 int port, const QString &udid, bool is_simulator,
 const QString &name, const QString &version,
 const QString &csst_uri = None, const QString &resource_id = None)
 : QObject(parent), host(host), port(port), udid(udid),
 is_simulator(is_simulator), name(name), version(version),
 csst_uri(csst_uri), resource_id(resource_id) {}

 Qt4iDeviceResource(QObject *parent = 0, const QString &host,
 int port, const QString &udid, bool is_simulator,
 const QString &name, const QString &version,
 const QString &csst_uri = None, const QString &resource_id = None,
 const QString &agent_port = "8100", const QString &driver_type = "xctest",
 const QString &endpoint_cls = "")
 : QObject(parent), host(host), port(port), udid(udid),
 is_simulator(is_simulator), name(name), version(version),
 csst_uri(csst_uri), resource_id(resource_id), agent_port(agent_port),
 driver_type(driver_type), endpoint_cls(endpoint_cls) {}

 bool exist() const
 {
 return driver_server->exists(udid);
 }

 int get_pid() const
 {
 return driver_server->pid(udid);
 }

 void restart()
 {
 driver_server->restart(udid);
 }

 void start()
 {
 driver_server->start(udid);
 }

 void stop()
 {
 driver_server->stop(udid);
 }
 };

```

```
class qt4i.device.IOSDeviceResourceHandler(resource_lock_type=<class
 'test-
 base.resource.LocalResourceLock'>)
 åŹçşziiĴtestbase.resource.LocalResourceHandler
 iOSèöĲåd'ĞètĎæžŘčŽĎæIJñâIřçôaçŘĚ

iter_resource(res_group=None, condition=None)
 éA■āŌĖāÉléĆlètĎæžŘiiĴLāRfäzěæNL'çĔğäijÿāĒŁçžgėążăžŘèƒTāŻđæİēāıśāŞ■çŢşerûètĎæžŘčŽ
 āŦĈæŦř
 • res_type(str) – èťĎæžŘčşzăđŦ
 • res_group(str) – èťĎæžŘāĻĒçžĎ
 • condition(dict) – èťĎæžŘāsđæĂğāŦzéĚ■
 èƒŦāŻđ iterator of resource, dict type with key âĂŸidâĂŻ

Rtypes iterator(dict)

class qt4i.device.Keyboard(device)
 åŹçşziiĴObject
 éŦőçŽŸŶ
 send_keys(keys)
 éŦőçŽŸëĲŞăĚĚ
 āŦĈæŦř keys(str) – èęAęĲŞăĚčŽĐā■Ŭçņęăŷš
```

### 2.1.3 qt4i.exception Package

```
iOS UIaÖgäzúâijCăÿÿæÍaÍŮ

exception qt4i.exceptions.ControlAmbiguousError
 å$žçşziižExceptions.Exception
 æL¿åŁrăd'ŽăylæŮgäzú

exception qt4i.exceptions.ControlInvalidError
 å$žçşziižExceptions.Exception
 æŮgäzúăũşăd'sæŤŁ

exception qt4i.exceptions.ControlNotFoundError
 å$žçşziižExceptions.Exception
 æIJæL¿åŁræŮgäzú

