- **How to encrypt the OPC UA connection between UA series and AVEVA Edge of SCADA software? (Take AVEVA Edge v20.0 as an example)**

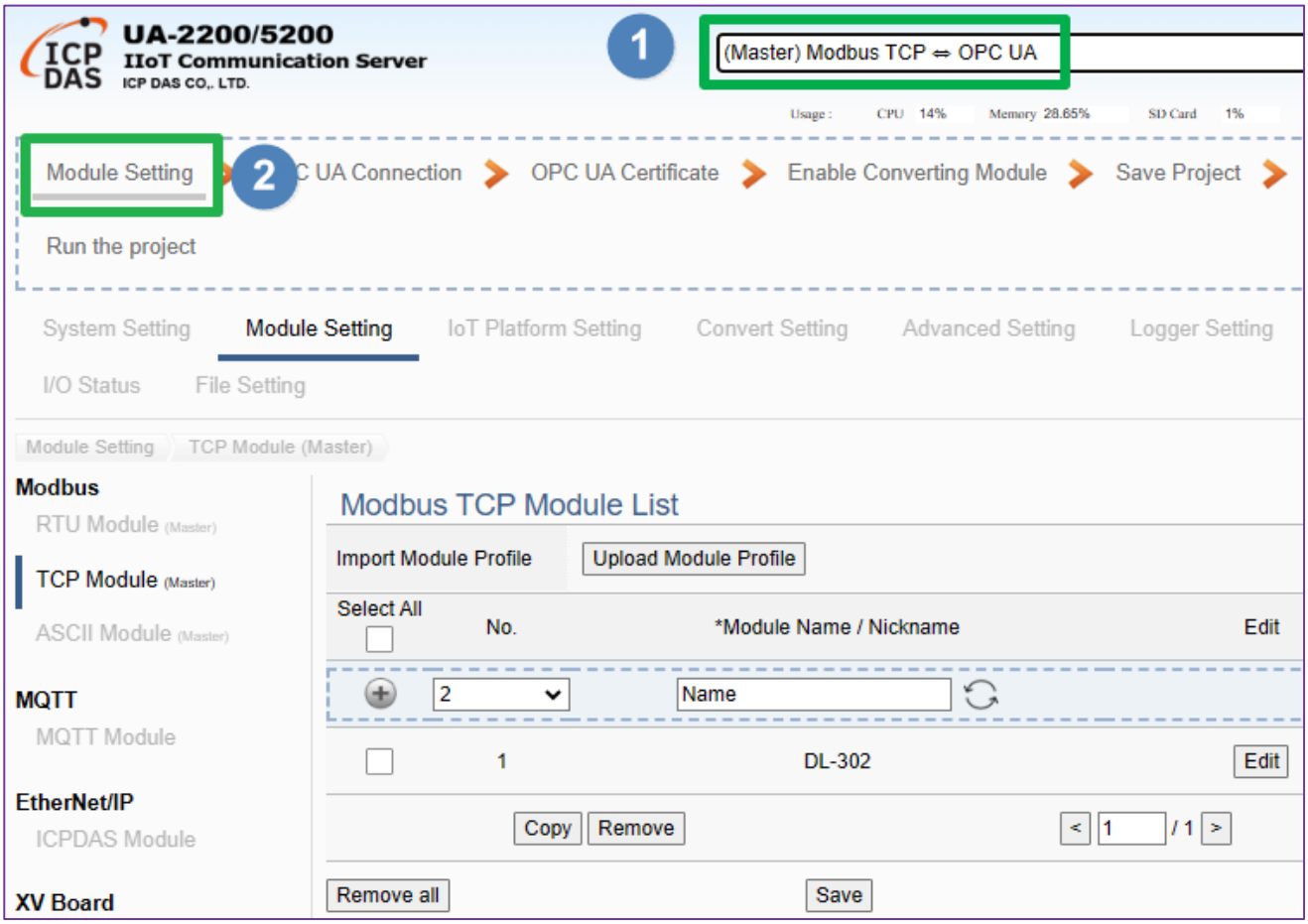
ICP DAS's UA series products provide a service for converting Modbus TCP/RTU to OPC UA Server. This FAQ explains how to use AVEVA Edge (OPC UA Client) and UA-5231 (OPC UA Server) for encrypted connections.

(This example uses UA-5231M v1.4.6.0 + AVEVA Edge v20.0 + OS Win10, 64 bit)

1. Set up the OPC UA Server of the UA series

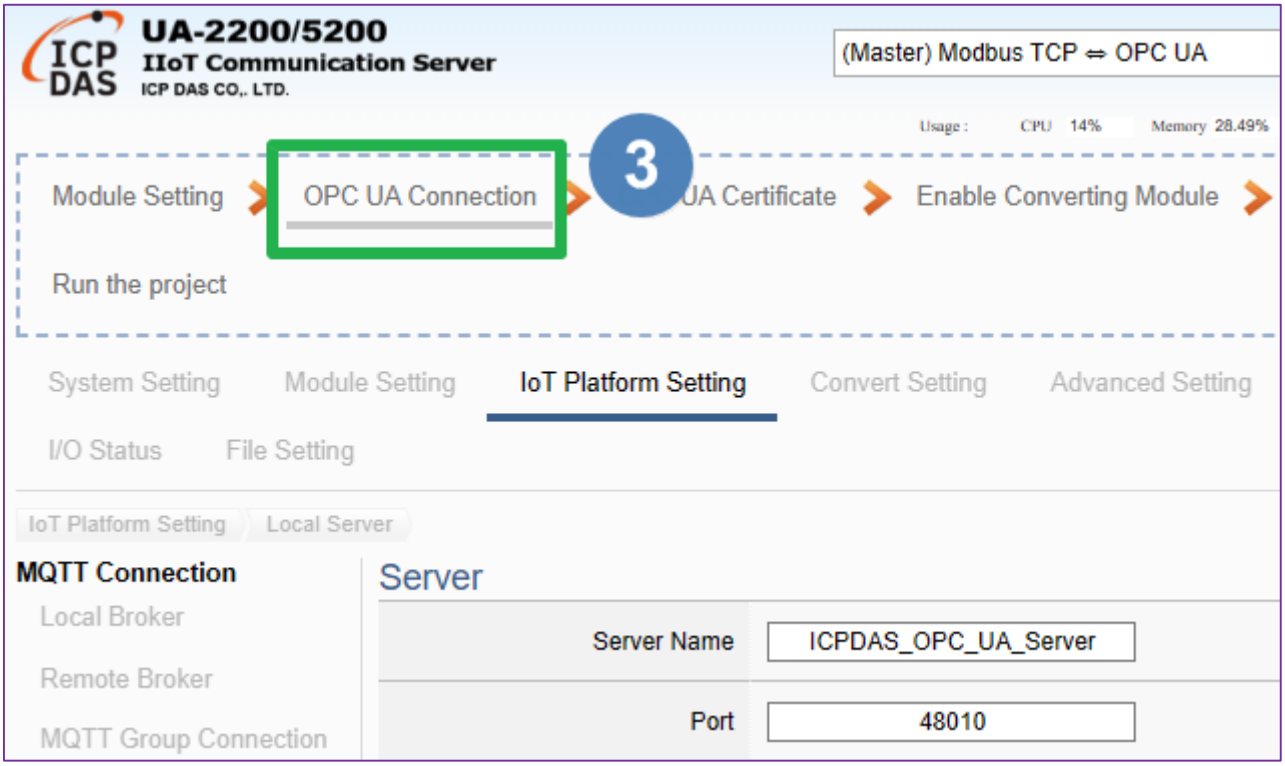
Note: This example uses the function of Modbus TCP to OPC UA Server.

