



TEC-IT

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TWedge

Universal Data Acquisition Software

Version 2.4

User Documentation

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3 Introduction

3.1 About

TWedge is a versatile tool for capturing and transmitting data over serial interfaces, Bluetooth®, USB or over TCP/IP: You can capture data from any device and forward it to any target application including data-bases and text-files.

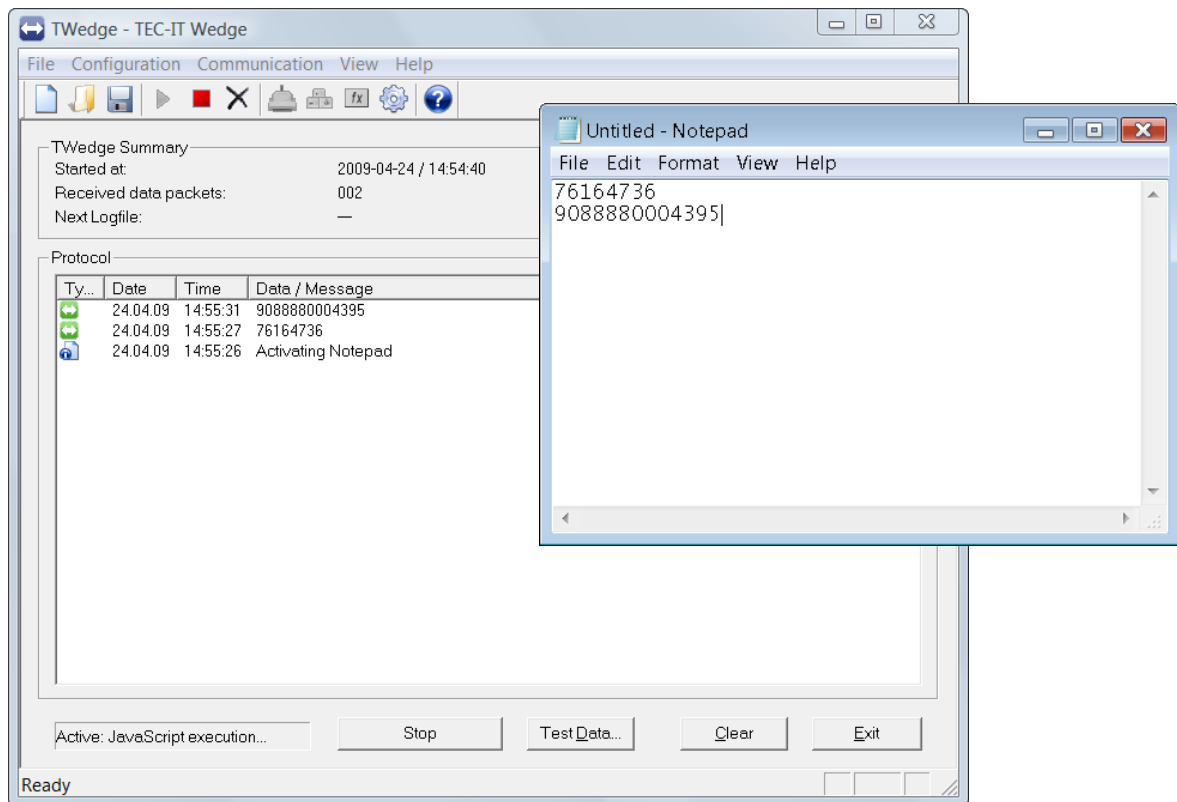


Figure 1: Data Acquisition with TWedge

3.2 Customized Behavior

Acquiring data is not all that **TWedge** can do. Using JavaScript™ code you can customize the complete **TWedge** behavior: basic user-interaction, writing and reading files, accessing databases (via ODBC) and sending data to the connected device are just some of the possibilities.

3.3 Communication

The following interfaces are supported:

- Serial Interface (all communication parameters are adjustable)
- Bluetooth® (native, no virtual COM port is required)
- USB (via a virtual serial driver)
- TCP/IP (in client mode)

3.4 Keyboard Simulation

Using **TWedge** it is possible to input data from external devices into any target application. **TWedge** captures data from external devices (connected via serial port, TCP/IP, USB or Bluetooth) and translates this data into virtual keystroke sequences. These keystrokes are then forwarded to the target application. This also works in Citrix® or Terminal Server environments.

3.5 Direct Database and File Access

Captured device data can be stored in databases or files with a few mouse clicks. **TWedge** can read and write arbitrary databases directly via ODBC. Additional database applications like Microsoft® Access® or similar are not required.

3.6 Flexible Scripting

The behavior of **TWedge** can be modified easily to meet all data acquisition requirements. The integrated scripting engine (based on JavaScript™) was extended with database and file access functions. Thus, **TWedge** enables the user to modify the captured data before further processing. The user can control the data collection behavior individually.

3.7 Hotkey Support

TWedge may be configured to monitor an adjustable hotkey. Whenever the hotkey is pressed a custom function (like sending a character sequence to the connected device) may be executed. This feature is especially useful for initiating data acquisition on demand.

3.8 Timer Support

If required, **TWedge** is able to use a so-called timer function. This timer function is fully scriptable and may be used to poll a connected device periodically.

3.9 Distributable Configurations

With **TWedge** you can save different configurations and distribute them to clients. If required, the configuration files may be encrypted and password protected. Thus no one can take insight into your JavaScript code or modify the settings, unless he knows the password. This allows you to protect the password and for an ODBC connection and other sensitive data.

3.10 Automatic Initialization

For your convenience, **TWedge** can be configured to automatically load a configuration and start data acquisition on start-up.

3.11 Bi-Directional Communication

TWedge is capable of bi-directional communication with the connected device. From within JavaScript use the function *WriteToDevice* to send arbitrary commands to a connected device.

3.12 Supported Operating Systems

TWedge requires one of the operating systems listed below. It works with 32-bit and 64-bit operating systems.

- Microsoft® Windows 2000
- Microsoft® Windows XP
- Microsoft® Windows Vista
- Microsoft® Windows 7
- Microsoft® Windows 8
- Microsoft® Windows Server 2003 (including Terminal Server)
- Microsoft® Windows Server 2008 (including Terminal Server)
- Windows® Embedded (based on Windows XP)
- Windows® Embedded POSReady

4 Common Operations

4.1 Configuring TWedge

For setting up **TWedge** you use the *Configuration* menu.

- ▶ The most important step is to configure the communication interface. If the interface settings do not match the settings of the connected device the data may not be received (or it may not be received correctly).

For detailed information on possible adjustments, please refer to chapter 6.

4.2 Saving your Settings

To save your current configuration select *File ▶ Save* (or *Save As*) from the menu, or click on the  symbol in the tool bar. All settings from the *Configuration* menu will be stored in the specified file. **TWedge** configuration files are identified by the .TWI file extension.

- ▶ TWedge allows you to save password protected, encrypted configuration files. When using these files the configuration may not be viewed or modified unless you know the key for unlocking. For further information, please refer to Appendix B.

4.3 Receiving Data

To start receiving data click on the *Start* button at the bottom of the window (which will change its caption to “Stop” as soon as the connection is started) or click on the  button in the tool bar.

When the connection is started **TWedge** executes the *OnStart* script from the *Script Editor*. This script may be used for initialization routines like opening a file or a database. Thereafter, every time new data is received, the *OnData* script will be executed. In this script you can process the received data. Per default the acquired data is simulated as keystroke sequence. Thus it can be pasted into an arbitrary application. Alternatively you can also write the data into a file or into a database.

- ▶ For your convenience **TWedge** can be configured to start communication automatically as soon as a configuration file is opened. For details please refer to section 6.7.

4.4 Stop Communication

To end data transmission click on the *Stop* button (which will now change its caption back to “Start” again) or click on the  button in the toolbar.

Before the connection is stopped **TWedge** will execute the *OnStop* script from the *Script Editor*. This script may be used for closing any open files or database connections.

4.5 Load a Saved Configuration

To load a saved configuration, select *File ▶ Open* from the menu or click on the  symbol in the tool bar. As an alternative **TWedge** can also be launched with the desired configuration right from the start (see Appendix A).

