

# Advantech AE Technical Share Document

Date	2023 / 10 / 06	Release Note	<input type="checkbox"/> Internal <input checked="" type="checkbox"/> External
Category	<input checked="" type="checkbox"/> FAQ <input type="checkbox"/> SOP	Related OS	
Abstract	How to install DAQ DN4 linux driver and test example in linux system		
Keyword	linux, DAQ, DN4, SDK		
Related Product	DAQ devices		

## ■ Problem Description:

How to install DN4 driver(version higher than 4.0.0.0) and test example. By the way, please reference “readme” document if you install DN3 driver(version less than 4.0.0.0).

## ■ Brief Solution - Step by Step:

Here're two methods to install DN4 driver in linux system.

**Note:**


[1] The root permission is required for installing DAQNavi Linux driver or running the program.

>> **sudo su**

### 1. To install driver by UI mode.

**Step1.** Open Terminal then move to the path where the driver located.

>> **cd /(file path)**



```

root@iolinuxcantest02-desktop: /home/iolinuxcantest-02/D...
iolinuxcantest-02@iolinuxcantest02-desktop:~$ sudo su
[sudo] password for iolinuxcantest-02:
root@iolinuxcantest02-desktop:/home/iolinuxcantest-02# cd Downloads/
root@iolinuxcantest02-desktop:/home/iolinuxcantest-02/Downloads# ls
DAQ_Linux_4.0.9.0_64bit.run
root@iolinuxcantest02-desktop:/home/iolinuxcantest-02/Downloads#

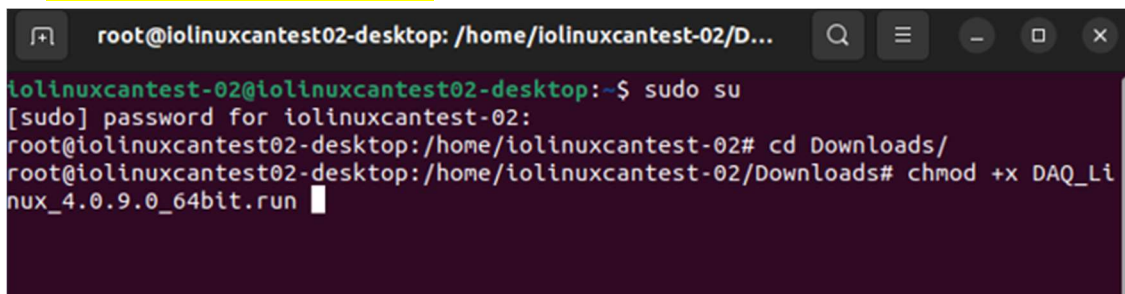
```

**Step2.** Increase the permission about the driver.

>> **chmod +x xxxxxxxx\_64bit.run**

Or

>> **chmod +x xxxxxxxx\_32bit.run**



```

root@iolinuxcantest02-desktop: /home/iolinuxcantest-02/D...
iolinuxcantest-02@iolinuxcantest02-desktop:~$ sudo su
[sudo] password for iolinuxcantest-02:
root@iolinuxcantest02-desktop:/home/iolinuxcantest-02# cd Downloads/
root@iolinuxcantest02-desktop:/home/iolinuxcantest-02/Downloads# chmod +x DAQ_Li
nux_4.0.9.0_64bit.run

