



I

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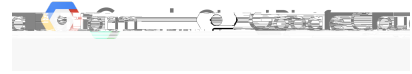
A

C



E

Definitions



PM DK A GPIO D AM

AP B F B P

L F M

Prerequisites

P O D L DK D C F P

O D A

D G C I PC D C I A

C G C I D C P I A G

Create project ⋮

wangxiao@allwinnertech.com created allwinner-164401

April 12, 2017 at 9:27:52 AM UTC+8

User	wangxiao@allwinnertech.com
Resource name	projects/allwinner-164401
Request	
Project	
Create time	2017-04-12T01:27:45.209Z
Lifecycle state	ACTIVE
Name	Allwinner
Project id	allwinner-164401
Project number	280303967737

F P G C P

E □



Google Cloud Platform Allwinner

API Manager Dashboard [+ ENABLE API](#)

API	Requests	Errors	Error ratio	Latency, median	Latency, 98%	
BigQuery API	-	-	-	-	-	Disable
Google Cloud APIs	-	-	-	-	-	Disable
Google Cloud Datastore API	-	-	-	-	-	Disable
Google Cloud IoT API Private API	-	-	-	-	-	Disable
Google Cloud Pub/Sub API	-	-	-	-	-	Disable
Google Cloud SQL	-	-	-	-	-	Disable
Google Cloud Storage	-	-	-	-	-	Disable
Google Cloud Storage JSON API	-	-	-	-	-	Disable
Google Service Management API	-	-	-	-	-	Disable
Stackdriver Debugger API	-	-	-	-	-	Disable

IAM F E API
 D C I A G

Set IAM policy on project

wangxiao@allwinertech.com has set the project's IAM policy
 April 19, 2017 at 6:40:54 PM UTC+8

User	wangxiao@allwinertech.com
Resource name	projects/allwinner-164401
Added pubsub.publisher	gcpd...

C F IAM
 D C I A G



C D G

1 Download Tina Linux from GitHub or FTP server

L G H A
I

```

$ curl https://raw.githubusercontent.com/tinalinux/repo/stable/repo > ~/bin/repo
$ chmod +x ~/bin/repo
$ export PATH=$PATH:~/bin/
$ mkdir tina && cd tina
$ repo init -u https://github.com/tinalinux/manifest -b r18-v0.9 -m r18/v0.9.xml
$ repo sync
$ repo start r18-v0.9 --all

```

F C F C L
C DK C DN

```

$ curl https://code.csdn.net/tinalinux/repo/blob/stable/repo > ~/bin/repo
$ chmod +x ~/bin/repo
$ export PATH=$PATH:~/bin/
$ mkdir tina && cd tina
$ repo init -u https://code.csdn.net/tinalinux/manifest.git -b r18-v0.9 -m r18/v0.9-csdn.xml
$ repo sync
$ repo start r18-v0.9 --all