5 User Interface

5.1 Main Window

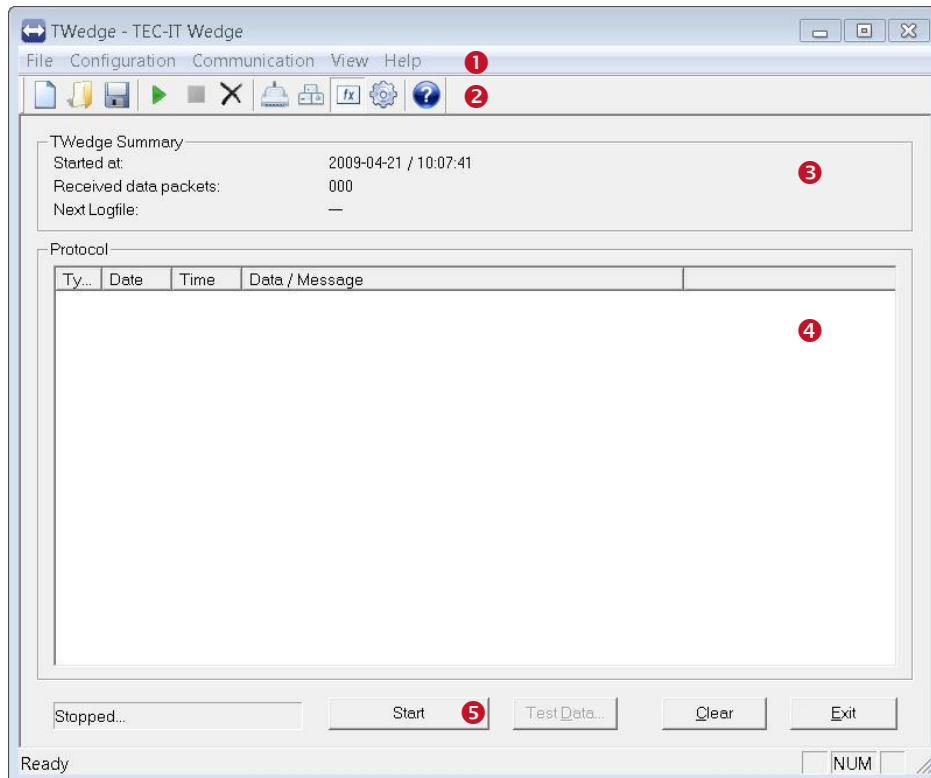


Figure 2: Main Window

The main window is divided into the following areas:

- ❶ Menu (see section 5.2)
- ❷ Toolbar (see section 5.3)
- ❸ General Information (see section 5.4)
- ❹ Protocol Window (see section 5.5)
- ❺ Operating Controls (see section 5.6)

5.2 Menu

5.2.1 File

The file menu is used for loading and storing different configurations.

New	Creates a new configuration. All parameters will be reset to default values.
Open...	Loads an existing configuration from file.
Save and Save As...	Saves the current configuration to file.
Save Password Protected...	Saves the current configuration to file. The file will be encrypted and password protected (see Appendix B). When loading a password protected file the user can start communication, but he cannot view or modify the configuration. For accessing the configuration the file needs to be unlocked.
Unlock Current File...	Unlocks a password protected file. The password is required.
Exit	Exits TWedge .

5.2.2 Configuration

In the configuration menu all program settings are adjusted. You may configure the interface which is used for receiving (or sending) data, and you can configure the processing steps which are executed when data is received. Furthermore you can configure a hotkey and change general application preferences.

For details, please refer to chapter 6.

Interface...	Configures the interface which is used for communication with the connected device (see section 6.2).
Data Packets...	Configures the parameters for data packaging (see section 6.3). In the first step all received data is accumulated into packages before further processing. These settings specify the rules for data packaging.
Script Editor...	Opens the TWedge Script Editor (see section 6.4). The complete behavior of TWedge is specified through scripts. Using the Script Editor you can simulate keystrokes, access text files, connect to databases (via ODBC), send data to the connected device, and more.
Hotkey...	Configures the Hotkey (see section 6.5). The hotkey gives you the possibility to execute commands by pressing a predefined key or keyboard shortcut.
Logfile...	Configures data logging (see section 6.6). Data logging is an easy possibility to store the received data in text files.
Preferences...	Configures additional TWedge preferences (see section 6.7). You can specify start-up options (auto-start, minimize) and you can enable trace files (for debugging purposes).

5.2.3 Communication

Start	Starts data acquisition.
Stop	Stops data acquisition.
Restart	Closes the connection and restarts data acquisition.

5.2.4 View

Toolbar	Displays or hides the Toolbar.
Status Bar	Displays or hides the Status bar.
Clear Protocol	Clears the protocol window.

5.2.5 Help

Help	Opens the documentation (this file).
License...	To license your version (= deactivate the demo mode) you have two possibilities: a) The activation code as received with your order must be registered with the TEC-IT activation server via Internet. This activation process enters the license key automatically. b) Enter your license in this dialog. Your computer's <i>System ID</i> will be displayed in this dialog (needed for ordering a "Single" license). The license key will be stored permanently in the registry. Installing or moving the software to another computer requires re-entering the license key.
Check for Update...	This option checks if a newer product version is available for download. Internet connectivity is required.
Go to www.tec-it.com	If you want to learn more about our products, please visit us at http://www.tec-it.com . On this page you will find the latest product versions and user documentations.
About TWedge	Shows detailed version and copyright information.

5.3 Toolbar

The toolbar gives you quick access to the most important functions and settings:



Figure 3: Toolbar

- Creates a new configuration.
- Opens an existing configuration from file.
- Saves the current configuration to file.
- Starts data acquisition.
- Stops data acquisition.
- Clears the protocol window.
- Configures the interface.
- Configures a hotkey.
- Opens the **TWedge** Script Editor.
- Configures general **TWedge** preferences.
- Opens the about dialog.

5.4 TWedge Summary

The summary shows some program statistics:

Started at	The starting date and time of the current TWedge session.
Received data packets	The total amount of received data packets since the program was started.
Next Logfile	The name of the logfile where the received data is stored. The “-” indicates that data logging is disabled.

5.5 Protocol Window

The protocol window displays important runtime messages:

Type	The following icons are used for different message types: ... Data received ... Information ... Error ... JavaScript Error ... JavaScript Warning ... JavaScript Information
Date	These fields show the date and time when the log entry was generated.
Time	
Data / Message	If data has been received, the current data packet will be displayed. Otherwise any message text is shown.

In the protocol window a maximum of 1000 entries will be kept. When exceeding this limit the oldest messages will be discarded automatically.

5.6 Operating Controls

With these controls you can start, stop and exit **TWedge**:

Start / Stop	Activates or deactivates data acquisition from the selected interface.
---------------------	--

Test Data...	Opens a dialog which allows you to simulate incoming data. This button is enabled, after the data acquisition has been started. You can disable this button by unchecking "Show Test Data Button" in the Preferences dialog (see Configuration menu).
Clear	Deletes all entries in the log window.
Close	Exits TWedge .

6 Configuration

6.1 General

The configuration menu allows you to configure the following settings:

- Interface (see section 6.2)
- Data Packets (see section 6.3)
- Script Editor (see section 6.4)
- Hotkey (see section 6.5)
- Logfile (see section 6.6)
- Preferences (see section 6.7)

6.2 Interface

The interface configuration is the first and most important step when setting up **TWedge**. It specifies the interface and the parameters which will be used for communication with the connected device. If the interface settings do not match the settings of your data acquisition device the data may not be received (or it may not be received correctly).

To open the dialog select **Configuration ► Interface...** from the menu or click on the toolbar icon .

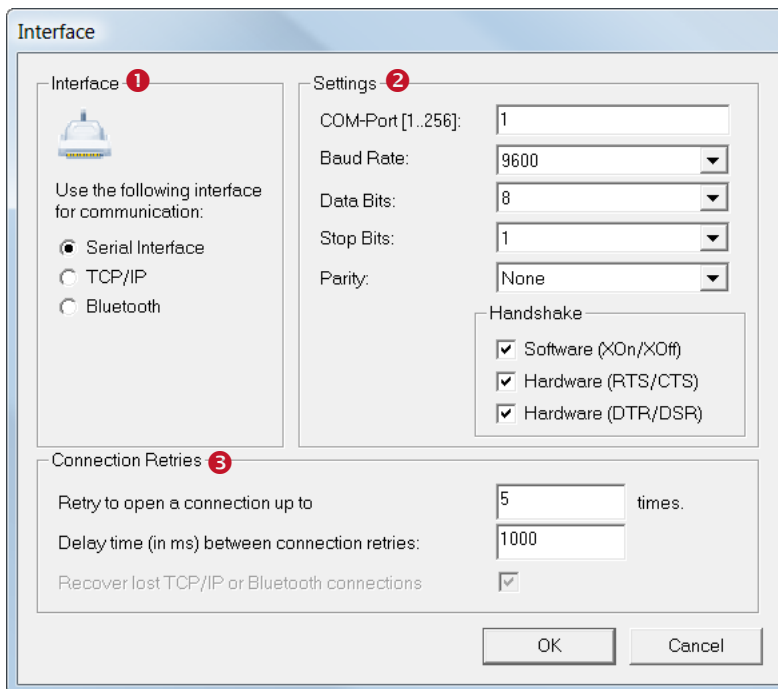


Figure 4: Interface

The interface dialog is subdivided into three areas:

- ❶ Interface Selection (see section 6.2.1)
- ❷ Interface Settings (see section 6.2.2)
- ❸ Connection Retries (see section 6.2.3)

6.2.1 Interface Selection

The following interfaces are available:

- Serial Interface
- TCP/IP (connects in client mode)
- Bluetooth

Each of these interfaces has different settings:

6.2.2 Interface Settings

When the “Serial Interface” is selected you can connect to any serial device (or to any Bluetooth® device which provides a Serial Port service).

6.2.2.1 Settings for the Serial (RS-232) Interface

COM-Port	This is the port of your PC to which the device is connected. (COM1 to COM256).
Baud Rate	The baud rate specifies the transmission speed in bits per second (9600, ..., 115200, ..., 256000).
Data Bits	This setting specifies the number of data bits per transmission unit.
Stop Bits	This setting specifies the number of stop bits per transmission unit.
Parity	This setting specifies the use of parity bits per transmission unit.

