

BECKHOFF New Automation Technology

Manual | EN

TF1200

TwinCAT 3 | UI Client

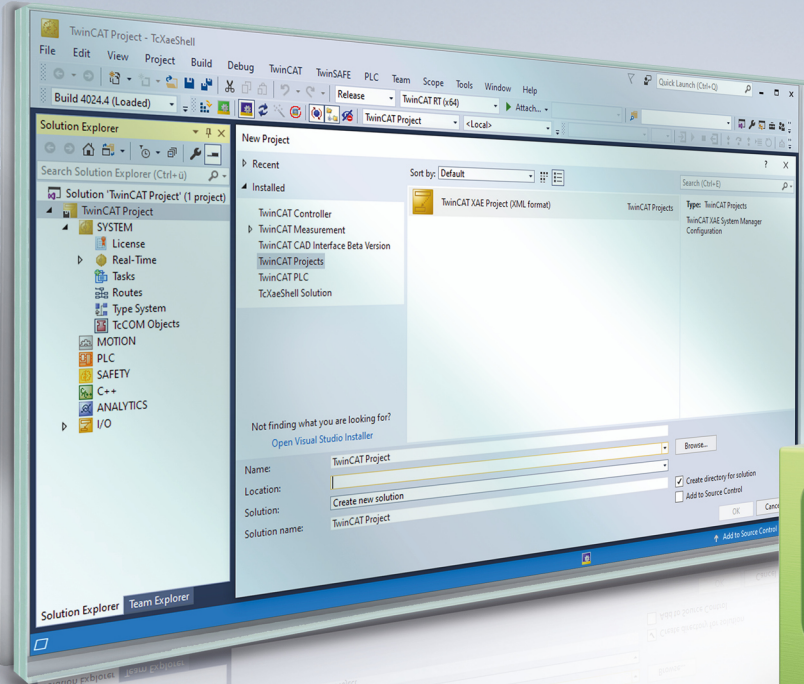


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1 Foreword

1.1 Notes on the documentation

This description is intended exclusively for trained specialists in control and automation technology who are familiar with the applicable national standards.

For installation and commissioning of the components, it is absolutely necessary to observe the documentation and the following notes and explanations.

The qualified personnel is obliged to always use the currently valid documentation.

The responsible staff must ensure that the application or use of the products described satisfies all requirements for safety, including all the relevant laws, regulations, guidelines, and standards.

Disclaimer

The documentation has been prepared with care. The products described are, however, constantly under development.

We reserve the right to revise and change the documentation at any time and without notice.

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EP1590927, EP1789857, EP1456722, EP2137893, DE102015105702
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1.2 For your safety

Safety regulations

Read the following explanations for your safety.

Always observe and follow product-specific safety instructions, which you may find at the appropriate places in this document.

Exclusion of liability

All the components are supplied in particular hardware and software configurations which are appropriate for the application. Modifications to hardware or software configurations other than those described in the documentation are not permitted, and nullify the liability of Beckhoff Automation GmbH & Co. KG.

Personnel qualification

This description is only intended for trained specialists in control, automation, and drive technology who are familiar with the applicable national standards.

Signal words

The signal words used in the documentation are classified below. In order to prevent injury and damage to persons and property, read and follow the safety and warning notices.

Personal injury warnings**⚠ DANGER**

Hazard with high risk of death or serious injury.

⚠ WARNING

Hazard with medium risk of death or serious injury.

⚠ CAUTION

There is a low-risk hazard that could result in medium or minor injury.

Warning of damage to property or environment**NOTICE**

The environment, equipment, or data may be damaged.

Information on handling the product

This information includes, for example:
recommendations for action, assistance or further information on the product.

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2 Overview

The TwinCAT UI Client is a cross-platform desktop application and can be used to display web applications such as the TwinCAT HMI or the Beckhoff Device Manager. No additional browser is required on the client system.

The TwinCAT UI Client can be operated as a desktop application or in kiosk mode.

