

Industrial Ethernet Training 26

Using u-link Easy Access for RDP

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 EasyAccess for an RDP connection with another IPC outside of the network.

Hardware reference

No.	Component name	Article No.	Hardware / Firmware version
1	IE-Training Kit-01	2881730000	1.1.2 (Build 125086)
2			
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	1.08
3	IE-SW-AL05M-5TX	2682250000	1.14
4	IE-CS-MBGW-2TX-1COM	2682600000	3.11

Software reference

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

File reference

No.	Name	Description	Version
1			
2			

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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

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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 for doing

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 RDP capable PC
- 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 \(weidmueller.com\)](https://www.weidmueller.com/support-center)). 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 devices in the router's network, e.g., an IPC using the remote desktop control protocol RDP. Connecting to it is possible by using another computer or even a smartphone that has an Internet connection.

Remote access to Industrial PCs (IPCs) is essential for various reasons. It facilitates prompt issue resolution, reduces costs associated with on-site visits, enables real-time monitoring, supports global technical assistance, enhances system security and allows data analysis. For example, in a manufacturing setting, engineers can troubleshoot machinery issues remotely, saving time and resources. Moreover, with remote access, analysts can connect to the IPC, retrieve real-time data, and perform analytics without being physically present at the factory. This allows for timely insights, predictive maintenance, and optimal performance without the need for on-site visits.

To implement the remote access, we configure an Easy Access action in the u-link portal. This action connects to the router via VPN, while the router forwards the IP address of the IPC at the plant. Furthermore, the VPN access that is employed, guarantees 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 \(weidmueller.com\)](https://www.weidmueller.com/support-center).

4 Configuring Easy Access Action in u-link

To access an IPC through the router via Easy Access, it must be in the router's local network since the RDP request to the IP is being forwarded through the router. A new action has to be configured in the u-link portal to access the IPC remotely.

1. Go to [u-link login \(weidmueller.com\)](https://u-link.weidmueller.com) and log in with your credentials.

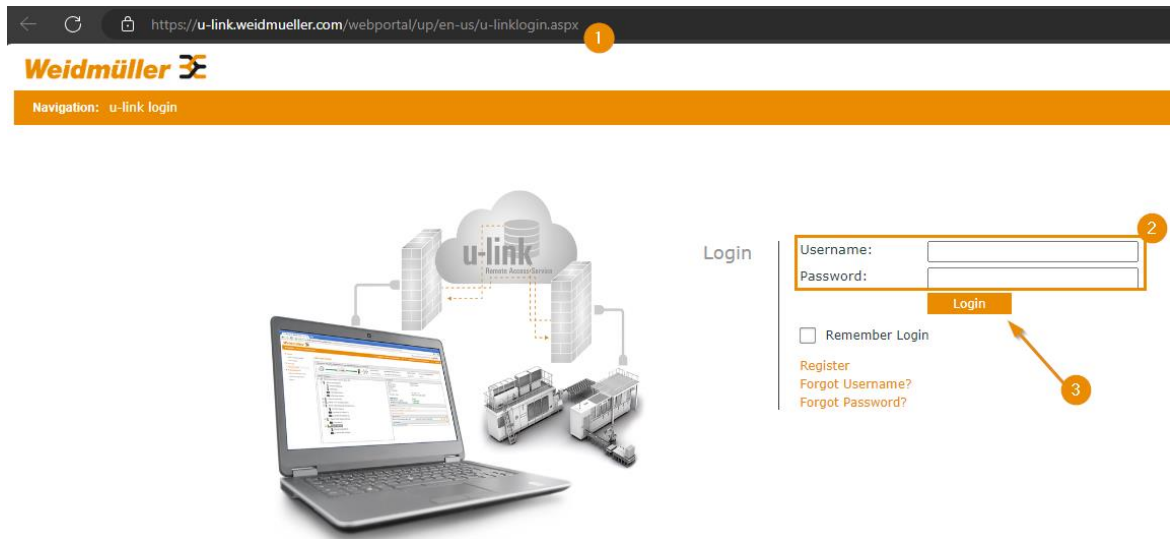


Figure 1: u-link login

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”.