The following handshake modes can be configured:

Software (XOn/XOff)	Enables XOn/XOff Software Handshake.
Hardware (RTS/CTS)	Enables RTS/CTS Hardware Handshake.
Hardware (DTR/DSR)	Enables DTR/DSR Hardware Handshake.

If no handshake is required leave all checkboxes unmarked (not recommended).

6.2.2.2 TCP/IP Settings

When the *Interface* is set to “TCP/IP” you can connect to a host computer (or device) via TCP/IP. **TWedge** always connects in client mode.

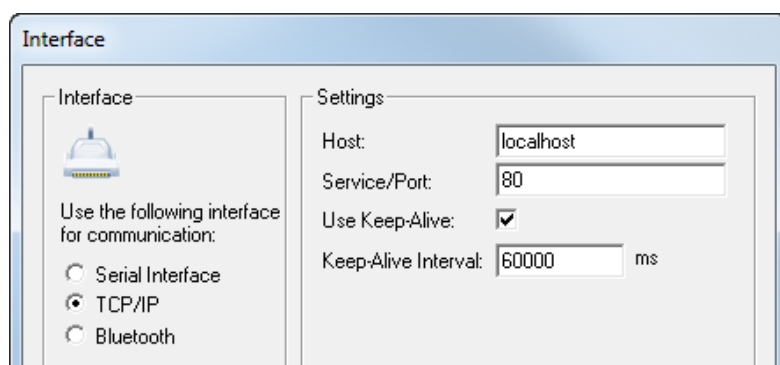


Figure 5: Interface Settings - TCP/IP

The following settings are available:

Host	The host name (e.g. www.tec-it.com) or the IP address (e.g. 127.0.0.1) of the TCP/IP server.
Service/Port	The service name (e.g. http) or the port number (e.g. 80).
Use Keep-Alive	Enables the TCP keep-alive with the specified time interval. This setting must be enabled in order to detect a lost connection in a reasonable time (the default time is 2 hours). A connection may be lost if the host application crashes, if a network cable is unplugged, if you are moving out of range with a wireless device... If enabled TWedge detects the failed connection and automatically tries to re-establish it

	(see also connection retries: Figure 4,  .
Keep-Alive Interval	If there is no activity for the given time interval a keep-alive packet will be sent to detect, whether the host is still reachable.

6.2.2.3 Bluetooth Settings

When the *Interface* is set to “Bluetooth” you can connect to any Bluetooth device which was paired with your computer. **TWedge** lists the available Bluetooth devices automatically, device enumeration may take some time:

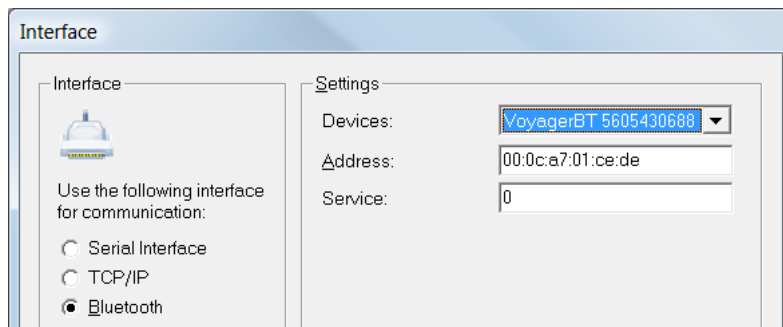


Figure 6: Interface Settings – Bluetooth

The following settings are available:

Devices	TWedge automatically scans for connected Bluetooth devices and lists them in this dropdown list.
Address	The address of the device. It is entered automatically when choosing one of the available devices.
Service	Reserved for future use – this setting is ignored.

6.2.3 Retries

- ▶ If an existing connection is lost, TWedge can try to reconnect automatically. This works only for TCP/IP or Bluetooth connections. Use the checkbox to enable/disable this feature.

Retry to open a connection up to [x] times	This setting specifies how often TWedge retries to connect in case of an error.
Delay time (in ms) between connection retries	Specifies the waiting time between single connection retries.
Recover lost TCP/IP or Bluetooth connections	If checked a lost TCP/IP or native Bluetooth connection is automatically reopened by TWedge .

6.3 Data Packets

TWedge reads data asynchronously. This means that the data is not processed directly as it is received from the interface, but that, in a first step, the data is collected into so called data packets. These data packets are then released for further processing, if certain conditions come true: i.e., if a given number of bytes (characters) have been received or if a specified time has elapsed.

Figure 7: Transmission Settings

6.3.1 Packaging Rules

The received data will be divided (or accumulated) into data packages according to the settings for size (❶), timeout (❷ and ❸) and data content (= pattern matching with a given delimiter string ❹). Every time a new data package is completed the *OnData* script (see section 6.4.3) will be executed. The most recent data packet is accessible through the global JavaScript variable "DATA".

Data packets will be generated according to the following rules:

6.3.2 Packet Size and Timeout

No. of Bytes	This parameter specifies the maximum number of bytes per package. One package may never exceed the "No. of Bytes" size limit. However, it may have less than the specified number of bytes (if the timeout was reached or if a delimiter was found).
Timeout	All data received within "Timeout" milliseconds will be accumulated into one data package. The timer begins to run as soon as the first (new) byte of the data transmission is received and it stops the given number of milliseconds later. All data which was received within that time period forms one data package. However, only a maximum number of bytes (property "No. of Bytes") will be included into one package. Any overrun will start another packet. If a delimiter is found before the time is elapsed, a new package will be started, as well. A <u>negative value</u> in the timeout field in combination with a delimiter is used to keep the final value within a series of received data values only. All other values are thrown away. This is useful in conjunction with scales, which are sending data continuously until the weight has stabilized. For distinguishing single values a delimiter has to be specified (see 6.3.3)!
Infinite	When activated, there is no time limit for creating data packages. Only the value "No. of Bytes" (as well as an optional delimiter) will be used for splitting the incoming data.

Sample: If your barcode scanner supports a baud rate of 9600 bits/sec it will transmit about 960 bytes per second (assuming the connection parameters are set to 1 start bit, 8 data bits, 1 stop bit and no parity bits). A barcode containing 14 characters should therefore be transmitted in about 15 ms (or 17 ms if the scanner appends a newline and a linefeed character automatically). Using the configuration from above (No. of Bytes = 100, timeout = 100 ms) TWedge will return one barcode per packet, as long as you do not scan more frequently than one barcode per 100 ms.

6.3.3 Packet Delimiter

The delimiter is a character (or a character sequence), which is used for splitting the incoming data. With each occurrence of the delimiter in the incoming data stream a new package is created. The delimiter condition is processed prior to the other conditions: size and timeout.

Enable Delimiter	Specifies whether a delimiter is used or not.
Delimiter	Specifies the delimiter string. The received data is permanently scanned for this string. Each time the complete delimiter has been detected, a package is generated from the data received thus far. These are common delimiter strings: ▪ "\r" ...Escape sequence for Carriage Return (you may also use the hex code "\x0d") ▪ "\n" ...Escape sequence for Line Feed

	(you may also use the hex code "\x0a") ▪ "\r\n" ...Carriage Return + Line Feed (you may also use the hex code "\x0d\x0a")
Include Delimiter	This flag specifies, if the delimiter should remain part of the data package or if it should be omitted (stripped off).

Sample: If your barcode reader automatically appends a carriage return + line feed at the end of the scanned barcodes you could use the delimiter string "\r\n" for identifying data packets. Even when setting the "Timeout" to one minute you would still receive reasonable packages containing one barcode each.

- For the negative timeout feature (see 6.3.2) a delimiter needs to be specified! That is the only possibility for **TWedge** to identify where one received value ends and where the next begins.



6.4 Script Editor

In the Script Editor you specify the behavior of **TWedge** by using JavaScript™ code. The default behavior is to send the received data as keystrokes. But you also have the possibility to access text files, connect to databases (via ODBC), send data to the connected device, and more.

