

Industrial Ethernet Training 25

Using u-link Easy Access for local websites

Abstract:

With Weidmueller's u-link VPN service, you can remotely connect to a device's web interface or a local visualization of a PLC via the Easy Access feature. The Easy Access features allows for a simple remote connection to devices in the router's network, e.g., PLCs or IPCs, by a smartphone or tablet and a configured action in u-link web. The connection is secured via a VPN tunnel from the router and the Weidmueller meeting point servers protecting the network from any cyber threats. This application note demonstrates the usage of Weidmueller's u-link feature Easy Access for a PLC visualization.

Using u-link Easy Access for local websites

Hardware reference

No.	Component name	Article No.	Hardware / Firmware version
1	IE-Training Kit-01	2874670000	1.1.2 (Build 125086)
2	UC20-WL2000-AC	1334950000	1.17.0
3			

IE-Training Kit Content

No.	Component name	Article No.	Hardware / Firmware version
1	IE-SR-4TX	2751270000	1.6.4
2	IE-SW-AL08M-8TX	2682280000	1.11
3	IE-SW-AL05M-5TX	2682250000	1.16
4	IE-CS-MBGW-2TX-1COM	2682600000	3.14

Software reference

No.	Software name	Article No.	Software version
1			
2			
3			

File reference

No.	Name	Description	Version
1			
2			

Contact

Weidmüller Interface GmbH & Co. KG
Klingenbergstraße 26
32758 Detmold, Germany
www.weidmueller.com

For any further support please contact your
local sales representative:
<https://www.weidmueller.com/countries>

Content

1 Warning and Disclaimer..... 4

2 Prerequisites..... 5

3 Why using u-link Easy Access? 6

4 Configuring Easy Access Action in u-link 7

4.1 Using Easy Access Actions13

5 Results17

1 Warning and Disclaimer

Warning

Controls may fail in unsafe operating conditions, causing uncontrolled operation of the controlled devices. Such hazardous events can result in death and / or serious injury and / or property damage. Therefore, there must be safety equipment provided / electrical safety design or other redundant safety features that are independent from the automation system.

Disclaimer

This Application Note / Quick Start Guide / Example Program does not relieve you of the obligation to handle it safely during use, installation, operation and maintenance. Each user is responsible for the correct operation of his control system. By using this Application Note / Quick Start Guide / Example Program prepared by Weidmüller, you accept that Weidmüller cannot be held liable for any damage to property and / or personal injury that may occur because of the use.

Note

The given descriptions and examples do not represent any customer-specific solutions, they are simply intended to help for typical tasks. The user is responsible for the proper operation of the described products. Application notes / Quick Start Guides / Example Programs are not binding and do not claim to be complete in terms of configuration as well as any contingencies. By using this Application Note / Quick Start Guide / Example Program, you acknowledge that we cannot be held liable for any damages beyond the described liability regime. We reserve the right to make changes to this application note / quick start guide / example at any time without notice. In case of discrepancies between the proposals Application Notes / Quick Start Guides / Program Examples and other Weidmüller publications, like manuals, such contents have always more priority to the examples. We assume no liability for the information contained in this document. Our liability, for whatever legal reason, for damages caused using the examples, instructions, programs, project planning and performance data, etc. described in this Application Note / Quick Start Guide / Example is excluded.

Security notes

In order to protect equipment, systems, machines and networks against cyber threats, it is necessary to implement (and maintain) a complete state-of-the-art industrial security concept. The customer is responsible for preventing unauthorized access to his equipment, systems, machines and networks. Systems, machines and components should only be connected to the corporate network or the Internet if necessary and appropriate safeguards (such as firewalls and network segmentation) have been taken.

