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***AXIOMTEK***

**IRU131**

**OPC UA User Manual**



## Revision History

Version	Revision Date	Author	Description
1.0	2018/07/23	Ryan	1 <sup>st</sup> release

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# **CHAPTER 1**

## **Introduction**

This document provides detailed information on how to use the IRU131 OPC UA Server and control the DIO function via the OPC UA Server.

## **CHAPTER 2**

### **Function List**

This chapter describes the functions of the IRU131 OPC UA server. Information of the available variable type nodes is as follows:

Node	Description
Set_DO0	Set digital output channels 0 state.
Set_DO1	Set digital output channels 1 state.
Get_DI0	Read state on digital input channels 0.
Get_DI1	Read state on digital input channels 1.

## 2.1 Set\_DO0

- Description  
Set the DO status on the selected channel 0.
- InputArguments  
Input 0 : Setting DO0 level
  - 0 : Low
  - 1 : High
- OutputArguments  
[None]

## 2.2 Set\_DO1

- Description
- Set the DO status on the selected channel 1.
  
- InputArguments
  - Input 0 : Setting DO1 level
    - 0 : Low
    - 1 : High
  
- OutputArguments
  - [None]



## 2.3 Get\_DI0

- Description  
Get current status on digital input channel 0
- InputArguments  
[None]
- OutputArguments  
Output 0 : Return current DI status.
  - 0 : Low
  - 1 : High

## 2.4 Get\_DI1

- Description  
Get current status on digital input channel 1.
- InputArguments  
[None]
- OutputArguments  
Output 0: Return current DI status.
  - 0 : Low
  - 1 : High

## CHAPTER 3

# How to Start an OPC UA Server

This section describes how to install an OPC UA server. The OPC UA demo server application is available on the Axiomtek website. Please download and install the IRU131-OPCUA-application in the IRU131 system.

```
~# ls
```

```
root@rsb201:~# ls
IRU131_OPCUA.tar.gz
```

Extract IRU131\_OPCUA.tar.gz

```
~# tar xvf IRU131_OPCUA.tar.gz -C .
```

```
root@rsb201:~# tar xvf IRU131_OPCUA.tar.gz -C .
IRU131_OPCUA/bin/DemoServerOPCUA
IRU131_OPCUA/OPCUA_lib/libopcua.so
IRU131_OPCUA/install.sh
IRU131_OPCUA/OPCUA_lib/libopcua.o
IRU131_OPCUA/bin/
IRU131_OPCUA/OPCUA_lib/libopcua.so.0
IRU131_OPCUA/OPCUA_lib/libopcua.so.1.3.1
IRU131_OPCUA/
IRU131_OPCUA/OPCUA_lib/
```

Install library. Please enter IRU131\_OPCUA directory and run install.sh [script\[jeremy1\]](#)

```
~# cd IRU131_OPCUA
```

```
~# ./install
```

```
root@rsb201:~# cd IRU131_OPCUA
root@rsb201:~/IRU131_OPCUA# ./install.sh
Install OPC UA library successfully.
```

After installing library, run OPCUA application located in IRU131\_OPCUA/bin.

```
~# cd bin
```

```
~# ./DemoServerOPCUA 3088
```

```
root@rsb201:~/IRU131_OPCUA# cd bin/
root@rsb201:~/IRU131_OPCUA/bin# ./DemoServerOPCUA 3088
[2018-07-23 05:30:51.491 (UTC+0000)] info/network TCP network layer listening on opc.tcp://rsb201:3088/
```

If you want to stop OPC UA server, just press “Ctrl + C”

```
root@rsb201:~/IRU131_OPCUA/bin# ./DemoServerOPCUA 3088
[2018-07-23 05:30:51.491 (UTC+0000)] info/network TCP network layer listening on opc.tcp://rsb201:3088/
^C[2018-07-23 05:31:39.140 (UTC+0000)] info/server received ctrl-c
[2018-07-23 05:31:39.141 (UTC+0000)] warn/network Socket select failed with Interrupted system call
[2018-07-23 05:31:39.141 (UTC+0000)] info/network Shutting down the TCP network layer
root@rsb201:~/IRU131_OPCUA/bin# █
```

## CHAPTER 4

# Using the IRU131 OPC UA Server

[jeremy2]

This section presents an actual demonstration of running the IRU131 OPC UA server, If no OPC UA client tool has been installed, follow steps below to quickly install a simple OPC UA client tool in Ubuntu.

### 1. Install OPC UA client tool

#### 1.1 Install host system.

Download Ubuntu 14.04 LTS iso image and install.

