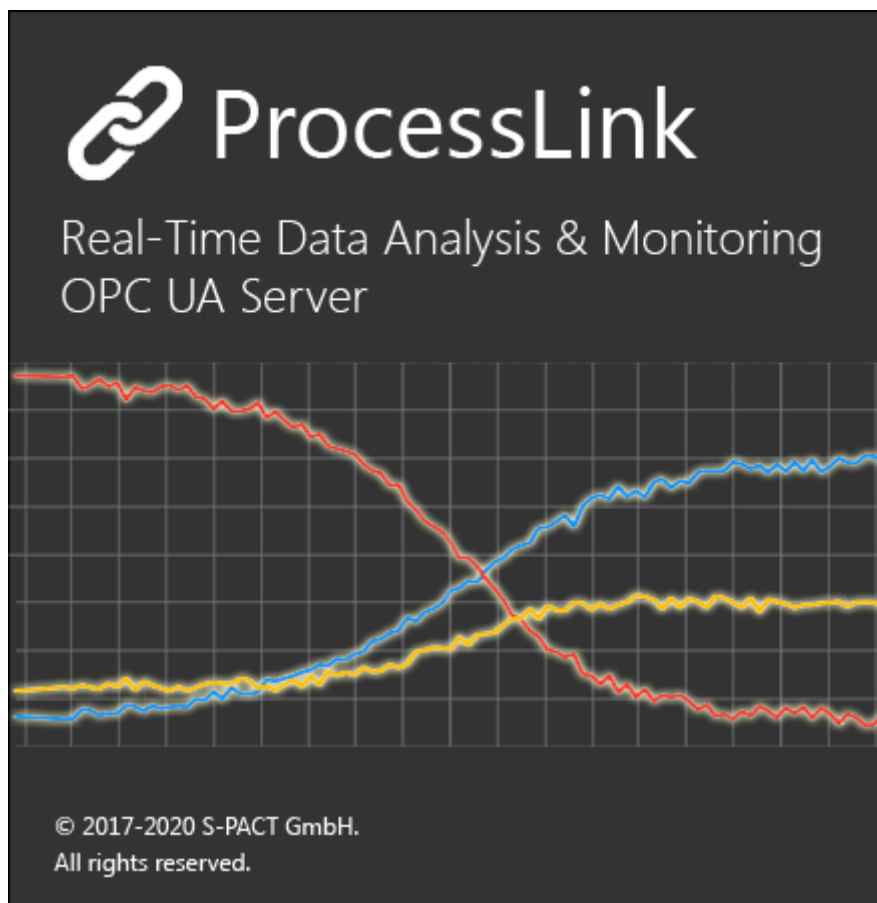


PEAXACT ProcessLink User Manual

Version 5.4
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S•PACT GmbH phone: +49 241 9569 9812
Burtscheider Str. 1 fax: +49 241 4354 4308
52064 Aachen e-mail: support@s-pact.com
Germany

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1 QUICK START

1.1 What is PEAXACT ProcessLink?

PEAXACT ProcessLink is a very user-friendly, interactive Windows app that enables quantitative data analysis with PEAXACT to be linked to any laboratory or process spectrometer. Based on folder monitoring, newly measured spectrum files are automatically detected and analyzed in real time. Results are immediately presented to the user in a real-time chart and are exposed to external applications by means of a built-in OPC UA server.

1.2 Getting Help

User Manual

This user manual documents a certain version of PEAXACT ProcessLink. You can find the version number and release date on the title page.

We are continuously working on improving the manual. The latest document version is distributed as PDF file with each PEAXACT software update. The file is in subdirectory `Help` of the PEAXACT installation directory.

Technical Support

Technical Support can be contacted by:

- E-mail to support@s-pact.com
- Web form at www.s-pact.com/support

Note: A subscription to the S•PACT Software Maintenance Service (SMS) is required to be eligible for technical support. The first year of SMS is included with new licenses.

1.3 Installation & License Activation

1.3.1 System Requirements

- 64-bit version of Microsoft Windows 7 SP1 or Windows 10
- Any Intel or AMD x64 processor
- 5 GB of disk space
- 4 GB RAM
- Microsoft .NET Framework 4.5 or newer

1.3.2 Licensing

PEAXACT software is furnished under a license agreement. The software may be used only under the terms of the license agreement.

