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The content of this publication has been checked for compliance with the described hardware and software. Nevertheless, discrepancies cannot be ruled out, and we do not provide guarantee for complete conformity. However, the information furnished in this publication is updated regularly. Required corrections are contained in the following regulations or can be downloaded on the Internet.

The current version is available for download on our web site www.iba-ag.com.

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Revision - Chapter / Page</th>
<th>Author</th>
<th>Version SW</th>
</tr>
</thead>
<tbody>
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<td>7.0.0</td>
<td>10/2019</td>
<td>Revision according to ibaPDA-V7</td>
<td>RM</td>
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</tbody>
</table>

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Content

1 About this manual.............................................................................................................6
  1.1 Target group and previous knowledge ................................................................. 6
  1.2 Notations ..................................................................................................................6
  1.3 Used symbols ............................................................................................................7
  1.4 Documentation structure .........................................................................................8

2 Product information......................................................................................................9
  2.1 Introduction ..............................................................................................................9
  2.2 Safety aspect ...........................................................................................................10
  2.3 Licenses for base software .....................................................................................10
  2.4 Licenses for interfaces ..........................................................................................11
  2.5 Licenses add-ons .....................................................................................................14
  2.6 Licenses for special data storage ...........................................................................14
  2.7 Upgrade policy .......................................................................................................15
  2.8 Update policy .........................................................................................................15
  2.9 Demo mode ............................................................................................................17
  2.10 Demo licenses .......................................................................................................18

3 Installation and program start...................................................................................19
  3.1 System requirements .............................................................................................19
  3.2 Notes about switching from ibaPDA-V6 to ibaPDA-V7 .........................................21
  3.3 Installation ..............................................................................................................23
    3.3.1 Standard installation ........................................................................................23
    3.3.2 Installing by command line .............................................................................25
  3.3.3 Notes about the first installation of ibaPDA-V7 after ibaPDA-V6 .....................27
  3.4 Automatic update option for ibaPDA-Client .........................................................28
  3.5 Start program .........................................................................................................29
    3.5.1 Startup of the server ........................................................................................29
    3.5.2 Starting the client ............................................................................................29
    3.5.3 Starting the ibaPDA client via command line .................................................30
    3.5.4 Starting multiple clients on the same computer .............................................34
    3.5.5 Disconnect another client on client startup .................................................36
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>User interface</td>
<td>37</td>
</tr>
<tr>
<td>4.1</td>
<td>The screen</td>
<td>37</td>
</tr>
<tr>
<td>4.2</td>
<td>The menu bar</td>
<td>38</td>
</tr>
<tr>
<td>4.2.1</td>
<td>Customizing the menus</td>
<td>38</td>
</tr>
<tr>
<td>4.2.2</td>
<td>The File menu</td>
<td>39</td>
</tr>
<tr>
<td>4.2.3</td>
<td>The Configuration Menu</td>
<td>40</td>
</tr>
<tr>
<td>4.2.4</td>
<td>The view menu</td>
<td>43</td>
</tr>
<tr>
<td>4.2.5</td>
<td>The help menu</td>
<td>48</td>
</tr>
<tr>
<td>4.3</td>
<td>Toolbars</td>
<td>49</td>
</tr>
<tr>
<td>4.3.1</td>
<td>Customizing the toolbars</td>
<td>49</td>
</tr>
<tr>
<td>4.3.2</td>
<td>&quot;Configure&quot; toolbar</td>
<td>49</td>
</tr>
<tr>
<td>4.3.3</td>
<td>&quot;Layout&quot; toolbar</td>
<td>50</td>
</tr>
<tr>
<td>4.3.4</td>
<td>&quot;Data storage&quot; toolbar</td>
<td>51</td>
</tr>
<tr>
<td>4.4</td>
<td>Status bar</td>
<td>52</td>
</tr>
<tr>
<td>4.5</td>
<td>Operation via keyboard shortcuts</td>
<td>53</td>
</tr>
<tr>
<td>5</td>
<td>Configuring the system</td>
<td>55</td>
</tr>
<tr>
<td>5.1</td>
<td>ibaPDA project management</td>
<td>55</td>
</tr>
<tr>
<td>5.2</td>
<td>External configuration</td>
<td>59</td>
</tr>
<tr>
<td>5.2.1</td>
<td>Principle of Operation</td>
<td>59</td>
</tr>
<tr>
<td>5.2.2</td>
<td>Setting up the remote configuration</td>
<td>60</td>
</tr>
<tr>
<td>6</td>
<td>ibaPDA-server</td>
<td>63</td>
</tr>
<tr>
<td>6.1</td>
<td>Select an ibaPDA Server</td>
<td>64</td>
</tr>
<tr>
<td>6.2</td>
<td>Server status display</td>
<td>65</td>
</tr>
<tr>
<td>6.2.1</td>
<td>Server Status, General</td>
<td>65</td>
</tr>
<tr>
<td>6.2.2</td>
<td>Server status I/O Manager</td>
<td>67</td>
</tr>
<tr>
<td>6.2.3</td>
<td>Server status, Event log</td>
<td>69</td>
</tr>
<tr>
<td>6.2.4</td>
<td>Server status, Data storage</td>
<td>70</td>
</tr>
<tr>
<td>6.3</td>
<td>Server - more information</td>
<td>71</td>
</tr>
<tr>
<td>6.4</td>
<td>Server access control</td>
<td>73</td>
</tr>
<tr>
<td>7</td>
<td>User management</td>
<td>76</td>
</tr>
<tr>
<td>7.1</td>
<td>Server rights</td>
<td>79</td>
</tr>
<tr>
<td>7.2</td>
<td>Client Rights</td>
<td>80</td>
</tr>
<tr>
<td>Section</td>
<td>Page</td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>8 Print</td>
<td>82</td>
<td></td>
</tr>
<tr>
<td>8.1 Printer setup</td>
<td>82</td>
<td></td>
</tr>
<tr>
<td>8.2 Printing preferences and settings</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>9 Support and contact</td>
<td>85</td>
<td></td>
</tr>
</tbody>
</table>
1 About this manual

This documentation describes the function and application of the software ibaPDA.

1.1 Target group and previous knowledge

This manual is aimed at qualified professionals who are familiar with handling electrical and electronic modules as well as communication and measurement technology. A person is regarded as professional if he/she is capable of assessing safety and recognizing possible consequences and risks on the basis of his/her specialist training, knowledge and experience and knowledge of the standard regulations.

1.2 Notations

In this manual, the following notations are used:

<table>
<thead>
<tr>
<th>Action</th>
<th>Notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menu command</td>
<td>Menu Logic diagram</td>
</tr>
<tr>
<td>Calling the menu command</td>
<td>Step 1 – Step 2 – Step 3 – Step x</td>
</tr>
<tr>
<td></td>
<td>Example: Select the menu Logic diagram - Add - New function block.</td>
</tr>
<tr>
<td>Keys</td>
<td>&lt;Key name&gt;</td>
</tr>
<tr>
<td></td>
<td>Example: &lt;Alt&gt;; &lt;F1&gt;</td>
</tr>
<tr>
<td>Press the keys simultaneously</td>
<td>&lt;Key name&gt; + &lt;Key name&gt;</td>
</tr>
<tr>
<td></td>
<td>Example: &lt;Alt&gt; + &lt;Ctrl&gt;</td>
</tr>
<tr>
<td>Buttons</td>
<td>&lt;Key name&gt;</td>
</tr>
<tr>
<td></td>
<td>Example: &lt;OK&gt;; &lt;Cancel&gt;</td>
</tr>
<tr>
<td>File names, paths</td>
<td>&quot;Filename&quot;, &quot;Path&quot;</td>
</tr>
<tr>
<td></td>
<td>Example: &quot;Test.doc&quot;</td>
</tr>
</tbody>
</table>
1.3 Used symbols

If safety instructions or other notes are used in this manual, they mean:

---

**Danger!**

⚠️ **The non-observance of this safety information may result in an imminent risk of death or severe injury:**

- Observe the specified measures.

---

**Warning!**

⚠️ **The non-observance of this safety information may result in a potential risk of death or severe injury!**

- Observe the specified measures.

---

**Caution!**

⚠️ **The non-observance of this safety information may result in a potential risk of injury or material damage!**

- Observe the specified measures

---

**Note**

ℹ️ A note specifies special requirements or actions to be observed.

---

**Tip**

💡 Tip or example as a helpful note or insider tip to make the work a little bit easier.

---

**Other documentation**

📖 Reference to additional documentation or further reading.


1.4 Documentation structure

This documentation fully describes the functionality of the *ibaPDA* system. It is designed both as a tutorial as well as a reference document. The sections and chapters essentially follow the procedure for configuring the system.

In addition to this documentation, you can examine the version history in the main menu, Help – changes (file versions.htm) for the latest information about the installed version of the program. This file not only lists the bugs that have been eliminated, but also refers to extensions of the system in note form.

In addition, special "NewFeatures...." documentation comes with any software update that includes significant new features, which provides a more detailed description of the new features.

The state of the software to which the respective part of this documentation refers is listed in the revision table on page 2.

The *ibaPDA* system documentation (PDF and printed version) is divided into seven separate parts. Each part has its own section and page numbering beginning at 1, and is updated independently.

<table>
<thead>
<tr>
<th>Part 1</th>
<th>Introduction and installation</th>
<th>General notes, license policy and add-ons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Installation and program start</td>
</tr>
<tr>
<td></td>
<td></td>
<td>User interface, system architecture, client server</td>
</tr>
<tr>
<td></td>
<td></td>
<td>User management, printing</td>
</tr>
<tr>
<td>Part 2</td>
<td>I/O Manager</td>
<td>Basic information about the I/O Manager, general settings</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Groups and vector signals, technostring, outputs, configuration files</td>
</tr>
<tr>
<td>Part 3</td>
<td>Data interfaces and modules</td>
<td>Interfaces for the measurement data acquisition</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Standard interfaces, ibaFOB, Ethernet-based interfaces and more. For interfaces for which there are separate manuals, these are referred to.</td>
</tr>
<tr>
<td>Part 4</td>
<td>Expression builder</td>
<td>All functions for calculating virtual signals</td>
</tr>
<tr>
<td>Part 5</td>
<td>Data storage</td>
<td>Types of data recording, recording profiles, signal selection</td>
</tr>
<tr>
<td>Part 6</td>
<td>Data visualization</td>
<td>All display modes for live data, their operation and settings</td>
</tr>
<tr>
<td>Part 7</td>
<td>Appendix</td>
<td>Various additions, error listings, etc.</td>
</tr>
</tbody>
</table>
2  Product information

In this section you will find information about the overall system as well as security aspects, the license policy, add-ons and demo mode.

2.1  Introduction

The ibaPDA (Process Data Acquisition) system is a PC-based system for the acquisition, recording and analysis of measured signals.

It consists of coordinated hardware and software components for the acquisition, recording, evaluation and processing of measurement data.

Thanks to the modular design and easy configuration, the system can be comfortably adapted to the most diverse tasks and is scalable in size at any time. As a result, a wide range of applications can be covered: from small systems for mobile commissioning with 64 measuring signals to large, stationary systems with several thousand signals. If a system is not sufficient on its own, multiple ibaPDA computers can be synchronized in the multistation mode. Similar to a flight data recorder, the ibaPDA system records a wide range of measurement data and stores it for long-term availability. The records are made continuously (24/7) or only with the occurrence of defined events.

An essential feature of the ibaPDA system is the strong connectivity to automation systems and fieldbus technologies. An iba data acquisition system can be connected to almost any common automation system via vendor-specific special assemblies, field bus connections or Ethernet protocols, regardless of manufacturer or device generation.

There is also a wide range of high-quality analog/digital converters for discrete and time-critical signals available, which offer acquisition rates of up to 100 kHz and are connected to the ibaPDA computer via the proprietary ibaNet bus system.

The analysis of the data recorded by ibaPDA is carried out with the license-free software, ibaAnalyzer.

The benefits of the system can be considerably extended with special add-ons, such as ibaCapture for signal-synchronous video recording or ibaQPanel for HMI-like visualization of measured values.

With ibaPDA, metrological solutions can be implemented regardless of sector or technology and for a wide range of applications:

- Troubleshooting
- Process data analysis
- Quality documentation
- Condition monitoring
- fault recorder (TFR) and energy quality
- test bench automation
- retrofit
2.2 Safety aspect

ibaPDA is a software package that is not designed for process or plant control. Special warnings regarding risks for people and machines are therefore not required.

The signal output option of ibaPDA is only used for information purposes in the sense of signaling and alarms or the transmission of recorded signals without security-related effects. If output signals from ibaPDA are to be incorporated into a security plan then this must be done with appropriate systems in process or plant automation.

Safety and hazard warnings for using the hardware components can be found in the corresponding documentation.

