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How to Run Softing's edgeConnector Products on Windows

data



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How to Run Softing's *edgeConnector* Products on Windows

Preliminary Remarks

This configuration manual describes how to deploy and use Softing's the various ***edgeConnector*** Docker container applications in a Windows environment.

NOTE:

Additional ***edgeConnector*** information can be found at the according product web pages

- ***edgeConnector Siemens***: <https://industrial.softing.com/products/docker/edgeconnector-siemens.html>
- ***edgeConnector 840D***: <https://industrial.softing.com/products/docker/edgeconnector-840d.html>
- ***edgeConnector Modbus***: <https://industrial.softing.com/products/docker/edgeconnector-modbus.html>

NOTE:

Special attention must be paid to the ports used for OPC UA communication between the ***edgeConnector*** Docker container application and individual OPC UA clients. Here the following steps are suitable:

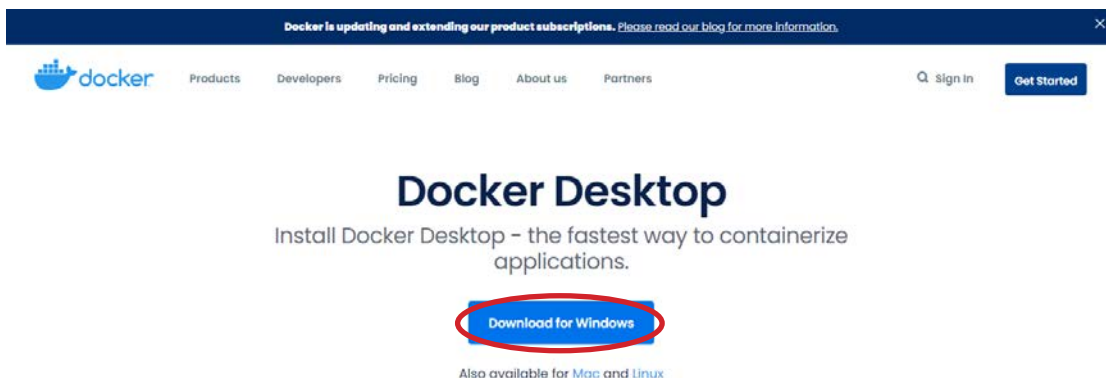
1. In advance, define the individual ports to be used for OPC UA communication for the various ***edgeConnector*** Docker container applications. This information is required for sections 2. and 3.
2. Map these ports when starting the ***edgeConnector*** Docker container application (see section 2.).
3. Make sure the identical ports are defined for the OPC UA endpoints when configuring the ***edgeConnector*** Docker container application (see section 3.).

NOTE:

Within the scope of this configuration manual the image of a specific ***edgeConnector*** Docker container application as chosen by the user is shown by the string `<edgeConnector>`.

1. Install and Start Docker Desktop

- In Internet browser, open <https://www.docker.com/products/docker-desktop> page



- Press ***Download for Windows*** button
- Execute downloaded ***Docker Desktop Installer.exe*** file, if installation doesn't start automatically

NOTE:

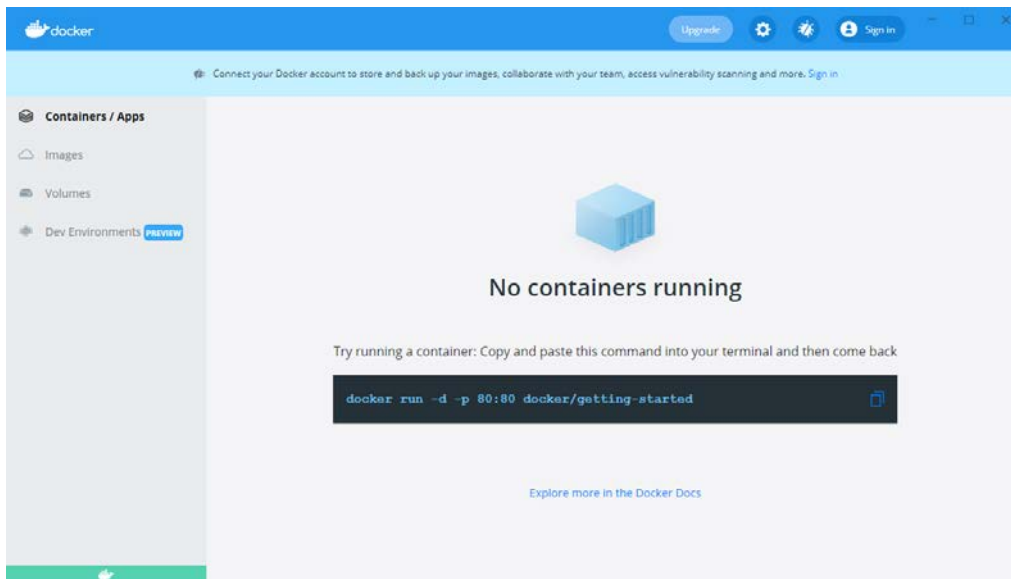
By default Docker Desktop requires the activation of the Windows Hypervisor *Hyper-V* (see next page). As an alternative it is also possible to run Docker Desktop in the Windows Subsystem for Linux *WSL-2* (available since Windows 10 2004). This can be installed by entering the command

```
wsl --install
```

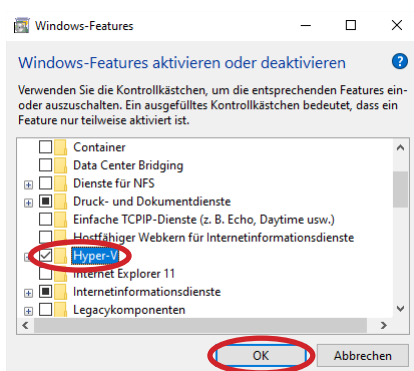
in *Windows Command-Line Interpreter* or *Windows PowerShell*.

Here the ***Install required Windows components for WSL 2*** option has to be activated during Docker Desktop installation.

- Press **Close** button once installation has been completed successfully
- Open *Docker Desktop* application from Windows start menu



- Open *Windows Control Panel/Programs/Programs and Features*
- Click *Turn Windows features on and off* link



- Activate **Hyper-V** checkbox, if not activated already
- Press **OK** button

2. Deploy and Run *edgeConnector* Applications

NOTE:

Besides in other repositories, **edgeConnector** Docker container applications are available for download at Docker Hub. They can be found there using the following information:

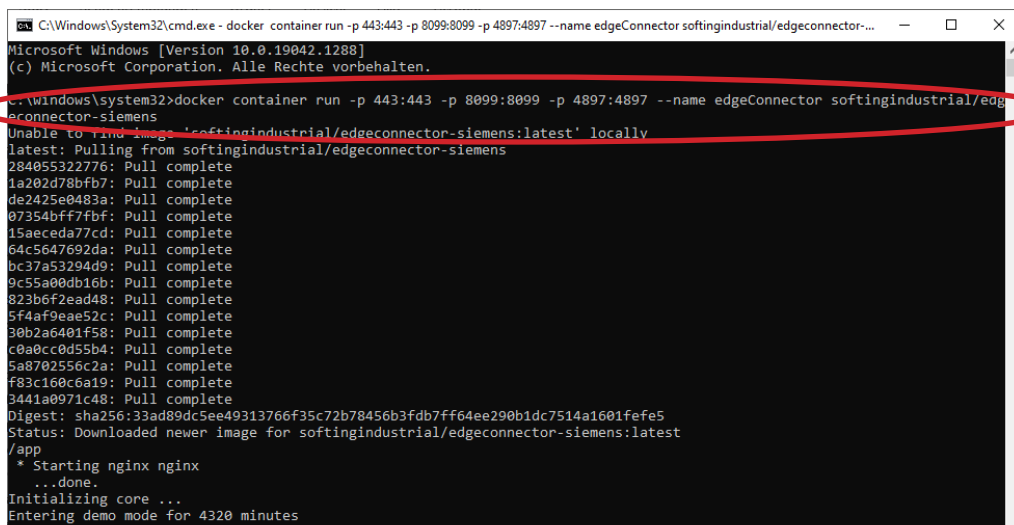
- **edgeConnector Siemens:**
Image name: *softingindustrial/edgeconnector-siemens*
URL: <https://hub.docker.com/r/softingindustrial/edgeconnector-siemens>
- **edgeConnector 840D:**
Image name: *softingindustrial/edgeconnector-840d*
URL: <https://hub.docker.com/r/softingindustrial/edgeconnector-840d>
- **edgeConnector Modbus:**
Image name: *softingindustrial/edgeconnector-modbus*
URL: <https://hub.docker.com/r/softingindustrial/edgeconnector-modbus>