PEAXACT ProcessLink can be installed and operated on a given number of designated computers, provided it is only operated locally (i.e. not remotely). The number of simultaneous users is not limited. For the full and legally valid conditions please refer to the license agreement document.

1.3.3 Installation

Step 1: Before You Install

- Make sure your computer fulfills the [system requirements](#).
- When upgrading an existing installation, visit www.peaxact.com/whatsnew and read the upgrade notes and compatibility considerations.
- Make sure you have administrator privileges to perform the installation.
- Make sure your license is valid for the major version number. If you do not have a license yet you can get a free trial license or purchase a license after installation.

Step 2: Install PEAXACT

- Download the PEAXACT Installer from www.peaxact.com/download

Note: The installer's filename is `PeaxactInstaller_<major>.<minor>_win64.exe`. Different major versions can be installed side-by-side, e.g. versions 5 and 4. The installer upgrades earlier installations of the same major version.

Online Installation

- Run the PEAXACT Installer and follow the setup instructions. Additional runtime packages are downloaded and installed automatically if detected missing.

Offline Installation

- If you are planning to install PEAXACT on a computer without internet access you must download additional runtime packages in advance from www.peaxact.com/runtime
- Save all installer files to a folder on a portable drive. Do not rename files.
- At the offline computer, run the PEAXACT Installer and follow the setup instructions. Runtime packages are installed automatically if detected missing.

Step 3: After Installation

- After a new product installation continue with [License Activation](#).

- After upgrading an existing installation check the upgrade notes at www.peaxact.com/whatsnew for further upgrade steps.

1.3.4 License Activation

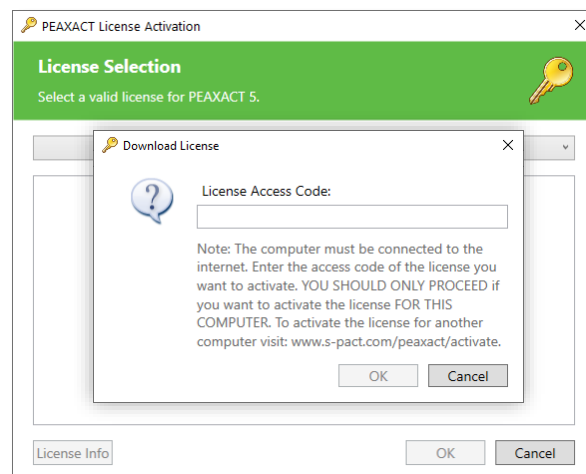
Note: If you perform the activation with administrator privileges, licenses will be activated **per-machine**, i.e. for all Windows users. Otherwise, licenses will be activated **per-user**, i.e. for the logged-on user. Per-machine takes precedence over per-user.

License activation requires a license access code. The access code is emailed to the end-user or a designated license administrator after a license purchase or trial request.

Online Activation

To activate a PEAXACT license on a computer with internet:

- Select **PEAXACT 5 > Activate PEAXACT** from the Windows start menu to open the License Activation Dialog.
- Select **PEAXACT ProcessLink**.
- Select **Download License...** from the drop-down list.

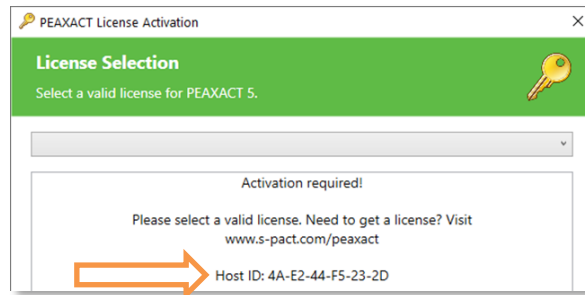


- Enter your license access code and click **OK**. Then close the dialog.

Offline Activation

To activate a PEAXACT license on a computer without internet you must download the license using another device.

- Select **PEAXACT 5 > Activate PEAXACT** from the Windows start menu.
- Select **PEAXACT ProcessLink**.
- Note the displayed **Host ID**.



- On a device with internet, visit www.peaxact.com/activate.
- Logon to the web portal with your license access code.

