



DIE CAST
MACHINERY
LLC

(847) 360-9170

World Leader in Used Die Casting Machinery!

HOME

RECENT
ADDITIONS

INDUSTRY
SERVICES

JOIN OUR
MAILING LIST

SELL US
YOUR MACHINE

If we can be of any assistance or if you have any questions,
please don't hesitate to contact us at (847) 360-9170.

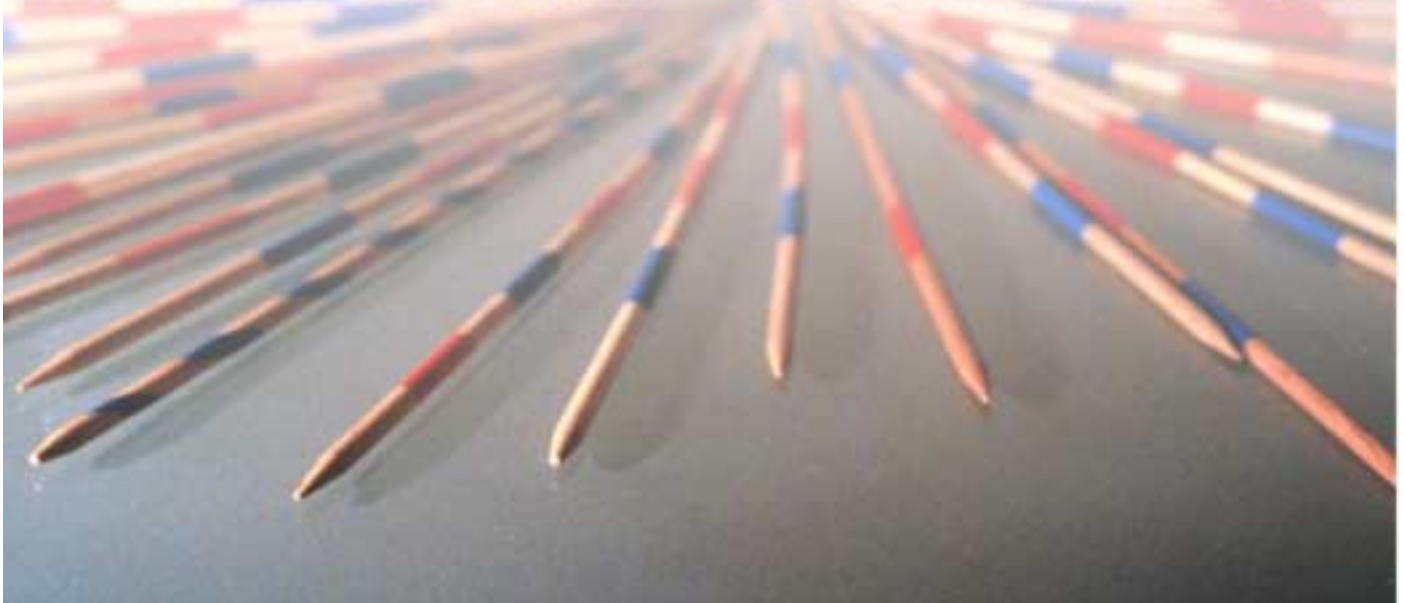
You may also visit our website at
<https://www.diecastmachinery.com>

Thank you!



User's Guide

DIA 2000 **second edition**



Disclaimer

Fink & Partner GmbH licenses the software and documentation products to you or your company solely on an "as is" basis and solely in accordance with the terms and conditions of the accompanying license agreement. Fink & Partner GmbH makes no other warranties whatsoever, either express or implied, regarding the software or the content of the documentation; Fink & Partner GmbH hereby expressly states and you and your company acknowledges that Fink & Partner GmbH does not make any warranties, including, for example, with respect to merchantability, title, or fitness for any particular purpose or arising from course of dealing or usage of trade, among others.

© 1992-2000 Fink & Partner GmbH, All Rights Reserved.

This manual as well as the software described in it, is furnished under license and may only be used or copied in accordance with the terms of such license. The information in this manual is furnished for informational use only, it is subject to change without notice, and should not be construed as a commitment by Fink & Partner GmbH. Fink & Partner GmbH assumes no responsibility or liability for any errors or inaccuracies that may appear in this book.

This manual may not, in whole or in part, be copied, photocopied, reproduced, translated, or converted to any electronic or machine-readable form without written consent of Fink & Partner GmbH.

Trademark Information

DIA 2000® is a registered trademark of Fink & Partner GmbH.

Microsoft, Windows, Windows 95/98/NT/2000, Internet Explorer, Word, and Excel are trademarks of Microsoft Corporation.

Btrieve is a trademark by Pervasive Inc.

Borland Database Engine (BDE) and Paradox are trademarks of Borland Inc. and Inprise Inc.

Acrobat Reader is a trademark of Adobe Systems Inc.

Navigator is a trademark of Netscape Inc.

All company or product names are the trademarks or registered trademarks of their respective companies.

Fink & Partner GmbH
Borselstege 13
47533 Kleve

Tel. +49 (0) 2821 / 75 15 0
Fax. +49 (0) 2821 / 75 15 0
e-Mail: info@analyses-management.com

updated 21.08.2001 11:06

Contents

User's Guide	1
Contents	3
About This Manual	6
WHO SHOULD READ THIS MANUAL	6
Introduction	7
COMPONENTS OF DIA 2000	7
DIA 2000 Main Application and Extension Modules	7
Borland Database Engine	7
SPC Charting	7
Serial Communication	7
TCP/IP Communication	8
Documentation	8
LICENCE AGREEMENT	8
Grant of License	8
Copyright	9
Other Restrictions	9
Limited Warranty	9
Customer Remedies	9
No other Warranties	9
No liability for consequential damages	9
Installing DIA 2000	10
GETTING READY TO INSTALL DIA 2000	10
System Requirements	10
Notes about Previous DIA Products	10
Installation Tips	10
INSTALLING DIA 2000 SINGLE USER	11
INSTALLING DIA 2000 NETWORK SETUP	11
COMMON QUESTIONS AFTER INSTALLING DIA 2000	11
How Do I Convert My Files From Previous DIA Products ?	11
How Do I Read the Online Documentation ?	12
What Files Were Installed as Part of DIA 2000 ?	12
Which functions are available in my DIA version ?	12
First Steps	13
STARTING DIA 2000 SE	13
LOGIN	13
WORKING WITH TABLES	14
The DIA 2000 screen	14
Editing Data Fiels	18
Delete Records	18
Auto-Locate in Look-up	18
Select analyses for output	18
DIA 2000 Reference	19
FILE	19
Archive	19
Certificates	22
Print	23
Import	23
Export	24
Login as new user	25
Exit Program	25

EDIT	25
<i>Details of Analysis</i>	26
<i>Delete analyses</i>	27
<i>Copy Analysis</i>	28
<i>Sort</i>	28
VIEWS	29
<i>Edit Filter</i>	29
<i>View AuditTrail</i>	32
FORMAT	33
<i>Analyses Table (Views)</i>	33
<i>Analysis Details</i>	35
<i>Print Reports</i>	37
<i>SPC-Charts</i>	37
<i>Certificates</i>	40
<i>Export</i>	43
MACROS	47
<i>Create Macro</i>	47
<i>Start Macro</i>	51
<i>Start Job Server</i>	52
<i>Create Jobs</i>	53
<i>View Joblog</i>	54
EXTRAS	54
<i>Create Certificates</i>	54
<i>SPC Charting</i>	56
<i>Statistics</i>	57
BASIC FILES	58
<i>Elements</i>	59
<i>Dimensions</i>	60
<i>Re-Calc factors</i>	61
<i>Qualities</i>	62
<i>Instruments</i>	65
<i>Addresses</i>	66
CONFIGURATION	67
<i>System Setup</i>	68
<i>Terminal Setup</i>	69
<i>Sample Identification</i>	73
<i>Setup AnalysesMerge</i>	74
<i>Quality Parameters</i>	75
<i>Instrument Manager</i>	77
<i>Setup AuditTrail</i>	81
<i>Re-Director</i>	82
<i>Edit Language</i>	84
<i>Users</i>	86
<i>Rights</i>	88
<i>Groups of Rights</i>	89
HELP	90
<i>Display Help</i>	90
<i>Content</i>	91
<i>Website</i>	91
<i>Online Registration</i>	91
<i>About</i>	91
Statistical process (SPC) and quality control (SQC)	92
DESCRIPTION OF CONTROL CHARTS	92
<i>Individuals chart (I-chart)</i>	92
<i>Histogram</i>	95
<i>X-chart</i>	97
<i>X-R-chart</i>	98
<i>X-S-chart</i>	99
<i>I-R-chart</i>	99
<i>Processing of external data</i>	100
<i>Table of constants</i>	100

<i>Error messages</i>	100
<i>Preparations for control charts</i>	101
Appendix A - Troubleshooting.....	101
INSTALLATION PROBLEMS	101
DIAGNOSING COMMUNICATION PROBLEMS	101
HOW TO GET ADDITIONAL HELP	101
Appendix B - Instrument Interfaces	102
SPECTRO ANALYTICAL INSTRUMENTS	102
Appendix C - Feature List and Modules	106
Appendix D – Serial communication with SerCOM.....	109
Appendix E – ODBC-Export	111
INTRODUCTION	111
SETUP	111
EXPORT TO ODBC	112
ODBC-DATABASE DEFINITION	114
<i>Table definition „analyses header“</i>	114
<i>Table definition “analyses detail”</i>	115

About This Manual

This manual contains information about installing, configuring, and using the DIA 2000 analyses database. DIA 2000 is a complete analyses management system, providing the full scope of functions from instrument communication to archiving.

This manual also contains information about common installation and runtime pitfalls, instrument communication information, and in general all DIA 2000 components.

Who Should Read This Manual

This manual provides information for users who install and run DIA 2000. This manual is also useful for system administrators who are responsible for maintaining the analyses database and for those who are administrating the network in which DIA 2000 may be running.

Fink & Partner GmbH would appreciate your comments and suggestions about this manual. As a user of our documentation, you are in a unique position to provide ideas that can have a direct impact on future releases of this and other manuals. Please send any comment or suggestions to us via e-mail to info@analyses-management.com ! Thank you for your cooperation !

Introduction

Thank you for purchasing DIA 2000 SE. We hope that you will enjoy using this fast, powerful and reliable analyses database product.

This chapter contains the following topics:

- Components of DIA 2000
- Licence Agreement

Components of DIA 2000

The DIA 2000 SE software application suite for laboratories comprises a couple of modules that are needed for specific jobs. Some of these modules are mandatory, others are only needed for dedicated tasks.

DIA 2000 Main Application and Extension Modules

After login the main application starts. It is possible that OEM resellers offer different versions of the system: DIA 2000 may run as a basic installation, as extension module 1 or 2. If you purchased the software from Fink & Partner directly, you will always have extension module 2 which offers the full functionality. Which version of DIA's main application you use can be taken from the status bar at the bottom of the screen.

The functionality covered by each of these versions is described in a table overview in the appendix of this documentation and also mentioned in the reference chapter at each function.

If you do not have the full version, i.e. module 2, you may upgrade your software. Please consult your local sales representative or directly Fink & Partner GmbH. You may also directly order through the website www.analyses-management.com.

The other modules of DIA will all be launched and controlled from this main application.

Borland Database Engine

The single-user licence of DIA 2000 SE comes with Borland's Database Engine (BDE). This database is compatible with former Paradox databases. DIA 2000 SE is not compatible with the former Btrieve database (which was used with DIA 2000, 2.6) !

SPC Charting

The SPC charting tools allows to easily create Q-101 compliant control charts. This module is a mere SPC package for statistical process control and may be used to control either your productions process or the performance of your analytical instrumentation. However, it should not be mixed with business charts which are not offered with this package. But the export function allows to make data available for other software packages. The simple transfer of analytical results into Excel may be the easiest way to cover such requirements.

Serial Communication

The instrument manager in DIA 2000 also offers serial instrument communication. The module SerCOM.EXE supports COM ports 1 thru 9 and

various parameters. Baud rate, data bits, stop bits, parity, and additional handshake settings.

The main serial protocols supported are:

- XOn/Xoff
- Spectro 4.3
- Compac 11
- Siemens 3964R

The serial communication module SerCOM is an external program that needs to be configured and started manually !

More details about SerCOM can be found in the reference chapter under "Instrument manager" and in Appendix D of this documentation.

TCP/IP Communication

Of course, DIA 2000 SE does support TCP/IP as a network protocol for working in multi-user environments. When we speak about TCP/IP communication with respect to DIA we mean a task-to-task communication between the DIA 2000 task and an other task running on a machine somewhere in the network. This is also often referred to as a socket-based "inter-process communication" (IPC).

This feature is typically used to automatically provide analyses data for process control applications. Please also read the information about Automatic Export (or Auto-Redirector).

Documentation

This documentation is available on your DIA CD-ROM in different forms:

- as PDF file (requires Adobe Acrobat Reader)
- as DOC file (requires Word 97 or higher)
- as RTF file, rich text format (requires RTF editor, e.g. Wordpad)
- as HTML file (requires browser, e.g. Netscape Navigator, Internet Explorer)

Licence Agreement

Please read the following text passage carefully !

This is a legal agreement between you, the end user, and FINK & PARTNER GMBH. By installing the software, you are agreeing to be bound by the terms of this agreement. If you do not agree to the terms of this agreement, promptly return the package with all accompanying items (including written materials and binders or other containers) to the place you obtained them for a full refund.

Grant of License

FINK & PARTNER grants you the right to use one copy of the enclosed software program on a single terminal connected to a single computer (i.e. with a single CPU). You may not network the software or otherwise use it on more than one computer or computer terminal at the same time.

FINK & PARTNER informs that it is - at the current state of the art - not possible to produce a computer software that works in all applications and combinations absolutely errorfree.

Consequently FINK & PARTNER can only warrant that the software will perform substantially in accordance with the accompanying written materials.

Copyright

The software is owned by FINK & PARTNER and is copyright protected. Therefore, you must treat the software like any other copyrighted material (e.g. a book or musical recording) except that you may either (a) make one copy of the software solely for backup or archival purposes, or (b) transfer the software to a single hard disk provided you keep the original solely for backup or archival purposes. You may not copy the written materials accompanying the software.

Other Restrictions

You may not rent or lease the software, but you may transfer the software and accompanying written materials in a permanent basis provided you retain no copies and the recipient agrees to the terms of this Agreement. You may not reverse engineer, decompile, or disassemble the software. If software is an update, any transfer must include the update and all prior versions.

Limited Warranty

FINK & PARTNER warrants that the software will perform substantially in accordance with the accompanying written materials for a period of 90 days from the date of receipt. Any implied warranties on the software are limited to 90 days. Some states do not allow limitations on duration of an implied warranty, so the above limitation may not apply to you.

Customer Remedies

FINK & PARTNER's entire liability and your exclusive remedy shall be, at FINK & PARTNER's option, either (a) return the price paid or (b) repair or replacement of the software that does not meet FINK & PARTNER's Limited Warranty and which is returned to FINK & PARTNER with a copy of your receipt. This Limited Warranty is void if failure of the software has resulted from accident, abuse, or misapplication. Any replacement of the software will be warranted for the remainder of the original warranty period or 30 days, whichever is longer.

No other Warranties

FINK & PARTNER disclaims all other warranties, either express or implied, including but not limited to implied warranties or merchantability and fitness for a particular purpose, with respect to the software and the accompanying written materials. This limited warranty gives you specific legal rights. You may have others, which vary from state to state.

No liability for consequential damages

In no event shall FINK & PARTNER or its suppliers be liable for any damages whatsoever (including, without limitation, damages for loss of business profits, business interruption, loss of business information, or other pecuniary loss) arising out of the use of or inability to use the FINK & PARTNER product, even if FINK & PARTNER has been advised of the possibility of such damages. Because some states do not allow the exclusion or limitation for consequential or incidental damages, the above limitation may not apply to you.

Installing DIA 2000

This chapter contains information about how to run the DIA 2000 setup routine. It contains the following sections:

Getting Ready to Install DIA 2000

System Requirements

The following list of features is not the minimum configuration required to run DIA 2000 SE, but a recommended typical setup. However, the actual performance of the software does not only depend on the hardware but also on the underlying operating system (which Windows version you use) and/or the network in use.

It would be ideal, if your computer offers the following technical data:

- Pentium III 500 MHz or higher
- 64 MB RAM
- screen resolution 1024x768 pixels
- hard disk
- 20x CD ROM drive
- Windows compatible ink jet or laser printer
- keyboard, mouse

If you run DIA 2000 in an external configuration you also need to ensure that the communication devices that you want to use are present. This could be either one or multiple serial ports or a network board.

More details can be found in the chapter "Architectural Overview".

Notes about Previous DIA Products

This release of DIA 2000 SE does not contain any conversion routine. In this sense it is not upgradeable. However you may run this software together with any previous DIA version. The new release uses a new database system and is incompatible to previous versions.

An update option with data conversion routines is planned for a later release. Please register your copy of DIA 2000 SE or visit our website regularly to receive the latest information.

Installation Tips

It is very easy to install DIA 2000 SE on your computer. Just run the setup routine from your CD drive and follow the instructions on the screen. For more details, read the next chapter carefully, which will explain the exact procedure while running the setup routine.

It may be helpful to make a few considerations before you run setup:

- do you install a single user licence or a multi-user network version ? If you want to run DIA on multiple computers simultaneously, you need a multi-user licence for DIA 2000.
- For single user, setup will install DIA in C:\DIA2000SE and sub-folders. You may change this default in the setup routine. Even in single user versions you

may install the software to a network drive (or at least set the data directory to a network drive). Thus, you ensure that your software/data will automatically be backed up with the server's backup device.

- Do you want to install DIA on the spectrometer computer (internal configuration) or on a separate PC (external configuration) ? For the external setup you must consider how you transfer the analytical results to the DIA computer. See chapter "Architectural Overview"...

Important note for installation to network drive:

If you install a single-user version to a network drive you must ensure that no one tries to access your data (except your DIA station). There is no locking or security functionality in the database. If multiple sites try to access the data simultaneously, the files may corrupt !

Important note for Windows NT or Windows 2000 users:

Prior to execute the setup program from your DIA 2000 CD, make sure you are logged in as ADMINISTRATOR. For a successful installation you will need all rights on your computer. Setup will create directories, copy files to your harddisk and apply some modifications to the registry of your system. If you are not logged in as Administrator, setup can not be completed successfully !

Installing DIA 2000 Single User

➤ **To install DIA 2000**

1. Insert the DIA 2000 CD in the CD-ROM drive of your Windows computer.
2. If the installation does not start automatically, click Start, select Run, and type drive:setup where drive is the drive letter of your CD-ROM device.
3. Follow the instructions of the setup program. Setup will create a DIA 2000 folder in your Windows Start menu and also create a shortcut on the desktop.
4. After successfully completing the installation process Setup will ask you if you directly want to launch the software.

Installing DIA 2000 Network Setup

The network version (multi-user) of DIA 2000 SE is not yet available. Please ask your local sales representative for more details about the time schedule for this release or send an e-mail to info@analyses-management.com.

Common Questions After Installing DIA 2000

How Do I Convert My Files From Previous DIA Products ?

Currently there is no conversion routine to update older DIA releases to DIA 2000 SE.

This version of the DIA's second edition is not upgradeable!

However, you may export analyses data from your old DIA or DIA Light version using either the Spectro 4.3 format or the internal format. This file (default name is ANALYSEN.DAT) can be imported into DIA 2000 SE.

Converting other files is not possible!

How Do I Read the Online Documentation ?

The easiest way to read the online documentation is to open the PDF file using Acrobat Reader. You find the DIA 2000 documentation in your DIA 2000 folder. Or simply click on **START**, **PROGRAMS**, **DIA2000SE** and select **DIA 2000 SE Documentation**.

If there is no Acrobat Reader available on your computer, you may install it from your DIA 2000 CD-ROM. For details see Chapter "Installing Acrobat Reader".

For better orientation and overview over the document you should open the navigation window in Acrobat Reader !

What Files Were Installed as Part of DIA 2000 ?

Setup will install basically five groups of files:

5. DIA 2000 SE program files
6. Borland Database Engine
7. General data files (for user data)
8. analyses data in the different archive catalogues
9. Documentation and help files

Further details about names, contents, and file locations can be found in the Appendix.

Which functions are available in my DIA version ?

The Appendix lists all the features and functions in the different versions of DIA 2000 SE !

First Steps

This section will introduce you to the first steps you need to undertake to start the DIA 2000 SE software. We will also explain the items shown on the main program window and discuss the first functions.

Should you have purchased this software together with a Specto A.I. instrument, the program is dongle protected. Consequently, you must ensure that the dongle is properly fixed to either the serial or parallel port of your computer.

Starting DIA 2000 SE

After successfully installing DIA 2000 SE you will find the DIA icon on your desktop. Besides this shortcut, setup has also created a folder in the startmenu of Windows.

If you click on Start, Programs, DIA 2000 SE you will see the different entries that the DIA 2000 setup has created:

➤ **To start DIA 2000 SE you may either**

1. double-click on the shortcut icon labelled DIA 2000 SE on your desktop, or
2. click on Start, Programs, DIA 2000 SE and select DIA 2000 SE to start.

After starting DIA, you will first be prompted the login screen.

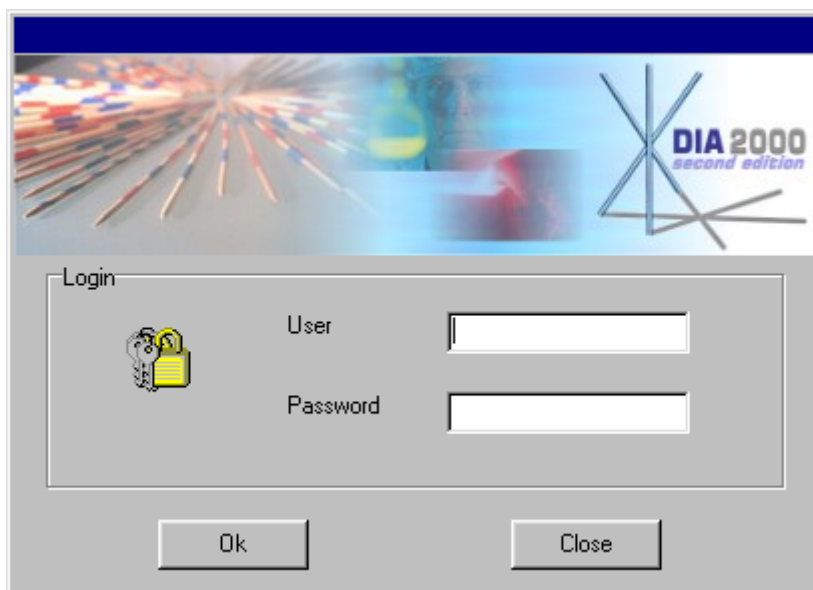
Login

The first screen that you will see after starting the DIA 2000 SE software is the login procedure. Here you have to identify yourself as an authorized user.

The non-hierarchical, rights-based password system allows the system administrator to individually assign access rights to user profiles.

➤ **To login:**

1. enter your user name and then
2. enter your password
3. click the Ok button



If login successfully identified you the application startup logo appears and after a few seconds loading time the application is ready.

After installation DIA 2000 SE can be started with the default user name **SUPERVISOR** and no password entry. For security reasons you should change this name or at least add a password for the supervisor. More information on how to setup user and work with rights and right groups can be found in the related chapter of this documentation.

Working with Tables

There are some general features in DIA that you should know about. Make your work with this software as effective as possible and some of the tips we provide in this section could be very helpful to achieve this goal.




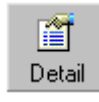


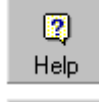


The DIA 2000 screen

DIA 2000 SE offers a completely revised working desktop.

A dynamic screen setup with powerful tool bars allow a comfortable and quick usage of DIA's core functionality and improve the performance to get the most out of your analytical data in the least time.

The main components of the DIA working screen are:

- the menu bar
- the icon bar
- the selection bar
- the analyses table
- the status bar

	Opens the export dialogue. You may export selected or marked analyses into various formats or send them directly into Excel or Word.
	Create filter criteria or modify existing ones. The filter that should be applied to the analyses of the open database can be selected through the selection bar.
	Create or modify table views to arrange data fields and elements on the analyses screen. To apply a certain view to the currently open database use the view pull-down in the selection bar.
	Displays the details of the focussed analysis. It shows you all the datafields and all the elements of the given analytical programme or method. The details can also be shown by double-clicking on the analysis record.
	Starts the job server. Shows the next job due with the option to start execution.
	A quick way to log in as a new user. The currently logged-in user can be seen in the status bar.
	Opens the help system of DIA 2000 SE.
	Opens the internet homepage of DIA 2000. This requires a browser on your computer and - of course - access to the internet.
	Opens DIA2000.NET, the analyses database in the internet. This is a service offered by Fink & Partner to publish your results in the internet. For more information just go there and take a look. Same requirements as above.

The Selection Bar

The selection bar is a very powerful tool to quickly toggle between different analyses databases, various selections of filtered records, and the table structure in which to present them.

The selection bar is the control center to navigate through your databases and select the interface for data presentation.

Three components allow to define what your analyses desktop should look like:

Analyses Database

Database Component:

Select the database that you want to see on your desktop. STANDARD is the default database. Other databases may be your archives or logical datasets.

Selection

Filter Component:

Choose the filter that you want to apply to the selected database. <no Selection> gives you an unfiltered list of all analyses in this database.

View

Views Component:

In a format you setup which

datafields appear in which column of the table. Various different views, i.e. combinations of ID fields and elements to display, may be defined and can be chosen any time. During runtime a view can be changed by the user to adjust column width, field positions, etc. by using drag'n'drop features.

The concept of DIA's Selection Bar lets you create your screen design, instantly, and according to your current needs: determine the database, then the records to be shown, and finally which data fields from these records !

The Analyses Table

The analyses table of DIA 2000 SE follows a completely new concept. It offers a totally free, user configurable layout design. The look-and-feel are similar to the commonly known spreadsheet programmes. You may drag and drop columns to place them at different locations, drag column widths, etc.

Each line represents one analysis record, the columns can be freely defined in so-called views. For more details see the chapter below "Working with Views".

The DIA 2000 software and, thus, also the analyses table are resolution independent and run with any screen resolution. For best use, your screen should have at least 800x600, better 1024x768 pixels or more.

The default sorting order is reverse chronological. Over the years this has proven to be the ideal starting order. The latest analysis appears on top of the list, the further down you scroll, the older the data. However, you may change the sorting order and sort by quality or sample ID 1, instead.

Scroll bar at the right can be used to browse through the table. It will also indicate the size and your position within the database.

The scroll bar only works correctly - regarding file size and position - when no filter is applied. The filter is processed dynamically to improve performance.