(1) Select the function to be converted
(2) Set in [Module Setting]

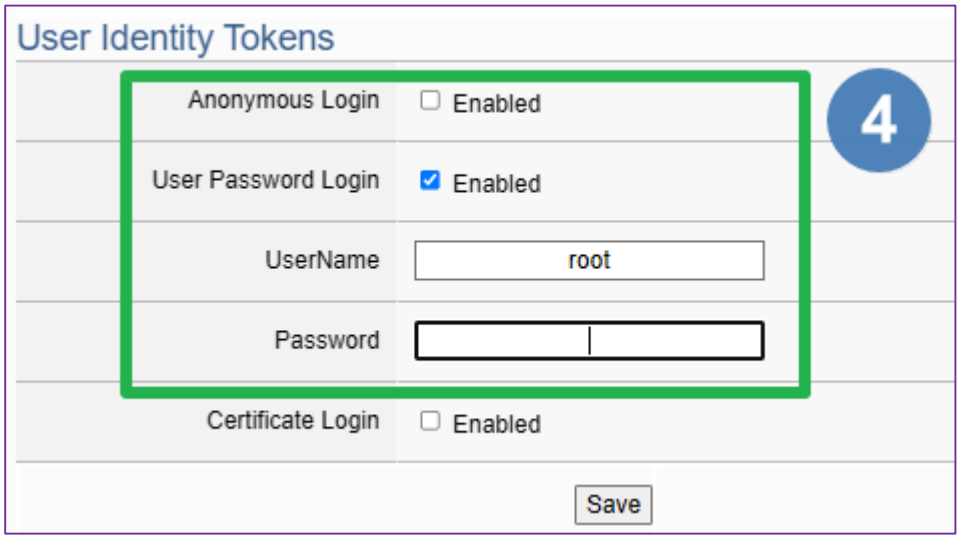


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(3) Set up [OPC UA Connection]

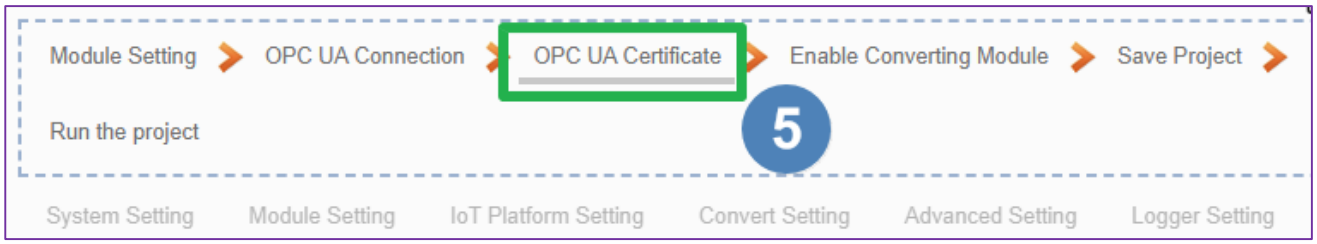


(4) Check the [Enabled] of [User Password Login] and set up the [User Name] / [Password].



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(5) Skip this step for now (because AVEVA Edge hasn't generated a certificate yet).

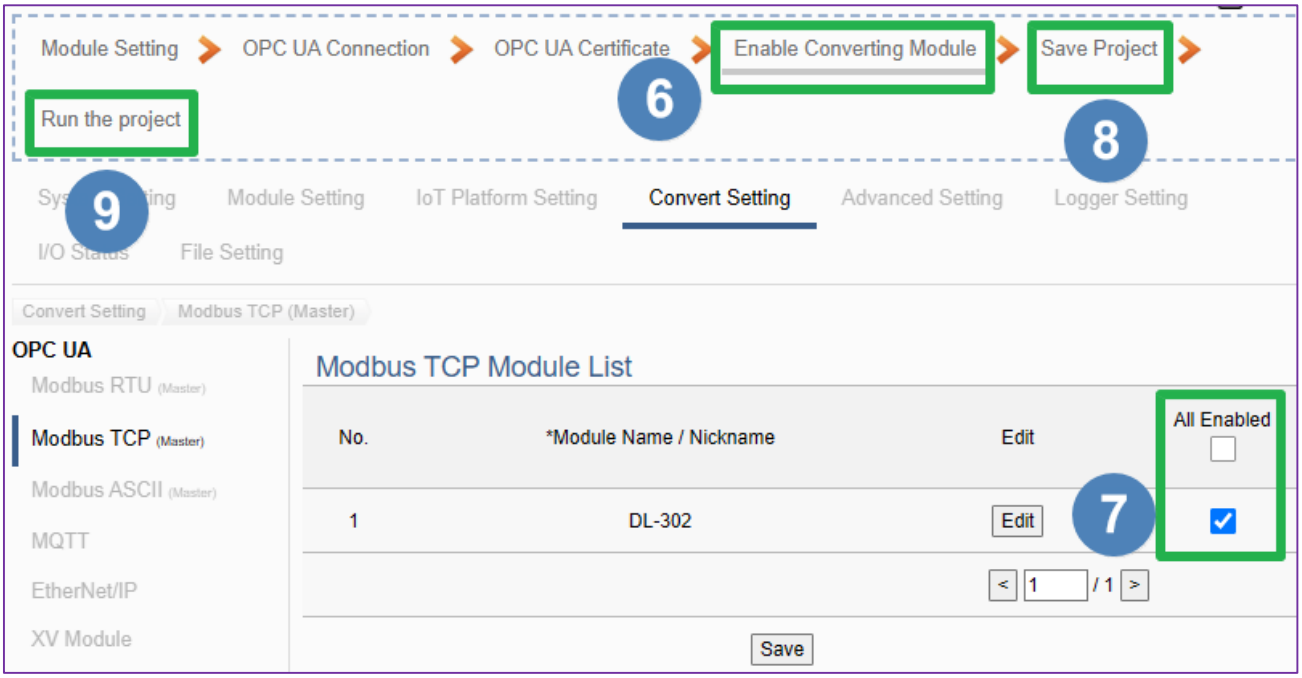


(6) Click [Enable Converting Module]

(7) Select the module to be converted

(8) Click [Save Project]

(9) Click [Run the project]



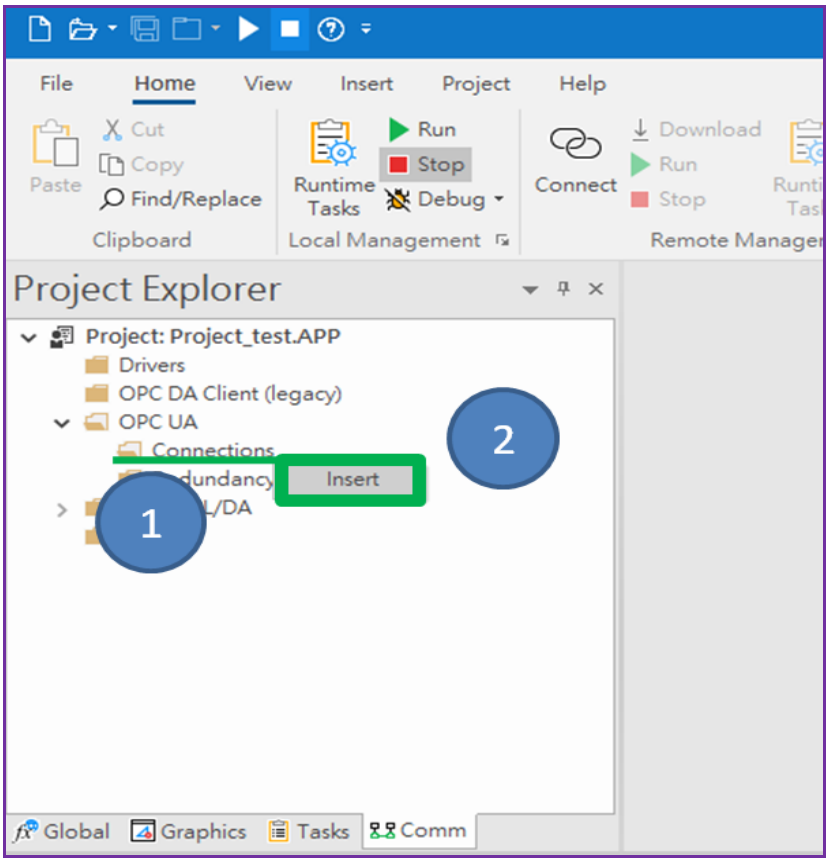
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2. Set up the OPC UA Client of the SCADA software AVEVA Edge

Note: This example uses the OPC UA Client function of AVEVA Edge.