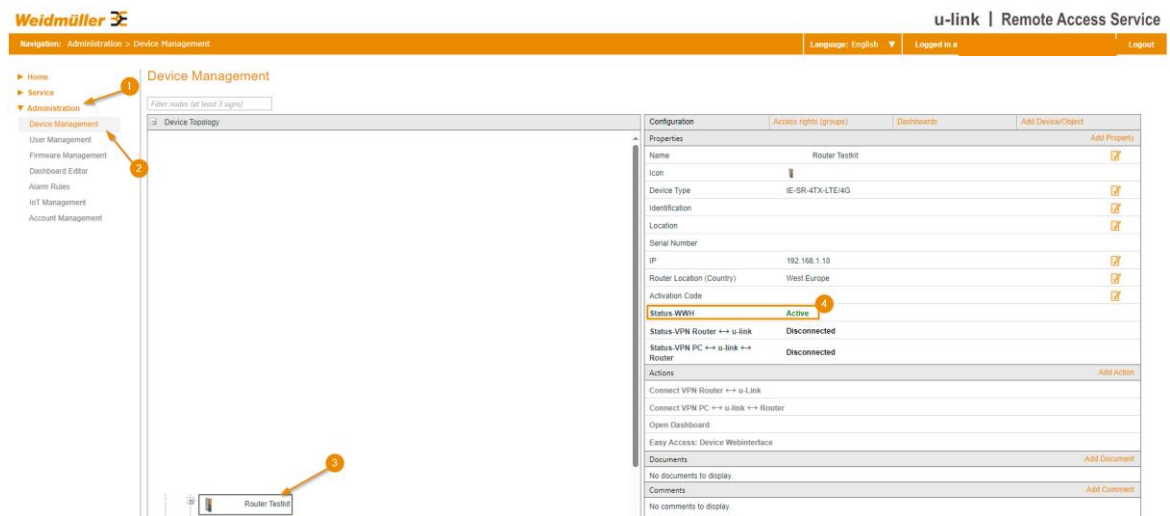


Figure 2: Selecting router in device topology

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

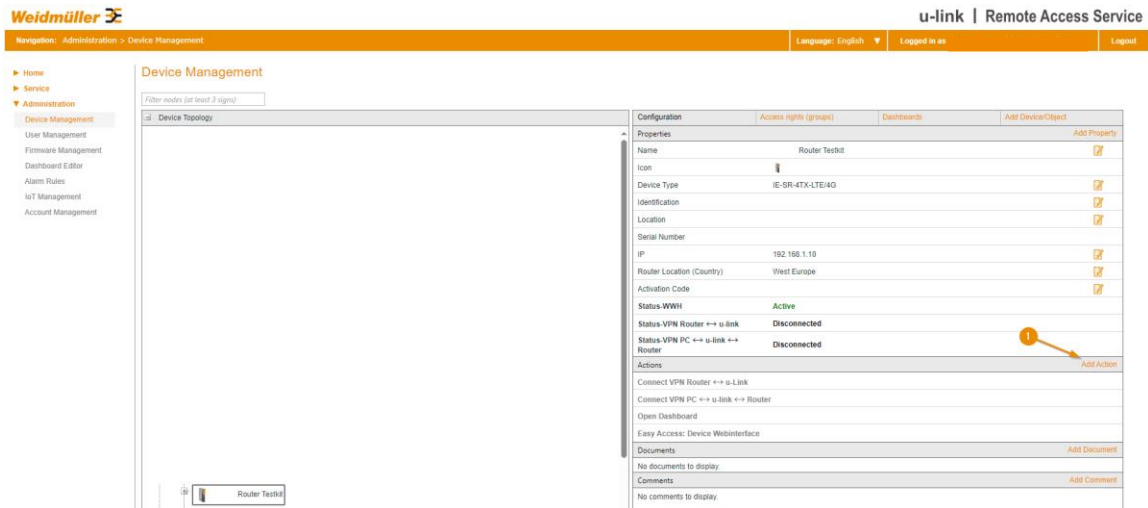
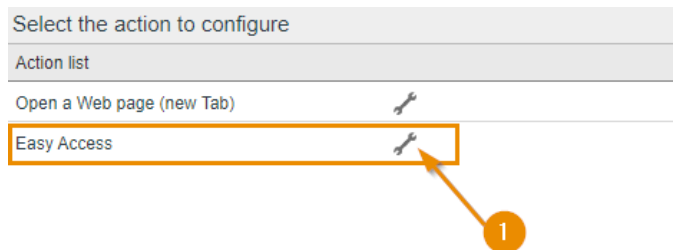


