OPC UA Client and Server Connections

Easy Guide

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Introduction

OPC UA is the newest open standard from the OPC Foundation to facilitate open connectivity for a variety of systems. Use it to bridge all types of data across remote networks.

OPC UA also effectively aggregates data from multiple devices, plants, sites, and entire operations. Use it to leverage meaningful information on the enterprise level.

Learn how to connect an OPC UA Client to the KEPServerEX® connectivity platform in just four steps.

Follow the Steps

Step 1:
Define an endpoint in the OPC UA Configuration Manager

Configuration
Start Runtime Service
Stop Runtime Service
Reinitialize
Reset Event Log...
Settings...
OPC UA Configuration
OPC .NET Configuration
Quick Client
License Utility
Help
Support Information
Exit
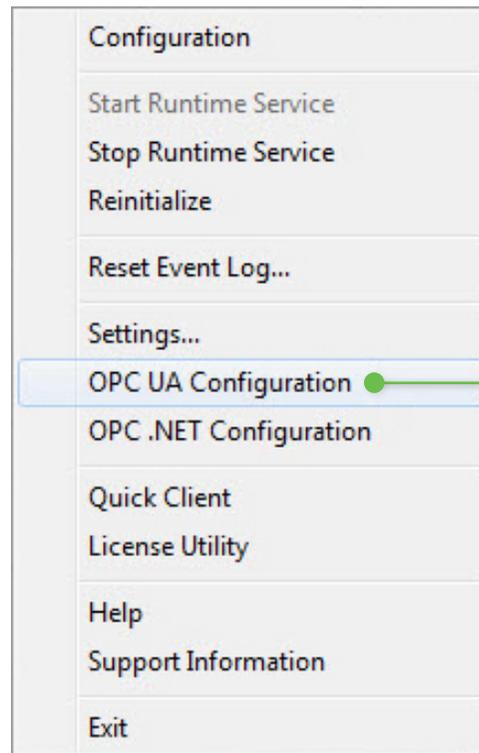
OPC UA connections use endpoint addressing. An endpoint serves as the URL that other OPC UA software applications will use to find and connect to remote applications.

To create an endpoint in KEPServerEX, open the **OPC UA Configuration Manager** by right-clicking on the **Administration icon** (located in the System Tray) and selecting **OPC UA Configuration**.

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In **OPC UA Configuration Manager**, open the **Server Endpoints** tab and then click **Add**.

Endpoint Definition [X]