2.3 Licenses for base software

<table>
<thead>
<tr>
<th>Order no.</th>
<th>Product name</th>
<th>Description</th>
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<tbody>
<tr>
<td>30.770064</td>
<td>ibaPDA-V7-64</td>
<td>64 signals, 2 clients, 2 data storages, standard interfaces</td>
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<tr>
<td>30.770128</td>
<td>ibaPDA-V7-128</td>
<td>128 signals, 2 clients, 2 data storages, standard interfaces</td>
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<td>256 signals, 2 clients, 2 data storages, standard interfaces</td>
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<td>30.770512</td>
<td>ibaPDA-V7-512</td>
<td>512 signals, 2 clients, 2 data storages, standard interfaces</td>
</tr>
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<td>ibaPDA-V7-8192</td>
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<td>&gt;8912 signals, 2 clients, 2 data storages, standard interfaces</td>
</tr>
<tr>
<td>30.770022</td>
<td>ibaPDA-V7-Data-Store</td>
<td>2 more data storages</td>
</tr>
<tr>
<td>30.770023</td>
<td>ibaPDA-V7-Ultra-Data-Store</td>
<td>255 data storages with 20 signals each</td>
</tr>
<tr>
<td>30.770024</td>
<td>ibaPDA-V7 client</td>
<td>1 additional client</td>
</tr>
<tr>
<td>30.770025</td>
<td>ibaPDA-V7-Multi Client</td>
<td>5 additional clients</td>
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<td>Increase number of signals</td>
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<td>30.770002</td>
<td>Upgrade PDA-V7-128 to PDA-V7-256</td>
<td>Increase number of signals</td>
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<td>30.770003</td>
<td>Upgrade PDA-V7-256 to PDA-V7-512</td>
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<tr>
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<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------------</td>
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</tr>
<tr>
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<td>Upgrade PDA-V7-4096 to PDA-V7-8192</td>
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<td>Upgrade PDA-V7-8192 to PDA-V7-unlimited</td>
<td>Increase number of signals</td>
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<td>Upgrade PLC-Xplorer to PDA-V7-64</td>
<td>Upgrade to a full-fledged ibaPDA license</td>
</tr>
<tr>
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<td>Upgrade-OS-Windows8/Windows 2012 Server</td>
<td>Upgrading an existing computer with an older OS to the Windows 8 or Windows 2012 server</td>
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<tr>
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<td>Upgrade-OS-Windows 10</td>
<td>Upgrading an existing computer with an older OS to Windows 10 (X86/X64); licensing contained for Windows 7, 8, 8.1, 10 and server.</td>
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<tr>
<td>30.001930</td>
<td>ibaPDA-Multistation-License</td>
<td>License for the synchronous operation of multiple ibaPDA computers</td>
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</tbody>
</table>

### 2.4 Licenses for interfaces

<table>
<thead>
<tr>
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<th>Product name</th>
<th>Description</th>
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<tbody>
<tr>
<td>31.000001</td>
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<td>Single license for 16 connections, expandable by up to 15 licenses for max. 240 connections</td>
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<tr>
<td>31.000002</td>
<td>ibaPDA-Interface-Codesys-Xplorer</td>
<td>Single license for 16 connections, expandable by up to 15 licenses for max. 240 connections</td>
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<td>31.000005</td>
<td>ibaPDA-Interface-TwinCAT-Xplorer</td>
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<td>ibaPDA-Interface-Logix-Xplorer</td>
<td>Single license for 16 connections, expandable by up to 15 licenses for max. 240 connections</td>
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<tr>
<td>Order no.</td>
<td>Product name</td>
<td>Description</td>
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<td>31.000030</td>
<td>ibaPDA-Interface-SINAMICS-Xplorer</td>
<td>Access to SINAMICS Control Units Single license for 32 connections, extendable by up to 15 licenses for max. 512 connections</td>
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<td>31.000031</td>
<td>ibaPDA-Interface-SIMOTION-Xplorer</td>
<td>Access to SIMOTION motion controllers Single license for 32 connections, extendable by up to 15 licenses for max. 512 connections</td>
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<td>Single license for 64 connections, expandable by up to 3 licenses for max. 256 connections</td>
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<td>Use of a DGM200P card from GE</td>
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<td>31.001011</td>
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<td>Single license for 2 connections, expandable by up to 7 licenses for max. 16 connections</td>
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<td>ibaPDA-Interface-Raytek</td>
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<td>ibaPDA-Interface-Micro-Epsilon</td>
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</tr>
<tr>
<td>31.001022</td>
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<td>Single license for 64 connections, expandable by up to 3 licenses for max. 256 connections</td>
</tr>
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</tr>
<tr>
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<td>ibaPDA-Interface-AN-X-DCSNet</td>
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<td>ibaPDA-Interface-RAW-Ethernet</td>
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<td>ibaPDA-Interface-S7-TCP/UDP</td>
<td>Single license for 64 connections, expandable by up to 3 licenses for max. 256 connections</td>
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<tr>
<td>31.001042</td>
<td>ibaPDA-Interface-PLC-Xplorer</td>
<td>License package for all currently available PLC-Xplorer-interfaces</td>
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<tr>
<td>Order no.</td>
<td>Product name</td>
<td>Description</td>
</tr>
<tr>
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<td>License package for all currently available Drives-Xplorer-interfaces</td>
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<td>31.001045</td>
<td>ibaPDA-Interface-SCRAM-Net</td>
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<td>ibaPDA-Interface-Toshiba-ADMAP JAMI1</td>
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<td>31.001047</td>
<td>ibaPDA-Interface-TC-net</td>
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<td>31.001050</td>
<td>ibaPDA-Interface-SIMOLINK</td>
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<td>ibaPDA-Interface-Sisteam-TCPIP</td>
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<tr>
<td>31.001056</td>
<td>ibaPDA-Interface-SIMATIC-TDC-TCP/UDP</td>
<td>Single license for 64 connections, expandable by up to 3 licenses for max. 256 connections</td>
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<td>ibaPDA-Interface-VIP-TCP/UDP</td>
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<td>ibaPDA-Interface-Generic-UDP</td>
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<td>ibaPDA-Interface-GCOM</td>
<td>Connection to the ABB Stressometer rolls</td>
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<tr>
<td>31.001090</td>
<td>ibaPDA-Interface-IEC61850-Client</td>
<td>Single license for 64 connections, expandable by up to 3 licenses for max. 256 connections</td>
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<td>ibaPDA-Interface-MQTT</td>
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<td>31.001220</td>
<td>ibaPDA-Interface-Reflective-Memory</td>
<td>Reflective Memory connection from GE Fanuc (formerly VMIC)</td>
</tr>
<tr>
<td>31.001300</td>
<td>ibaPDA-Request-HPCI</td>
<td>HPCI system from GE Energy Power Conversion (formerly Converteam)</td>
</tr>
<tr>
<td>31.001302</td>
<td>ibaPDA-Request-HiPAC</td>
<td>HiPAC system from Danieli</td>
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<tr>
<td>31.001303</td>
<td>ibaPDA-Request-TwinCAT</td>
<td>Beckhoff controllers</td>
</tr>
<tr>
<td>31.001310</td>
<td>ibaPDA-Request-S7-DP/PN</td>
<td>SIMATIC S7 from Siemens via Profibus/Profinet</td>
</tr>
<tr>
<td>Order no.</td>
<td>Product name</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>31.001311</td>
<td>ibaPDA-Request-S7-UDP</td>
<td>SIMATIC S7 from Siemens via Ethernet Single license for 2 Request modules, expandable by up to 127 licenses for max. 256 Request modules</td>
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<td>31.001320</td>
<td>ibaPDA-Request-SD</td>
<td>Simadyn D from Siemens</td>
</tr>
<tr>
<td>31.001330</td>
<td>ibaPDA-Request-TDC</td>
<td>SIMATIC TDC from Siemens</td>
</tr>
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<td>31.001340</td>
<td>ibaPDA-Request-X-Pact</td>
<td>X-Pact from SMS Siemag</td>
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<td>31.001360</td>
<td>ibaPDA-Request-FM458/TDC</td>
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<tr>
<td>31.001380</td>
<td>ibaPDA-Request-DTBox-128</td>
<td>DT-Box request interface for 128 signals</td>
</tr>
<tr>
<td>31.001381</td>
<td>ibaPDA-Request-DTBox-1024</td>
<td>DT-Box request interface for 1024 signals</td>
</tr>
<tr>
<td>31.001382</td>
<td>ibaPDA-Request-DTBox-unlimited</td>
<td>DT-Box Request interface for more than 1024 signals</td>
</tr>
</tbody>
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### 2.5 Licenses add-ons

<table>
<thead>
<tr>
<th>Order no.</th>
<th>Product name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>32.500015</td>
<td>ibaQPanel-V7-Add-on</td>
<td>Basic package for QPanel functions</td>
</tr>
<tr>
<td>30.670038</td>
<td>ibaCapture-HMI</td>
<td>Basic package for synchronous screen recordings, including 2 clients</td>
</tr>
<tr>
<td>30.670039</td>
<td>ibaCapture-HMI-Add-On Single client</td>
<td>one additional ibaCapture-HMI client (requires ibaPDA client)</td>
</tr>
<tr>
<td>30.800064</td>
<td>ibaHD-Server-V2-T-64</td>
<td>Historical data recording for 64 signals</td>
</tr>
<tr>
<td>30.800256</td>
<td>ibaHD-Server-V2-T-256</td>
<td>Historical data recording for 256 signals</td>
</tr>
<tr>
<td>30.801024</td>
<td>ibaHD-Server-V2-T-1024</td>
<td>Historical data recording for 1024 signals</td>
</tr>
<tr>
<td>30.802048</td>
<td>ibaHD-Server-V2-T-2048</td>
<td>Historical data recording for 2048 signals</td>
</tr>
<tr>
<td>30.806666</td>
<td>ibaHD-Server-V2-T-unlimited</td>
<td>Historical data recording for more than 2048 signals</td>
</tr>
<tr>
<td>30.700010</td>
<td>ibaHD-Server Single Client</td>
<td>one additional ibaHD client (requires ibaPDA client)</td>
</tr>
<tr>
<td>30.700015</td>
<td>ibaHD-Server Multi Client</td>
<td>5 additional ibaHD clients (requires 5 ibaPDA clients)</td>
</tr>
<tr>
<td>30.700020</td>
<td>ibaHD-Server Data Store</td>
<td>2 additional ibaHD data recordings</td>
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### 2.6 Licenses for special data storage

<table>
<thead>
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<th>Order no.</th>
<th>Product name</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
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<td>ibaPDA-Data-Store-SAP-HANA-64</td>
<td>Data storage in an SAP HANA DB for 64 signals</td>
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<tr>
<td>30.670142</td>
<td>ibaPDA-Data-Store-SAP-HANA-256</td>
<td>Data storage in an SAP HANA DB for 256 signals</td>
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<tr>
<td>Order no.</td>
<td>Product name</td>
<td>Description</td>
</tr>
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<td>-----------</td>
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<td>ibaPDA-Data-Store-SAP-HANA-1024</td>
<td>Data storage in an SAP HANA DB for 1024 signals</td>
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<tr>
<td>30.670160</td>
<td>ibaPDA-Data-Store-Kafka-16</td>
<td>Data storage in an Apache Kafka cluster for 16 signals</td>
</tr>
<tr>
<td>30.670161</td>
<td>ibaPDA-Data-Store-Kafka-64</td>
<td>Data storage in an Apache Kafka cluster for 64 signals</td>
</tr>
<tr>
<td>30.670162</td>
<td>ibaPDA-Data-Store-Kafka-256</td>
<td>Data storage in an Apache Kafka cluster for 256 signals</td>
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<td>ibaPDA-Data-Store-Kafka-1024</td>
<td>Data storage in an Apache Kafka cluster for 1024 signals</td>
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<tr>
<td>30.670180</td>
<td>ibaPDA-Data-Store-MindSphere-16</td>
<td>Data storage in a Siemens MindSphere Cloud for 16 signals</td>
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<tr>
<td>30.670181</td>
<td>ibaPDA-Data-Store-MindSphere-64</td>
<td>Data storage in a Siemens MindSphere Cloud for 64 signals</td>
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<tr>
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<td>ibaPDA-Data-Store-MindSphere-256</td>
<td>Data storage in a Siemens MindSphere Cloud for 256 signals</td>
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<td>30.670183</td>
<td>ibaPDA-Data-Store-MindSphere-1024</td>
<td>Data storage in a Siemens MindSphere Cloud for 1024 signals</td>
</tr>
</tbody>
</table>

### 2.7 Upgrade policy

Upgrades can be purchased to increase the number of signals, clients, data storages or interfaces according to the table shown above.

Starting with an *ibaPDA-PLC-Xplorer* license, the purchase of an upgrade to a full *ibaPDA* license with at least 64 signals is required if you want to use Add-ons or other interfaces such as *iba-FOB-cards* etc.

### 2.8 Update policy

Our software maintenance and support conditions apply to the software *ibaPDA-V7*:

In the first two years after purchasing the software, you can use the software maintenance and support services free of charge. After that, a maintenance contract with an annual fee is required.