exception qt4i.exceptions.TimeoutError
 å$žçşziižExceptions.Exception
 èúĚæŮũâijCăÿÿ
```









- **offset\_x** (*float*) – çŽŸǎŕžăžŎèŕěæŎğăžŭçŽĎǎiŔæăĜoff-set\_xiijŇçŽĭǎĹEǎŕŦ( 0 -> 1 )iijŇăŸ■ăijăăĔăĹŽézŸeôd'èŕěæŎğăžŭçŽĎăŸ■ăd'ô
- **offset\_y** (*float*) – çŽŸǎŕžăžŎèŕěæŎğăžŭçŽĎǎiŔæăĜoff-set\_yiijŇçŽĭǎĹEǎŕŦ( 0 -> 1 )iijŇăŸ■ăijăăĔăĹŽézŸeôd'èŕěæŎğăžŭçŽĎăŸ■ăd'ô

**name**

æŎğăžŭçŽĎname

èĔŦǎŽđçşăđŇ str or None

**parent**

èŎŭǎŔŮăŸĹăŸĂçžğçŽĎçĹŭæŎğăžŭ

èĔŦǎŽđçşăđŇ *Element*

**print\_uitree** ()

æĹŖŖă■ŕă;ŖăĹ■æŎğăžŭçŽĎUIæăŖ

**rect**

æŎğăžŭçŽĎçŖŦă;çăĔæAŕ

èĔŦǎŽđçşăđŇ *Rectangle*

**screenshot** (*image\_path=None, image\_type=None*)

æĹĹăŖ

**Attention** èçAǎĹŦǎŽĭǎĹŔă;ĔçŦĹăžĔPILăžŖiijŇă;ĔçŦĹèŕěæŎăŔçèŕŭăŖL'èçĔPillowiijŇăçCă install Pillow

**ǎŔĆæŦŕ**

• **image\_path** (*str*) – æĹĹăŖŔăŽĭçĹĹĜçŽĎă■ŸæŦĭèŭŕăĭĎ

• **image\_path** – æĹĹăŖŔăŽĭçĹĹĜçŽĎă■ŸæŦĭèŭŕăĭĎ

èĔŦǎŽđ æĹĹăŖŔçşşæđIJăŖŇæĹĹăŖæŮĜăžŭçŽĎèŭŕăĭĎ

èĔŦǎŽđçşăđŇ tuple (boolean, str)

**scroll\_to\_visible** (*rate=1.0, drag\_times=20*)

èĜĹăĹăžŽăĹăĹăŖăĔçŦ'ăăŖŕèğAiiĹăĹăŮğ:

PathăŸ■ăŸ■ăĔŽvisi-

ble=trueiijŇă;ŖŕŕžèşăăIJăŖŔăŽŦăŖŕèğĔèŇčăžŦ'ăžŇăd'ŮiijŇăĹŖăçăžŦĔçŦiijŇèŕçŦĹă■ăŮă

**ǎŔĆæŦŕ drag\_times** (*int*) – æIJăŖŽăŕĹèŕŦăŸŇăžŖăŇăçŖŕiijŇézŸeôd'20ăŇă

**send\_keys** (*keys*)

èĭŖăĔă■ŮçŇăŸŖ

**ǎŔĆæŦŕ keys** (*str*) – â■ŮçŇăŸŖăĔăŖ

**Attention** èŕěæŎăŔçăŸ■ăŦŕăŇăŸ■ăŮĜiijŇăŸ■ăŮĜèĭŖăĔèŕŭă;ĔçŦĹvalue=ăĂŽăŸ■ăŮ

**value**

æŎğăžŭçŽĎvalue

èĔŦǎŽđçşăđŇ None | str

```

visible
 æŒgäzúæYřáŘęąĖğA
 èƒTǎŽďčśžăđŇ boolean

wait_for_exist (timeout, interval)
 æŒgäzúæYřáŘęą■YâIJÍ
 âŔĆæŦř
 • timeout (float) – ěůĚæŮűăĂijījĹçğŚīijL’īijNăĹNăęĆărźèšqéIJAèęAç■L’ăĹĚç;Śçż
 • interval (float) – ě;őěřcăĂijījĹçğŚīijL’īijNě;őěřcăĂijăżžėő
 0.005 çğŠ
 èƒTǎŽďčśžăđŇ boolean

with_name (name)
 éĂŻèŁĞnameæŨĞæIJñèŬăRŰăŃzéĚ■çŽĐă■Relements
 âŔĆæŦř name (str) – â■ŘæŒgäzúçŽĐname
 èƒTǎŽďčśžăđŇ list

with_predicate (predicate)
 éĂŻèŁĞpredicateæŨĞæIJñèŬăRŰçňňăyĂăylăŃzéĚ■çŽĐă■Relement :param
 predicate: éćĐæIJşă■RelementçŽĐpredicate īijĹăĹNăęĆīijŽăĂIJname beginswith
 âĂYxxxâĂŽăĂīijL’ :type predicate: str :rtype: Element or None

with_value_for_key (key, value)
 éĂŻèŁĞăŃzéĚ■æŃĞăőŽkeyçŽĐvalueīijNěŬăRŰæL’ĂæIJL’ăŃzéĚ■çŽĐă■Relement
 âŔĆæŦř
 • key (str) – key īijĹăĹNăęĆīijŽlabelăĂAnameăĂAvalueīijL’
 • value (str or int) – áržăŽŦkeyçŽĐvalueăĂij
 èƒTǎŽďčśžăđŇ Element or None