The keyboard navigation supports the typical Windows key combinations, as for example:

Home jump to the top of the table
Ctrl+Home

End jump to the end of the table
Ctrl-End

Page Up/Down browse the table pagewise

Cursor up/down browse the table by lines

Some values may appear in color. These colors indicate that a quality control check has been performed and that this value is either too high (red) or too low (yellow) compared to the quality specification. More details about this powerful feature of DIA 2000 can be found in the chapter "Quality Control Function" further down in this section.

The Status Bar

The status bar is located at the bottom of the DIA screen and provide additional information about the system:

- number of analyses filtered in the open database

- number of marked analyses (always at least the one focussed). More records can be marked by clicking into further lines while keeping the Ctrl key pressed.
- login name of current user
- keyboard status
- DIA version, extension module of your installation. For more information, please refer to chapter "Components of DIA 2000" and Appendix D.



Editing Data Fiels

The status bar also informs about the keyboard status: Overwrite (Ovr), Numlock (Num), Caps lock (Caps) help you while editing datafields.

In some function within DIA you have to change to edit mode to edit a value. Hit **F2** to activate edit mode ! Else you may just overwrite the entry.

Delete Records

To delete analyses you may use the menu option in "Edit – Delete Analysis". You may mark analyses with Ctrl+left mouse key and also delete multiple analyses.

To delete records in other functions of DIA 2000 you may use Ctl+Del or use the "Delete" button where available.

Note

Make sure that the focus is in the right part of the window: in screens where there is a main entry and detail entries the delete function will delete either the main entry (with all details) or only a detail entry depending on the location of the cursor/focus.

Auto-Locate in Look-up

Some of the pull-down look up tables contain a lot of data and it can be time consuming if you want to scroll through the whole list. It is easier to open the look-up and start typing the searched value (e.g. an element name). The system will automatically jump to the value matching your entry.

Select analyses for output

All output functions in DIA 2000 will use all analyses as currently shown in the analyses table. The number of analyses selected is displayed in the lower left corner of the status bar.

If you want to output only a few analyses you may tag them by clicking onto the required record while keeping the Ctrl key pressed !

In the output function you need to check the box "Marked analyses" !

DIA 2000 Reference

This chapter will provide information for each single menu entry. This section is sorted according to menu structure and may, thus, be best used as a reference to look-up the questions you may come up with using the software.

File

The file menu comprises all functions that have to do with filing, input, and output of analytical information.

Consequently you will find DIA's archive system, the file manager here, as well as functions to print, export, or import of analytical results. The certificate list as a special output form is also located in this menu.

Also, the exit function is (traditionally) located here as well as an option to restart the software under a new user name.

Archive

DIA's File Manager is the control center of your analyses databases that you want to manage with DIA. An analytical database consists of a couple of related files (or tables) that together make up a logical set of data. All files that belong to one database are stored in a common folder.

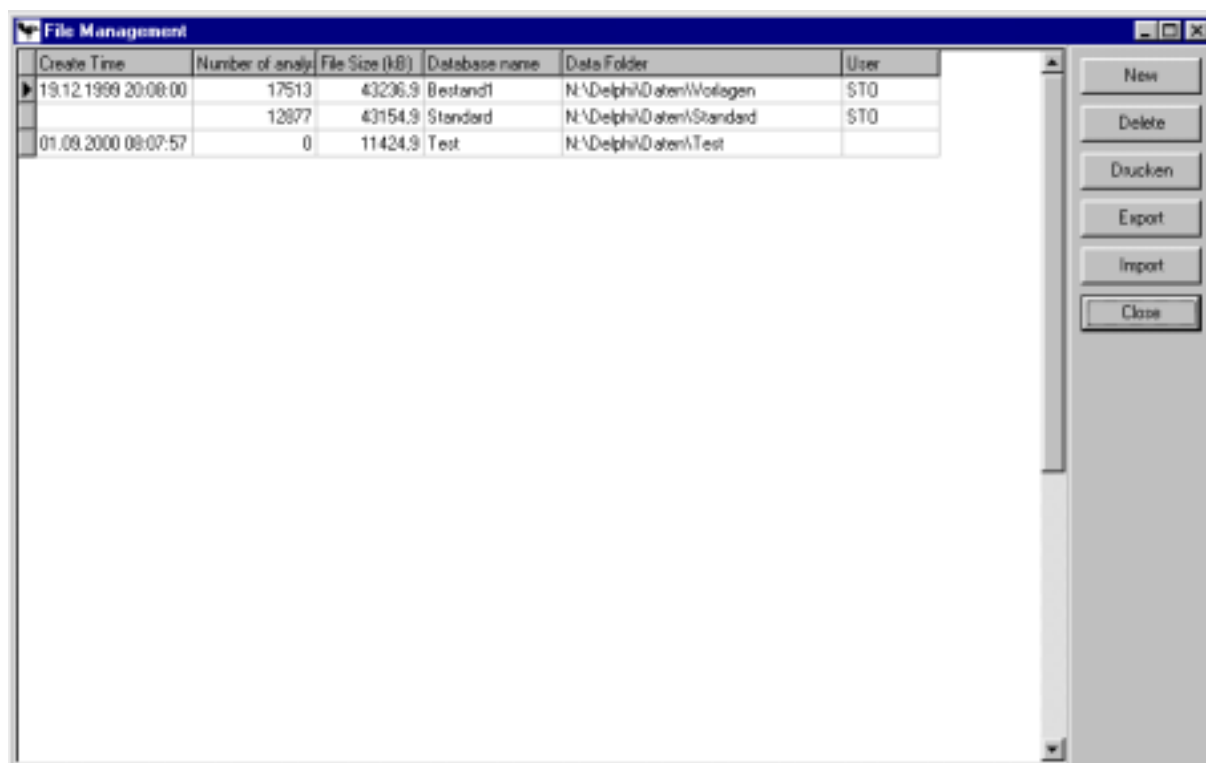
Such datasets can be used to

- create and maintain archives, or
- organize analyses in different databases.

Note:

For most users it is advisable to integrate all analyses or results from any method, source, or instrument in one database. The STANDARD is the right destination to collect your results. The file manager, thus, would only be used for archiving purposes.

For more details, please read the chapter "The Concept of Integration".



The File Manager windows gives you the following information:

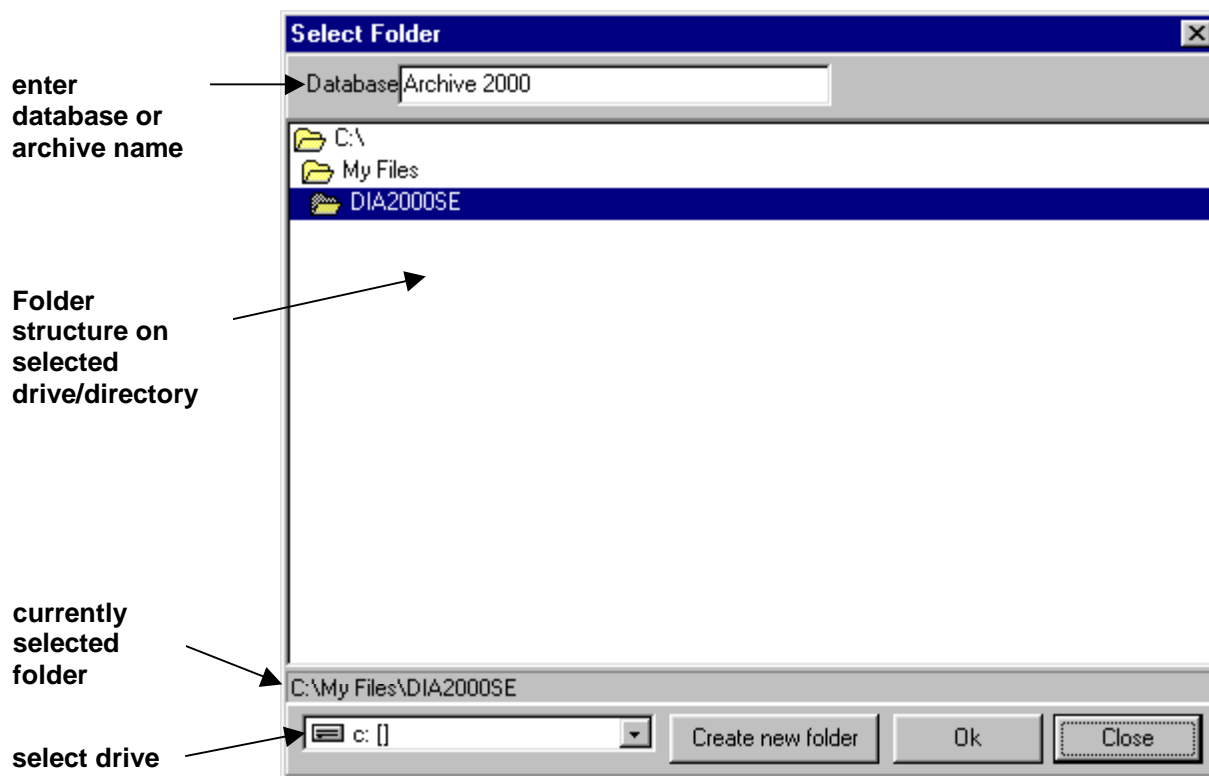
- Create Time:** Date and time when the database was created.
- Number of analyses:** Number of analyses records stored in this database.
- File Size (kB):** Size of the analyses database in kilobyte. This actually comprises a number of files and represent the space consumption of the whole database directory
- Database name:** Name of the database as it will be referred to within DIA.
- Data Folder:** The drive and directory in which the analyses database is located.
- User:** The login name of the user who created the database.

The push buttons on the right side of the window have the following meaning:

New

➤ To create a new database or archive

You first have to determine the drive and directory/folder in which to store the database and its files.



1. select the drive where you want to store and keep your database/archive.
 2. in the center part of the window, open the folder/directory in which you want to store the database. If necessary, you may also create a new subdirectory by clicking on the button "Create new folder". The selected folder must appear in the status line (as indicated above) !
 3. Enter the new database name and click on "Ok" to finalise the procedure.
- Your new database has now successfully been created !

Note: The initial file size is approx. 44 kBytes ! This is the amount of space that the pre-defined files, tables, and indices need.

Delete

➤ To delete a database/archive:

1. Highlight the database to be deleted
2. press the push button "Delete"
3. Confirm that you want to delete the selected database

The database has been removed, all related analyses database files have been deleted. Also the entry in DIA's File Manager has been removed.

Attention: A thus deleted database can not be recovered. The files will not show up in the Windows recycle bin !!

Print

This dialogue will print a screenshot of the active function on your default printer.

Close

Closes the window.

Certificates

This function shows the list of previously created and issued certificates. They appear in chronological order.

The screenshot shows a window titled "Certificate table" with a table of certificates and a form for details. The table has columns: No., Date/Time, Address, CID1, CID2, and CID3. The form below the table has fields for Specification chem, Specification mech, Field selection, Template certificate, and Certificate.

No.	Date/Time	Address	CID1	CID2	CID3
54	10.05.2001 23:47:52	Test			
55	10.05.2001 23:59:56	Test			
56	17.05.2001 11:48:15				
57	23.05.2001 14:05:10	Otto			
58	23.05.2001 14:05:15	Otto			
59	06.06.2001 10:08:46	Otto			
60	06.06.2001 10:09:30	Otto			
61	06.06.2001 10:09:54	Otto			
62	06.06.2001 10:10:16	Otto			
63	06.06.2001 10:10:15	Otto			
64	06.06.2001 10:10:20	Otto			
65	06.06.2001 10:10:32	Otto			
66	25.06.2001 12:09:34	Maier			
67	25.06.2001 12:10:40	Maier			
68	13.07.2001 09:15:10				
69	13.07.2001 09:16:01				
70	13.07.2001 09:45:25				

Specification chem:
Specification mech:
Field selection:
Template certificate:
Certificate:

Details

Shows the details of the selected certificate as entered during the creation process.

Preview

Starts the word processor and opens the certificate document (RTF file).

Print

Starts the word processor and prints the certificate document (RTF file).

Delete

This function deletes the complete certificate with all its data from the database. The previously created RTF document file will NOT be deleted.

Close

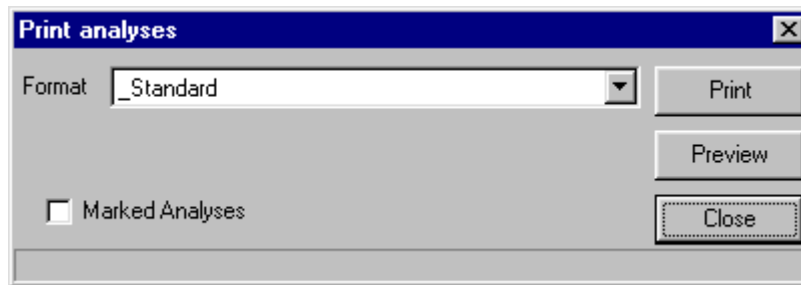
This function will close the dialogue.

Print

In order to print analyses you have to specify the print format as defined in the Format menu.

"_Standard" prints a multi-line, protocol-type layout, where the elements to be printed are determined by the display format (analytical programme/method). There is only limited possibilities for the user to modify the layout.

All other print formats are user-defined and will print a spreadsheet-like table with one line per analysis.



➤ **To print analyses:**

1. Select „File - Print“ from the menu or click on the Print Icon.
2. Select the print format, either “_Standard” or one of the user-defined formats
3. If you check the box “Marked Analyses” only marked records will be printed, else the program will print all filtered analyses in the table.
4. click on PRINT to print or PREVIEW to open the preview window and check out what the print-out looks like. The preview function also offers a print button.
5. click on CLOSE to close the window.

Note: If you just want to print a single analysis, you can use the print button within the analysis details.

Print jobs will always address the default printer as setup in Windows !

For more information about how to create print formats, please consult section „Formats“ of this documentation.

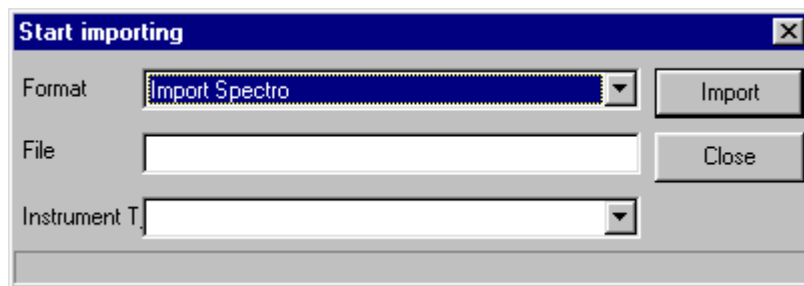
Import

This routine is meant for user-initiated import of analyses files. It can read ASCII-formatted files and Excel spreadsheets via DDE.

The following ASCII formats are supported:

- user-defined ASCII import formats, see Chapter “Formats”

- DIA 2000 internal ASCII format
- Spectro 4.3 ASCII format (ANALYSEN.DAT)



➤ **To import analyses**

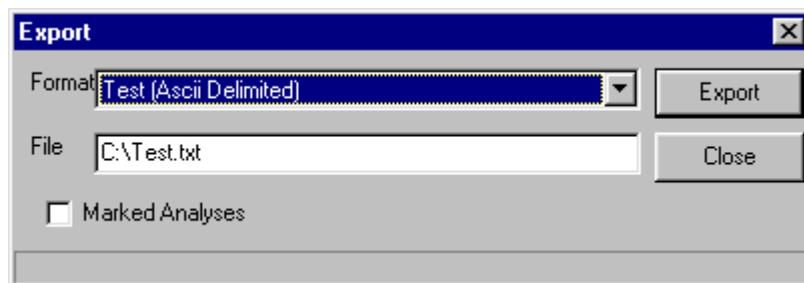
6. Choose "File - Import" from the menu.
7. Select the required import format from the list of (pre-)defined formats.
8. The system will suggest to import the file associated with the selected import format. The file name may be changed or entered completely new.
9. Assign an instrument code to the imported analyses. The pull down list will show you all instruments that were previously entered into the instrument list (menü "Basic Files", "Instrument types").

For more information about how to create import formats, please consult section „Formats“ of this documentation.

For permanent, continuous, and fully automatic import of analyses results from your instrument/s you should not use this function, but configure the Instrument Manager instead. Please consult the "Config" section.

Export

If you want to make analyses data available for other computers or software applications, DIA supports various types of export.



➤ **To export filtered or marked analyses:**

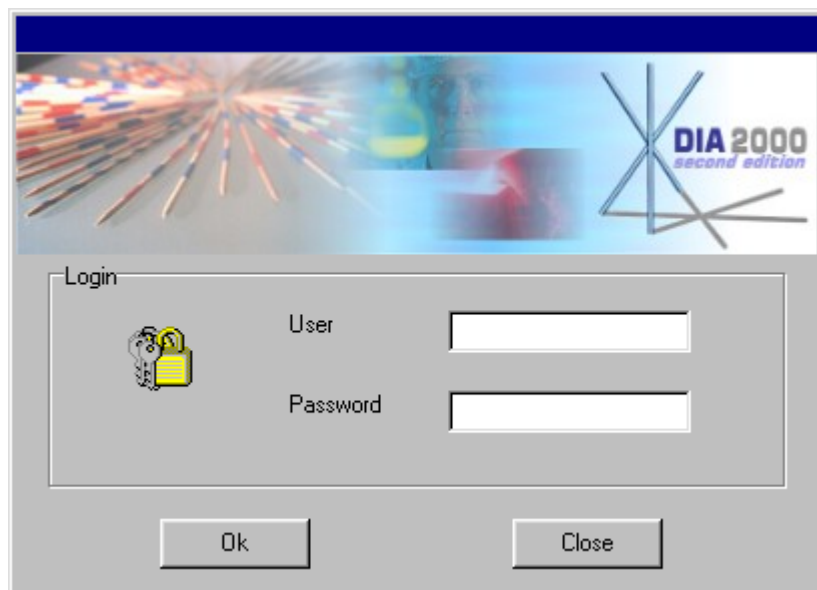
1. Click on menu "File - Export" or on the Export Icon.
2. Select the export format required (after the export format name, the export type is mentioned in brackets)
3. Enter the export file name and location. The program will suggest to use the file name associated with the selected export format
4. Check the box "Marked Analyses" if you only want to export marked analyses. Else, the program will export all filtered analyses in the table.
5. then click on EXPORT to launch the export routine.

For more information about how to create export formats, please consult section „Formats“ in the reference chapter of this documentation.

Login as new user

To login under a new name, just enter your user name and the password stored for this use name.

The rights profile stored for this user will become active and you will have the access rights associated with this user name. Also modifications will now carry this name in the AuditTrail log file.



This function also locks your DIA workplace and prevents unauthorized access! You may only continue if you enter a valid user ID and password. Else the program will automatically terminate. The close button also will close down the application.

Exit Program

With this menu option you quit the DIA 2000 application and return to your Windows desktop. This function will close all files and stop all procedures. This will especially affect running jobs and the instrument communication.

Note: If you exit DIA 2000, analyses from the instruments will no longer be processed by DIA. Especially for instruments linked through serial communication this could also cause a loss of data !

Edit

The edit menu offers functions to alter, create or delete information in the DIA analyses database.

If not otherwise stated, the described function works with a highlighted analysis. You may highlight a record by clicking once onto the line.

Details of Analysis

Alternatively you may also open the details of an analysis by double-clicking on the highlighted line.

The window shows the complete analysis with all elements defined in the display format. The display format is the entry stored in the method/programme field of the analysis. It must correspond to an entry in the display format table. In most cases this will automatically be generated. Also the user may change display formats according to his requirements.

On the left side of the window, the sample ID fields are shown in the order given in "sample identification" menu of DIA's configuration.

Note:

To setup a display format, go to menu "Format" and open "Display Formats". When opening the analysis details view, DIA 2000 will first check the method name (or analytical programme) and takes the value supplied by the analytical instrument and searches for the corresponding display format (with the same name). If - during import of the analysis - no display format exists for the method transferred, DIA 2000 will automatically create one with the elements sent !

Details of analysis											
Name	Value									Print	
Date	05.01.1998									Close	
Time	08:39:56										
ID-4											
ID-6											
Quality	B354V1										
Quality/Version	1										
Sample-Nr.	0038										
Status	1										
Type	1										
Sample No.	47308										
Quality OK	False										
Quality Checked	False										
Sample ID											
Modify Date											
Modify By											
			C %	Mn %	Si %	P %	S %	Cu %	Cr %		
		est Max	0.1	0.67	0.35	0.04	0.05	0.6	0.25		
		int Max	0.09	0.62	0.2	0.035	0.05	0.6	0.16		
			0.090	0.000	0.000	0.000	0.041	0.000	0.110		
		int Min	0	0.42	0.15	0	0	0	0		
		est Min	0	0	0	0	0	0	0		
			Ni %	Sn %	Zn %	Pb %	V %	Mo %	Ti %		
		est Max	0.25			0.015		0.06			
		int Max	0.2			0.015		0.05			
			0.140	0.025	0.000	0.004	0.000	0.030	0.000		
		int Min	0			0		0			
		est Min	0			0		0			
			W %	Al %	Nb %	As %	Zr %	Ca %	B %		
		est Max	0.07								
		int Max	0.07								
			<0.010	0.000	0.000	0.007	0.000	0.000	0.000		
		int Min	0								
		est Min	0								
			Sb %	N %	Durchm. II	ceq %	+Ceq %				
		est Max		0			0.22				
		int Max		0			0.22				
			0.0000	0.0000	0.000	0.0673	0.0000				
		int Min		0			0.18				
		est Min		0			0.18				

Quality control

If a quality has been assigned to the analysis (within DIA or at the analytical instrument before), DIA will automatically perform a quality control and compare the results with the given min/max specification as stored in the quality table (see "Basic files - Quality").

Violations of the specification are shown in color: red indicates a value higher than the max, yellow marks a value below the minimum. In the database, the results of the quality check are stored with a plus/minus character (or other character as specified in "Config - Quality parameters") per element and a quality flag (default: "!!") assigned to the analysis, shows that at least one element is out of specs.

Edit element results

To change a result, just click on the field value and apply your modifications. For some of the sample ID fields there will be pull-down option windows.

Edit sample ID fields

To edit a sample ID field, just click on the field value. Some data fields will offer look-up (pull down) lists to accept values from linked tables. The quality field, for example, allows you to select a quality name from DIA's quality library. Some of the system fields will have fixed lists, but the user may also create look-up lists for his/her own data fields, so-called "plausibilities".

For more details, see menu "Config - Sample Identification".

Print the analysis

Click on the button "Print" to create a print-out in the _Standard print format.

For more details about print formats, see menu "Formats - Print".

Formula calculation

For each element a formula expression may be assigned. Formulas included in the display format used within an analysis will automatically be calculated whenever output (display, print, SPC, export, etc.).

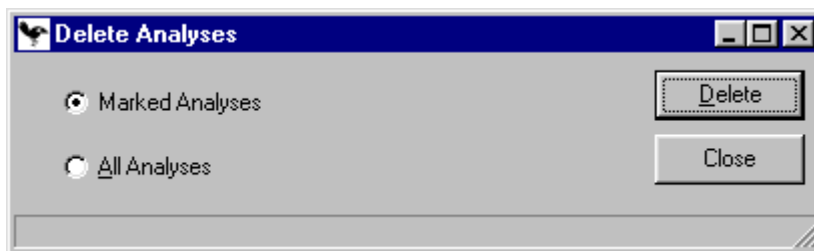
Audit Trail

When you close the window, confirm to store the modifications that you applied to an existing value (ID fields or elements), the system will create an entry in the AuditTrail log book. You have to give a reason for the modifications. Otherwise DIA will restore the previously saved values and reject your changes.

To use AuditTrail, it must be activated. This can be done by the system administrator in the config menu !

Delete analyses

For the rare occasions where you want to delete analyses, here is the function.



➤ **To delete analyses:**

1. Select "Delete analyses" in the "Edit menu"
2. Check either box "Marked Analyses" or "All Analyses", where "marked" refers to analyses highlighted (you may mark multiple analyses by keeping the Ctrl key pressed and clicking on the desired record/s). "All analyses" on the other side means all analyses in the current analyses table view.
3. Click on "Delete" to start the process.

Warning: There is no Undo function available for the delete command !

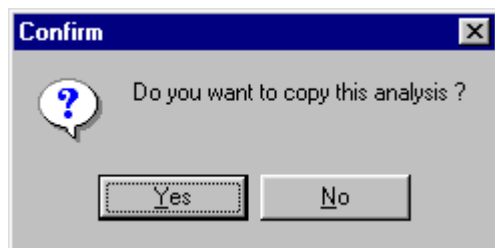
Note: If you just want to delete a single analysis, you only need to click on the line to put the focus on this record and press the key combination Ctrl+Del.

It is strongly recommended to archive analyses prior to deletion. For more details on how to archive, please consult chapters "File", "File Manager" in the reference section and "How to Archive Analyses" in the section "First Steps".

Copy Analysis

Prior to applying major changes to an analyses record, you may want to make a copy of that record first. This eases the roll-back afterwards. Of course, the system is safeguarded through the AuditTrail function (if activated), but there is no restore function in AuditTrail.

Sometimes this is a helpful feature, if you just want to try something new with your data and want to keep the original.



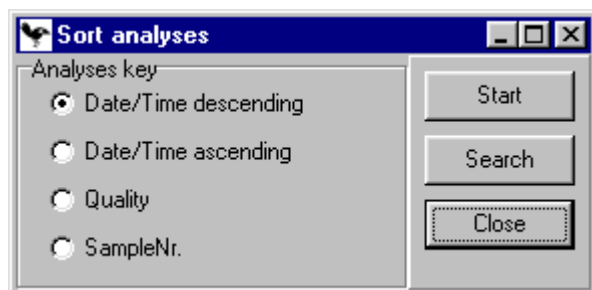
➤ **To copy an analysis:**

1. Select "Edit - Copy analysis"
2. Confirm by clicking on "Yes"

Note: It is only possible to copy one analysis at a time. If you have marked more than one, only the last (first in chronological order) will be copied.

Sort

The analyses table is by default sorted in reverse chronological order. With this dialogue you may change the sorting order.



➤ **To sort the analyses table:**

1. Select "Edit - Sort"
2. Choose among the offered sorting options, the one required
3. Click on START to change the sorting order.

Only the displayed data fields are available for sorting. These are pre-defined index keys, so that the sorting will be immediate.
The sorting will be active for one session. After re-starting the software, the default sorting order will be active again.

Views

In the menu "View" you can edit your data views for the analyses table.
Also the view into the AuditTrail table is possible for authorized users.

Edit Filter

With this function you can edit existing analyses filters or create new ones.

The filter concept in DIA is a powerful feature to support your work with huge amounts of analyses.

