

AT Command Quick Start Guide

Sterling-EWB

Version 1.0

REVISION HISTORY

Version	Date	Notes	Contributors	Approver
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CONTENTS

1	Introduction.....	5
1.1	Overview	5
1.2	Command Syntax.....	5
1.3	Sterling-EWB Development Kit Usage	6
1.4	Firmware Update.....	7
1.4.1	Factory Reset	7
1.4.2	Firmware Update Procedure	7
1.5	Reset Procedure	7
1.6	Asynchronous Messages	8
1.6.1	+READY	8
1.6.2	+IPD	8
1.6.3	+MQD	8
1.6.4	+HTTTPD	8
1.6.5	+WIFI CONNECTED	8
1.6.6	+WIFI GOT IP.....	8
1.6.7	+WIFI DISCONNECTED	8
1.6.8	+IP	8
1.7	Command Responses.....	8
1.8	Persistent Storage.....	9
2	Basic Wi-Fi Connection – AT Commands	10
2.1	Scan for Available Access Points.....	10
2.2	Associate to an Access Point - DHCP.....	11
2.2.1	Show the Status of Your Connection.....	11
2.2.2	Testing Your Connection	12
2.2.3	Closing Your Connection.....	12
2.3	Associate to an Access Point – Static IP Address.....	13
2.3.1	Change to Static IP Address	13
2.3.2	Configure Your IP Address.....	13
2.3.3	Associate to an Access Point	14
2.3.4	Show the Status of Your Connection.....	14
2.3.5	Testing Your Connection	15
2.3.6	Closing Your Connection.....	15
3	Making a TCP Connection.....	16
3.1	Starting the Connection.....	16
3.2	Sending Data	16
3.3	Closing the Connection	17
4	Making a UDP connection	18

4.1	Starting the Connection	18
4.2	Sending Data	18
4.3	Closing the Connection	19
5	Getting Data via HTTP	20
5.1	Configuring the Connection	20
5.2	Reading the Page	20
6	Performing a BLE Scan	21
6.1	Scanning for BLE Devices	21
7	Python Scripts	22
7.1	Introduction	22
7.2	Scan for Available Access Points	22
7.3	Join an Access Point - DHCP	22
7.4	Join an Access Point – Static IP Address.....	23
7.5	Display Status	23
7.6	Ping a Device	23
8	Additional Assistance	24

1 INTRODUCTION

1.1 Overview

This document gives various examples of the AT Command software for the Sterling-EWB.

1.2 Command Syntax

Each command **must** end in `\r\n` (CR+LF) and Local Echo.

We recommend that you use a Terminal Emulation software program that supports CF and LF such as Tera Term VT, RealTerm, or UwTerminal. The default version of PuTTY does not have an option for CF+LF. The following is an example of the Terminal Setup screen in Tera Term VT.

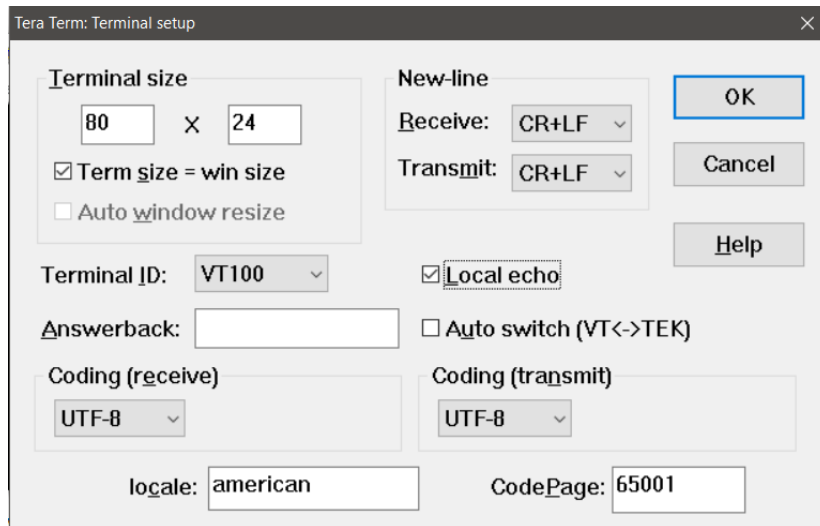


Figure 1: Terminal setup screen example

The following are the default for UART communication:

- 115200 baud rate
- 8 data bits
- No flow control
- No parity
- 1 stop bit

1.2.1 Escape Characters

The following are reserved characters that must be escaped with a `\` when used within a string parameter to an AT command:

`\`
`'`
`"`

For example, if you want to send a URI parameter to `AT+HTTPCONFIG` containing a comma, the raw data sent over UART should look like the following:

```
AT+HTTPCONFIG="api.openweathermap.org",443,0,"/data/2.5/weatherq=Syracuse\,NY\,US&appid=APIKEYGOESHERE"
```

1.3 Sterling-EWB Development Kit Usage

To connect the Sterling-EWB devkit (part number 455-00030 or 455-00031) you must use the UART3 (J7) port to send the commands. You need a USB-FTDI cable to connect to your computer. The pin on the right, closest to UART6 (J13) is ground.

There are debug commands for troubleshooting that come out of the DEBUG/program port, so it is a good idea to connect that as well.

Both of the ports by default are set to 115200,N,8,1. The UART3 (J7) port requires that your terminal application is set to CR+LF for Receive and Transmit as well as Local Echo. The following images are cable connection references.

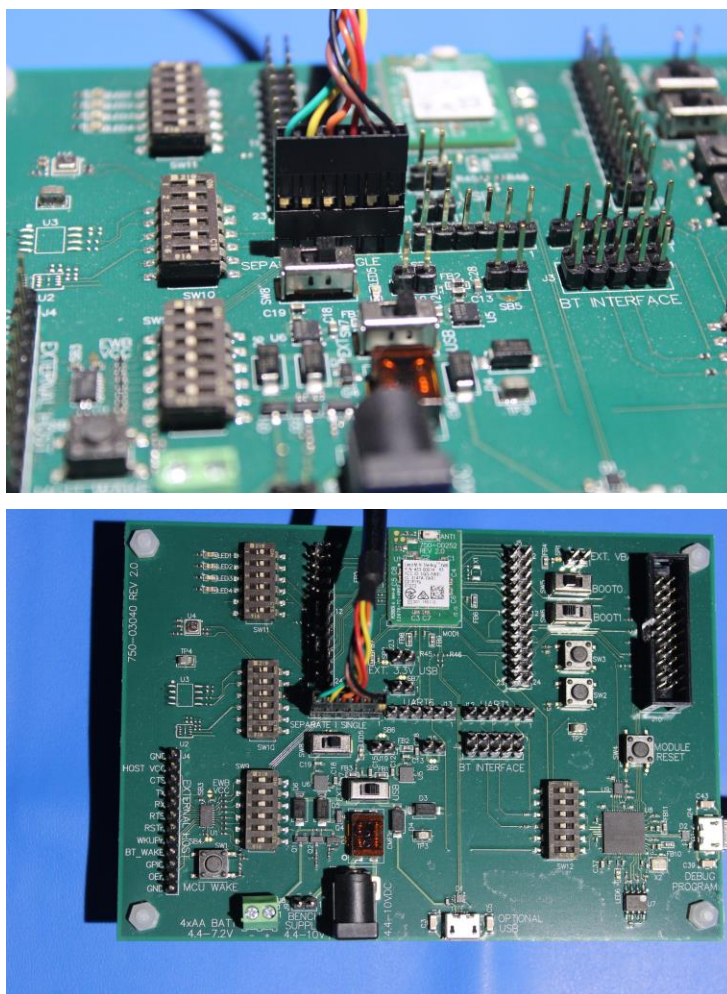


Figure 2: Cable connection references

1.4 Firmware Update

This module supports firmware updates via UART.