Deadlines for invoicing the annual fee may be:

- the order date of an individual license or
- the invoice date of an existing maintenance contract which may include the licenses identified at the time of purchase.

After the annual fee payment has been received and after updating the affected license dongles, you can continue to use the services. The maintenance contract extends by 12 months if it is not terminated with a notice period of 3 months to the end of the contract term. The products assigned to the maintenance contract and the annual fee due for this starting from the third year can be found in a corresponding offer.
You can find how long the update period is for this license wherever the license information for your dongle is displayed:

- ibaPDA I/O-Manager: General node - Settings tab
- ibaPDA service status
- ibaDongle viewer

If the “Required EUP date” is before the “EUP date,” then you still have update protection and can use the support.

The “EUP date” specifies the date until which the current activation or maintenance contract is valid.

If the “Required EUP date” is after the “EUP date,” then the time has expired and it is no longer possible to install an update.

If you install a software update despite the expired “EUP date,” you can use the software for a limited “EUP trial period,” e.g., in order to initiate an extension of the maintenance contract. Once the trial period has expired, the software stops working if no licensed update has occurred.

Fig. 1: Checking the update period or the validity of the maintenance contract
2.9 Demo mode

ibaPDA supports a demo mode.

If no dongle is inserted, ibaPDA automatically switches to demo mode.

Only 2 types of interfaces are allowed in demo mode:

- Playback, for more information see Part 2, Playback
- Virtual, or more information see Part 2, Virtual

Up to 1024 signals and up to 2 data storages are allowed.

The switch to demo mode is displayed when validating the configuration.

![Message for demo mode during configuration test](image)

This mode is suitable, in principle, to gain an impression of the system or to become familiar with the basic functions.
2.10 Demo licenses

For testing license-dependent functions or interfaces that are not activated on the dongle on an existing system, an option is available to provide individual functions for demonstration purposes with a limited useful life.

Users can therefore equip their existing system with new features and test them. Once the test time has elapsed, the function in question is disabled but the rest of the system continues to operate according to the original useful life.

Up to 8 demo licenses can be activated at the same time.

The functions that are enabled with a demo license are colored and identified with the addition of "(DEMO)" in the license options in the I/O Manager, General branch, Settings tab. The remaining time for (all) demo licenses is displayed in the license time limit field.

![Fig. 3: Information about demo licenses](image1)

The same information is displayed as in the server status program.

When you open the module of a demo license in the I/O Manager, the demo status is also indicated here with a yellow header bar and the word, "DEMO".

![Fig. 4: Note on the demo status for a module](image2)
3 Installation and program start

3.1 System requirements

Software

- Operating system Windows 2008 Server (32 bit), Windows 7 (32 bit/64 bit), Windows 2008 Server R2 (64 bit), Windows 8 (32 bit/64 bit), Windows 2012 Server (64 bit), Windows 8.1 (32 bit/64 bit), Windows 2012 Server R2 (64 bit), Windows 10 (32 bit/64 bit) or Windows 2016 Server (x64)
- .NET-Framework 4.6 or higher (Windows 10 and 2016 server: .NET-Framework 4.6, integrated in operating system)

Note

If you want to install ibaPDA-V7 for the first time or switch from ibaPDA-V6 to V7, please follow the instructions in the chapters

⇒ Notes about switching from ibaPDA-V6 to ibaPDA-V7, page 21
⇒ Notes about the first installation of ibaPDA-V7 after ibaPDA-V6, page 27

Further pre-requisites and compatibility conditions can be found in the file versions_pda.htm which is part of the delivered DVD "iba Software & Manuals" or of the download zip file.

Open this file in your Internet browser and click on the header Version compatibility. Besides information about the current program version you'll find a history too.

Some older PC-cards made by iba as well as by other manufacturers are not supported by the x64 version anymore. You will find a listing of those cards in this file as well.
Tip

You can also get this overview in the *ibaPDA* program under menu *Help - Changes*.

**Hardware**

- PC, Multicore CPU 2 GHz, 4 GB RAM, 100 GB HDD (program needs approx. 250 MB)

**Virtual machines**

The use of *iba* software in virtualized Windows systems is basically possible if no special PCI or PCIe cards are needed and slight response delays can be tolerated. Thus, the operation of *ibaPDA* using Ethernet-based interfaces (TCP/IP, UDP, etc.) in a virtual environment is possible.

It is not permitted to operate *iba* cards (*ibaFOB-D*, -Dexp, -SD, -TDC, etc.) in virtualized environments.
The provision of the licenses stored on an USB-dongle can be granted by use of a so called dongle server which can be purchased from iba AG. If necessary, speak with your respective iba representative or iba Support.

The selection and adaption of the virtualization layer (e.g. VMWare, Microsoft HyperV, Citrix, XEN, Oracle etc.) and/or the use of hardware interfaces via I/O pass through are not in the responsibility of iba AG.

**Note**

Further specific system pre-requisites, e.g. for special interfaces such as PLC-Xplorer, can be found in the respective chapters.

### 3.2 Notes about switching from ibaPDA-V6 to ibaPDA-V7

**Licenses**

*ibaPDA-V7* cannot be operated with a dongle, which is licensed for *ibaPDA-V6*. Separate licenses are required on the dongle for *ibaPDA-V7*. Please contact your regional iba representative to learn about the options and conditions for making the switch.

Keep also always your dongle number (license number) and a current support file of the system ready that you want to convert from V6 to V7. You create the support file in the ibaPDA client in the menu Help - Save information for iba Support...

https://www.iba-ag.com/de/kontakt/ You will find your regional iba representative on our website (https://www.iba-ag.com/de/kontakt/). If you make the switch from V6 to V7, your old V6 licenses will be preserved on the dongle so that you can always downgrade to V6.

**Effects on existing V6 projects when opening with V7**

Due to the introduction of text signals in V7 as a replacement for the technostrings in V6, an automatic conversion of the project files is executed.

You will find information about this in part 2, chapter Text signals and word processing.

Before starting the V7 installation, you must create a backup of the V6 project via the menu File – Save project... In the ibaPDA client.

In the process, also enable the options Save current layout in the project and Save user layouts in the project. In the event that you want to go back to V6 after the update, you will need this saved project. Allowing a V7 project to run under V6 will generate an error.

Unlike earlier technostrings, text signals are taken into consideration when counting signals. The automatic conversion of the V6 technostrings into text signals thus leads to an increase in the number of signals used. So if you are already operating your V6 system at the numerical limit of your license, please carefully check the number of technostrings used (technostring areas) and, if necessary, expand the number of signals for V7.
Installation and program start

**Dependencies on other iba programs**

Some of the changes introduced with the version V7 affect other iba programs and should be noted. The most important change is that *ibaPDA-V7* uses a new file format for dat files. If you are using or processing dat files with other programs from the portfolio of iba products, then note that all iba products involved must support the new data file format. If you are using *ibaPDA v7.0.0*, then the following versions are required:

- **ibaAnalyzer v7.0.1 or higher**
  
is needed to be able to read the new data file format. The export and extraction feature of ibaAnalyzer v7.0.1 or higher also creates dat files in the new format.

- **ibaDatCoordinator v2.2.0 or higher**
  
is required to automatically process dat files in the new format. The splitter task in ibaDatCoordinator v2.2.0 and higher only creates dat files in the new format.

- **ibaHD-Server v2.3.0 or higher**
  
is required if the import feature is to be used for dat files in the new format. In addition, ibaHD server v 2.3.0 or higher is required to display HD live data in the ibaPDA client.

- **ibaFiles-V7-Lite and ibaFiles-V7-Pro v1.0.0 or higher**
  
You need ibaFiles-V7-Lite or -Pro to be able to read dat files in the new format in external applications. You need ibFiles-V7-Pro to create dat files in the new format. Both are new products that require a new license. Please contact your local iba representative or iba AG (support@iba-ag.com) for more information.

- **ibaDaVIS v2.2.1 or higher**
  
is required for the drill-down to dat files in the new format.

- **ibaCapture v4.4.0 or higher**
  
The component ibaCapture-Player v4.4.0 or higher must be installed on computers running ibaPDA client if camera views are used in the layout. This component is also required to use image triggers.

- **ibaLogic v5.5.0 or higher**
  
is required to use the playback function for dat files in the new format.
3.3 Installation

3.3.1 Standard installation

If an older version of *ibaPDA* is already installed, you can simply install the new one. The older version of the program is automatically removed after a prompt and confirmation. The settings and configurations chosen with the older version are preserved.

If you have a zip-file of the new *ibaPDA* version (e.g., after a download), unzip it into a (temporary) folder of your choice.

You will find the file in the "..\1_Software\ibaPDA" directory of the "iba Software & Manuals" DVD.

1. Execute the *ibaPdaSetup_v7xy.exe* file, e.g., by double-clicking on the filename in Windows Explorer. Follow the instructions of the installation wizard.

2. Select the language for the installation process.

3. Choose the components to be installed:

   - **ibaPDA Client**
     The client component must always be installed unless there is another computer in the network on which a client is installed and which has access to the local computer. Without a client, the server cannot be configured and signals cannot be viewed online. A client should always also be installed locally on the server PC in order to be independent from the network.

   - **ibaPDA Server**
     The server component must be installed if the measurement data is physically acquired and processed with the relevant computer locally.

   - **ibaFOB-D network card**
     This option is enabled for the server installation by default. The *ibaFOB-D* network drivers are required if the 32Mbit Flex protocol is to be used to connect to iba peripheral devices. Communication to the devices is carried out with an Ethernet protocol via the ibaNet fiber-optic connection. If you do not use *ibaFOB-D* cards or the 32 Mbit-Flex protocol, you can disable the installation of this driver. The drivers can be installed at any time.

   - **Driver for iba-external hardware**
     This option is enabled for the server installation by default. *ibaPDA* provides the driver for a number of external PC cards, such as reflective memory or DGM200P. If you are not using external cards then you can disable the installation of this driver. The drivers can be installed at any time.

   - **ibaPDA Active-X control**
     You only need to select this component if, on the computer, *ibaPDA* is to be embedded as an ActiveX control in another application, such as in an HMI application. For more information about the configuration of *ibaPDA* as an ActiveX control, see Part 7, chapter *Setting up ibaPDA as Active-X control*. 
• ibaPDA-S7-Xplorer proxy
  You only need to select this component if you want to access a SIMATIC CPU with the S7-Xplorer interface by PC/CP without STEP 7 or SIMATIC Net being installed on the ibaPDA computer. For more information about this, see Part 7, chapter ibaPDA-S7-Xplorer Proxy as PC/CP interface proxy.

• ibaDongleViewer
  This is not a component of ibaPDA, but rather a separate tool you can use to easily query the data of the license dongle. It is offered for installation for all iba programs, is optional and only needs to be installed on a computer once.

4. Select the installation folder
   • Destination folder
     The destination folder can be changed for the program files again here if necessary.

5. Select the user account (optional)
   Use the user account to determine the user rights for the service process. To function properly, ibaPDA requires administrator rights, regardless of which user you choose. The default account is the local system account.

   • Local system account (default)
     The local system account has administrator rights for the local computer. This is sufficient if the server only requires local access.

   • This user account
     You need to select this option if the server has to access other computers in the network. This is the case, for example, if the data files are to be stored on a file server in the network and not on the local computer. The user account that you enter here must have administrator rights on all participating computers.

6. Click <Install>. The installation process starts and the drivers are installed.

7. Then click <Finish> in order to end the installation.
3.3.2 Installing by command line

The installation of *ibaPDA* can also be started via a command line. This is help for the central software administration or when using deployment systems.

The installation process can also occur in so-called ‘silent mode’ so that the interaction with the user (clicking the <Next> button in the installation wizard) is omitted.

You can control how the installation is to go and which components are to be installed with the command line switches, which are set after calling up the installation program.

Notation:

```
ibaPdaSetup_v7.x.y.exe [/S] [/client | /activex | /server] [/s7proxy]
```

3.3.2.1 "/S" command line switch

This switch installs *ibaPDA* in "silent mode," i.e., interaction is not required during installation.

The installer runs without specifying additional parameters, as if <Next> were always pressed in the dialog. In the case of a fresh installation, the program components are installed from the default settings (client + ActiveX + server including FOB-D drivers and third-party drivers + DongleViewer). The proxy is not installed. In the case of an installation update, the selected program components remain the same as the previous installation.

3.3.2.2 "/client" command line switch

With this switch, you only install the *ibaPDA Client* application.

3.3.2.3 "/activex" command line switch

This switch installs the *ibaPDA-Client* application and ActiveX-Control, e.g., to use on an HMI station.

3.3.2.4 "/server" command line switch

With this switch, you can install the applications, *ibaPDA Server*, *ibaPDA-Client* and ActiveX control.

---

**Note**

One of the following options must be selected: /client, /activex, /server. The settings for client + ActiveX + server (whether default settings for a reinstallation or an installation update) are overwritten. For the server, the sub-options of FOB-D drivers and third-party drivers cannot be selected via the options. They will be selected automatically when the server is installed.
3.3.2.5 
"/s7proxy" command line switch

This switch installs the S7-Xplorer proxy.