TF1200 UI Client as a desktop application:



TF1200 UI Client in kiosk mode:



3 Installation

3.1 System Requirements

TF1200 TC3 UI Client

Technical data	Version 1
Min. TwinCAT Package Manager version	1.0.522 (only for Windows)
Operating system	Windows 10 (x86, x64), Windows 11 (x64), TwinCAT/BSD 14 (x64)

3.2 Installation Windows

✓ Make sure that the TwinCAT Package Manager is installed.

1. Open the command line with administrator rights and execute the following command:

```
tcpkg install TwinCAT.XAR.UiClient
```

2. A shortcut to the TwinCAT UI Client is created on the desktop and in the start menu, which can be used to start it.

⇒ After starting, the configuration file *config.json* is created under the following path: *%AppData%\Beckhoff\TF1200-UI-Client*

3.3 Installation TwinCAT/BSD

The TwinCAT 3 UI Client is available as a package for TwinCAT/BSD in the [repository](#). The following command can be used to install the package with root rights in the shell:

```
doas pkg install TF1200-UI-Client
```

Under TwinCAT/BSD, the UI Client is delivered with scripts that make it easier to set up the graphical user interface. Change to the path with the command:

```
cd /usr/local/etc/TwinCAT/Functions/TF1200-UI-Client/scripts
```

When the scripts are executed with the *--help* parameter, their use is described.

Call the following command to set up the graphical environment under TwinCAT/BSD:

```
doas ./setup-full.sh --user=TF1200 --autologin --autostart
```

Parameter	Description
<i>--user</i>	User that is automatically created and added to the video group if it does not already exist. It is recommended to use a dedicated user who is not an administrator/root.
<i>--autologin</i>	Sets up the autologin in the operating system for the specific user (optional).
<i>--autostart</i>	Sets up the autostart of the UI Client (optional).

After starting, the configuration file *config.json* is created under this path: */home/tf1200/.config/TF1200-UI-Client*

4 Configuration

4.1 Configuration file

The UI Client is configured via the *config.json* file. Depending on the operating system, the file is located in the following directories.

Operating system	Path to the configuration	Path to the help page
Windows	%AppData%\Beckhoff\TF1200-UI-Client	%TwinCAT3dir%\Functions\TF1200-UI-Client\documentation\TF1200-UI-Client.html
TwinCAT/BSD	/home/USER/.config/TF1200-UI-Client USER = User that the UI Client was installed for.	/usr/local/etc/TwinCAT/Functions/TF1200-UI-Client/documentation/TF1200-UI-Client.html

*The help page is set as the StartUrl and is displayed on the first start.

The configuration file contains the following properties in configVersion = 1.5.

Property	Default value*	Default config	Data Type	Examples	Description	Required
allowMove	True	True	Boolean	True / False	Allows the window to be moved when kiosk mode is disabled.	-
allowResize	True	True	Boolean	True / False	Allows you to change the size of the window when kiosk mode is disabled.	-
autoUpdateConfig	False	True	Boolean	True / False	Activates the automatic update of the configuration file with new properties for future versions.	-
commandLineSwitches	-	-	String Array	"ignore-certificate-errors"	Platform-specific command line switches supported by Electron and read by Chromium without leading hyphens according to the following documentation: https://www.electronjs.org/docs/latest/api/command-line-switches .	-
configVersion	1.5	1.5	String	Is set by the UI Client.	Current version of the config.json file.	✓
defaultTheme	""	""	String	"system" "light" "dark"	Default theme that is used to overwrite and replace the value that Chromium wants to use internally.	-
enableDevTools	True	True	Boolean	True / False	Enable developer tools so that they can be opened automatically or by pressing the configured key or shortcut.	-
enableIncognitoMode	True	True	Boolean	True / False	Enable incognito mode so that the session-related data in the memory is deleted when the application is closed.	-
enableKioskMode	True	False	Boolean	True / False	Enable kiosk mode so that the application runs in full screen mode and the menu bar is removed.	-
enableMenuBar	True	False	Boolean	True / False	"Enable the default menu bar. This setting is ignored and the menu bar is disabled if kiosk mode is enabled."	-