1.4.1 Factory Reset

1.4.1.1 Setting the Factory Image

When initially flashing the Laird AT commands firmware please use the flash_AT.bat file from one of the three *full image* zip files (where x.x.x.x is the version number you want to install):

- laird-ewb-at-eu-full-x.x.x.x.zip
- laird-ewb-at-jp-full-x.x.x.x.zip
- laird-ewb-at-us-full-x.x.x.x.zip

This flashes the image as the factory image. This needs to be done at least once to get the correct firmware and application files installed.

1.4.2 Firmware Update Procedure

To update the firmware, follow these steps, where x.x.x.x is the version number you wish to install:

1. You need one of the following three files depending on the region the device is to be used in:
 - a. laird-ewb-at-eu-upgrade-x.x.x.x.elf from the laird-ewb-at-eu-upgrade-x.x.x.x.zip file.
 - b. laird-ewb-at-jp-upgrade-x.x.x.x.elf from the laird-ewb-at-jp-upgrade-x.x.x.x.zip file.
 - c. laird-ewb-at-us-upgrade-x.x.x.x.elf from the laird-ewb-at-us-upgrade-x.x.x.x.zip file.
2. Send **AT+FWBEGIN** and specify the size of your firmware.
3. Break the .elf file into chunks no larger than 2048 bytes.
4. Send each chunk sequentially with **AT+FWCHUNK**, waiting until the module responds with OK before sending the next chunk.
5. When all chunks are sent, send **AT+FWDONE** to finalize.
6. Reboot the module manually or with **AT+RESET**.

Note: The fw_update.py file in the ATCommands_SampleApps.zip file shows how to accomplish this programmatically.

1.5 Reset Procedure

To reset Sterling-EWB development kit, follow these steps:

1. Press and hold SW2 (PC13) button.
2. While holding SW2, press and release the MODULE RESET (MODULE_RESET) button. The blue LED (LED3/PB15) begins flashing.
3. Keep holding SW2 until LED3 stops flashing.

Once SW2 is released, it takes ten seconds or so for the bootloader to switch to the factory image. After this, the module boots from the factory image.

1.6 Asynchronous Messages

The term *message* refers to data sent from the module to the host. Some messages may be sent based on asynchronous events as opposed to a received command. These messages always start with **+**.

1.6.1 +READY

This message is sent whenever the module starts up or wakes up from a deep sleep.

1.6.2 +IPD

This message is sent whenever a TCPIP packet is received by the module. See the +IPD manual for more information on the syntax of this message.

1.6.3 +MQD

This message is sent whenever a MQTT packet is received by the module. This does not also send a +IPD message. See the +MQD manual for more information on the syntax of this message.

1.6.4 +HTTPD

This message is sent whenever an HTTP packet is received by the module. This does not also send a +IPD message. See the +HTTPD manual for more information on the syntax of this message.

1.6.5 +WIFI CONNECTED

This message is sent when the module connects to an access point. This does not mean that the module has an IP address; only that it has connected.

1.6.6 +WIFI GOT IP

This message is sent when the module receives an IP address from its connected access point.

1.6.7 +WIFI DISCONNECTED

This message is sent when the module disconnects from an access point.

1.6.8 +IP

These two messages **+IP,<connection id> CONNECTED** and **+IP,<connection id> DISCONNECTED** are sent in response to TCP socket state changes in both client and server mode.

1.7 Command Responses

Unless otherwise specified, all commands either return **OK** or **ERROR <code>** where the code is one of the following.

Table 1: Command responses

Number	Code	Meaning
0	SUCCESS	Success
1	PENDING	Pending
2	TIMEOUT	Timeout
3	PARTIAL_RESULTS	Partial results
4	ERROR	Error
5	BADARG	Bad Arguments
6	BADOPTION	Mode not supported
7	UNSUPPORTED	Unsupported function
8	OUT_OF_HEAP_SPACE	Dynamic memory space exhausted

Number	Code	Meaning
9	NOTUP	Interface is not currently Up
10	UNFINISHED	Operation not finished yet
11	CONNECTION_LOST	Connection to server lost
12	NOT_FOUND	Item not found
13	PACKET_BUFFER_CORRUPT	Packet buffer corrupted
14	ROUTING_ERROR	Routing error
15	BADVALUE	Bad value
16	WOULD_BLOCK	Function would block
17	ABORTED	Operation aborted
18	CONNECTION_RESET	Connection has been reset
19	CONNECTION_CLOSED	Connection is closed
20	NOT_CONNECTED	Connection is not connected
21	ADDRESS_IN_USE	Address is in use
22	NETWORK_INTERFACE_ERROR	Network interface error
23	ALREADY_CONNECTED	Socket is already connected
24	INVALID_INTERFACE	Interface specified in invalid
25	SOCKET_CREATE_FAIL	Socket creation failed
26	INVALID_SOCKET	Socket is invalid
27	CORRUPT_PACKET_BUFFER	Packet buffer is corrupted
28	UNKNOWN_NETWORK_STACK_ERROR	Unknown network stack error
29	NO_STORED_AP_IN_DCT	DCT contains no AP credentials
30	STA_JOIN_FAILED	Join failed
31	PACKET_BUFFER_OVERFLOW	Packet buffer overflow
32	ALREADY_INITIALIZED	Module has already been initialized
33	UNINITIALIZED	Module not initialized

If a command returns additional data, it still ends with **OK**.

1.8 Persistent Storage

Table 2 displays commands that save data to persistent storage:

Table 2: Commands that save data to persistent storage

Command	Data
AT+UART_DEF	All UART parameters
AT+CWJAP	Access point configuration (SSID/key)
AT+CIPDHCP	DHCP configuration (enabled/disabled)
AT+CIPSTA	Static IP, Netmask, Gateway

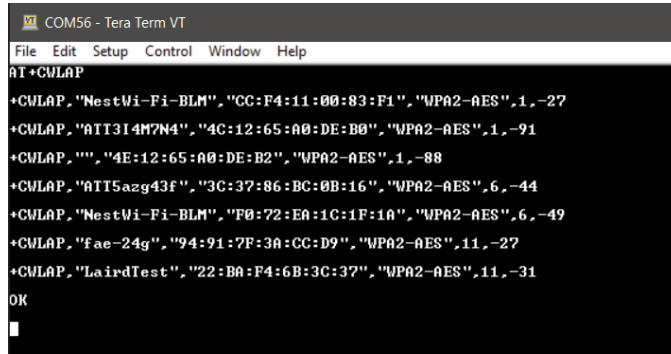
You can clear the storage by using **AT+RESTORE**.

2 BASIC WI-FI CONNECTION – AT COMMANDS

2.1 Scan for Available Access Points

To scan for available access points, enter the AT command AT+CWLAP on the UART3 console connection.