PEAXACT Software Activation

License #511595 (Regular, Group)

Licensee: S-PACT
 Version: 5
 Quantity: 1
 Issued: 2020-10-28
 Expiration: never
 Hosts: The table below shows host computers for which the license is currently valid. You can add 1 more host to the list. Enter an informative description, e.g. the name or location of the host computer. Enter the Host ID as displayed in the PEAXACT License Activation Dialog. You can perform 1 host transfer within the next 12 months.

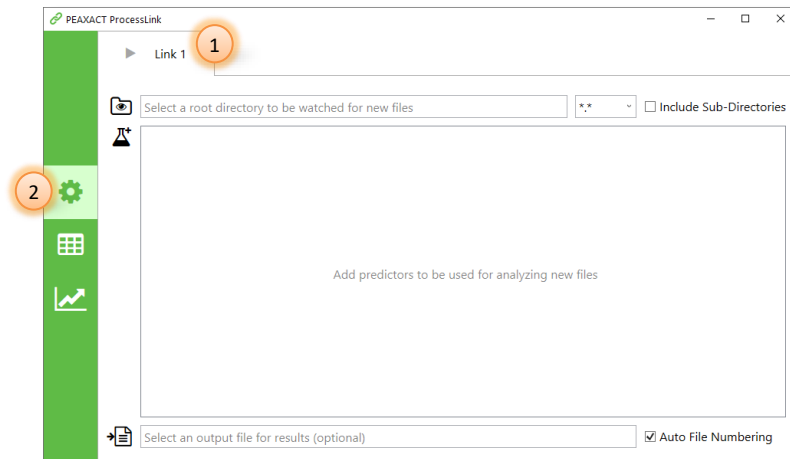
Host #	Description	Host ID	Added
1	<input type="text" value="N0100511 Office"/>	<input type="text" value="4A-E2-44-F5-23-2D"/>	<input type="button" value="Add"/>


- Enter a description (e.g. the computer name) and the **Host ID**, then click **Add**.
- Click **Download** and save the license file to a portable device.
- In the License Activation Window, select **Import License...** and load the license file.
- Close the dialog.

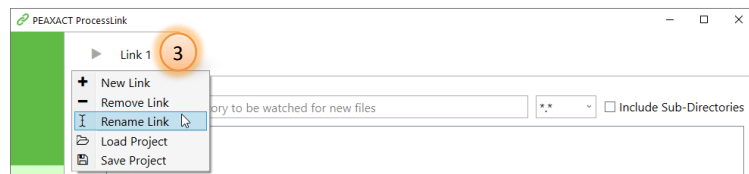
2 PEAXACT PROCESSLINK

To start the PEAXACT ProcessLink App, select **PEAXACT ProcessLink** from the Windows start menu. The application window by default contains a new Link, awaiting user [setup](#).

