

C2-OPCUA Tech Training

(Sample Testing Setup)

Valid as of 10/22/25



C2-OPCUA Overview

- ▶ C2-OPCUA : CLICK PLUS OPC UA Server communication module, microSD card slot, (1) microB-USB and (1) Ethernet 10/100Base-T (RJ45) port(s). For use with all CLICK PLUS PLCs.
- ▶ The C2-OPCUA module is compatible with option slot 0 or option slot 1 of any CLICK PLUS PLC. Multiple C2-OPCUA modules are supported.
- ▶ Requires CLICK Programming Software version 3.7x or above
- ▶ USB2.1 compatible port on Windows PC, or 10/100 Ethernet TCP/IP network
- ▶ The C2-OPCUA module **requires** a communications connection separate from that of the CPU. Both may be connected to the same or different Ethernet networks.
- ▶ The CPU can be programmed over its Ethernet or USB port.
- ▶ The C2-OPCUA USB port will allow a connected PC to function as an OPC UA client, but other OPC UA clients will require connection to the Ethernet port.
- ▶ Supports UA Part 8 Data Access and OPC UA Security architecture

Additional Resources Needed

- ▶ UAExpert by United Automation from this [LINK](#)
 - ▶ This is a 3rd party OPC UA Client which can be used for testing.
- ▶ C2-xxCPUx (Any CLICK Plus CPU) with Firmware v3.7x or higher
- ▶ C2-OPCUA Slot Module
- ▶ CLICK Programming Software v3.7x or higher

C2-OPCUA Installation

Be sure to update the CLICK PLUS PLC firmware BEFORE installing the C2-OPCUA Module

1. Ensure you have 24VDC wired to the CLICK PLUS PLC. (Do not use the USB low power mode.)
2. BEFORE you install the C2-OPCUA module, connect to the CLICK PLUS PLC and update the firmware to v3.7x or higher
3. Power off the CPU.
4. Install the C2-OPCUA module, following the hardware installation instructions in the “Installing Option Slot Modules” section of Chapter 3 in the Click PLUS User Manual.
5. Restore power.
6. Update the firmware again—this time it will update the C2-OPCUA firmware.

C2-OPCUA Software Setup PART 1

1. Add the C2-OPCUA module to project using **System Configuration** screen
2. Navigate to **SlotX C2-OPCUA Setup Screen** using the top ribbon or function tree
3. For ease of testing, use an IP address/Default Gateway on the same network as your CLICK PLC and PC
4. Enter 8.8.8.8 for your DNS Server
5. Check **Enable OPCUA Server**
6. Choose a **Server Name** and take a note of this for later use.
7. Press **Create New...** under Application Certificate. Enter **Country** and **Organization** and press **OK**. This creates a self-signed certificate for use.
8. Press **Copy to Clipboard** to copy the **Endpoint URL** for use later in UA Expert

C2-OPCUA Module Configuration (Slot0)

Network Address Configuration

☐ Use default fixed address

☒ Use the following IP Address

IP Address: 192 . 160 . 1 . 12

Subnet Mask: 255 . 255 . 255 . 0

Default Gateway: 192 . 160 . 1 . 1

DNS Server

Preferred DNS Server: 8 . 8 . 8 . 8

☐ Alternate DNS Server: 0 . 0 . 0 . 0

☒ Enable OPCUA Server

☐ Enable Security

General Node List

TCP Port Number: 4840 (Typically Port No. 4840, 1024 - 65535)

Endpoint URL: opc.tcp://192.160.1.12:4840

Server Name: OPCUA-Test

Application Certificate

✓ Status: The certificate has not been created.

Valid from: to

Create New... Delete Export Certificate...

Security Options

☒ Enable Response to Ping from other devices

☐ Enable Allow List

Allow List Setup...

Copy to Clipboard

Note: "Enable Authentication = OFF" is "Anonymous".