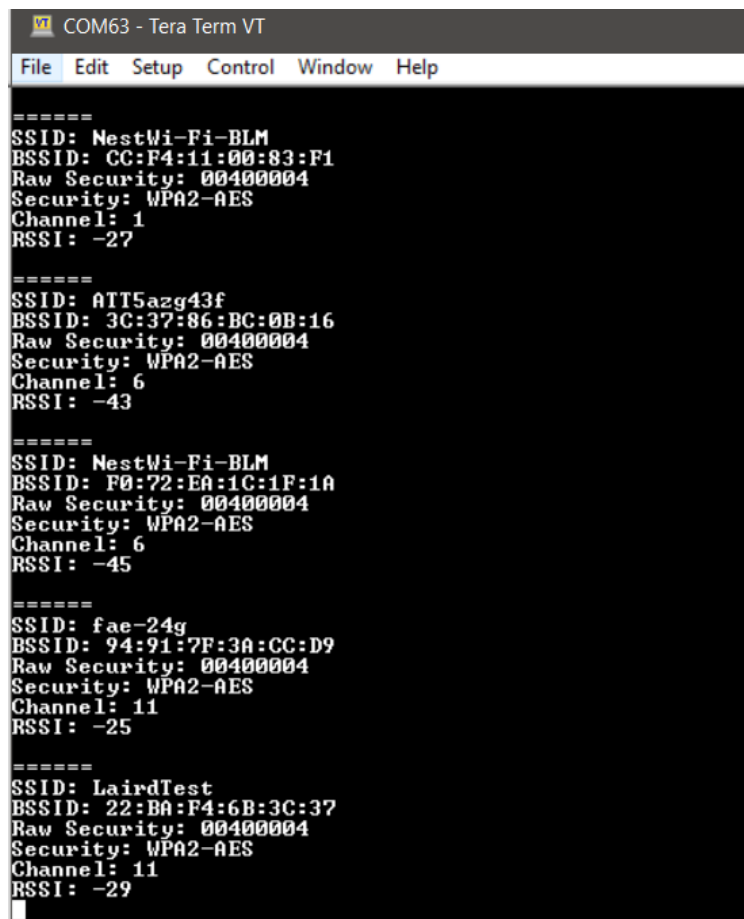
On the UART3 screen, a list of the available access points is returned:



```
COM56 - Tera Term VT
File Edit Setup Control Window Help
AT+CWLAP
+CWLAP,"NestWi-Fi-BLM","CC:F4:11:00:83:F1","WPA2-AES",1,-27
+CWLAP,"ATT3I4M7N4","4C:12:65:A0:DE:B0","WPA2-AES",1,-91
+CWLAP,"","4E:12:65:A0:DE:B2","WPA2-AES",1,-88
+CWLAP,"ATT5azg43f","3C:37:86:BC:0B:16","WPA2-AES",6,-44
+CWLAP,"NestWi-Fi-BLM","F0:72:EA:1C:1F:1A","WPA2-AES",6,-49
+CWLAP,"fae-24g","94:91:7F:3A:CC:D9","WPA2-AES",11,-27
+CWLAP,"LairdTest","22:BA:F4:6B:3C:37","WPA2-AES",11,-31
OK
```

Figure 3: UART3 screen (scan for available access points)

The following displays on the Debug/Program port:



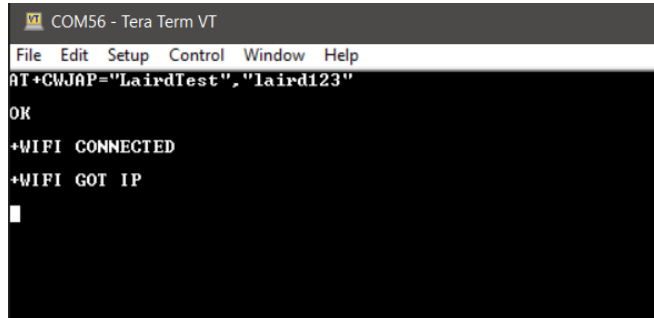
```
COM63 - Tera Term VT
File Edit Setup Control Window Help
=====
SSID: NestWi-Fi-BLM
BSSID: CC:F4:11:00:83:F1
Raw Security: 00400004
Security: WPA2-AES
Channel: 1
RSSI: -27
=====
SSID: ATT5azg43f
BSSID: 3C:37:86:BC:0B:16
Raw Security: 00400004
Security: WPA2-AES
Channel: 6
RSSI: -43
=====
SSID: NestWi-Fi-BLM
BSSID: F0:72:EA:1C:1F:1A
Raw Security: 00400004
Security: WPA2-AES
Channel: 6
RSSI: -45
=====
SSID: fae-24g
BSSID: 94:91:7F:3A:CC:D9
Raw Security: 00400004
Security: WPA2-AES
Channel: 11
RSSI: -25
=====
SSID: LairdTest
BSSID: 22:BA:F4:6B:3C:37
Raw Security: 00400004
Security: WPA2-AES
Channel: 11
RSSI: -29
```

Figure 4: Debug/Program port (scan for available access points)

2.2 Associate to an Access Point - DHCP

To associate to an access point as a client enter the AT+CWJAP=<SSID>,<Password> on the UART3 console connection. For example, if we wanted to connect to LairdTest network that was found in the previous command we would enter AT+CWJAP="LairdTest","laird123". This command will automatically associate to the network and request a DHCP address for you.

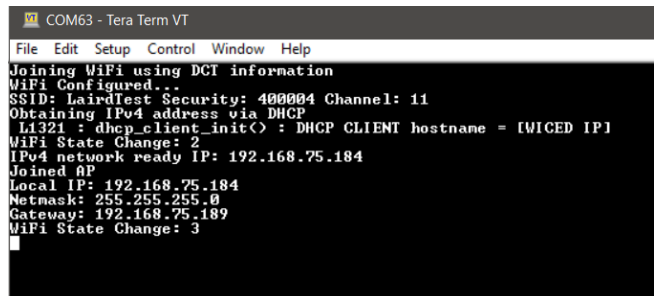
The following displays on the UART3 screen:



```
COM56 - Tera Term VT
File Edit Setup Control Window Help
AT+CWJAP="LairdTest","laird123"
OK
+WIFI CONNECTED
+WIFI GOT IP
█
```

Figure 5: UART3 screen (associate to an access point)

The details display on the Debug/Program port:



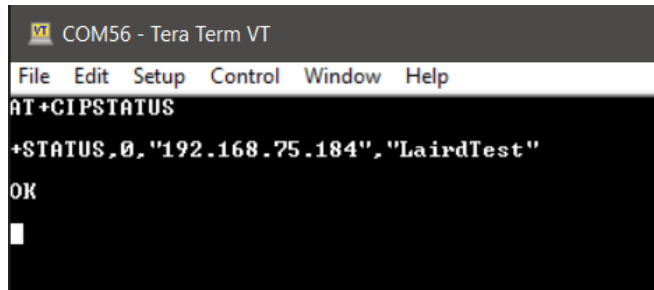
```
COM63 - Tera Term VT
File Edit Setup Control Window Help
Joining WiFi using DCT information
WiFi Configured...
SSID: LairdTest Security: 400004 Channel: 11
Obtaining IPv4 address via DHCP
Li321 : dhcp_client_init() : DHCP CLIENT hostname = IWICED IP1
WiFi State Change: 2
IPv4 network ready IP: 192.168.75.184
Joined AP
Local IP: 192.168.75.184
Netmask: 255.255.255.0
Gateway: 192.168.75.189
WiFi State Change: 3
█
```

Figure 6: Debug/Program port (associate to an access point)

2.2.1 Show the Status of Your Connection

To confirm that you are associated to an access point enter the AT+CIPSTATUS command on the UART3 console connection. This command will display your connection status as well as show your IP address.

The following displays on the UART3 screen:



```
COM56 - Tera Term VT
File Edit Setup Control Window Help
AT+CIPSTATUS
+STATUS,0,"192.168.75.184","LairdTest"
OK
█
```

Figure 7: UART3 screen (show the connection status)

This command does not show any output on the Debug/Program port.

2.2.2 Testing Your Connection

To confirm that you are able to send data you can send a ping using the AT+CIPPING=<remote host> command on the UART3 console connection. For example, if you want to ping 8.8.8.8 you would enter AT+CIPPING="8.8.8.8". This command will return the response time.

The following displays on the UART3 screen:

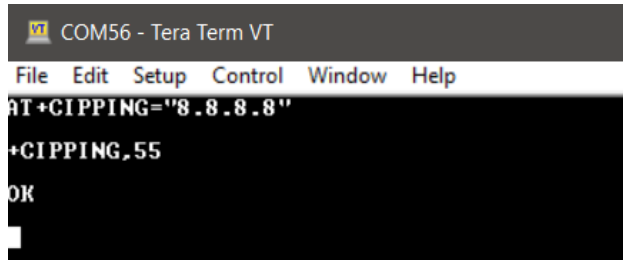


Figure 8: UART3 screen (testing your connection)

This command does not show any output on the Debug/Program port.

2.2.3 Closing Your Connection

To close your session and disconnect from the access point, enter the AT+CWQAP command on the UART3 console connection.