It is meant to filter analyses of interest in the open database for the following output purposes:

- display in the analyses table
- print
- export
- calculate statistics
- create SPC charts
- archive
- in macros and jobs

The filter concept offers a couple of unique features that make it a valuable tool in your daily routine:

- filter definitions can be stored under a user defined name
- you may filter using any data field in your analyses database, including all sample IDs and elements
- the filter may calculate a dynamic time period, e.g. analyses from yesterday, last week, month, year

Note: It is recommended to create dynamic filters for repeating routine jobs. For all other, non dynamic data selections you may need, you should create one "ad hoc" filter that can be changed every time it is needed.

You should avoid running into hundreds of filters, only because you create a new filter for every printout that you do.

Field Name	Target Value	From	To
▶ Quality		VORPROBE	VORPROBE

New

➤ To create a new filter:

1. Click on the button new. A small window for the new name will appear.
2. Enter a name for the new filter and click OK. The filter will be shown in the dialogue.
3. If you want to make it a dynamic filter, click on "DYNAMIC DATE".

First, you need to specify the date type:

- none: no dynamic
- Day
- Week
- Month
- Year

To calculate the From-date you have to give a starting point. Under start enter the number of days/weeks/months/years. This will be subtracted from

the current system date to evaluate the From-Date.

In Duration enter the number of days/weeks/months/years that your range should cover. Starting with the From-Date this number will be added to calculate the To-Date.

The dynamic date range will automatically be re-calculated each time you use the filter.

4. If you want to leave it static, just enter the Date from/to and also the Time from/to. Skip these fields if you have setup a dynamic date.
5. Check "Time of Day" if you want to make shift evaluations. If this box is tagged, DIA will only filter analyses that have been analysed within this time period for every single day of the date range. If the box is not checked, a 'time from' setting will only mark the exact beginning of the data selection, cover all following days completely (24 hours) and terminate at a given time (to) on the last day.
6. Next you get to the Range Definitions. Additionally to the chronological filter you may add filter criteria using your sample ID fields and elements. First select the field that you want to use as a filter criterium.
7. Next enter the filter data. Three columns are available:
Target: enter a specific target value to be filtered. At first glance it behaves in just the same way as if you enter the same value for 'from' and 'to'. The main difference is, that targets will be regarded as logical ORs. After processing all from/to criteria the targets will be checked and each hit will be in the filtered analyses table (see example below).
From: If you are looking for a range of data or you want to explicitly include this data field as a logical AND, then enter your from criterium here (see example below).
To: Specify the end criterium for your range definition.

Explanation & Example for filter processing

To define a filter, just select a data field and enter your criteria. Typically you would enter 'from' and 'to' criteria. You may setup as many entries in the range definition as needed.

When processing the filter, DIA will perform these steps:

1. filter analyses that fall within the given time range (date entered above).
2. Among those hits, it will next select the analyses that match all from/to criteria.
3. Among the remaining records all analyses that match the first target will be selected, then – on the same group of records – the filter starts again, selecting analyses matching the second target, and so on.

The definitions containing a from/to value will be executed after the time range filter. All from/to definitions behave among each other as logical AND. All criteria must be fulfilled to accept the record for the hit list. Only then the target value will be processed, each behaving like a logical OR, based on the previously determined from/to hit list.

Example1:

Filter: Carbon

Dynamic date

Date: 05.07.2000 6.07.2000

Time: ☐ Time of day

Field name	Target value	Value from	Value to
C		3,5	3,59

New Delete Close

Filters: All analyses that were analysed between 5.7.2000 and 6.7.2000 **AND** the carbon value is between 3,5 and 3,59.

Example 2

Delete

The delete function allows you to delete

- the complete filter if the focus/cursor is located in the upper part of the window, or
- a single filter line in the lower part, the Range Definition of a selected filter.

Print

This dialogue will print a screenshot of the active function on your default printer.

Close

This function will close the dialogue.

View AuditTrail

DIA 2000 may log all changes that were applied to the analyses database by authorized users. Therefore – of course – audit trail must have been activated before. You can do this in “Configuration – Setup AuditTrail”.

There, too, you may see the log entries.

The AuditTrail logs allow the system administrator to trace all changes in the database.

The list of changes is sorted in reverse chronological order of the modify date. The record contains the following information:

Modified at	Date and time when the analysis was edited.
User	The user name that was logged in while the change was done.
Time of analysis	Date and time of the analysis. Typically this is the date/time that was transferred by the instrument.
Sample no.	The sample number field appears here for easy identification of the

	sample.
Field name	Name of the data fields that was changed. This can be either an element name or a sample ID field.
Value before	This is the field content before the change was applied.
Value after	This is the field content after the change.

Note:

Entering a new value to a blank field is not a modification that would be protocolled by AuditTrail. This function will only log changes !

Format

For each output in DIA 2000 you need to create a so-called 'format' in which you define the structure of the output.

Consequently, formats are needed ...

- to setup the analyses table view
- to setup the display format for analysis details
- to create a print report
- to specify details for SPC charting
- to define a record structure for the different export functions.

Besides other details, the formatting of element values is a central aspect in all formats. Information about dimension, precision, rounding can be setup individually for each element and output format.

The concept of formats is a powerful tool in DIA. The same analyses may be displayed in one format and printed in a completely different form. You are not limited regarding the number of different formats that you may create !

Analyses Table (Views)

The way in which analyses appear in the main screen can be setup in various formats. A pull-down pick list allows to easily change the view that you want to apply to the currently open analyses database.

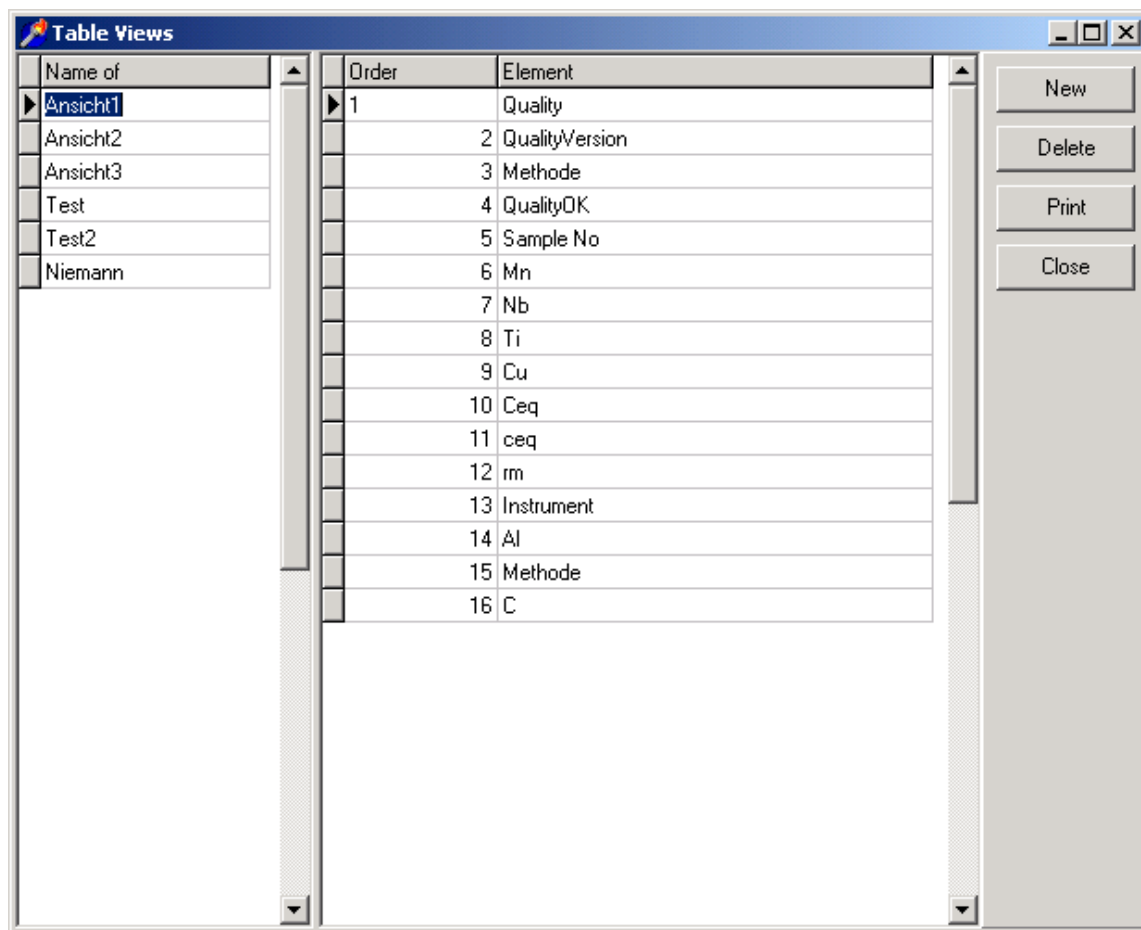
In this dialogue a format will be created and the ID fields and elements that shall appear on the table will be selected in the required order.

Note:

The column width can only be adjusted directly in the analyses table by pointing on the column separator line with the mouse and dragging it to the required size. Releasing the mouse button will store the setting.

You may also use drag-and-drop functionality to move complete columns and place a data field on a new position. However, this change will not be stored permanently ! The next time you open DIA 2000, the order setup in the selected view format will again be restored.

The table shows all view formats already defined in alphabetical order.



➤ **To create a new view format:**

1. Click on the "New" button to create a new view format.
2. enter the name in the new line marked with an asterisk (*) in the left part of the window.
3. click into the right (empty) side of the window and enter the first order number (usually a 1).
4. with cursor key or mouse move on to the element column and click on the down arrow (or press Alt-↓) to open the pull-down pick list with the elements and ID fields. You may type the field name to automatically jump to the required entry and accept it with Enter, or just use the mouse. You may arrange ID fields and element in any free order.
5. Press Alt-↓ to create the next line and continue with the next data field. Repeat these steps until all data fields that you want to include in this view are listed.
6. Click on the "Close" button to save your entries and leave the Window.

Please do not include the data fields Date and Time in your view format since these two data fields will automatically be added to the view format by DIA !

Delete

The delete function allows you to delete

- the complete view format if the focus/cursor is located on a format name in the left part of the window, or
- a single data field in the right part of a view format.

If you delete the currently active view the values will disappear in the analyses table, leaving only date/time on the screen. No analyses data have been deleted ! Just assign a valid view format to get a proper display.

Print

This dialogue will print a screenshot of the active function on your default printer.

Close

This function will close the dialogue.

Analysis Details

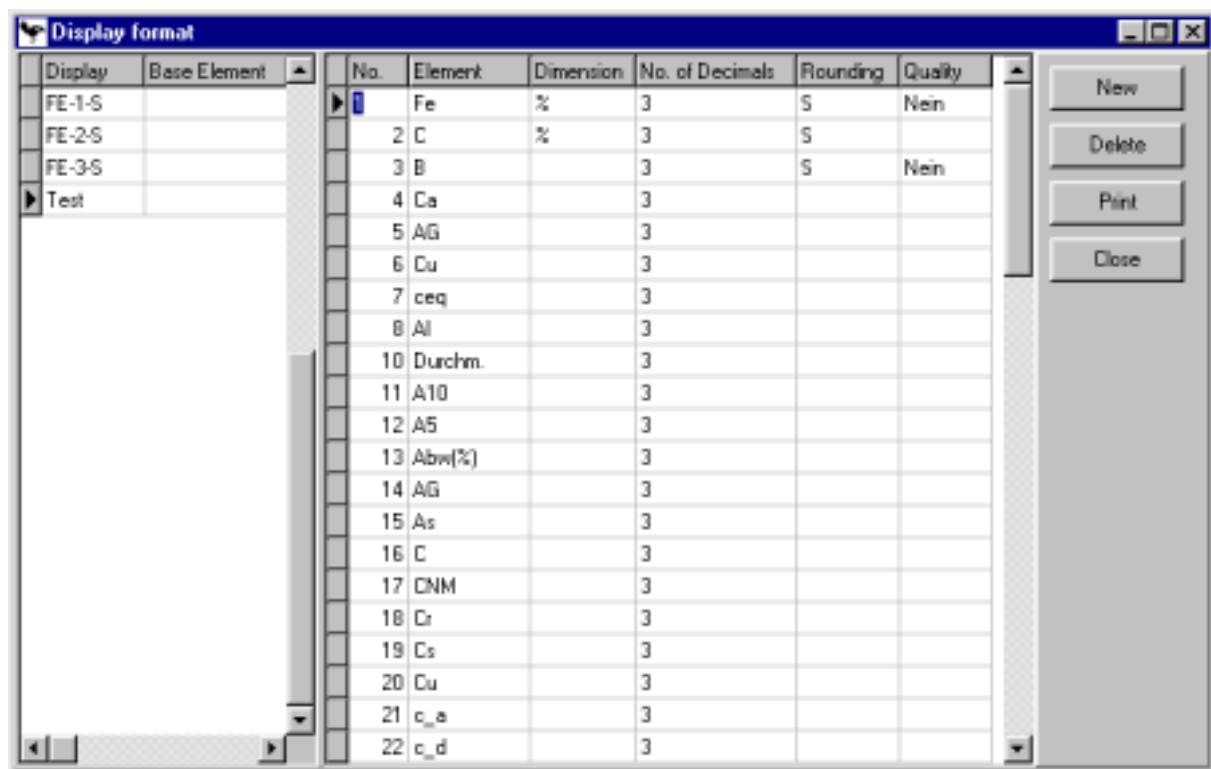
A double-click on an analysis line will open the window to show the analysis details. It will show all ID fields stored with the analysis and the elements as define in the corresponding display format.

The programme or method stored with the analysis determines which display format to use when showing the details. The format name must be identical with the programme/method name.

When you use native instrument drivers there is no need to create new display formats. If – for a transferred method – no display format exists, DIA will automatically generate one with the element information provided by the instrument.

However, you may modify such formats to change the dimension, or add other elements.

The table shows all already defined display formats in alphabetical order.



➤ **To create a new display format:**

1. Click on the "New" button to create a new view format.
2. enter the name in the new line marked with an asterisk (*) in the left part of the window. A base element is only needed if you want to use the quality identification function.
3. click into the right (empty) side of the window and enter the first order number (usually a 1).
4. with cursor key or mouse move on to the element column and click on the down arrow (or press Alt-↓) to open the pull-down pick list with the elements. You may type the element name to automatically jump to the required entry and accept it with Enter, or just use the mouse.
5. In the same manner you assign the dimension to be displayed. This may be the dimension in which the value was originally measured, or a derived dimension (like e.g. ppm if % was analysed).
6. Next enter the number of decimals (digits after the decimal point) to be shown. Valid entries are numbers ranging from 0 to 8 or D for 'dynamic'.
7. Then the way of rounding can be determined: entries available are
 - '<' for round down,
 - '>' for round up,
 - 'S' for standard rounding.
8. The quality field allows you to specify that the number of decimals will be taken from the quality setup. DIA will take the name of the quality stored in the analysis and read the number of decimals for each element as entered in the quality file. See also "Basic Files" – "Qualities".
You may only toggle between Yes or No.

9. Press Alt-↓ to create the next line and continue with the next data field.
Repeat these steps until all elements that you want to include in this format are listed.
10. Click on the “Close” button to save your entries and leave the Window.

Delete

The delete function allows you to delete

- the complete display format if the focus/cursor is located on a format name in the left part of the window, or
- a single element in the right part of the display format.

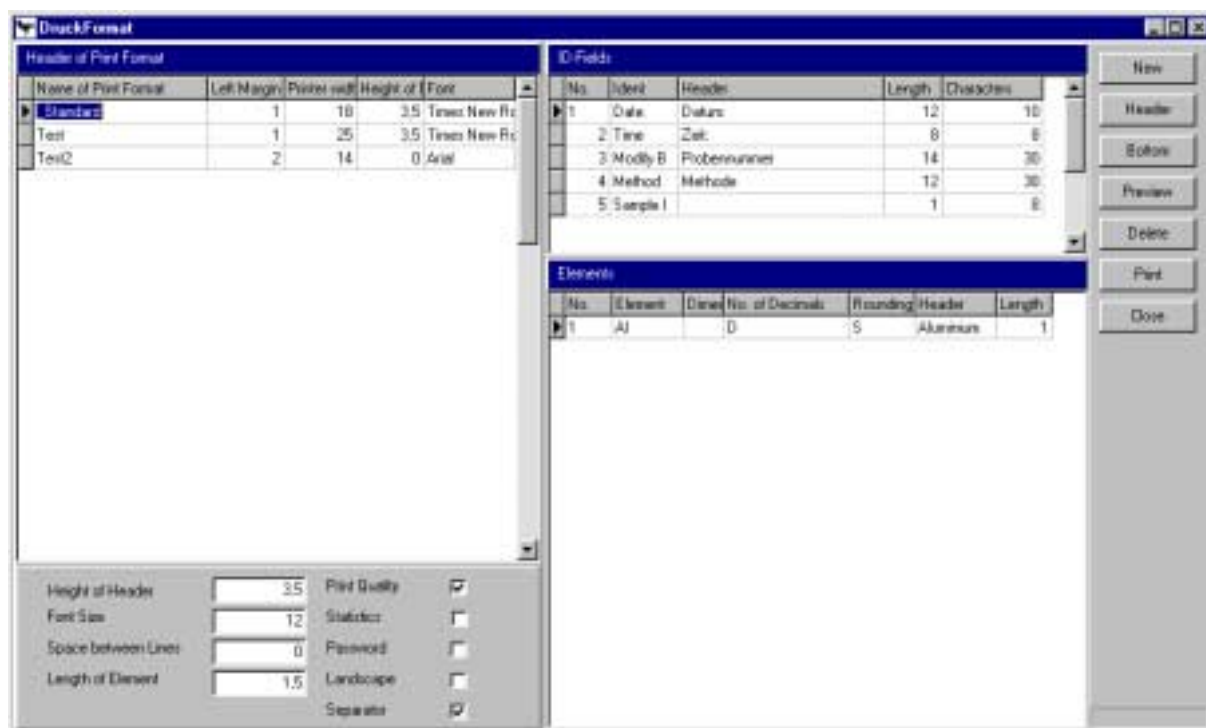
Print

This dialogue will print a screenshot of the active function on your default printer.

Close

This function will close the dialogue.

Print Reports

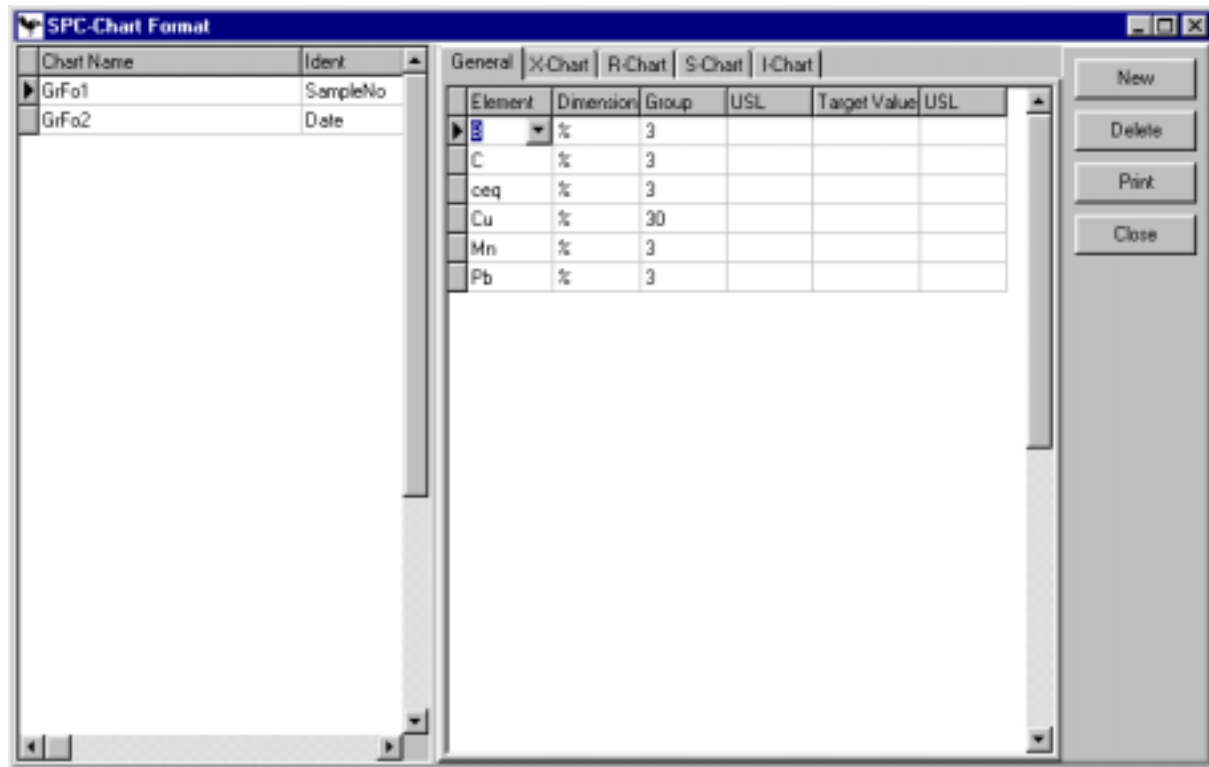


SPC-Charts

SPC chart formats are needed when you want to use the statistical process control functionality of DIA to create charts.

Elements that you want to group together can be stored in one format. Also specification limits (for the histogram) or control limits (for I-, X-, S-, R-chart) may be assigned to the elements. The group size allows you to determine how big the groups for moving averages will be.

Basic general information about statistical process control will be given in the chapter "Statistical Process Control with DIA 2000".



➤ **To create a new SPC chart format:**

1. Click on the "New" button to create a new SPC format.
2. enter the name in the new line marked with an asterisk (*) in the left part of the window.
3. click into the right (empty) side of the window to enter the first element.
4. with cursor key or mouse move on to the element column and click on the down arrow (or press Alt-↓) to open the pull-down pick list with the elements. You may type the element name to automatically jump to the required entry and accept it with Enter, or just use the mouse.
5. Then, please specify the dimension in which you want to display the data in the charts. Again you may open a pull-down list with the mouse or your keyboard (Alt-↓).
6. Next you need to enter the group size. This values is needed to calculate a moving average/std dev/range. The given number of samples will be grouped together to calculate the respective statistics. The minimum value for group size is three (3).

Example: a group size of three in the X-bar chart means that the first point in the chart is the average of analysis 1, 2, and 3. The second point is the average of 2, 3, and 4, and so forth. A moving average over the given group size.

7. The lower specification limit (LSL) is only used in the histogram ! Whenever you specify such a limit, the histogram will also calculate and display the process capability index (Cpk). Consequently, if you do not need Cpk and Cmk you may leave these three columns blank.
8. The target value is the concentration you are aiming at. Special calculation rules apply if this value is missing or is the median between LSL and USL.
9. The upper specification limit (USL) is again only used in the histogram and marks the upper limit !
10. Press Alt-↓ to create the next line and continue with the next data field. Repeat these steps until all elements that you want to include in this format are listed.
11. Click on the "Close" button to save your entries and leave the Window.

General

For each newly created SPC format you first need to fill the General page to introduce the elements and dimensions. Just follow the instructions given above in "To create a new SPC chart format".

The first two columns are of general interest for all SPC charts. The information given in the specification columns (LSL, Target, USL) only affect the histogram. If necessary continue to setup individual control limits for each of the chart types.

Note:

To create an SPC chart it would be sufficient to enter a format name and the required elements with their dimensions !

All other entries are non-obligatory.

For more general information about SPC charting, please consult chapter "Statistical process (SPC) and quality control (SQC)".
A special section also describes the possibility to run SPC charts continually using the job server and thus, use this function as an **Online SPC**,

X, R-,S- I-Chart

For each of the Shewart-type charts control limits will be displayed.

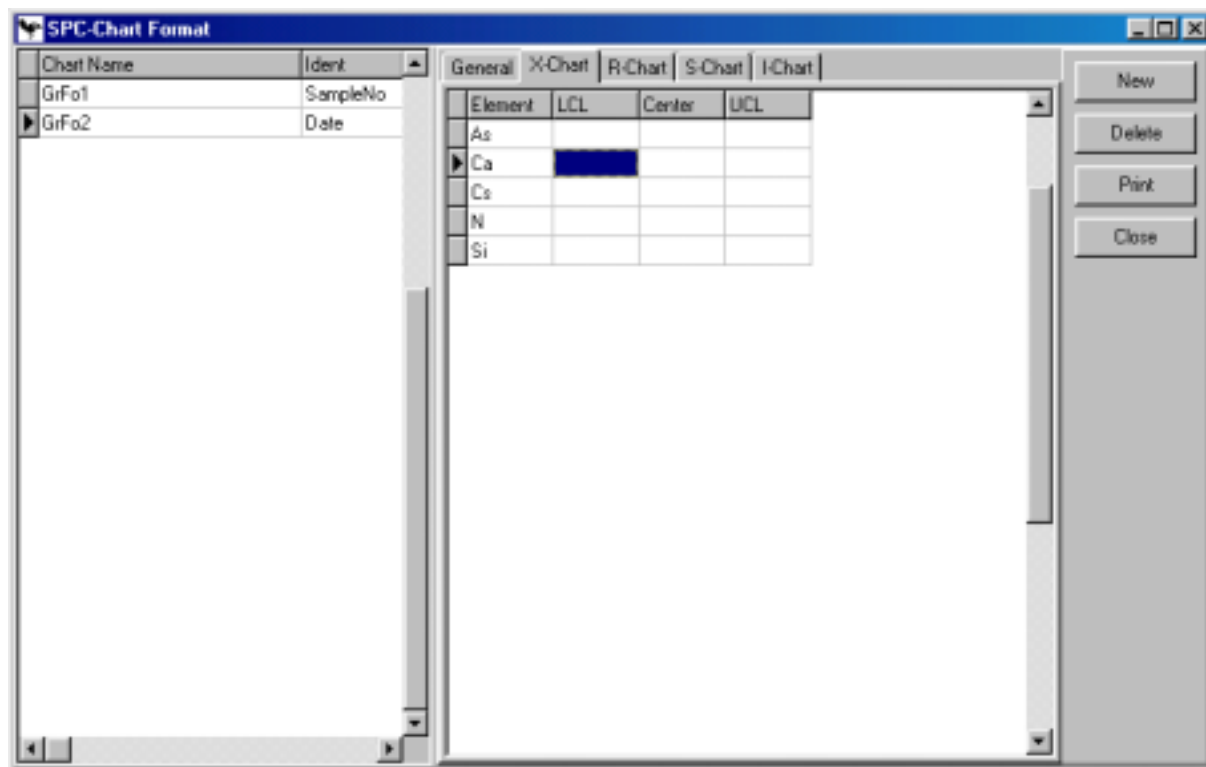
These limits may

- be calculated according to Ford norm Q-101 (default), or
- be taken from the quality table
- be pre-defined in the SPC chart format

The latter can be done in this dialogue. For each Shewart chart type you have a screen where the elements appear (as defined under "General"). For the highlighted chart you may now enter the lower control limit (LCL), a center line (Center) and the upper control limit (CL).