Figure 3: Add action button

- 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

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

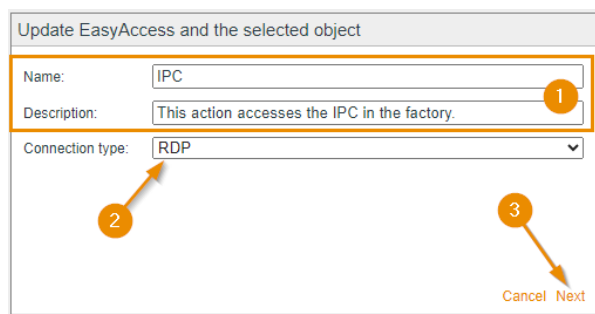


Figure 5: Setting up the connection type

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6. In the “*Local IP*” field, type in the IP of the IPC in the remote network, in this case “192.168.1.70”. The “*Local TCP port*” is filled in automatically with the default RDP port “3389” and only needs to be changed when the RDP settings have been changed.

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: 192.168.1.70

Local TCP port: 3389

Cancel Back Next

Figure 6: Configuring local IP

7. 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:

Password:

1

2 Cancel Back Save

Figure 8: Entering user credentials

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- **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:	192.168.1.70
Protocol:	TCP	Target Port:	3389
Local Port:	49153	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://Weidmüller - Support Center (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		49153	192.168.1.70	3389		auto generated by u-link				
+											

Apply settings Reset changes

Figure 11: Forwarding values entered in router

9. 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	 
Easy Access: IPC	 

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 the IPC 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.

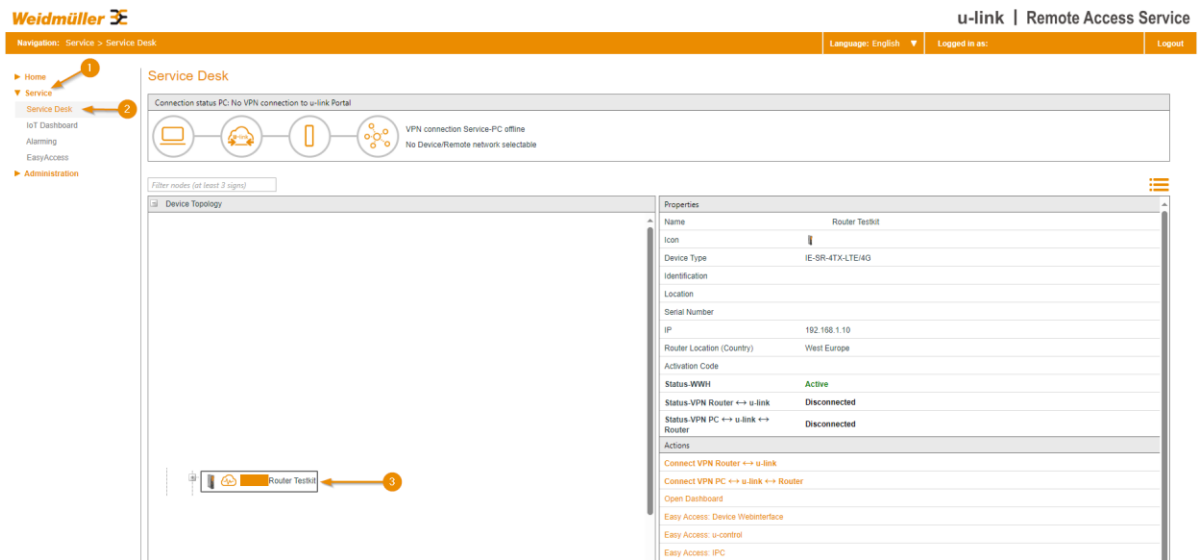


Figure 13: Navigating Service Desk

2. In the "Actions" list on the bottom right, we can find our newly configured action "Easy Access: IPC". 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.