The following displays on the UART3 screen:

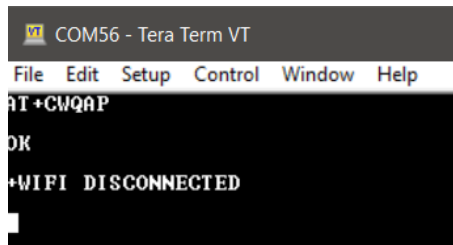


Figure 9: UART3 screen (closing your connection)

The Debug/Program port displays the following:

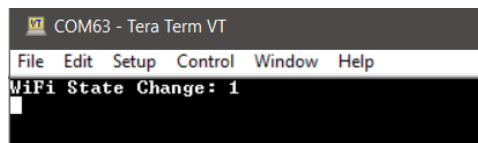


Figure 10: Debug/program port (closing your connection)

Entering an AT+CIPSTATUS displays the following on the UART3 screen:

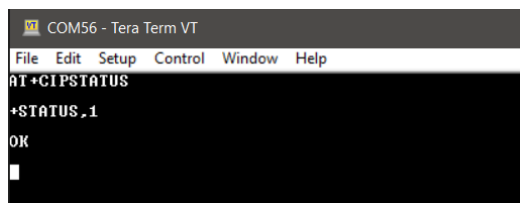


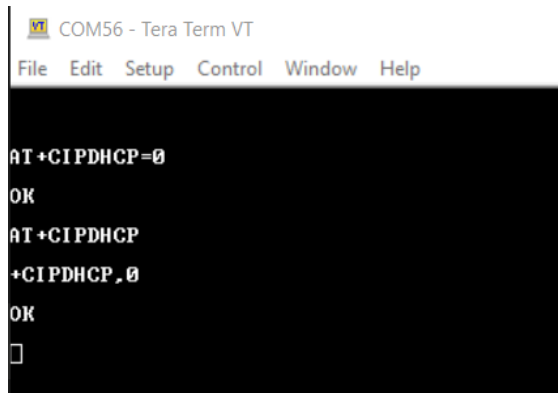
Figure 11: UART3 screen (AT+CIPSTATUS)

2.3 Associate to an Access Point – Static IP Address

2.3.1 Change to Static IP Address

To change from DHCP to using a static IP address, enter the AT+CIPDHCP=0 command on the UART3 console connection. This command disables DHCP. If you enter the command AT+CIPDHCP, it displays a 0 meaning that DHCP is disabled. To enable DHCP, you enter AT+CIPDHCP=1.

The UART3 screen displays the following:



```
COM56 - Tera Term VT
File Edit Setup Control Window Help

AT+CIPDHCP=0
OK
AT+CIPDHCP
+CIPDHCP,0
OK

```

Figure 12: UART3 (change to static IP address)

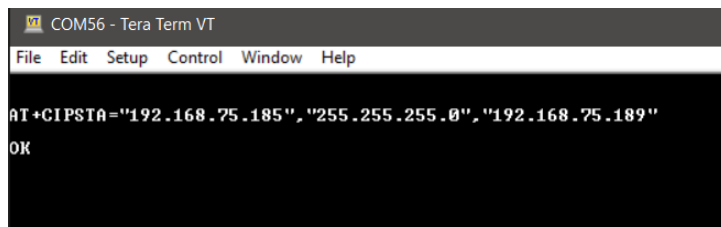
This command does not output anything to the Debug/Program port.

2.3.2 Configure Your IP Address

To your static IP address configuration, enter the AT+CIPSTA=<IP>,<netmask>,<gateway> command on the UART3 console connection. For example, if you set the IP address to 192.168.75.185, the netmask is 255.255.255.0 and our gateway is 192.168.75.189. The following command is sent:

AT+CIPSTA="192.168.75.185","255.255.255.0","192.168.75.189"

The UART3 screen displays the following:



```
COM56 - Tera Term VT
File Edit Setup Control Window Help

AT+CIPSTA="192.168.75.185","255.255.255.0","192.168.75.189"
OK

```

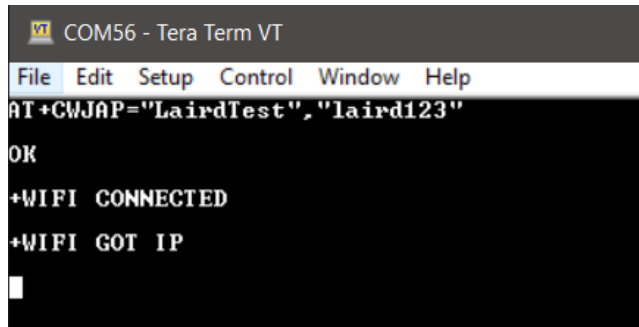
Figure 13: UART3 (configure your IP address)

This command does not output anything to the Debug/Program port.

2.3.3 Associate to an Access Point

To associate to an access point as a client, enter the `AT+CWJAP=<SSID>,<Password>` on the UART3 console connection. For example, to connect to the LairdTest network that was found in the previous command, enter `AT+CWJAP="LairdTest","laird123"`. This command automatically associates to the network and requests a DHCP address for you.

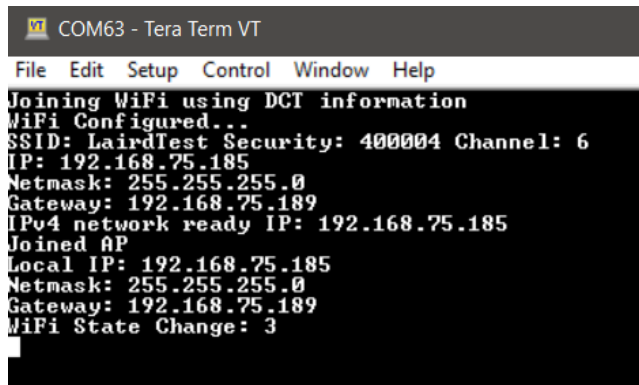
The following displays on the UART3 screen:



```
COM56 - Tera Term VT
File Edit Setup Control Window Help
AT+CWJAP="LairdTest","laird123"
OK
+WIFI CONNECTED
+WIFI GOT IP
█
```

Figure 14: UART3 screen (associate to an access point)

The Debug/Program port displays the details:



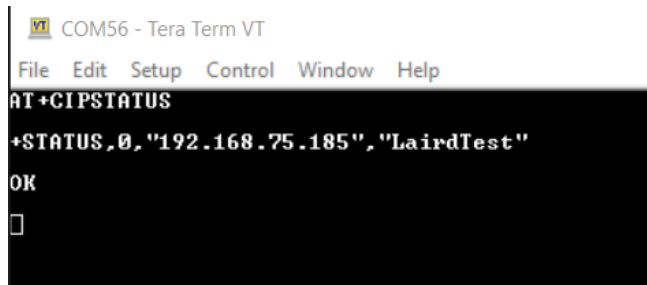
```
COM63 - Tera Term VT
File Edit Setup Control Window Help
Joining WiFi using DCT information
WiFi Configured...
SSID: LairdTest Security: 400004 Channel: 6
IP: 192.168.75.185
Netmask: 255.255.255.0
Gateway: 192.168.75.189
IPv4 network ready IP: 192.168.75.185
Joined AP
Local IP: 192.168.75.185
Netmask: 255.255.255.0
Gateway: 192.168.75.189
WiFi State Change: 3
█
```

Figure 15: Debug/Program port (associate to an access point)

2.3.4 Show the Status of Your Connection

To confirm that you are associated to an access point, enter the `AT+CIPSTATUS` command on the UART3 console connection. This command displays your connection status as well as your IP address.

The UART3 screen displays the following:



```
COM56 - Tera Term VT
File Edit Setup Control Window Help
AT+CIPSTATUS
+STATUS,0,"192.168.75.185","LairdTest"
OK
█
```

Figure 16: UART3 screen (show the status of your connection)

This command does not show any output on the Debug/Program port.

2.3.5 Testing Your Connection

To confirm that you are able to send data, you can send a ping using the AT+CIPPING=<remote host> command on the UART3 console connection. For example, to ping 8.8.8.8, enter AT+CIPPING="8.8.8.8". This command returns the response time.