It does not affect the selection of other program components. If this option is not selected then the proxy is nevertheless installed during an installation update and with a previously installed proxy.

The switches can also be combined.

Example: ... > ibaPDASsetup_v7.x.y.exe /S /activex
3.3.3 Notes about the first installation of ibaPDA-V7 after ibaPDA-V6

The use of *ibaPDA-V7* must explicitly be licensed in the license dongle. It is not possible to install *ibaPDA-V7* “over” an existing *ibaPDA-V6* version.

The dongle is requested during installation. The installation is aborted if no *ibaPDA-V7* license is available.

Fig. 6: Installation with a connected dongle without *ibaPDA-V7* license

![EUP Information]

---

**License number:** V119740
**Required EUP date:** 29.04.2019
**EUP date:** Not set
**EUP trial period:** Expired

---

Fig. 7: Message to abort the installation due to missing *ibaPDA-V7* license

If no dongle is connected, then the installation is executed, but subsequent operation is not possible without a suitable dongle.

According to the software maintenance and support conditions, *ibaPDA-V7* must also be part of a maintenance contract. The validity of this contract (“EUP date” on the dongle) is checked during the installation.
3.4 Automatic update option for ibaPDA-Client

If an *ibaPDA client* tries to connect to an *ibaPDA server* of a higher version, a message will appear and notify the client. The user can then decide whether the local client software should be updated to the same version or not. If the user clicks <Yes>, the *ibaPDA* server will install the updated client software on the client computer over the network.
3.5 Start program

After *ibaPDA* had been installed as described in chapter *Installation*, the application can be started in different ways.

3.5.1 Startup of the server

The *ibaPDA* server is a service under Windows. It is configured by installation to start automatically when installation is finished and with each system start (boot).

After installation (incl. server) you will find the *ibaPDA* server service icon in the Windows task bar.

A red square in the icon indicates that the server (service) is running, but the measurement, i.e. the data acquisition, is stopped.

A green arrow in the icon indicates if server and measurement are running.

If the server process is stopped, you will see a red cross in the icon.

You can operate the basic server functions conveniently with the ServerStatus tool, which was automatically installed with the server.

You can start the *ibaPDA* Server Status program by...

- double-click on the *ibaPDA* Server icon in the info tray of the task bar
- using the context menu of the *ibaPDA* Server icon (right mouse click - Status)
- using the Windows Start menu All programs - *iba* - *ibaPDA* - Server Status

3.5.2 Starting the client

After the installation, you will find the *ibaPDA* client icon on your Windows desktop.

The client process is started by a double-click on the icon.

Alternatively, you may start the client via the Windows program menu (Start button):

*Start – All Programs- *iba* - *ibaPDA* – *ibaPDA* client*
3.5.3 Starting the ibaPDA client via command line

3.5.3.1 General

The ibaPDA client can be started in the command line. This makes it possible to use batch files or scripts to start ibaPDA client(s). The syntax for such a command line is:

\texttt{ibaPDA.exe /switch}

The “/switch” optional switch serves as a placeholder for different parameters, which can be used to start the ibaPDA client.

Full syntax description:

\texttt{ibaPDA.exe [/config:"ConfigurationFile"] [/reuse] [/displaystyle:-style] [/lang:id]}

If you enter the \texttt{ibaPDA /?} command in the command line, you receive complete assistance:
**3.5.3.2  */config" command line switch**

The *ibaPDA* client can be started with the */config" command line switch.

An individual configuration file can be loaded using this function. It is therefore possible to operate several clients on one computer. The individual clients can be connected to different servers, each of them with a different layout. The /config switch requires a configuration file. The configuration file contains the server that the client connects to and the initial position and size of the client window. The directory containing the configuration file is also used as the base directory for the client files, e.g., the layout file, log files, address books, etc.

**Example**

ibaPDA.exe /config:"c:\ibaPda\Configuration1\Configuration1.cfg"

The *ibaPDA* client will use the specified configuration file. The configuration file is an XML file with the following format.

**XML configuration file**

```xml
<?xml version="1.0"?>
<ClientConfiguration>
  <Servers>
    <Server>
      <Address>localhost</Address>
      <PortNr>9170</PortNr>
    </Server>
  </Servers>
  <AutoReconnect>false</AutoReconnect>
  <Monitor>0</Monitor>
  <FormPlacement>2;3;-1;-1;-1;161;1152;189;867</FormPlacement>
</ClientConfiguration>
```

**Lines 1 to 3**

This is the general XML header.

**Lines 4 to 9**

This section contains the address and port number of the *ibaPDA* server to which the client will attempt to connect. By setting "AutoReconnect" to "true" or "false", you can specify whether or not the client should automatically attempt to establish a connection to the server. In this case, enter "true" for <AutoReconnect>.

**Line 10**

The "Monitor" setting determines on which monitor the client will appear. If "Monitor" is set to 0, the primary display will be used. If "Monitor" is set to 1, display number 1 will be used. If "Monitor" is set to 2, display number 2 will be used and so on.

If you are unsure about the numbering of your displays, use the *Identify* function in the Windows display settings of the relevant PC.
Line 11
The “FormPlacement” setting has made the “Monitor” setting obsolete. *ibaPDA* saves the position, size and state of the main window in “FormPlacement” when it closes. If “FormPlacement” is available, *ibaPDA* will restore the position, size and status of the main window when *ibaPDA* starts. It is not advisable to manually change the values in “FormPlacement”.

### 3.5.3.3 "/reuse" command line switch

**Example**

*ibaPDA*.exe /reuse

This switch can be used to limit the number of clients on a computer to 1. When the client is started with the "/reuse" switch, it will first search whether there is already another client running with this switch. If another client is found, the new client will activate the running client instead of starting itself.

**Tip**

If you do not want to start *ibaPDA* client using the command line, you can also do so by enabling the "Allow only one instance of *ibaPDA* client" option in the *ibaPDA* preferences, General branch.

### 3.5.3.4 "/displaystyle:..." command switch line

*ibaPDA*.exe /displaystyle:0

Use this switch to start the *ibaPDA* client with a specific display style. 

For more information, see Part 1, chapter The view menu, page 43

The following switches are available:

<table>
<thead>
<tr>
<th>/displaystyle:0</th>
<th>Normal</th>
</tr>
</thead>
<tbody>
<tr>
<td>/displaystyle:1</td>
<td>Full client</td>
</tr>
<tr>
<td>/displaystyle:2</td>
<td>Full client on top</td>
</tr>
<tr>
<td>/displaystyle:3</td>
<td>Full screen</td>
</tr>
<tr>
<td>/displaystyle:4</td>
<td>Full screen on all monitors</td>
</tr>
</tbody>
</table>
3.5.3.5 "lang:..." command switch line

ibaPDA.exe /lang:de

Use this switch to start the ibaPDA client in a specific language.

The following switches are available:

<table>
<thead>
<tr>
<th>Switch</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>/lang:de</td>
<td>German</td>
</tr>
<tr>
<td>/lang:en</td>
<td>English</td>
</tr>
<tr>
<td>/lang:fr</td>
<td>French</td>
</tr>
<tr>
<td>/lang:it</td>
<td>Italian</td>
</tr>
<tr>
<td>/lang:es</td>
<td>Spanish</td>
</tr>
<tr>
<td>/lang:ru</td>
<td>Russian</td>
</tr>
<tr>
<td>/lang:zh-hans</td>
<td>Chinese</td>
</tr>
</tbody>
</table>

**Note**

With the simple online language switching in the ibaPDA client, it is possible that some objects or dialogs, such as the ibaQPanel toolbox, continue to be displayed in the original language in which the ibaPDA client was started.

Starting the ibaPDA client with the language switch has the advantage that all instanced objects of the application are started in the specified language.

**Note**

Note that the current ibaPDA language package must be installed to use the Italian, Spanish, Russian and Chinese languages.
3.5.4 Starting multiple clients on the same computer

By means of the Create shortcut command in the File menu, you can have multiple clients running on the same computer. This can then be very helpful especially when administrating different ibaPDA systems in large scale installations from a central workstation. The individual clients can be connected to different servers, each of them with a different layout.

The configuration file, which is stored with the creation of every shortcut, contains:

- the server that the client connects to and
- the initial position and size of the client window

The directory to which the configuration file is stored serves as the base directory for client files (layout file, log files, address books, etc.)

Without setting up different desktop shortcuts, you can start multiple clients with individual configuration files on a computer by using the command line call and the "/config" switch.

For further information, please see "/config" command line switch, page 31

In order to create a shortcut, follow these steps:

1. Click on “Create shortcut...” in the File menu. The “Create shortcut” dialog opens.

![Create shortcut dialog](image)

2. Enter a plain-text name for the shortcut, indicating the server it links to. By default, the name is formed from "ibaPDA" followed by the name of the currently connected server.

3. The path for the client settings is the base directory for the client files corresponding with the shortcut. Enter an appropriate path according to your needs if required. With the settings shown in the screenshot above, ibaPDA will create the "D:\ibaPDA-Client\ibaPDA-System2" directory.

In this directory, ibaPDA will then create a configuration file as well as the current layout file. A shortcut with the name, "ibaPDA-System2", is subsequently created on the desktop that links to ibaPDA.exe /config:"D:\ibaPDA-Clients\ibaPDA-System2\ibaPdaClient.cfg."

4. Check the “Switch current instance to new settings path” option if you want ibaPDA to switch its current directory to the new shortcut directory. This will save all subsequent changes made to the layout or the server connection in the directory of the shortcut.

If this selection box is activated, ibaPDA will act as if it was started from the shortcut. If the selection box is deactivated, ibaPDA will not change its current directory and no changes will be made.

5. Click on the <Create> button.
**Example**

In the case of a large plant with multiple ibaPDA systems, e.g., for the plant's lead-in area, processing area and lead-out area, you can create three shortcuts for the ibaPDA clients on your desktop.

In the file system, this appears as follows:
### 3.5.5 Disconnect another client on client startup

When a client tries to connect to an *ibaPDA* server and the server reports that there are no more client licenses available, the client displays the following message box.

If you click *Yes* then a dialog opens:

The table shows all clients currently connected. Select one of them and press the *Disconnect* button in order to disconnect the client. If required, you will be asked to enter the password. If the other client is disconnected, your client will connect to the server and replace the other client.

**Note**

*If the user management is active, this function can be disabled depending on the logged in user (*Server rights - Disconnect other user*).*
4 User interface

4.1 The screen

The different areas of the ibaPDA screen are presented as an example in the following image. However, the arrangement of the areas is not fixed. The signal monitors, signal tree, event log, watch window and status information about data storage are displayed in docking windows which can be moved or hidden. The user interface can therefore be customized according to your needs. The arrangement is always saved in a layout file.

Legend

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Menu bar</td>
</tr>
<tr>
<td>2</td>
<td>Toolbar</td>
</tr>
<tr>
<td>3</td>
<td>Display area</td>
</tr>
<tr>
<td>4</td>
<td>Windows for the data storage status, watch window and event log</td>
</tr>
<tr>
<td>5</td>
<td>Status bar</td>
</tr>
<tr>
<td>6</td>
<td>Tab to switch windows</td>
</tr>
<tr>
<td>7</td>
<td>Signal tree and signal search</td>
</tr>
</tbody>
</table>

Fig. 8: ibaPDA main screen
4.2 The menu bar

The main menu includes:

- File
- Configure
- View
- Help

Click the *ibaPDA* symbol in the upper left corner (window header) to open a menu where you can minimize, move, resize or close the current window of the *ibaPDA* client. The "Close" command or double-clicking the icon closes the current window, i.e. the *ibaPDA* client. *ibaPDA* server, data acquisition and recording remain unchanged.

4.2.1 Customizing the menus

The menu bar and menu can be customized, if required.

You can set the menu bar such as the main menu options can be shown or hidden. The menu items can be enabled / disabled by either clicking on *View – Customize – Menus* or via the context menu in the menu bar / toolbar section.

Furthermore, menu contents can be customized by having the menu commands shown or hidden with a mouse click.

![Customizing the menu](image)

*Fig. 9: Customizing the menu*

<table>
<thead>
<tr>
<th></th>
<th>Selection of options for customizing toolbars or menus</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Show/Hide main menu items</td>
</tr>
<tr>
<td>3</td>
<td>Show/Hide menu commands</td>
</tr>
</tbody>
</table>
4.2.2 The File menu

The file menu offers some basic operations such as the import of older configurations, activation of password protection and exiting the program.

![Fig. 10: File Menu](image)

New project / Open project / Save project
These functions refer to the *ibaPDA* project management. The user can save different projects, i.e. different I/O configurations, data storages and layouts.

For more information, see [Configuring the system](#), page 55

**Note**

The former command "Import...", as known from the ibaPDA-V6 versions is not available anymore. This command supported the migration of older (*ibaPDA*-V5) configuration files to V6. Since ibaPDA-V7 the migration from V6 to V7 is done automatically when opening a V6 project with ibaPDA-V7.