OK Cancel Help

C2-OPCUA Software Setup PART 2

9. Now change to the **Node List** tab
10. Enter the following addresses in the **Address(Start)** column:
 - SD26 (_RTC_Second)
 - DS1 (or other available DS address if using an existing project)
 - C1 (or other available C-bit address if using an existing project)
11. Press OK to finish the module configuration
12. The PLC clock must match the OPCUA clock to ensure data can be synchronized (*If times stamps are not within a few minutes of each other, the C2-OPCUA module will not function correctly*). Best way to achieve this is to use the **Calendar/Clock Setup** screen under the PLC menu in the ribbon. Change the radio button to **Adjust to PC Clock** and press **Write to PLC**
13. Add the same addresses to a Click Data View
14. Transfer your project to the CLICK. Wait for the C2-OPCUA module "OK" light to stop flashing for setup to be complete

The screenshot shows the 'C2-OPCUA Module Configuration (Slot0)' dialog box. The 'Node List' tab is selected, displaying a table with columns: Display Name, Address(Start), Address(End), Array Size, Data Type, and RW. The table contains three entries: SD26, DS1, and C1. Below the table, there are buttons for 'Delete', 'Export...', and 'Import...'. At the bottom, there are fields for 'Node Count: 3 / 1024' and 'Node Size: 5 / 4096 bytes', along with checkboxes for 'Display NodeID' and 'Align Node ID'. The 'OK', 'Cancel', and 'Help' buttons are at the bottom right.

Network Address Configuration

☐ Use default fixed address

☒ Use the following IP Address

IP Address: 192 . 160 . 1 . 101

Subnet Mask: 255 . 255 . 255 . 0

Default Gateway: 192 . 160 . 1 . 1

DNS Server

Preferred DNS Server: 8 . 8 . 8 . 8

☐ Alternate DNS Server: 0 . 0 . 0 . 0

Security Options

☒ Enable Response to Ping from other devices

☐ Enable Allow List

Allow List Setup...

☒ Enable OPCUA Server

☐ Enable Security

General Node List

☐ Display Name gives priority to Nickname (Default is Address)

Export... Import...

Display Name	Address(Start)	Address(End)	Array Size	Data Type	RW
SD26	SD26	SD26	1	Integer	R
DS1	DS1	DS1	1	Integer	RW
C1	C1	C1	1	Bit	RW

Delete

Node Count: 3 / 1024

Node Size: 5 / 4096 bytes

☐ Display NodeID

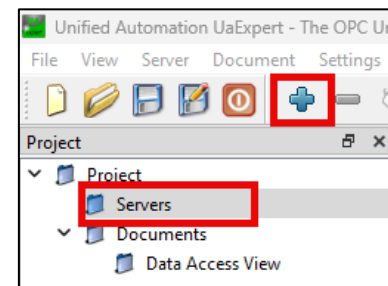
Align Node ID

OK Cancel Help

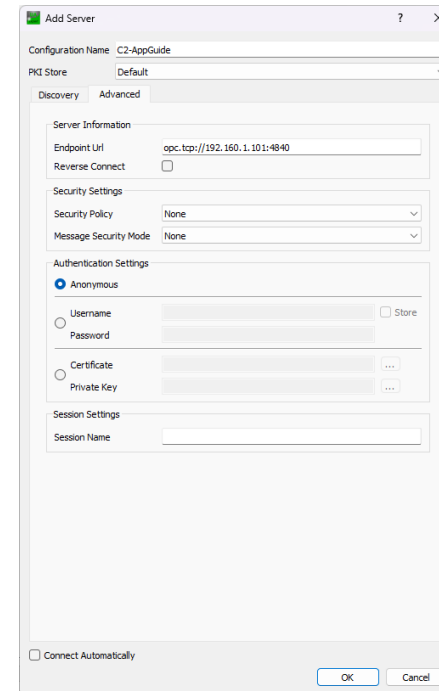
UAExpert Setup PART 1

1. In UA Expert, either click the blue "+" in the tool bar *OR* right click the **Servers** area in the left-hand project window to get the **Add Server** dialog shown in figure 2 at right.
2. Double click under **Custom Discovery**, then paste the **Endpoint URL** that was copied in step 8 of "C2-OPCUA Software Setup" and press **OK**.
3. Now the server will show in the list under **Custom Discovery**. Highlight the correct entry and add the **Server Name** also noted in step 8 to the **Configuration Name** at the top of the **Add Server** dialog.
4. In the same **Add Server** dialog, and while the new server is still highlighted, change to the **Advanced** tab (shown in figure 4 at right), paste the **Endpoint URL** in the **Endpoint Url** field and then press **OK**.
5. Now the new Server will show in the left-hand **Project** window. Highlight the Server name you just added and press the **Connect Server** button that looks like a plug.
6. Since using a self-signed certificate, you may get a pop-up warning about the certificate. Press **Trust Server Certificate** then **Continue** button. (A self-signed certificate with security disabled is good for troubleshooting and set-up, but ADC recommends using security when in operation as all data is sent as plain text).