```

F D L C DN C

2 Necessary modules needed by Google Cloud IoT demo on Tina SDK

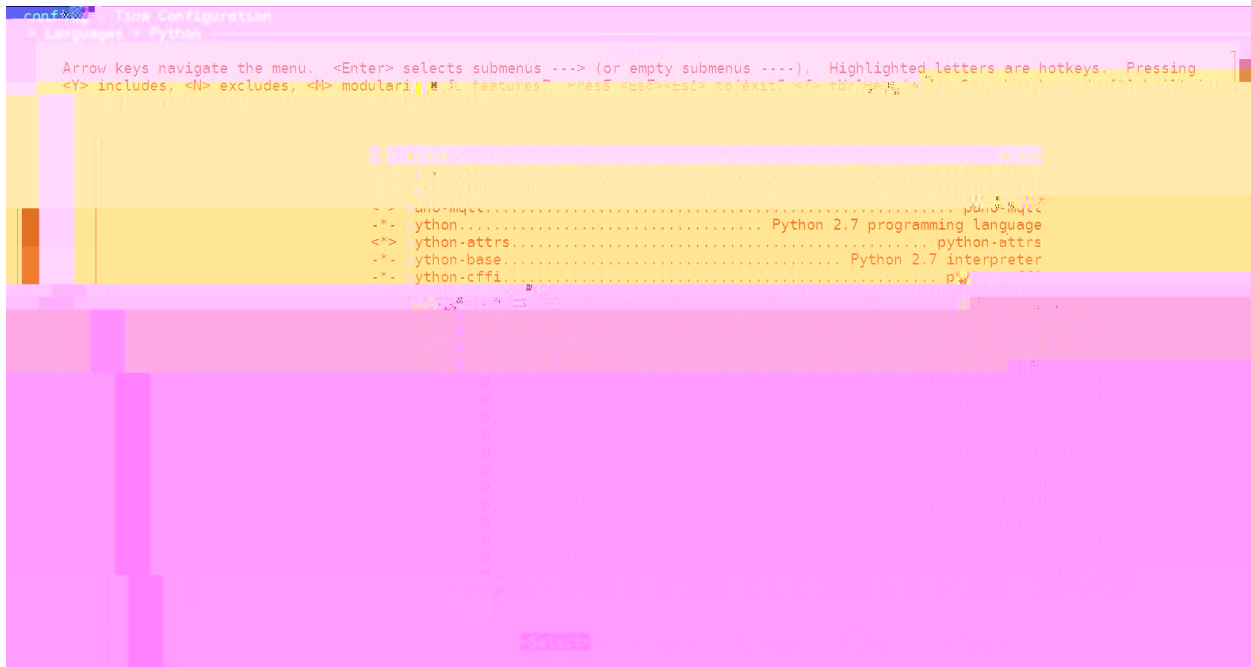
P L
O L DK
M



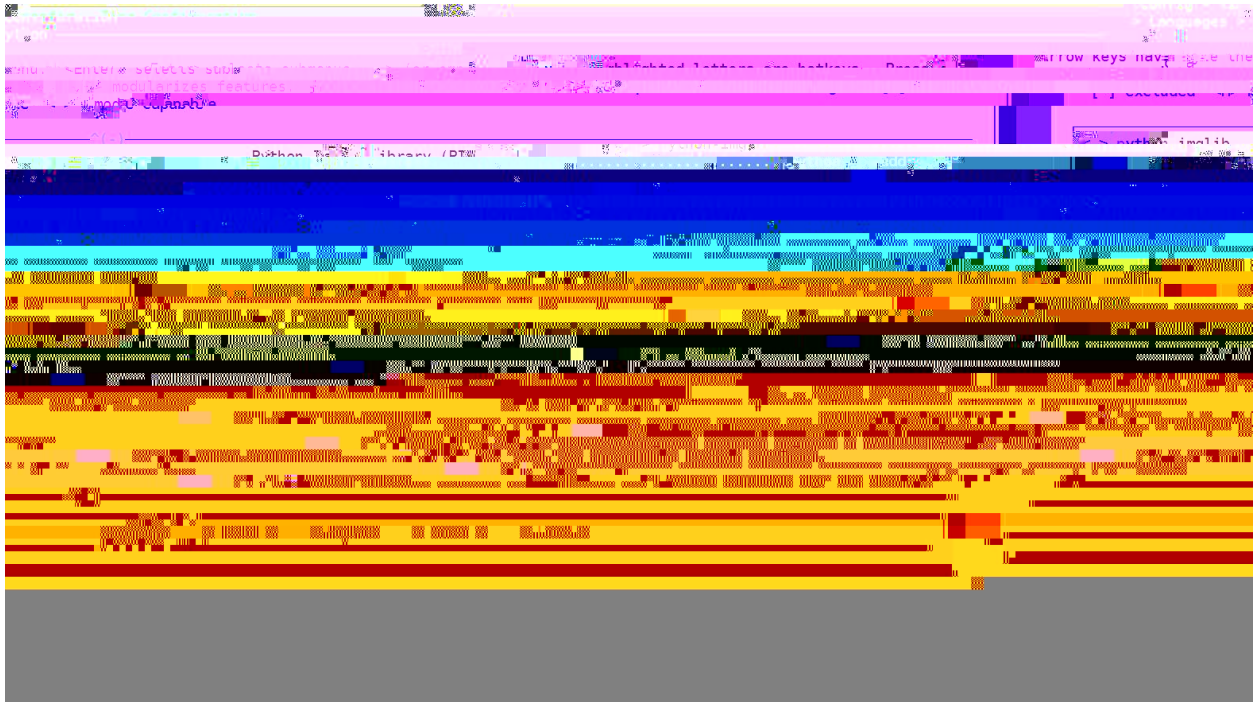
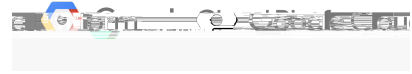
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G C I