TCP Connection

Network Adapter: Default

Port Number: 49320

opc.tcp://LPROCTOR0L.ptcnet.ptc.com:49320
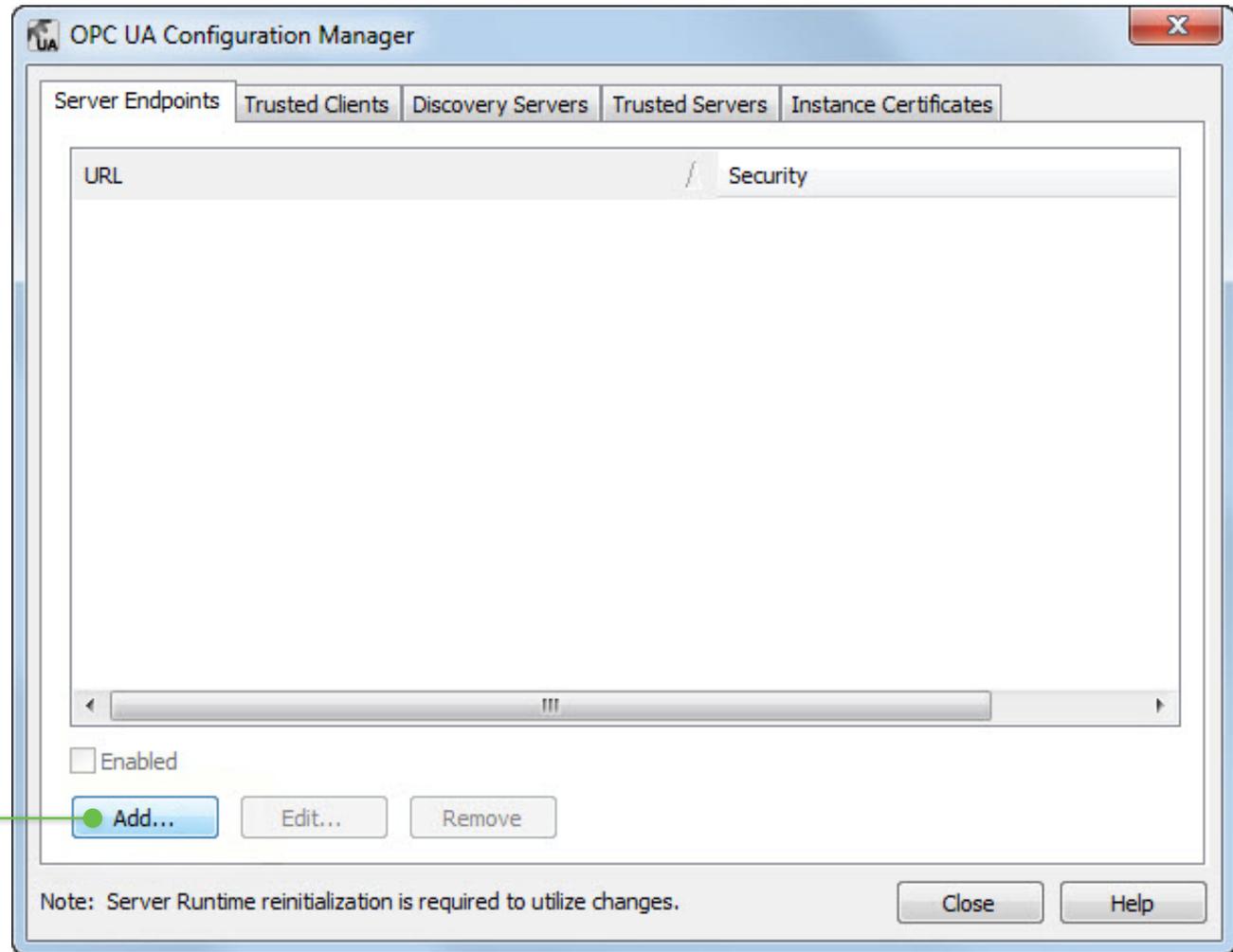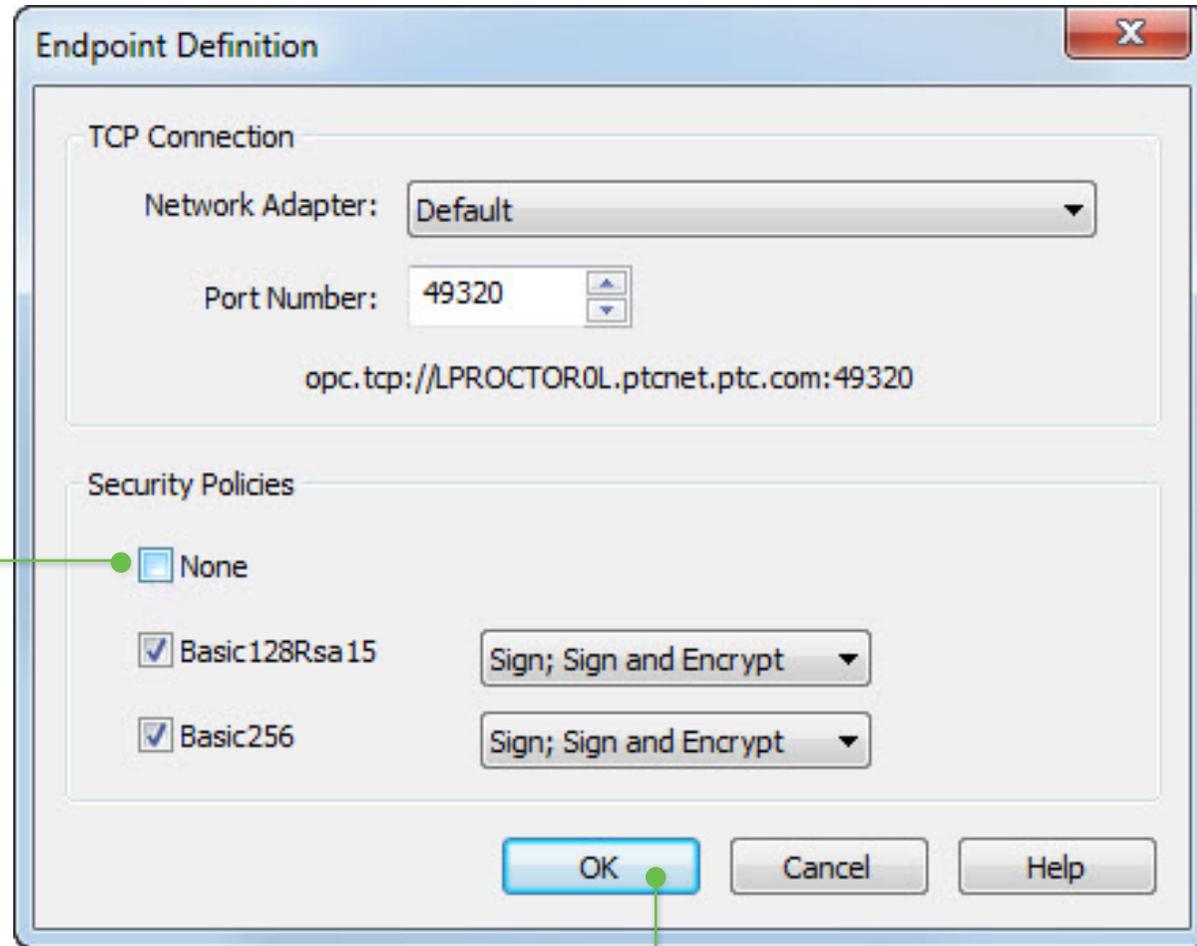
Security Policies