If you do not enter values here, and the quality is not checked, the program will calculate the limits according to Q-101.

More details can be found in the SPC chapter further down in this documentation.



Delete

The delete function allows you to delete

- the complete SPC format if the focus/cursor is located on a format name in the left part of the window, or
- a single element line in the right part of the SPC format screen.

Print

This dialogue will print a screenshot of the active function on your default printer.

Close

This function will close the dialogue.

Certificates

In order to be able to issue certificates, you first have to create a format in which you specify all datafields that you may want to send into a certificate document.

Remember that you also need to setup:

- an RTF document template
- create an address table for the addressees of your certificate (if needed)



➤ **To create a new certificate format:**

1. Click on the "New" button to create a new certificate format.
2. enter the name in the new line marked with an asterisk (*) in the left part of the window.
3. If you want to include quality limits in your certificate, you have to choose "Yes" in the Quality? column.
4. click into the right (empty) side of the window to enter the first item.
5. assign a running number to the item line.
6. next choose the data field you want to include in your certificate. In the pull-down list you find four types of data fields:
 - <none>: choose this entry for data fields that are only needed for certificate writing (e.g. commercial information)
 - address lines (ADRx) from the address table
 - sample ID fields
 - elements
7. in the next column, you may assign an alias field name to be used as a bookmark in your template file.
8. the length of the data field determines the maximum number of characters sent to the certificate document.
9. rounding is only applicable for element fields. Select from the pull-down the type of rounding: round off, round up, standard
10. also only for element fields you may enter the number of characters before and
11. after the decimal point.
12. choose the dimension in which to output the value
13. assign a default value which will initialize the field with the given value of variable. Enter @D to automatically fill the current date, @T for the time.

This completes the setup of your certificate format. You may create as many certificate formats as needed with various combinations of data fields.

Next you need to create a document template which DIA 2000 will automatically fill with the selected certificate data (*see below*).

Delete

The delete function allows you to delete

- the complete certificate format if the focus/cursor is located on a format name in the left part of the window, or
- a single line in the right part of the certificate format screen.

Print

This dialogue will print a screenshot of the active function on your default printer.

Close

This function will close the dialogue.

Create a certificate template document

In order to be able to issue certificates, you need to setup a layout. For this purpose we create a so-called template file in your favourite word processor software.

Please note that the word processor you choose must be able to create RTF formatted documents (rich text format) !

➤ To create a certificate template file:

1. Start your word processor (e.g. Windword or WordPad)
2. Create a new document and first enter and format all the fix texts of your certificate. This also includes the field titles (e.g. the element names, sample ID fields, etc.). Finish your layout by assigning the correct fonts, sizes, etc. Depending on the word processor you have chosen you may also include bitmaps to print your company logo.
3. On the spots of your page, where you want the data to appear, you place so-called bookmarks. These bookmarks must conform to the following convention:
</DIAFieldname> where *Fieldname* has to be replace with the data field name or field alias from your certificate format (*see above*). For example </DIAADR1> for the first address line. For data fields coming from an analysis record you have to add a running number (this applies to all sample ID fields and elements) ! To output the carbon value of the first analysis selected you have to enter </DIAC_1>.
These bookmarks can be entered and formatted just like ordinary text in your document. DIA 2000 SE will replace all text that starts with </DIA.. with the corresponding field content.
4. To print specification limits (from your quality database) in a certificate, just place a boomark named </DIAElement_min> or </DIAElement_max>, where *Element* is the field name or alias of your element.
5. Save your new template file as an RTF type document !

Bookmarks may not contain special characters (e.g. -, /, :, ä, ö, ü). If you data field name contains such characters, please assign an alias name avoiding these !

Export

DIA 2000 SE offers a wide variety of different export types. These can be

- ASCII delimited
- Import ASCII
- dBase
- Excel
- Word
- ODBC
- Internal
- Spectro 4.3/4.4

The first four export formats (**ASCII**, **Import ASCII**, **dBase**, **Excel**) will result in a format with one line per analysis. First the sample ID fields, then the elements.

The **ODBC** export will create a two table, relational structure in the database setup for ODBC. You need to load the driver for the ODBC gateway in your Windows Control Panel. For further details on how to setup an ODBC gateway in Windows, please consult the Windows help or the manual of your database system.

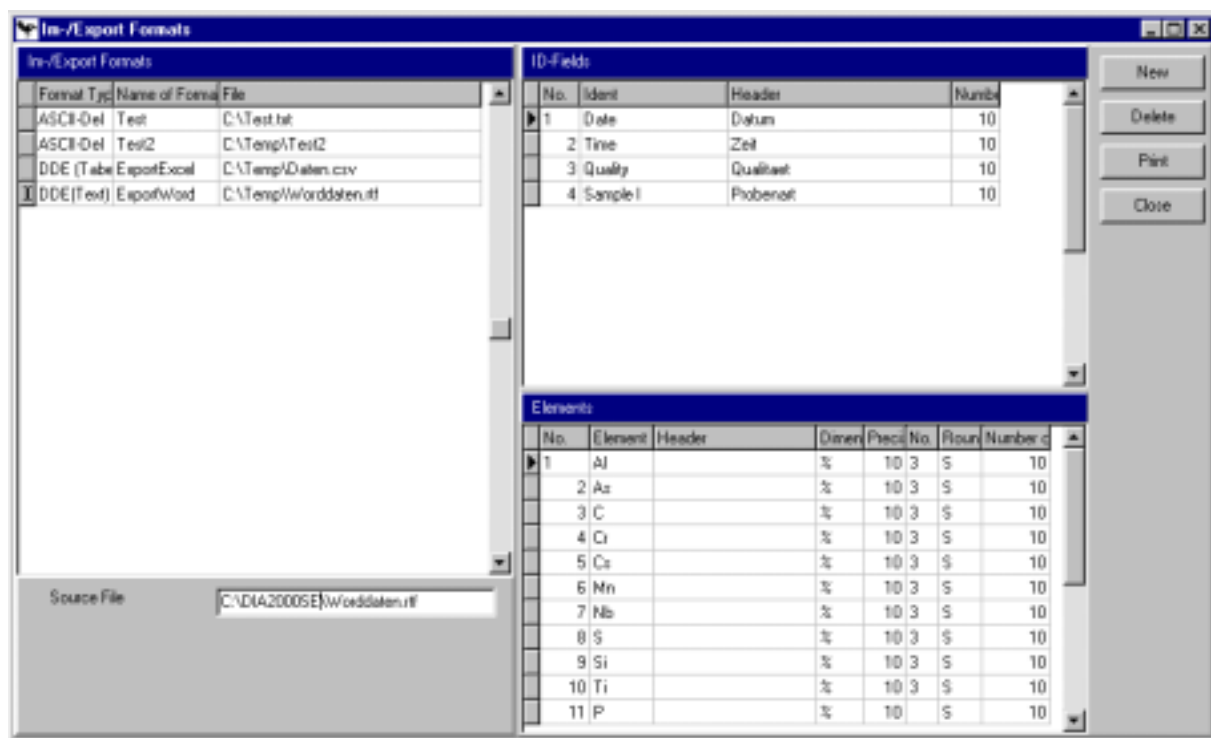
For further details about ODBC in DIA 2000, please consult the separately available documentation from Fink & Partner GmbH.

The **WORD** export fills data fields into a pre-defined rich text formatted (RTF) file. The layout can be freely designed. Not only Word but any RTF compatible editor or word processor may be used !

The last two export types (**Internal & Spectro**) do not need to be setup. Their structure is dynamic and pre-defined. Details are documented in the appendix.

Whenever you want to export analyses you need to format your data, i.e. specify the target file and its location, the data fields and elements to include and the formatting of these data. Thus, you are not only free in deciding which analyses to transfer to e.g. another software package, but also in the exact information (which ID fields and which elements) to include in your export !

For this purpose you need to create export formats.



➤ **To create an export format:**

1. Click on the "New" button to create a new export format.
2. The new line is marked with an asterisk (*) in the left part of the window.
3. select the format type from the drop-down menu (with the mouse or press Alt-↓).
4. enter the name that you want to give your format. This name should indicate the purpose and target of this export.
5. under "File" please enter the drive, folder, and name of the file to be created
6. below this window, type-specific parameters may appear. These will be explained further down this section.
7. click into the upper right (empty) window to select the ID fields. Enter a running number in the first column. Under "Ident" click on the down arrow (or press Alt-↓) to open the pull-down and pick an ID field from the list. You may enter an alternative "Header". This can be used to let the field appear with a different (column) name in the export file (for example in a different language). If left blank, the DIA field name will be the column header. The last entry is the number of characters you want to export for this field (default is 10). Thus, you may truncate your output.
8. next click into the lower right (empty) window to select the elements. For "No.", "Element", and "Header" the same applies as for the ID fields. Furthermore you can select the output dimension (which can be re-calculated from the originally saved one, instead of % you may, for example, choose to convert results into ppm). Default dimension is %. In the following columns you define the precision, i.e. the significant number of digits (default: 10). The number of decimals (default: 3) can be a fixed number between 0 and 8 or (D)ynamic. The way of rounding may be (S)tandard (default), always down (<) or always round up (>). Finally you can enter the maximum total number of characters (default: 10).

9. Click on the "Close" button to save your entries and leave the Window.

Additional parameters

Besides the information described above, some export formats require additional parameters. This is true for the following format types:

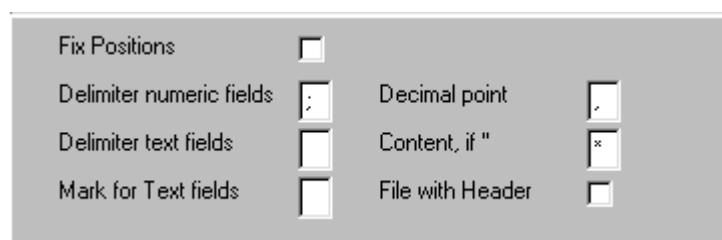
- ASCII delimited
- Import ASCII
- Word

All other format types have not additional parameters.

ASCII delimited

ASCII is the most popular format type to exchange data. Depending on your addressee you may need to specify certain delimiters.

If you select the format type "ASCII delimited" the parameters below can be set.

A screenshot of a dialog box for setting ASCII delimited export parameters. It contains several options with checkboxes and input fields. The options are: 'Fix Positions' with a checkbox; 'Delimiter numeric fields' with a dropdown menu showing a semicolon; 'Delimiter text fields' with a dropdown menu showing a blank space; 'Mark for Text fields' with a dropdown menu showing an inverted comma; 'Decimal point' with a dropdown menu showing a period; 'Content, if "' with a dropdown menu showing an asterisk; and 'File with Header' with a checkbox.

Fix Positions

If active, the data fields will be placed one after the other, first ID fields, then elements, each with the fixed number of characters specified. Thus, each field starts at a fixed position with a defined length. The opposite to this is the delimited format, where the data fields are separated by a distinguished character, the delimiter. Field lengths and positions may vary.

If you check this box, the delimiters and the text field mark will be inactive (greyed).

Delimiter numeric fields

Enter the character that separates numeric fields. Typical delimiters are comma or semicolon.

Delimiter text fields

Enter the character that separates text fields (e.g. Sample Ids). If left blank DIA will use the numeric delimiter for text fields, too. This would be the typical situation. DIA applies this setting to sample Ids.

Mark for Text fields

Some programs, like many spreadsheets need special marks for text fields. Typically these fields will be tagged with inverted commas. DIA applies this setting to sample Ids.

Decimal point

Enter the character that will be used as a decimal point. Typically this is a point, it may also be a comma (like in some european countries).

Make sure this does not interfere with your delimiter.

Content, if "

If you export an empty element field DIA would export it as blank (not analyzed). Some programs may have

problems with blank values. Enter a value (e.g. '0') that will be transferred instead of blank.

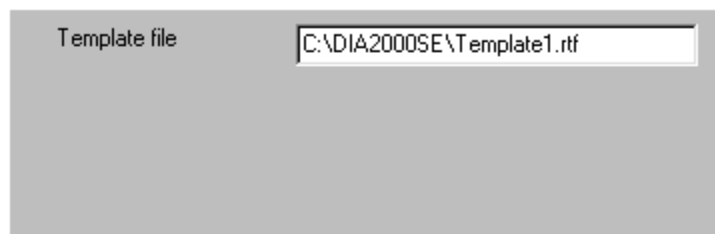
File with Header

Check this box, if the first line in your export file should contain the field names (i.e. the structure). If not checked, DIA will create a file with only data and no field descriptions.

However, in any case DIA creates a file with the same name as the data file but the extension '.hed' (for header) which contains the record structure.

Word

If you export into a word processor or RTF editor, you need to specify a template file. This is a file containing the layout and all fix text as well as DIA-specific tags which DIA will replace with the corresponding field value. You find more details on how to setup a template file in section "Special: Export for Word or Excel" below. Here you just assign a drive, folder, and name for the template file that you want to use with this export format.



Delete

The delete function allows you to delete

- the complete export format if the focus/cursor is located on a format name in the left part of the window, or
- a single ID field line in the upper right window of the export format screen.
- a single element line lower right window of the export format screen.

Print

This dialogue will print a screenshot of the active function on your default printer.

Close

This function will close the dialogue.

Special: Export for Word or Excel

DIA offers a powerful tool to easily and quickly create documents and spreadsheets. Today, most users are familiar with Word and Excel from Microsoft, but you may use virtually any editor or word processor that supports RTF (rich text format) files and spreadsheet software that is able to read .CSV files (comma separated).

Make sure the word processor and spreadsheet software that you use is specified in the terminal setup.

➤ **To create a spreadsheet format:**

1. select format type 'Excel'. This will start the spreadsheet program assigned in terminal setup when you export.
2. make sure the extension of your export file name is '.CSV'
3. make sure the delimiter is a comma (no fixed positions), and the decimal character is a point (.). All other settings may remain with their default.
4. Select ID fields and elements as described above.

➤ **To create a word processor format:**

1. select format type 'Word. This will start the word processor as assigned in terminal setup when you export.
2. enter a template file below.
3. Select ID fields and elements as described above.
4. Create the template file with your word processor:
 - edit your layout and enter all fixed text
 - add field tags where you want a certain value to appear within your document. During the export routine DIA will replace these tags with the actual values. The tags must conform to this syntax: `</DIAfieldname>`.
Example: `</DIAQuality>` places the quality entry of your analysis.
`</DIAC>` places the carbon value, `</DIAMn>` will be replaced by manganese, etc.
5. You may format (bold, underline, italics, etc.) the tags as any other text.
6. Save your template as **Richt Text Format (RTF)** under the location and name that you entered in the export format !!

Warning

If you select more than one analysis to be exported into a 'Word format', DIA will automatically generate multiple documents. So make sure you do not export 10'000 analyses to Word, DIA would create 10'000 documents.

A line in an RTF file should not be longer than 255 characters. Else some of your information may be truncated, or the tag replacement does not work properly, since tags may be truncated !

Macros

Macros are a powerful tool to automatize routine jobs, or let the system perform certain tasks upon – for example – the arrival of a new analysis, or based on a given schedule.

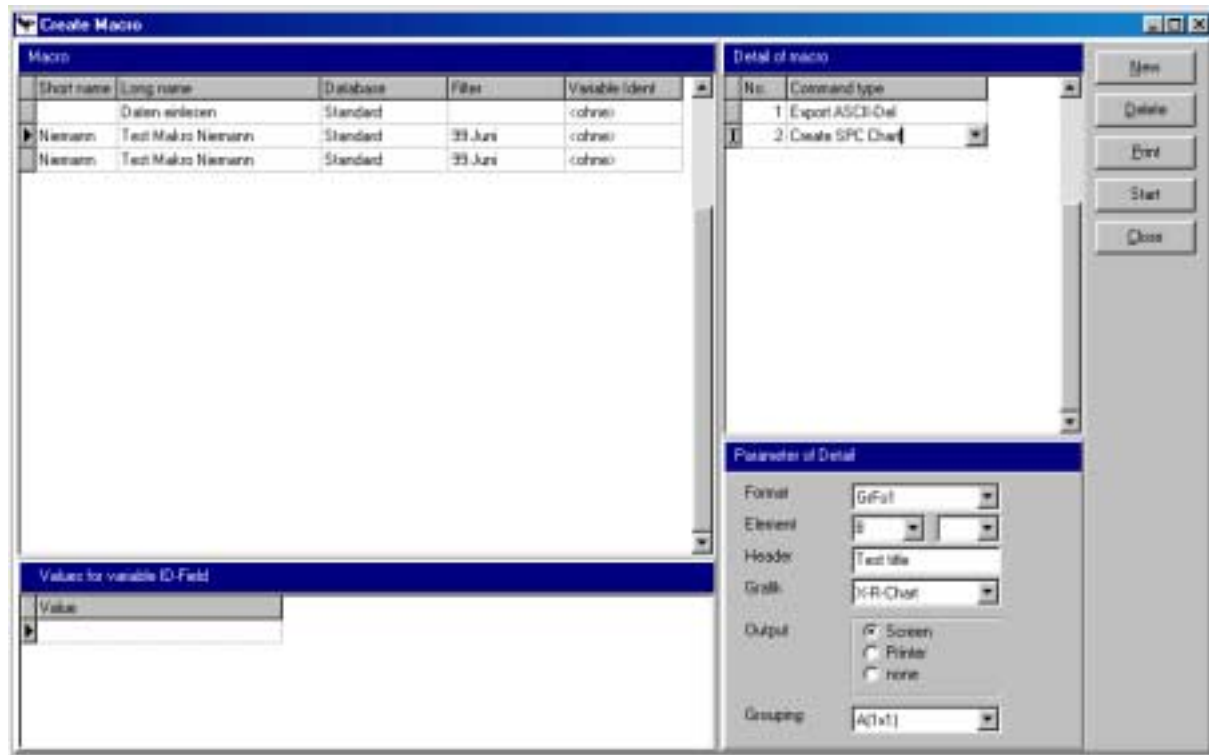
DIA 2000 offers two different macro types:

- Creation and execution of macro programs. These contain a list of commands and their parameters which will be executed in a given order.
- Creation and execution of jobs. Jobs may be user initiated or start automatically upon an event or a given schedule. A job may contain a single macro or a combination of macros.

Create Macro

Macros are a powerful tool to automatize routine jobs that are repeatedly performed. Yet, there is no programming skill necessary. All operations to create a macro can be handled with a mouse. Macro commands will just be picked from a list.

Consequently the possibilities of macros are limited, but the scope of available functions is oriented on practical requirements.



Macro

Enter the header information for the macro. This includes:

Short name A short text to name the macro. This is a unique entry in the macros table (i.e. there may not be two macros with the same short name). A maximum of 20 characters may be entered.

Long name A descriptive text stating what the macro is meant to be used for. The max. of 60 characters should be enough to describe this job.

Database Select the database that this macro should use. From there it will read the analyses to be processed. Choose a database from the list, typically the Standard database will be used for most applications.

Filter Choose the filter that will select the analyses from the given database. The filter will determine which analyses will be processed with the given commands.

The filter must be defined prior to creating the macro !

Variable Ident A variable ID field may trigger a so-called "on-change" event. During runtime the macro will repeat with each change of the value in the selected ID field.

Example: You use a filter selecting all analyses from last week. You choose "Customer" as the variable ID field. The macro command is to print a list. The on-change event re-starts the macro for each customer. As a result you get a

number of lists, one for each customer over the period of the last week. Each different entry in the customer field (within the selected range of analyses) will cause a new execution of the macro. With the window "Values for ID fields" below you may let the system only execute the macro for the given values in the "variable ID field".

Details of macro / Commands

The details of the macro list all the commands that the macro will execute. Each command type is preceded by a running number, which specifies the order in which the macro commands will be processed.

Remember to check the order of your macro commands regarding their correct sequence: printing and afterwards sort the analyses is harmless compared to delete analyses and then try to copy them into an archive !!

The list of available commands comprise :

Close DIA 2000	Exits the program. This command may be executed for example by the Job Server to shut down the application in order to be able to perform a backup (ensure that open databases are closed prior to backup)
Import analyses	
Start DIA 2000	Re-Start DIA 2000. May be necessary to load DIA again after auto-shut down.
Update Database	Update an analyses database / archive. Selected analyses will be copied to the analyses database given in the parameter. The database must have been created within DIA's File Manager prior to using this command.
DDE Spreadsheet	Exports the selected analyses to the spreadsheet application linked with DIA. The format must be setup in the parameter of this command.
Print Analyses	Print the selected analyses in the format given in the command's parameter.
Export ASCII-Del	Exports the selected analyses to ASCII using the format given in the command's parameter.
Export dBase	Exports the selected analyses to dBase using the format given in the command's parameter.
Export Internal	Exports the selected analyses to the internal dynamic file format. The structure of this file format is fixed and described in the appendix.
Create SPC-Chart	Creates one or multiple SPC control charts.
Delete Analyses	Deletes the selected analyses. This command is needed to complete a "Move" procedure to send data into an archive database (see <i>Update Database</i> above) and remove them from the source file.

DOS Command	<p>Executes a DOS batch file (.bat). Such a batch may contain a list of DOS commands.</p> <p>Tip: to close a DOS shell window after executing, you should edit the batch file properties and set it to "Close after terminate". You may also influence the Window appearance here.</p> <p>The first command in your batch should be <code>@ECHO OFF</code> and the last <code>EXIT !</code></p>
Quality Control	<p>Performs a quality control function over the selected analyses. This would assign a quality flag (!) to all those analyses violating the specifications given in the assigned quality.</p> <p>This function is only needed if analyses were directly written into the DIA database without using a DIA function (like Job Server, Instrument Manager, or manual entry). This is only possible, when third party software directly accesses the DIA database.</p>
Sort Analyses	<p>Sorts the selected analyses. This function should be performed prior to executing an output function (like printing).</p>
Calculate Statistics	<p>Calculates and outputs a numeric statistics that will give you number, sum, average, abs/rel std dev, min, max, range of the selected analyses.</p>

Parameter of Detail

For most of the commands listed above you need to setup parameters to feed the function with necessary information to successfully execute this function. For output commands this is usually the format and possibly additional parameters like chart type (for SPC) or else.

The parameters are specific for each command and should be self-explanatory.

Note:

If you created a new command line in the upper right window, you must first ensure to store the new entry to force the window below to update and display the correct parameters for the command. Best would be to just move the cursor up and down again to save the new command line !

Values for variable ID-Field

As described above a variable ID field will cause the macro to re-process for each occurrence of a new value in the selected variable ID field.

In this part of the dialogue you may specify for which data you want the macro to re-execute. If you leave this window, empty, re-processing will be done for each group of values.

Example:

The macro shall print a list of analyses. Variable ID field is "Customer". For each

customer name DIA will restart the macro and print a list with all analyses for this customer. It would only finished after all customers that appear in the selected range of analyses are covered.

In "values for variable ID-Fields" you may name those customers in your selection for which you want the print. All other customers appearing in your selection will be ignored by the macro.

New

This button creates a new entry in either of these windows (depending on the current cursor position/focus):

- Macro name
- Detail of macro
- Values for variable ID Field

Details about the creation of new macros, commands, or variable ID are described above in the conceptual discussion of macro programs.

Delete

The delete function allows you to delete

- the complete macro if the focus/cursor is located on a macro in the left part of the window, or
- a single macro command in the upper right window "Detail of macro".
- a value for a variable ID field in the lower left window of the screen.

Print

This dialogue will print a screenshot of the active function on your default printer.

Start

The highlighted macro (arrow left of the macro name) will be executed.

Close

This function will close the dialogue.

Start Macro

This dialogue is used to run a macro program. After calling the function a window appears displaying all macros.

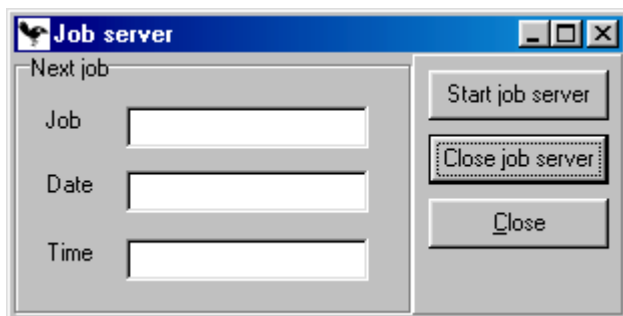


Click on the macro you want to execute and then click the start button.

The macro will create a task and run in the background. You may hit the close button to close this dialogue. While the macro is being executed you may use other functions in DIA 2000 and continue your work.

Start Job Server

Use this dialogue to manually start and activate the job server. Only when a job server task is running, important functions of DIA 2000 will be performed. Also the instrument manager will use job server to import analyses.



The window will inform about the next job in cue. Clicking on "Start job server" will launch the job server. A separate task is running asynchronous to DIA 2000 SE. You may close the window, the job server will continue running.

If you want to terminate the job server click on the button labelled "Close job server" and the task will be halted. Alternatively you may also click on the program in the task bar and close the application by using the context menu via the right mouse button.

When you close the job server it will give you a warning that analyses will not be imported, if the job server is inactive.

Tip

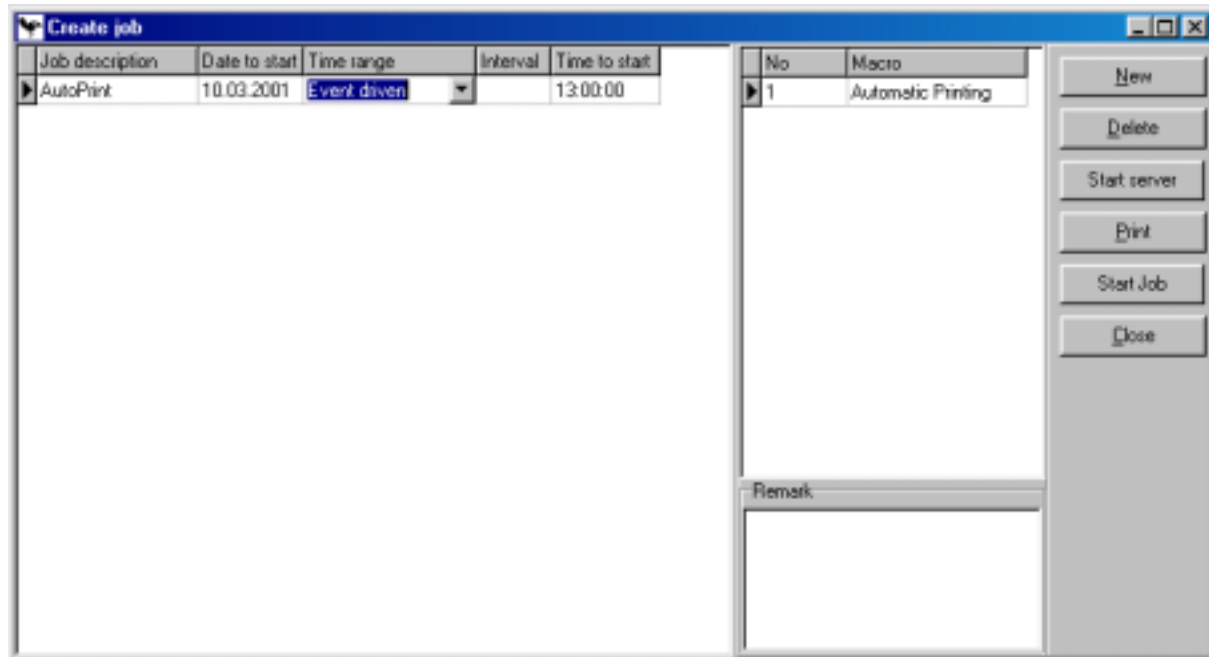
To automatically launch the job server when starting DIA go to "Configuration – Terminal Setup" and set the flag for job server.