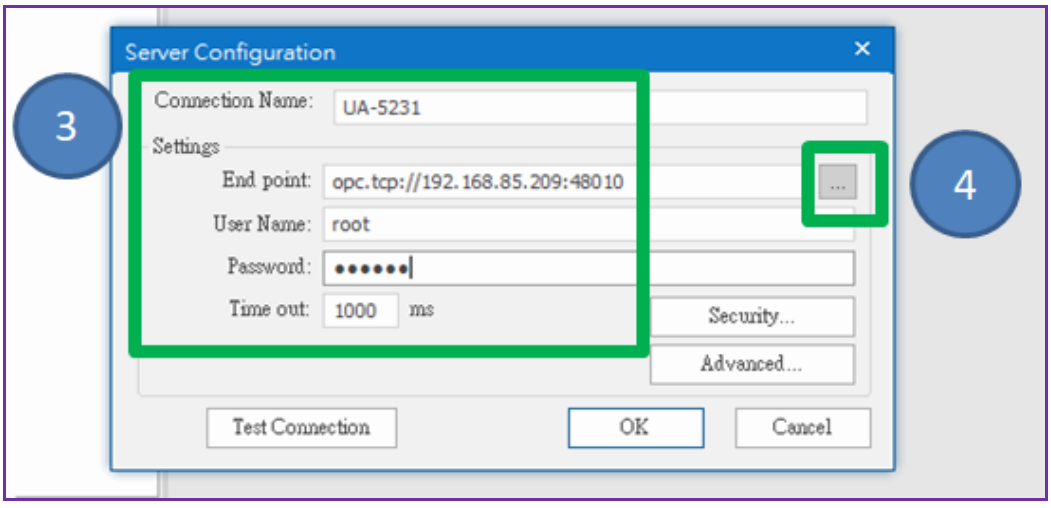
(1) Right-click the [Connections] of [OPC UA] function

(2) Select [Insert]



(3) Fill in the connection information

(4) Click the [...] symbol on the right



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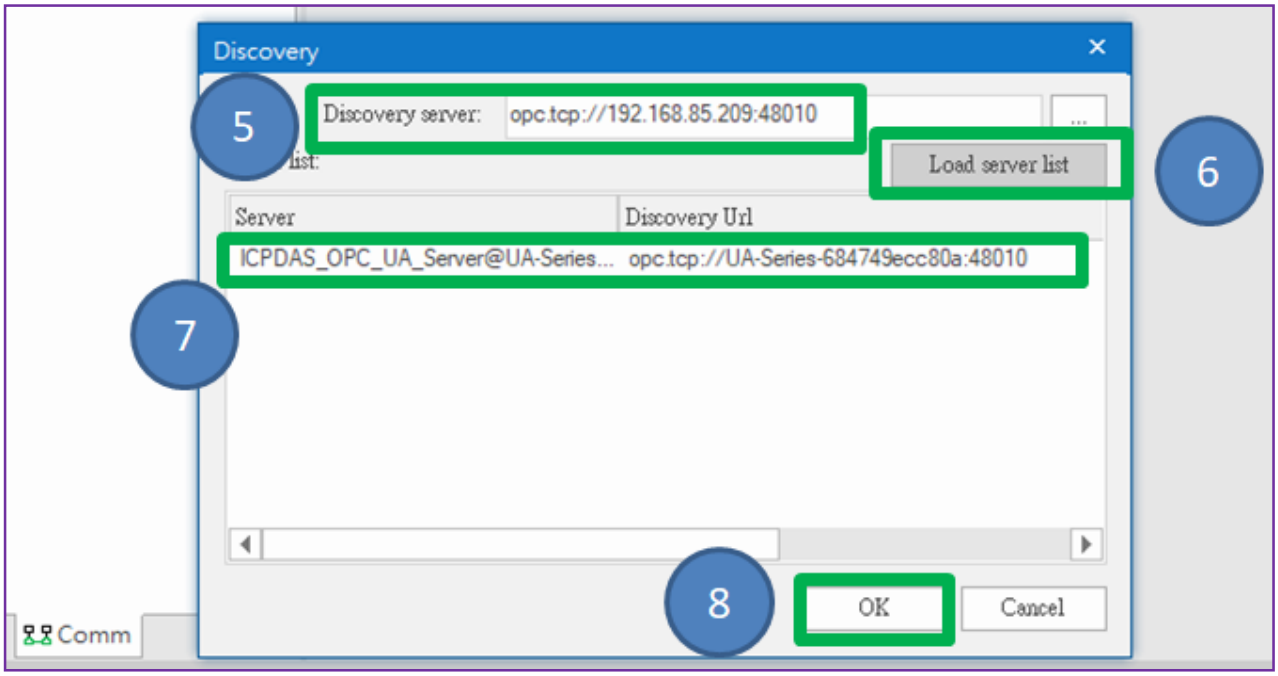
(5) Fill in the [Discovery server] field

Format: opc.tcp://[IP address]:[Port number]

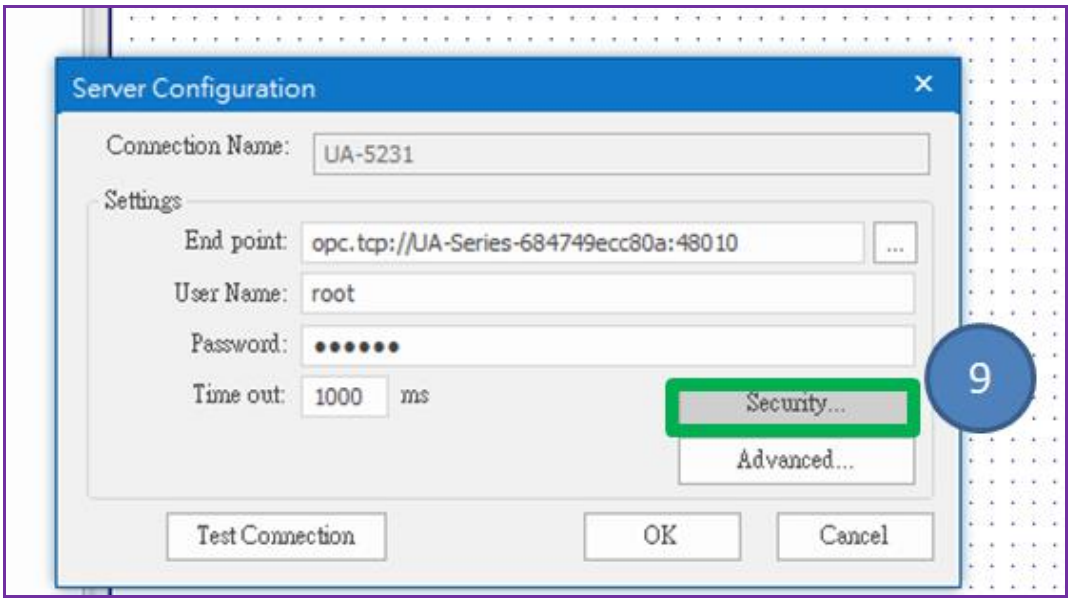
(6) Click [Load server list]

(7) Click the item

(8) Click [OK]



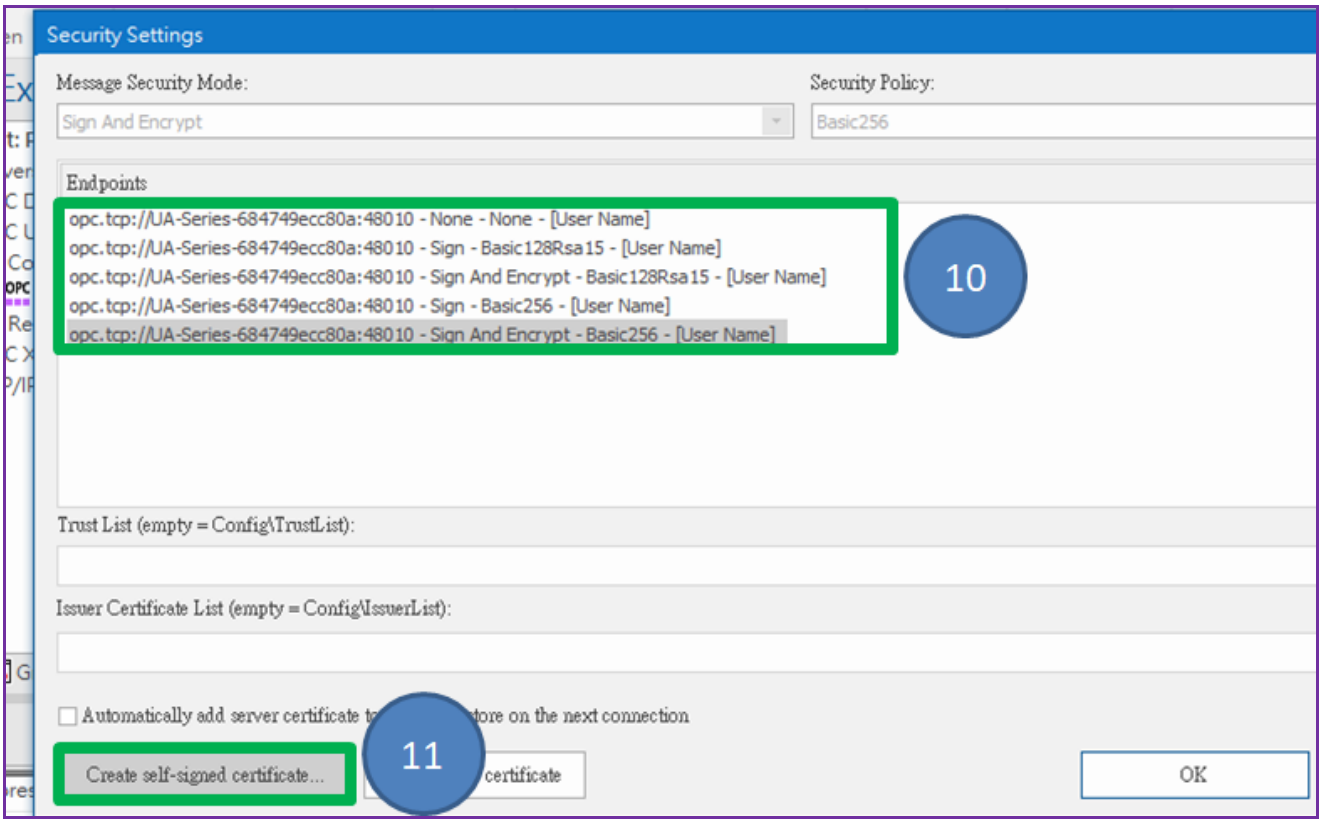
(9) Click [Security]