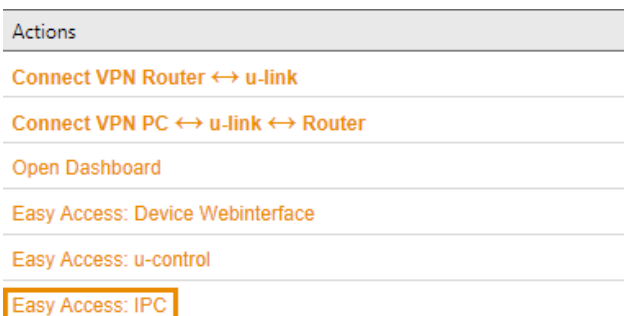


Figure 14: Executing configured action

- After executing it, a new tab opens where you have to enter the RDP credentials for the IPC before starting the remote session. Usually, it is the username and password for the windows user that is being used on this IPC. If the IPC is connected to the company's internet network, it might also have a domain. These different settings can also be viewed and changed in the RDP settings "*Allow remote connections to this computer*". Click on the "*Login*" button to establish a connection.

Weidmüller

Navigation: Service > EasyAccess

► Home

▼ Service

- Service Desk
- IoT Dashboard
- Alarming
- EasyAccess
- Administration

RDP connection via device **Ioannis Router Testkit** to local device **Ioannis Router Testkit** (192.168.1.70:3389) ↩

Please enter credentials for remote session:

Username:
localadmin

Password:

Domain:

Login ➡

Figure 15: Entering credentials for RDP

Using u-link Easy Access for RDP

4. After logging in, an RDP connection is established. A window appears showing the display of the IPC. Simply interact with it by using the mouse and keyboard. A Fullscreen mode is also available by clicking on the Fullscreen icon at the top-right. You can also show the keyboard and use “*Ctrl-Alt-Del*” to lock the computer for example.