- Open Windows Command-Line Interpreter or Windows PowerShell

- Enter

docker container run -p 443:443 -p 8099:8099 -p 4897:4897 --name edgeConnector
<edgeConnector image>

command

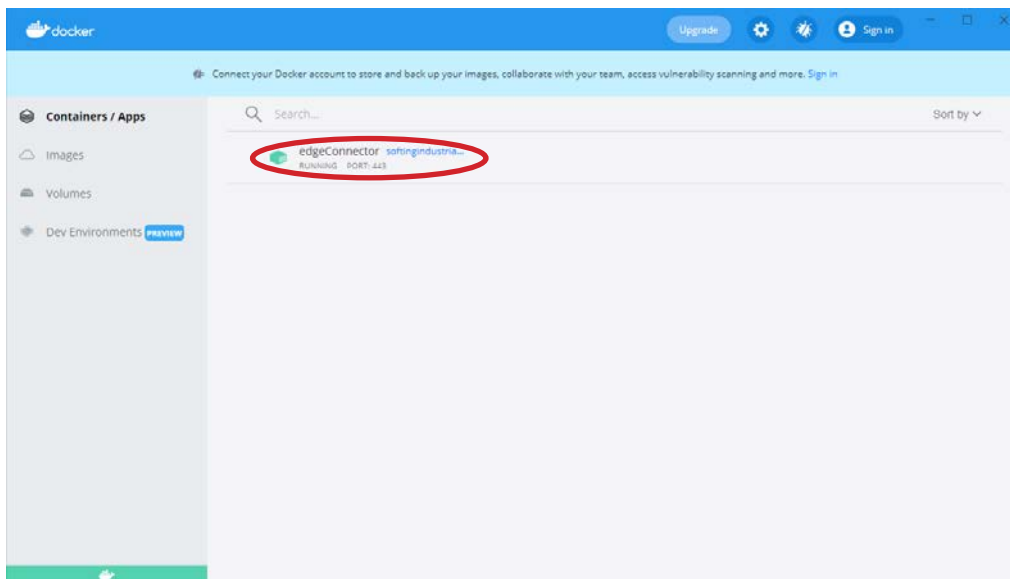


```
C:\Windows\System32\cmd.exe - docker container run -p 443:443 -p 8099:8099 -p 4897:4897 --name edgeConnector softingindustrial/edgeconnector-siemens
Microsoft Windows [Version 10.0.19042.1288]
(c) Microsoft Corporation. Alle Rechte vorbehalten.

C:\Windows\System32>docker container run -p 443:443 -p 8099:8099 -p 4897:4897 --name edgeConnector softingindustrial/edgeconnector-siemens
Unable to find image 'softingindustrial/edgeconnector-siemens:latest' locally
latest: Pulling from softingindustrial/edgeconnector-siemens
284055322776: Pull complete
1a202d78bfb7: Pull complete
de2425e0483a: Pull complete
07354bff7fbf: Pull complete
15aaceda77cd: Pull complete
64c5647692da: Pull complete
bc37a53294d9: Pull complete
9c55a00db16b: Pull complete
823b6f2ead48: Pull complete
5f4af9eae52c: Pull complete
30b2a6401f58: Pull complete
c0a0cc0d55b4: Pull complete
5a8702556c2a: Pull complete
f83c160c6a19: Pull complete
3441a0971c48: Pull complete
Digest: sha256:33ad89dc5ee49313766f35c72b78456b3fdb7ff64ee290b1dc7514a1601fefe5
Status: Downloaded newer image for softingindustrial/edgeconnector-siemens:latest
/app
* Starting nginx nginx
...done.
Initializing core ...
Entering demo mode for 4320 minutes
```