F N P



F N P

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E

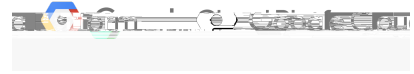
L



```
config - Tina Configuration
-----
[Navigation instructions]
Arrow keys navigate the menu. <Enter> selects submenu ---> (or empty submenu ----). Highlighted letters are hotkeys. Processing
'<I>' includes, '<N>' excludes, '<E>'
-----
```

F

F F F



```
.config - Tina Configuration
> Allwinner > wifimanager..... Tina-wifi-manager
Tina-wifi-manager

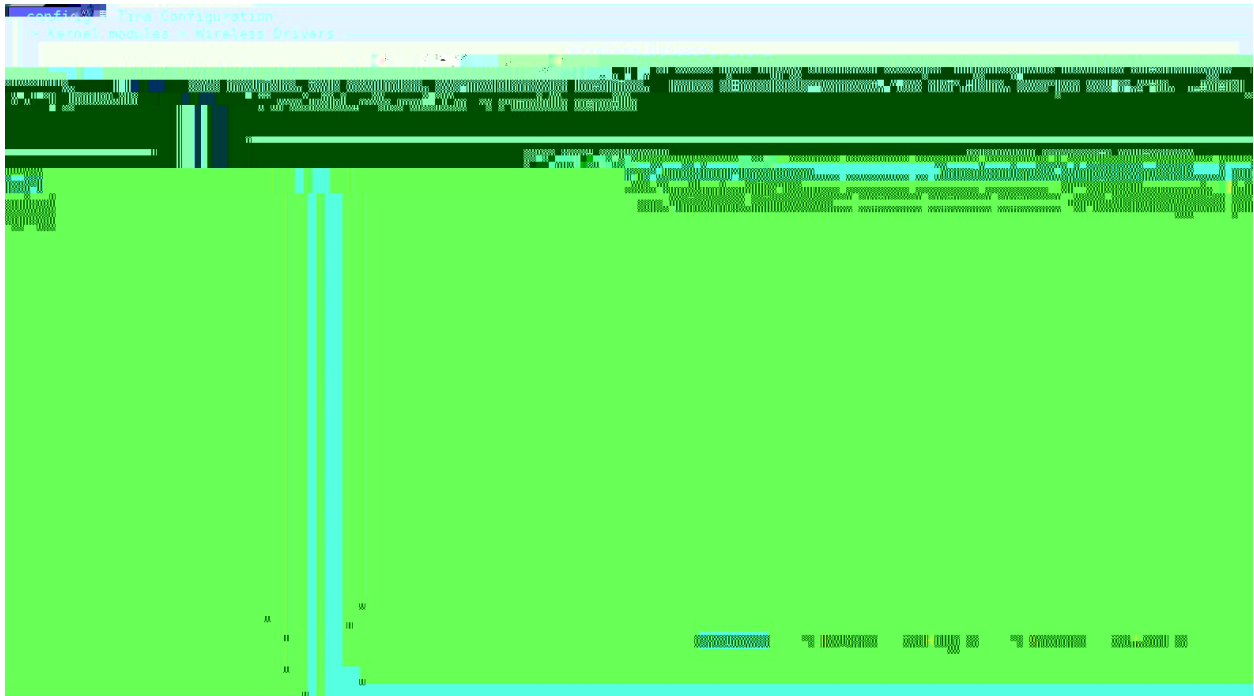
[Back] [Home] [Exit] [Help] [Save] [Load]

>
```