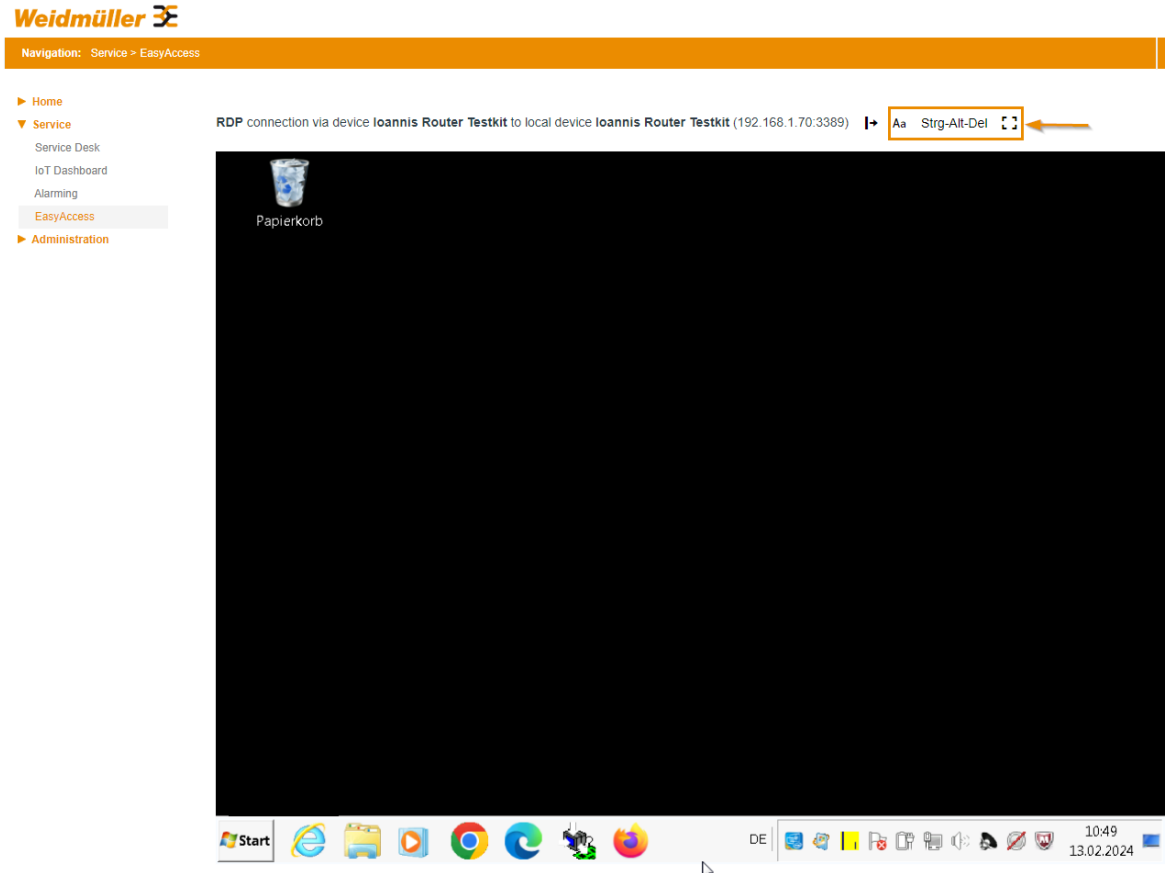


Figure 16: Accessing IPC

Using u-link Easy Access for RDP

5. You can start any software and use it like an ordinary computer, as an example we started the u-mation configurator in Fullscreen mode.

RDP connection via device Ioannis Router Testkit to local device Ioannis Router Testkit (192.168.1.70:3389) |> Aa Strg-Alt-Del []