You may also copy the file `Jobserverarbeiten.exe` to your Autostart group.

Create Jobs

All jobs in this list plus some internal jobs will be executed by the job server at the given times. Jobs may be launched on a certain date/time or initiated by an event.

A job is necessary if you want to automatically execute macros repeatedly.



➤ **To create a job:**

1. Click on "New" to create a new job entry.
2. Enter a job description, explaining the purpose of this job.
3. give the start date when the job will be executed the first time. This is also the start for the calculation of the interval.
4. select a time range. Jobs may be executed every:
 - year
 - month
 - week
 - day
 - hour
 - only once
 - event driven
5. the interval states the time between last and next execution. For example: you entered "Month" and interval "2" which means every two months.
6. give the start time when the job will be executed the first time. This is also the start for the calculation of the interval.
7. click into the right window and enter number 1 for the first macro to be executed.
8. select the macro to be executed from the list of available macros.
9. Move the cursor down and continue with steps 7 and 8 until alle macros that you want to run within this jobs have been entered.
10. Click on "Close" to close the dialogue or "Start job" to test the job you have just created.

Delete

The delete function allows you to delete

- the complete job if the focus/cursor is located on a job description in the left part of the window, or
- a single macro line in the upper right window of the screen.

Print

This dialogue will print a screenshot of the active function on your default printer.

Start Job

The focussed job may directly be started.

Close

This function will close the dialogue.

View Joblog

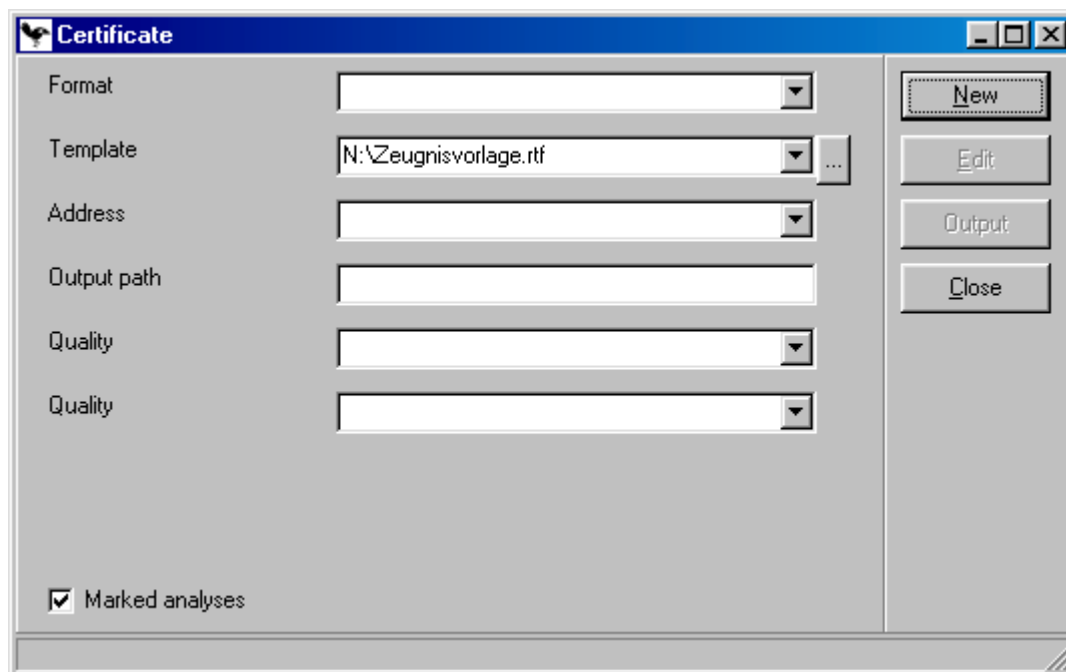
Each process launched by the Job Server may be logged. You may want to check the Joblog file in the morning to prove that all procedures that were scheduled for last night have been performed successfully.

Extras

DIA 2000 offers some extra functions that help to evaluate analytical data, establish process control and provide tools to ensure your analytical and product quality.

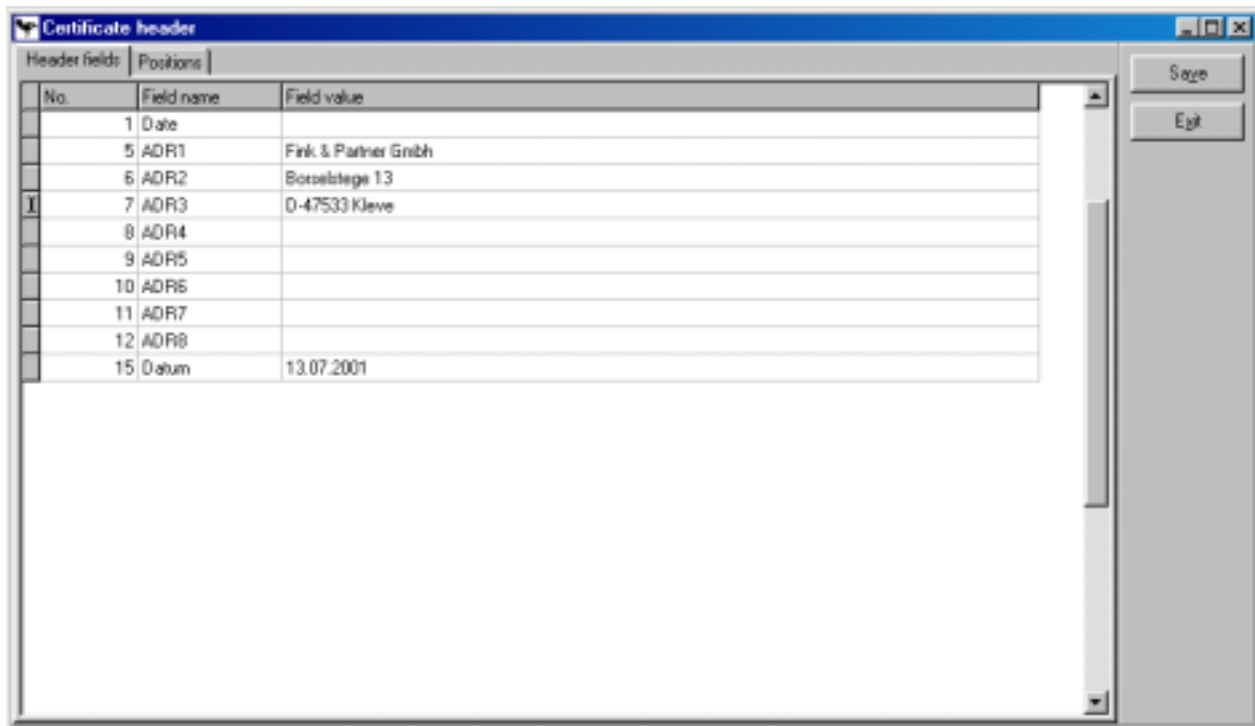
Create Certificates

With this dialogue you can create a new certificate.



➤ **To issue a new certificate:**

1. Choose the certificate format you want to use.
2. Select the template (RTF) file. The pull-down list presents all recently used template file. The "... " button allows you to select a file from your hard disk/s.
3. Select an address from the list (if required)
4. Enter the output path where you want DIA 2000 SE to store your certificate.
5. If you want to include quality specifications in you certificates you can select up to two qualities.
6. Make sure the check box "Marked analyses" is set correctly (default is checked). If unchecked, DIA 2000 will include a for all (filtered) analyses in your certificate.
7. Click on the new button to create a new certificate entry in the database.
8. Click on edit to modify or complete your certificate information.
There are two sections: Header fields (for type <none> and address) and Positions (for data fields from the analysis)
Complete or modify the data.
9. Click on "Save" to store your changes.
10. Click on "Output" to let DIA 2000 generate the final document.




The 'Certificate header' dialog box contains a table with the following data:

No.	Field name	Field value
1	Date	
5	ADR1	Fink & Partner GmbH
6	ADR2	Borselstege 13
7	ADR3	D-47533 Kleeve
8	ADR4	
9	ADR5	
10	ADR6	
11	ADR7	
12	ADR8	
15	Datum	13.07.2001

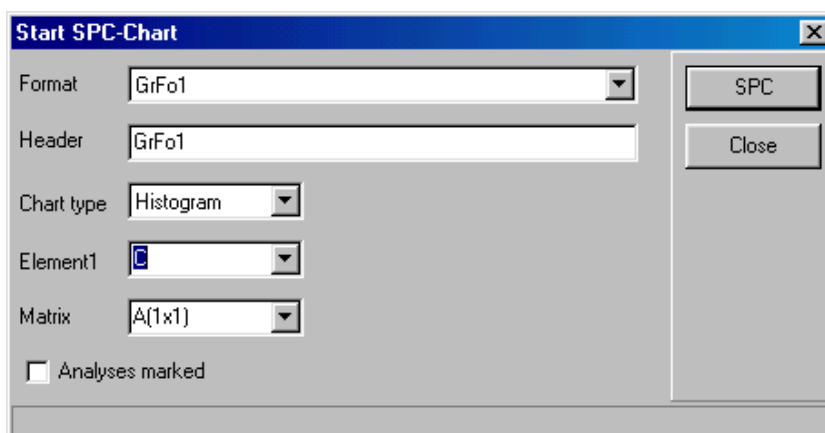
Buttons: Save, Exit

Issued certificates will be stored and appear in the certificate table in the file menu.

SPC Charting

To create statistical process control charts you call this function  either via the Extra menu or just click the icon on the top icon bar.

The screen shown below appears.



The 'Start SPC-Chart' dialog box contains the following settings:

- Format: GrFo1
- Header: GrFo1
- Chart type: Histogram
- Element1: C
- Matrix: A(1x1)
- ☐ Analyses marked

Buttons: SPC, Close

➤ To create an SPC chart:

1. Select the chart format from the list. This has to be prepared in advance under "Formats – SPC Charts".
2. Enter a chart title for the output header. Any text that describes what the graphic shows.

3. Choose from the available chart types that DIA offers.
4. Select the element that you want to display. Only for scatter diagrams and correlations a second element field appears.
You may also select the asterisk (*) to create charts for each element defined in the selected chart format. A maximum of twelve charts may be created at once.
5. Select the matrix in which the charts shall be arranged on the screen and or printer. If you have selected one element, use 1x1, else use the number that matches the number of elements in your format.
Example: If you select '*' as an element and there are six elements in your chart format, you may use the matrix 2x3 (two columns, three rows), or 3x2.
6. If you only want to output the marked analyses, you check the box "Analyses marked". If unchecked DIA will send all filtered analyses to the SPC chart.
The number of analyses filtered is shown in the bottom status bar.
7. Click on the "SPC" button to launch the chart creation.

More information about DIA's SPC function and Shewart charting in general can be found in chapter "Statistical process (SPC) and quality control (SQC)".

Tip:

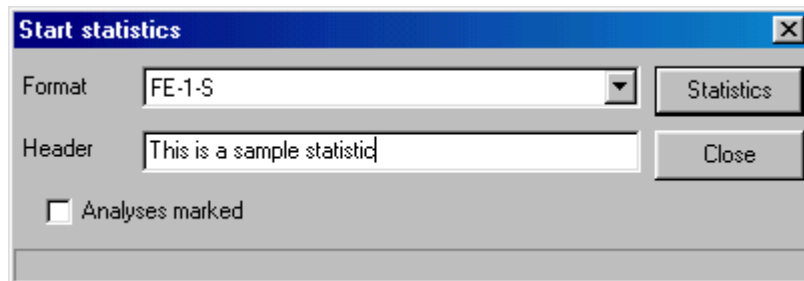
If you use SPC regularly for routine evaluations, you may use the macro functions in DIA to automatize this jobs. The job server may even automatically execute these macros.

Online-SPC is another possibility that DIA offers in order to continuously observe instrument or process performance.

Statistics

To calculate a list of statistical parameters you may use this function, which is also

available through the symbol  in the icon bar.



Select the format (which is a details format referring to the analytical program) which specifies the elements that you want to calculate.

You may also enter a headline for a later printout of the statistics.

If you only want to calculate the statistics for analyses that you marked before (with Ctrl+MouseClicked) you must tag the checkbox !

Click on the "Statistics" button to start the calculation process.

The following list will be shown as a result of the statistical evaluation:

Element	#	Average	Rel Std Dev	Ab Std Dev	Minimum	Maximum	Max-Min	(Max-Min)/Av	Sum
Al	113	0,004	78,399	0,003	0,000	0,013	0,013	0,036	0,412
P	116	0,069	22,006	0,015	0,016	0,095	0,079	0,011	8,005
Mn	116	0,395	11,290	0,040	0,204	0,425	0,221	0,006	41,159
Ti	116	0,023	16,388	0,004	0,011	0,032	0,022	0,009	2,668
Fe	110	94,004	0,117	0,110	93,700	94,248	0,547	0,000	10340,548
Si	116	1,859	9,537	0,177	1,591	2,662	1,071	0,006	215,681
S	116	0,006	37,939	0,002	0,004	0,016	0,013	0,020	0,747
Cu	116	0,014	124,058	0,018	0,006	0,153	0,147	0,103	1,652
Mg	116	0,036	17,442	0,006	0,022	0,055	0,033	0,009	4,146
Cr	116	0,042	23,540	0,010	0,029	0,067	0,038	0,009	4,865
Ni	116	0,024	10,225	0,002	0,020	0,036	0,016	0,007	2,775
Mo	116	0,007	20,938	0,001	0,002	0,011	0,009	0,013	0,804
V	110	0,018	5,807	0,001	0,016	0,020	0,004	0,002	1,942
Sn	116	0,003	41,027	0,001	0,001	0,008	0,007	0,024	0,344
C	116	3,549	0,706	0,025	3,500	3,590	0,090	0,000	411,651
Sb	110	0,002	36,761	0,001	0,000	0,005	0,004	0,020	0,236
Bi	109	0,001	37,462	0,000	0,000	0,003	0,002	0,021	0,122
As	110	0,003	32,320	0,001	0,001	0,004	0,003	0,013	0,286
Pb	116	0,001	49,204	0,000	0,000	0,001	0,001	0,019	0,061
N	103	0,007	57,482	0,004	0,000	0,023	0,023	0,035	0,675
TiO2	116	4,192	1,358	0,057	4,111	4,424	0,312	0,001	496,214
C_eq	116	4,192	1,358	0,057	4,111	4,424	0,312	0,001	496,214
CB	116	28,390	0,706	0,200	28,001	28,718	0,718	0,000	3293,217

The calculated parameters are:

#	Number of values for this element within the range of selected analyses.
Average	Average of all values for this element.
RelStdDev	The relative standard deviation
AbStdDev	The absolute standard deviation
Maximum	The highest value.
Minimum	The lowest value.
Max-Min	The range, i.e. difference between highest and lowest value.
Max-Min/Av*100	The maximum relative deviation from the average.
Sum	The sum of all values.

Basic Files

DIA 2000 needs a lot of information to work properly. Some of this is stored in so-called basic files. These data constitute the foundation of a successful DIA installation. To setup these tables according to your requirement is certainly one of the first steps in configuring this software.

Some of these files will be updated automatically to ensure that incoming data will correctly be stored in the database. Thus, unknown elements and ID fields will be added to the database.

Most of the tables will be static after some time, others will have a dynamic life cycle. The most obvious is probably the quality file which now also offers a version/release administration.

We recommend to browse through all of these table one after the other and check if it is complete or need some adjustments.

However, it would be wise to first connect your analytical instrument/s and transfer some results, so that some of the basic files will be updated according to your analytical configuration.

Elements

The elements table contains all elements and pseudo-elements (i.e. formulas) that you need. With some instrument drivers, DIA will automatically add new elements to this table. For all other – and of course the manually entered results – you need to introduce your test item, element, analyte, parameter (or whatever you call it) to this table.

There is no limitation with respect to the number of entries you can store in this table !

Besides the element name (with a maximum of 8 characters) you can enter a descriptive name, and, if necessary, a calculation formula.

➤ **To create an element/formula:**

1. Click on the “New” button to create a new element.
2. The new line is marked with an asterisk (*) in the left part of the window.
3. Enter the element name.
4. Enter a descriptive text.
5. Type in the formula expression, if the entry is a formula.
6. Click on the “Close” button to save your entries and leave the Window.
7. Add the new element/formula to one or more of your display our output formats (*see menu “Formats”*).

Elements			
Elements	Description	Formula	
510	Dehnung in % (10-Durchmesser)		
A5	Dehnung in % (5-Durchmesser)		
Abw(%)	Querschnittsabweichung		
AG	Gleichmaßdehnung in %		
Al	Aluminium		
As	Arsen		
B	Bor		
C			
Cs			
ceq	Kohlenstoffäquivalent EN (ber.)	$\frac{C+Mn}{6} + \frac{Cr+Mo+V}{5} + \frac{Ni+Cu}{15}$	
Ceq	Kohlenstoffäquivalent nach E	$IF(C > 0.2, 1, 2)$	
CNM	Summenwert Cr+Ni+Mo		
Cr	Chrom		
Cs			
Cu	Kupfer		
c_a	Kohlenstoffäquiv. ALPINE (ber.)	$\frac{C+Mn}{6} + 0.9 \frac{Cr}{6} + 0.6 \frac{Ni}{6} + 4.3 \frac{Mo}{6}$	
C_a	Kohlenstoffäquivalent VÖEST		
c_d	Kohlenstoffäquiv. DIN (ber.)	$\frac{C+Mn}{6} + \frac{Cr+Mo+V}{5} + \frac{Ni+Cu}{15}$	
C_d	Kohlenstoffäquiv. Din	$\frac{C+Mn}{6} + \frac{Cr+Mo+V}{5} + \frac{Ni+Cu}{15}$	
C_Max	C_Max	$Mn^{1/2}$	
C_Min	C_Min	$Mn^{1/2}$	
Durchm.	Stabdurchmesser von Fertigprod.		
Fe	Eisen		
Kg	Masse-Gewichtseinheit		

For the formula expressions the following conventions apply:

- Element names that are used within a formula have to be typed in inverted commas.
- The four fundamental arithmetic operations may be used: addition (+), subtraction (-), and multiplication (*), division (/).
- You may use brackets to influence the calculation order.
- The logical operands AND and OR may be used
- A conditional IF clause may also be used.
- Formulas may include other formulas.

Delete

The delete function allows you to delete

- a single element/formula.

Print

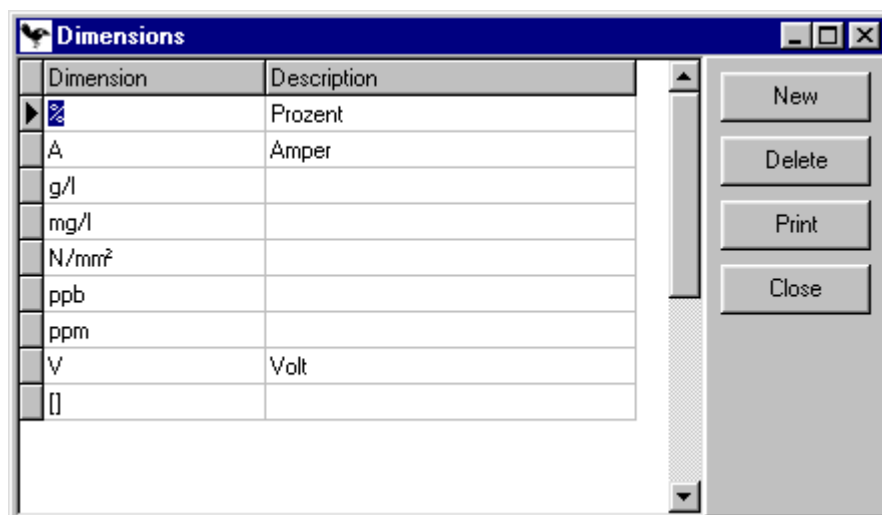
This dialogue will print a screenshot of the active function on your default printer.

Close

This function will close the dialogue.

Dimensions

Each value in the database will be stored together with its dimension. The user may create as many dimensions as necessary.



➤ **To create a new dimension**

1. Click on the "New" button to create a new dimension.
2. The new line is marked with an asterisk (*) in the left part of the window.
3. Enter the name of the dimension that you want to use within DIA
4. Enter a descriptive text
5. Click on the "Close" button to save your entries and leave the Window.

Delete

The delete function allows you to delete

- a single dimension.

Print

This dialogue will print a screenshot of the active function on your default printer.

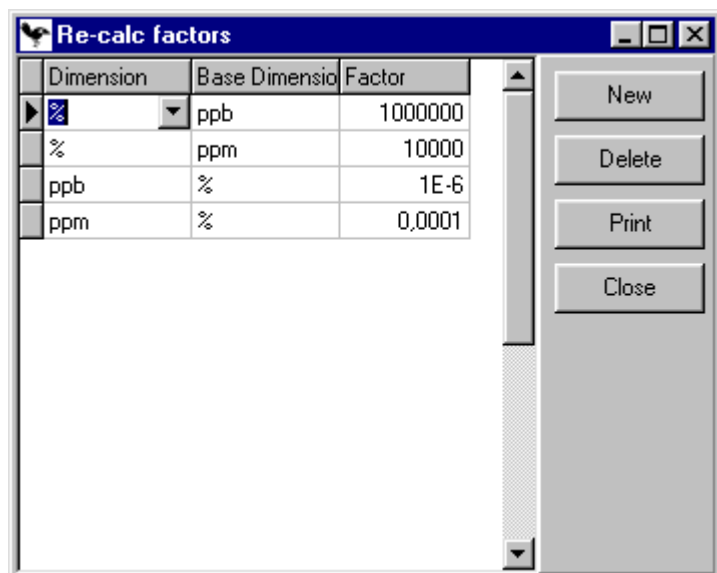
Close

This function will close the dialogue.

Re-Calc factors

Re-Calc factors are needed to re-calculate a value that should be converted into a different dimension. If – for example – you stored a result in percent (%) in the database, but for a certain output or for the display in DIA you want to show it in "part per million" (ppm). Then you may use this re-calc table.

Recalculation factors may also be written in exponential syntax.



➤ To create a new re-calc factor

1. Click on the "New" button to create a new re-calc entry.
2. The new line is marked with an asterisk (*) in the left part of the window.
3. Enter the name of the dimension that you want to convert
4. Enter the dimension into which you want to convert
5. enter the re-calc factor
6. Click on the "Close" button to save your entries and leave the Window.

Read from left to right: "Convert <dimension> to <dimension> with a factor of <factor> !"

Each re-calc factor should be introduced in both directions (e.g. from % to ppm and from ppm to %) !

Delete

The delete function allows you to delete

- a single re-calc entry.

Print

This dialogue will print a screenshot of the active function on your default printer.

Close

This function will close the dialogue.

Qualities

The quality table is a database to keep your quality or specification limits. An analysis may have a quality name assigned to a specific data field. DIA 2000 will, thus, be enabled to check the conformity of the analytical values against the specifications of this quality.

A quality may contain any test item or element with any dimension. Two minimum and maximum values as well as a target value may be defined. Initially these are called internal and external min/max values, but they may be used for different purposes like e.g. control & warning limits, detection & determination limits, etc.

Quality or specification limits may be constant numerical values or formulas !

Note: The target value will only be used by special additional software modules.

You may rename this function, if "Qualities" is not the name you typically call this kind of function. You probably refer to this rather as "specification", "norm", etc. The same applies to the names of the min/max columns.

Go to "Config - Edit languages" to change all quality-related texts.

A special function also allows you to keep different versions of the same quality in your database. Thus, you may compare an analysis always with the quality specification that was valid at the time when the analysis was performed. Even, if the specification has changed in the meantime. By assigning a "valid thru time range" it is also possible to enter new specifications in advance and let them become active only at a certain date.

The screenshot shows a software window titled "Quality". It has two main panes. The top pane, "Quality Header", contains a table with columns: Quality, Description, and Base Element. The bottom pane, "Details of Quality", contains a table with columns: No., Element, Dimension, ext Min, int Min, Target, int Max, ext Max, and Formula. To the right of the tables are buttons: New, Delete, Copy, Print, and Close.

Quality Header		
Quality	Description	Base Element
830AV	20 SCHWARZ	Fe
8372KM	37 WEISS	Fe
838AVI	38 GRÜN/WEISS	Fe
8392KM	39 GRÜN	Fe
840AVI	40 WEISS/GELB	Fe
8432KM	43 BLAU	Fe
8482KM	48 ORANGE	Fe
8502KM	50 ROT	Fe
8532KM	53 BLAU/WEISS	Fe
8542KM	54 ROT/GRÜN	Fe

Details of Quality								
No.	Element	Dimension	ext Min	int Min	Target	int Max	ext Max	Formula
1	S	ppm		1	2	5	8	9 +
2	Mn			1	2	5	8	9
3	Si	%		1	2	5	8	9
4	Ca	%		1	2	5	8	9
5	As							
5	B			1	2	5	8	9

➤ To create a new quality

1. Click on the "New" button to create a new quality entry.
2. The new line is marked with an asterisk (*) in the left part of the window.
3. Enter the name of the quality and a descriptive text in the next column, optionally followed by the base element. The base element is only needed for the quality identification function.
4. Click into the window "Quality version". The field "Modified on" will automatically carry the current date and time. The "user" will also initially be filled with the currently logged in user name. The "valid from" will also have

the current date, which means the quality becomes valid with its introduction to the database.

5. Click into the window "Details of Quality" to enter the elements and their specification limits. Enter a running number, and then the element name. Again you may open a pull-down list with the mouse or your keyboard (Alt-↓). Instead of elements you may, of course, also setup a specification for all kinds of test items and also formulas or pseudo-elements !
6. Likewise you assign the required dimension to this entry.
7. Then enter the different minimum and maximum values. A target value is optional. Remember to use only a point as a decimal character !
8. Click on the "Close" button to save your entries and leave the Window.