2 Prerequisites

You need to have the following hardware and documentation

- Via Ethernet connected Industrial Ethernet Training Kit
- Via Ethernet to the Industrial Ethernet Training Kit connected PLC
- Application Note Industrial Ethernet Training 01 "Setting up default configuration of IE Training Kit" for applying default IP address configuration

Note: *The mentioned prerequisites are only mandatory for performing the exact use case we are exemplifying in this Application Note. These are optional if you only want to understand the functionality of the following Application and implement it by yourself.*

Note: *Additional information and tutorial videos to this Application Note can be found in the Weidmueller support center (Weidmüller - Support Center (weidmueller.com)). These videos can also be found by searching for "Industrial Ethernet tutorials" in the support center.*

3 Why using u-link Easy Access?

Our Remote Access Service **u-link** allows an easy and secure remote access to Ethernet devices in the router's network, e.g., a PLC like the u-control. This is possible with a computer, smartphone or an HMI that has an Internet connection. To implement the remote access, we configure the Easy Access feature. Easy Access minimizes potential attacking areas by replicating only the web interface, preventing direct access to the devices. Furthermore, Secure VPN access is employed, guaranteeing encrypted and protected communication between users and the devices while using this feature. Additional advantages of Easy Access include its versatility, allowing access from various devices like smartphones, PCs, tablets, or HMIs.

This VPN-based access to the devices is done by linking an account from the u-link portal to the router. The device needs to be activated with an individual registration code. For more information and details on how to set up the u-link portal, refer to the Application Note "[Using u-link remote access service](#)", which can be found in the [Weidmüller - Support Center \(weidmueller.com\)](#).

4 Configuring Easy Access Action in u-link

To access a PLC (or any other device) through the router via Easy Access, it must be in the router's local network since its web interface is being forwarded through the router. A new action has to be configured in the u-link portal to access the device remotely.

1. Go to u-link login (weidmueller.com) and log in with your credentials.

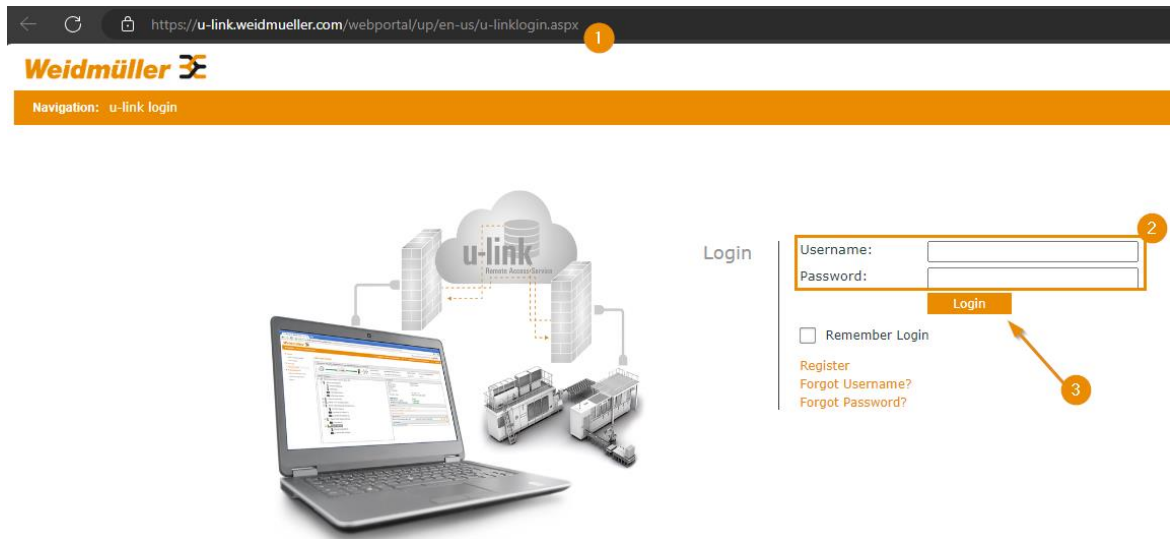


Figure 1: u-link login

2. Click on “Administration” and navigate to “Device Management”. Select the corresponding router in the device topology and click on it. Make sure that the “Status-WWH” is “Active”.