If you need to migrate from older PDA-V5 systems to V7 please contact the iba support.

Import
This function refers to configuration files of former *ibaPDA* versions (V5.xx). When migrating from an *ibaPDA* V5.xx system to *ibaPDA* V6, you can import existing module and channel configurations for reuse (stored in the *.pda files). Archive profiles will not be imported.

Import works only with ASCII files created with an older *ibaPDA* system by using the export function or which have the correct format suitable for *ibaPDA*.

The ASCII files are TAB-separated text files.

Create shortcut
With this command, users can create shortcuts on the desktop for starting the *ibaPDA* client. By using this function, multiple clients can be run simultaneously on the same computer, as a configuration file is saved for every shortcut created. The individual clients can be connected to different servers, each of them with a different layout.

For more information, see [Starting multiple clients on the same computer](#), page 34

Print setup / Print
The print function includes only those parts, shown in the signal monitor area, i.e. trend graphs, FFT views, camera views, scope views, etc.
Log, status and signal tree windows will NOT be printed. By clicking on the "Print" command, the printing process of the entire signal monitor area starts immediately.

If you want to print only certain views, right-click on the caption of the view and select “Print” from the context menu. The caption is standardized and contains date and time, layout name and the version number of *ibaPDA*.

Click on “Print setup” to open the dialog for the printer setup. In addition to the common print settings such as paper size, orientation, etc., you can decide whether or not to add a caption and/or a border around the image.

To change the color settings for printing, see *Printing preferences and settings*, page 84.

**Exit**
Exit the *ibaPDA* client program. The server and hence the data acquisition and data storage continue.

### 4.2.3 The Configuration Menu

The configuration menu offers all important functions for system configuration, data acquisition and data storage.

![Configuration Menu](image)

Fig. 11: The Configuration Menu

**Select server**
This menu function opens the *Select ibaPDA server* dialog (see *ibaPDA-server*, page 63) for establishing a connection between the *ibaPDA* client and an *ibaPDA* server.

You can reach the same dialog via the button ![Select ibaPDA server](image) in the toolbar.

In the “Address” field, enter the name of the server PC in the network. In the "Address" field, enter the name of the server PC in the network. If client and server run on the same computer, just enter "localhost".

The system automatically detects and lists all active servers available in the network. You only need to select the desired server from the list and press <OK> in order to establish the connection. The port no. is assigned automatically.

If the desired server is not in the list, you can use the search function. Click on the "Search" button. A blue progress bar indicates the search progress.

You can establish a connection to multiple servers one after another, e. g. for configuration purposes.
I/O Manager
This menu function opens the dialog of the *iba I/O Manager*, hereafter referred to as I/O Manager. This is the main dialog for the configuration of the signals to be measured, Technostrings, groups and outputs.

The same dialog opens by clicking on the button 📝 in the toolbar.

With the I/O Manager, you define

- the *data sources* (interfaces) you want to use
- the *modules* (devices) to be connected
- the *analog and digital signals* you want to measure
- the *virtual signals* you want to use
- the *signal groups* containing selected signals
- the *technostrings* and the segments taken from them, which are to be covered by the measurement.
- the *outputs*, i.e. signals which should be sent from *ibaPDA* to other systems over appropriate interfaces or by e-mail.

In addition, real time diagnostics provides information on the status of the connected

- modules in this dialog
- actual values of the signals

A bar chart always informs you about the actual number of signals used with regard to your license limit.

Data storage
This menu item opens the configuration dialog for *data storage*.

The same dialog opens by clicking on the button 📝 in the toolbar.

In this dialog you can define

- the *data storage profiles* (formerly archive profiles), which should be available in a pool for data storage
- number and names of the different *data storages* for standard data files as well as for *ibaQDR* and *ibaHD-Server* data storages.

Furthermore, you can configure for each data storage

- the trigger settings and the recording mode
- the selection of the signals to be stored
- file name and path of the data files
- use of the Technostring (sections)
- Automatic cleanup for the hard disk
- Postprocessing command
User management
This menu item opens the configuration dialog for the user management.

The user management provides service for

- adding or removing users
- assigning user rights for server and client functions
- creating and changing passwords

Server access
By using this menu function, you open a dialog for reserving client-licenses for selected clients. Furthermore, you can filter by clients (IP addresses) in order to limit the access to the server.

For further information, please see Server access control, page 73

Start
By using this menu function, you start the data acquisition (measurement) on the connected server. The same function is available by clicking on the icon button.

This function can be locked with a password. At start of the measurement, a pop-up window will inform you about the start sequence.

Stop
With this menu function, you stop the data acquisition (measurement) on the connected server. The same function is available by clicking on the icon button.

This function can be locked with a password.

After the Stop command is issued, a warning will appear which must be confirmed before the measurement is stopped.

Select ibaHD server... (only available if the license for the ibaHD server has been activated in the dongle)
This menu function opens the dialog for selecting an ibaHD server for historical data recording.
This function requires a license for the ibaHD server and ibaHD client.

For further information, refer to Part 6, Connecting to HD server.

Preferences
This menu item opens the configuration dialog for the signal monitor and screen layout preferences.

The same dialog opens by clicking on the icon button.

In this dialog, you can define

- general settings for the signal monitor such as colors, fonts etc.
- display properties for charts and curves.
- Scaling settings for X and Y axis of the graphs

For further information, refer to Part 6, Display preferences and view properties.
4.2.4 The view menu

This menu offers all the features for the design of the screen and the management of different panes and layouts. The term "layout" means the individual arrangement of signal monitors, signal selection and status information windows. At program startup, *ibaPDA-Client* uses the `CurrentLayout.lay` configuration file.

**Open layouts...**

This menu function opens the dialog for opening an existing layout configuration file for screen display. These configuration files have the extension, ".lay".

The layout configuration files should be stored in the client's subfolder on the hard disk.

For more information, see Part 6, *Load an existing layout configuration*.

**Opening layouts from the server...**

This menu item opens the dialog for loading user-related layouts that have been stored on the *ibaPDA* server. The layouts must have been previously saved by the user with the command, "Save layouts on server." You can select a user whose layout is to be loaded.

For more information, see Part 6, *Opening layouts from the server*. 

---

![View menu and submenus](image)
Save layouts as...
This menu function opens the dialog for saving the currently loaded layout(s) in a configuration file. The file extension is added automatically.

For more information, see Part 6, *Save a layout configuration in a layout file*.

Save layouts on server...
This menu function opens the dialog for saving the currently loaded layout(s) in the file, "CurrentLayout.lay", in a user-related path on the hard disk. You can select several users:

For more information, see Part 6, *Save layout configuration on the server*.

Manage layouts...
This menu function opens the dialog for layout management. You can add or delete layouts as well as change their order in the layout list.

For more information, see Part 6, *Layout management*.

Import layouts...
This menu function opens the dialog for opening a layout file. The layouts from this file will be added to the existing layouts. A message appears if there is a conflict.

For more information, see Part 6, *Import layouts*.

Delete layouts
This menu function removes all layouts and deletes the current layout.

How to add a view
By clicking on this menu item, a submenu opens providing a selection of different display types.

- Add HD event table
  This menu function allows you to add an event table to the layout. The event table requires an *ibaHD server* and a configured event-based HD data record to present the events.
  
  The same function in the toolbar:

  For more information, see Part 6, *HD event table*.

- Add FFT view
  This menu function allows you to add an FFT view to the current layout. To be able to fully utilize the features of the FFT view, you need the add-on *ibaInSpectra*.
  
  The same function in the toolbar:

  For more information, see Part 6, *FFT view*.

- Add trend graph
  With this menu function, you can add another signal monitor to the current screen. The new signal monitor initially opens in a separate window. If required, it can be dragged in another display window at a later time.
  
  Every signal monitor has its own scrolling control, zoom function and X axis.
  
  The same function in the toolbar:

  For more information, see Part 6, *Trend curves*.

- Add HD trend graph
  This menu function allows you to add a trend graph for historical data (HD trend graph) to
the layout. The HD trend graph requires an *ibaHD-Server* and a configured time-based HD
data record to present the data.
The same function in the toolbar: 📊

For more information, see Part 6, *Historical data trend graph (HD trend graph)*.

■ Add camera view
  This menu function allows you to add a camera view to the layout. The camera view requires
  an *ibaCapture* server to display video camera images.
The same function in the toolbar: 📹

For more information, see Part 6, *ibaCapture camera view*.

■ Add Orbit view
  This menu function allows you to add an Orbit view to the layout. The Orbit view requires
  the *ibaInSpectra* add-on.
  The same function in the toolbar: 🌍

For more information, see Part 6, *Orbit view*.

■ Add Qpanel
  This menu function allows you to add an *ibaQPanel* view to the layout. The QPanel view
  requires the *ibaQPanel* add-on.
The same function in the toolbar: 📈

For more information, see Part 6, *ibaQPanel*.

■ Add Scope view
  This menu function allows you to add a scope view to the layout.
The same function in the toolbar: 📊

For more information, see Part 6, *Scope view*.
  ■ Add Numeric digital display
    This menu function allows you to add a digital numeric display (previously: digital meter) to
    the layout.
The same function in the toolbar: 📈

For more information, see Part 6, *Numeric digital display*.

■ Add Text digital display
  This menu function allows you to add an alpha-numeric digital display for texts to the layout.
The same function in the toolbar: 📈

For more information, see Part 6, *Digital text display*.

■ Add PQU spectrum
  This menu function allows you to add a display to the layout which is adapted to the device
  for acquiring the grid quality (*ibaPQU - S*).
The same function in the toolbar: 📈

For more information, see Part 6, *PQU spectrum*.
■ Add Phasor view
   This menu function allows you to add a view for the phasor representation of current and voltage to the layout which is adapted to the device for acquiring the grid quality (ibaPQU - S).
   The same function in the toolbar: 

   For more information, see Part 6, Phasor view.

Signal display without tab
With this command, you can hide the tabs showing the name of the respective signal monitor. You can save some space if you arrange the signal monitors in groups (one behind the other). Please note that you only see the current topmost monitor and that there is no way to switch to the other monitors behind unless tabs are shown.

Hide tab borders
This menu function allows you to hide the frames of tabs. This is useful for "Full screen" or "Full client" mode.

Signal tree
This menu function shows or hides the signal tree window.

ibaHD signal tree
This menu function shows and hides the signal tree window of a historical data server.

Data storage status
This menu function shows and hides the data storage status window.

Event log
This menu function shows and hides the event log window.

Technostring status
This menu function shows and hides the status window for Technostrings.

Digital displays
This menu function shows and hides the window for the digital numeric and text displays. The window is dockable and opens automatically when a new digital display is added via the menu or the toolbar button. If the digital display window is opened, you can add digital displays by dragging more signals into the window.

Toolbars
This menu function opens a submenu with commands to show and hide the "Configuration", "Layout" and "Data storage" toolbars.

Display style
This menu function provides a submenu offering 4 different display styles. You can activate and deactivate the display styles here.

The keyboard shortcuts allow you to switch (toggle) between the "Normal" display style and the selected style.
Tip

It makes sense to know the keyboard shortcuts by heart or to have them at hand in case operation with the mouse is not possible (since toolbars or menus are no longer shown).

You can press the <F10> key several times to set and exit all of the aforementioned styles. Use the <ESC> key to exit any style and go back to the normal display style.

<table>
<thead>
<tr>
<th>Style</th>
<th>Shortcut key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td></td>
<td>Standard Windows frame with signal monitor area, toolbars, menus, signal tree window, event log, Technostring status, etc.</td>
</tr>
<tr>
<td>Full client</td>
<td>&lt;Ctrl&gt;+&lt;Shift&gt;+&lt;C&gt;</td>
<td>The signal monitor area (with the layouts) is expanded over the full area of the ibaPDA client window including the frame; no toolbars, menus or other windows are visible. Other Windows programs can be positioned above the ibaPDA client. When you restore the ibaPDA client window, you can still see the desktop background.</td>
</tr>
<tr>
<td>Full client on top</td>
<td>&lt;Ctrl&gt;+&lt;Shift&gt;+&lt;T&gt;</td>
<td>Equivalent to &quot;Full client&quot; but the ibaPDA client is always in the foreground.</td>
</tr>
<tr>
<td>Full screen</td>
<td>&lt;Ctrl&gt;+&lt;Shift&gt;+&lt;F&gt;</td>
<td>Equivalent to &quot;Full client on top&quot; but the signal monitor area covers the whole screen. The Windows task bar is also covered.</td>
</tr>
<tr>
<td>Full screen on all monitors</td>
<td>&lt;Ctrl&gt;+&lt;Shift&gt;+&lt;A&gt;</td>
<td>Equivalent to &quot;Full screen&quot; when using several monitors.</td>
</tr>
</tbody>
</table>

Table 1: Client display mode

You can use these display modes to maximize the available display area for signal monitors or to avoid an unauthorized use of the ibaPDA client.