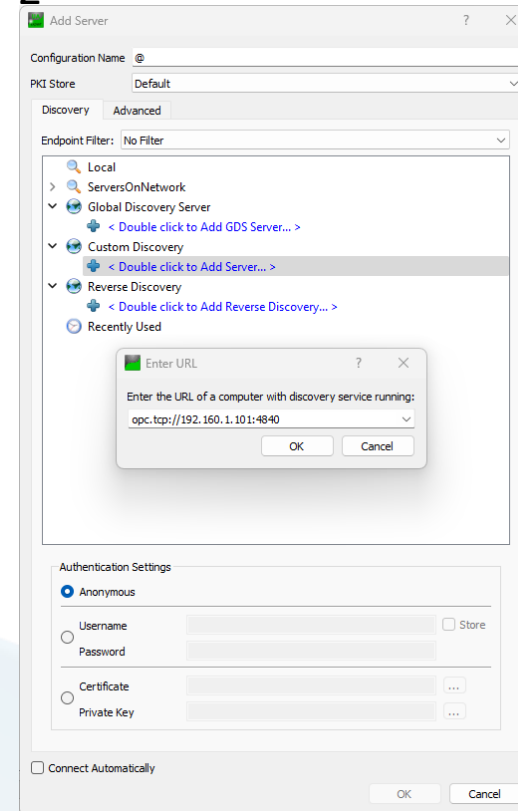
1



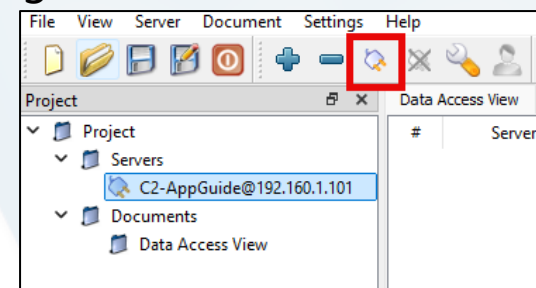
4



2



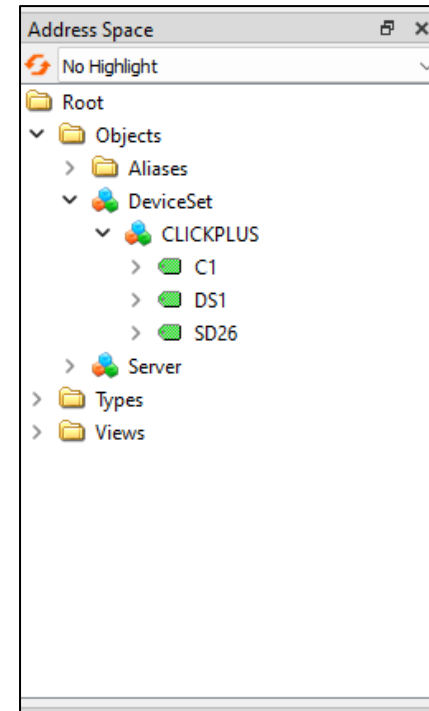
5



UAExpert Setup PART 2

7. In the lower left hand **Address Space** window, expand Objects, then DeviceSet, and finally CLICKPLUS. Now you can see the nodes you added in step 10 of "C2-OPCUA Software Setup". These addresses can now be dragged to the middle **Data Access View** window.
8. In the **Data Access View** window, **StatusCode** should be "Good" and the **Value** for SD26 should display the current seconds of the real-time clock of the Click. This tests if UAExpert is reading data from your C2-OPCUA module.
9. Now double click on the **Value** cell for DS1, write 100 and press **Enter**. This should write data to DS1 in your CLICK PLC. Check the Data View you created in step 13 of "C2-OPCUA Software Setup" to ensure the C2-OPCUA module is receiving data from UAExpert as well.
10. The final test is to double click in the **Value** cell for C1 and either turn on or off the check box to test a Boolean write to the PLC as well.

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Project		Data Access View							
#	Server	Node Id	Display Name	Value	Datatype	Source Timestamp	Server Timestamp	Statuscode	
1	C2-AppGuide@192.160.1.101	NS1 Numeric 2002	C1	false	Boolean	11:16:19.043 AM	11:55:08.523 AM	Good	
2	C2-AppGuide@192.160.1.101	NS1 Numeric 2001	DS1	0	Int16	11:55:36.441 AM	11:55:36.574 AM	Good	
3	C2-AppGuide@192.160.1.101	NS1 Numeric 2000	SD26	6	Int16	11:56:06.130 AM	11:56:06.177 AM	Good	