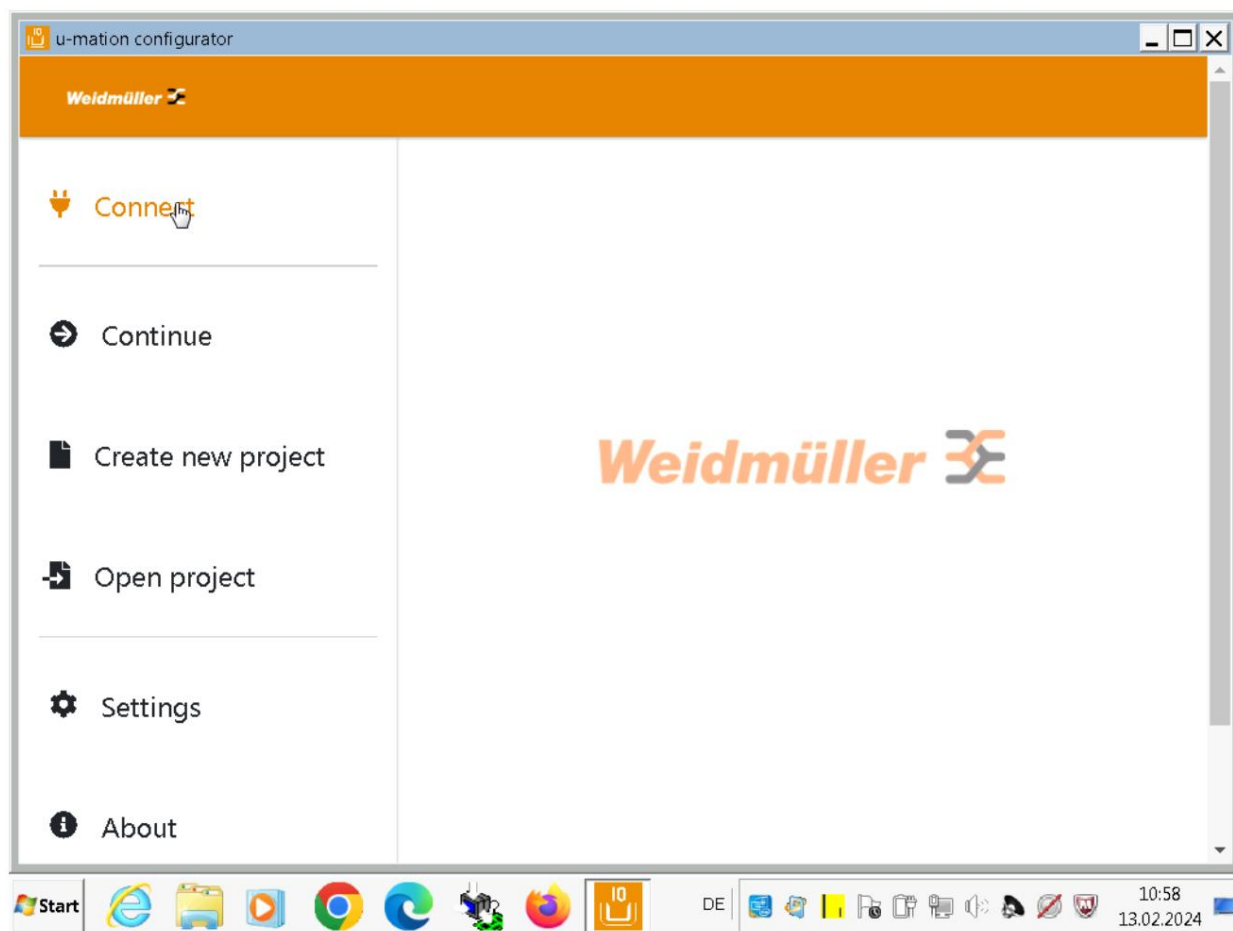


Figure 17: Using software on IPC

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.

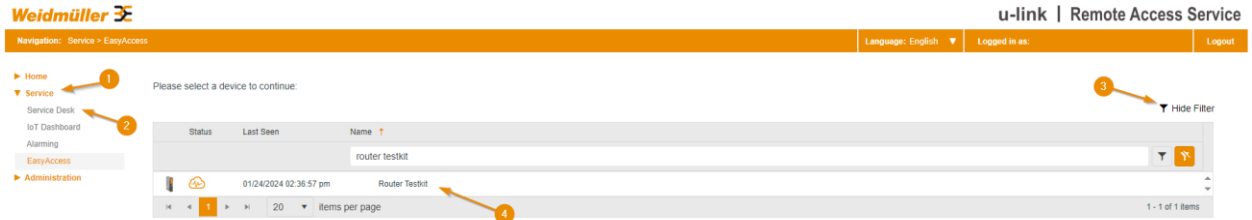


Figure 18: Easy Access menu

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.

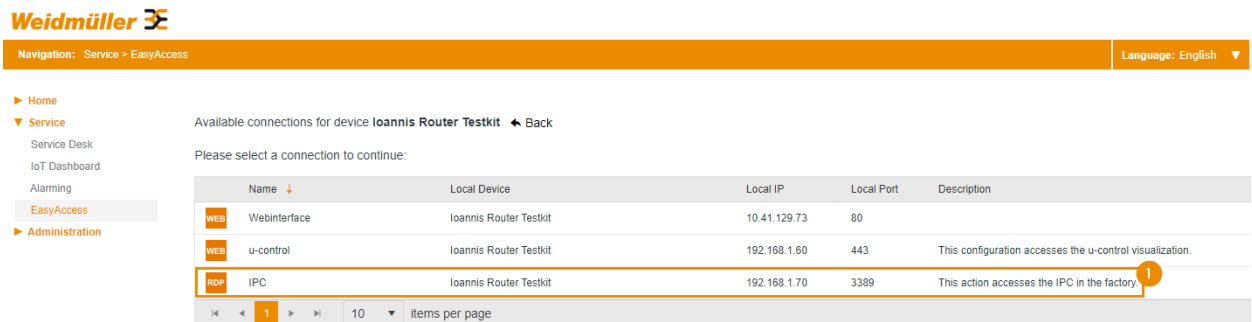


Figure 19: Executing Easy Access action

- After executing it, a new tab opens where you have to enter the RDP credentials for the IPC before starting the remote session. Usually, it is the username and password for the windows user that is being used on this IPC. If the IPC is connected to the company's internet network, it might also have a domain. These different settings can also be viewed and changed in the RDP settings "*Allow remote connections to this computer*". Click on the "*Login*" button to establish a connection.