ss qt4i.iconcontrols.MetisView (element)
 âşžçşziiJZobject

click (offset_x=None, offset_y=None)
 çĆžăĠž
 âŔĆæŦř
 • offset_x (float or None) – çŽYăržăžŌěřææŒgäzúçŽĐăĹŘæăGffset_xīijNçŽĹăĹĚæřŦ(0
 -> 1)īijNăy■ăijăăĚěăĹŽézYěőd’ěřææŒgäzúçŽĐăy■ăd’ő
 • offset_y (float or None) – çŽYăržăžŌěřææŒgäzúçŽĐăĹŘæăGffset_yīijNçŽĹăĹĚæřŦ(0
 -> 1)īijNăy■ăijăăĚěăĹŽézYěőd’ěřææŒgäzúçŽĐăy■ăd’ő

drag (from_x=0.5, from_y=0.5, to_x=0.5, to_y=0.1, duration=0.5)
 æNŮæŊı

```





```
class qt4i.util.Rectangle (left, top, right, bottom)
 áŖžčšžijŽObject
 UIæŖğăžŭčŽĐçŖ'ă;ćăŇžăŖŖ
```

```
class qt4i.util.RegExpCompile (source)
 áŖžčšžijŽObject
 çijŮerŚă■ćăĹŽèăĹčăijŖ â;Śă■ŮçņęăŷŖăŖŸéĖŖăŷ■ăĖžçŖŖă■ćăĹŽăŷ■čŽĐéĂžèčŚèŖŖčŖŮŮçņęăŮŮŷŷŷ
```

```
class qt4i.util.Timeout (timeout=1.8, interval=0.005)
 áŖžčšžijŽtestbase.util.Timeout
 èŮĖæŮŮ
```

```
qt4i.util.less_to (version_a, version_b)
 âĹd'æŮ■version_aæŸŖăŖĖăŖŖăžŖversion_b

 èĖŤăŽĐ True if version_a less than version_b, False if not
 èĖŤăŽĐčšžăđŇ boolean
```

## 2.1.8 qt4i.web Package

iOS WebView

```
class qt4i.web.IOSWebDriver (webview)
 áŖžčšžijŽqt4w.webdriver.webkitwebdriver.WebkitWebDriver
 iOS WebKit WebDrvier
```

```
class qt4i.web.IOSWebView (root, locator, title=None, url=None, **ext)
 áŖžčšžijŽqt4i.icontrols.Element
 iOS âĖĖăŤŇWebViewæŖğăžŭ
```

```
click (x_offset, y_offset)
 çĆăĖŖăæŖğăžŭ
```

ăŖĆăŤŖ

- **offset\_x** (float or None) – çŽŷăŖžăžŮèŖŖæŖğăžŭčŽĐăĹŖăăĖffset\_xŷŷŷŖčŽčăĹĖăŖŤ( 0  
-> 1)ŷŷŖŇăŷ■ăŷăăĖăăĹŽéžŸèôđ'èŖŖæŖğăžŭčŽĐăŷ■ăđ'Ŗ
- **offset\_y** (float or None) – çŽŷăŖžăžŮèŖŖæŖğăžŭčŽĐăĹŖăăĖffset\_yŷŷŷŖčŽčăĹĖăŖŤ( 0  
-> 1)ŷŷŖŇăŷ■ăŷăăĖăăĹŽéžŸèôđ'èŖŖæŖğăžŭčŽĐăŷ■ăđ'Ŗ

```
double_click (x_offset, y_offset)
 âŖŇăĖŖăæŖğăžŭ
```

ăŖĆăŤŖ

- **offset\_x** (float) – çŽŷăŖžăžŮèŖŖæŖğăžŭčŽĐăĹŖăăĖffset\_xŷŷŷŖčŽčăĹĖăŖŤ( 0-> 1)ŷŷŖŇăŷ■ăŷăăĖăăĹŽéžŸèôđ'èŖŖæŖğăžŭčŽĐăŷ■ăđ'Ŗ



webview

## WebView&rsquo;s

## CHAPTER 3

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