NOTES:

- The given command is the default command for starting the **edgeConnector** Docker container application.
If the latest image of this Docker container application is not available locally, it is downloaded (“pulled”) from Docker Hub.
- The switch `-p <External Host Port>:<Internal Docker Port>` describes the mapping of an internal port in the virtual Docker network to an external port in the local host network.
The mapping of the following internal ports of the Docker network is required:
 - Port 443 is required for *https* communication (secure local web services).
 - Port 8099 defines the local web service port.
 - Port 4897 is used for OPC UA communication.Some indications for an individual customization of the starting command by adapting the command parameter `-p` can be found in later notes.
- The usage of the switch `-- name <Docker application name>` is optional.
It defines the container name to be shown in Docker Desktop and allows for an easy identification of the **edgeConnector** Docker container application.



3. Configure *edgeConnector Docker* Container Application

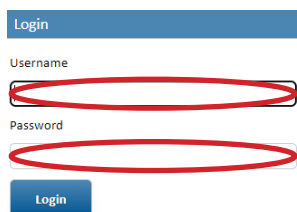
- In Internet browser, open *http://localhost:8099/* page

NOTE:

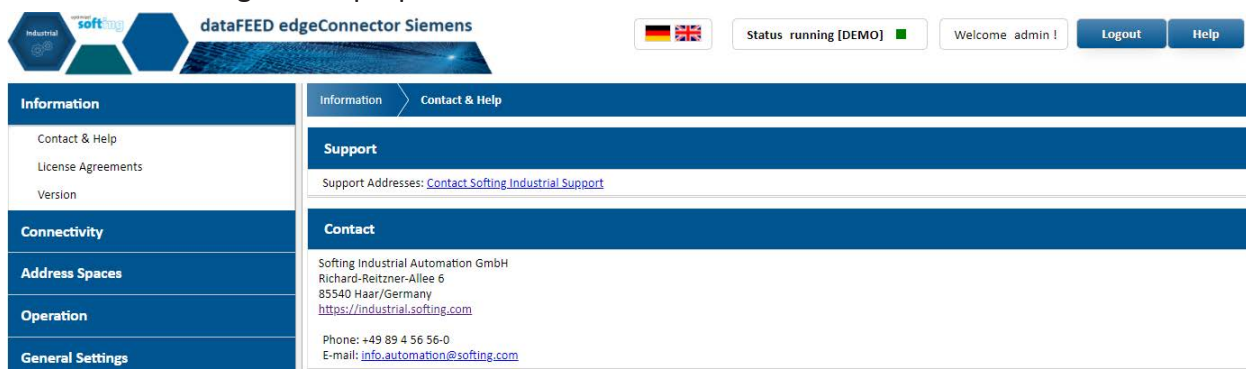
The number *8099* in the URL reflects the local web service port in the host network as defined in the *docker container run* command (see section 2.).

When using a different local web service port in the host network the URL needs to be adapted.