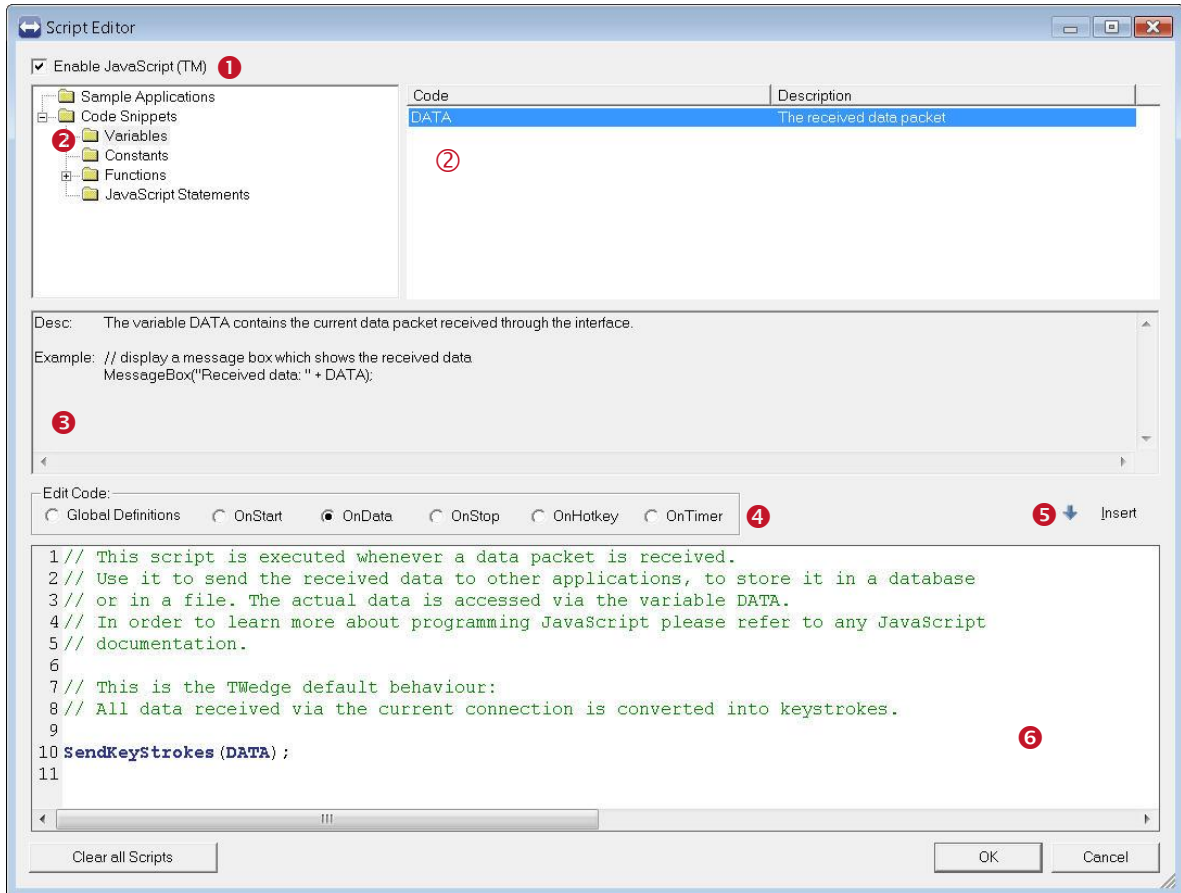


Figure 8: Script Editor

Checkbox **1** enables or disables JavaScript execution.

Using the combined tree and list view in **2** you can browse through available variables, constants, functions and common JavaScript statements. For each selection in **2** a quick help is available in **3**. By double-clicking the entry **2** or by pressing the **Insert** button **5** the selected entry will be inserted at the current cursor position in the code window **6**.

The tree view also contains some sample applications. When inserted they will replace all of the code sections (Global Definitions, OnStart, etc.). These sample applications can be tried out for demonstration purposes. They are useful in order to learn how certain functions have to be used.

In **4** you select different code sections for editing. Each code section will be executed upon different events (see below).

- ▶ Please note: Most of the functions listed in the tree view are **TWedge** specific language extensions! Standard JavaScript functions are not listed here (with exceptions), although they are (of course) supported.
- ▶ For additional help on JavaScript, please refer to chapters 7 and 8. These chapters will provide some **TWedge** specific JavaScript samples and explain them. For any general issues, please refer to any JavaScript language reference!

6.4.1 Global Definitions

The “Global Definitions” section is used for declaring variables and function. These variables and functions can then be used in all other code sections (OnStart, OnData, OnStop, OnHotkey and OnTimer).

6.4.2 OnStart

The “OnStart” section is executed when the communication is started (when the start button is pressed). Usually this section is used for initialization routines like opening files and/or database connections, starting or activating applications, and so on.

6.4.3 OnData

The “OnData” section is executed every time a data packet is received (see section 6.3). The data packet is provided in the variable “DATA” (for binary data use “DATARAW” see 7.2.2).

Usually the received data is simulated as keystroke sequence, so you can paste it into any running application. However, you may also write the data to a text file or to a database at will. The packet itself can be used as is, or it can be modified (cropped, extended, etc.).

6.4.4 OnStop

The “OnStop” section is executed when communication is stopped (when the stop button is pressed). Usually this section is used for cleaning up (closing files and/or database connections, etc.).

6.4.5 OnHotkey

The “OnHotkey” section is executed every time the hotkey is pressed. Therefore the hotkey must be enabled (see section 6.5).

A typical application for this feature is data acquisition on demand (this is, when the device needs to receive a certain control string before it starts sending data). In order make the device start sending you can use the function *WriteToDevice*. This function transmits a custom string to the connected device.

6.4.6 OnTimer

The “OnTimer” section is executed regularly in given time intervals. Therefore the timer must be started.

In order to start the timer use the function *SetTimer*. Usually this is done in the “OnStart” section. To stop the timer call the function *KillTimer*. This function should be placed at the beginning of the “OnStop” section.

6.5 Hotkey

The hotkey is used to trigger JavaScript execution upon user interaction.

If the hotkey is enabled, **TWedge** executes the *OnHotkey* script (see section 6.4.5) each time the predefined key or key combination is pressed. The script may be used for starting data acquisition on demand (this is, if the device needs to receive a certain control string before it starts sending data).

- Please note: The hotkey will be activated as soon as the communication is started, and it will be deactivated if the communication is stopped.

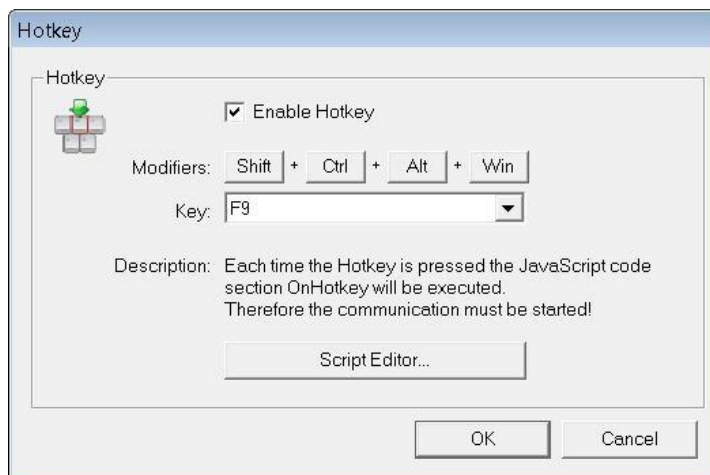


Figure 9: Hotkey Settings

Enable Hotkey	Enables/disables the hotkey.
Modifiers	Key modifiers for the selected key. (Multiple selections are possible).
Key	Key selection. <u>Example:</u> If you want to use the key combination Ctrl+F9 as hotkey, you have to select "F9" as key. Additionally press the "Ctrl" button in the Modifiers.
Script Editor...	This button opens the script editor so you can directly modify the code in the <i>OnHotkey</i> section.

- Certain key combinations may not work as hotkey (e.g. Win+TAB). Please try different key combinations instead!

6.6 Logfile

The logfile is an easy possibility to store the received data in text files.

If enabled, all received data packets will be written to (multiple) text files. One text file receives the data for a given time interval. Then a new file is created automatically. For creating dynamic file names you can use placeholders.

Logfile

Output

☐ Enable Logfile

Directory: C:\

Filename: %mm

Extension: LOG

Supported placeholders for filename: %hh (hour), %mm (minute - next interval), %ss (second), %yyyy (year), %yy (year), %MM (month), %dd (day)

Interval [seconds]

Interval: 300

Each "interval" seconds the buffered data is moved to a new output file.

OK Cancel

Figure 10: Logfile settings

Enable Logfile	Enables/disables the logfile creation.														
Directory	Directory path where to store the output file(s).														
Filename	Name for the output file. The file name may contain the following placeholders. Placeholders: <table><tr><td>%hh</td><td>- Hour, in which the file was generated.</td></tr><tr><td>%mm</td><td>- Minute, in which the file was generated.</td></tr><tr><td>%ss</td><td>- Second, in which the file was generated.</td></tr><tr><td>%yyyy</td><td>- Year, in which the file was generated (4-digit).</td></tr><tr><td>%yy</td><td>- Year, in which the file was generated (2-digit).</td></tr><tr><td>%MM</td><td>- Month, in which the file was generated.</td></tr><tr><td>%dd</td><td>- Day, on which the file was generated.</td></tr></table> Example: When using the filename "logfile%mm%ss" and the output file is created at 15:08:22, then the output file will be named "logfile0822".	%hh	- Hour, in which the file was generated.	%mm	- Minute, in which the file was generated.	%ss	- Second, in which the file was generated.	%yyyy	- Year, in which the file was generated (4-digit).	%yy	- Year, in which the file was generated (2-digit).	%MM	- Month, in which the file was generated.	%dd	- Day, on which the file was generated.
%hh	- Hour, in which the file was generated.														
%mm	- Minute, in which the file was generated.														
%ss	- Second, in which the file was generated.														
%yyyy	- Year, in which the file was generated (4-digit).														
%yy	- Year, in which the file was generated (2-digit).														
%MM	- Month, in which the file was generated.														
%dd	- Day, on which the file was generated.														
Extension	File name extension.														
Interval	The time interval in seconds, in which new logfiles are created. The smallest time interval is 1 second. The maximum are 86400 seconds (that is equal to 24 hours).														

6.7 Preferences

In the preferences you specify the on-load behavior for configuration files. Additionally you have the possibility to create trace files, which may be valuable for our support team in case of an error.