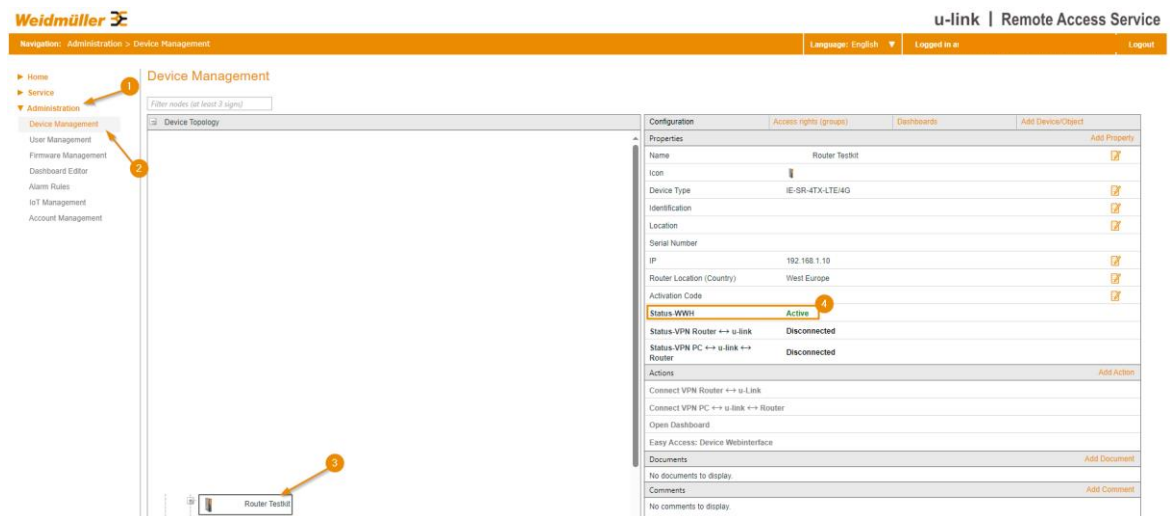


Figure 2: Selecting router in device topology

3. To configure the Easy Access connection, click on “Add action”.

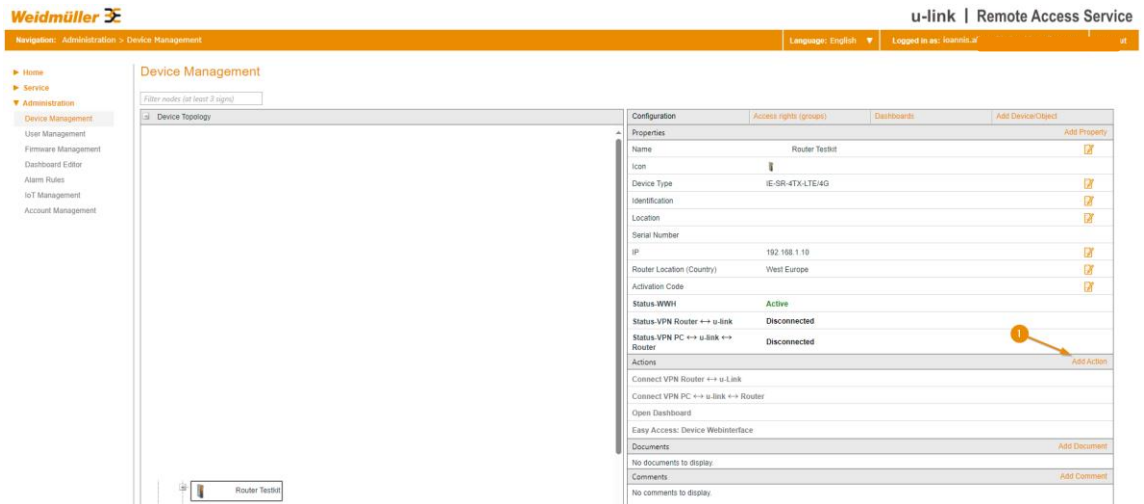
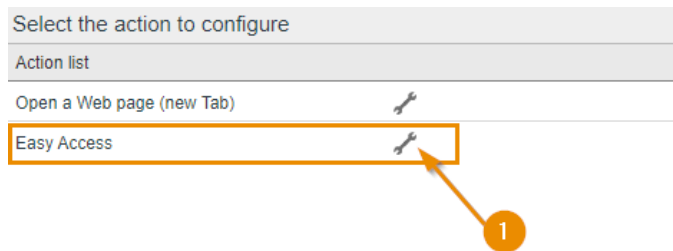