```

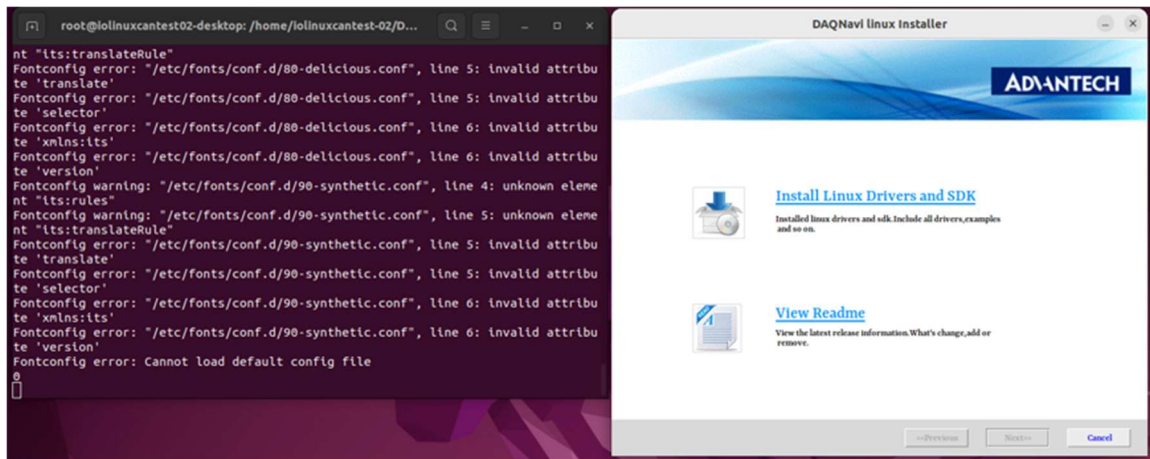
**Step3.** Run driver directly.

>> **./xxxxxxx\_64bit.run**

Or

>> **./xxxxxxx\_32bit.run**

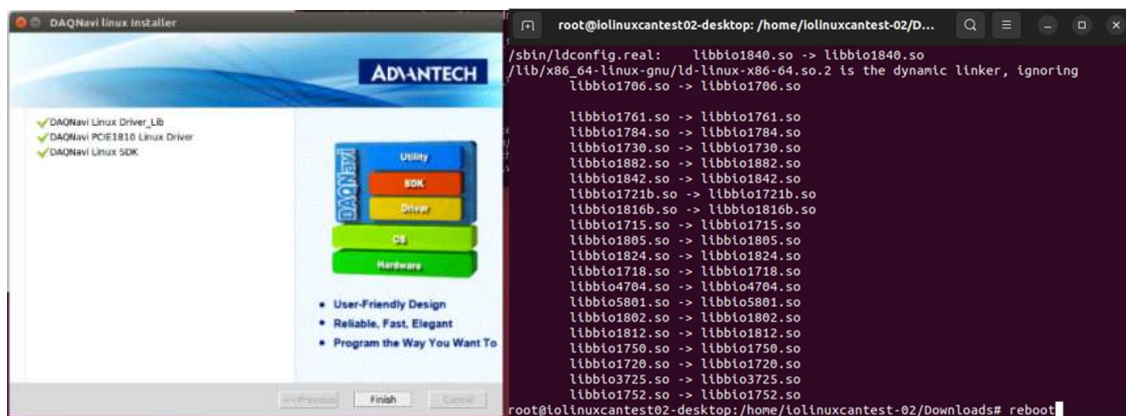
```
root@iolinuxcantest02-desktop: /home/iolinuxcantest-02/D...
iolinuxcantest-02@iolinuxcantest02-desktop:~$ sudo su
[sudo] password for iolinuxcantest-02:
root@iolinuxcantest02-desktop: /home/iolinuxcantest-02# cd Downloads/
root@iolinuxcantest02-desktop: /home/iolinuxcantest-02/Downloads# chmod +x DAQ_Linux_4.0.9.0_64bit.run
root@iolinuxcantest02-desktop: /home/iolinuxcantest-02/Downloads# ./DAQ_Linux_4.0.9.0_64bit.run
```