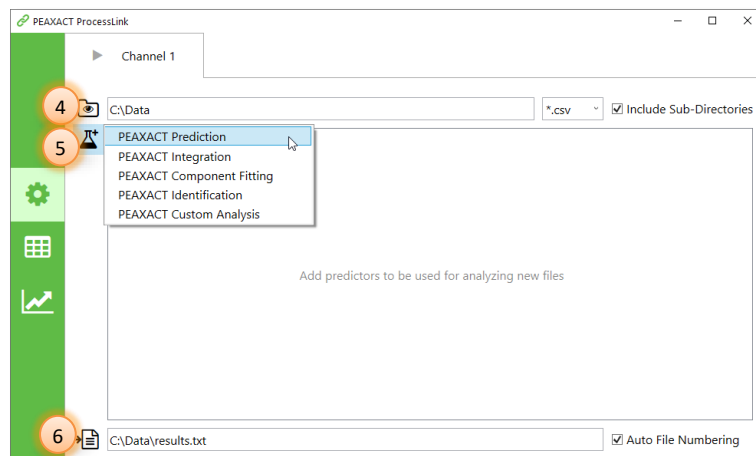
2.1 Setup






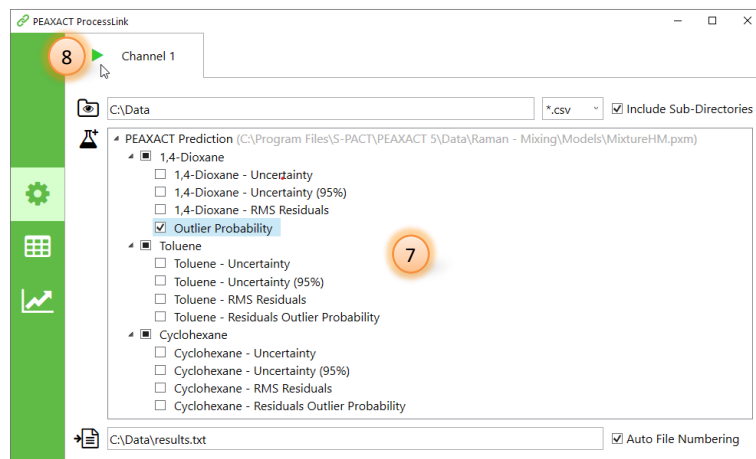
- (1) Select the Link you want to configure.
- (2) Click  to select the setup view.





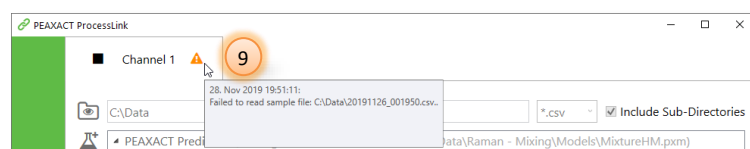
- (3) To rename the link, double-click the Link name or right-click the tab and select **Rename Link** from the context menu. The name will be used as a node name on the OPC UA server and as title for the real-time chart.



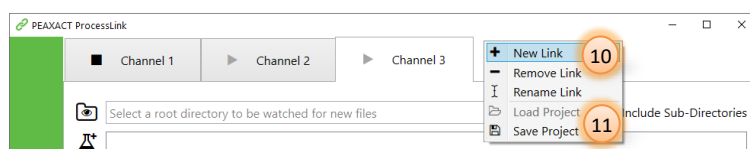
- (4) Select a directory which should be monitored for incoming files. Click  to browse for a folder or manually type in the path. Optionally, choose a pre-defined file filter or enter a custom file filter, and choose whether sub-directories should be monitored as well.
- (5) Add predictors to be used for analyzing new files. First click , then select a predictor from the list, and finally use the file browser to select one or more PEAXACT model files.
- (6) If results should be written to a file, click  to browse for a file or manually type in the filename. Optionally, choose whether duplicate files should be numbered automatically.



- (7) The list of available results provided by each predictor is displayed in the central tree view. Tick / untick the results you want to include / exclude. To remove a predictor from the list, select the top-level item and press the [Del] key. To rename any result, select it and press the [F2] key. Sub-results will be renamed automatically if they still have the default name, but they can be given individual names as well. The result names are used as headers in the result file, as display names in the real-time table and real-time chart, and as node names on the OPC UA server.
- (8) Click  to start the folder monitoring. This will also create the result file (if specified) and create nodes on the OPC UA server. Once started, you cannot change the configuration anymore until you click  to stop the folder monitoring.



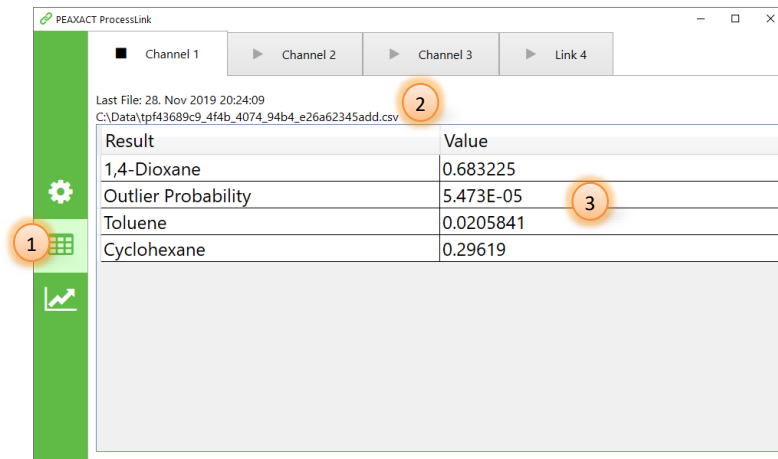
- (9) In case of errors, hover the mouse over the notification icon  to see details.