F B P M F AP
LAN
C B F MAC M



F C I B I



P
AP
F
K
AP



```
.config - Tina Configuration
> Firmware
      Firmware
Arrow keys navigate the menu. <Enter> selects submenus --- (or empty submenus ----). Highlighted letters are hotkeys. Pressing
<Y> includes, <N> excludes, <M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in
[ ] excluded <M> module <> module capable

<Y> ap6212-firmware..... Broadcom AP6212 firmware
<> ap6212a-firmware..... Broadcom AP6212A firmware
<> ap6255-firmware..... Broadcom AP6255 firmware
<> ap6355-firmware..... Broadcom AP6355 firmware
<> ap6356s-firmware..... Broadcom AP6356S firmware
<> r8188eu-firmware..... RealTek RTL8188EU firmware
<> r8723bs-firmware..... Realtek RTL8723BS firmware
<> xr819-firmware..... Xradio xr819 firmware

<Select> <Exit> <Help> <Save> <Load>
```

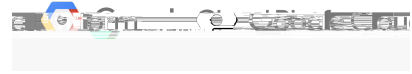
F AP

B F F I

E

G C I
PC

E



```
.config - Tina Configuration
> Utilities
Utilities
<Y> includes, <N> excludes, <M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in
[ ] excluded <M> module <> module capable
<> jpeg-tools ..... The Independent JPEG Group's JPEG manipl... tools
JPEG 6k-11, Netscape
E H S L
```

F

3 Compile the Tina Linux and flash the firmware on board

N O G C I

0

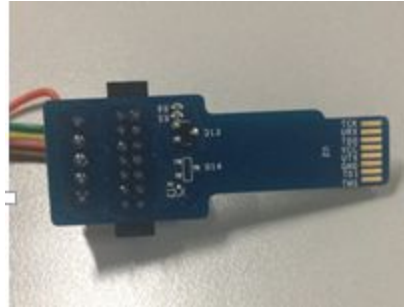
```
make[2]: Leaving directory `/home/wangxiao/workspace/tina_2.0'
make[1]: Leaving directory `/home/wangxiao/workspace/tina_2.0'
#### make completed successfully (44 seconds) ####
```

F



A

F



F

A

F

F

```
/home/wangxiao/workspace/tina_2.0/out/tulip-d1/tina_tulip-d1_card0.img
pack finish
```

F

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M

4 Run Google Cloud IoT Demo on Tina

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```
BusyBox v1.24.1 () built-in shell (ash)
```

```
[ 8.110129] CPU1: shutdown  
[ 8.113114] psci: CPU1 killed.
```

```
-----  
Tina Linux  
-----  
Tina is Based on Openwrt!
```

```
Tina Linux (Netanel's 58713054) root@
```

```
root@TinaLinux:/#  
root@TinaLinux:/#  
root@TinaLinux:/#  
root@TinaLinux:/#  
root@TinaLinux:/#
```

```
root@TinaLinux:/# echo 4 > /proc/sys/kernel/printk  
printk_ratelimit  
printk_delay  
root@TinaLinux:/# echo 4 > /proc/sys/kernel/printk
```

```
root@TinaLinux:/# python  
Python 2.7.11 (default, Apr 17 2017, 07:00:02)  
[GCC 5.2.1] on linux2
```

```
Type "help", "copyright", "credits" or "license" for more information
```

```
>>>
```

```
F  
C I P  
F ID P ID PA O D
```

```
root@TinaLinux:/# wifi_connect_ap_test "SSID" "PASSWORD"
```

```
*****  
***Start wifi connect ap test!***  
*****  
wpa_supplicant not running!  
ctrl_interface != /etc/wifi/sockets
```

```
F C I  
F
```



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```
root@TinaLinux:/# python google.py --project_id=allwinner-164401 --registry_id="
--registry-id --device_id=my-rs256-device-id --private_key_file=/usr/rsa_priv
Creating JWT using RS256 from private key file /usr/rsa_private.em
Publishing message 1/100: 'my-registry-id/my-rs256-device-id-payload-1'
on_connect 0: No error.
Publishing message 2/100: 'my-registry-id/my-rs256-device-id-payload-2'
on_publish
on_publish
Publishing message 3/100: 'my-registry-id/my-rs256-device-id-payload-3'
on_publish
Publishing message 4/100: 'my-registry-id/my-rs256-device-id-payload-4'
on_publish
Publishing message 5/100: 'my-registry-id/my-rs256-device-id-payload-5'
on_publish
Publishing message 6/100: 'my-registry-id/my-rs256-device-id-payload-6'
on_publish
Publishing message 7/100: 'my-registry-id/my-rs256-device-id-payload-7'
on_publish
Publishing message 8/100: 'my-registry-id/my-rs256-device-id-payload-8'
on_publish
Publishing message 9/100: 'my-registry-id/my-rs256-device-id-payload-9'
on_publish
Publishing message 10/100: 'my-registry-id/my-rs256-device-id-payload-10'
on_publish
Publishing message 11/100: 'my-registry-id/my-rs256-device-id-payload-11'
on_publish
```