**Step4.** Choose the driver needed then keep moving on next step.



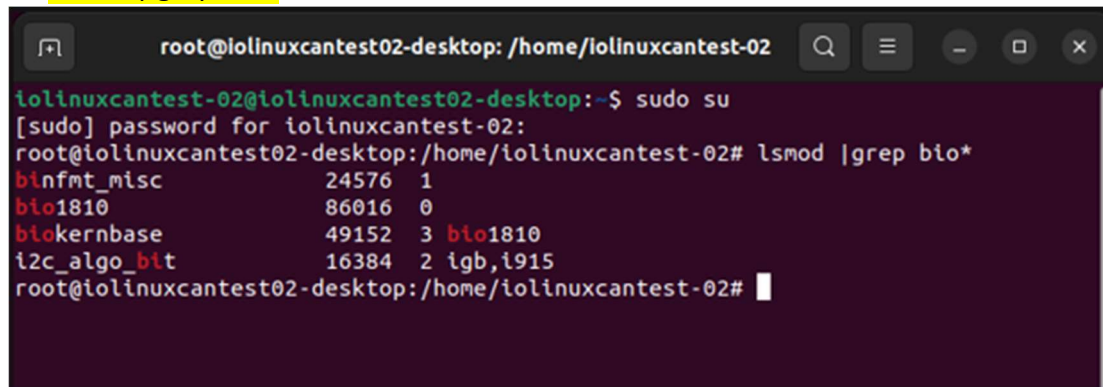
**Step5.** Finish then **please reboot system directly.**



**>> reboot**

**Step6.** After reboot system then confirm driver installation result if the device already plug in system.

>> `lsmod | grep bio*`



```

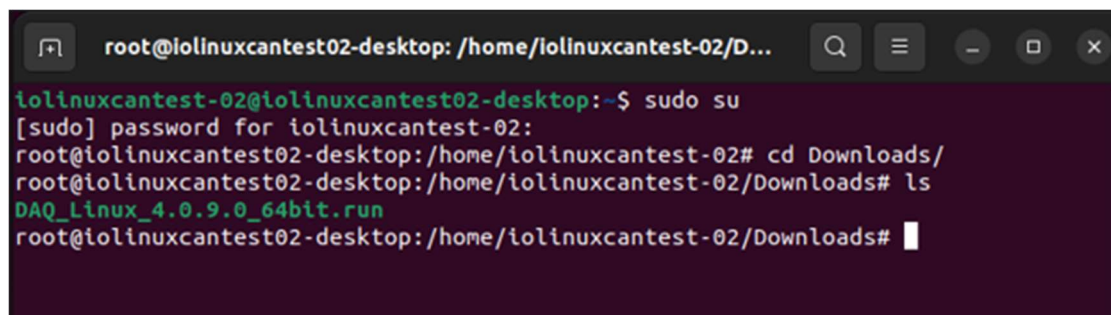
root@iolinuxcantest02-desktop: /home/iolinuxcantest-02
iolinuxcantest-02@iolinuxcantest02-desktop:~$ sudo su
[sudo] password for iolinuxcantest-02:
root@iolinuxcantest02-desktop:/home/iolinuxcantest-02# lsmod |grep bio*
binfmt_misc          24576  1
bio1810              86016  0
bio_kernbase         49152  3 bio1810
i2c_algo_bit         16384  2 i2c, i915
root@iolinuxcantest02-desktop:/home/iolinuxcantest-02#