In **Endpoint Definition**, locate **Security Policies**. Check **None** if your application does not need to use security certificates for encrypted communication (such as when the environment is already secured by IT).

☐ None

☑ Basic128Rsa15 — Sign; Sign and Encrypt

☑ Basic256 — Sign; Sign and Encrypt

[OK]   [Cancel]   [Help]

Leave the remaining settings at their default values, and then click **OK** to create the endpoint.

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Step 2:
Enter the newly-created server endpoint address in the OPC UA client

OPC UA clients should support browsing for OPC UA servers. This means you can simply open your client application, add a server connection, and then browse for the KEPServerEX OPC UA server to connect. If your client cannot find the KEPServerEX OPC UA server, enter the server endpoint address created in Step 1.

Enter the Url of a computer with discovery service running:

opc.tcp://LPROCTOR0L.ptcnet.ptc.com:49320

OK   Cancel

Note: This image is from a third-party OPC UA client.

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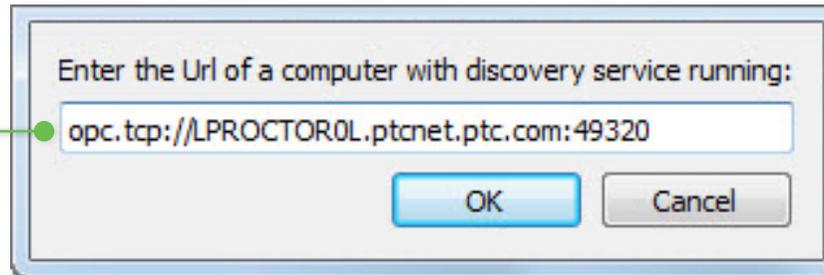
Step 3:

Exchange security certificates between the OPC UA client and server

Note: Skip this step if "None" was selected in the Security Policies section of the Endpoint dialog in Step 1.