F D



```
Publishing message 72/100: 'my-registry-id/my-rs256-device-id-payload-72'  
on_publish  
Publishing message 73/100: 'my-registry-id/my-rs256-device-id-payload-73'  
on_publish  
Publishing message 74/100: 'my-registry-id/my-rs256-device-id-payload-74'  
on_publish  
Publishing message 75/100: 'my-registry-id/my-rs256-device-id-payload-75'  
publish  
Publishing message 76/100: 'my-registry-id/my-rs256-device-id-payload-76'  
publish  
Publishing message 77/100: 'my-registry-id/my-rs256-device-id-payload-77'  
publish  
Publishing message 78/100: 'my-registry-id/my-rs256-device-id-payload-78'  
publish  
Publishing message 79/100: 'my-registry-id/my-rs256-device-id-payload-79'  
publish  
Publishing message 80/100: 'my-registry-id/my-rs256-device-id-payload-80'  
publish  
Publishing message 81/100: 'my-registry-id/my-rs256-device-id-payload-81'  
publish  
Publishing message 82/100: 'my-registry-id/my-rs256-device-id-payload-82'  
publish  
Publishing message 83/100: 'my-registry-id/my-rs256-device-id-payload-83'  
publish  
Publishing message 84/100: 'my-registry-id/my-rs256-device-id-payload-84'  
publish  
Publishing message 85/100: 'my-registry-id/my-rs256-device-id-payload-85'  
publish  
Publishing message 86/100: 'my-registry-id/my-rs256-device-id-payload-86'  
publish  
Publishing message 87/100: 'my-registry-id/my-rs256-device-id-payload-87'  
publish  
Publishing message 88/100: 'my-registry-id/my-rs256-device-id-payload-88'  
publish  
Publishing message 89/100: 'my-registry-id/my-rs256-device-id-payload-89'  
publish  
Publishing message 90/100: 'my-registry-id/my-rs256-device-id-payload-90'  
publish  
Publishing message 91/100: 'my-registry-id/my-rs256-device-id-payload-91'  
publish  
Publishing message 92/100: 'my-registry-id/my-rs256-device-id-payload-92'  
publish  
Publishing message 93/100: 'my-registry-id/my-rs256-device-id-payload-93'  
publish  
Publishing message 94/100: 'my-registry-id/my-rs256-device-id-payload-94'  
publish  
Publishing message 95/100: 'my-registry-id/my-rs256-device-id-payload-95'  
publish  
Publishing message 96/100: 'my-registry-id/my-rs256-device-id-payload-96'  
publish  
Publishing message 97/100: 'my-registry-id/my-rs256-device-id-payload-97'  
publish  
Publishing message 98/100: 'my-registry-id/my-rs256-device-id-payload-98'  
publish  
Publishing message 99/100: 'my-registry-id/my-rs256-device-id-payload-99'  
publish  
Publishing message 100/100: 'my-registry-id/my-rs256-device-id-payload-100'  
publish
```

F D L

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```
[Secret-Cas...le:~ Wang$ gcloud | ... subscriptions pull --auto-ack pro
ects/ allwinner-164401/subscriptions/my-s ... cription
```

DATA	MESSAGE_ID	ATTRIBUTES
my-registry-id/my-rs256-device-id-payload-66	121017144547	deviceId=my-r 56-device-id deviceNumId=2647740481950093 deviceRegistryId=my-registry-id devi RegistryLocation=us-central1 projectId=allwinner-164401 subFolder=

-Last Q:~ Wang\$

F



roots.pem

denx@denx:~/denx