- (10) You can add, configure, and start up to 5 concurrent Links.

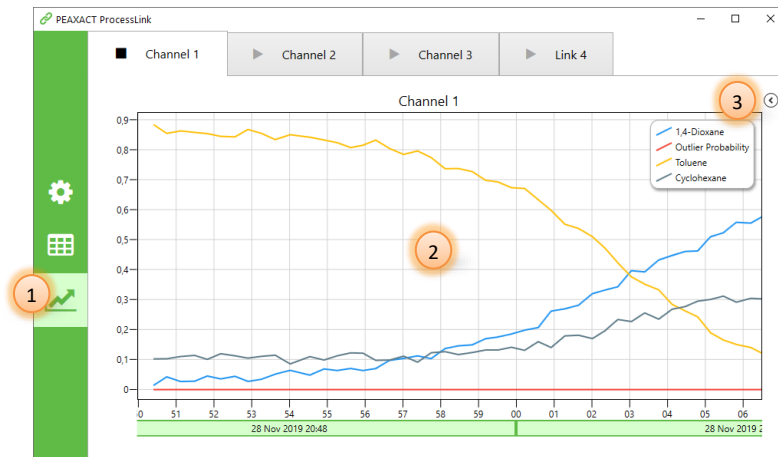
- (11) The whole setup of all Links can be saved to a project file. You can load a project file later to re-use a previously saved setup. Note that loading a project file will replace the current setup. Also, a project can only be loaded if no Links are started.

2.2 Real-time Table



- (1) Click to switch to the real-time table view.
- (2) The last file which was analyzed successfully is displayed at the top.
- (3) The last result values are displayed in the table.

2.3 Real-time Chart



- (1) Click to switch to the real-time chart view.
- (2) The last 1000 result values are plotted vs. time.
- (3) Click to expand the side menu.

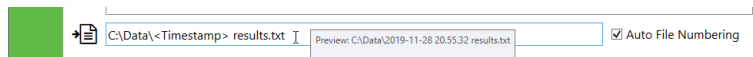
Note: The real-time chart does not display categorical results.



- (4) Tick / untick the line graphs you want to show / hide.
- (5) Right-click on the chart to open the context menu with additional options.

2.4 Result File

If a result filename is specified during setup, values will be appended to that file whenever new results are available. When specifying the filename, you can use various placeholders (e.g. <Timestamp>) which will be replaced with actual text when the Link gets started. Hover the mouse over the filename field to get a filename preview (if the Link is not started) or to get the actual used filename (after the Link is started).



The following placeholders are valid (case-sensitive):

<Timestamp>	Current date and time, shortcut for <Date> <Time>
<Date>	Current date, shortcut for <yyyy>-<MM>-<dd>
<Time>	Current time, shortcut for <HH>.<mm>.<ss>
<d>	The day of the month, from 1 through 31.
<dd>	The day of the month, from 01 through 31.
<ddd>	The abbreviated name of the day of the week.
<dddd>	The full name of the day of the week.
<h>	The hour, using a 12-hour clock from 1 to 12.
<hh>	The hour, using a 12-hour clock from 01 to 12.
<H>	The hour, using a 24-hour clock from 0 to 23.
<HH>	The hour, using a 24-hour clock from 00 to 23.
<m>	The minute, from 0 through 59.
<mm>	The minute, from 00 through 59.
<M>	The month, from 1 through 12.
<MM>	The month, from 01 through 12.

<MMM>	The abbreviated name of the month.
<MMMM>	The full name of the month.
<s>	The second, from 0 through 59.
<ss>	The second, from 00 through 59.
<t>	The first character of the AM/PM designator.
<tt>	The AM/PM designator.
<y>	The year, from 0 to 99.
<yy>	The year, from 00 to 99.
<yyy>	The year, with a minimum of three digits.
<yyyy>	The year as a four-digit number.

The file is a column-oriented comma separated values (CSV) format file, using semicolon as column separator. The first line contains column headers. Headers and categorical result values get enclosed in double quotes.