The screenshot shows the Weidmüller EasyAccess web interface. On the left is a navigation menu with 'Home', 'Service' (expanded), 'Administration', 'Service Desk', 'IoT Dashboard', 'Alarming', and 'EasyAccess' (highlighted). The main content area is titled 'RDP connection via device Ioannis Router Testkit to local device Ioannis Router Testkit (192.168.1.70:3389)'. Below the title, it says 'Please enter credentials for remote session:'. There are three input fields: 'Username:' with 'localadmin' entered, 'Password:' with masked characters '*****', and 'Domain:'. A red box labeled '1' highlights the Username and Password fields. At the bottom, there is a 'Login' button with a right arrow icon, which is pointed to by a red arrow labeled '2'.

Figure 20: Entering credentials for RDP

Using u-link Easy Access for RDP

4. After logging in, an RDP connection is established. A window appears showing the display of the IPC. Simply interact with it by using the mouse and keyboard. A Fullscreen mode is also available by clicking on the Fullscreen icon at the top-right. You can also show the keyboard and use “*Ctrl-Alt-Del*” to lock the computer for example.

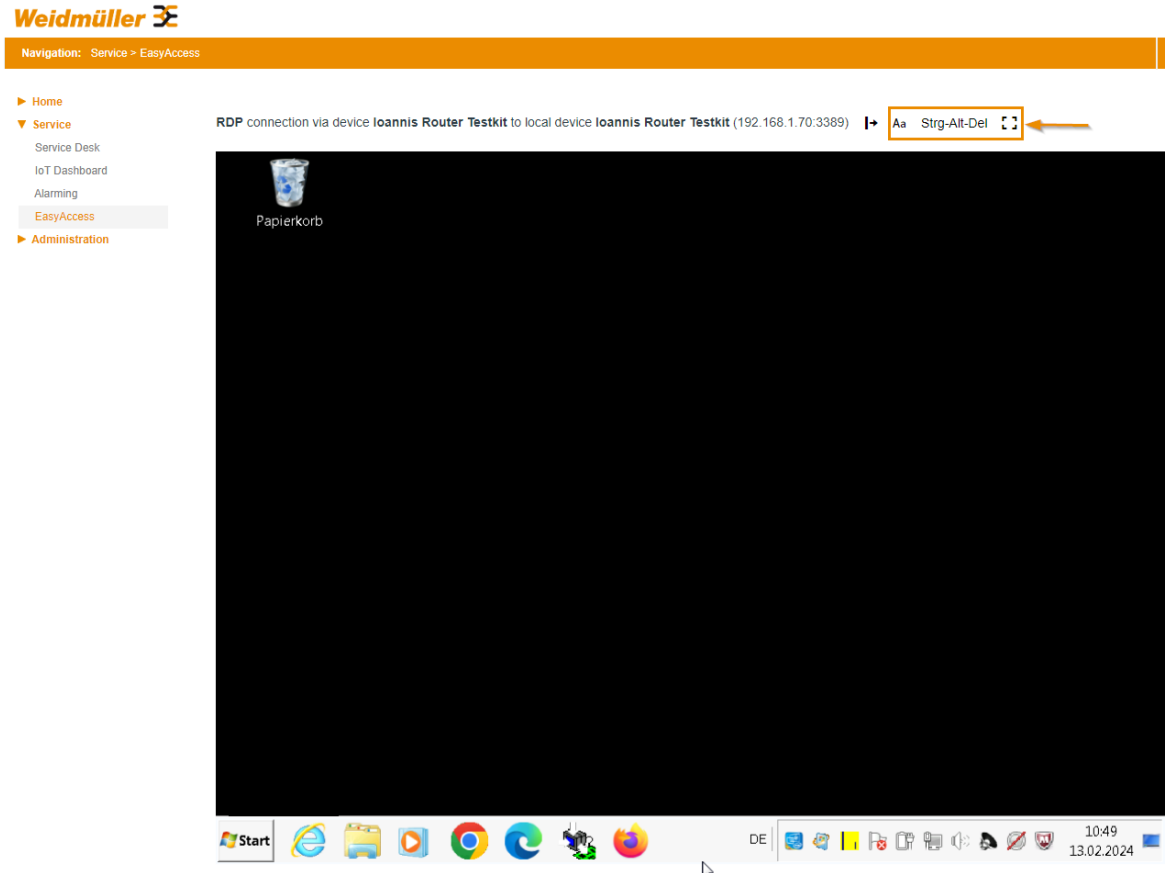


Figure 21: Accessing IPC

Using u-link Easy Access for RDP

5. You can start any software and use it like an ordinary computer, as an example we started the u-mation configurator in Fullscreen mode.