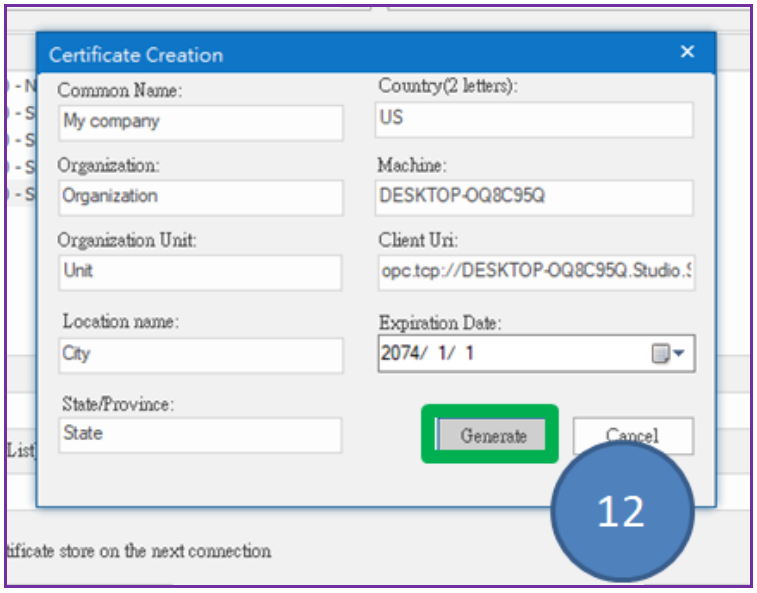
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(10) Select the required items

(11) Click [Create self-signed certificate]



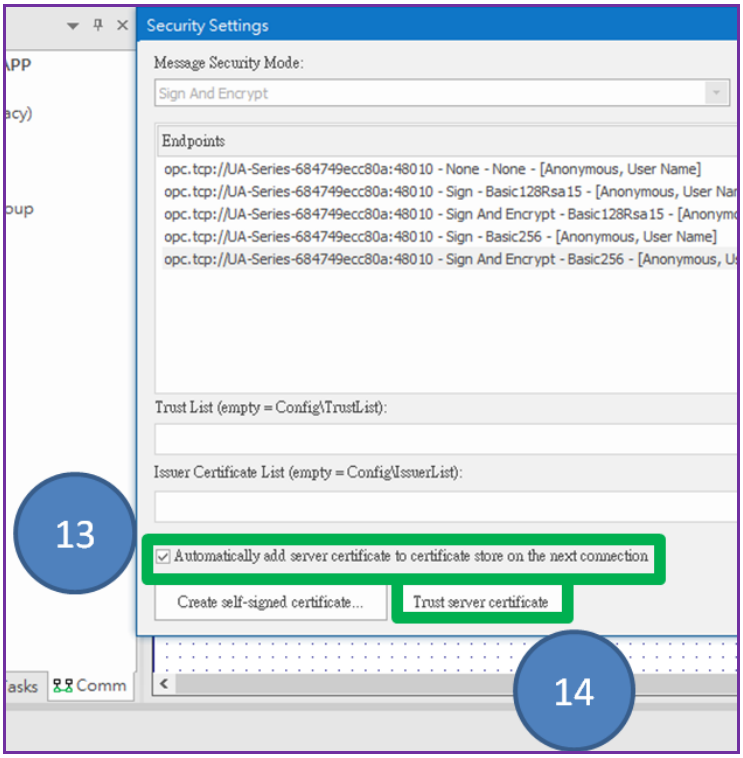
(12) Click [Generate]



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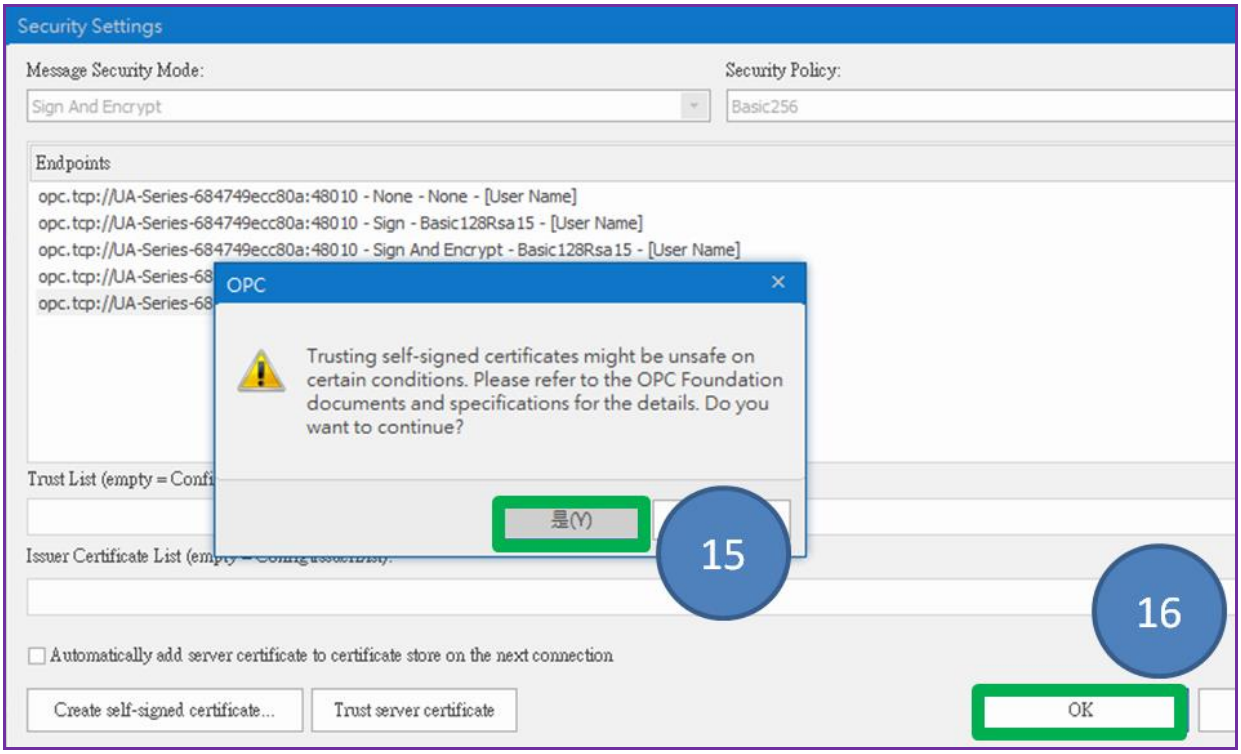
(13) Check this item

(14) Click [Trust server certificate]