Figure 3: Add action button

4. Choose the “Easy Access” option from the action list and click on the tool icon to start the configuration.



Cancel

Figure 4: Easy Access action

5. Give the action a fitting name and description to know what it does. Moreover, choose “WEB” from the “Connection Type” list. Click on “Next”.

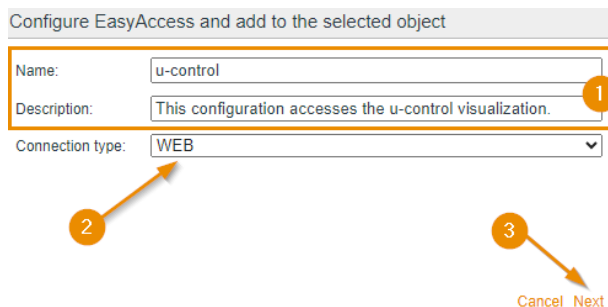


Figure 5: Setting up the connection type

6. In the “*Local IP*” field, type in the IP of the device in the remote network, in this case “192.168.1.60”. The “*Local TCP port*” is filled in automatically with the default ports “80” (HTTP) or “443” (HTTPS) depending on whether you check the checkbox at the bottom. The “*Homepage*” setting is optional and can be used to open a certain page in the device, in this example “/visu” opens up the visualization of the u-control at the start.

Configure EasyAccess and add to the selected object

Please enter the local IP of the device in the remote network you want to connect to using EasyAccess. You may want to change the TCP port in case you do not want to use the default port.

Local IP: 1

Local TCP port: 2

Homepage (optional): 3

For example: /start/index.html 4

☒ Use SSL (https) for this connection. 5

Cancel Back Next

Figure 6: Configuring local IP

7. As mentioned before, a forwarding rule needs to be implemented. This can either be done automatically or manually depending on the situation. For example, when the user credentials are not at hand or you have missing admin rights, a manual configuration can be done and finished at a later point. A manual configuration can also be useful when a custom local TCP port needs to be used instead of the assigned local TCP port from the automatic configuration.
8. **Option 1: Automatic configuration**

Choose the “Automatic” option from the drop-down list and click “Next”.

Configure EasyAccess and add to the selected object

EasyAccess needs a local forward on the router. If you want this configuration to be entered automatically for you, please choose 'Manual'

Forwarding: Automatic 1

2 Cancel Back Next

Figure 7: Automatic forwarding

To add the local forward automatically, a connection needs to be established with the router.

Hence, log in with the user credentials and click on “Save”. The configuration is now stored on the router and can be used.

Configure EasyAccess and add to the selected object

To add the local forward a vpn connection has to be established and user credentials with admin permissions are needed. The settings are permanently stored on the device.

Username: admin

Password: *****

1 Cancel Back Save

Figure 8: Entering user credentials

9. **Option 2: Manual configuration**

Choose the “Manual” option from the drop-down list and click “Next”.

Configure EasyAccess and add to the selected object

EasyAccess needs a local forward on the router. If you want this configuration to be entered automatically for you, please choose 'Manual'

Forwarding: Manual 1

2 Cancel Back Next

Figure 9: Manual forwarding

The Easy Access configurator shows the values needed for the router’s forwarding page.