Property	Default value*	Default config	Data Type	Examples	Description	Required
extensions	""	""	Object	{name: "MyExtension", version: "1.0.0", directory: "%ProgramData %\\Beckhoff\\TcUiClient\\MyExtension", debugPort:60000 }	Name of the extension Semantic version no. Path of the extension that contains the file " <code><name>.Config.json</code> " for describing the extension. Port (1-65535) for debugging the extension.	If set, the name, version and path to the directory are required.
maxVisualZoomLevelLimit	1	1	Number	-	The maximum limit value for reduction and enlargement. The default value fixes that zooming is only allowed up to 100% of the original size, which means that no zooming is allowed at all. Larger values allow zooming up to the specified limit, e.g. 200 % if a value of 2 is specified.	-
openDevTools	False	False	Boolean	True / False	Open the developer tools automatically in the browser window if they are enabled.	-
persistPosition	False	True	Boolean	True / False	The current position of the browser window is persisted when closing if the kiosk mode is disabled.	-
persistSize	False	True	Boolean	True / False	The current size of the browser window is persisted when closing if the kiosk mode is disabled".	-
position	-	Will be saved when the client is closed if <code>persistSize=true</code> .	Object	{ <code>"x": 100, "y": 100</code> } Data type <code>x = Integer</code> <code>y = Integer</code>	Specifies the position of the browser window relative to the top left corner of the main screen when kiosk mode is disabled	If set, x and y must be specified.
quitApplicationKeys	"Esc"	"Esc"	String	"Alt+F4", "CmdOrCtrl+W"	Defines the key or shortcut for quitting the application.	-
reloadBrowserWindowKeys	""	,"F5"	String	"F5", "CmdOrCtrl+R"	Defines the key or shortcut with which the browser window is reloaded.	-

Property	Default value*	Default config	Data Type	Examples	Description	Required
retryErrors	[]	[-7,-100,-101,-102,-103,-104,-106,-109,-118,-119,-120,-121,-130,-133,-137,-139,-154,-352,-802,-803]	Array (Integers)	The complete list of error codes and their meaning can be found here: https://source.chromium.org/chromium/chromium/src/+/main:net/base/net_error_list.h	Chromium's network error codes to retry loading the specified start URL if this fails.	-
retryInterval	0	5000	Integer	-	Interval in milliseconds to repeat the loading of the specified start URL if this fails. If 0 is specified, loading of the specified start URL is not retried in the event of an error.	-
retryMaxCount	0	5	Integer	-	Maximum number of retries to load the specified start URL if this fails. If 0 is specified, loading of the specified start URL is not repeated in the event of an error	-
size	-	{"width": 800, "height": 600}	Object	-	Specifies the size of the browser window when kiosk mode is disabled.	-
startUrl	Windows: "%ProgramData%\Beckhoff\TcUiClient\resources\app.asar\doc\TF1200-UI-Client.html" TwinCAT/ BSD: "/usr/local/www/\${USER}/TF1200-UI-Client/default.html"		String	"https://www.beckhoff.com/" "https://127.0.0.1:2020"	URL of the website or (platform-specific) path of the local HTML file that is loaded at startup. Environment variables in platform-specific notation are replaced if they exist.	✓
toggleDevToolsKeys	""	""	String	"F12", "CmdOrCtrl+Shift+I"	Defines the key or shortcut for switching the developer tools when they are enabled.	-

Property	Default value*	Default config	Data Type	Examples	Description	Required
windowTitle	""	""	String	"TwinCAT UI Client"	Title of the browser window. If no title is specified, the title of the website or the local HTML file that is loaded at startup is used.	-

*Default value applies if the property is not set in the configuration.