The on-load behavior is adjusted in the *Start-Up and Tray Settings*: The options “*Automatically start data acquisition*” ❶ and “*Automatically minimize TWedge*” ❷ are both taken into account on loading a configuration file. “*Minimize to system tray*” ❸ on the other hand, is a more general option. It tells **TWedge** to move either to the system tray or to the taskbar when being minimized.

Example:

If you want to start **TWedge** automatically, you have to check option ❶, confirm with *OK*, and then save the configuration file. Every time this specific configuration is loaded, data acquisition will now start automatically. (Please note: If you save a file and then load the same file, this configuration will NOT be actually be loaded, since the file is already open!)

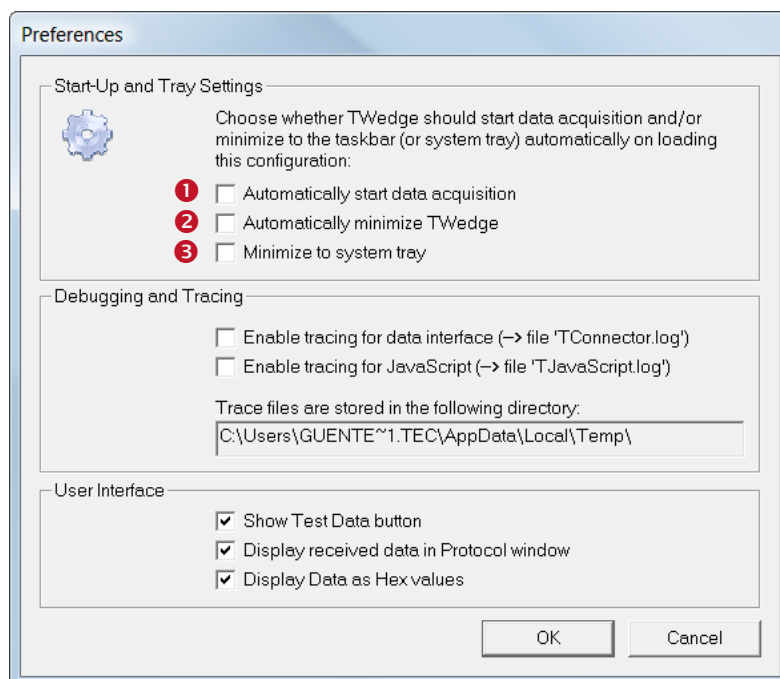


Figure 11: Start-Up Options

Automatically start data acquisition	If checked, data acquisition will start automatically every time this configuration is loaded.
Automatically minimize TWedge	If checked, TWedge will be minimized automatically every time this configuration is loaded.
Minimize to system tray	If checked, TWedge will always minimize to the system tray instead of the taskbar. When minimized to the tray use the right mouse button to start, stop or exit TWedge . In order to restore TWedge to its normal window state, double-click on the tray icon.
Enable tracing for data interface	If checked, a trace file for the internal TConnector component will be created. You can enable the trace file option even during data acquisition. The files are stored in the temp directory of the current user.
Enable tracing for JavaScript	If checked, a trace file for JavaScript execution will be created. You can enable the trace file option even during data acquisition. The files are stored in the temp directory of the current user.
Show Test Data button	If checked, a button will appear next to the Start button to simulate incoming data
Display received data in Protocol window	If checked, received device data is automatically displayed in Protocol window.
Display Data as Hex values	If checked, received data is displayed in hexadecimal-notation.

7 JavaScript

7.1 General

This chapter explains the most commonly required steps for processing the received data. The Script Editor of TWedge provides a complete overview for supported JavaScript functions and methods.

7.2 Predefined Variables

The received device data is provided in the predefined JavaScript variables “DATA” and “DATARAW”.

7.2.1 “DATA”

The input data is treated as Windows-1252 character set and converted to Unicode (UTF-16). The result of this conversion is stored in the JavaScript variable “DATA”. Use this variable if you want to process text input or perform JavaScript string operations.

7.2.2 “DATARAW”

The device data is copied to the JavaScript variable “DATARAW” without any further conversion. Use this variable if you want to deal with binary data (e.g. when using `string.charCodeAt(..)` to get the Byte value at a specific string position).

7.3 Modifying the Input Data

For some applications you will need to extract only parts of the received data, or you will need to append constant strings. Below you find some examples how to do this.

The most important string manipulation functions are described in the combined tree and list view in the *Script Editor* window (see *Code Snippets ► Functions ► Strings*). So you have a quick help at hand when editing the code. For a complete reference on string functions, please refer to any JavaScript help.

All of the following samples return new strings. These strings can then be assigned to variables, or they can be directly passed as function parameters (e.g., for simulating keystrokes).

Examples:

Use the first five characters of the input only:

```
Left(DATA, 5)
```

Cut the first two characters of the input string:

```
Right(DATA, DATA.length - 2)
```

Extract characters 2 to 5 of the received data. This means the first two characters are cut off. Only the next three characters are used. Please note: For the *substring* function the start and end indices are zero-based. The end character is not included.

```
DATA.substring(2, 5)
```

Prepend the prefix “pfx” and append the suffix “sfx” to the input data:

```
"pfx" + DATA + "sfx"
```

7.4 Keyboard Simulation

For simulating keyboard input use the function *SendKeyStrokes*. This function simulates the given input string as keystroke sequence. Thus you can “paste” the received data directly into the required application.

► Please note: If the **TWedge** window has the focus, keyboard simulation will be suppressed. Keyboard simulation can only be used for other application windows.

Example:

```
// simulate the received data as keystrokes:
SendKeyStrokes (DATA);
```

TWedge pauses after every keystroke for a short time (default: 10 ms) to give the receiving application some time to process the keystroke. The delay can be changed by calling the function with an additional parameter.

Example:

```
// simulate the received data as keystrokes and wait 100 ms after every character
SendKeyStrokes (DATA, 100);
```

7.4.1 Non-printable Keys

In addition to “normal” characters you may also simulate non-printable keys like ENTER, TAB, INS, DEL and so on. Non-printable keys are identified by key constants. These constants need to be enclosed in braces. e.g. {ENTER}.

The following key identifiers may be used:

Key Identifier	Description
ESC	Escape
F1 : F12	Function keys
SNAPSHOT	Takes a screen snapshot and puts it in the clipboard.
SCROLL-LOCK	Scroll lock key
CANCEL	CTRL+BREAK processing
INS	6-key block
DEL	
HOME	
END	
PAGE-UP	
PAGE-DOWN	
LEFT	Cursor keys
RIGHT	
UP	
DOWN	
TAB	Tabulator

Key Identifiers	Description
NUM-LOCK	Numeric keypad
NUM0 : NUM9	
DEC	
DIV	
MUL	
SUB	
ADD	
ENTER	
SPACE	Space
BACKSPACE	Backspace
RETURN	Enter and Return is the same
WIN	Windows key
APPS	Applications key (opens context menu)
MOUSELEFT	Mouse keys
MOUSEMIDDLE	
MOUSERIGHT	

Table 1: Key identifiers for non-printable keys

Key commands can also be executed consecutively, e.g.:

```
// type the string 'ab05', then press the enter and the tab key:  
SendKeyStrokes("ab05{ENTER}{TAB}");
```

7.4.2 Key Combinations

It is also possible to press keys simultaneously with modifier keys (SHIFT, CTRL or ALT). To do this, all keys must be enclosed in a single pair of braces {} separated by a plus sign '+'.
Example:

```
// press Ctrl+S (save the current document):  
SendKeyStrokes("{CTRL+S}");  
// press Ctrl+Alt+e (write a '€' sign on a German keyboard layout)  
SendKeyStrokes("{CTRL+ALT+e}");
```

It is also possible to call *SendKeyStrokes* with an additional parameter. This parameter is used for specifying modifier keys.

Example:

```
// press Ctrl+S (save the current document):  
SendKeyStrokes(CTRL, "s");  
// press Ctrl+Alt+e (write a '€' sign on a German keyboard layout)  
SendKeyStrokes(CTRL+ALT, "e");
```

7.4.3 Delay Character

The delay character is used to force a delay between two simulated keystrokes in the *SendKeyStrokes* function: Each time the specified character occurs in the passed string a delay will be inserted instead of simulating a keystroke. In order to use this feature you have to specify a delay character and the required delay time. Then enable delay character processing using the function *EnableDelayCharacter()*.

The delay character functions are described in the section *Code Snippets ► Functions ► Input/Output ► Keyboard* in the Code Editor.

Example:

Set the delay character to comma (,) and the delay time to 100 milliseconds:

```
SetDelayCharacter(",");  
SetDelayTime(100);  
EnableDelayCharacter(true);
```

Now the comma is interpreted as delay character. The following keystroke simulation will pause between each character in the string "Hello world!".

```
SendKeyStrokes("H,e,l,l,o, ,w,o,r,l,d,!");
```

7.5 User Input

The function *InputDialog* is used to prompt the user for input during runtime. Calling this function pauses script execution until the user dismisses the upcoming dialog.

```
InputDialog("String", "Please enter an arbitrary string");
```

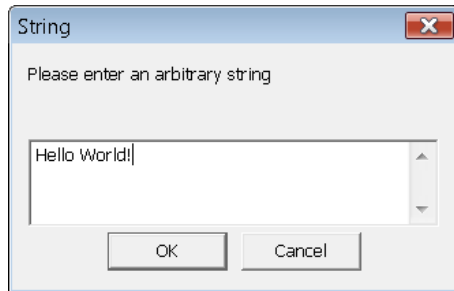


Figure 12: InputBox - String

To enable input validation the function has to be called with three additional parameters:

```
InputBox("Number", "Please enter an integer value between 1 and 10", LONG, 0, 10);
```

The third parameter specifies the expected data type of the input while the fourth and fifth parameter specify the allowed minimum and maximum value.