Configure EasyAccess and add to the selected object

For manual configuration, please call the page 'Forwarding' on the device under Configuration/Network. Create a new entry (using +) and enter the following values for the individual parameters, then activate:

Interface:	u-link	Target IP:	192.168.1.60
Protocol:	TCP	Target Port:	443
Local Port:	49152	SNAT:	activated

Cancel Back Save

Figure 10: Forwarding values for router

Go to the router’s web interface and navigate to “Configuration” then “Network” and select “Forwarding”. Enter the values as depicted below (more information on the Forwarding option can be found in the “Forwarding” Application Notes in the [Weidmüller - Support Center \(weidmueller.com\)](http://weidmueller.com)).

Weidmüller Router Configuration
IE-SR-4TX-LTE

Configuration

Forwarding

Public Interface	Protocol	Local IP	Local Port	Target IP	Target Port	SNAT Source	Comment	Enabled	Position	Reverse	Delete
u-link	TCP		49152	192.168.1.60	443	Network	auto generated by u-link				

Apply settings Reset changes

Figure 11: Forwarding values entered in router

10. The configuration is now done. A new action button should appear in the “*Actions*” list in u-link.



Actions	Add Action
Connect VPN Router ↔ u-Link	
Connect VPN PC ↔ u-link ↔ Router	
Open Dashboard	
Easy Access: Device Webinterface	
Easy Access: u-control	 

Figure 12: Newly configured action in list

4.1 Using Easy Access Actions

The newly configured action for Easy Access is now usable to access a device remotely via the router's action list in the Service Desk or in the Easy Access menu. Note, that the Easy Access menu might appear more user friendly than the Service Desk menu while using a smartphone.

Option 1: Service Desk access

1. Go to "Service" then "Service Desk" and select the router where the new Actions has been configured on.

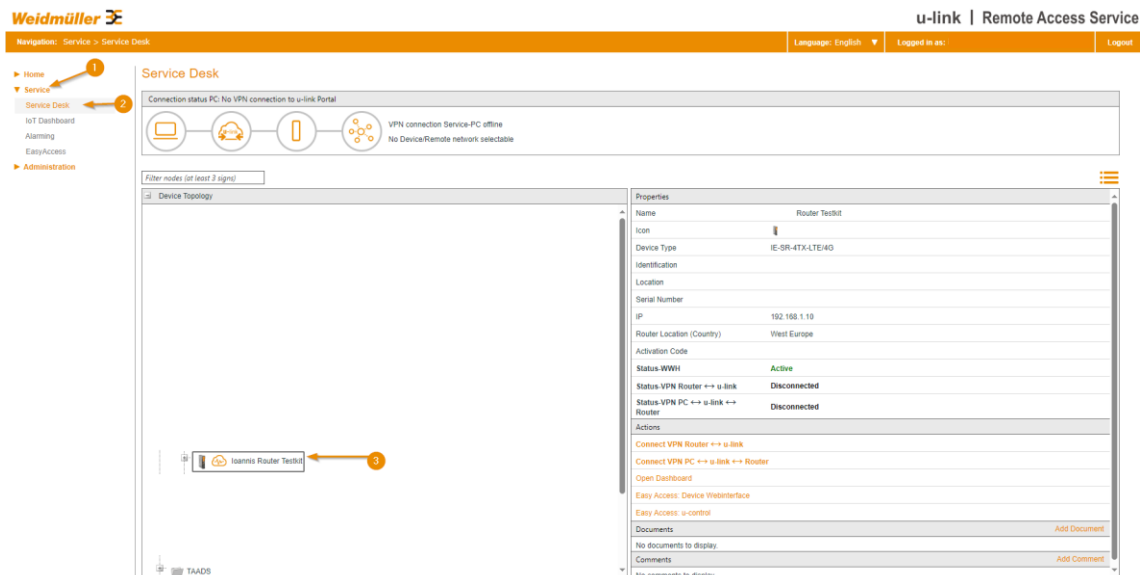


Figure 13: Navigating Service Desk

2. In the "Actions" list on the bottom right, we can find our newly configured action "Easy Access: u-control". Click on it to execute it.
Note that your browser has to allow the u-link website to open a new tab on its own.