5 FAQ

1. [The TwinCAT 3 UI Client reports the error code -202 \(ERR_CERT_AUTHORITY_INVALID\) when connecting to a web page via HTTPS. \[▶ 15\]](#)
2. [How can the TwinCAT 3 UI Client start automatically after logging on to the operating system? \[▶ 15\]](#)
3. [How can the operating system automatically log in a user after the boot process? \[▶ 16\]](#)
4. [How can the TwinCAT 3 UI Client start with different web applications? \[▶ 16\]](#)
5. [How can the display and touch input under TwinCAT/BSD® be used in portrait mode? \[▶ 17\]](#)

1. The TwinCAT 3 UI Client reports the error code -202 (ERR_CERT_AUTHORITY_INVALID) when connecting to a web page via HTTPS.



Background: The certificate used for the HTTPS connection is classified as insecure by Chromium because it is not known to the operating system (e.g. self-signed certificates).

Answer: The following options are available:

Use an official certificate for the web server that is configured as trustworthy for the operating system or trust the self-signed certificate if this is trustworthy. Alternatively, set the switch in the configuration:

```
commandLineSwitches": ["ignore-certificate-errors"]
```

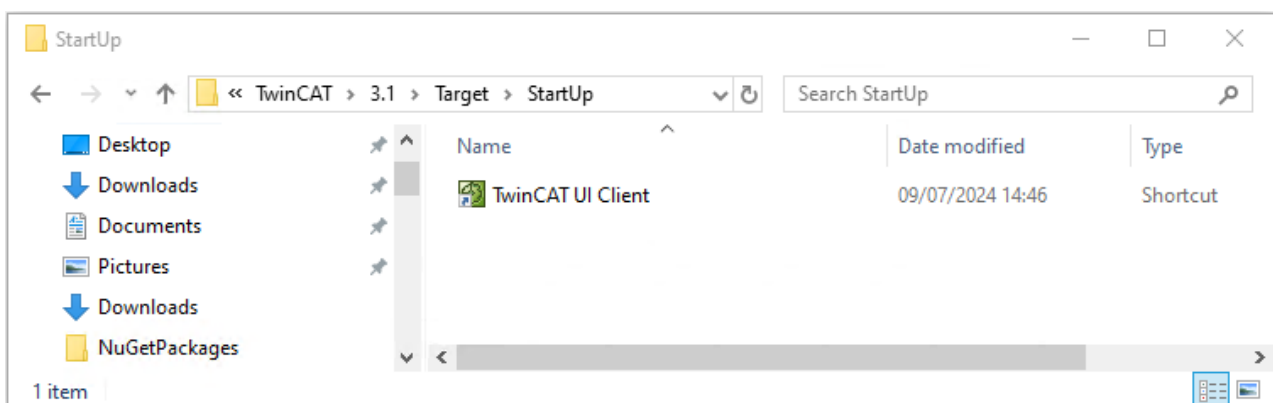
2. How can the TwinCAT 3 UI Client start automatically after logging on to the operating system?

Answer: The following options are available under **Windows**:

Create a link from the TwinCAT UI Client in the TwinCAT StartUp folder.