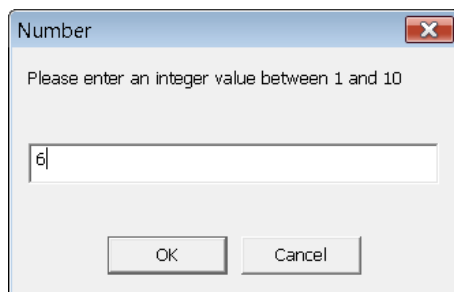


Figure 13: InputBox - Number

7.6 Using the Clipboard

The clipboard can be accessed with the functions *CopyToClipboard* and *GetFromClipboard*. This is useful for larger amounts of data, where a simulation of keystrokes is not feasible or too slow.

These functions are described in the section *Code Snippets* ► *Functions* ► *Input/Output* ► *Clipboard* in the Code Editor.

Example:

```
// Copy received data to the Clipboard and paste it into notepad.  
CopyToClipboard(DATA);  
  
ActivateWindow ("Notepad");  
SendKeyStrokes ("CTRL+v");
```

If the content of the clipboard could not be successfully written or read, the operation is retried a number of times (default: 5) after a short delay (default: 100 ms). These settings can be changed, by calling the function with 2 additional parameters.

Example:

```
// Copy received data to the Clipboard and retry the operation 2 times after 200ms in  
// case of an error.  
CopyToClipboard(DATA, 2, 200);
```

7.7 Window Activation

The function *ActivateWindow* sets the focus to the window with the specified caption. Minimized windows and windows in the background will be brought to foreground (activated). Thus you can be sure, that the data is entered inside the desired window.

- ▶ Please note: The window caption is case sensitive! If you do not use the proper case, the window will not be found!
- ▶ If the specified window is not available (because the application is not started) the function will return *false*!
- ▶ Hint: To determine the caption of a window, press the key combination ALT+TAB. The captions of all open windows will be displayed. (Hold down the Alt key and then successively press Tab to step through all open windows).

Example:

```
// select Notepad as the active window:  
ActivateWindow("Notepad");
```

For more detailed examples see *Sample Applications* ▶ *Activate Window (simple)* and *Activate Window (advanced)* in the Script Editor.

7.8 Starting an Application

To start an application which is not yet running, use the function *StartApplication*. The first parameter is the name of the application (e.g. "Notepad", "Excel", "Winword", etc.). As second parameter an optional argument may be passed.

- ▶ If the desired application could not be started the function will return *false*!
- ▶ When specifying the whole path to an application, the backslashes need to be escaped.
E.g.: `StartApplication("C:\\Program Files\\TEC-IT\\TWedge2\\Bin\\Twedge.exe");`

In most cases it is a good idea to give the application some time before it is considered ready for receiving data. Every application needs some time before it is fully started. Therefore you may use the *Sleep* function. The *Sleep* function pauses JavaScript execution for the given time (in milliseconds).

Example:

```
if (StartApplication("Notepad"))  
{  
    Sleep(1000); // give the Notepad some time to respond  
  
    // TO-DO:  
    // simulate keystrokes  
}  
else  
    MessageBox("Could not start Notepad");
```

For a more detailed example see *Sample Applications* ▶ *Activate Window (advanced)* in the Script Editor.

7.9 User Feedback

TWedge gives you a few possibilities for user feedback: You can use message boxes or you can write messages to the protocol window.

7.9.1 Message Box

A Message-Box can be displayed using the *MessageBox* function. Code execution will be paused until the message has been acknowledged by pressing the OK Button.

Example:

```
MessageBox("Hello world!");
```

7.9.2 Protocol Entry

Writing messages to the protocol window can be done using the *Notify* functions. These functions cause no program interruption. You can display three different kinds of messages: infos, warnings and error messages. These messages differ only in the icon which is displayed in the left column.

Example:

```
NotifyInfo("This is an info text.");  
NotifyWarning("This is a warning.");  
NotifyError("This is an error.");
```

7.9.3 Acoustic Feedback

For acoustic feedback use the function *Beep*. This function uses two parameters: frequency and duration.

Example:

```
// play a short beep (1000 Hertz, 100 milliseconds):  
Beep(1000,100);
```

7.10 Accessing Text Files

Usually the following pattern is used for writing to files:

```
// create a new TFile object:  
var myFile = new TFile();  
  
// open the file for writing:  
// this will create a new file on the hard disk (or overwrite an existing file)  
// then make sure, that the file was opened successfully  
if (myFile.Open("C:/MyFile.txt", "w"))  
{  
    // write something into the file  
    // and check for successful operation:  
    if (myFile.Write("I am the content of this text file.") == -1)  
        MessageBox("Error writing to file!\n" + myFile.LastError);  
  
    // close the file  
    myFile.Close();  
}  
else  
    MessageBox("Could not open file!\n" + myFile.LastError);
```

When opening a file for reading you can read line after line until the end of the file (EOF) is reached:

```
// create a new TFile object:  
var myFile = new TFile();  
  
// open the file for reading:  
// continue only, if the file was opened successfully  
if (myFile.Open("C:/MyFile.txt", "r"))  
{  
    // as long as the end of the file is not reached:
```

```
// read line after line and display it in the protocol window
while (!myFile.EOF)
{
    NotifyInfo (myFile.ReadLine());
}

// close the file
myFile.Close();
}
else
    MessageBox("Could not open file!\n" + myFile.LastError);
```

For a listing of available file functions see *Code Snippets ► Functions ► Input/Output ► File*. Furthermore you can check out the *Sample Applications ► File: Read* and *File: Write*.

► Please note: The filename was specified with a slash (/) instead with a backslash (\). This is because JavaScript treats a backslash as a special character which must be escaped.

7.11 Accessing Databases

Database operations use the following pattern:

```
// initialize the TDatabase object
var myDB = new TDatabase();

// open the database
if (myDB.Open("DSN=TWedge_Sample;"))
{
    // TO-DO:
    // execute one or more SQL statements
    // or
    // access the data via record sets

    myDB.Close();
}
```

For a listing of available database functions see *Code Snippets ► Functions ► Input/Output ► Database (ODBC)*. Furthermore you can check out *Sample Applications ► Database: Write* through to *Database: Statistics*.

7.11.1 Opening a Database Connection

The string for opening a database connection usually consists of the following parts (depends on the database driver):

- Database service name (DSN)
- User ID (UID)
- Password (PWD)

Example:

```
myDB.Open("DSN=MyDatabase;UID=MyUser;PWD=MyPassword")
```

► Security Hint: If you have to distribute configuration files and if you do not want the users to see the passwords in the JavaScript code you can save encrypted and password protected configuration files (see Appendix B).

7.11.2 Executing SQL Statements

For executing arbitrary SQL statements like insert, update, create table, etc. use the *Execute* command. If you want to iterate through record sets, please refer to section 7.11.3.

Example:

```
// execute a SQL statement:
var nRet = myDB.Execute("INSERT INTO MyTable (ScanData) VALUES('" + DATA + "');");
if (nRet < -1)
    MessageBox ("Error during SQL statement:" + myDB.LastError);
```

7.11.3 Using Record Sets

Record sets are used for reading and/or updating records in a table. For more details see below:

7.11.3.1 Open a Record Set

First the record set must be opened. Therefore use the *Select* method. As parameter use either the table name or a select statement:

Example:

```
var myRecordset = myDB.Select("SELECT * FROM MyTable");
if (myRecordset.IsOpen)
{
    // TO-DO:
    // move through the record set by moving the cursor
    // and access single records
}
```

- Please note: If you want to update records the correct cursor type and the correct concurrency must be specified (depends on the database driver).

Example:

```
var myRecordset = myDB.Select("MyTable", myDB.Dynaset, myDB.Values);
```

7.11.3.2 Cursor Positioning

Once the record set is open, you can position the cursor using the methods *MoveFirst*, *MoveNext* and *MoveLast*. The *EOF* property will signal if you have reached the end of the records.

Example:

```
// iterate through all records in the record set
while(!myRecordset.EOF)
{
    // TO-DO:
    // access the data in the current record

    // move to the next record
    myRecordset.MoveNext();
}
```

7.11.3.3 Accessing Data

Two functions are available to retrieve or to set the value of a database field. The value of a database-field is retrieved through the *GetValue* function:

```
myRecordset.GetValue("MyField")
```

And the value is set with the *SetValue* function:

```
myRecordset.SetValue("MyField", Value)
```

- Please note: Field names are case sensitive! If you do not use the proper case, the fields will not be recognized!

If you assign a new value to one of the fields, the function *myRecordset.Update* must be called in order to write the data back to the database. In this case the record set must have been opened using the correct cursor type and concurrency (see above!).