If the OPC UA client does not prompt you to exchange certificates with KEPServerEX automatically, then you must manually generate a certificate from the server and then upload it to the client.

To manually generate a certificate, return to the **OPC UA Configuration Manager** and open the **Instance Certificates** tab. Click **Export Server Certificate**.
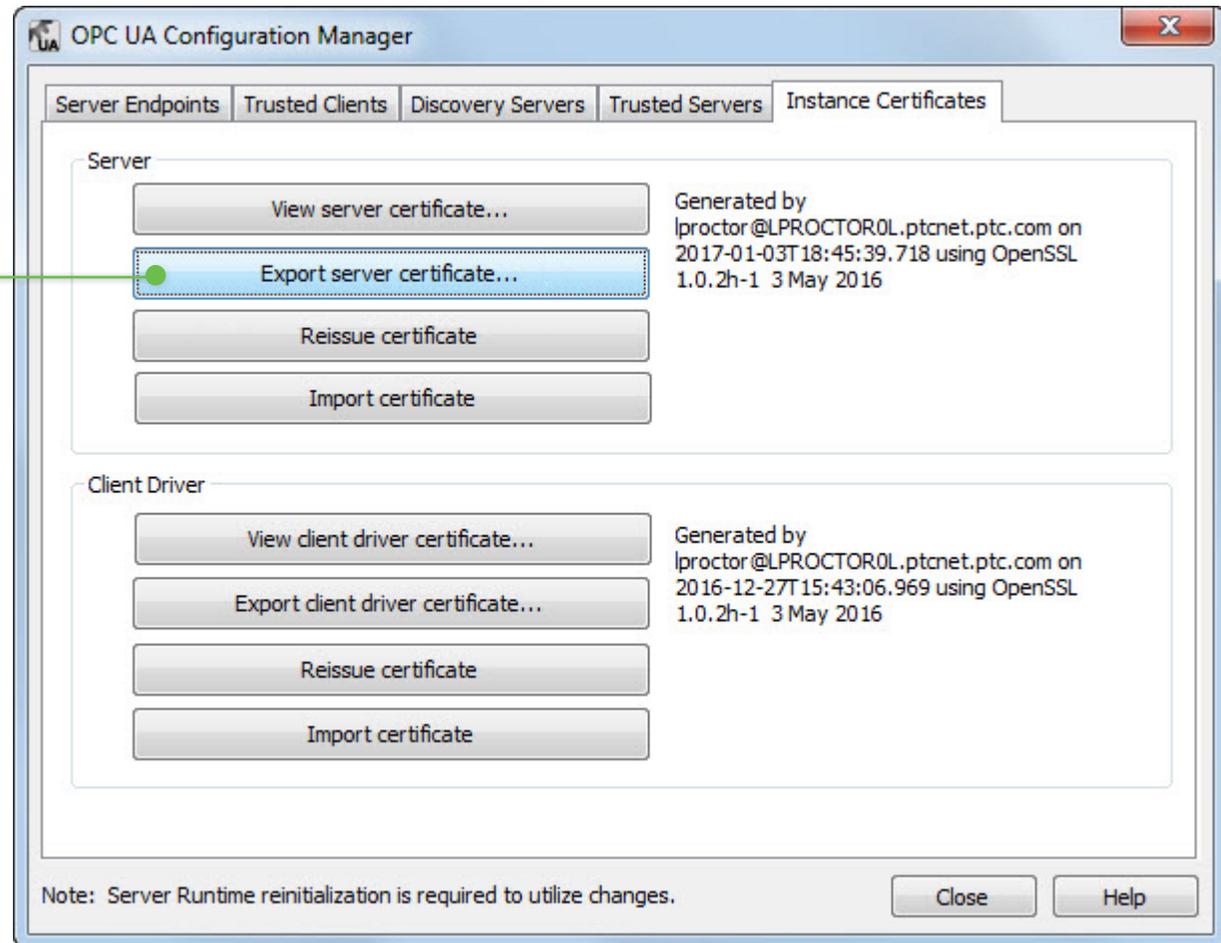
Save the certificate file and transfer it to the OPC UA client according to the client's instructions.