However, we recommend user management to effectively restrict operational access.

Language
The Language submenu makes it possible to quickly switch between the GUI languages. The menu offers all the languages that are also available in ibaPDA. Please note that some languages are only available with an additional language package.

QPanel language dictionary
With this command, you open the dialog for editing the dictionary for the add-on ibaQPanel. In this dictionary you can enter all the texts which have been configured in the QPanel in all available languages. Depending on the Language setting in the display language submenu, the texts in the ibaQPanel user interface will switch their language accordingly.

Customize
This command opens the submenu for customizing the menus and toolbars.
4.2.5 The help menu

The help menu provides information about the *ibaPDA* software version (About...), changes (Version History) and iba contact information (Support). In addition, it offers a user-friendly function in case you need help.

![Fig. 13: The help menu](image)

**Help**

This opens the *ibaPDA* online help.

**Support...**

Here, you will find the iba Customer Support and contact information for all branch offices worldwide.

**Save information for iba Support...**

With this command, you can create a zip-file containing the following information:

- the current project with the current layout
- a complete log directory of the server
- system information about the server

This command allows the user to gather all information relevant to the support with only one click. In general, we recommend submitting an updated support file to our support desk.

**Version History**

This menu function starts the Internet Explorer with an html file showing the history of the different software versions. We recommend having a look at this file after every *ibaPDA* update. Here, you will find interesting information about new functions, improvements and bugfixes.

**Install client version from server**

Using this command, you can install the ibaPDA-Client version from the ibaPDA-Server you are currently connected to and install it on the actual computer. This is to match the client and server version for best functional accordance. Particularly recommend if actual client version is lower than the server's version.

**About**

This menu function provides relevant information about the current version of the *ibaPDA* client software.

By clicking on the `<Server Version>` button, you will find additional information about the software version of the server the client is currently connected to.
4.3  Toolbars

The toolbars offer the most important functions you can also find in the menus.

4.3.1  Customizing the toolbars

The toolbars can be enabled or disabled by either clicking on View – Customize – Toolbars in the menu or via the context menu in the menu/toolbar section. The contents of the toolbar can be further customized by having buttons on the toolbar shown or hidden.

The toolbar layout is saved to the layout configuration file.

Fig. 14: Customizing the toolbars

<table>
<thead>
<tr>
<th></th>
<th>Selection of options for customizing toolbars or menus</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Show /hide toolbars</td>
</tr>
<tr>
<td>2</td>
<td>Show/hide toolbar buttons</td>
</tr>
</tbody>
</table>

The "Customize" menu can always be accessed using the shortcut: <Ctrl>+<Shift>+<U>

4.3.2  "Configure" toolbar

- Opens the dialog for the connection to an ibaPDA server
  For more information, please see Select an ibaPDA Server, page 64.
- Opens the dialog for the connection to an ibaHD server
  For more information, see Part 6, Connecting to HD server.
- Opens the I/O Manager.
  For more information, see Part 2, The I/O Manager.
- Opens the dialog for the data storage configuration
  For more information, see Part 5, Data storage.
- Starts the acquisition on the server
- Stops the acquisition on the server
Opens the dialog for signal monitor configuration, i.e., the preferences for printing and all types of views.

For more information, see Part 6, *Display preferences and view properties*.

### 4.3.3 "Layout" toolbar

- Pick-list for selecting the desired layout. You can also toggle between layouts with the F11 function key.

- Opens the “Manage layouts” dialog. In this dialog, you can add or remove listed layouts and define the colors of the layout list.

For more information, see Part 6, *Managing layouts*.

- The "Start views" and "Pause views" buttons. By clicking on one of these buttons, the scrolling of the trend graph is started or paused. This function applies to all visible trend graphs of any view.

- Adds a new HD event table to the signal monitor area. A connection to an *ibaHD server* as well as an event-based HD storage are required to display events.

For more information, see Part 6, *HD event table*.

- Adds a new FFT display to the signal monitor area.

For more information, see Part 6, *FFT view*.

- Adds a new trend graph. An empty view is added to the screen. Subsequently, all other views are automatically rearranged on the screen.

For more information, see Part 6, “Trend graphs.”

- Adds a new trend graph of historical data to the signal monitor area. A connection to an *ibaHD server* as well as a time-based storage are required to display data.

For more information, see Part 6, *Historical data trend graph (HD trend graph)*.

- Adds a new camera view to the signal monitor area. A connection to an *ibaCapture server* is required to display video images.

For more information, see Part 6, *ibaCapture camera view*.

- Adds a new Orbit view to the signal monitor area.

For more information, see Part 6, *Orbit view*.

- Adds a new *ibaQPanel* display to the signal monitor area.

For more information, see Part 6, *ibaQPanel*.

- Adds a new oscilloscope view to the signal monitor area.
For more information, see Part 6, *Scope view*.

Adds a new digital numeric display to the digital display window. Afterwards, you can drag the digital display out of the window and drop it at a different position on the screen.

For more information, see Part 6, *Numeric digital display*.

Adds a new text display to the digital display window. Afterwards, you can drag the digital display out of the window and drop it at a different position on the screen.

For more information, see Part 6, *Digital text display*.

Adds a view to the signal monitor area, which is adapted to the device for acquiring the grid quality (*ibaPQU - S*), showing the harmonics.

For more information, see Part 6, *PQU spectrum*.

Adds a view to the signal monitor area, which is adapted to the device for acquiring the grid quality (*ibaPQU - S*), showing the phasor view for voltages and currents.

For more information, see Part 6, *Phasor view*.

### 4.3.4 "Data storage" toolbar

![Triggered Recording](image)

These toolbar buttons allow you to manually control the data storage. In order to avoid erroneous operation, this toolbar is not shown by default. It must be activated manually.

Manual triggering of the start trigger; starts the recording, which is selected in the field on the right next to the button. This button is only enabled if a start trigger has been defined for the recording. Very useful for testing and startup.

Manual firing of the stop trigger; stops the recording, which is selected in the field on the left next to the button. The button is enabled for both triggered and continuous recordings. Thus, also continuous recordings can be stopped manually. Very useful for testing and commissioning

Pick-list for selecting the desired data storage to be triggered manually.
4.4 Status bar

The status bar at the bottom of the *ibaPDA* program window contains some information about the connection between client and server:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Server computer" /></td>
<td>A connection has been established between client and server. The name of the connected server is displayed to the right of the symbol.</td>
</tr>
<tr>
<td><img src="image" alt="Connection broken" /></td>
<td>The connection between client and server is broken; no server connected</td>
</tr>
<tr>
<td><img src="image" alt="Data rate (downstream) from server to client" /></td>
<td>Data rate (downstream) from server to client. Refers to the load of the server due to the data that it has to send to the client.</td>
</tr>
<tr>
<td><img src="image" alt="Data rate (upstream) from client to server" /></td>
<td>Data rate (upstream) from client to server</td>
</tr>
<tr>
<td><img src="image" alt="Server type: PDA server, HD server" /></td>
<td>Server type: PDA server, HD server</td>
</tr>
<tr>
<td><img src="image" alt="The administrator or user currently logged on" /></td>
<td>The administrator or user currently logged on</td>
</tr>
</tbody>
</table>

Table 2: Status bar symbols

**Example**

*ibaPDA* client is connected to the *ibaPDA* server on the IBA-BLN-NOTE345 computer and logged in as the administrator. Date upload and download rate is currently 0.2 kB/s.
4.5 Operation via keyboard shortcuts

General and display

<table>
<thead>
<tr>
<th>Keyboard</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;Ctrl&gt;+&lt;U&gt;</td>
<td>Open user management</td>
</tr>
<tr>
<td>&lt;Ctrl&gt;+&lt;Shift&gt;+&lt;C&gt;</td>
<td>Full client display style on/off</td>
</tr>
<tr>
<td>&lt;Ctrl&gt;+&lt;Shift&gt;+&lt;T&gt;</td>
<td>Full client on top display style on/off</td>
</tr>
<tr>
<td>&lt;Ctrl&gt;+&lt;Shift&gt;+&lt;F&gt;</td>
<td>Full screen display style on/off</td>
</tr>
<tr>
<td>&lt;Ctrl&gt;+&lt;Shift&gt;+&lt;A&gt;</td>
<td>Full screen on all monitors display style on/off</td>
</tr>
<tr>
<td>&lt;Ctrl&gt;+&lt;Shift&gt;+&lt;U&gt;</td>
<td>Menu to customize toolbars and menus</td>
</tr>
<tr>
<td>&lt;F11&gt; / &lt;Shift&gt;+&lt;F11&gt;</td>
<td>Next/previous layout</td>
</tr>
<tr>
<td>&lt;Ctrl&gt;+&lt;D&gt;</td>
<td>QPanel display: Designer mode on/off</td>
</tr>
</tbody>
</table>

Signal tree and signals

<table>
<thead>
<tr>
<th>Keyboard</th>
<th>Mouse</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;Ctrl&gt;</td>
<td>Double-click</td>
<td>a signal in the signal tree: Adds the signal to an existing and marked signal strip (trend graph) and attaches it to the Y axis of the lowest signal.</td>
</tr>
<tr>
<td>&lt;Shift&gt;</td>
<td>Double-click</td>
<td>a signal in the signal tree: Inserts a signal in a marked trend display with its own Y-Axis.</td>
</tr>
<tr>
<td>&lt;Ctrl&gt;</td>
<td>Drag &amp; Drop</td>
<td>a signal in the signal tree: Inserts a signal in the trend display and attaches it to the Y-axis of the lowest signal when it is dropped in the free area of the display.</td>
</tr>
<tr>
<td>&lt;Shift&gt;</td>
<td>Drag &amp; Drop</td>
<td>a signal in the signal tree: Inserts a signal in the trend display with its own Y-axis when it is dropped in the free area of the trend view.</td>
</tr>
</tbody>
</table>

Marker in the trend graph

<table>
<thead>
<tr>
<th>Keyboard</th>
<th>Mouse</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;Ctrl&gt;</td>
<td>Move marker</td>
<td>Marker locks in place precisely at the samples.</td>
</tr>
<tr>
<td>&lt;Shift&gt;</td>
<td>Move marker</td>
<td>Markers X1 and X2 move in the same direction at a constant distance</td>
</tr>
<tr>
<td>&lt;Ctrl&gt;+&lt;Shift&gt;</td>
<td>Move marker</td>
<td>Markers X1 and X2 lock into place precisely at the samples and move in the same direction at a constant distance</td>
</tr>
</tbody>
</table>
## I/O Manager

<table>
<thead>
<tr>
<th>Keyboard</th>
<th>Mouse</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double-click</td>
<td></td>
<td>Toggling between binary settings, such as true/false;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Double-click on the field where &quot;True&quot; or &quot;False&quot; appears, e.g., &quot;Locked&quot; in the general module settings.</td>
</tr>
</tbody>
</table>
5 Configuring the system

ibaPDA should be configured in the ibaPDA client program. So, the first step is the establishment of a connection between the client and the server. If only one server is available, usually a client server connection is automatically established. If, however, a network includes several ibaPDA servers, you should ensure your client to be connected to the right server before starting the configuration.

For more information, see Select an ibaPDA Server, page 64.

Usually, the system configuration consists of 3 parts:

1. The configuration of the data sources of the signals to be measured
   The data sources and signals to be measured are generally configured in the I/O Manager.
   For more details, see Part 2, The I/O Manager

2. The configuration of the data recording
   The data recording is configured in the data storage dialog.
   For more details, see Part 5, Data storage

3. The configuration of the display layout
   The layout of ibaPDA client is configured on the screen itself by arranging signal displays, views and windows.
   The layout configuration is mainly described in Part 6, Live data display and presentation.

Each of the different configurations can be individually stored in configuration files as described in the above-mentioned chapters. For a more convenient, secure and flexible management of different configurations there are two more features:

- Project management
- External configuration

5.1 ibaPDA project management

The ibaPDA project management was invented for a more convenient and safer workflow with different or changing configurations. This may apply to different users of the same system with changing configurations, for instance in testing facilities, or to service engineers traveling from plant to plant always facing different systems.

Instead of saving and reloading the files for the configuration of the I/O Manager as well as data recording and views, only one project needs to be loaded. An ibaPDA project consists of an I/O configuration and a data recording configuration. It can also include a layout configuration. The project is saved with its respective individual name on the server. It can also be saved as zip file. The name of the currently loaded project is displayed in the caption bar of the client.
By default the project is called “Untitled” as you can see in the picture above. You can open or save the project via the file menu. As soon as you have finished an I/O configuration or data storage configuration (as described later in this manual) you can save it in an ibaPDA project.

When you click *Save project...*, the following dialog appears:

In this dialog, you can enter the project name. The project will include at least the current I/O configuration and the configuration of the data storage. By default, it will also contain the current layout. If you do not want to save the layout, uncheck the checkbox “Save current layout in project”. The project is always saved in the “Projects” subdirectory of the server directory of the program path (default: C:\Program Files (x86)\iba\ibaPDA\Server\Projects). If you also want to save the project to a file on the hard disk or another storage medium, then you have to check the checkbox “Save on disk” and enter a full path. Saving a project on a hard disk or a network share can be reasonable for security reasons or for exchange with other users.