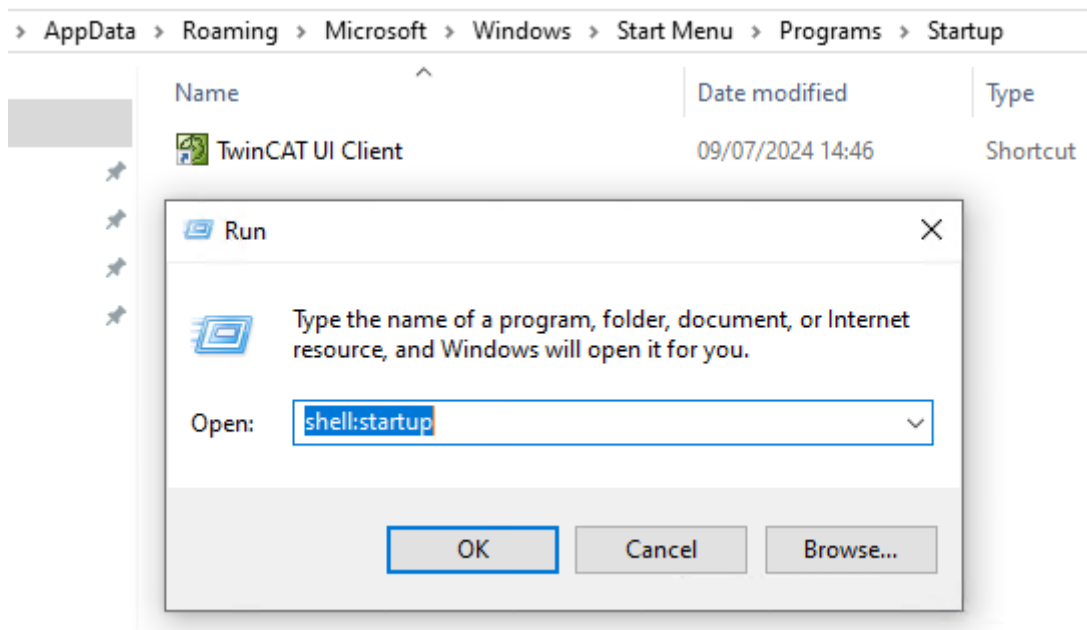
Path: *TwinCAT\3.1\Target\StartUp*

When TwinCAT switches to Run Mode, the TwinCAT UI Client is started.



If TwinCAT is operated in configuration mode, you can create a link from the TwinCAT UI Client in your user's startup directory. You can access the folder directly using the following command (shortcut Windows + R):

Shell:startup



Path: `%AppData%\Microsoft\Windows\Start Menu\Programs\Startup`

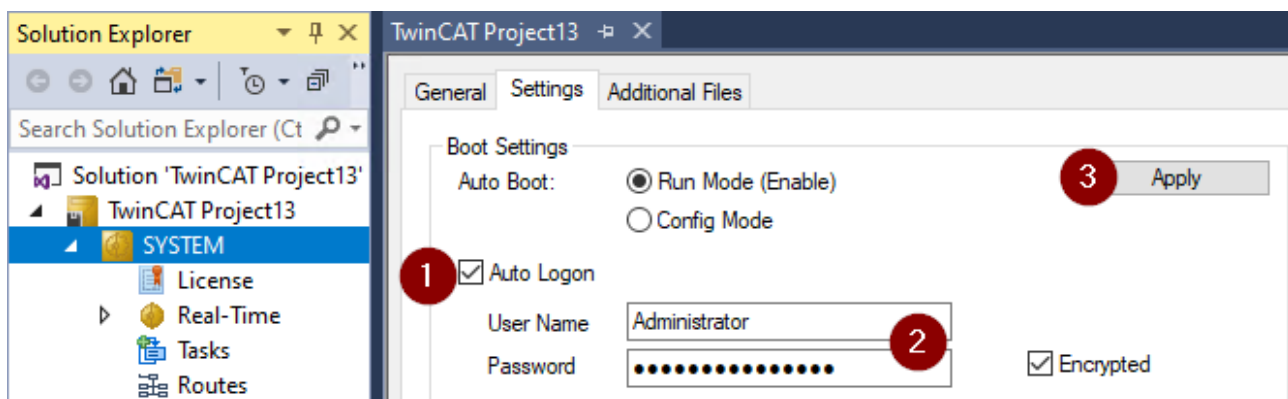
The following options are available under **TwinCAT/BSD**:

When installing via the `setup-full.sh` script, the autostart can be set up via the "--autostart" parameter.

The `setup-autostart.sh` script is located under `/usr/local/etc/TwinCAT/Functions/TF1200-UI-Client/scripts`, with which the autostart can be set up subsequently.

3. How can the operating system automatically log in a user after the boot process?

Answer: Under **Windows**, a user can be configured for Auto Logon in the TwinCAT project under the SYSTEM node and the Settings tab.