Step 4:
Trust the OPC UA client connection

Browse to the **Trusted Clients** tab in the OPC UA Configuration Manager. If the client you are trying to connect to has a red X, click on the name of the client and then select "Trust".
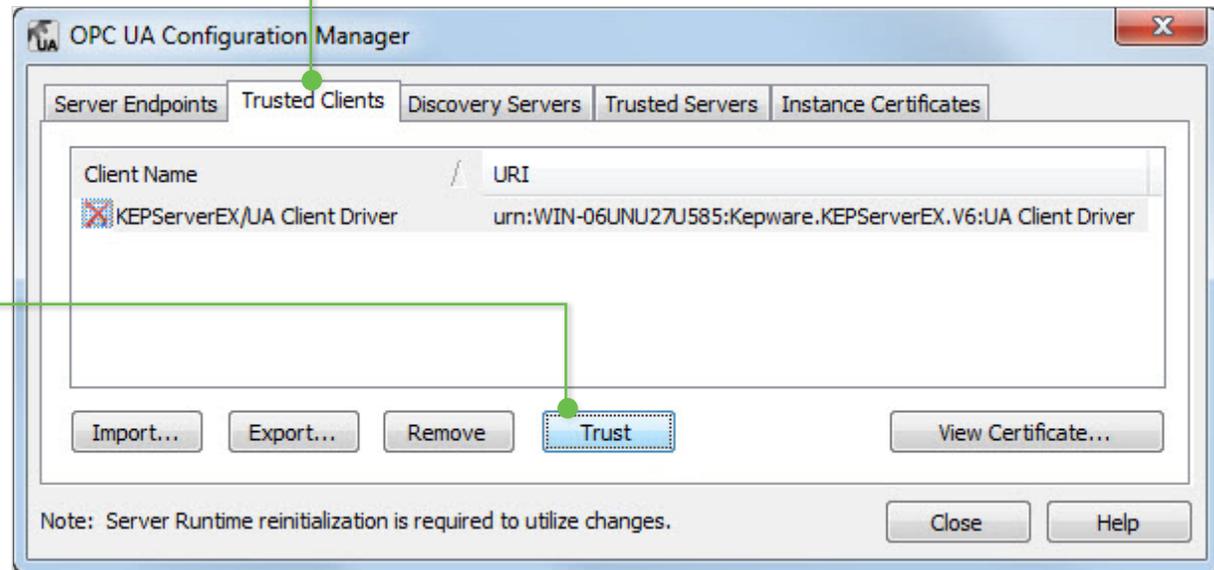
If the client does not have a red X, you may skip this step.

Step 5:
Verify the connection is successful by reading tag values from KEPServerEX in the OPC UA client application

In the OPC UA client, check that tag values can be read and that they show "Good" quality. If KEPServerEX is not connected to a device, use the Simulator Driver to generate a ramp or sine wave function to see if data is changing.

Note: This image is from a third-party OPC UA client.

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Learn More

- To create a secure OPC UA tunnel, follow the
  Secure Data Tunneling with KEPServerEX Easy Guide.

- To learn how OPC UA protects message integrity and confidentiality
  through message encryption and signing, read the **How OPC UA
  Protects Your Data** blog post.

- To discover how OPC standards are supported in KEPServerEX, read the
  OPC UA Native Implementation in KEPServerEX Version 6 blog post.

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