# Format for programmatically building an Arbitrary Waveform for SDGs

**February 26, 2018**

The SDGs require UTF8 formatting for the words used to build an arbitrary waveform.

The code may report “UnicodeDecodeError: ‘ascii’ codec can’t decode byte 0x80 in position 77: ordinal not in range(128)”

This indicates that the arbitrary waveform data is coded as “ascii” which is not the expected data format “utf8”.

Here is the proper syntax for conversion using Python:

```
#!/usr/bin/env python2.7
# -*- coding: utf-8 -*-
import visa
import time
import binascii

import sys
reload(sys)
sys.setdefaultencoding('utf8')

#USB resource of Device
#device_resource = "USB0::0xF4EC::0x1101::#15::INSTR"
device_resource = 'USB0::0xF4ED::0xEE3A::SDG2XBA3150062::INSTR'
#Little endian, 16-bit 2's complement
#wave_points = [0x0010, 0x0020, 0x0030, 0x0040, 0x0050, 0x0060, 0x0070, 0xff7f]
wave_points = [0x0000, 0x0020, 0x0040, 0x0060, 0x0080, 0x00A0, 0x00C0, 0x00E0]
#wave_points = []
```

## North American Headquarters

SIGLENT Technologies America, Inc
6557 Cochran Rd Solon, Ohio 44139
Tel: 440-398-5800
Toll Free:877-515-5551
Fax: 440-399-1211
info@siglent.com
www.siglentamerica.com/

## European Sales Offices

SIGLENT TECHNOLOGIES EUROPE GmbH
Staetzlinger Str. 70
86165 Augsburg, Germany
Tel: +49(0)-821-666 0 111 0
Fax: +49(0)-821-666 0 111 22
info-eu@siglent.com
www.siglenteu.com

## Asian Headquarters

SIGLENT TECHNOLOGIES CO., LTD.
Blog No.4 & No.5, Antongda Industrial Zone,
3rd Liuxian Road, Bao'an District,
Shenzhen, 518101, China.
Tel:+ 86 755 3661 5186
Fax:+ 86 755 3359 1582
sales@siglent.com
www.siglent.com/ens