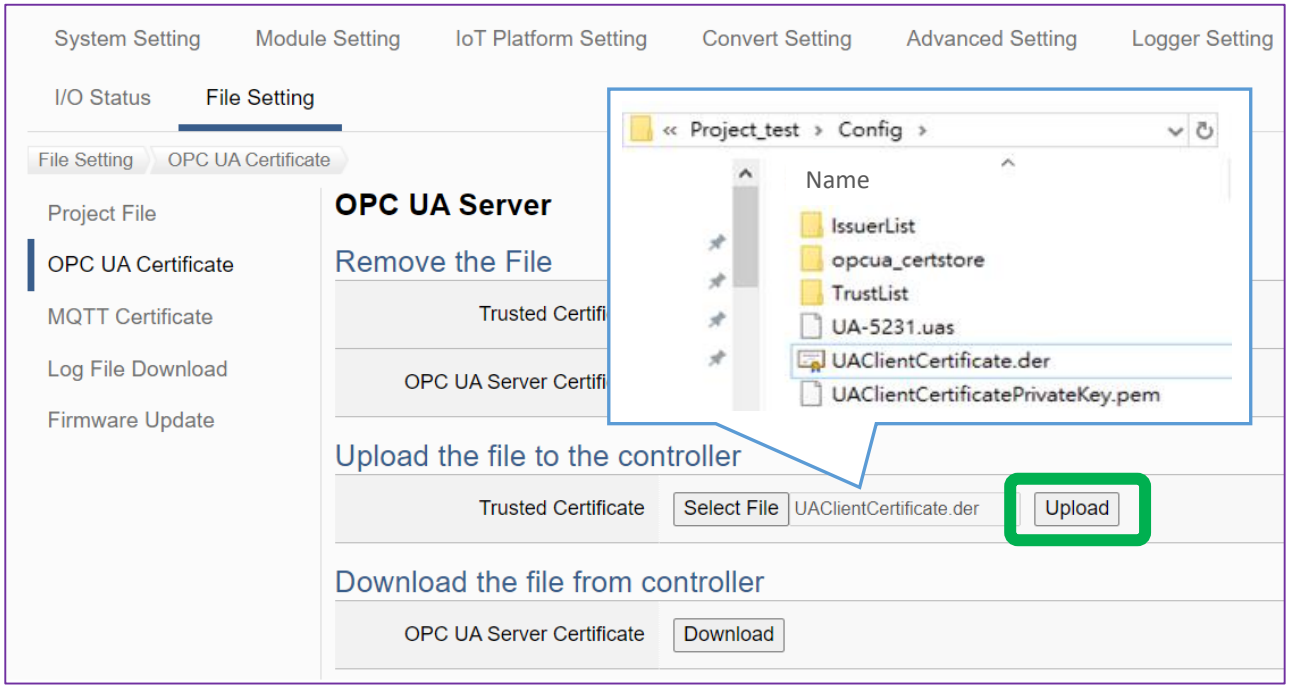
(15) Click [Yes]

(16) Click [OK]

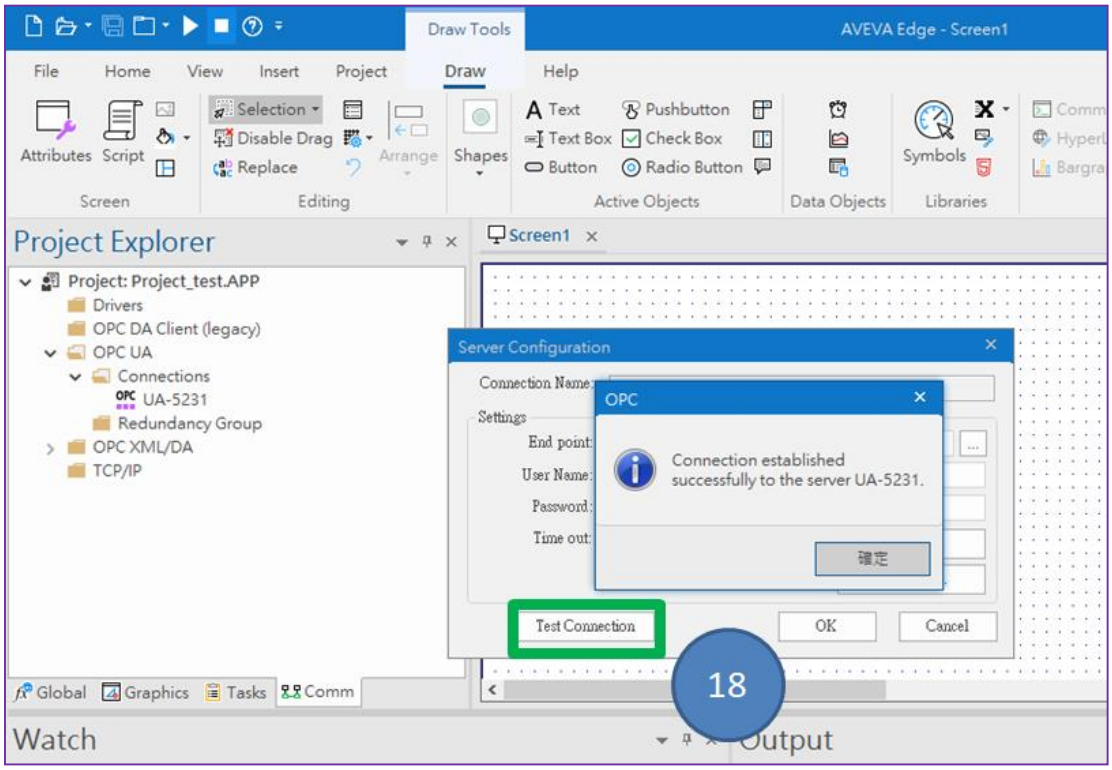


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(17) Enter the UA series web page and upload [UAClientCertificate.der] in the AVEVA Edge project



(18) Switch back to the AVEVA Edge screen and click [Test Connection] to test the connection.