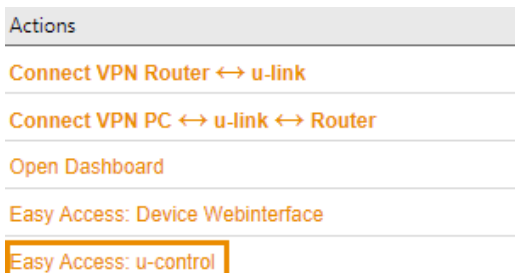


Figure 14: Executing configured action

Using u-link Easy Access for local websites

3. After executing it, a new tab opens displaying the device that we forwarded, in this case the u-control. Log in with the corresponding credentials of the device, if needed.

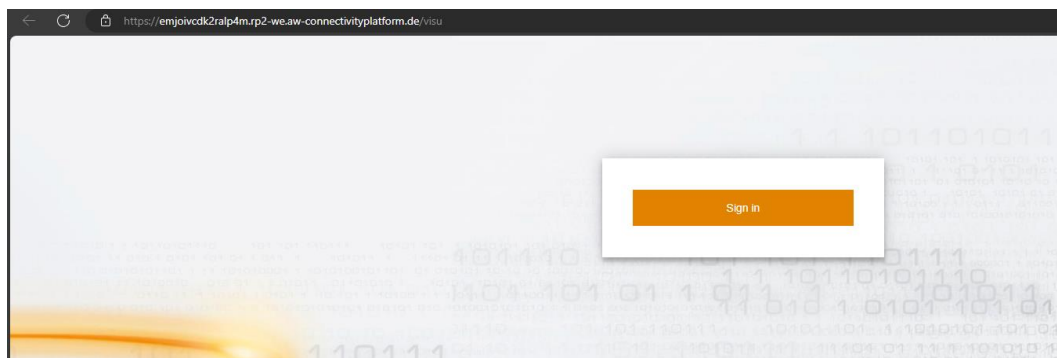


Figure 15: u-control sign in page

4. After logging in, we get redirected to the u-control visualization, as configured before. This visualization can be displayed on any device, such as a computer, HMI or a smartphone.