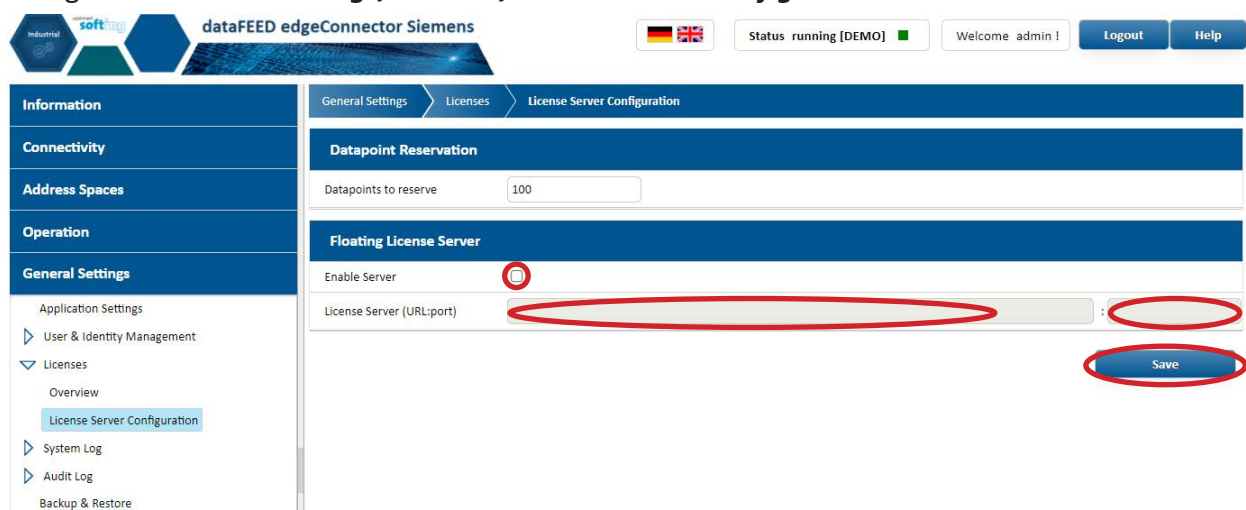
The login screen of the *edgeConnector Docker* container application is shown



- For gaining administrator access rights enter *admin* in **Username** field and *admin* in **Password** field. The user interface of the time-limited *edgeConnector Docker* container application demo mode is available for configuration purposes.



- Navigate to **General Settings/Licenses/License Server Configuration**



- Activate **Enable Server** Checkbox
- Enter URL of floating license server and port number *6200* in **License Server** fields
- Press **Save** button
- Navigate to **Operation/Status**



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Operation Status

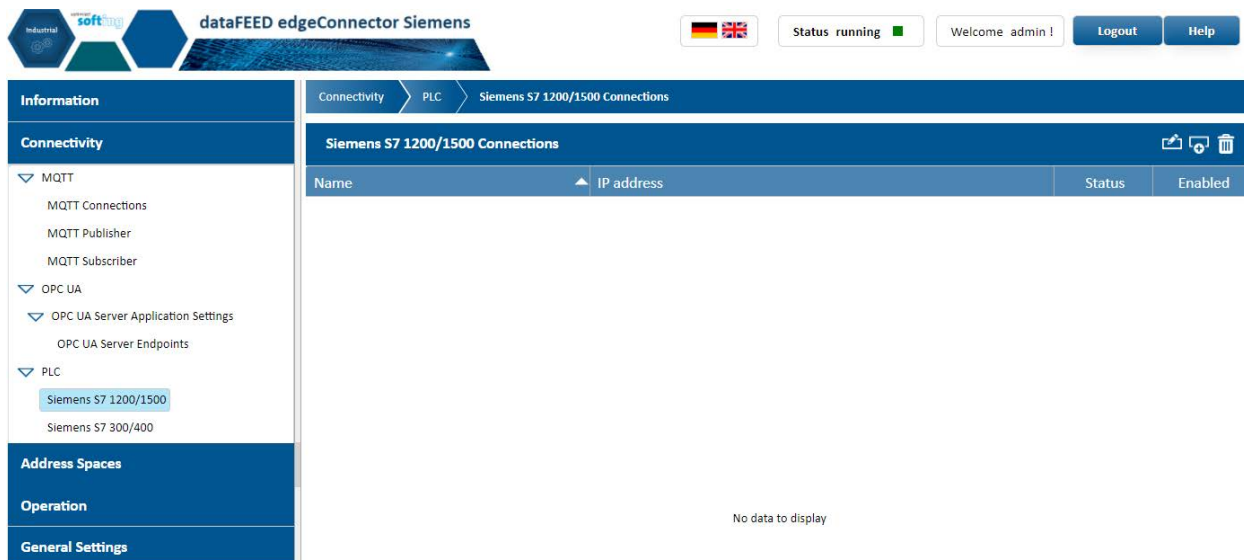
Status

Currently the system is: ■ running [DEMO]

Start Stop Restart

- Press **Stop** button
- Press **Start** button

The license as available in the floating license server is applied to the **edgeConnector Docker** container application. As a result the string **[DEMO]** is not shown in the **Status** field any longer.