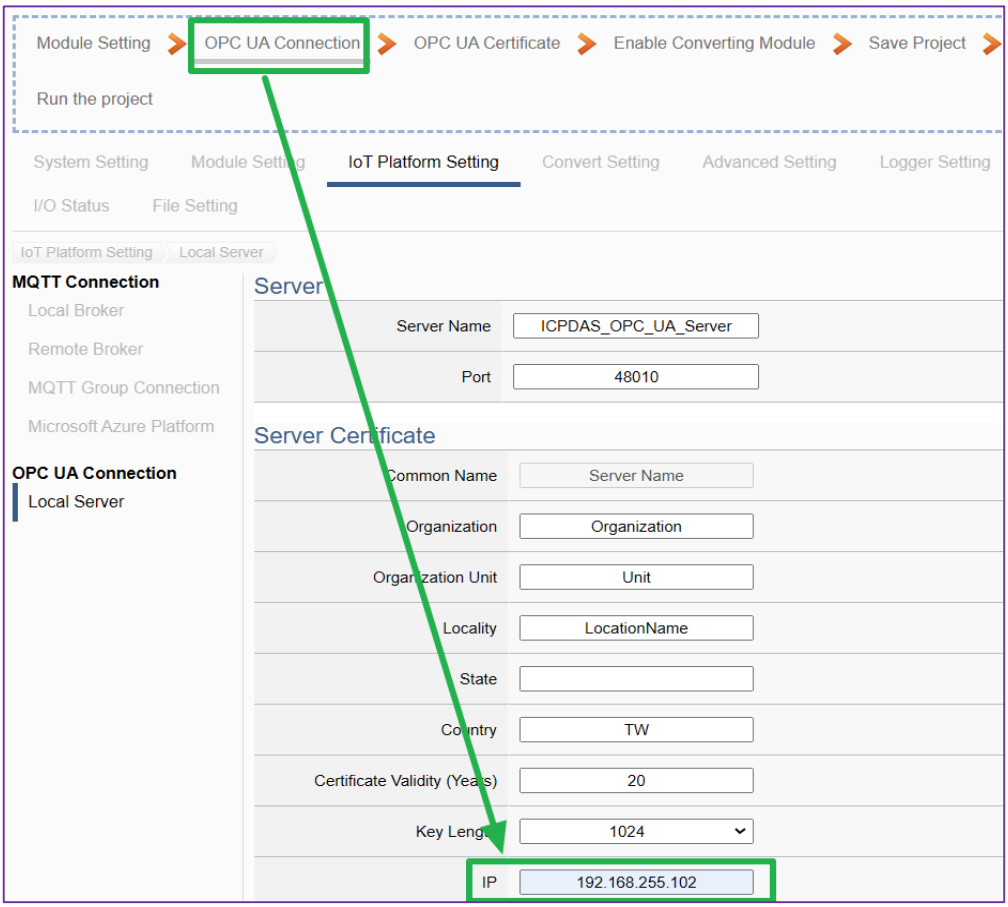


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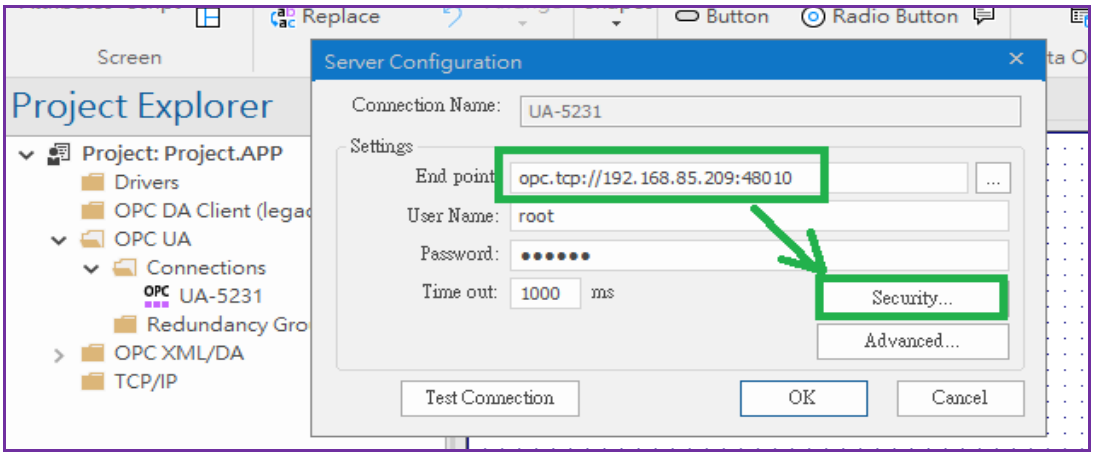
3. Appendix - Troubleshooting for connection failure

If the setting cannot connect due to the hostname, try the IP address instead.

Enter the step [OPC UA Connection] of the UA interface, fill in the IP of the UA, and then click the [save] at the bottom, the certificate will be regenerated, as shown below:



Then, follow the steps in CH 2 - OPC UA Client setting of AVEVA Edge. <Note> **Skip steps (4)~(8) in CH.2**, use **opc.tcp://[UA's IP location]:[port]** for the **End Point** item, and then set up [Security] directly. Follow the steps, as shown below:

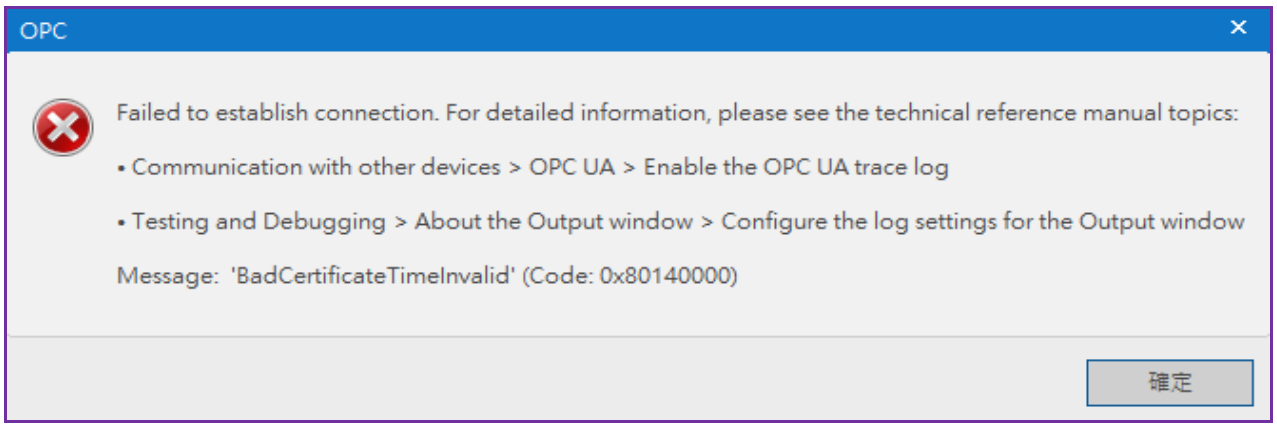


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If it still fails to establish the connection, please refer to the following message:

On the AVEVA Edge screen, click [Test Connection] to test the connection. If the following error message appears, follow the suggestions below to solve it.

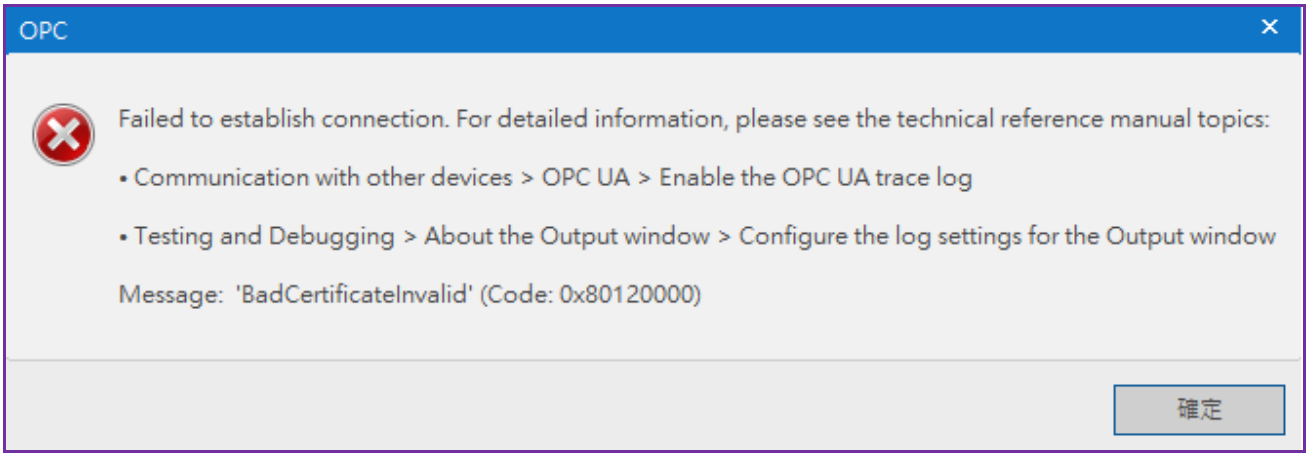
(1) Message: BadCertificateTimeInvalid



Processing method:

Enter the web page of the UA series product to correct the time.

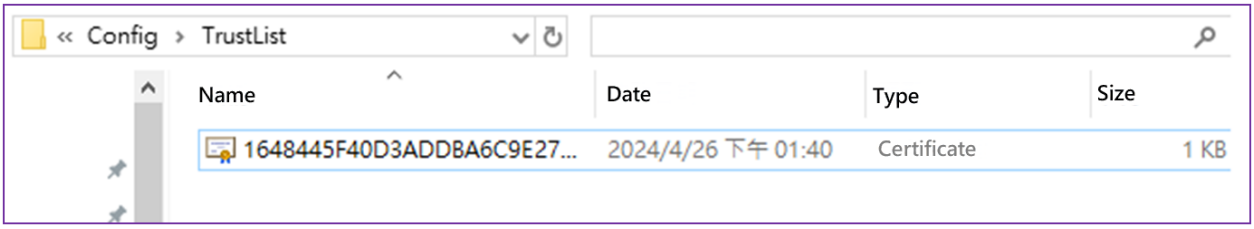
(2) Message: BadCertificateInvalid



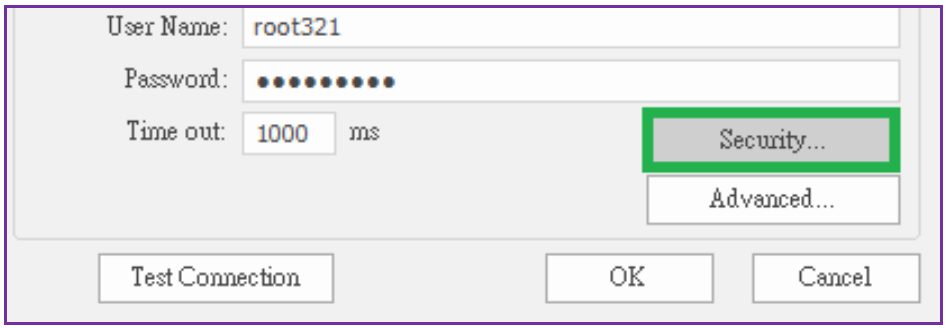
Processing method:

Delete the certificate in the **TrustList** folder.