The names of the selected fields can be retrieved with the function *myRecordset.GetFieldName*. To get the name of the first field use the following snippet:

```
myRecordset.GetFieldName(0)
```

If you want to know, how many fields the record set has, use the property *FieldCount*:

```
myRecordset.FieldCount
```

Examples:

```
// a TDatabase object and a Recordset object which holds the selected database-rows
var myDB          = new TDatabase();
var myRecordset;

// open the database
if (!myDB.Open ("DSN=TWedge_Sample;"))
{
    MessageBox ("Could not open database!\n" + myDB.LastError);
    return;
}

// open the Recordset
myRecordset = myDB.Select ("SELECT * FROM tbl_Products;");
if (!myRecordset.IsOpen)
{
    MessageBox ("Invalid SELECT statement!\n" + myRecordset.LastError);
    return;
}

// read all records and write them to the protocol window
myRecordset.MoveFirst();
while(!myRecordset.EOF)
{
    NotifyInfo(myRecordset.GetValue ("ProdID") + ", " +
        myRecordset.GetValue ("ProdDesc") + ", " +
        myRecordset.GetValue ("Quantity") + "\r\n");
    myRecordset.MoveNext( ); // next record
}

// determine the database column-names in the recordset
var fieldNames = "";

// build a string which holds the single field names
for (var i = 0; i < myRecordset.FieldCount; i++)
    fieldNames += myRecordset.GetFieldName(i) + " ";

NotifyInfo ("FieldNames: " + fieldNames);

// close the recordset
myRecordset.Close();

// close the database
myDB.Close();
```

8 Example

8.1 Capturing a Data Series in Microsoft Excel®

This example shows you how to capture a data series in Microsoft Excel:

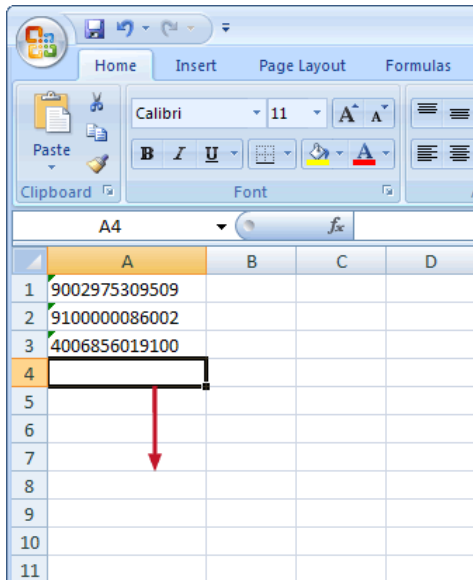


Figure 14: Capturing a Data Series in Microsoft Excel

First of all **TWedge** will make sure, that Microsoft Excel is started and that it has the input focus. This is done automatically when the *Start* button is pressed. Then, every time a data package is received, it is pasted into subsequent cells on the current spreadsheet.

The following setup is required:

1. Interface Configuration
2. Data Packing
3. Start or activate Microsoft Excel automatically (optional)
4. Capture the received data into Microsoft Excel:
 - a. Modify the received input data (optional)
 - b. Paste the received input data
 - c. Set the focus to the next input cell

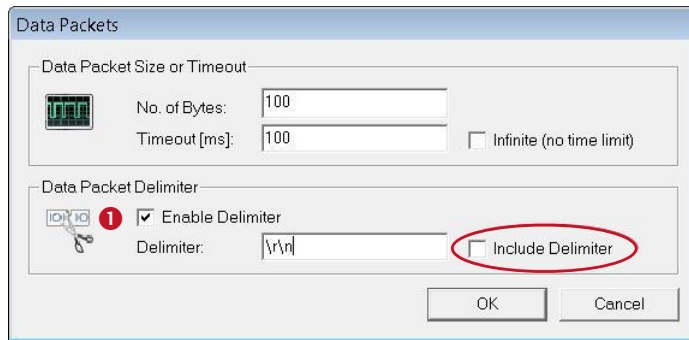
8.1.1 Interface Configuration

First of all you have to configure the interface to meet the specifications of the connected device. Therefore select **Configuration ► Interface...** from the menu. In most cases the default settings (serial interface, baud rate 9600, 8 data bits, etc.) should work fine. However, it is recommended to cross check with the manufacturer's specifications.

For more information on the interface configuration, please refer to section 6.2.

8.1.2 Data Packaging

In order to receive reasonable Data Packages the data packaging must be configured correctly. Select **Configuration ► Data Packets...** from the menu.



Assuming that you are using a barcode scanner, the predefined settings for “*No. of Bytes*” and “*Timeout*” should work fine (see also section 6.3.2).

However, some data acquisition devices append a line break (e.g., a Newline and a Linefeed character) at the end of the acquired data automatically. When simulating the received data as keystrokes, the line break has the same effect as when pressing the ENTER key subsequently to pasting the data. In order to filter the line break out you have to do the following:

Check the *Delimiter* option . This will cause **TWedge** to close every data packet with the occurrence of the given delimiter. Then set the delimiter to “\r\n” (this is a Newline and a Linefeed) and make sure the *Include Delimiter* option is not checked. Confirm with OK.

The variable *DATA* in the *Script Editor* will now contain no more additional line breaks.

8.1.3 Start or activate Microsoft Excel automatically

If you want to start or activate Excel automatically use the following code. This step can be skipped, if you plan to start Microsoft Excel manually (from the start menu).

Open the *Code Editor* and insert this code in the *OnStart* section:

```
// is excel currently running (j/n)?
var isExcelStarted;

// try to activate Excel
isExcelStarted = ActivateWindow("Excel");
if (!isExcelStarted)
{
    // Excel is not already running, so try to start it:
    isExcelStarted = StartApplication("Excel");
    if (isExcelStarted)
        Sleep (1000); // give Excel some time to respond
    else
        MessageBox ("Error!\nMicrosoft Excel cannot be started!", MB_ICONEXCLAMATION);
}
```

This code section will be executed when the start button is pressed. If the Excel window could not be activated (because Excel is currently not running) **TWedge** will start Microsoft Excel automatically.

► Hint: The *Sleep* function is used to give Excel some time before it is considered ready for receiving data. Every started application needs some time before it is up and running.

8.1.4 Capture the Data in Excel

For pasting the received data into the current Excel spreadsheet you have to simulate the appropriate keystrokes.

Open the *Code Editor* and insert the following code in the *OnData* section:

```
// send the keystrokes only if Excel can be invoked
if (ActivateWindow("Excel"))
{
    SendKeyStrokes("'" + DATA);
    SendKeyStrokes("{DOWN}");
}
else
    MessageBox ("Excel is currently not running!", MB_ICONEXCLAMATION);
```

To make sure, that the data is inserted in Excel and in no other window, activate Excel prior to sending any keystrokes. (Someone could have clicked on any other window in the meantime.) Then simulate the received data as keystroke sequence. By simulating the down arrow the input focus is set to the next input cell.

The single steps of this code section are discussed below:

8.1.4.1 Modify the received Input Data

In this example the whole input data is pasted into Excel as is. In order to make Excel treat the data as string (and not as number) a quotation mark (') is prepended. If you need only parts of the received data package, use the functions *Left*, *Right*, or *substring* (see section 0).

8.1.4.2 Paste the received Input Data

For entering the received data via keystroke simulation the variable *DATA* is passed as parameter for the function *SendKeyStrokes*.

8.1.4.3 Set the Focus to the next Input Cell

Setting the focus to the next input cell is done by simulating the down arrow (directly after pasting the data). If you do not want to capture the data in one column, but in one row, you could also use the right arrow instead:

```
SendKeyStrokes (" {RIGHT} " );
```

However, you should always consider:

- ▶ Before implementing a keystroke sequence for an application, try to figure out how to move the cursor to the desired input field manually by pressing the keys on the keyboard (without using **TWedge**). Some fields may be accessed directly with an Alt+character shortcut. Others can be selected by navigating through the input mask using the tab or the cursor keys.
If you have found a way to put the cursor to the correct field, you can simulate the appropriate keystroke sequence per code.

9 Licensing

9.1 License Types

Please check out <http://www.tec-it.com/de/order/prices/PriceList.aspx#TWDG> for available license types and pricing.

In the licensed version of **TWedge** the demo hints and the random insertion of demo data will be deactivated.

9.2 Entering your License Data

The license information is entered in the following dialog. To enter the license data select **Help ► License...** from the menu. Usually the software is activated online (see 9.2.1):

- **Online activation is not possible or do you prefer manual activation?**
Please get in touch with us if your system has no internet access or if you prefer to use the manual activation for any reason. We will be glad to send you the license data which is suitable for manual licensing (see 9.2.2) without internet access.

9.2.1 Online Activation using an Activation Key

The **online** product activation (❶) is the preferred licensing method if you received an **activation key** from TEC-IT.



Figure 15: License Dialog - Online Activation

In the topmost field (❷) you have to enter your activation key. All fields are required. A license certificate is sent to the given **Email address** (❸) automatically.

Confirm by clicking “Send”. A message informs you about the successful activation. In case of problems or errors please get in touch with TEC-IT.

9.2.2 Manual Licensing

Manual licensing is the alternative method for licensing if your system has no Internet connection. Select **Manual** licensing (❹) and enter the license data as provided by TEC-IT.