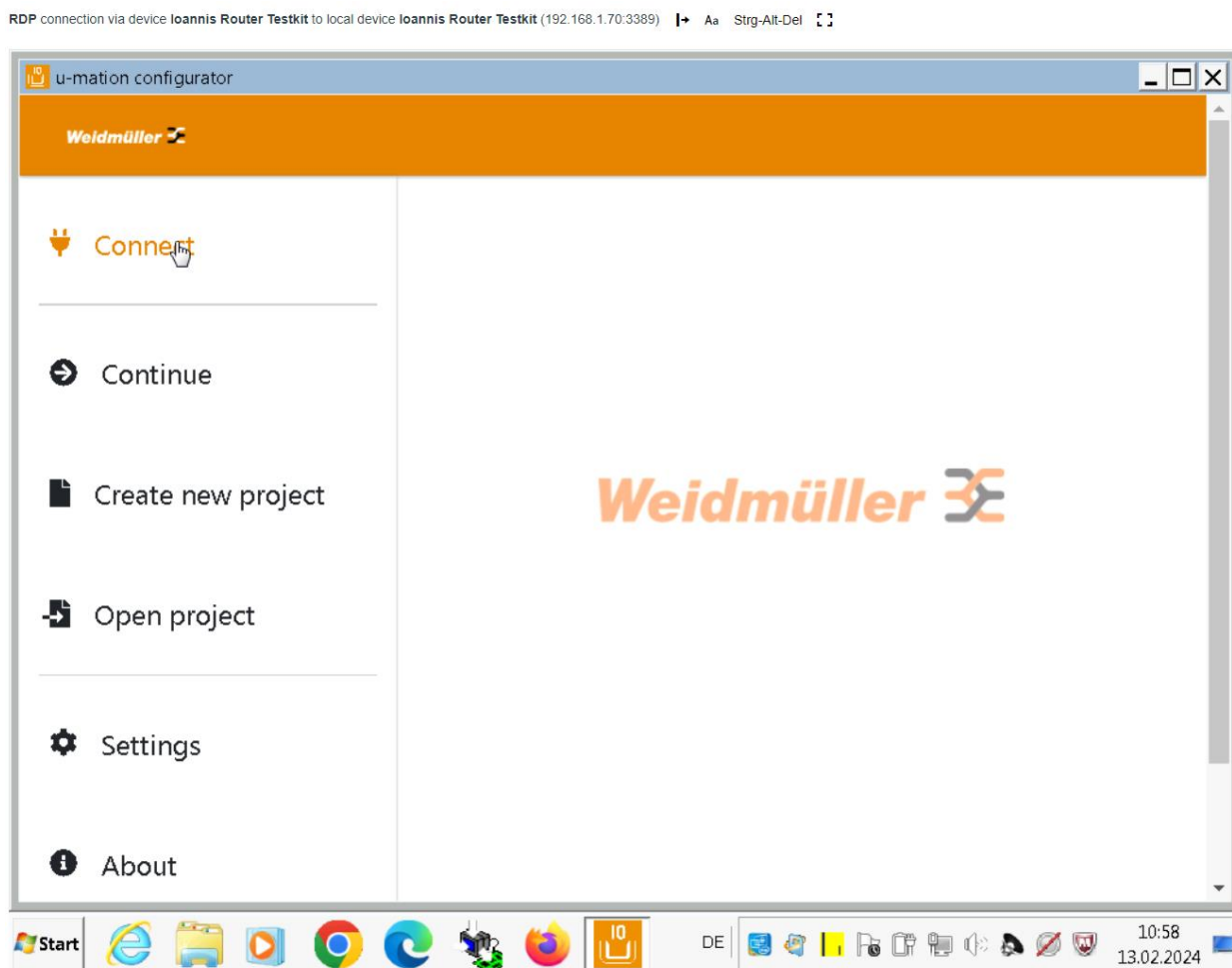


Figure 22: Using software on IPC

5 Results

We have successfully implemented a new Easy Access connection using the u-link portal. We can access any IPC or computer 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.