```

## 2. To install driver by silent mode.

**Step1.** Open Terminal then move to the path where the driver located.

>> `cd /(file path)`



```

root@iolinuxcantest02-desktop: /home/iolinuxcantest-02/D...
iolinuxcantest-02@iolinuxcantest02-desktop:~$ sudo su
[sudo] password for iolinuxcantest-02:
root@iolinuxcantest02-desktop:/home/iolinuxcantest-02# cd Downloads/
root@iolinuxcantest02-desktop:/home/iolinuxcantest-02/Downloads# ls
DAQ_Linux_4.0.9.0_64bit.run
root@iolinuxcantest02-desktop:/home/iolinuxcantest-02/Downloads#

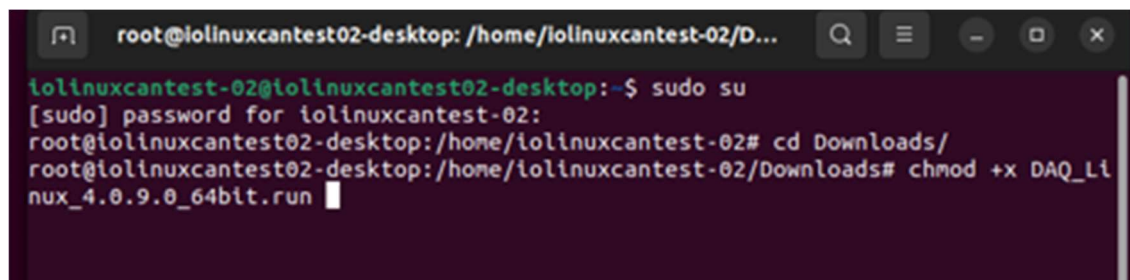
```

**Step2.** Increase the permission about the driver.

>> `chmod +x xxxxxxxx _64bit.run`

Or

>> `chmod +x xxxxxxxx _32bit.run`



```

root@iolinuxcantest02-desktop: /home/iolinuxcantest-02/D...
iolinuxcantest-02@iolinuxcantest02-desktop:~$ sudo su
[sudo] password for iolinuxcantest-02:
root@iolinuxcantest02-desktop:/home/iolinuxcantest-02# cd Downloads/
root@iolinuxcantest02-desktop:/home/iolinuxcantest-02/Downloads# chmod +x DAQ_Li
nux_4.0.9.0_64bit.run

```

**Step3.** Run driver in silent mode and this mode doesn't show up UI.

>> `./xxxxxxx _64bit.run silent install ($driver's name)`

Or

>> `./xxxxxxx _32bit.run silent install ($driver's name)`



```

root@iolinuxcantest02-desktop: /home/iolinuxcantest-02/D...
iolinuxcantest-02@iolinuxcantest02-desktop:~$ sudo su
[sudo] password for iolinuxcantest-02:
root@iolinuxcantest02-desktop:/home/iolinuxcantest-02# cd Downloads/
root@iolinuxcantest02-desktop:/home/iolinuxcantest-02/Downloads# ./DAQ_Linux_4.0
9.0_64bit.run install pcie1810

```

It will show up driver's name if input wrong one.

```

root@io-desktop: /home/io/Downloads
1.6.1
DAQNavi_Linux_Products/linux_driver_source_4.0.0.4_64bit/libs/libbio1706.so.3.1.
5.1
DAQNavi_Linux_Products/linux_driver_source_4.0.0.4_64bit/libs/libbio1784.so.3.1.
4.1
DAQNavi_Linux_Products/linux_driver_source_4.0.0.4_64bit/libs/libbio1714.so.3.1.
8.1
DAQNavi_Linux_Products/linux_driver_source_4.0.0.4_64bit/libs/libbio1733.so
DAQNavi_Linux_Products/linux_driver_source_4.0.0.4_64bit/libs/libbio1724.so.3.1.
6.1
DAQNavi_Linux_Products/linux_driver_source_4.0.0.4_64bit/readme.txt
DAQNavi_Linux_Products/linux_driver_source_4.0.0.4_64bit/DB/
DAQNavi_Linux_Products/linux_driver_source_4.0.0.4_64bit/DB/daqnavi.config.db
please input driver name in next list:
['usb4716', 'driver_lib', 'pci1753_mic3753_pcm3753i', 'usb5800dio', 'pci1761_pcm
3761i', 'pcie1810', 'pcmgpdc', 'usb4702_usb4704', 'pci1706', 'pci1724', 'pci1727
', 'pci1721', 'pci1720', 'pci1723', 'pci1737_pci1739', 'usb4718', 'pcm3725', 'pc
i1747', 'pci1762', 'pci1741', 'pcigpdc', 'usb4751', 'usb4750', 'pci1780', 'pci17
84', 'pcigpdc', 'pcie1802', 'pcm3810i', 'pci1711', 'pci1713', 'pci1730_pcm3730
i', 'pci1715', 'pci1716', 'pci1733', 'pci1714_pcie1744', 'pci1734', 'pcm3730', '
pcm3718', 'pci1758', 'pcigpdcx', 'pci1754', 'pci1756', 'pci1757', 'pci1750', 'pc
i1751', 'pci1752', 'usb4711a', 'pcie1840', 'usb4761']
root@io-desktop:/home/io/Downloads# ./linux_driver_source_4.0.0.4_64bit.run sile
nt install usb5800dio

