# Adafruitbinascii Library Documentation

***Release 1.0***

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# Contents

The binascii module contains a number of methods to convert between binary and various ASCII-encoded binary representations.

CHAPTER 1

# Dependencies

This driver depends on:

- Adafruit CircuitPython

Please ensure all dependencies are available on the CircuitPython filesystem. This is easily achieved by downloading the Adafruit library and driver bundle.

CHAPTER 2

# Installing from PyPI

On supported GNU/Linux systems like the Raspberry Pi, you can install the driver locally from PyPI. To install for current user:

```
pip3 install adafruit-circuitpython-binascii
```

To install system-wide (this may be required in some cases):

```
sudo pip3 install adafruit-circuitpython-binascii
```

To install in a virtual environment in your current project:

```
mkdir project-name && cd project-name
python3 -m venv .env
source .env/bin/activate
pip3 install adafruit-circuitpython-binascii
```

# CHAPTER 3

## Usage Example

Hex <-> Binary Conversions

```
from adafruit_binascii import hexlify, unhexlify
# Binary data.
data = b"CircuitPython is Awesome!"

# Get the hexadecimal representation of the binary data
hex_data = hexlify(data)
print("Hex Data: ", hex_data)

# Get the binary data represented by hex_data
bin_data = unhexlify(hex_data)
print("Binary Data: ", bin_data)
```

CHAPTER 4

# Contributing

Contributions are welcome! Please read our Code of Conduct before contributing to help this project stay welcoming.

CHAPTER 5

# Documentation

For information on building library documentation, please check out this guide.

# CHAPTER 6

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## 6.1 Simple test

Ensure your device works with this simple test.

Listing 1: examples/binascii_simpletest.py

```
from adafruit_binascii import hexlify, unhexlify, a2b_base64, b2a_base64

print("-- Binary<->Hex Conversions --")
# Binary data.
data = b"CircuitPython is Awesome!"
print("Original Binary Data: ", data)

# Get the hexadecimal representation of the binary data
hex_data = hexlify(data)
print("Hex Data: ", hex_data)
# Verify data
assert (
    hex_data == b"436972637569745079746866f6e206973204177657365736f6d6521",
), "hexlified data does not match expected data."
# Get the binary data represented by hex_data
bin_data = unhexlify(hex_data)
print("Binary Data: ", bin_data)
# Verify data
assert bin_data == data, "unhexlified binary data does not match original binary data.
↪"

print("-- Base64 ASCII <-> Binary Conversions --")
data = b"Blinka"
print("Original Binary Data: ", data)
# Convert binary data to a line of ASCII characters in base64 coding.
b64_ascii_data = b2a_base64(data)
print("Base64 ASCII Data: ", b64_ascii_data)
```

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```
assert b64_ascii_data == b"Qmxpbmth\n", "Expected base64 coding does not match."

# Convert a block of base64 data back to binary data.
bin_data = a2b_base64(b"Qmxpbmth\n")
print("Converted b64 ASCII->Binary Data: ", bin_data)
assert bin_data == data, "Expected binary data does not match."
```

## 6.2 adafruit_binascii

Helpers for conversions between binary and ASCII

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### 6.2.1 Implementation Notes

**Hardware:**

**Software and Dependencies:**

- Adafruit CircuitPython firmware for the supported boards: https://github.com/adafruit/circuitpython/releases

**exception** adafruit_binascii.**Error**
Exception raised on errors. These are usually programming errors.

adafruit_binascii.**a2b_base64**(*b64_data*)
Convert a block of base64 data back to binary and return the binary data.

**Parameters** **b64_data** (*str*) – Base64 data.

adafruit_binascii.**b2a_base64**(*bin_data*)
Convert binary data to a line of ASCII characters in base64 coding.

**Parameters** **bin_data** (*str*) – Binary data string, as bytes

CHAPTER 7

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