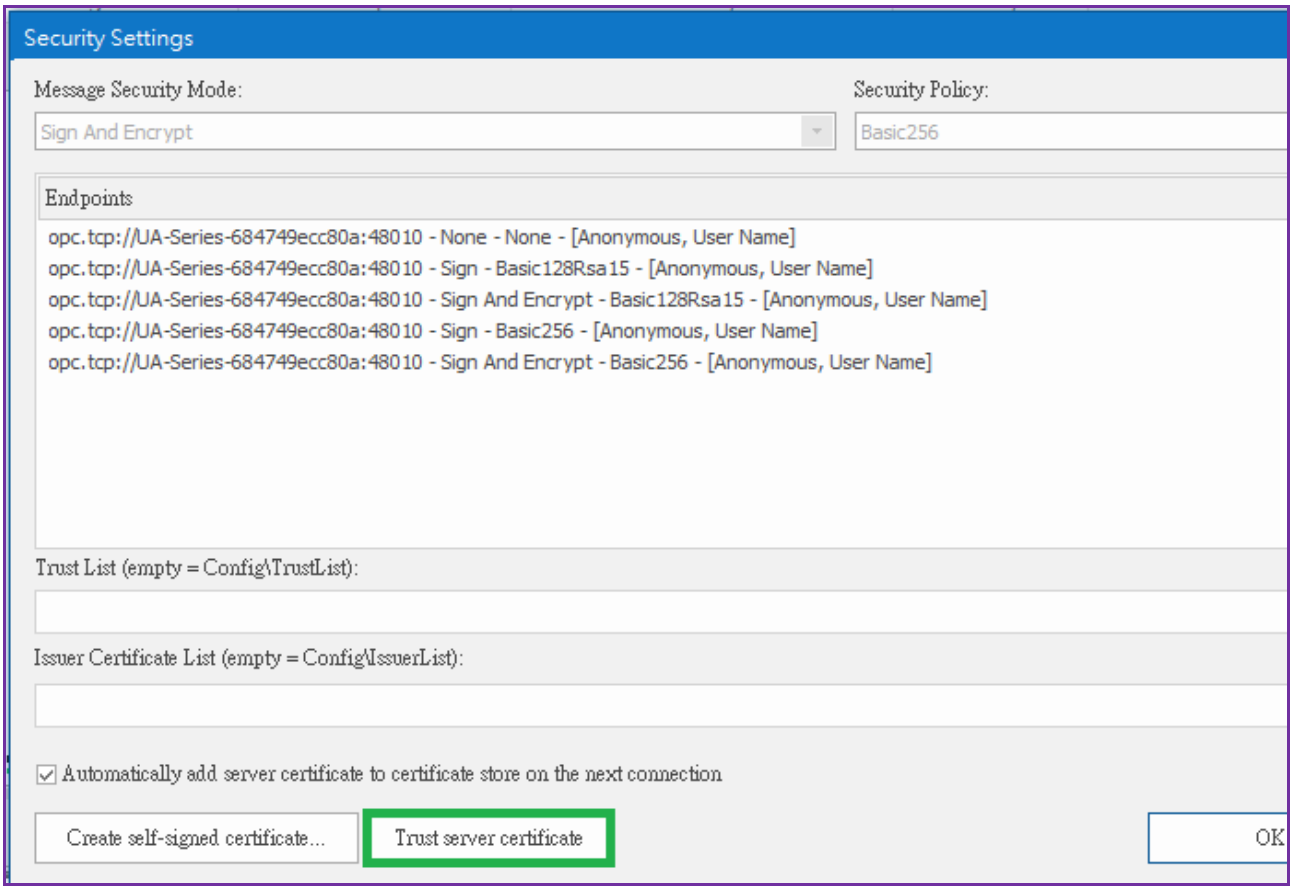
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Click [Security]

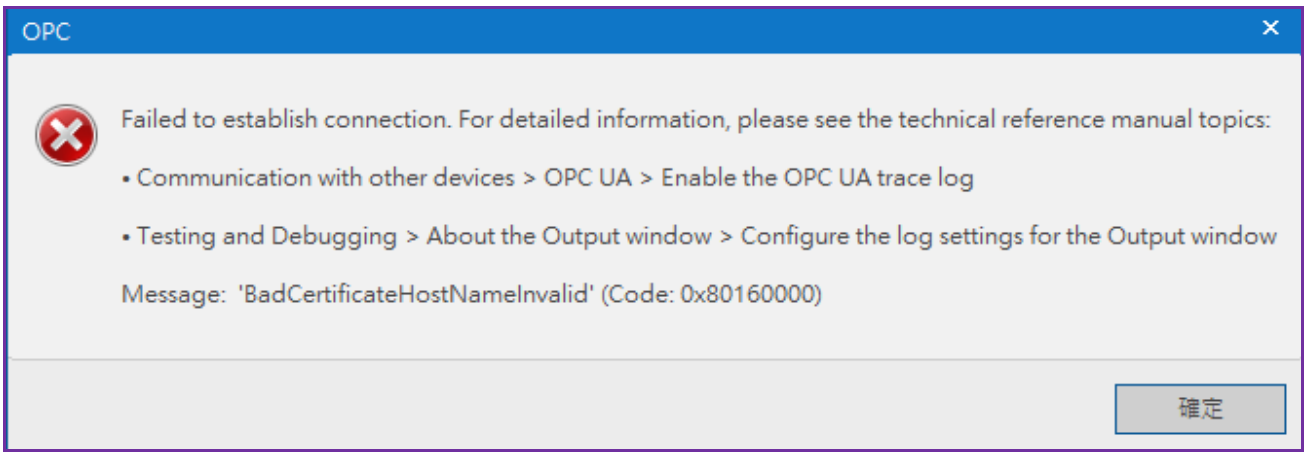


Click [Trust server certificate]



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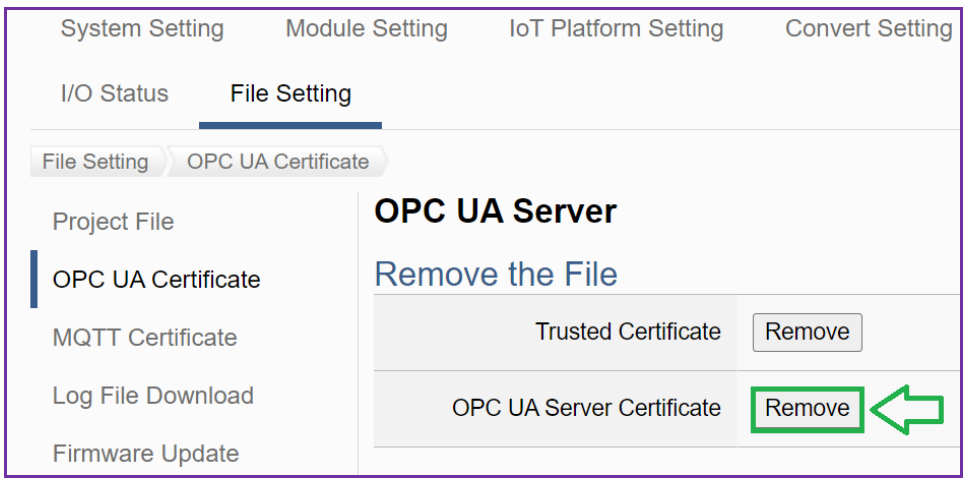
(3) Message: BadCertificateHostNameInvalid



Processing method:

- Check whether the "HostName" of the certificate in the TrustList folder matches.

- Regenerate OPC UA Server credentials for UA series
  First enter the [File Setting] of the UA series web page, click [OPC UA Certificate], and click [Remove] of [OPC UA Certificate].