```

**Step4.** Finish then **please reboot system directly.**

```

root@iolinuxcantest02-desktop: /home/iolinuxcantest-02/D...
/sbin/ldconfig.real:  libbio1840.so -> libbio1840.so
/lib/x86_64-linux-gnu/ld-linux-x86-64.so.2 is the dynamic linker, ignoring
libbio1706.so -> libbio1706.so

libbio1761.so -> libbio1761.so
libbio1784.so -> libbio1784.so
libbio1730.so -> libbio1730.so
libbio1882.so -> libbio1882.so
libbio1842.so -> libbio1842.so
libbio1721b.so -> libbio1721b.so
libbio1816b.so -> libbio1816b.so
libbio1715.so -> libbio1715.so
libbio1805.so -> libbio1805.so
libbio1824.so -> libbio1824.so
libbio1718.so -> libbio1718.so
libbio4704.so -> libbio4704.so
libbio5801.so -> libbio5801.so
libbio1802.so -> libbio1802.so
libbio1812.so -> libbio1812.so
libbio1750.so -> libbio1750.so
libbio1720.so -> libbio1720.so
libbio3725.so -> libbio3725.so
libbio1752.so -> libbio1752.so
root@iolinuxcantest02-desktop:/home/iolinuxcantest-02/Downloads# reboot

```

>> **reboot**

**Step5.** After reboot system then confirm driver installation result if the device already plug in system.

```

root@iolinuxcantest02-desktop: /home/iolinuxcantest-02
iolinuxcantest-02@iolinuxcantest02-desktop:~$ sudo su
[sudo] password for iolinuxcantest-02:
root@iolinuxcantest02-desktop:/home/iolinuxcantest-02# lsmod |grep bio*
bnfnt_misc      24576  1
bio1810         86016  0
bio_kernbase    49152  3 bio1810
i2c_algo_bit    16384  2 igb,i915
root@iolinuxcantest02-desktop:/home/iolinuxcantest-02#

```

Here shows how to use example after finishing driver installation.

**Note:**

[1] The root permission is required for installing DAQNav Linux driver or running the program.

[2] DAQNav Linux is open source. User can find all the resource in below path.