The UART3 screen displays the following:

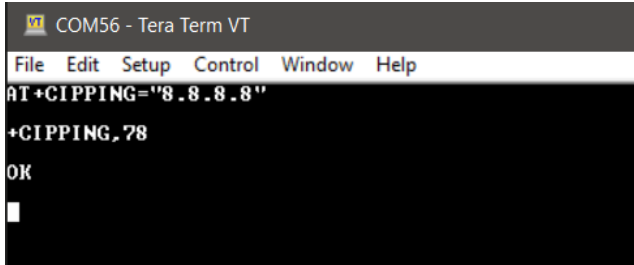


Figure 17: UART3 (testing your connection)

This command does not show any output on the Debug/Program port.

2.3.6 Closing Your Connection

To close your session and disconnect from the access point, enter the AT+CWQAP command on the UART3 console connection.

The UART3 screen displays the following:

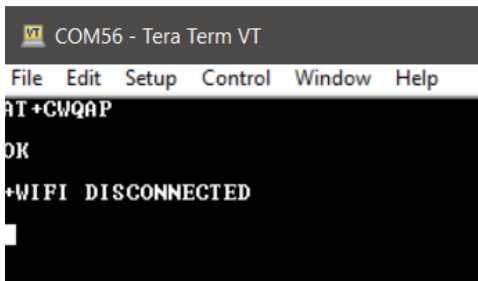


Figure 18: UART3 screen (closing your connection)

The Debug/Program port displays the following:

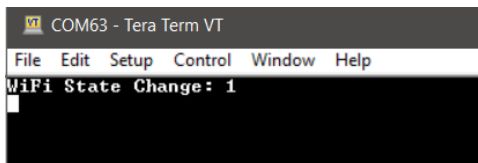


Figure 19: Debug/program port (closing your connection)

Entering an AT+CIPSTATUS displays the following on the UART3 screen:

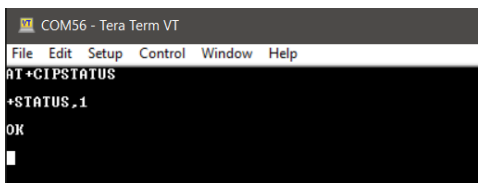


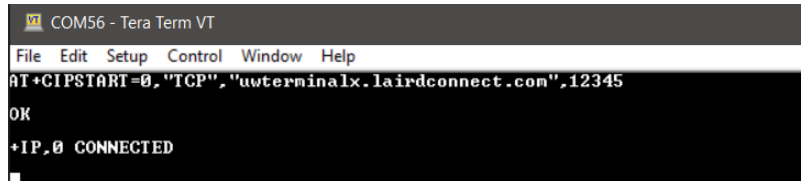
Figure 20: UART3 screen (AT+CIPSTATUS)

3 MAKING A TCP CONNECTION

3.1 Starting the Connection

If you have not associated to an access point, follow the procedure in the [Basic Wi-Fi Connection – AT Commands](#) section. Once you are associated, use the `AT+CIPSTART=<connection id>,<type>,<remote IP>,<remote port>` command on the UART3 console connection. For example, to send data to your echo server `uwterminalx.lairdconnect.com` on port 12345 using TCP, enter `AT+CIPSTART=0,"TCP","uwterminalx.lairdconnect.com",12345`.

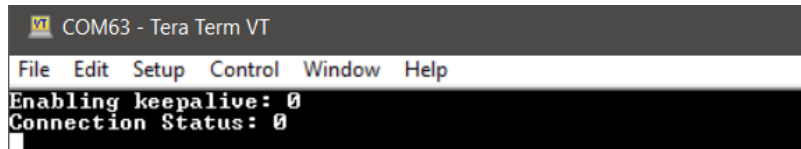
The following displays on the UART3 screen:



```
COM56 - Tera Term VT
File Edit Setup Control Window Help
AT+CIPSTART=0,"TCP","uwterminalx.lairdconnect.com",12345
OK
+IP,0 CONNECTED
```

Figure 21: UART3 screen (starting the connection)

The Debug/Program port displays the following:



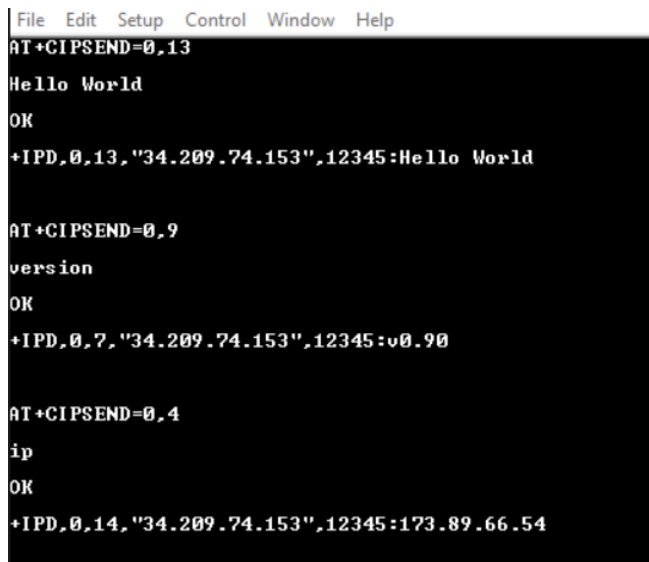
```
COM63 - Tera Term VT
File Edit Setup Control Window Help
Enabling keepalive: 0
Connection Status: 0
```

Figure 22: Debug/program port (starting the connection)

3.2 Sending Data

To send data use the `AT+CIPSEND=<connection id>,<length>` command. Once you have entered this command you will get a blank line, enter your data and hit enter. If you have reached the amount of data specified by the length command the data will be sent and it will automatically send a `+IPD` to receive the data being sent. Below are multiple examples of data being sent and received with our echo server.

The following displays on the UART3 screen:



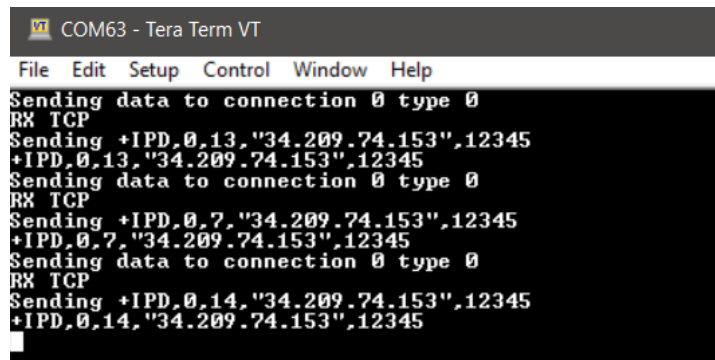
```
File Edit Setup Control Window Help
AT+CIPSEND=0,13
Hello World
OK
+IPD,0,13,"34.209.74.153",12345:Hello World

AT+CIPSEND=0,9
version
OK
+IPD,0,7,"34.209.74.153",12345:v0.90

AT+CIPSEND=0,4
ip
OK
+IPD,0,14,"34.209.74.153",12345:173.89.66.54
```

Figure 23: UART3 screen (sending data)

The Debug/Program port displays the following:



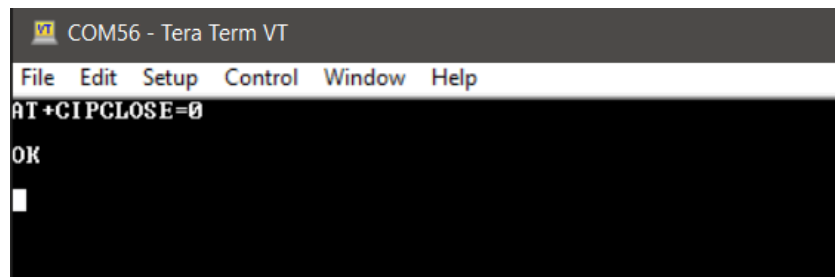
```
COM63 - Tera Term VT
File Edit Setup Control Window Help
Sending data to connection 0 type 0
RX TCP
Sending +IPD,0,13,"34.209.74.153",12345
+IPD,0,13,"34.209.74.153",12345
Sending data to connection 0 type 0
RX TCP
Sending +IPD,0,7,"34.209.74.153",12345
+IPD,0,7,"34.209.74.153",12345
Sending data to connection 0 type 0
RX TCP
Sending +IPD,0,14,"34.209.74.153",12345
+IPD,0,14,"34.209.74.153",12345
```

Figure 24: Debug/program port (sending data)

3.3 Closing the Connection

To end your TCP session and close the connection, enter the command `AT+CIPCLOSE=<connection id>`. In this example, the `AT+CIPCLOSE=0` command closes connection 0.