The following options are available under **TwinCAT/BSD**

When installing via the `setup-full.sh` script, the autostart can be set up via the "--autostart" parameter.

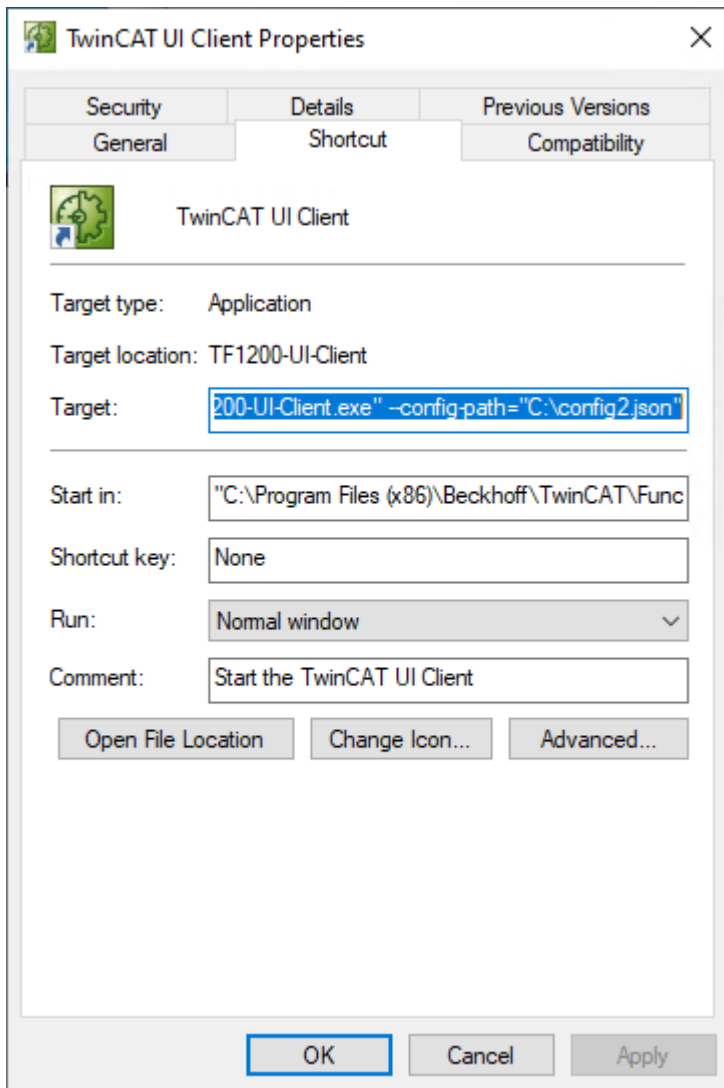
The `setup-autologin.sh` script is located under `/usr/local/etc/TwinCAT/Functions/TF1200-UI-Client/scripts`, with which the autostart can be set up subsequently.

4. How can the TwinCAT 3 UI Client start with different web applications?

The executable file of the TwinCAT 3 UI Client can be given a path to another configuration file via the `-config-path` parameter. This means that several TwinCAT 3 UI Clients can start different web applications in parallel when kiosk mode is disabled. The configuration can be copied and adapted from the existing one.

Alternatively, a new Config can be created using the `--exit` parameter. The `--config-path` parameter is used to specify the path and name of the new Config

Under **Windows**, the shortcut can be given the parameters for further configuration in the properties:



Only one UI Client is currently supported under **TwinCAT/BSD**.

5. How can the display and touch input under TwinCAT/BSD® be used in portrait mode?

The UI client under TwinCAT/BSD® uses the Sway window manager. For portrait mode, the image under the touch input must be rotated by 90 or 270 degrees. To do this, add the following lines to the Sway configuration file (path: `/home/TF1200/.config/sway/config`) with administrator rights and restart the operating system or Sway.

```
output * transform 90
input type:touch calibration_matrix 0 1 0 "-1" 0 1
```

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