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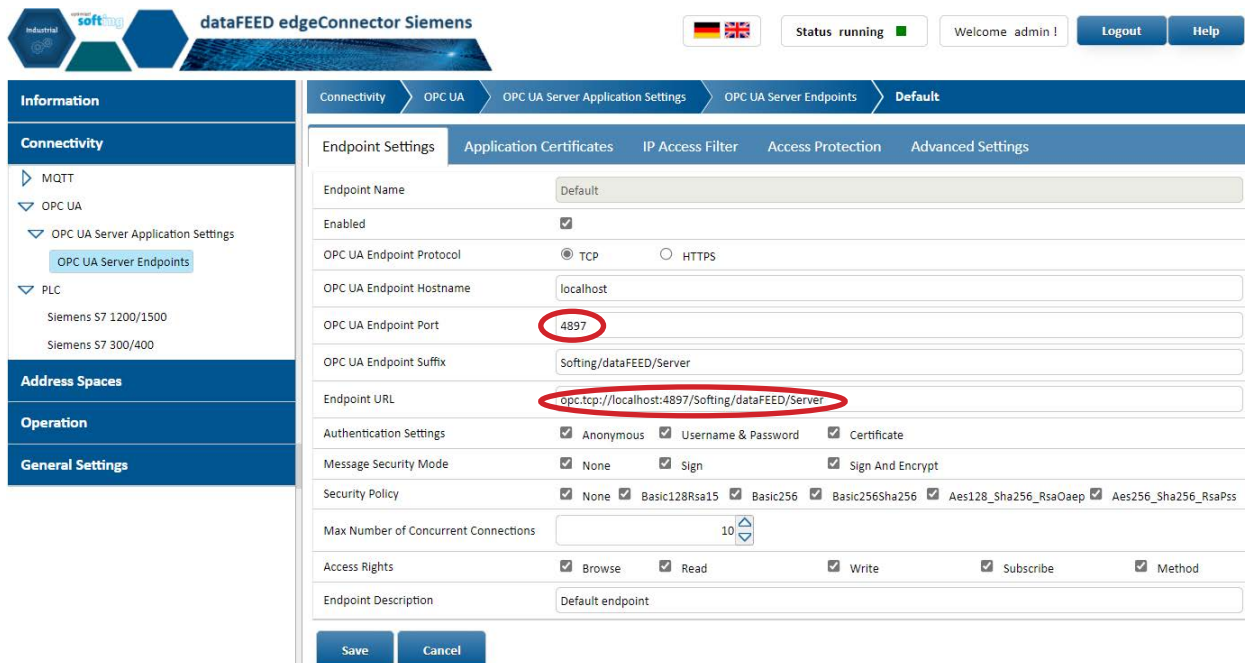
Connectivity PLC Siemens S7 1200/1500 Connections

Siemens S7 1200/1500 Connections

Name	IP address	Status	Enabled
No data to display			

The **edgeConnector Docker** container application is available for configuration by navigating to the appropriate menu items in the **Connectivity** and **Address Spaces** sections.

- Navigate to **Connectivity/OPC UA Server Application Settings/OPC UA Server Endpoints**



The screenshot shows the 'dataFEED edgeConnector Siemens' web interface. The left sidebar contains navigation links: Information, Connectivity, Address Spaces, Operation, and General Settings. The 'Connectivity' section is expanded, showing 'MQTT', 'OPC UA', 'OPC UA Server Application Settings', and 'OPC UA Server Endpoints'. The 'OPC UA Server Endpoints' page is displayed, showing various configuration fields. The 'OPC UA Endpoint Port' field is highlighted with a red circle, showing the value 4897. The 'Endpoint URL' field is also highlighted with a red circle, showing the value 'opc.tcp://localhost:4897/Softing/dataFEED/Server'.