In addition, there are the following options:

**Save user layouts in project**

If you have configured and enabled a user management you can assign selected layouts to selected users. If you enable this option, the assignments of layouts and users will be stored in the project.
Save user management in project
If you enable this option, then the configured user management, i.e. all defined users together with their granted client and server credentials as well as all passwords will be stored in the project. Please note, that at least one administrator password must be known in order to open such a project.

For more information, see ↗ User management, page 76

Save server access configuration in project
If you enable this option, then the server access configuration (permitted client access to the server)- if available - will be stored in the project.

For more information, see ↗ Server access control, page 73

Save server plug-ins in the project
If you enable this option, then any existing function files (dll) that you have created with the ibaPDA plugin are saved in the project.

For more information, see Part 4, Plugins

As soon as you have saved the project, the ibaPDA server will inform all the connected clients about the project name change and the clients will refresh their caption bar. If you change the I/O configuration or the data storage configuration then the project name will be added an * to its end, indicating that the project has been modified.

To open the project, click "Open project..." in the file menu. The following dialog appears:

![Fig. 17: “Open project” dialog](image)

You can select a project either from a file or from the server. Check the radio button “Project file” and browse the file system for a zip-file if you want the project to be loaded from a file.

The table shows the projects available on the server. If you want to open a project from the server, select the project in the table and click on “Open”.

If you wish to remove a project from the server, select it and click on ✗.

When you open a project, then ibaPDA stops the acquisition if it was running. ibaPDA then loads the I/O configuration and data storage configuration from the project.

If the “Load current layout from project” checkbox is activated and if the project contains a layout, then the layout is transferred from the server to the client and the client loads the layout. If
a user management configuration had been stored in the project, you will be asked when opening whether to load the user management configuration or not.

Only confirm the query with <Yes> if you know the administrator password!

When user layouts were also saved when saving the project, then a query pops up during opening asking whether and for which user the layouts are to be loaded.

If you do not select any user, then the user layouts will not be loaded. After the loading process, the data acquisition must be restarted manually.
5.2 External configuration

5.2.1 Principle of Operation

The remote configuration feature enables the user to control the configuration of one or more ibaPDA systems from a remote location via a configuration file.

The remote configuration is an automatic function with immediate effect on the running data acquisition, resulting in a stop and restart of the acquisition.

When activated, the remote configuration feature periodically checks if the configured file is available. If the file is available, it is executed and afterwards deleted.

The processing depends on the file extension.

- .zip file:
  ibaPDA tries to open this file as a project file. At success, the new project will be loaded and the data acquisition will start.

- .io file:
  ibaPDA tries to load this file as a new I/O configuration. If successful, the new I/O configuration is applied and the data acquisition is started.

- .ds file:
  ibaPDA tries to load this file as a new configuration of the data record. At success, the new data storage configuration will be applied.

- other files:
  ibaPDA interprets this file as a text file. It reads out the first line. This line can contain one of the following commands.
  - STOP
    ibaPDA stops the data acquisition.
  - RESUME
    ibaPDA continues the data acquisition.
  - EXPORT
    ibaPDA exports the current I/O configuration to the file specified in the rest of the first line.

Example: EXPORT c:\export\MyPdaIoConfig.io

If none of these commands are in the first line then ibaPDA tries to import this file as a new I/O configuration. At success, the new I/O configuration will be applied and the data acquisition will start.
5.2.2 Setting up the remote configuration

The remote configuration needs to be configured and activated.

1. Open the I/O Manager and select the “Remote configuration” sub-node under “General.”

2. Enable the function by checking the “Active” selection box.

3. Enter the full path and name of the configuration file you wish to use. The file name including the extension of the file you will copy later into this directory must exactly match the file name specified here.
   It may be useful to choose a file name which will be reused every time you want to change the configuration, such as “config”.
   In that case you are not urged to change the filename in the I/O manager every time. On the other hand, the configuration name in the caption of the ibaPDA client window would always be the same.

4. You can type in the information manually or you can use a browser which makes it easier if the path is very long or on a network share.
5. Click on the button <Test path> in order to check accessibility of the directory, particularly if it is a network share.

6. Click on <OK> to close the I/O manager. If the real configuration file is already stored in the specified directory, ibaPDA will immediately take the file, process and delete it.

**Tip**

Setting up the remote configuration is part of the I/O configuration. To make sure that the remote configuration works again after it was executed, the remote configuration feature must be enabled and properly setup in every configuration file which is loaded via remote configuration.
Attention!

As the system reacts immediately when a proper configuration file was copied to the specified directory, you should take care that all settings or changings made are correct.

Otherwise, the system might have a wrong configuration which leads to incorrect data files, displays or even prevent the system from restarting.
6 ibaPDA-server

"Server" describes a basic process in ibaPDA which is relevant for the data acquisition and storage in ibaPDA. Data is displayed online not via the server but the client. In addition, the client is the user interface of ibaPDA and serves not only for display, but also for server configuration.

The server can run independently and without a client.

More information about topology:

Fig. 18: Topology of a Single Server Multiple Client system
6.1 Select an ibaPDA Server

In order to open the dialog for server configuration, click on the following toolbar button.

![Server configuration dialog, server detection](image)

In this dialog, you can select the server to be connected with the client. All changes made in the I/O configuration and data storage configuration will also concern the selected server.

As soon as the dialog opens, *ibaPDA* automatically searches the local computer and the network for active *ibaPDA* servers.

**Address**
In the "Address" field, enter the name of the server PC in the network or select the server PC from the list below. If client and server run on the same computer, you may enter "localhost". If the server runs on a remote device, you may enter the PC name or the IP address.

**Port no.**
The port no. is assigned automatically.

**Checkbox "Auto reconnect to server" (optional)**
If this option is enabled, *ibaPDA* will try to reconnect to the last connected server with every start of the *ibaPDA* client.

**<Search> Button**
This button starts and stops the search for active *ibaPDA* servers on the local computer and in the network. A blue progress bar indicates the search progress in the dialog window.

**Server list (selection)**
The *ibaPDA* server can be selected either by double-click on the server in the list or by clicking on the server and pressing <OK>. 
6.2 Server status display

The ibaPDA software package includes the separate tool ServerStatus for control and diagnostic analysis of the ibaPDA server.

This software is auto-installed with the server.

It can be executed either via the Windows start menu (Start – Programs – iba – ibaPDA – Server-Status)

or by double-click on the server icon in the lower right corner of the Windows system tray.

6.2.1 Server Status, General

![ibaPDA ServerStatus, "General" tab](image)

Fig. 20: ibaPDA ServerStatus, "General" tab

Service

Status
Indication whether service is running or not.

Port
The port number is assigned automatically, but can be changed here manually if necessary (<Change> button).

<Start>, <Stop> and <Restart> buttons
Use these buttons to start, stop or restart the ibaPDA service
**Auto-Start when Windows starts**
This option must be enabled if an automatic restart of the system is planned after a computer restart.

**License**
In the license area you’ll find important information about your current software license.

**Customer**
In this field, you will find the name of the customer for which this dongle has been approved. For projects, which were initially completed via system suppliers, registration of the end user should have been requested from iba either from the outset or, at the latest, after the warranty period has expired. This makes it easier to assign the license in the case of later extensions or support cases.

**License number**
The license number is important for all service queries and upgrades. Please provide the license number to our support team.

From version 6.29.0, ibaPDA uses a dongle library that supports both MPI and SmartOS dongles. The information in the license number field consists of the following information:

License number – dongle HW ID (dongle type)

**License valid until**
This field shows the remaining validity time of the licenses.

**Active/licensed clients**
The first number shows the number of currently active, i.e., logged on to this server, ibaPDA clients. The second number indicates the maximum number of ibaPDA clients.

**Active/licensed data stores**
The first number indicates the number of the currently active data stores. These are data stores with a check mark in the "Active" selection field in the data storage configuration. The second number indicates the maximum number of data stores.

ibaHD data stores are not considered here. The licenses for ibaHD data stores are managed by the ibaHD server.

**License options**
This window displays all the basic and additional licenses that are enabled on the dongle, such as interfaces and plug-ins.

**Active signals**
A bar on the scale and the value behind the scale show the number of currently active signals. The end value of the scale indicates the maximum permissible number of signals according to the license.

**Clients**
This table shows all the clients currently connected to the server. The ServerStatus program is itself a client too.
6.2.2 Server status I/O Manager

Fig. 21: ibaPDA ServerStatus, I/O Manager tab

**Acquisition**

This dialog offers relevant information about data acquisition.

Beside the signal tree, which contains all defined modules and signals, you can see whether or not the acquisition (=measurement) is running. Below the signal tree, you will find the number of currently used signals (analog and binary).

With the **<Start>** and **<Stop>** buttons, you can start or stop the acquisition.

The display for the driver status (ibaPDA driver) must show the "Loaded" status on green background for proper operation. In case of a failure, the field turns red and an error message appears below the start button, e.g. if another process is already running with ibaPDA drivers. In this case, the message would indicate that an instance of the program is already running.

In addition, you will find a number of displays that reflect the interrupt behavior. The interrupts are good indicators of the proper function of the system.

**iba interrupts**

This is an interrupt counter for interrupts, which are generated by iba PC (or PCMCIA) cards. In proper operation, it counts up with a rate of 1000 / sec corresponding to an interrupt cycle of 1 ms.

**Non-iba interrupts**

This counter will only change if other cards in the computer generate interrupts. This could occur in case of "shared interrupts." If the iba card generating the interrupt is assigned an exclusive interrupt, the counter must not change.

**Internal timer counter**

The internal timer counter is active when no interrupt source (PC card) is available. This is the case, for example, when you use a notebook without an PCMCIA-F card.

The counter should also count upwards in 1000/s.
**Time correction**
The value for time correction will only be displayed during acquisition and the internal timer counter serves as interrupt source. Generally, the internal timer counter has not exactly the same resolution like the basic sample time. Hence, each counter step has a deviation of a few microseconds. These microseconds are added in the time correction counter. As soon as the sum matches the timer resolution, a double counter pulse will be triggered. This method enables the internal timer to match the basic sample time in average.

**Timer resolution**
This time value given in ms should approximately correspond to the measurement time base. The timer is used for the internal generation of interrupts.

**Interrupt buffer (fill level)**
This display shows how much data is in the interrupt buffer of the driver. The ibaPDA server periodically reads from this buffer. If the interrupt service routine (ISR) of the driver takes too long, the ibaPDA server has not enough time to read all data out of the buffer and the buffer overflows. This would cause a stop of the acquisition. In that case, either a reduction of the number of signals or an increase of the basic sample time is required in order to ensure proper operation. This would reduce the read-out time for the ISR.

**Acquisition thread CPU usage**
This is the CPU time the server needs to read data from the driver and process them, e.g. evaluation of virtual signals, writing to the data file, buffering for transmission to clients etc.

**Interrupt times**
These values are only displayed when the acquisition is running.

The system measures the actual processing time of the ISR (=interrupt time) and stores the shortest (Min) and longest (Max) time. The ISR reads the requested data from the various PC cards. The ratio of interrupt time to interrupt cycle time shows the percentage of CPU time required to read the data from the cards. The actual interrupt time should never exceed double the interrupt cycle time.

If so, interrupts will get lost and the measurement is not accurate.

**Interrupt cycle times**
These values are only displayed when the acquisition is running.

The system measures the actual cycle time of the interrupt and stores the shortest (Min) and longest (Max) time.
6.2.3 Server status, Event log

![Image of ibaPDA Server Status, Event log tab]

Fig. 22: ibaPDA ServerStatus, “Event log” tab

You will find the same information in the Event log window in the ibaPDA client program (View - Event log).

All relevant system events, such as configuration changes, are logged and listed in a table.
6.2.4 Server status, Data storage

You will find the same information in the ibaPDA client program via View - Data storage status. Here, all configured data stores are displayed with their status, sorted by server name, data storage name and data file.

The colored symbols in the tree indicate the current status of the recording or the data file respectively.