- **Please enter the license data exactly as you received it from TEC-IT!**
Spacing and upper/lower case letters are to be considered. To avoid typographical errors, please insert the data using “copy and paste” from the email containing your license data whenever possible.

► **Single licenses**

If you purchased a Single License, you need to provide the so-called "System ID" of the target computer. You can find the *System ID* in the licensing dialog of **TWedge** (see below).

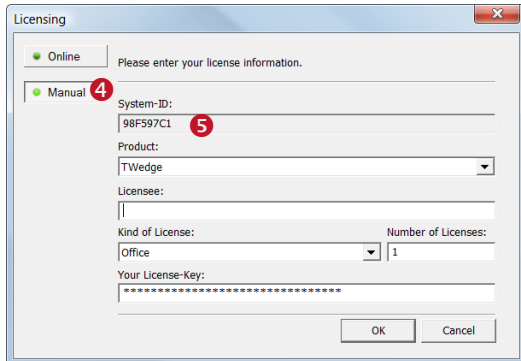


Figure 16: License Dialog – Manual Licensing

Perform the following steps to enter the license data:

1. On the top of the dialog you find the *System ID* (5) of your computer.
2. For field "Product" please choose "TWedge".
3. In the field "Licensee" enter the name of the license holder.
4. In field "Kind of License", please select the kind of license that you have purchased. You can choose among:
 - Single / Workstation
 - Workgroup
 - Office
 - Site
 - Enterprise
5. The field "Number of Licenses" should be filled with the number of licenses that you purchased.
6. In the field "Your License-Key" enter the license key exactly as received from TEC-IT.
7. Confirm the dialog with **OK**.

9.2.3 Licensed Configuration Files

If you got a license for more than one installation you can create licensed configuration files. These files may be used for distribution within your company (see section B.4).

10 FAQ

10.1 How can I stop the CR/LF after each data input?

Q: *I am attempting to route scanned data into an existing application, so I just need the raw data, no "Carriage Return" or "Line Feed". How can I turn the CR/LF off?*

A: Follow these steps to clip CR/LF at the end of your data:

- Select **Configuration ► Data Packets...** from the menu.
- Enter as for the Delimiter "\r\n" (these are the escape sequences CR+LF) (or just "\r" if you only need the CR stripped off).
- Leave the **Include Delimiter** option unchecked.

Now if a CR+LF are found in the input data it will be filtered out (because **Include Delimiter** is unchecked).

10.2 How can I select a certain input field automatically?

Q: *I would like to make sure that my data is always inserted into the same input field - in other words the cursor should always be placed in the correct field before the data is inserted.*

A: In order to achieve this, you must find a way to select the designated field with a series of key-strokes. Some fields may be directly accessible with an Alt+character shortcut. Others can be selected by navigating through the input mask using the tab or the cursor keys. If you have found a way to put the cursor into the correct field, all you have to do is simulate the appropriate keystroke sequence per code:

- Select **Configuration ► Script Editor...** from the menu.
- Go to the **OnData** code section.
- Use the function **SendKeyStrokes** to simulate the keys that will select the input field. (See also section 7.4.)
- Thereafter the command **SendKeyStrokes(DATA)** can be used to insert the received data.

► To make sure that the correct window receives the data you may also use the function **ActivateWindow** before sending the keystrokes.

10.3 How can I bring a certain window to the foreground?

Q: *I want to make sure that the data is entered into the correct window (= the correct application), even if the window is deactivated or minimized.*

A: You can activate an application using the function **ActivateWindow** in the Script Editor:

- First you have to learn the caption of the target window. If you cannot see the window caption in the title bar press Alt+Tab to switch to the desired window. In the task switcher the window caption will be displayed below the selected window icon.
- Then go to the **Script Editor** and use the command **ActivateWindow**. As parameter pass the window caption (or just parts of it). It should look like this:

```
ActivateWindow("Word"); Or  
ActivateWindow("SAP R/3");
```
- Afterwards it is recommended to give the activated application a little time to respond. Therefore use the **Sleep** function.

10.4 Can I use two instances of TWedge simultaneously?

Q: *I want to monitor two ports on my PC at the same time. Can I therefore run two instances of TWedge simultaneously?*

A: Basically you can run two (or more) instances of TWedge on one PC at the same time. Anyway there are two things you should consider:

- 1) Each instance must be configured to use a different interface. Otherwise the programs will block one another. (One interface cannot be used by more than one program at the same time!)
- 2) The two instances cannot use the same hotkey.

10.5 I get the error “80070002, The System cannot find the file specified.”

Q: *I get the error “80070002, The System cannot find the file specified.” when trying to start TWedge. What could be the reason?*

A: This error indicates that the specified COM port does not exist on your system. If you want to know, which COM ports are available, open the device manager (**Control Panel ► System ► Hardware**) and check the “Ports (COM & LPT)” section.

10.6 I get the error “80070005, Access is denied.”

Q: *I get the error “80070005, Access is denied.” when trying to start TWedge. What could be the reason?*

A: This error indicates that the specified COM port is already in use and therefore locked. Two programs cannot access the same COM port at the same time. Try to figure out, which program already uses the COM port and then stop this application. Now TWedge should be able to connect.

10.7 I cannot activate the Virtual Serial Port (SPP) for the Bluetooth Stack

Q: *When trying to enable the Serial Port service for my Bluetooth scanner I get the message “Access is denied”. What’s wrong?*

A: By default the “Bluetooth Support Service” is configured to log on with the Local System Account (NT AUTHORITY\LocalService). However, to enable the service you actually need local administrator rights. So change the account in the “Log On” tab to any account with local administrator rights and restart the service.

For general information on configuring Bluetooth® devices, please refer to the Microsoft KB article 883259. The “Access is denied” issue is discussed in the KB article 892891.

10.8 How to Install TWedge as Windows Service?

Q: *I want to install TWedge as Windows service. How is the workflow for that? How does this work?*

A: You can find information on how to install TWedge as Windows service on our [website](#) under *Software/Data Acquisition/TWedge/Tips & Tricks*.

11 Contact and Support Information

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Appendix A: Start TWedge with Customized Settings

A.1 General

When starting **TWedge** over the Windows Start Menu all program settings will be preset to default values: **TWedge** will be configured to use the Serial Interface (COM1) for communication, and the received data will be simulated as keystrokes.

If you want to start **TWedge** with a previously stored configuration, you can either

- double-click on the desired configuration file or
- pass the configuration file as a command line parameter (see below).

In both cases **TWedge** will restore the settings from the .TWI file.

Depending on the restored configuration some additional automation may be executed subsequently (like minimizing **TWedge** and/or starting data acquisition automatically) - see section 6.7.

A.2 Command Line Parameter

The following sample shows you how to start **TWedge** with a command line parameter. In this sample **TWedge** will be started using the configuration file MyConfig.TWI.

```
"C:\Program Files\TEC-IT\TWedge2\Bin\TWedge.exe" C:\MyConfig.TWI
```

A.3 Shortcuts

For your convenience you can create shortcuts for different configurations (e.g., on your desktop):



The target for the shortcut is either the configuration file (the TWI file itself) or the **TWedge** executable followed by the configuration file as a command line parameter (as in A.2).

Appendix B: Password Protected Configuration Files

B.1 General

TWedge offers the possibility to create configuration files with password protected content. Therefore select **File ► Save Password Protected...** from the menu.

- ▶ Password protected files can be loaded and started by any user without any restrictions, but viewing or modifying the configuration is not possible unless you know the password.
- ▶ Only the interface settings and the preferences are left accessible by default. If required you can lock them.
- ▶ Any JavaScript content will be encrypted.

Saving password protected files may be useful if you want to distribute a configuration to multiple workstations, and if you do not want other users to view or modify the code (which may contain the password for an ODBC connection, or other confidential content).

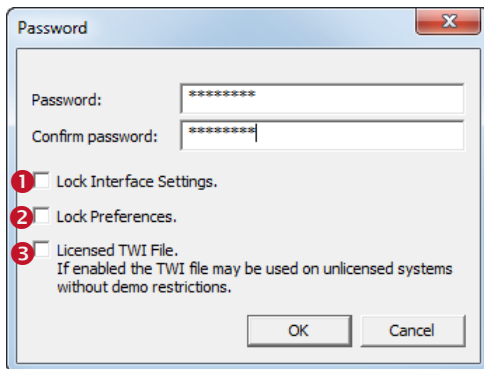


Figure 17: Licensed Configuration Files

For unlocking a password protected file, select **File ► Unlock Current File...** from the menu.

B.2 Lock Interface Settings

In **1** you can choose whether you want to lock the interface settings or not. If enabled, the interface dialog will be locked. If disabled, the user can freely access the interface configuration (see section 6.2).

B.3 Lock Preferences Dialog

In **2** you can lock the preferences dialog (see also section 6.7).

B.4 Licensed Configurations Files

If you have purchased a license for multiple machines you can create licensed configuration files (see **3**). These files can be used for distributing configurations to multiple workspaces without the need for licensing **TWedge** on every single machine.

- ▶ Licensed configuration files can be used without demo restrictions on unlicensed systems. However they are not intended for licensing **TWedge** on these systems. When changing back to any other configuration, the demo mode will be re-activated. The content of licensed files is password protected and may not be inspected nor modified.