- Enter port number in **OPC UA Endpoint Port** field

NOTES:

- The default port number in the **OPC UA Endpoint Port** field as set by the **edgeConnector Docker** container application is 4897. This port number is intended to be used for communication with a first OPC UA Server endpoint.
If further OPC UA Server endpoints are configured by the **edgeConnector Docker** container application different port numbers have to be used. Thus, the **edgeConnector Docker** container application adapts the default setting of the **OPC UA Endpoint Port** field for further OPC UA Server endpoints.
- All individual port numbers defined in the **OPC UA Endpoint Port** fields for the various OPC UA Server endpoints configured by the **edgeConnector Docker** container application have to match the ports defined for the OPC UA communication of the internal Docker network using the **-p** switch in the **docker container run** command (see section 2.).

Example:

If the ports 4897 and 4898 should be used as OPC UA endpoint ports by the **edgeConnector Docker** container application, the according **docker container run** command has to include the switch **-p <external OPC UA communication port 1>:4897** and **-p <external OPC UA communication port 2>:4898**.

- Copy **Endpoint URL** field for use in OPC UA Client application

NOTE:

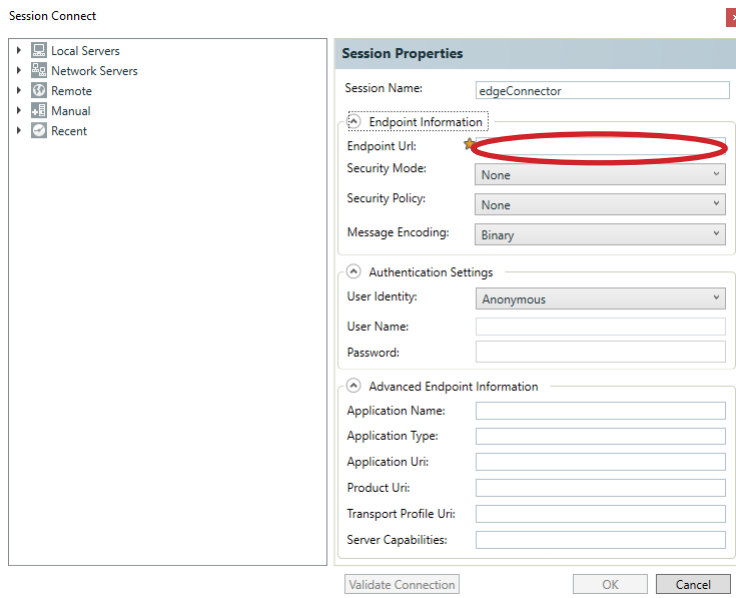
The **Endpoint URL** field itself cannot be edited. Rather, it is composed of the entries in the previous fields and, in particular, contains the port number defined in the **OPC UA Endpoint Port** field.

4. Access *edgeConnector Docker* Container Application Data Using OPC UA

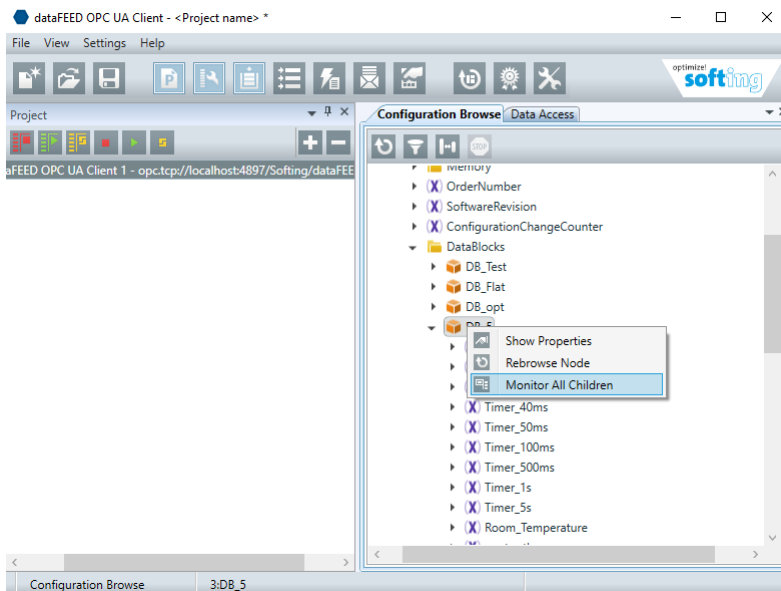
NOTE:

The free-of-charge Softing **OPC UA Demo Client** is used in following as an example for an OPC UA Client application.