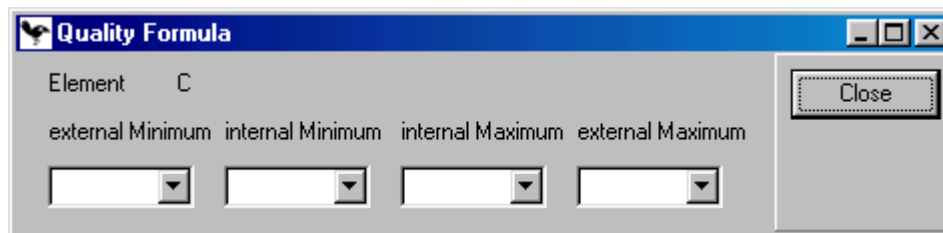
Assign a formula as a specification limit

Specifications can not only be fixed values, but may also be calculated dynamically. A formula may be used to individually calculate a min/max value based on results within the underlying analysis.

Example: if Titanium must be at least as high as 8 times Carbon, you just assign the formula $8 * C$ to the minimum field of the quality.

➤ To assign a formula as a specification limit:

1. Click into "Details of Quality"
2. click on the element line that you want to modify (or create a new line)
3. click on the "Formula" column. Three dots appear. Click on these to open the dialogue below.
4. Assign the formulas, where needed. For each field you may open a pull-down list with the mouse or use your keyboard (Alt-↓).



Mixing dynamic and static specification values is also possible: you may enter a fix value for the minimum, while the maximum will be calculated with a formula! Formulas can be setup under "Basic files – Elements".

Working with quality version control

For each quality name you may create multiple specifications (under details of quality). Click into the window "Quality version" to add a new line. Enter the values for "modified on", enter you user name and next the date when this specification should become active under "valid from".

Then click into the window "Details of Quality" to enter the specification for this version.

Under the "Quality version" window there is an untitled field to enter remarks for this version!

Each version will carry one internal number. These numbers are assigned in chronological order.

Delete

The delete function allows you to delete

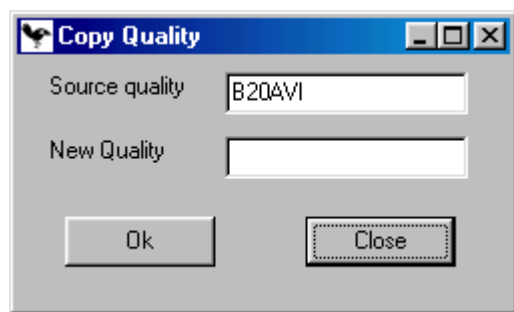
- a complete quality entry, if the cursor is in the "Quality Header" windows.
- a single element specification, if the cursor is placed in the window titled "Details of Quality".

Copy

The copy function makes it easier to create a number of similar qualities. Just copy an existing quality entry and apply your modifications.

➤ To copy a quality:

1. Click on the quality entry you want to copy
2. Then click on the "Copy" button, the marked quality appears as the "source quality".
3. enter the new quality name
4. click on the "Ok" button to start the copy procedure.
5. Edit the new quality to apply your changes.



Print

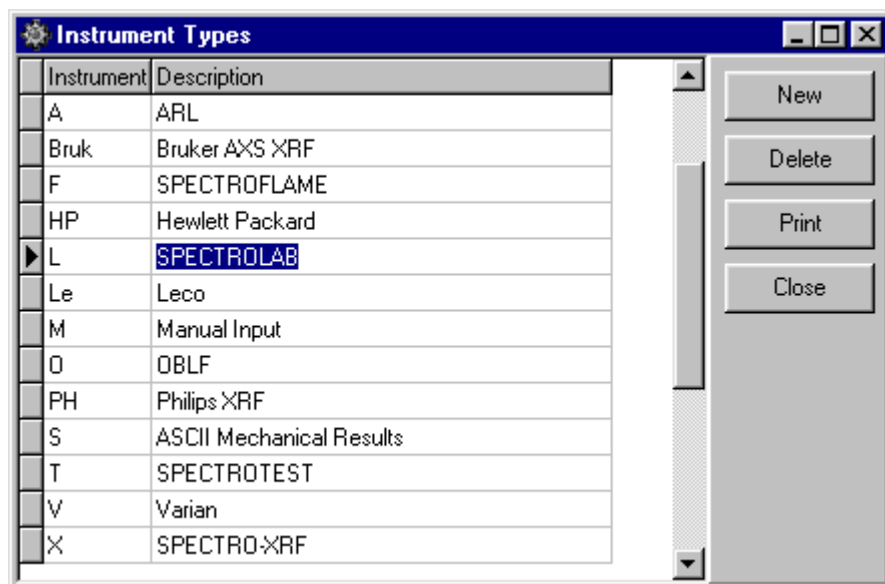
This dialogue will print a screenshot of the active function on your default printer.

Close

This function will close the dialogue.

Instruments

This table should contain all the instruments that you want to connect to your DIA database. The instrument code will be assigned within the instrument manager for each import function/port to allow you to identify the source of an analysis and also use it as a filter criterium. Each analysis imported will get the instrument code setup in the import function you used, no matter if the transfer string/file contains an instrument code already.



➤ **To create a new instrument entry:**

1. Click on the „New” button to create a new line.
2. The new line is marked with an asterisk (*) in the left part of the window.
3. Enter the instrument code, a maximum of four (4) characters is possible
4. Enter a descriptive name for this instrument.
5. Click on the “Close” button to save your entries and leave the Window.

Delete

The delete function allows you to delete a single instrument.

Print

This dialogue will print a screenshot of the active function on your default printer.

Close

This function will close the dialogue.

Addresses

The address table in DIA allows you to store the more frequently used addressees of certificates. The table will only be used in conjunction with the certificate function. Upon the creation of a new certificate, you may automatically draw the address details from the database, if the short name is stored in a certain sample ID field of your analysis, or you may select an address manually from this table.

Short name	Line 1	Line 2	Line 3	Line 4	Line 5	Line 6	Line 7	Line 8
Andon								
Maier	Maier		Maierweg 11		98765	Maierdorf		
Otto								
Schmidt								
Test	Testfina	z.H. Herr Testm, Abteilung Lab/Werk 1			Testweg 471	012345 Test		

➤ **To create a new address:**

1. Click on the „New” button to create a new address line.
2. The new line is marked with an asterisk (*) in the left part of the window.
3. Enter the short name. This will be the information that you enter into your ID field and be used as a reference to link to the complete address.
4. Enter the actual address in up to 8 address lines. By default the lines are numbered 1 through 8, but you may use the function “Edit language” to change the field names according to your internal usage.
5. Click on the “Close” button to save your entries and leave the Window.

Delete

The delete function allows you to delete the marked address entry.

Print

This dialogue will print a screenshot of the active function on your default printer.

Close

This function will close the dialogue.

Configuration

The configuration menu offers you all the options to customize your DIA system! Most of the configuration tables will be filled with default values or will automatically be updated by DIA internal wizards. If this is the case it will be specially mentioned in the description texts of this chapter.

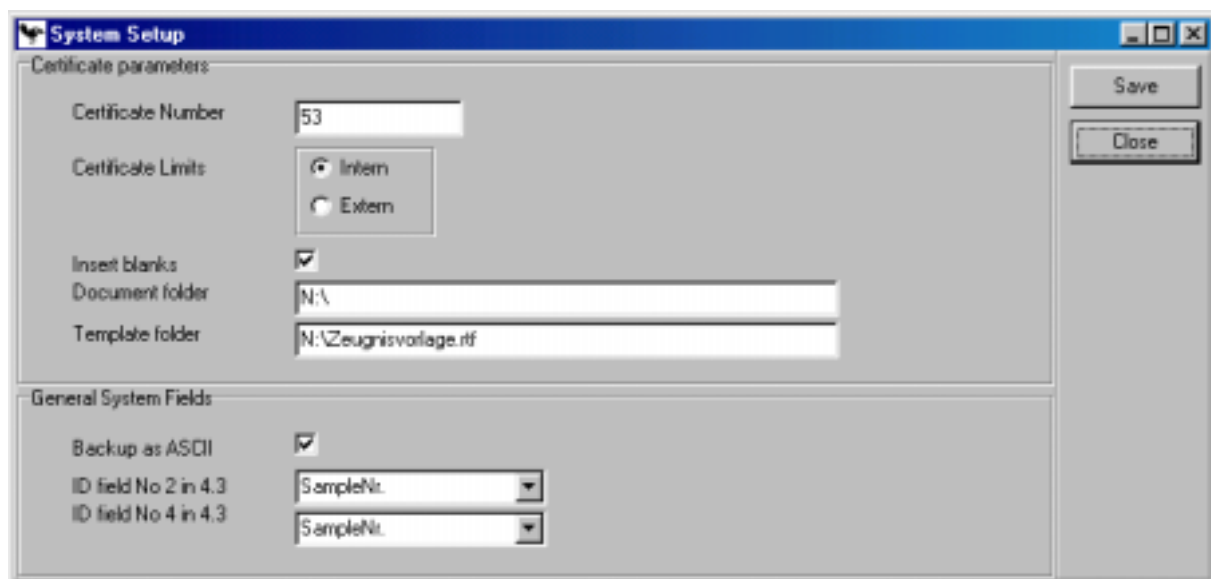
You should also be aware of the fact, that most of the configuration dialogues require a proper setup of the underlying basic files. So, prior to going through the configuration options, you should check your basic files to contain the basic information needed within your analytical environment.

System Setup

Some system internal settings may be specified here.

The various data fields have the following meaning:

Certificate number	The certificate number is the last internal number assigned to a certificate. It may be included in your certificate output and is – in any case – a unique number to identify a certificate. You may set this number in order to specify a different start value.
Certificate Limits	If you want to include quality/specification limits in your certificates, you may determine which – of the two – limits available within the DIA quality database you want to show.
Insert blanks	An element value appears within a certificate with different flags, like quality, calibration flag, etc. If you want to insert a blank between the flag and the result value, check this box, if unchecked, the data will be given without blanks.
Document folder	Enter the drive and directory/folder where DIA will store the generated certificate document files.
Template folder	Enter the drive and directory/folder where DIA will expect the templates for the certificates.
Backup as ASCII	If this box is checked, DIA will always keep an ASCII backup file of the analyses database. This is a security replication of the database.
ID field No 2 in 4.3	This is only valid for Spectro A.I. instruments. In Spectro's file transfer protocol version 4.3/4.4 sample ID No. 1 will be stored to DIA's "Sample Nr." and ID No. 3 will be stored to the "Quality" field. Determine into which of DIA's sample ID fields you want to store the transferred Spectro fields No. 2 and 4.
ID field No 4 in 4.3	See above



Save

This button will save and quit the dialogue.

Close

This function will close the dialogue.

Terminal Setup

The settings in this dialogue are terminal specific. Within a multi-user environment (network) each DIA workstation has its individual terminal setup.

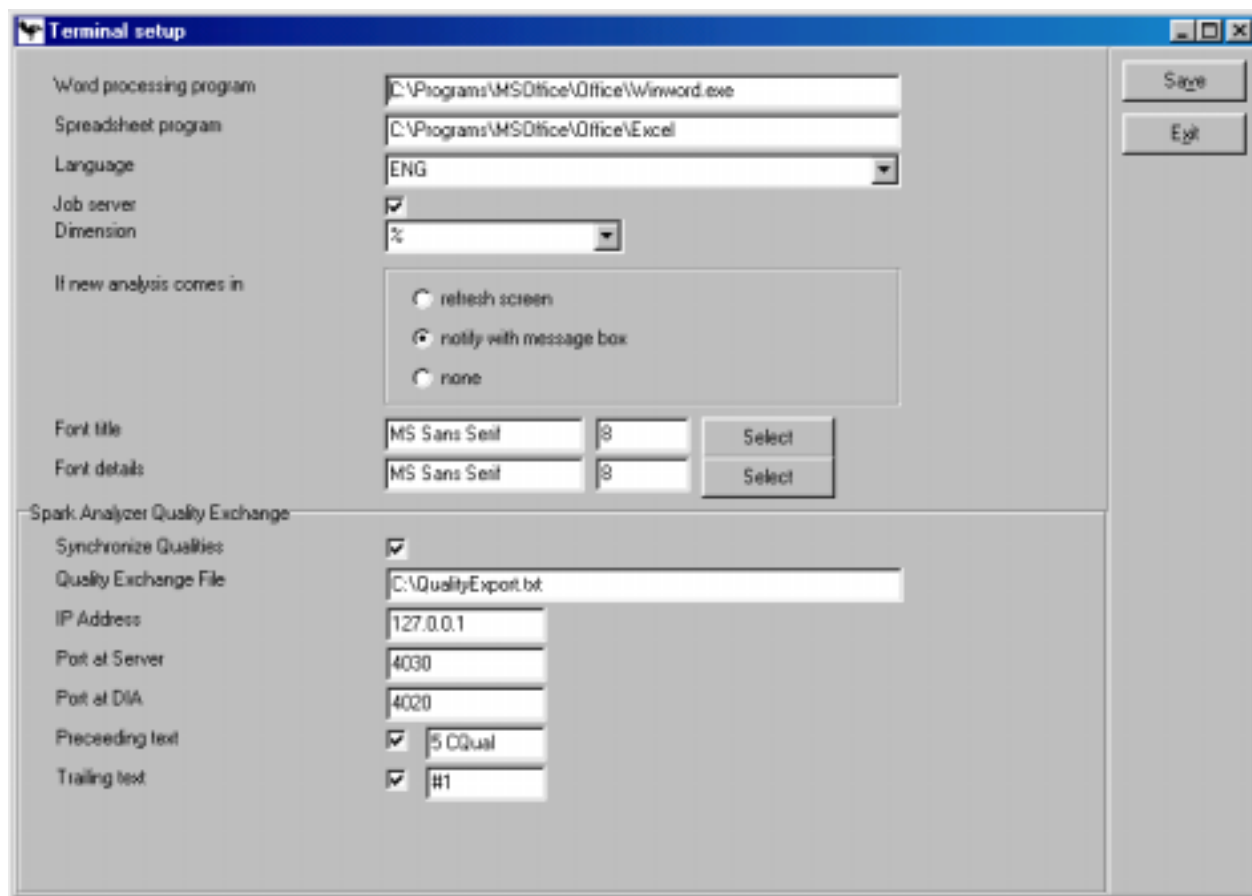
The various data fields have the following meaning:

- | | |
|-----------------------------|--|
| Directory with Word | For dynamic data exchange of analyses with Word, DIA needs to know where to find word. Enter the drive and directory/folder where the file Winword.exe is stored. The default setting is
C:\Programs\MSOffice\Office\Winword.exe |
| Directory with Excel | For Excel the same applies as above. The default setting is
C:\Programs\MSOffice\Office\excel.exe |
| Language | Select the language in which you want to use DIA. The pull-down list will show you all available languages. The new language will become active immediately after saving your entry. It will "translate" your (local) system. |
| Job Server | The job server will help you by automatically executing macro programs. The execution of macros may be scheduled or even-driven. Check this box if you want to use the Job Server. It will automatically be activated upon the next start up of the program.
Remember: The Job Server must also be active (box checked) in order to automatically pick-up analyses and/or communicate with analytical instruments ! |

Dimension	<p>Some analytical instruments provide their result data without dimension. In this case the analyses imported will be stored with the dimension given here. This is a default dimension for unspecified result values.</p> <p>Often this default is set to %, but it may also be any other of the dimension defined in DIA's basic files.</p>
If new analysis comes in	<p>You may specify an action that will be executed upon the arrival of a new analysis through DIA's instrument manager.</p> <ul style="list-style-type: none"> - <none>: no action. The analysis will be written to the database, your work within DIA will not be interrupted. To see a new analysis you must manually update the table e.g. by scrolling over the updated range of the database. - refresh screen: the analysis table will be updated automatically. The focus jumps onto the new analysis. - notify with message box: the program will display a box informing you about the new analysis. You may decide if you want to see the new analysis or not.
Font title	<p>Click on the "Select" button to get the Windows font and size dialogue. Choose the font and size for the analysis table column titles.</p>
Font details	<p>Same as above. Only for the data in the analyses table.</p>

Additional languages may be created under "Config – Edit Languages". There you may also modify existing languages. The language list and text contents are available system-wide. The database is stored in the central data directory.

Make sure that the Job Server is activated, if you want to run instrument communication ! DIA's Job Server will execute the import analyses function as soon as the event "New Analysis" was triggered on a serial, TCP/IP port or file interface !



Spark Analyzer Quality Exchange

The lower section of the screen is dedicated to the exchange of quality data between DIA 2000 SE and Spectro's spark analyzer. Thus, these settings are only applicable for users who have a SPECTROLAB with the latest Spark Analyzer software running !

This feature should assist the user to maintain a consistent quality database on both systems without double-editing. It is irrelevant which program the user decides to edit his qualities. Each program will automatically synchronize its data set with the other program. This is achieved by writing log files for each modification in the quality database and immediately report this logfile to the other program.

The communication used for this synchronization is based on the TCP/IP network protocol.

Important:

To enable quality exchange you need to setup the TCP/IP protocol in Windows' network configuration within the control panel !

Synchronize Qualities Check this box if you want DIA to synchronize its quality database with Spark Analyzer.
Whenever this switch is changed, it is recommended to shut down DIA 2000 SE and also the Job Manager (!) to correctly initialize the communication.

Quality Exchange File This is the log file containing the information that will be transferred to SparkAnalyzer. Actually the name is irrelevant

for transmission. This is only helpful when you want to check the content of the file. Remember to shut down the JobManager first, else the file will be emptied immediately. Default value is C:\QualityExport.txt
If you need to place this file in a different directory (e.g. if you have no write access to the root directory under NT/2000), just edit the path assignment.

IP Address	Enter the IP address of the SparkAnalyzer computer. The default setting is 127.0.0.1 which typically points to the same computer (if DIA 2000 and SparkAnalyzer run on the same PC). Else go to the Spectro PC and check in Control Panel, Network the IP address of the computer. In this version, DIA 2000 does not support dynamic IP addresses !
Port at Server	Enter the port number on the SparkAnalyzer computer Default is 4030 There must be a different port number for each task (DIA/SparkAnalyzer) even if they are located on the same machine.
Port at DIA	Enter the port number on the DIA computer Default is 4020
Preceding text	Each data line transferred to SparkAnalyzer will get this text as a record prefix. The default text "5 Cqual" must remain unchanged for Spectro! Only if you want to exchange qualities with any other software, you need to change this possibly.
Trailing text	Each data line transferred to SparkAnalyzer will get this text as a record suffix. The default is "#1" and the same applies as above.

Please note:
The task-to-task communication with SparkAnalyzer is being handled by DIA's JobServer. Consequently, make sure it is running !!

Please note that not all features offered by DIA 2000 SE are supported by the quality database of Spark Analyzer ! Among these are "dynamic limits" and the "quality version control". Dynamic limits (a formula is assigned as a min/max value) will not be transferred. For each quality modification received, DIA 2000 SE creates a new version of this quality !

Save

This button will save and quit the dialogue. For this dialogue it is recommended to re-start DIA after applying changes to ensure that all functions are correctly initialized !

Exit

This function will close the dialogue without saving your changes.

Sample Identification

This dialogue allows you to create, edit, and delete data fields to add identification or other information to your analyses. These data fields are available throughout the system over all analyses databases and analyses.

The following data fields are available:

Order	Running number of the ID field.
Name	The internal name of a data field. For some of the data fields this is fixed and may not be changed. Else enter any name for your data field. More important is the "Description" field which will be used through the database.
Description	The field description is the field name that you will be using within DIA. Enter a text that well describes the purpose of this data field. Up to 30 characters may be used.
Length	Enter the data field size. Maximum is 30 characters.
Plausi	If Plausi is marked, you can open a pull-down list with options for this data field when editing an analysis. This pull-down list may be created with the button "Plausibility". Note: for most of the system fields there is a fixed look-up table pre-defined in the system which may not be edited.
Upper Case	If each input into this data field should be automatically converted to capital letters, change this setting to "marked".
Number	If you want to limit the allowed input range to numerical values only, set this flag to Yes. By default each data field is alphanumeric (not marked). Note: even number fields will internally be stored as alpha-numeric. Consequently their sorting order will be according to alpha conventions from left to right. This also affect the search routine !
Must	If an input into this data field is required you can set this parameter. The user will be unable to skip this field, when editing an analysis, without entering a value.
Modifiable	Only fields set to be modifiable can be edited by the user. If this flag is not set, even authorized user will not be able to change it. This is often used to protect for example system fields.

Order	Name	Description	Length	Header	Plausi	Upper Case	Number	Must	Modifiable
	CreateBy	Creation By	30	K	No	No	No	No	Yes
	CreateDa	Creation Date	30	K	No	No	No	No	Yes
	DateTime	Date/Time	30	K	No	No	No	No	Yes
	Gewicht	Gewicht	30	I	No	No	No	No	Yes
	Methode	Methode	30	K	No	No	No	No	Yes
1	Date	Date	30	K	No	No	No	No	Yes
2	Time	Time	30	K	No	No	No	No	Yes
4	ID-4	ID-4	30	I	No	No	No	No	Yes
5	ID-6	ID-6	30	I	No	No	No	No	Yes
6	Quality	Quality	30	K	Yes	No	No	No	Yes
7	QualVer	Quality/Version	5	K	No	No	No	No	Yes
8	SampleNr	SampleNr.	15	I	Yes	No	No	No	Yes
9	Status	Status	30	K	Yes	No	No	No	Yes
10	Type	Type	30	K	Yes	No	No	No	Yes
11	SampleNo	Sample No.	30	K	No	No	No	No	Yes
12	QualOK	QualityOK	30	K	Yes	No	No	No	Yes
13	QualChk	QualityChecked	30	K	Yes	No	No	No	Yes
15	Probenar	Sample Type	30	I	No	No	No	No	Yes
17	ModDate	Modify Date	30	K	No	No	No	No	Yes
18	ModBy	Modify By	30	K	No	No	No	No	Yes
19	Preis	Price	30	I	No	No	No	No	Yes
20	Inst	Instrument	30	K	Yes	No	No	No	Yes

Buttons: New, Delete, Print, Plausibility, Close

New

Create a new sample ID field and fill all the options as described above.

Delete

The delete function allows you to delete

- a single data field.

Print

This dialogue will print a screenshot of the active function on your default printer.

Properties

This dialogue will allow you to edit the properties of the data fields. Here you can change the flags described above.

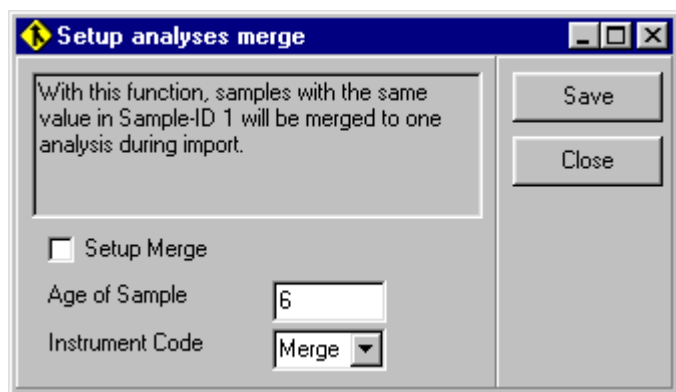
Close

This function will close the dialogue.

Setup AnalysesMerge

AnalysesMerge allows you to combine results from different sources to one analysis. The results will be "merged".

Analyses that have the same "Sample-Nr." (whatever you titled this field) will be merged together, if AnalysesMerge is activated.



➤ **To activate AnalysesMerge:**

1. Click on the check box "Setup Merge" to activate the merge
2. In "Age of Sample" enter the number of days that DIA should maximally scan back (from the current date) to find matching analyses. Typically only analyses from the recent past should be merged and not values from years ago.
3. For "Instrument Code" assign the instrument that a merged analysis should carry. Thus you can tell if or if not merge has been performed.
4. Click on the "Save" button to save your settings.

Save

This button will save and quit the dialogue.

Close

This function will close the dialogue.

Quality Parameters

DIA 2000 offers many quality control and identification functions. This function enables you to setup the way you want to perform the different function.

Just click on the different fields to select one or the other choice (radio buttons), activate a function (check boxes), or make an entry as for the quality flag.

Which limits shall be used for 'Quality Identification'

Please choose, if the Quality Identification function should find qualities matching the internal or the external limits.

Setup which character should indicate a quality violation.

When comparing the analysis with the given quality, do you want to compare with the internal or external limits? And which character should indicate a mismatch. This character (default is exclamation mark '!') shows you that at least one element did not comply with the quality specs. You may also use this analysis specific flag within your filters.

Note: Besides this "analysis-specific" flag there are also "element-specific" flags as shown below.

Check quality during import?

When the Instrument Manager or Job Server imports new analyses into the database it may simultaneously check, if the analysis complies with the quality entered. It is recommended to activate this function.

De-activating this auto-check is only necessary when you want to improve import speed !

Note: This function requires, that a quality name has already been entered to this analysis within the instrument software. Also in DIA's quality database a specification with exactly the same name is required.

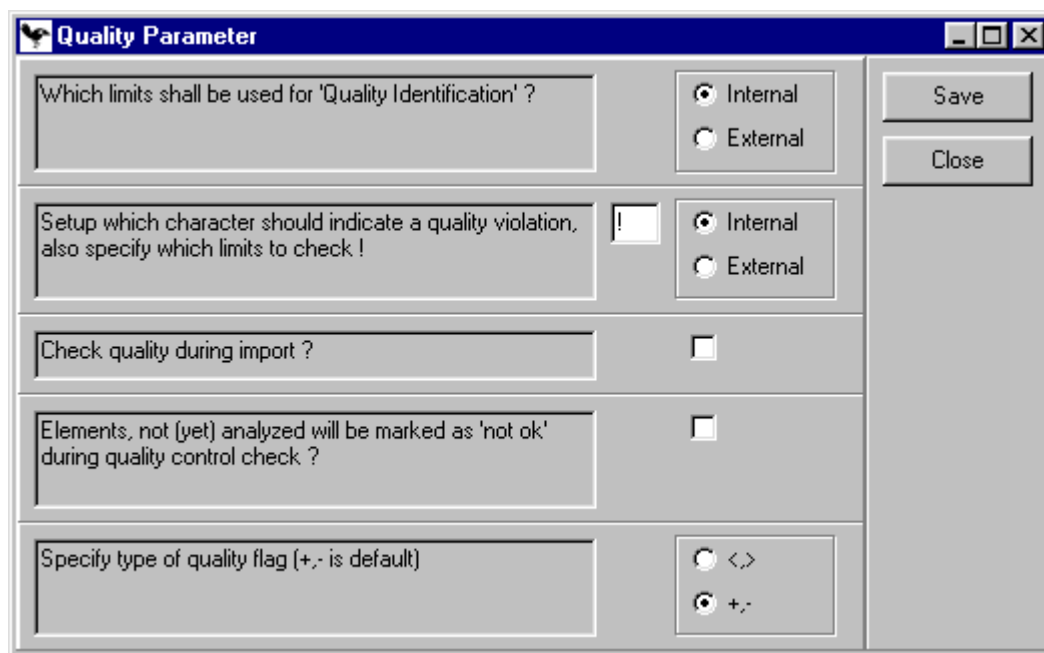
Elements, not (yet) analyzed will be marked as 'not ok'.