The UART3 screen displays the following:



```
COM56 - Tera Term VT
File Edit Setup Control Window Help
AT+CIPCLOSE=0
OK
```

Figure 25: UART3 screen (closing the connection)

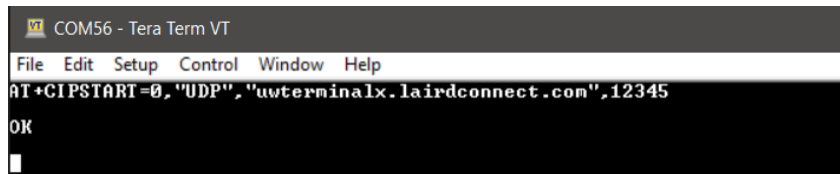
This command does not show any output on the Debug/Program port.

4 MAKING A UDP CONNECTION

4.1 Starting the Connection

If you have not associated to an access point please, follow the procedure in the [Basic Wi-Fi Connection – AT Commands](#) section. Once you are associated, use the AT+CIPSTART=<connection id>,<type>,<remote IP>,<remote port> command on the UART3 console connection. For example, to send data to our echo server uwterminalx.lairdconnect.com on port 12345 using TCP, we enter AT+CIPSTART=0,"UDP","uwterminalx.lairdconnect.com",12345.

The UART3 screen displays the following:



```
COM56 - Tera Term VT
File Edit Setup Control Window Help
AT+CIPSTART=0,"UDP","uwterminalx.lairdconnect.com",12345
OK
```

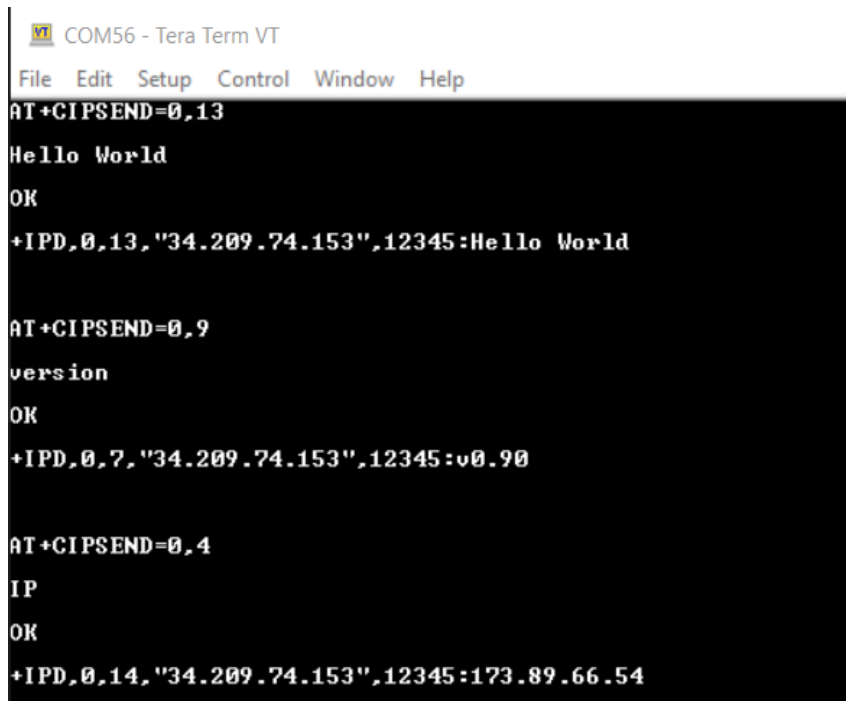
Figure 26: UART3 screen (starting the connection)

This command does not show any output on the Debug/Program port.

4.2 Sending Data

To send data, use the AT+CIPSEND=<connection id>,<length> command. Once you enter this command, receive a blank line. Type in your data and hit ENTER. If you have reached the amount of data specified by the length command, the data is sent and it automatically sends a +IPD to receive the data being sent. The following are multiple examples of data being sent and received with our echo server.

The UART3 screen displays the following:



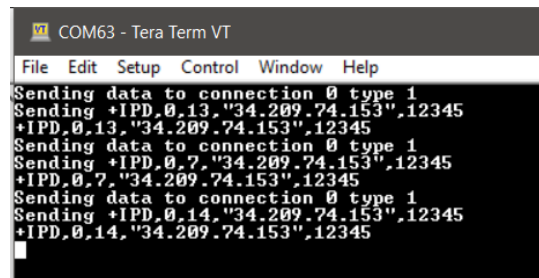
```
COM56 - Tera Term VT
File Edit Setup Control Window Help
AT+CIPSEND=0,13
Hello World
OK
+IPD,0,13,"34.209.74.153",12345:Hello World

AT+CIPSEND=0,9
version
OK
+IPD,0,7,"34.209.74.153",12345:v0.90

AT+CIPSEND=0,4
IP
OK
+IPD,0,14,"34.209.74.153",12345:173.89.66.54
```

Figure 27: UART3 screen (sending data)

The Debug/Program port displays the following:



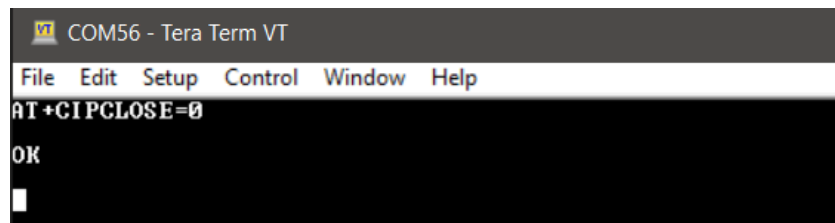
```
COM63 - Tera Term VT
File Edit Setup Control Window Help
Sending data to connection 0 type 1
Sending +IPD,0,13,"34.209.74.153",12345
+IPD,0,13,"34.209.74.153",12345
Sending data to connection 0 type 1
Sending +IPD,0,7,"34.209.74.153",12345
+IPD,0,7,"34.209.74.153",12345
Sending data to connection 0 type 1
Sending +IPD,0,14,"34.209.74.153",12345
+IPD,0,14,"34.209.74.153",12345
```

Figure 28: Debug/program port (sending data)

4.3 Closing the Connection

To end your UDP session and close the connection, enter the command AT+CIPCLOSE=<connection id>. In the following example, we use AT+CIPCLOSE=0 to close connection 0.

The UART3 screen displays the following:



```
COM56 - Tera Term VT
File Edit Setup Control Window Help
AT+CIPCLOSE=0
OK
```

Figure 29: UART3 screen (closing the connection)

This command does not show any output on the Debug/Program port.

5 GETTING DATA VIA HTTP

5.1 Configuring the Connection

If you have not associated to an access point, please follow the procedure in the [Basic Wi-Fi Connection – AT Commands](#) section. Once you are associated, use the AT+HTTPCONFIG=<host>,<port>,<method>,<URI>,<version> command on the UART3 console connection. For example, to request the page *welcome.html* from our webserver at 192.168.1.10 on port 80, we enter AT+HTTPCONFIG="192.168.1.10",80,0,"/welcome.html",1.