#### 1.2 Install OPC UA client tool.

Install host packages required by OPC UA client tool.

```
~$ sudo apt-get update
```

```
~$ sudo apt-get upgrade
```

```
~$ sudo apt-get install python3-pip3 python3-pyqt5
```

```
~$ sudo pip3 install --upgrade pip setuptools
```

```
~$ sudo pip3 install cryptography pyqtgraph opcua-client
```

### 2. Start IRU131 OPC UA server

#### 1.1 Power on and connect to IRU131.

```
### ax_msg: IO boradi is IRU131
Set tty_mxc1 to mode=1, ten=0
Starting wdt_driver (timeout: 10, sleep: 5, test: ioctl)
Trying to set timeout value=10 seconds
The actual timeout was set to 10 seconds
Now reading back -- The timeout is 10 seconds

Poky (Yocto Project Reference Distro) 1.8.1-6 rsb201 /dev/tty_mxc0
rsb201 login: root
root@rsb201:~# █
```

#### 1.2 Check IRU131 IP address, and start IRU131 OPC UA server.

```
~# ifconfig
```

```
root@rsb201:~# ifconfig
eth0      Link encap:Ethernet  HWaddr F6:5F:50:41:8E:30
          inet addr:10.1.70.145  Bcast:10.1.71.255  Mask:255.255.254.0
          inet6 addr: fe80::f45f:50ff:fe41:8e30/64  Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:348 errors:0 dropped:37 overruns:0 frame:0
          TX packets:39 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:34431 (33.6 KiB)  TX bytes:6533 (6.3 KiB)
```

```
~# cd IRU131_OPSCUA/bin/
```

```
~# ./DemoServerOPSCUA 3088
```

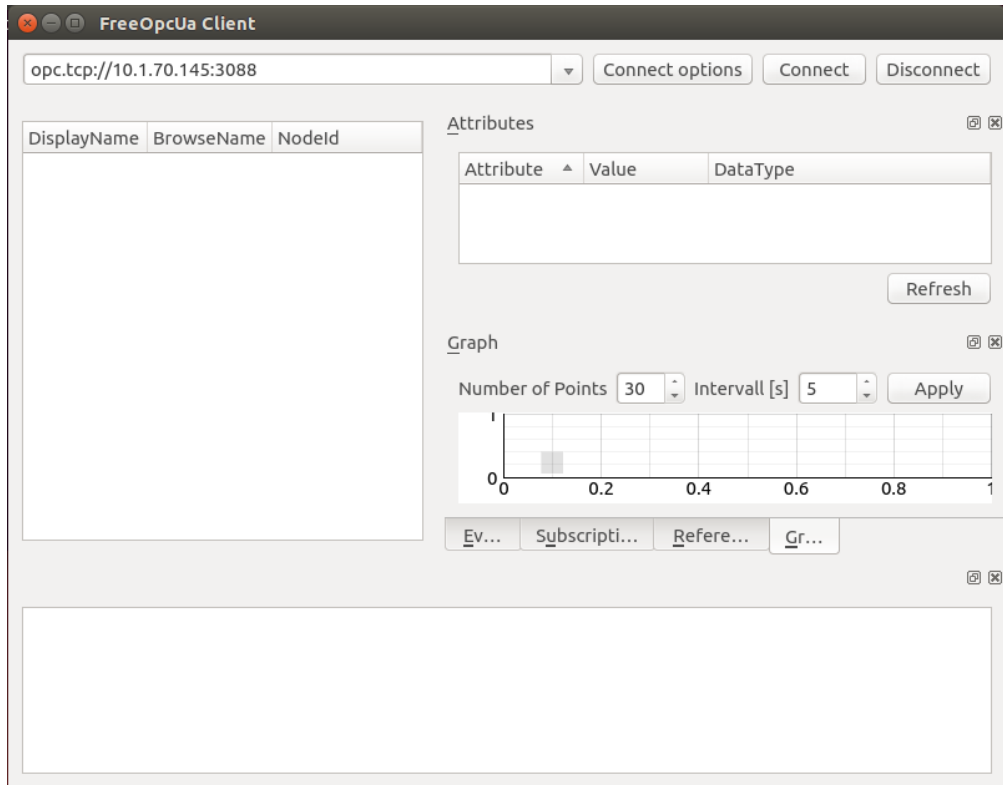
```
root@rsb201:~# cd IRU131 OPCUA/bin/
root@rsb201:~/IRU131 OPCUA/bin# ./DemoServerOPCUA 3088
[2018-07-23 05:35:12.618 (UTC+0000)] info/network TCP network layer listen
ing on opc.tcp://rsb201:3088/
```

1.3 Connect to IRU152 OPC UA server by host PC (Ubuntu).

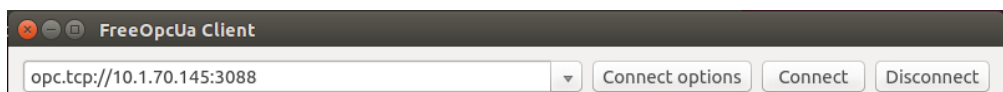
~\$ opcua-client

```
axiomtek@axiomtek:~$ opcua-client
```

If connection is successful, the information below will appear.