When your quality contains a specification for an element that you did not (yet) analyze, there are two possibilities, how DIA can react on this situation:

- a) it may mark the element as not okay, since the quality specification is not matched, or can not be judged. The quality flag will mark the analysis as not okay. This configuration makes sense, if you analyze some elements with a different instrument or method and the element enters the database later. The quality should only be marked okay, if all elements are present and comply to the specification.
In this case you should check the box !
- b) it may ignore specifications, if the element value is blank (not zero). This setup should be used if you analyze an element in one method, but not always and you only want to check this element, if it is present. If it is not available and all other elements comply with the quality specification, the analysis should be marked okay.
For this settings leave the check box unmarked (default).

Specify type of quality flag.

The element specific quality flag can be either a + or - (for too high, too low) (this is the default), or <, > character.



The dialog box is titled "Quality Parameter" and contains the following controls:

- Field: "Which limits shall be used for 'Quality Identification' ?"
 - Radio buttons: ☒ Internal, ☐ External
- Field: "Setup which character should indicate a quality violation, also specify which limits to check !"
 - Character selection:
 - Radio buttons: ☒ Internal, ☐ External
- Field: "Check quality during import ?"
 - Checkbox: ☐
- Field: "Elements, not (yet) analyzed will be marked as 'not ok' during quality control check ?"
 - Checkbox: ☐
- Field: "Specify type of quality flag (+,- is default)"
 - Radio buttons: ☐ <>, ☒ +,-

Buttons: Save, Close

Save

This button will save and quit the dialogue.

Close

This function will close the dialogue.

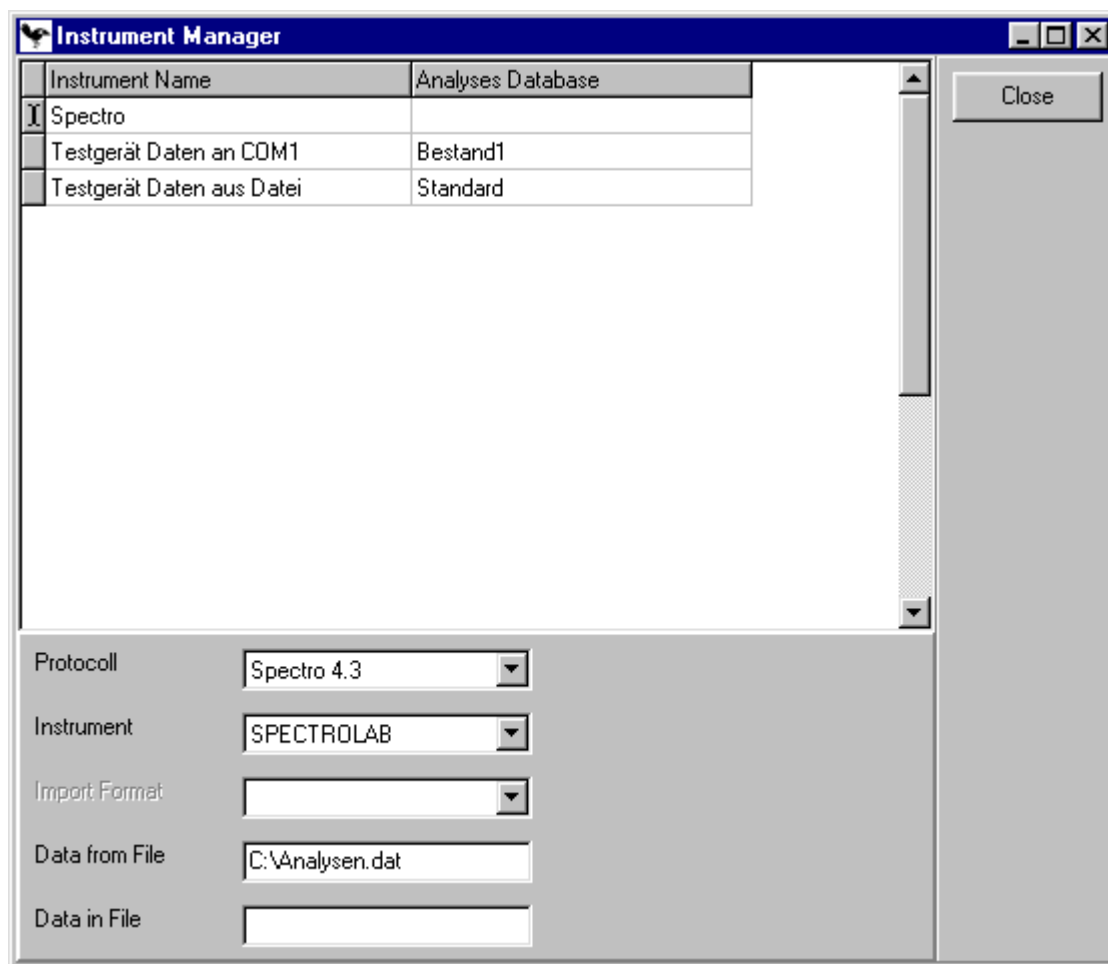
Instrument Manager

The instrument manager is one of the core functions of DIA 2000. It allows you to connect different types of analytical instrumentation online to your DIA database.

The instrument manager supports three ways to communicate with your laboratory equipment:

- serial communication with xon/xoff or manufacturer-specific Ack/Nack protocols
- file interface to import ASCII files locally or through a network connection
- TCP/IP socket communication to directly connect to a specific computer/task in a TCP/IP network and exchange information task-to-task. This is also referred to as "inter-process communication" (IPC).

The instrument manager uses DIA's Job Server to run in the background and ensures communication, even if DIA itself is not running. Just make sure that Job Server is enabled in the Terminal Setup and appears in Windows' Task Bar.



➤ **To introduce a new instrument:**

1. Click on "Configuration – Instrument Manager"
2. Move the cursor down to create a new line. This will be marked with an asterisk (*) on the left. (if the table was empty before, DIA will automatically create a new line).
3. Enter a descriptive "Instrument Name" that will tell you which instrument is meant. Typically you would enter the instrument's model name, location, etc. (example: "Spectrometer in main lab")
4. Select the analyses database to which you want to save the received analyses. Typically you would store it into your "Standard" database, but you may use a separate database for each instrument.
Open the pull-down list with the mouse or use the keyboard (press Alt-↓) and select the database you want to use.
5. Click on "Protocol" to open the list of available instrument drivers. Select your instrument. For more details about the different drivers please read the information further down this section.
6. Select the instrument name. This list needs to be prepared in advance under "Basic Files – Instruments". Analyses coming in through this instrument port will get the (max 4 chars) instrument code stored with the selected instrument (under "Basic Files").

7. If you have chosen the Open Instrument interface, you will have to specify the import file format from the list. Again this has to be prepared in advance under "Formats – Import".
8. Next you have to enter the "Import File": give drive, location (folder/directory) and the file name that DIA should import.
Example: C:\Results\Analyses.txt
You may also use server names to address a file in your network, e.g.
[\\Server\InstrumentDisk\Results\Analyses.txt](#)
9. Finally you may enter a backup file name. The imported file will be renamed to this name. Thus, you always have a backup of the last file imported.
10. Click on the "Close" button to finalize your setup and automatically activate it.

TIP:

It is recommended to save received analyses from all instruments into the Standard database. DIA 2000 is able to handle very different analyses types within one database. Thus, it is much easier for the user to address the correct file when looking for analyses. Normally one would only store one instrument's data into a different database, if – for example – this instrument belongs to a different company division or a distinct separation is required for other reasons.

Setup serial communication

DIA 2000 comes with a serial communication tool that allows to connect an instrument using the RS-232 port of your computer. This program is called SerCOM.exe and is located in the DIA 2000 program directory.

SerCOM is able to handle a couple of instrument specific ACK/NACK protocols. Details about these protocols can be found in the appendix.

The following protocols are available in SerCOM:

Code	Description
SP	Spectro 4.3 for all Spectro instruments
OI	Open Instrument Interface for xon/xoff protocols
CN	Compac 11 protocol for ARL instruments
LE	Leco protocol for most Leco CS, NO, H analyzers
SX	Siemens XRF/Bruker AXS instruments
PC	Philips XRF Compac protocol
PH	Philips XRF native protocol

➤ To configure serial communication:

1. Open the file SERCOM.INI with Notepad (or any other editor) in the DIA 2000 program directory.
2. The following example shows the default .ini file with explanatory comments:


```
[COMPORT_2]           // for COM2, change the port no if necessary
Protokoll = SP          // SP = Spectro, see list above
Baudrate = 009600       // enter six digit baud rage (300 and 38400)
ParityBit = N           // (N)one, (E)ven, (O)dd parity
DataBits = 8            // number of data bits, typically 7 or 8
StopBits = 1            // number of stop bits, typically 0 or 1
```



```

HandShake = [Kein]      // Flow parameters like RTS/CTS, etc.
EndOfRecord = False     // not used

```

You may add other [sections] for other COM ports followed by their parameters according to existing COM ports. COM port numbers should be 1 thru 9.

Save the .ini file.

3. Setup the instrument manager. Use the same protocol. As an import file name, enter ANALYSES.002 (for COM port 2). No drive or directory is needed. SerCOM will receive an analysis from the instrument and then saves it to a file named ANALYSES.<PORT> !
4. Exit the file manager: the file interface is automatically active.
5. Execute SerCOM: serial communication is active.
 You may start the program either in the Start-Run function or simply by double-clicking the file in the Windows Explorer.
 It is recommended to create a shortcut to start SerCOM in you auto. Startup group !

Available instrument drivers for DIA 2000 SE

The following protocols/instrument drivers are available in DIA 2000:

Spectro 4.3/4.4	<p>This driver works for the following instruments from Spectro Analytical Instruments:</p> <ul style="list-style-type: none"> • SPECTROLAB, all CP/M, DOS, Windows-based systems (not EEPROM M3 !) • SPECTROFLAME ICP, all DOS, Windows-based • SPECTROCAST • SPECTRO X-LAB, depending on software version, please check with Spectro A.I. or Fink & Partner
SDC1x Analyses	DIA is also able to automatically read-out data from Spectro's Spectro-Data-Control software. This driver is used for the first generation. This also covers the older DOS-based Spectrolab which store directly into this SDC database.
Compac	The protocol for spark emission spectrometers by ThermoARL.
Leco	Leco instruments will be connected using a serial port. Supported are all combustion analyzers for C/S, N/O, H.
Oxford	This driver works for Oxford X-ray spectrometers.
Siemens XRAY	Siemens, AXS, and Bruker AXS X-ray spectrometers that work with the Spectra software or support the Temp_C file format are directly supported. With Xmit serial communication with a subsize of the Siemens 3964R protocol is possible.
Philips (Compac)	Philips Analytical X-ray spectrometers also support the Compac transfer format.

Philips	Alternatively you may also use the Philips proprietary transmission format. Serial communication and file import is possible.
Open Instrument	The open instrument interface (O.I.I.) allows you to create ASCII import formats that can be used for file import or even serial communication.

In the first release of DIA 2000 SE not all these drivers are available. Please check the download section of <http://www.analyses-management.com> for new instrument drivers that you may need.

For details about the different instrument types please consult the protocol documentation in the appendix.

Setup AuditTrail

AuditTrail helps you to trace back all modifications applied to your analyses database. It will list all changes that were applied to an existing analysis entry.

The following information is stored in this table:

- Date and time of modification
- Login name of the user who modified
- Date and time of the analysis (for identification)
- Sample Nr. of the analysis
- Field name changed
- The value before change
- The value after the change
- The reason why the modification was applied

The list of modifications appears in chronological order. Thus, the latest entry can be found at the end of the table.

Setup Audit Trail						
<input checked="" type="checkbox"/> Activate Audit Trail ?						
modified at	User	Time of analysis	Sample No.	Field Name	Value before	Value after
10.10.2000 12:38:25	STO	08.04.1993 11:02:34		Probennr	0038	0038test
12.10.2000 12:38:25	STO	08.04.1993 11:02:34		Probennr	0038test	0038
15.11.2000 09:06:52	STO	04.06.1999 02:57:52		Cr	0,65	0,15
21.11.2000 12:44:52	STO	21.11.2000 12:43:52		AI		0
21.11.2000 12:45:52	STO	21.11.2000 12:43:52		AI	0	0
21.11.2000 12:46:52	STO	21.11.2000 12:43:52		AI	0	0.234
21.11.2000 12:46:52	STO	21.11.2000 12:43:52		AI	0.234	0.234
21.11.2000 13:11:52	STO	21.11.2000 12:43:52		P	0	0.1234
21.11.2000 13:12:52	STO	21.11.2000 13:12:00		C		0
21.11.2000 13:13:52	STO	21.11.2000 13:12:00		C	0	0
21.11.2000 13:13:52	STO	21.11.2000 13:12:00		C	0	0
21.11.2000 13:13:52	STO	21.11.2000 13:12:00		AI		0
22.11.2000 11:01:52	STO	22.11.2000 11:01:30		C		0
29.11.2000 10:09:52	STO	09.04.1993 16:34:41		C		0,18
29.11.2000 10:11:52	STO	09.04.1993 16:34:41		C	0,18	0,1855
29.11.2000 10:46:52	STO	09.04.1993 16:34:41		Si		0,123
29.11.2000 14:34:52	STO	09.04.1993 16:34:41		P		0,0157
30.11.2000 16:58:52	STO	08.04.1993 07:27:12		C		0,65
14.12.2000 11:15:52		01.06.1999 03:48:42	59392	N		0,02

➤ **To activate AuditTrail:**

1. open "Configuration" and "Setup AuditTrail"
2. click and check on "Activate AuditTrail ?"

To be able to activate or de-activate the AuditTrail function your user account must have the corresponding right.

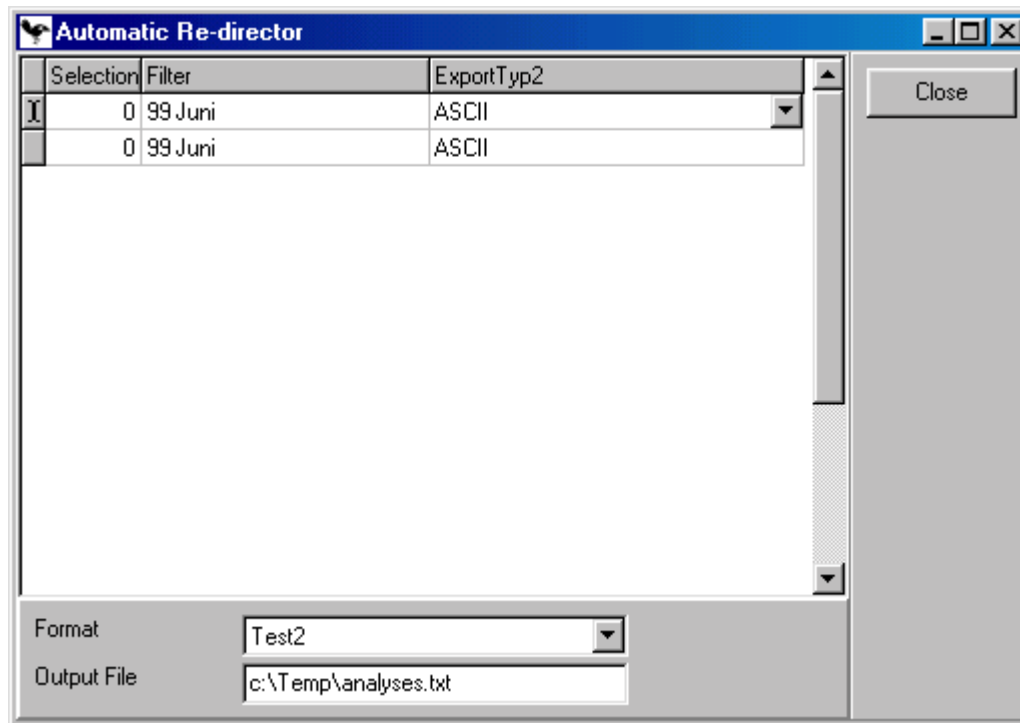
Re-Director

Do you need to forward data to another computer system or software package ? And this possibly close to realtime ? DIA 2000 offers with the Auto-Re-director function the right tool.

Incoming analyses will automatically be checked against a pre-defined filter and exported into the selected target.

The following export targets (types) are supported:

- ASCII file
- DIA 2000 analyses database
- ODBC gateway



➤ **To setup auto-redirect:**

1. Click on "Configuration – Automatic Re-Director"
2. Move the cursor down to create a new line. This will be marked with an asterisk (*) on the left. (if the table was empty before, DIA will automatically create a new line).
3. in multi-user environments (network version) enter the terminal number of the computer where Redirector shall be executed. For single-user versions leave the terminal number "0".
4. Choose the filter which will decide if an incoming analysis will be exported immediately. You can edit the filter by clicking on the filter icon or via the Edit menu.
5. Select the export type: you may send the analysis into another DIA analyses database, an ASCII file, or any database for which an ODBC gateway has been setup in your Windows control panel.
6. Depending on the selected export type you have to determine the export format, analyses database or ODBC format. You may enter a different file name than the one implemented with the export format.
7. Click on the "Close" button to finalize your setup and automatically activate it.

You may setup as many redirectors as needed.

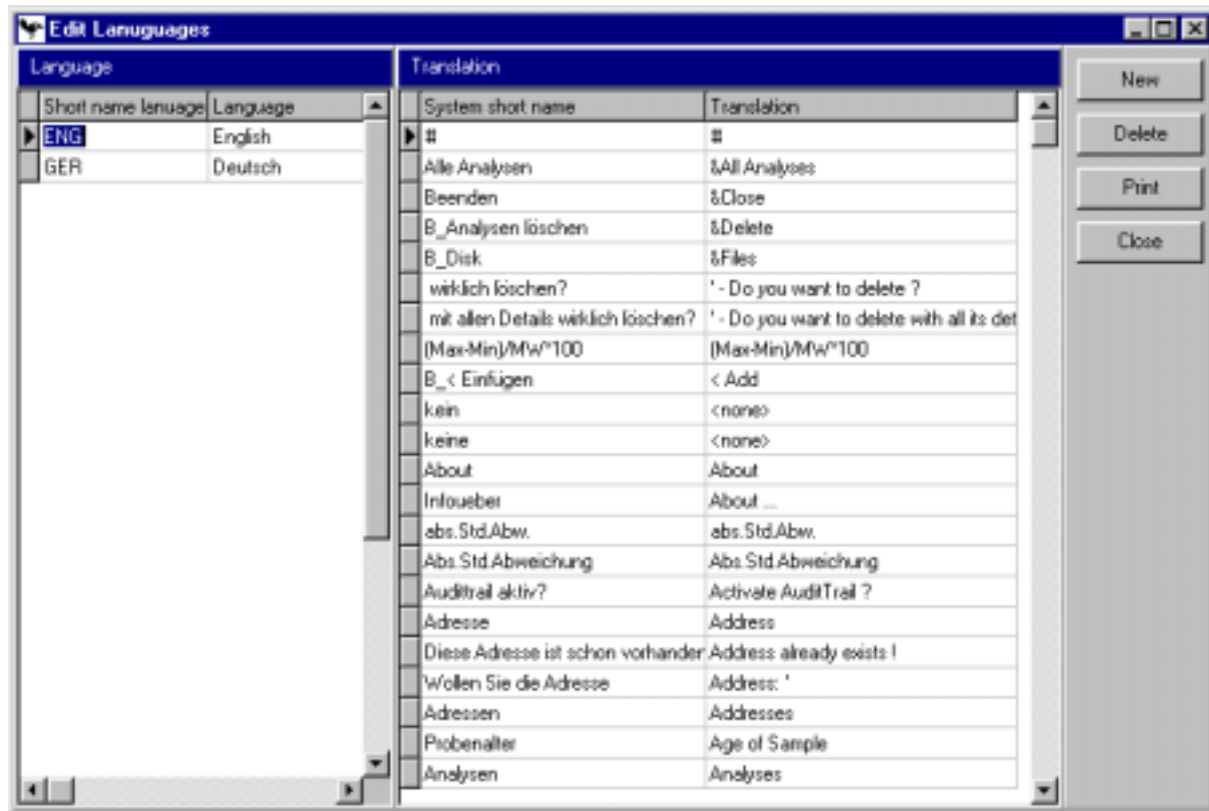
Automatic export will be performed in close to realtime.

Please consult other sections of this documentation to find out more about how to setup ASCII export formats, create DIA databases, or implement an ODBC database.

Edit Language

DIA 2000 is language and terminology-independent. All screen texts, button labels, menus, parameters can be changed by the user.

You may edit an existing language to adjust DIA 2000 to your internal terminology or create a completely new language for your country.



➤ To edit a language text:

1. Select "Configuration – Edit language" in the menu.
2. In the left window click on the language that you want to edit.
3. In the right window all the texts appear. Within the software texts are stored under a so-called "System short name". Each such string needs to be translated in the "Translation" column.
4. All texts are sorted according to their translation string in the right column. Locate the screen, menu, or button text that you want to modify in the right column.
5. If you want to completely overwrite just click on the expression and enter the new text.
6. If you want to edit the existing text, press F2 to switch to edit more. Then move the cursor to the required position and apply your modifications.

New

With this function you may create a new language. Enter the language short name – max. 3 characters – and a descriptive longname.

All texts will be initially filled with the (english) system short names in brackets (<example>).

If you prefer to do the translation within your own editor, you may export and later import the texts (see below).

Delete

The delete function allows you to delete the marked language entry. You should use this function with utmost caution !!

Print

This dialogue will print a screenshot of the active function on your default printer.

Export

In the left click on the language you wish to export, then click on the export button. A file named LANGUAGE.TXT will be created in the DIA 2000 program directory.

The file is a two column ASCII text file, the columns are separated by a semicolon (;). You should translate the **right** column.

Import

After editing/translating the LANGUAGE.TXT file you click the import button to read the texts into DIA's translation table. The texts will be imported into the language table that is entered with its short name in the first line of the text file.

Close

This function will close the dialogue.

Conventions for System Short Names (SSN)

The system short names follow certain conventions, that make it easier for you to tell you more about a specific text.

a SSS starting with ...	represents...
B_	A push button text, also for the icon buttons in the top line.
P_	A parameter entry
M_	Menue entry, also an entry in the right table to enable this menue option for a user owning this right
R_	Right entry, only for keys that are not already covered by a menue right

A text embraced like this <no translation> is a missing translation. By default such untranslated texts will appear in the software with their system short name.

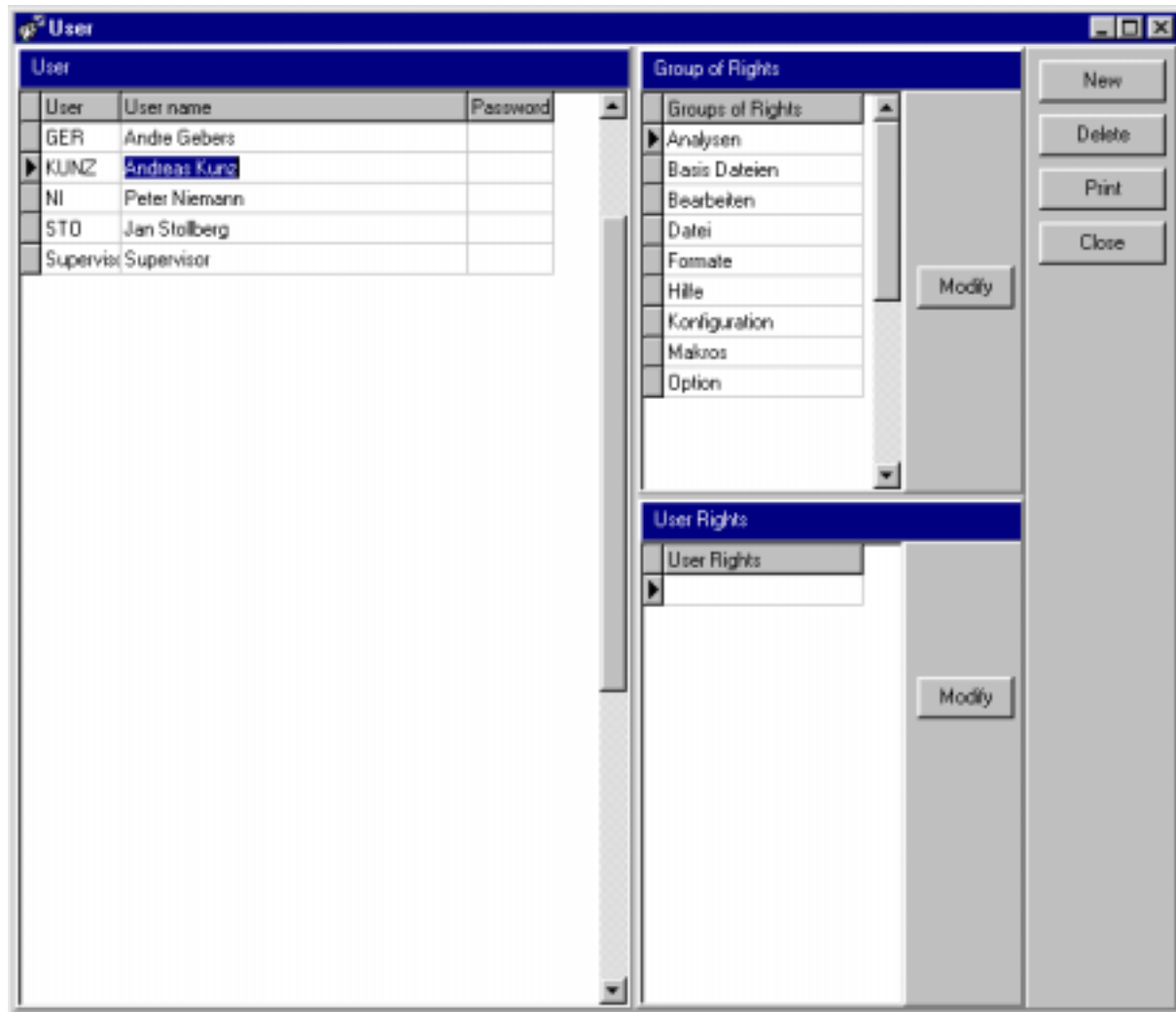
The concatenate character (&) may be entered to create "hotkeys": the letter following this character will be underscored and the menue option or button using this text may be initiated by pressing Alt plus the underlined letter.

The language is terminal-dependent ! This means in a multi-user environment (network installation) each terminal can run its own language.

Users

The user table allows to manage all users that should have access to the DIA 2000 software and the data stored herein.