The UART3 screen displays the following:

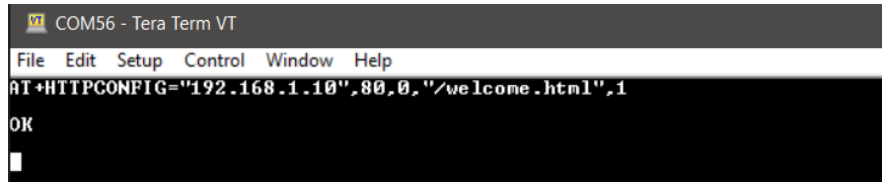
A screenshot of a Tera Term VT window titled 'COM56 - Tera Term VT'. The window has a menu bar with 'File', 'Edit', 'Setup', 'Control', 'Window', and 'Help'. The command 'AT+HTTPCONFIG="192.168.1.10",80,0,"/welcome.html",1' is entered, and the response 'OK' is displayed below it.

Figure 30: UART3 screen (configuring the connection)

This command does not show any output on the Debug/Program port.

5.2 Reading the Page

To read the data from the webpage, enter the AT+HTTPEXEC=<length> command. If you do not know the amount of data you are going to be receiving, just use 0. In our example, the command is AT+HTTPEXEC=0.

The UART3 screen displays the following:

A screenshot of a Tera Term VT window titled 'COM56 - Tera Term VT'. The command 'AT+HTTPEXEC=0' is entered. The response 'OK' is shown, followed by 'HTTPD,200,130:<html>'. The HTML content is displayed with some characters escaped as backslashes: '<body> <p>Congratulations you are now viewing a webpage and your http command is working cor rectly</p> </body> </html>'. A cursor is visible at the end of the HTML content.

Figure 31: UART3 screen (reading the page)

The Debug/Program port displays the following:

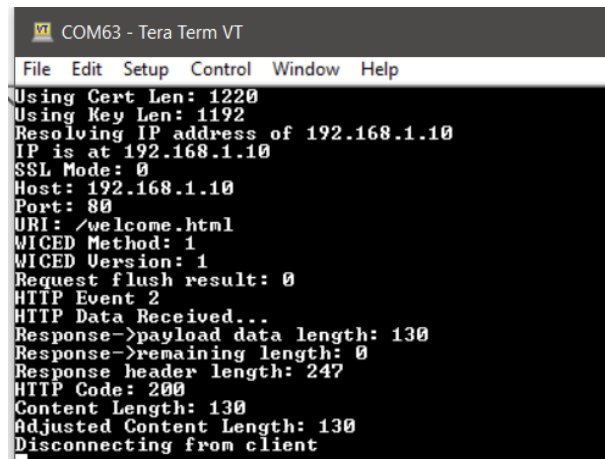
A screenshot of a Tera Term VT window titled 'COM63 - Tera Term VT'. The window shows the following text: 'Using Cert Len: 1220', 'Using Key Len: 1192', 'Resolving IP address of 192.168.1.10', 'IP is at 192.168.1.10', 'SSL Mode: 0', 'Host: 192.168.1.10', 'Port: 80', 'URI: /welcome.html', 'WICED Method: 1', 'WICED Version: 1', 'Request flush result: 0', 'HTTP Event 2', 'HTTP Data Received...', 'Response->payload data length: 130', 'Response->remaining length: 0', 'Response header length: 247', 'HTTP Code: 200', 'Content Length: 130', 'Adjusted Content Length: 130', and 'Disconnecting from client'.

Figure 32: Debug/program port (reading the page)

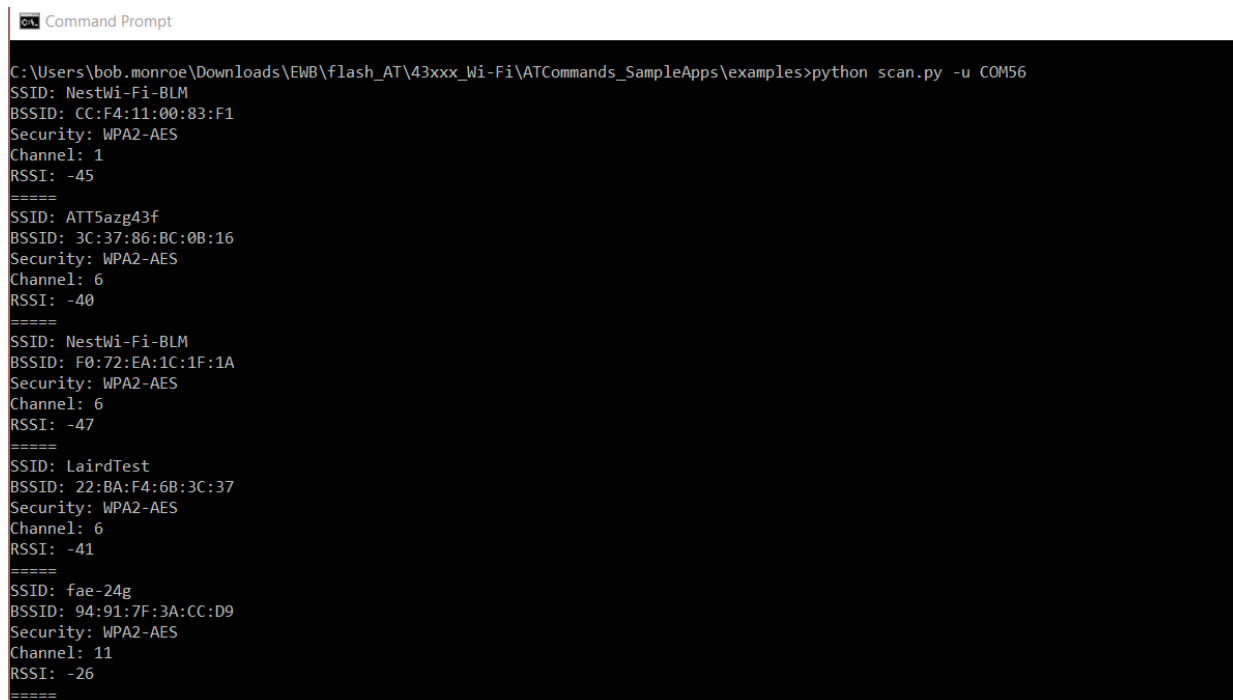
7 PYTHON SCRIPTS

7.1 Introduction

On the [Sterling-EWB product page](#) in the Documentation section, download the file *ATCommands_SampleApps.zip* and extract this to your computer. Python scripts that allow you to programmatically accomplish many of the AT commands are located in the *examples* directory. You must have Python loaded and configured on your computer for these commands to work. You also need a USB to FTDI cable connected to UART3 (J7) but do not open a console connection to it.

7.2 Scan for Available Access Points

To scan for available access points, enter *python scan.py -u COM56*. This lists all of the available access points.

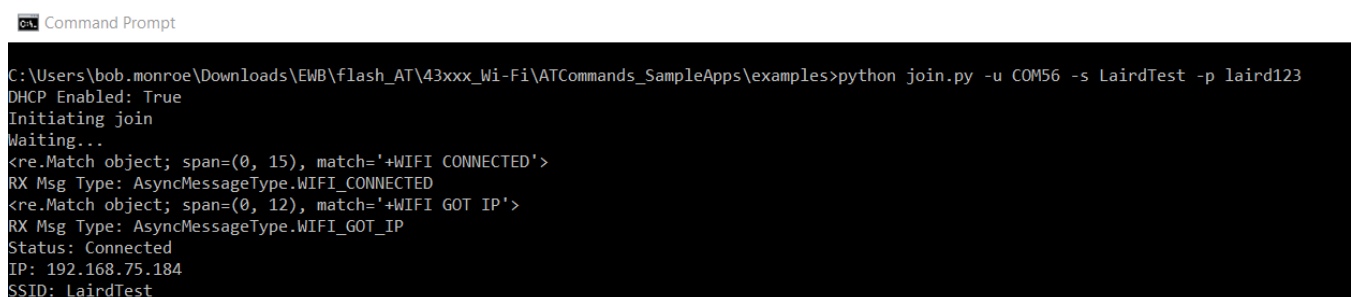


```
Command Prompt
C:\Users\bob.monroe\Downloads\EWB\flash_AT\43xxx_Wi-Fi\ATCommands_SampleApps\examples>python scan.py -u COM56
SSID: NestWi-Fi-BLM
BSSID: CC:F4:11:00:83:F1
Security: WPA2-AES
Channel: 1
RSSI: -45
=====
SSID: ATT5azg43f
BSSID: 3C:37:86:BC:0B:16
Security: WPA2-AES
Channel: 6
RSSI: -40
=====
SSID: NestWi-Fi-BLM
BSSID: F0:72:EA:1C:1F:1A
Security: WPA2-AES
Channel: 6
RSSI: -47
=====
SSID: LairdTest
BSSID: 22:BA:F4:6B:3C:37
Security: WPA2-AES
Channel: 6
RSSI: -41
=====
SSID: fae-24g
BSSID: 94:91:7F:3A:CC:D9
Security: WPA2-AES
Channel: 11
RSSI: -26
=====
```