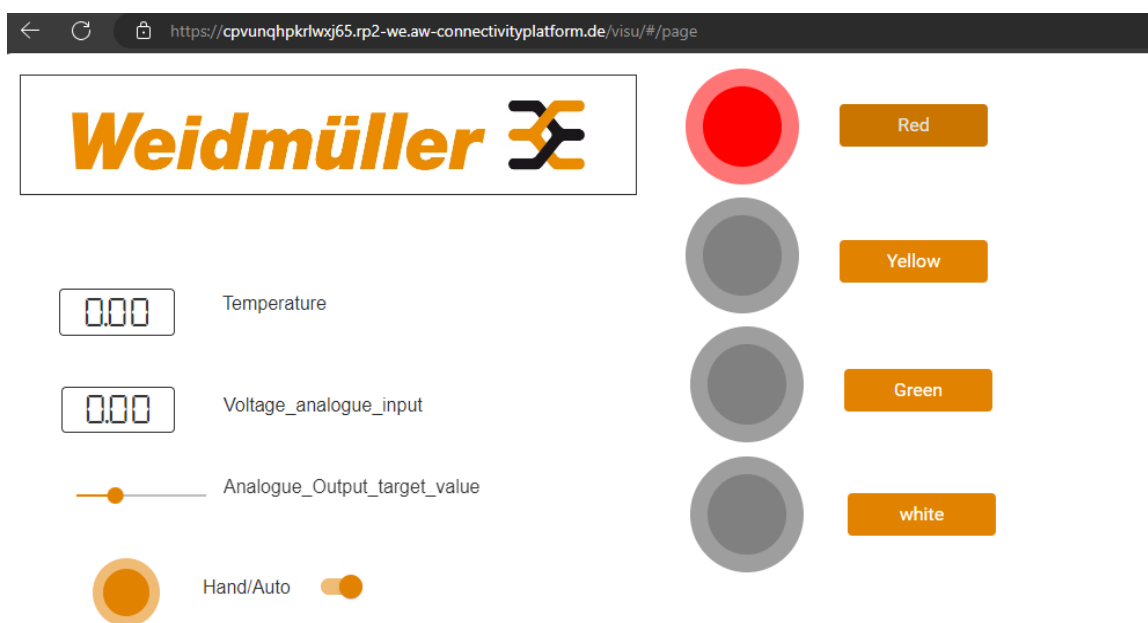


Figure 16: Visualization of u-control

Option 2: Easy Access menu

1. Go to “Service” and click on “EasyAccess”. Search for the router where the new Action has been configured on by using the filter on the top right and select it.

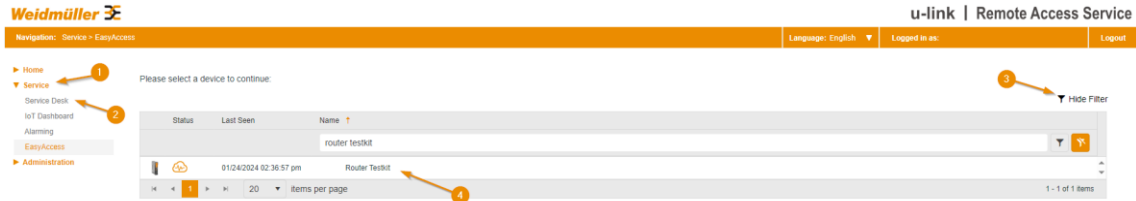


Figure 17: Easy Access menu

2. We can see every available Easy Access connection that is configured on this device. Click on the u-control option to establish a connection to the device.
Note that your browser has to allow the u-link website to open a new tab on its own.

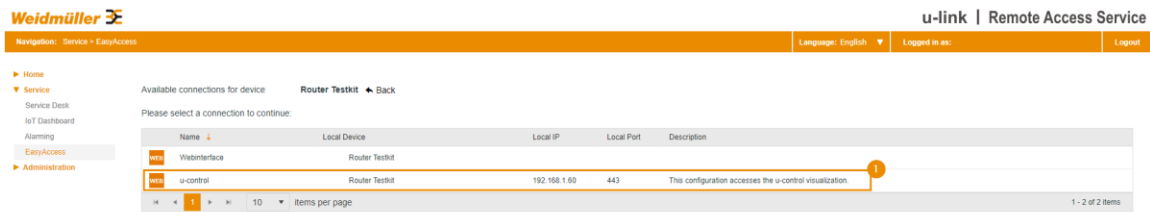


Figure 18: Executing Easy Access action

3. After executing it, a new tab opens displaying the device that we forwarded, in this case the u-control. Log in with the corresponding credentials of the device, if needed.