<table>
<thead>
<tr>
<th>Icon</th>
<th>followed by</th>
<th>Display in</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>🟢</td>
<td>Path and file name</td>
<td>Data storage status</td>
<td>Data recording is running</td>
</tr>
<tr>
<td>⏳</td>
<td>Path and file name</td>
<td>Data storage status</td>
<td>Waiting for (start) trigger; appears only if trigger is configured for data storage. Measured values are buffered in the RAM memory for the defined pre-trigger time and saved in the data file when the start trigger occurs.</td>
</tr>
<tr>
<td>⏳</td>
<td>Path and file name</td>
<td>Data storage status</td>
<td>Post-trigger phase; stop trigger occurred but acquisition continues until the post-trigger time is over. The symbol only appears if a stop trigger is configured for the data storage.</td>
</tr>
<tr>
<td>⏳</td>
<td>Server name</td>
<td>Data storage status</td>
<td>Measurement stopped, no recording</td>
</tr>
<tr>
<td>⏳</td>
<td>Server name</td>
<td>Data storage status</td>
<td>Signal tree</td>
</tr>
<tr>
<td>🔄</td>
<td>Server name</td>
<td>Data storage status</td>
<td>Signal tree</td>
</tr>
<tr>
<td>🔄</td>
<td>behind a signal name</td>
<td>Signal monitor / legend</td>
<td>Signal not available, e.g. when measurement stopped or server not available.</td>
</tr>
</tbody>
</table>

Table 3: Status icons
6.3 Server - more information

The *ibaPDA* server is a service under Windows. A Windows service always runs with reference to a user, i.e. it is assigned to a user account. The *ibaPDA* server runs only if the user has administrator rights. The default setting is the local system account. This system-defined account has administrator rights on the local machine.

**Note**

If *ibaPDA* server only needs to access the local machine, i.e. also the data storage uses only the local hard disk, then the local system account is sufficient.

If *ibaPDA* server requires access to remote computers in the network which requires special rights on the remote machine, e.g. writing data files on a remote file server, you should create an appropriate user account.

This user account must be available on all computers involved.

Furthermore, this user account should be either set during installation of *ibaPDA* server (see section “Installation”) or configured later in the Windows service administration (*Control Panel - Administrative Tools - Services - *ibaPDA* service / Properties - Log On)*.

In order to view or change the current user account set in the *ibaPDA* server, please go to the Windows service management.

If *ibaPDA* is installed properly, you will find a link in the program group menu:

Click on **Start - Programs - iba - ibaPDA - Services**

![Fig. 24: Open the Windows service management (Windows 7)](image)

or go to **Start - Settings - Control Panel - Administrative Tools - Services**.

In order to see the settings of the service, right-click on the service *ibaPDA* and select properties in the context menu.
In the properties, select the "Log On" tab. Here, you can verify if the service is currently running under the local system account or if another user account is logged on.

If you want to change the user account, please click on "This Account," fill in the registration information and exit the dialog by clicking <OK>.
6.4 Server access control

By setting up the server access control, you have the option to reserve licenses for selected users and to limit the access to the ibaPDA server.

For the configuration of the server access control, in the ibaPDA client, select the Configuration – server access menu...

It opens the following dialog box:

![Configuration of the server access](image)

Fig. 27: Configuration of the server access

Reserved licenses

In the Reserved licenses section, you can reserve ibaPDA client and ibaQPanel licenses for certain computers on the network.

Because the ibaPDA license model works with free (floating) licenses, any client that wants to access the server can take advantage of a free license. However, this entails the risks that clients that need to access the server no longer find a free license if other clients were "faster" and have taken all the available licenses.

By reserving, you can now guarantee that the clients that absolutely need to gain server access, e.g., a computer on a control desk with ibaPDA client and ibaQPanel, always receive a license.

You must identify the computer with its name. You can reserve multiple licenses for a computer if multiple instances of the ibaPDA client are to run on the same computer. Reserved licenses can only be used by computers on the list.

Clients that are not on the list can only use generally available licenses.
In the *Current client connections* section at the bottom of the window, the *ibaPDA* client and *ibaQPPanel* licenses available in the dongle are displayed.

The table below shows one row for each currently connected client. In it you will find the

- name and IP address of the connected computer
- date and time the connection was established
- the number of signals transmitted to the respective client
- licenses used by the client.

The first client on an *ibaPDA* server does not require a license. It is marked with an asterisk in the table.

For reserved licenses for clients that are not currently connected to the server, the row has a gray background.

**Enable reserved licenses**

If you select this option, the allocation of licenses is regulated according to the reservations. If you disable this option, all licenses of the server become available again.

**Reserve license**

1. Click the button to add a new line.
   
   A computer name is then immediately displayed in the *Client name* column if there are active clients in the network. The name of the server computer is usually in the first row.

2. Click on the small button with the down arrow in the *Client name* field to see a selection of the available clients and select the desired client.

3. Then put a check mark in the selection fields of the desired license(s).

**Cancel reservation**

1. Click in the table row of the client for which you no longer need a reservation.

2. Click the button .

**Server access filter**

In the *Server access filter* area, you can determine to which clients a connection to the server is allowed. You do this by specifying the IP address ranges for the allowed clients.

**Only allow client connections with an IP address...**

If you select this option then connections are only allowed from clients in one of the IP address ranges in the table below. When you disable this option, access is not filtered.

**Add address area for filter**

1. Click the button to add a new line.
   
   A default name is provided in the *Area name* column, which you can change if you want.

2. Click in the field in the *From address* column and enter the start address of the range allowed.

3. Click in the field in the *To address* column and enter the end address of the range allowed.
Delete filter area
1. Click in the table row of the area you no longer want to filter.
2. Click the button \( \times \).

Save configuration
The server access configuration can be stored in an \textit{ibaPDA} project.

If a project containing a server access configuration is to be loaded, the user is asked whether to also load the server access configuration.
7 User management

The user management system allows the setup of different user accounts. Each user account has several server rights and client rights. There exists one "super user", called admin, that has all rights. He is the only one that can add or remove users and change the user rights.

You can configure the user management system in the "User management" dialog. The user management dialog can be opened either

- by choosing Configure - User management... menu or
- By pressing <Ctrl> + <U>

Fig. 28: Opening the user management dialog

By default, there is only the admin user. The user management system is disabled as long as the admin user does not have a password. If the user management system is disabled, every ibaPDA client connects to the ibaPDA server as admin. This ensures that every client has full rights.

To enable the user management system, you have to set a password for the admin user. For this purpose, click the <Set password> button.

Fig. 29: "User management" dialog, "admin" user
If the user management system is enabled and you are logged in as admin, you can add or remove users and change user rights. You can also assign passwords for each user account.

If the user management system is enabled, a Login dialog will appear when you connect to the ibaPDA server.

If the "Remember password" option is enabled, the user name and password are saved and reused when connecting to the ibaPDA server again.

In the status bar of the client, you can see your current user name and the server you are connected to.

When you are not logged in as admin, you can only change your own password in the user management dialog. Further, there is also a button to login as admin.
Fig. 33: User management dialog for non-admin users

**Note**

If your *ibaPDA* client is connected to an HD-Server (too), there is a separate user management available for the HD server which can also be configured in this dialog.
## 7.1 Server rights

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stop measuring</td>
<td>The right to stop the measurement</td>
</tr>
<tr>
<td>Apply new I/O configuration</td>
<td>The right to apply a new I/O configuration</td>
</tr>
<tr>
<td>Change locked modules</td>
<td>The right to change the settings of a locked module. A locked module is a module, whose configuration cannot be changed. All the module properties are locked. All the signal properties like name, scaling, unit etc. are locked.</td>
</tr>
<tr>
<td>Apply new data storage config</td>
<td>The right to apply a new data storage configuration</td>
</tr>
<tr>
<td>Change locked datastores</td>
<td>The right to change the &quot;Locked&quot; property of a data storage. A locked data storage is a data storage whose configuration cannot be changed</td>
</tr>
<tr>
<td>Disconnect other user</td>
<td>The right to disconnect another client in case the server has no more free client licenses left at the time the current user tries to connect to the server with another client. If no more client licenses are available, a dialog will appear showing a list of the currently connected clients and offering the possibility to select and disconnect a client.</td>
</tr>
</tbody>
</table>

Table 4: User management server rights
### 7.2 Client Rights

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close client</td>
<td>The permission to close the ibaPDA client.</td>
</tr>
<tr>
<td>Connect to different server</td>
<td>The permission to change the current layout</td>
</tr>
<tr>
<td>Change layout</td>
<td>If you do not have this permission, then you cannot move, reduce or enlarge the ibaPDA client window. You cannot change views. You cannot change docking windows.</td>
</tr>
<tr>
<td>Switch between layouts</td>
<td>The permission to switch layouts</td>
</tr>
<tr>
<td>Change password</td>
<td>The permission for a user to change his own password.</td>
</tr>
<tr>
<td>Resize client window</td>
<td>The permission to change the size of the program window, either using the mouse or using a key combination, e.g., to enable/disable full screen mode.</td>
</tr>
<tr>
<td>Use menu and toolbars</td>
<td>The permission to use menu commands and buttons of the toolbar. Without this permission, the menus and toolbars are disabled (grayed out), except for the toolbar of the signal views. The user can add/remove signals to/from the current signal monitors.</td>
</tr>
<tr>
<td>Interact with views</td>
<td>The permission to interact with signal views, e.g. zoom in/out, show/hide signals or change the scaling in trend graphs. If a user is not authorized to interact with views, the permission “Change layout” must also be disabled. This option does not apply to FFT and oscilloscope views. Interaction with those views is always possible.</td>
</tr>
<tr>
<td>Load layouts from server</td>
<td>The permission to load a layout from the server. If a user-specific layout is stored on the server, this layout will automatically be loaded whenever this user logs in, provided this right is enabled and there is a layout stored on the server under C:\Program Files (x86)\iba\ibaPDA\Server\Users\Username.</td>
</tr>
<tr>
<td>Save layouts on server</td>
<td>The permission to save a current or modified layout in the main folder on the server PC. If a user (other than admin) is logged in on the server and saves the layout, the layout will be stored in a subfolder with the same user name, e.g., C:\Program Files (x86)\iba\ibaPDA\Server\User\Username\CurrentLayout.lay</td>
</tr>
<tr>
<td>Send manual triggers</td>
<td>The permission to operate the start and stop trigger buttons in the toolbar of the data store.</td>
</tr>
</tbody>
</table>
### Option Management

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create ibaHD annotations</td>
<td>The permission to enter new annotations based on a pre-configured annotation type (selection from a drop-down list)</td>
</tr>
<tr>
<td>Configure ibaHD annotations</td>
<td>The permission to configure new annotations/types of annotations</td>
</tr>
<tr>
<td>Close client after a period of inactivity of... (5 min ...24 h)</td>
<td>Clients that are logged in under a user with this option are automatically exited after the set time if no use occurred in this time.</td>
</tr>
<tr>
<td>Disconnect client after a period of inactivity of... (5 min ...24 h)</td>
<td>Clients, which are logged in by a user with this option will be disconnected from the ibaPDA server automatically if the set time has elapsed without any operation during this time. The last layout remains loaded and the log-in dialog appears on the screen.</td>
</tr>
<tr>
<td>Client display style after login (normal ... full screen)</td>
<td>Clients that are logged in by a user with this option show the set display style during starting.</td>
</tr>
</tbody>
</table>

Table 5: User management client rights

### Note

The **<Save layouts on server>** button in the user management dialog has basically the same function like the menu command **View – Save layout on server**. This allows the admin user to easily organize layouts for other users, who have not the right to save layouts.

When saving a layout, a user with the “Save layouts on server” right will always be asked to select the user the layout should be saved for.

### Tip

If the menus and tool bars are disabled and you need to return to the user management dialog, press **<Ctrl>+<U>** for a new login to the server.
8 Print

ibaPDA supports printing of each view separately, or all panes at once.

In order to print a single view, right-click on the tab of the relevant view and select “Print” from the context menu. In order to print all panes at once, select “Print” from the File menu.

![Fig. 34: Printing of single view (left), printing of all views (right)](image)

8.1 Printer setup

The ibaPDA print setup dialog can be accessed in the File - Print settings... menu. The dialog also opens when printing a single view via the context menu of the View tab.

![Fig. 35: "Print settings" dialog](image)

This dialog provides the usual printing options:

- printer selection and the possibility to open the printer specific options dialog (<Properties...> button)
- Number of copies
- Alignment
- Page size and printer tray
- Page margins

Some printing options are more specific to *ibaPDA*:

■ Output
  - A page header can be added to the top of the page containing a time stamp, the title of the view being printed and the *ibaPDA* version being used.
  - A border can be printed around the view.

■ Scaling
  - Fitting: the views to be printed are scaled to fit the print range without changing their aspect ratio.
  - View: the views to be printed are not scaled. The views are not printed in screen size. The images are cropped to the print range if larger.
  - Print range: Print area: the views to be printed fit the entire print area. The aspect ratio is not observed

■ Margins
  - The minimal values depend on the non-printable page area of the selected printer.

■ Preview
  - Shows a schematic print preview. If the "Fit" scaling mode is selected, the view’s aspect ratio is considered square.
8.2 Printing preferences and settings

In addition to the aforementioned general print setup, there are more settings to be configured in the “Preferences” dialog or in the “Properties” dialog of the views to be printed.

In order to save printer ink, printing colors can be assigned for each view.

The “Preferences” dialog provides an overview of the printing options. Here, the basic printing options applying for all view types can be set.

Fig. 36: Primary printing preferences
9 Support and contact

Support

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Note

If you require support, indicate the serial number (iba-S/N) of the product and the license number.

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