Figure 35: Scanning for available access points

7.3 Join an Access Point - DHCP

To join an access point, enter *python join.py -u UARTPORT -s SSID -p Password*. In our example, we enter *python join.py -u COM56 -s LairdTest -p laird123*.

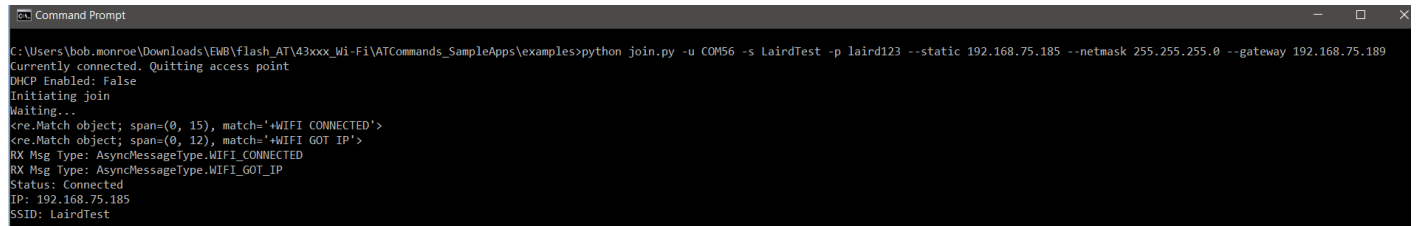


```
Command Prompt
C:\Users\bob.monroe\Downloads\EWB\flash_AT\43xxx_Wi-Fi\ATCommands_SampleApps\examples>python join.py -u COM56 -s LairdTest -p laird123
DHCP Enabled: True
Initiating join
Waiting...
<re.Match object; span=(0, 15), match='+WIFI CONNECTED'>
RX Msg Type: AsyncMessageType.WIFI_CONNECTED
<re.Match object; span=(0, 12), match='+WIFI GOT IP'>
RX Msg Type: AsyncMessageType.WIFI_GOT_IP
Status: Connected
IP: 192.168.75.184
SSID: LairdTest
```

Figure 36: Join an access point - DHCP

7.4 Join an Access Point – Static IP Address

To join an access point, enter `python join.py -u UARTPORT -s SSID -p Password --static STATIC --netmask NETMASK --gateway GATEWAY`. In our example, we enter `python join.py -u COM56 -s LairdTest -p laird123 --static 192.168.75.185 --netmask 255.255.255.0 --gateway 192.168.75.189`.

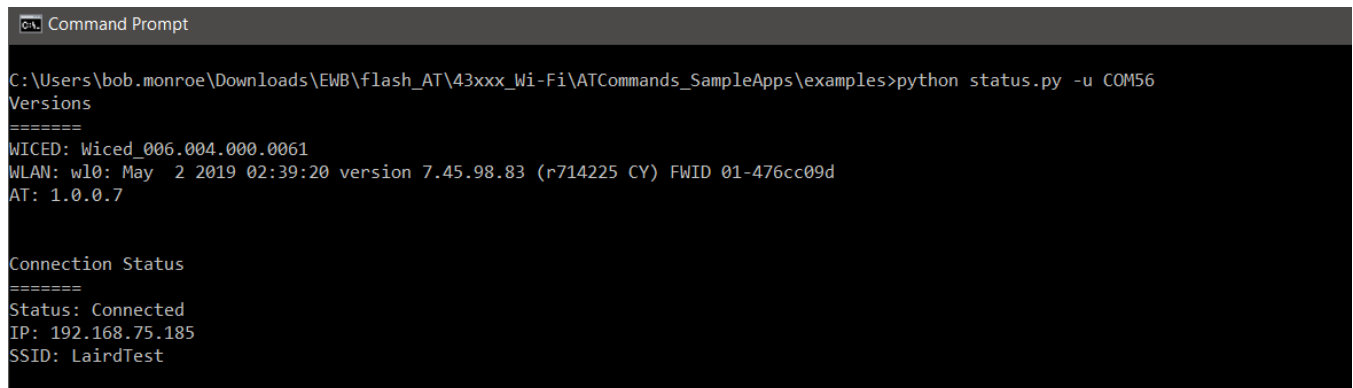


```
Command Prompt
C:\Users\bob.monroe\Downloads\EWB\flash_AT\43xxx_Wi-Fi\ATCommands_SampleApps\examples>python join.py -u COM56 -s LairdTest -p laird123 --static 192.168.75.185 --netmask 255.255.255.0 --gateway 192.168.75.189
Currently connected. Quitting access point
DHCP Enabled: False
Initiating join
Waiting...
<re.Match object; span=(0, 15), match='+WIFI CONNECTED'>
<re.Match object; span=(0, 12), match='+WIFI GOT IP'>
RX Msg Type: AsyncMessageType.WIFI_CONNECTED
RX Msg Type: AsyncMessageType.WIFI_GOT_IP
Status: Connected
IP: 192.168.75.185
SSID: LairdTest
```

Figure 37: Join an access point - static IP address

7.5 Display Status

To display your status, enter `python scan.py -u UARTPORT`.



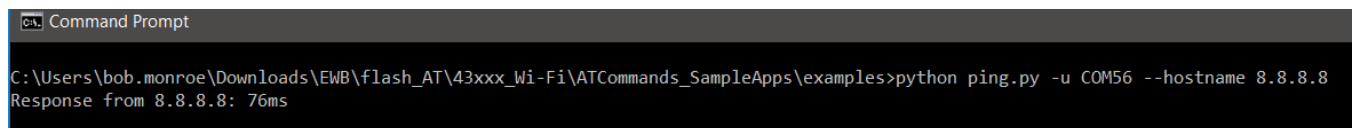
```
Command Prompt
C:\Users\bob.monroe\Downloads\EWB\flash_AT\43xxx_Wi-Fi\ATCommands_SampleApps\examples>python status.py -u COM56
Versions
=====
WICED: Wiced_006.004.000.0061
WLAN: wl0: May 2 2019 02:39:20 version 7.45.98.83 (r714225 CY) FWID 01-476cc09d
AT: 1.0.0.7

Connection Status
=====
Status: Connected
IP: 192.168.75.185
SSID: LairdTest
```

Figure 38: Display status

7.6 Ping a Device

To ping a device on your network, enter `python ping.py -u UARTPORT --hostname HOSTNAME`.



```
Command Prompt
C:\Users\bob.monroe\Downloads\EWB\flash_AT\43xxx_Wi-Fi\ATCommands_SampleApps\examples>python ping.py -u COM56 --hostname 8.8.8.8
Response from 8.8.8.8: 76ms
```

Figure 39: Ping a device

8 ADDITIONAL ASSISTANCE

Please contact your local sales representative or our support team for further assistance:

Laird Connectivity

Support Centre: <https://www.lairdconnect.com/resources/support>

Email: wireless.support@lairdconnectivity.com

Phone: Americas: +1-800-492-2320

Europe: +44-1628-858-940

Hong Kong: +852 2923 0610

Web: <https://www.lairdconnect.com/products>