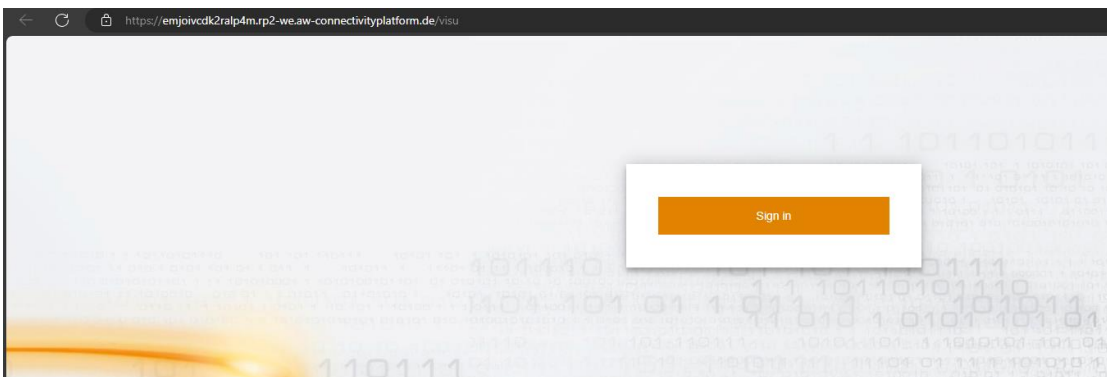


Figure 19: u-control sign in page

Using u-link Easy Access for local websites

- After logging in, we get redirected to the u-control visualization, as configured before. This visualization can be displayed on any device, such as a computer, HMI or a smartphone.

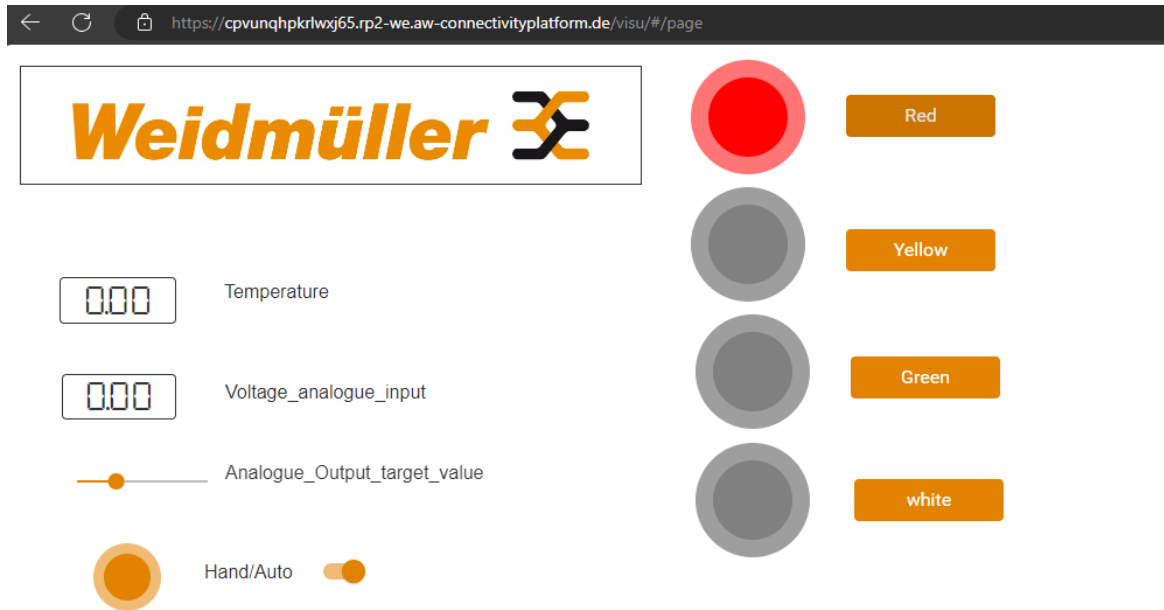


Figure 20: Visualization of u-control

Note:

After closing the tab, please wait until the disconnecting process is fully finished before closing the u-link tab. Closing it too early may result in your device being still connected to the VPN.



Figure 21: Disconnecting VPN connection

5 Results

We have successfully implemented a new Easy Access connection using the u-link portal. We can access any web interface of the devices in the router's local area network (LAN) with a smartphone, tablet, PC or HMI while having a secure connection and being outside of the network.