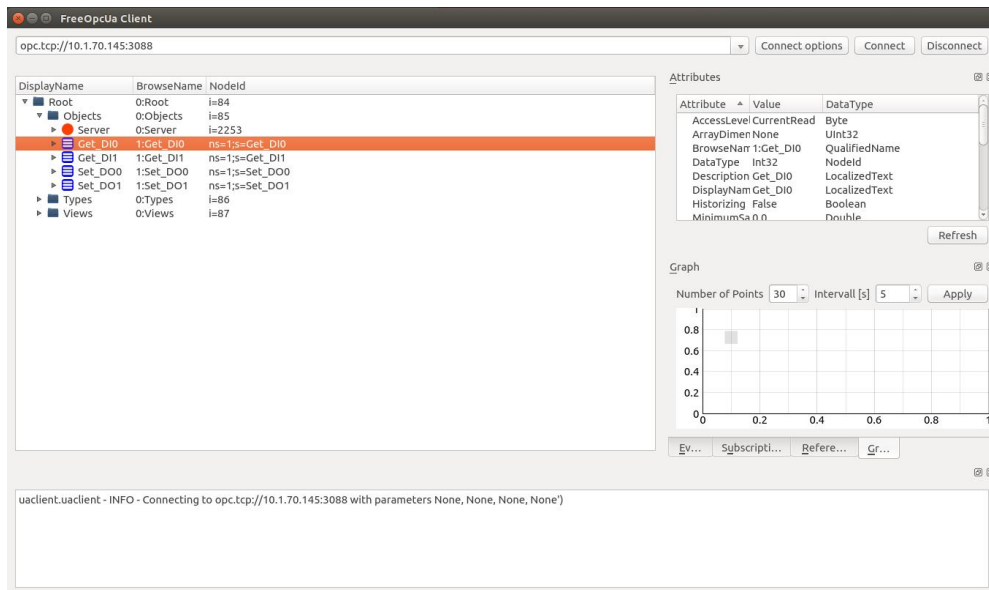
Set OPC UA server ip



Set Connect options as below



Click Connect. You will see the information below



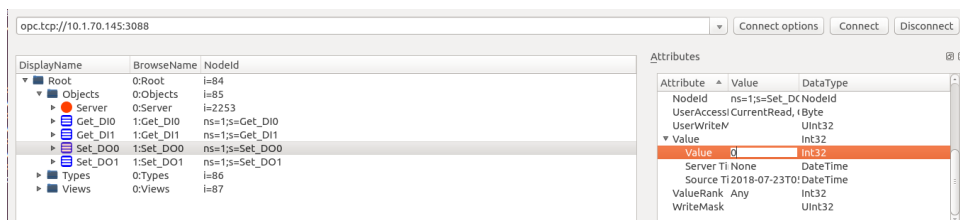
### 3. Function demo

#### 1.1 Set\_DO0 & Set\_DO1

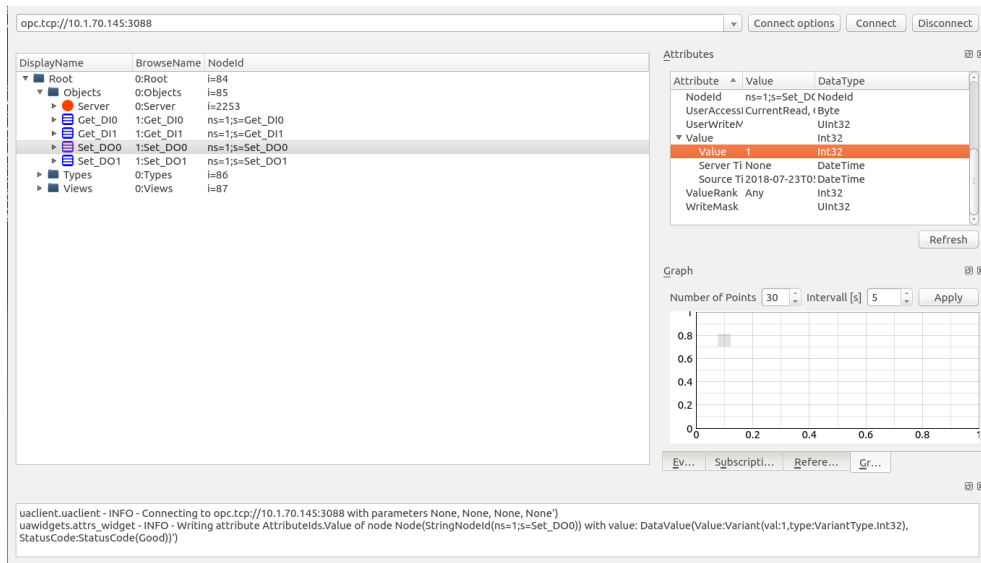
Click the “Set\_DO0” or “Set\_DO0” item.



Edit Attributes value



If settings are successful, you will see StatusCode:StatusCode(Good)



## 1.2 Get\_DI0 & Get\_DI1

Click the "Get\_DI0" or "Get\_DI1" item. You will see "Get\_DI0" or "Get\_DI1" value