/opt/advantech/daqnavi\_driver\_source\_code/

```

root@iolinuxcantest02-desktop: /opt/advantech/daqnavi_driver_source_code/linux_dri...
root@iolinuxcantest02-desktop:/home/iolinuxcantest-02# cd /opt/advantech/daqnavi_driver_source_code/linux_driver_source_4.0.9.0_64bit/drivers/
root@iolinuxcantest02-desktop:/opt/advantech/daqnavi_driver_source_code/linux_driver_source_4.0.9.0_64bit/drivers# ls
'${r}'          pci1737_pcie1739      pcie1884
bin             pci1741              pcigpdc
driver_lib      pci1747              pcigpdcx
ecup1706        pci1750              pcigpdcx
la_ethernetcat pci1751              'pcigpdcx'${r}'
inc             pci1752              pcn3718
lib             pci1753_mtc3753_pcn3753i pcn3725
pci1706         pci1754              pcn3730
pci1710         pci1756              pcn3810i
pci1711         pci1757              pcngpdc
pci1712b        pci1758              usb4702_usb4704
pci1712b'${r}'  pci1760              usb4711a
pci1713         'pci1760b'${r}'      usb4711b_4716b
pci1714_pcie1744 pci1761_pcn3761i     usb4716
pci1715         pci1762              usb4718
pci1715b        pci1780              usb4750
pci1715b'${r}'  pci1784              usb4750b
pci1716         pcie1802             usb4751
pci1716b        pcie1803             usb4751b_4751lb
pci1718         pcie1805             usb4761
pci1720         pcie1810             usb4761b
pci1721         pcie1810b            usb5800dio
pci1721b        pcie1812             usb5801
pci1723         pcie1816b            usb5817
pci1724         pcie1824             usb5820
pci1727         pcie1840             usbidaq
pci1730_pcn3730i pci1841
pci1733         pcie1842
pci1734         pcie1882
root@iolinuxcantest02-desktop:/opt/advantech/daqnavi_driver_source_code/linux_driver_source_4.0.9.0_64bit/drivers#

```

**Step1.** The example source code location is “/opt/advantech/examples/”.

>> **cd /opt/advantech/examples/**



```
root@iolinuxcantest02-desktop: /opt/advantech/examples
iolinuxcantest-02@iolinuxcantest02-desktop:~$ sudo su
[sudo] password for iolinuxcantest-02:
root@iolinuxcantest02-desktop:/home/iolinuxcantest-02# cd /opt/advantech/example
s/
root@iolinuxcantest02-desktop:/opt/advantech/examples# ls
ANSI C Example  C++ Console  Java  profile  Python  Qt
root@iolinuxcantest02-desktop:/opt/advantech/examples#
```

**Step2.** Modify the “deviceDescription” parameter in example. Here use “gedit” which is a text editor.

>> `gedit (example .cpp file name)`

```
root@iolinuxcantest02-desktop: /opt/advantech/examples/...
iolinuxcantest-02@iolinuxcantest02-desktop:~$ sudo su
[sudo] password for iolinuxcantest-02:
root@iolinuxcantest02-desktop:/home/iolinuxcantest-02# cd /opt/advantech/example
s/
root@iolinuxcantest02-desktop:/opt/advantech/examples# ls
ANSI C Example  C++ Console  Java  profile  Python  Qt
root@iolinuxcantest02-desktop:/opt/advantech/examples# cd C++_Console/AI_Streami
ngAI
root@iolinuxcantest02-desktop:/opt/advantech/examples/C++_Console/AI_StreamingAI
# ls
Makefile          StreamingAI.cpp  StreamingAI.res
StreamingAI.bpf   StreamingAI.dsp  StreamingAI.sln
StreamingAI.bpr   StreamingAI.dsw  StreamingAI.vcproj
root@iolinuxcantest02-desktop:/opt/advantech/examples/C++_Console/AI_StreamingAI
# gedit StreamingAI.cpp
```

**Step3.** Get device description in system then replace the “deviceDescription” in example and modify initial parameter or function if needed at this step.