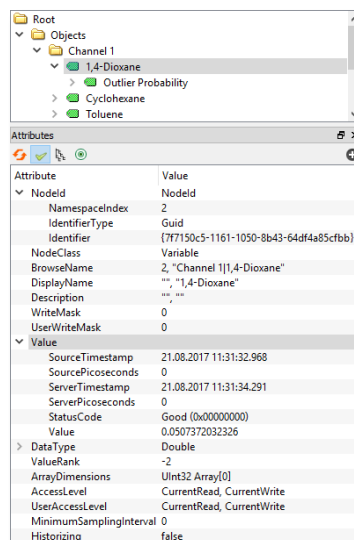
Caution: The output file grows with each analyzed sample and is not recommended to be used when the Link is active and running indefinitely.

2.5 OPC UA Server

PEAXACT ProcessLink contains a built-in OPC UA server which gets started automatically when the first Link gets started. The server then stays alive until the ProcessLink application shuts down.

The server configuration is as follows:

Server Name	PEAXACT ProcessLink
Endpoint URL	opc.tcp://localhost:36090
Supported Security Policies	None, Basic256Sha256
Supported Message Security Modes	None, Sign&Encrypt
Supported User Identity Token Types	Anonymous



The server contains a top-level node for each started Link. The top-level node is named after the Link and contains data nodes which represent the results. E.g., the figure demonstrates the OPC data structure and shows some attributes of the data nodes.

The `StatusCode` attribute of the nodes will be `BadWaitingForInitialData` before the first value is available, `BadOutOfService` after a Link gets stopped, and `Good` otherwise.

2.6 OPC Security Setup

For testing purposes and for applications which do not require special security considerations, the OPC UA server supports the security policy `None`. This allows for a quick and easy client-server-connection as no additional configuration is required.

When PEAXACT ProcessLink is used in a production environment, clients should connect to the server endpoint using the `Basic256Sha256` security policy and the `Sign&Encrypt` message security mode to assure two-way secure communication between both parties. Additional configuration steps are required to exchange certificates between server and client. The procedure is partly automated but also involves the manual copying of certificate files on the server computer:

- 1) Connect the client to the secure server endpoint. The server will send its certificate back to the client. Most clients provide some dialog to install and accept the certificate, in which case you should do so and continue with step 2. If the client does not provide such a dialog you have to manually copy and install the server certificate file to the client computer. Please refer to the client's user manual. You can find the server's certificate file in the following directory on the server computer:

```
%ProgramData%\S-PACT\PEAXACT ProcessLink\pki\own\certs
```

- 2) In step 1, the client should have also sent its certificate to the server. The server does not provide a dialog to automatically accept the client certificate. Instead, the server stores certificates of newly connecting clients at

```
%ProgramData%\S-PACT\PEAXACT ProcessLink\pki\rejected\certs
```

from where you must move the file to the following directory:

```
%ProgramData%\S-PACT\PEAXACT ProcessLink\pki\trusted\certs
```

Only if both parties have installed and trusted each other's certificate the client will be able to connect to the server. The server will then encrypt each message so that only the client is able to read it. The server will also digitally sign each message so that the client can check whether it was sent by the server and has not been tampered with. Attackers who happen to intercept a message will not be able to read or modify it.

2.7 Command Line Usage

PEAXACT ProcessLink can be started with additional parameters from the command line, from a script or batch file, or on Windows startup.

Syntax

Parameters in square brackets are optional. Angle brackets represent placeholders which must be replaced by specific values.

```
PeaxactProcessLink.exe [-project <file> [-activate]]
```

Parameters

<code>-project <file></code>	Optional. Loads a project file. <file>: The path to a ProcessLink project file.
<code>-activate</code>	Optional. Starts all Links that can be started. To be used in combination with <code>-project</code>

2.8 Additional Notes

- If an error occurs during the analysis of a new file, no changes are made to the result text file, to the OPC UA server, or to the real-time table and chart.
- A started Link will stop silently if the monitored directory gets deleted.
- A started Link will continue working if the monitored directory gets renamed.
- New files written to the monitored directory will be ignored if the analysis of the previous file has not finished yet.