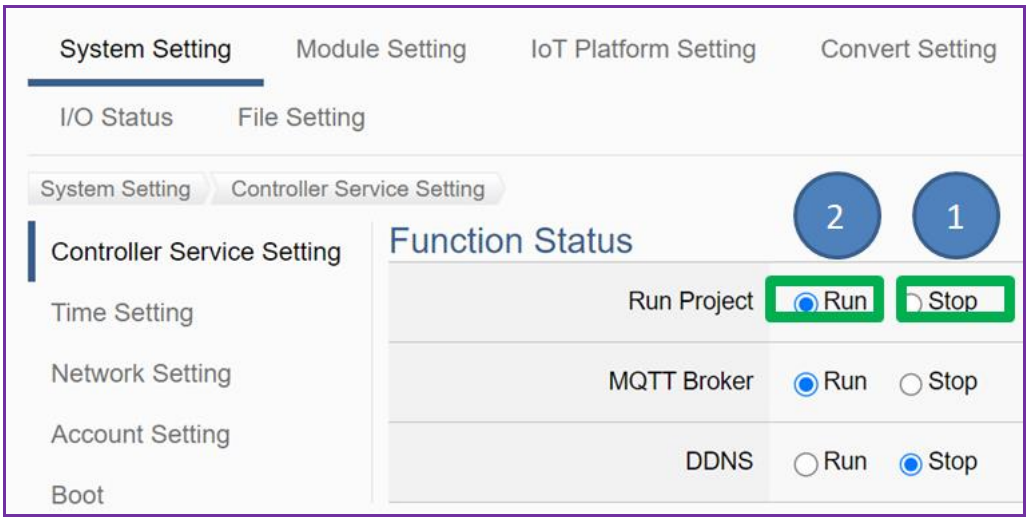


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Go to [System Setting] and click [Controller Service Setting]

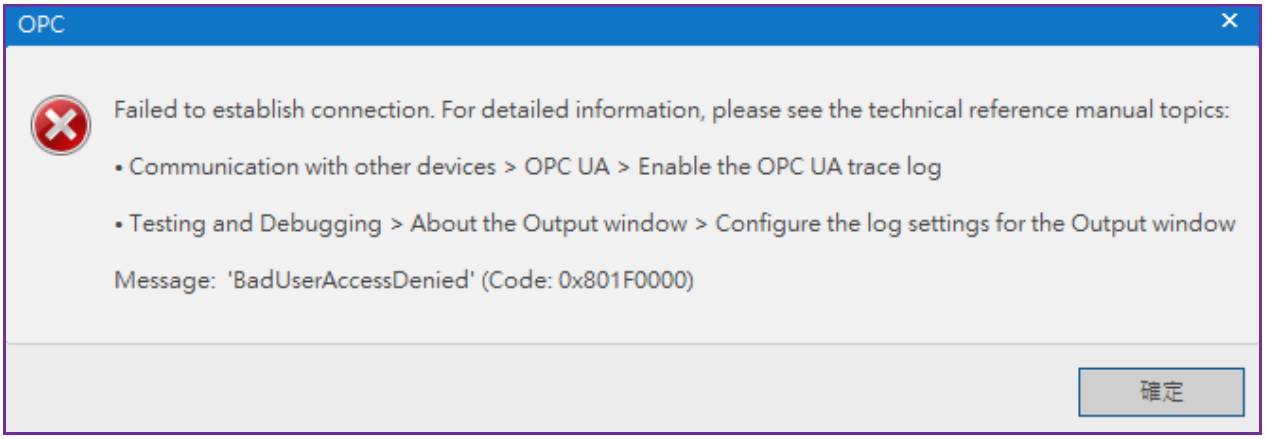
Step.1 First click [Stop] to close [Run Project]

Step.2 Click [Run] again



Then follow the processing method of the (2) message: BadCertificateInvalid.

(4) Message: BadUserAccessDenied

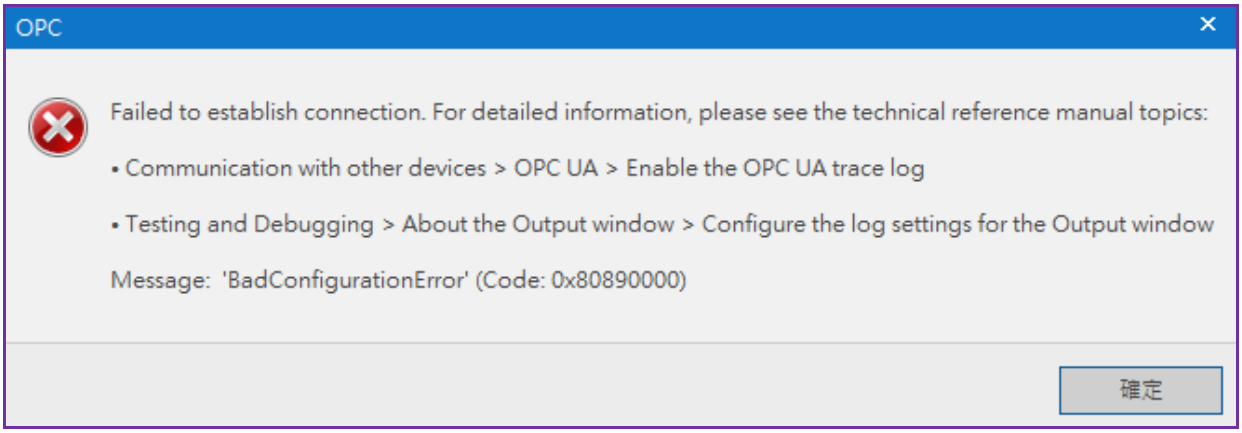


Processing method:

Please confirm whether the account password is correct.

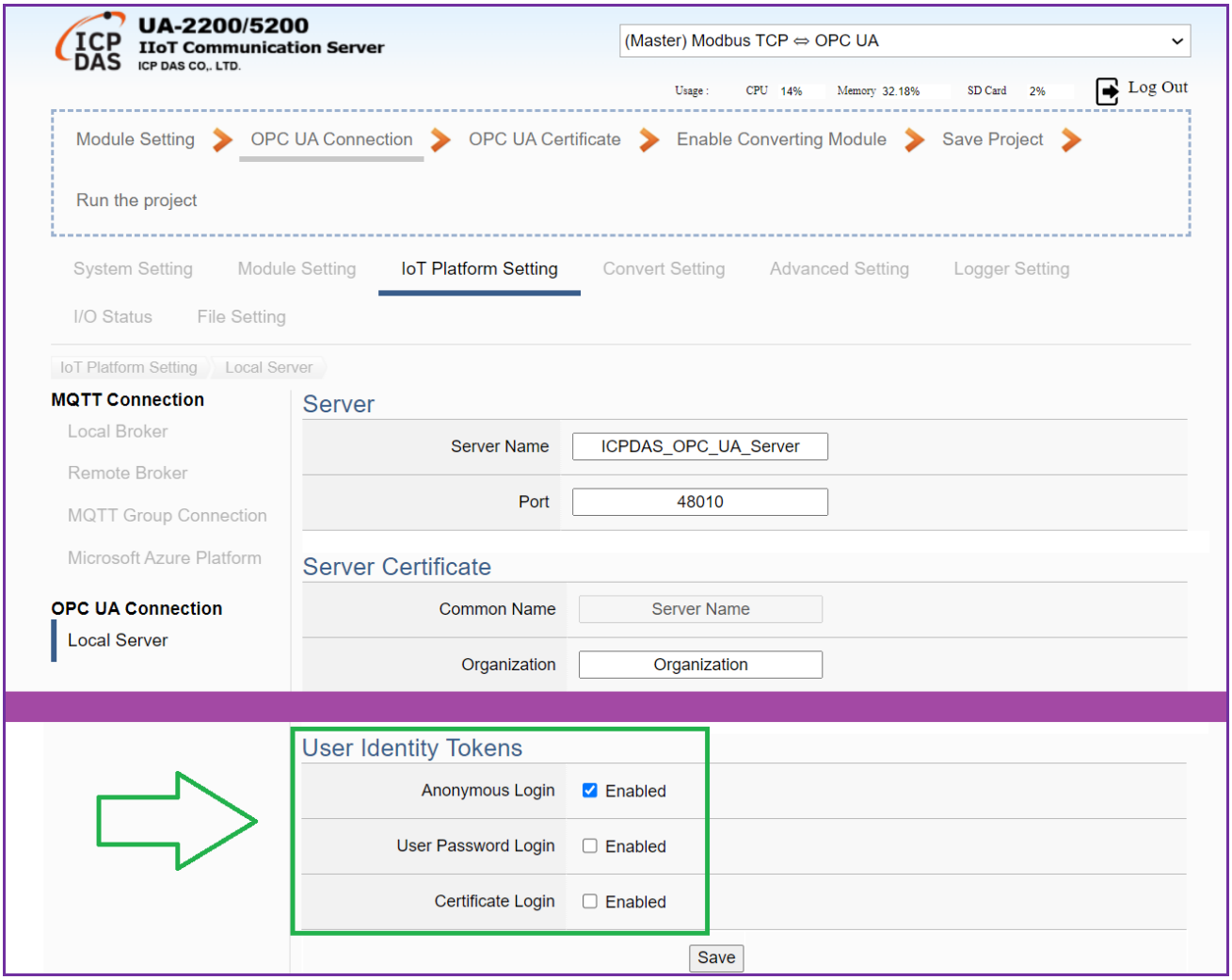
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(5) Message: BadConfigurationError



Processing method:

Please go to the UA series web page to confirm whether the user login option matches your login method (as shown below).



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