>> `cat /sys/class/daq/daq0/desc`

```
root@iolinuxcantest02-desktop: /home/iolinuxcantest-02
iolinuxcantest-02@iolinuxcantest02-desktop:~$ sudo su
[sudo] password for iolinuxcantest-02:
root@iolinuxcantest02-desktop:/home/iolinuxcantest-02# cat /sys/class/daq/daq0/d
esc
PCIE-1810,BID#15root@iolinuxcantest02-desktop:/home/iolinuxcantest-02#
```

```

27 * 1. Set the 'deviceDescription' which can get from system device manager for opening the
    device.
28 * 2. Set the 'profilePath' to save the profile path of being initialized device.
29 * 3. Set the 'startChannel' as the first channel for scan analog samples
30 * 4. Set the 'channelCount' to decide how many sequential channels to scan analog samples.
31 * 5. Set the 'sectionLength' as the length of data section for Buffered AI.
32 * 6. Set the 'sectionCount' as the count of data section for Buffered AI.
33 *
34 * I/O Connections Overview:
35 * Please refer to your hardware reference manual.
36 *
37 *****/
38 #include <stdlib.h>
39 #include <stdio.h>
40 #include "../inc/compatibility.h"
41 #include "../inc/bdaqctrl.h"
42 using namespace Automation::BDaq;
43 //
44 // Configure the following parameters before running the demo
45 //
46 #define deviceDescription L"PCIE-1810,BID#15"
47 const wchar_t* profilePath = L"../profile/DemoDevice.xml";
48 int32 startChannel = 0;
49 const int32 channelCount = 2;
50 const int32 sectionLength = 1024;
51 const int32 sectionCount = 0;
52 // user buffer size should be equal or greater than raw data buffer length, because data ready
    count
  
```

**Step4.** Compile example.

>> **make**

```

Failed to execute child process "dbus-launch" (No such file or directory)
(gedit:4236): dconf-WARNING **: 16:38:58.808: failed to commit changes to dconf:
Failed to execute child process "dbus-launch" (No such file or directory)
(gedit:4236): dconf-WARNING **: 16:38:58.809: failed to commit changes to dconf:
Failed to execute child process "dbus-launch" (No such file or directory)
** (gedit:4236): WARNING **: 16:39:59.445: Set document metadata failed: Setting
attribute metadata::gedit-spell-language not supported
** (gedit:4236): WARNING **: 16:39:59.446: Set document metadata failed: Setting
attribute metadata::gedit-encoding not supported
** (gedit:4236): WARNING **: 16:40:02.883: Set document metadata failed: Setting
attribute metadata::gedit-position not supported
(gedit:4236): dconf-WARNING **: 16:40:02.899: failed to commit changes to dconf:
Failed to execute child process "dbus-launch" (No such file or directory)
root@iolinuxcantest02-desktop: /opt/advantech/examples/C++_Console/AI_StreamingAI
# make
g++ -o StreamingAI StreamingAI.cpp -lbdaq
root@iolinuxcantest02-desktop: /opt/advantech/examples/C++ Console/AI StreamingAI
  
```

**Step5.** Run example.

>> **./(example name)**

```
root@iolinuxcantest02-desktop: /opt/advantech/examples/...
attribute metadata::gedit-encoding not supported
** (gedit:4236): WARNING **: 16:40:02.883: Set document metadata failed: Setting
attribute metadata::gedit-position not supported

(gedit:4236): dconf-WARNING **: 16:40:02.899: failed to commit changes to dconf:
Failed to execute child process "dbus-launch" (No such file or directory)
root@iolinuxcantest02-desktop: /opt/advantech/examples/C++_Console/AI_StreamingAI
# make
g++ -o StreamingAI StreamingAI.cpp -lbiodaq
root@iolinuxcantest02-desktop: /opt/advantech/examples/C++_Console/AI_StreamingAI
# ./StreamingAI
Streaming AI is in progress.
please wait... any key to quit!

the channel data:
channel 0: -0.183105
channel 1: -0.339355
the channel data:
channel 0: -5.000000
channel 1: -5.000000
the channel data:
channel 0: -5.000000
channel 1: -5.000000
```

**Step6.** Repeat Step3 to Step5 if need to modify example again.

■ **Reference:**

\*DAQNavi SW manual in Windows.

\*DAQNavi linux driver readme document.

[https://support.advantech.com/support/DownloadSRDetail\\_New.aspx?SR\\_ID=1-LXHFQJ&Doc\\_Source=Download](https://support.advantech.com/support/DownloadSRDetail_New.aspx?SR_ID=1-LXHFQJ&Doc_Source=Download)