- Open OPC UA Client





- Enter OPC UA Server endpoint URL as copied from *edgeConnector Docker* container application in **Endpoint Uri** field



- Select individual data items for OPC UA data exchange
- In *edgeConnector Docker* container application navigate to **General Settings/Licenses/Overview**


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Status: running
Welcome: admin |
Logout
Help

Information
Connectivity
Address Spaces
Operation
General Settings

Application Settings
User & Identity Management
Licenses

Overview

License Server Configuration
System Log
Audit Log
Backup & Restore

General Settings Licenses Overview

License Server Information

Product	Server	Ver...	Expires	Order ID	Options	Total	Used
dataFEED edgeConnector edgeData 100	:6200	2.0		LRA-XX-142100	Datapoint=100	15	1

Application License Details

Type	Total	Available	Server Slots	Server Slots Used
Datapoint	100	89	1500	100

The number of data items remaining in the current **edgeConnector Docker** container application license is shown.

5. Running Multiple *edgeConnector Docker* Container Applications in Parallel

It is possible to run multiple **edgeConnector Docker** container applications in parallel. Here, several *docker container run* commands have to be executed in *Windows Command-Line Interpreter* or *Windows PowerShell*.

Example:

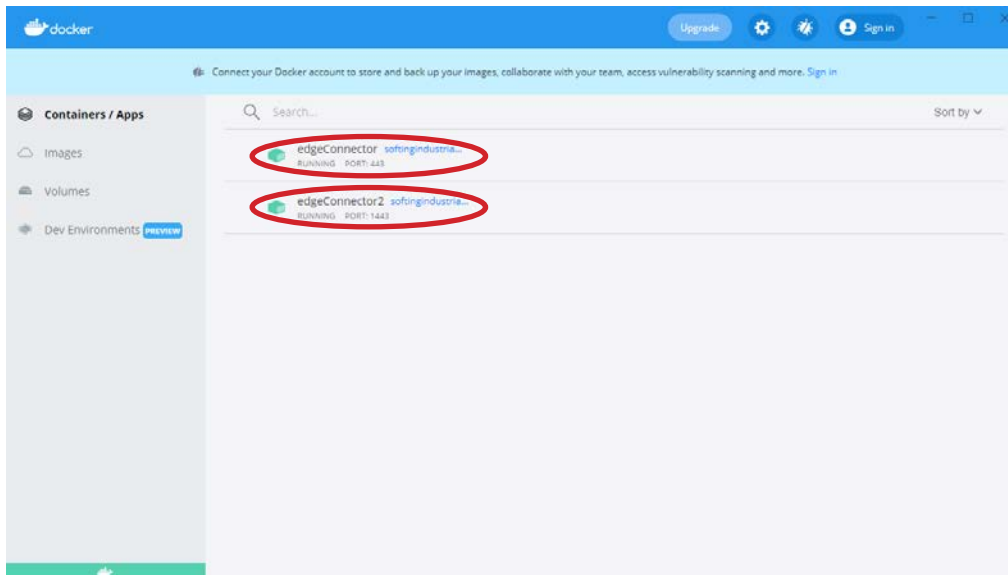
Enter the *Windows Command-Line Interpreter* respectively *Windows PowerShell* commands

```
docker container run -p 443:443 -p 8099:8099 -p 4897:4897 --name edgeConnector <edgeConnector image>
```

and

```
docker container run -p 1443:443 -p 8100:8099 -p 4898:4898 --name edgeConnector2 <edgeConnector image>
```

to start two **edgeConnector Docker** container applications in parallel.



NOTES:

- When running multiple **edgeConnector Docker** container applications in parallel the port 443 as used for *https* communication in the virtual Docker network has to be mapped to different external ports in the local host network.
- When running multiple **edgeConnector Docker** container applications in parallel the port 8099 as used for web service communication in the virtual Docker network has to be mapped to different external ports in the local host network.
- It is essential that the individual OPC UA communication ports defined in the various *docker container run* commands match the ports of the individual OPC UA Server endpoints as configured by the **edgeConnector Docker** container applications.

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