The administrator may assign single rights to each user or define groups of rights that may be assigned to a user account. Thus, it is easy to define complex user profiles in a minimum amount of time. Pre-defined groups of rights assist the system administrator.



New

With this function you may create a new user account and assign rights to this user.

➤ **To create a new user account:**

1. Click on "Configuration – Users"
2. Click the button "New" to create a new line. This will be marked with an asterisk (*) on the left. (if the table was empty before, DIA will automatically create a new line).
3. Enter the "User" under which the user will later login. A maximum of 10 characters is allowed. All entries will automatically be converted in

uppercase letters. Login user names are typically initials, employee numbers, or acronyms.

4. The "User name" is a descriptive text that identifies a user with – for example – his full name. The is not functionality linked to this entry.
5. Finally you may assign a "Password". You have to enter it "blind" and – to ensure you typed correctly, re-enter it to confirm the password. Click the "Save" button to save your entry.

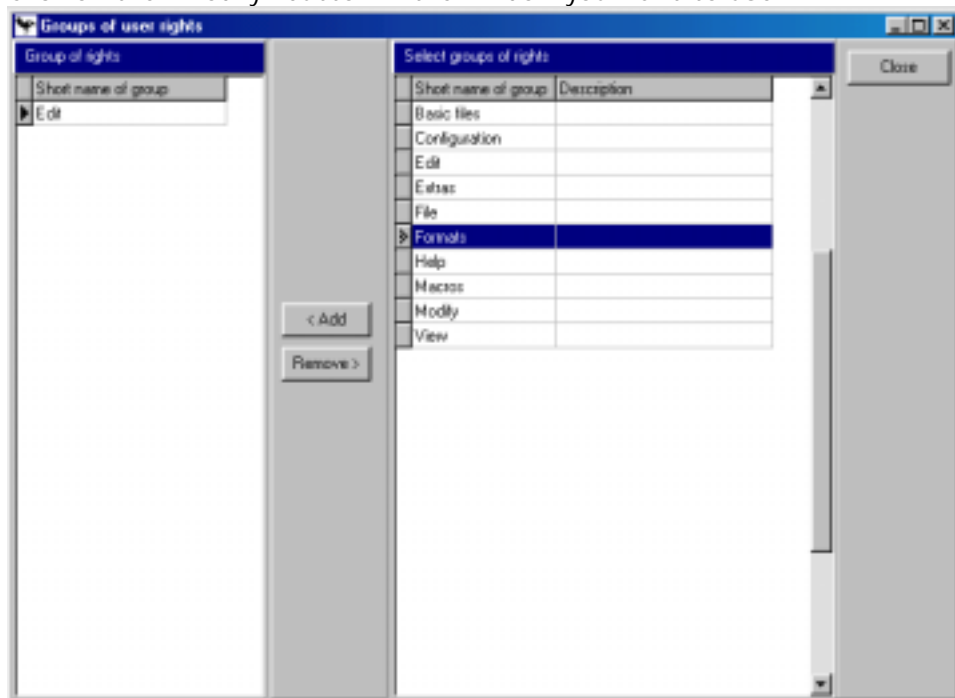


The "Query Password" dialog box has a title bar with a question mark icon and standard window controls. It contains two text input fields: "Password" and "Confirmation", both with "xxxx" as placeholder text. To the right of the "Password" field is a "Save" button, and to the right of the "Confirmation" field is an "Exit" button.

With that you have completed the user authentication. Next the required rights need to be assigned to give the user access to the functions he should be able to use.

6. There are two possibilities to assign rights:
 - use individual rights (lower window on the right side), or
 - use groups of rights, where individual rights are combined in a group (upper right window)

Click on the "Modify" button in the window you want to use.



The "Groups of user rights" dialog box has a title bar with a question mark icon and standard window controls. It features a "Group of rights" section on the left with a "Short name of group" field and an "Edit" button. In the center, there are two buttons: "< Add" and "Remove >". On the right, there is a "Select groups of rights" table with two columns: "Short name of group" and "Description". The table lists several rights: Basic files, Configuration, Edit, Extras, File, Formats (which is selected with a blue background), Help, Macros, Modify, and View. A "Close" button is located in the top right corner.

Short name of group	Description
Basic files	
Configuration	
Edit	
Extras	
File	
Formats	
Help	
Macros	
Modify	
View	

7. Select a right or a group of rights in the right table and click on the "< Add" button to add this entry to the user account.
Repeat this for each right/group that you want to add to the profile.
8. If you want to take an assigned right away, select it in the left table and click on the "Remove >" button.
9. Click the "Close" button" to save your selection.
10. With this you completed the creation and setup of a new user account.

Delete

The delete function allows you to delete the marked language entry. You should use this function with utmost caution !!

Print

This dialogue will print a screenshot of the active function on your default printer.

Close

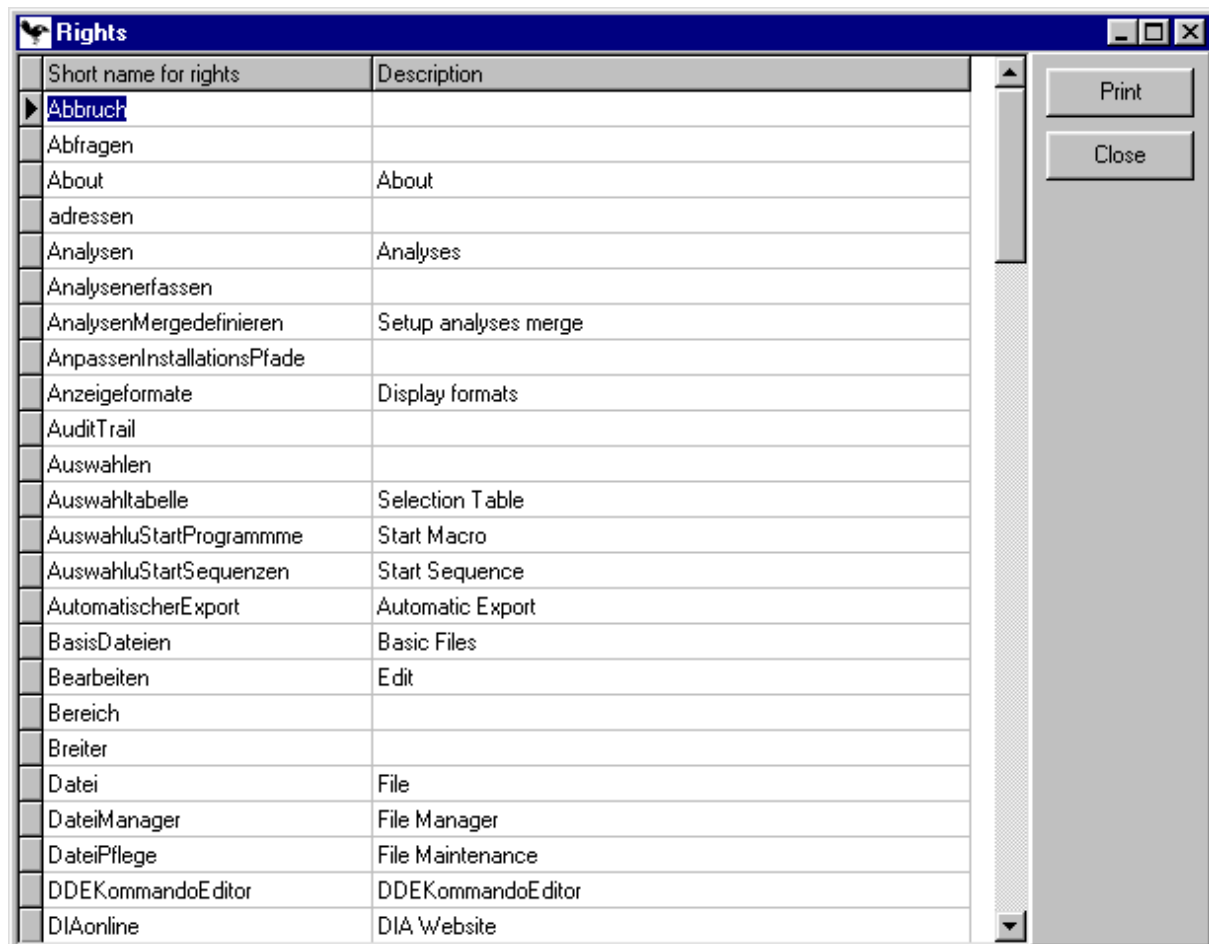
This function will close the dialogue.

Rights

This function shows the list of available rights within the DIA 2000 application together with an explanatory description. It is just for information purposes and there is no functionality involved.

DIA 2000 offers a right-based security system. Each user may be assigned various rights that permits access on different levels.

Most rights are directly linked to a menu option that they open for the user. These are marked with the M_ prefix. Other rights open a certain functionality, like the ability to modify records. They may be applicable within various functions. Such rights are preceded by an R_ in their short name!



Short name for rights	Description
Abbruch	
Abfragen	
About	About
adressen	
Analysen	Analyses
Analysenerfassen	
AnalysenMergedefinieren	Setup analyses merge
AnpassenInstallationsPfade	
Anzeigeformate	Display formats
AuditTrail	
Auswählen	
Auswahltable	Selection Table
AuswahlStartProgramme	Start Macro
AuswahlStartSequenzen	Start Sequence
AutomatischerExport	Automatic Export
BasisDateien	Basic Files
Bearbeiten	Edit
Bereich	
Breiter	
Datei	File
DateiManager	File Manager
DateiPflege	File Maintenance
DDEKommandoEditor	DDEKommandoEditor
DIAonline	DIA Website

Print

This dialogue will print a screenshot of the active function on your default printer.

Close

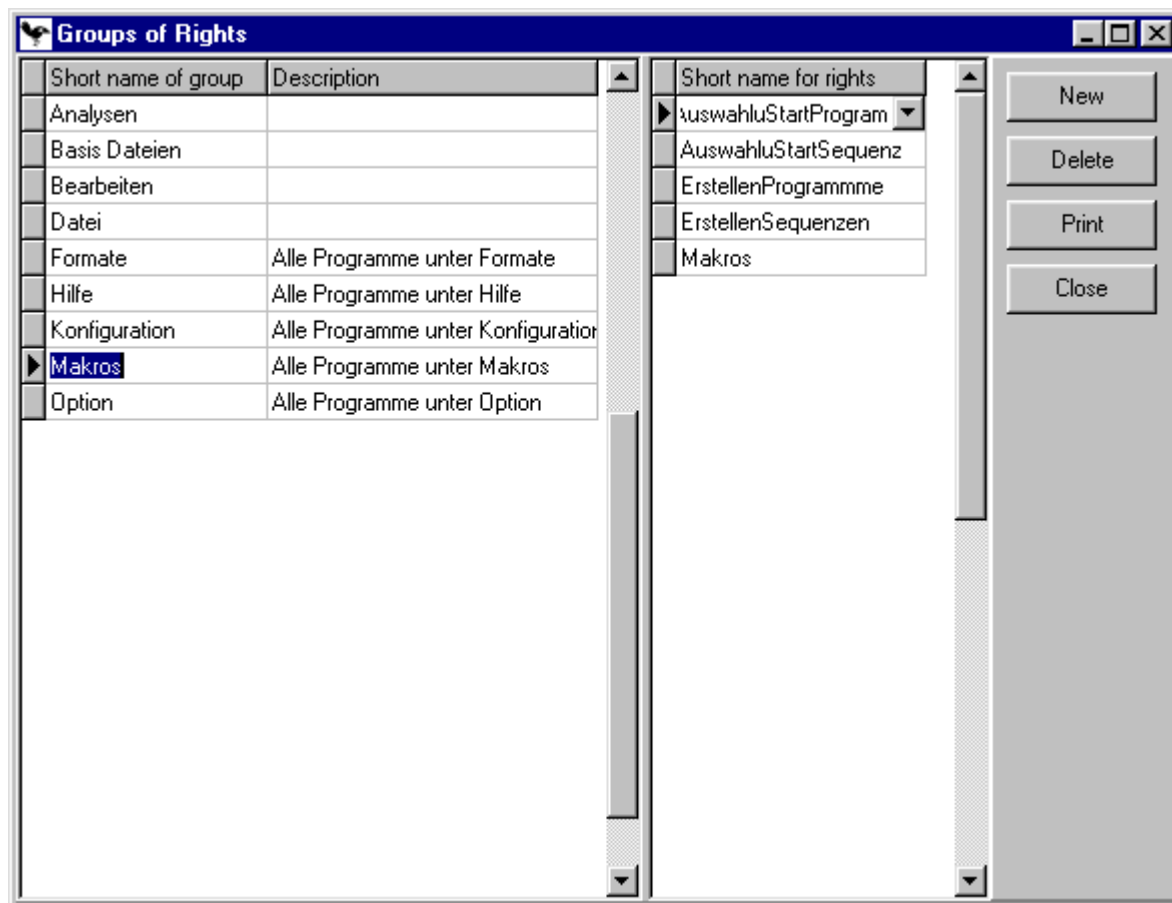
This function will close the dialogue.

Groups of Rights

The possibility to combine individual rights to groups is a very powerful feature that enables the system administrator to create a setup that allows to quickly and easily create new users and apply the appropriate profile. Instead of applying a long list of individual rights, a whole list of rights (a group) may be given to a user account with only a few mouse clicks.

Groups may – for example - be combined according to

- menu structure,
- types of user groups (e.g. query user, laboratory personel, supervisor, system administrator, etc.
- different levels of access (e.g. Level 0 for very limited access up to level x with full access.



For each group in the left window, the rights assigned to this group will appear in the right window. Browse through the list of groups to see which rights belong to

which group. The description should be able to give you a quick overview over the purpose of the group and which rights it may contain.

New

Create a new group of rights to build your own list of rights for a special purpose.

➤ To create a new group

1. Click on the "New" button to create a new group.
2. The new line is marked with an asterisk (*) in the left part of the window.
3. Enter the name of the group that you want to use within DIA 2000
4. Enter a descriptive text
5. Click into the window on the right and select a right from the pull-down list. Press cursor key down to create a new line and select the next right. Continue until you have assigned all the rights that you want to use within this group.
6. Click on the "Close" button to save your entries and leave the Window.

Delete

The delete function allows you to delete

- a single rights (if focus/cursor is in the right window), or
- a whole group (if focus/cursor is in the left window).

Print

This dialogue will print a screenshot of the active function on your default printer.

Close

This function will close the dialogue.

Help

DIA 2000 does not include a native Windows Help file (.hlp) but a HTML (hypertext markup language) documentation. Thus you may also edit this documentation and apply your notes or comments to the help text to improve it to your specific requirements.

The help file will continuously be improved and you should visit the DIA website www.analyses-management.com from time to time to download an updated version of DIA's help.

Furthermore this manual also offers you option to directly get into contact with Fink & Partner or to register your version of DIA online through the internet.

Display Help

Opens the help system of DIA 2000.

Content

Shows the content page of DIA's help system.

Website

Visit the analyses-management website to learn more about your DIA 2000 product, other services provided by Fink & Partner, and many interesting links in the world of analyses management.

In order to be able to use this link your computer must be connected to the internet.

Online Registration

For this function your computer needs to be connected to the internet. It will take you directly to the registration page of the analyses management website.

Register your DIA product as soon as possible to ensure best support, bug fixes, notification for updates, and much more. If you leave us your e-mail address you will receive the DIA 2000 newsletter regularly.

About

The windows shows you all the information about version number, release, service pack, etc. of your DIA installation. It also provides information about hotline, helpdesk and other ways to contact the manufacturer of this software directly.

Statistical process (SPC) and quality control (SQC)

This chapter is not intended to address a professional statistician or mathematician. The described calculations and graphical presentations are based on those used in numerous branches of industry since their first development in the 1920s by Dr. Shewart. Today's basic elements for these evaluations are to be found in the statistical program by Western Electric and the Ford norm Q-101.

This part of the DIA manual is no education manual for a statistical process control but is intended to point out the possibilities and statements offered by the SPC tool within DIA.

The most important process control charts can be created and output on screen or printer. Among the graphical presentations are:

- individuals chart (I-chart),
- histogram,
- X-chart,
- X-R-chart,
- X-S-chart
- I-R-chart
- Numerical correlation coefficient, and
- Scatter diagram.

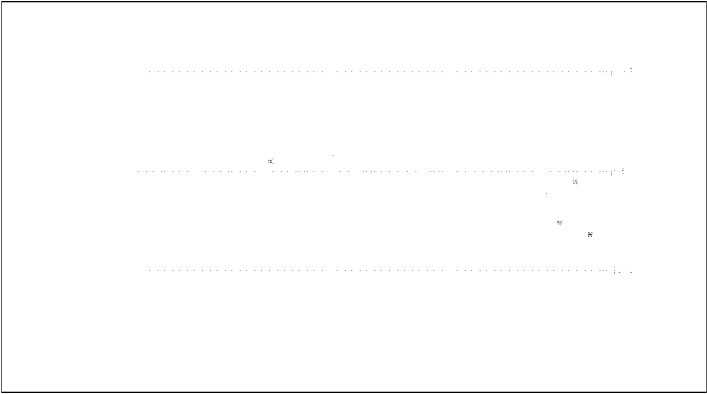
Note: Optimal use of the available options require a profound knowledge of SPC by the user. This manual only provides information on the handling and operation of the statistics functions. It is not intended to be or suited as an introduction to the basics of SPC/SQC. A more comprehensive manual in english language is optionally available from FINK & PARTNER.

Description of control charts

In the following, the data message and parameter definition of the standard graphics is described by means of six examples.

Individuals chart (I-chart)

The individuals chart is also referred to as distribution chart. Here, all single analyses selected will appear with their concentration on the Y-axis and the date/time on the X-axis.



Control limits

Upper and lower control limits as well as the center line of all selected analyses are displayed. These values represent the intervention limits of the process.

They are calculated according to the following formula:

Upper Control Limit: $\bar{X} + 3(R/d_2)$

Lower Control Limit: $\bar{X} - 3(R/d_2)$

Center Line: $\bar{X} = \sum X/n$

where	stands
X	for a single value,
n	for the number of all values,
\bar{X}	for the average of all single points in the chart,
R	for the average of all ranges - as plotted in the R-chart
d_2	for the constant, taken from a constants table of the given group strength

Symbols with which values appear

Values may be plotted with different symbols:

O:	value is under statistical control
#:	value is out of statistical control
*:	value represents a rule violation

Under statistical control

Values under statistical control will be represented by an „O“.

Out of statistical control

Over- and underlining the control limits will be plotted as „#“. With this the event „out of statistical control“ is represented, making an immediate intervention into the process necessary.

Rule violation

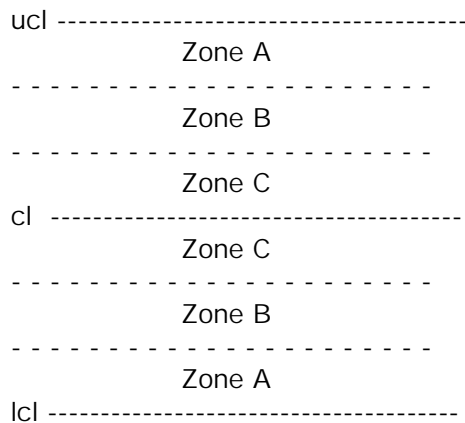
Violations of the rules of the stability test by Western Electric are marked by an asterisk „*“.

Such rule violations are indicated according to the following rules. In the literature relevant for this subject, these rules are often referred to as „pattern rules“.

For the stability test, the section between Center Line (cl) and each of the two control limits is subdivided into three zones:

- Zone A comprises the section between 2/3 of the distance from the center line (cl) to the control limit and the control limit.
- Zone B comprises the area between 1/3 of the distance from center line (cl) to control limit and 2/3 of the distance from center line (cl) and control limit.
- Zone C comprises the area from the center line (cl) and 1/3 of the distance from center line (cl) to control limit.

This sounds more complicated than it really is, as this small graphic shows:



The rules are then defined as follows:

- 2 out of 3 successive points lie within or above the upper zone A
- 2 out of 3 successive points lie within or below the lower zone A
- 4 out of 5 successive point lie within or above the upper zone B
- 4 out of 5 successive points lie within or below the lower zone B
- 8 successive points lie above the center line (cl)
- 8 successive points lie below the center line (cl)

Histogram

The histogram is both frequency distribution and graphic for the process capability.

The concentration classes are indicated on the X-axis, the number of samples per class on the Y-axis.

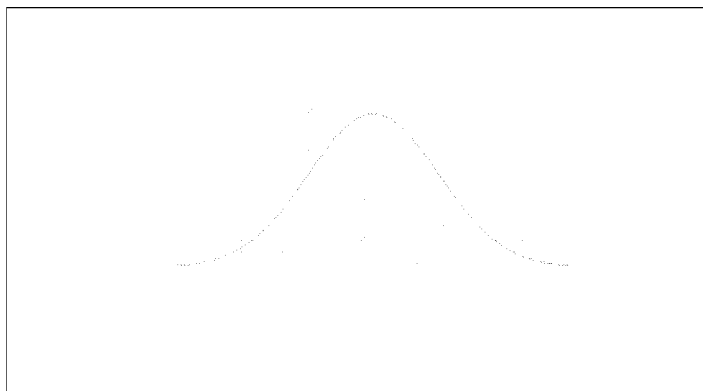
Besides the average value of the selected analyses, the 3s (triple standard deviation) is indicated.

In addition, the Gauß distribution curve is plotted of the chart.

Basically two different parameter definitions can be carried out during the determination of the element to be evaluated.

No element specific indication of specification limits and target value:

If no upper and lower specification limits or target value were given for the selected element, the histogram looks as follows:

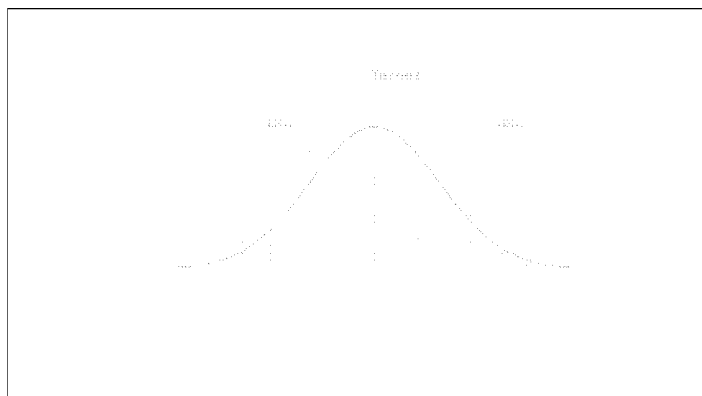


The following information is issued:

Samples:	the number of selected analyses
Mean:	the average value of all selected data
Std. Dev.:	the standard deviation of the analyses
3 s Limits:	the nominal values for -3fold and +3fold standard deviation
Skewness:	the skewness of the Gauß distribution curve
Kurtosis:	the kurtosis of the Gauß distribution curve

With element specific indication of specification limits and target value:

If an upper and lower specification and/or target value was entered for the selected element, the histogram looks as follows:



The following information is issued:

Samples:	the number of selected analyses
Mean:	the average value of all selected data
Std. Dev.:	the standard deviation of the analyses
3 s Limits:	the nominal values for -3fold and +3fold standard deviation
Process Cap:	the defined parameters to show the standard deviation (2, 3 or 4 s)
Cp:	the process potential
Cpk:	the process capability index (is-performance)
k:	deviation of the process average from the centre point of the specification limits
CR%:	the process capability ratio
Target:	the target value entered for the element
Spec. Limits:	upper and lower limit value, as determined for the element in the QA chart format

The individual values are calculated as follows:

Mean:	$\bar{X} = \sum X / n$
Std. Dev.:	$\sqrt{\sum (X - \bar{X})^2 / n}$

Cp:	$(USL - LSL) / 6s$
CPU:	$(USL - Xq) / 3s$
CPL:	$(Xq - LSL) / 3s$
k:	$(2 \hat{m} - Xq) / USL - LSL$
Cpk:	$\min[CPL, CPU] = Cp(1 - k)$
CR%:	$(100 * 6s) / USL - LSL$
3s limits:	$Xq \pm 3s$

Note: These formula are based on the basic setting of ± 3 sigma. If the sigma factor is changed to another value (e.g. 4), all formula have to be adapted accordingly.

Note: The calculation of the Cpk-value is carried out according to the above-mentioned formula for the cases in which the indicated target value is the exact centre between the upper and the lower specification limit. If this is not the case, a different slightly modified calculation method is used.

X-chart

The X-chart is an average value card on which the time is indicated on the X-axis and the concentration values are indicated on the Y-axis.



The individual values correspond to the average values calculated on the basis of the group strength set in DIA's QA-chart format. This group strength is indicated in the lower left corner of the screen as Mov. Av. of X (moving average of X). The matter of this moving average is as follows:

- The first point in the graphic is - on the basis of the default setting of 3 as a group strength - calculated as the average of measurements 1, 2 and 3.
- The second point is the average of measurements 2, 3 and 4.
- The third point is the average of measurements 3, 4 and 5, and so on.

The measurement values may appear with two different symbols:

- O: value is under statistical control
- #: value is out of statistical control

The control limits (ucl, lcl) as well as the center line (cl) are also calculated and indicated in the x-chart.

The calculation of the control limits, the nominal values of which are indicated in the last line of the graphic, is effected according to the following formula:

Center Line:	$Xq = \Sigma X/n$
Upper Control Limit:	$Xq + A2 * Rq$
Lower Control Limit:	$Xq - A2 * Rq$

Where represents

X an individual average,

n the number of all values,

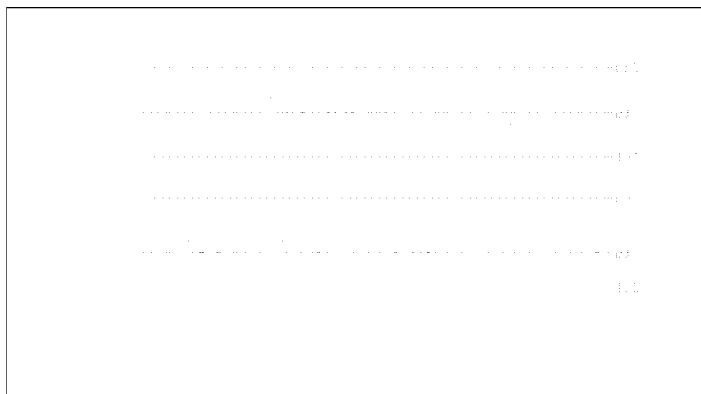
Xq the average of all individual points of the chart,

Rq the average of all ranges as entered in the R-chart

A2 the constant which is taken from the table of constants for the relevant group strength.

X-R-chart

This option displays a double graphic. The upper part shows the already described X-chart. The calculation of this chart is effected in precise accordance with the formula already mentioned. The R-chart appears below, R standing for range.



Each of the points plotted in the R-chart represents the difference between the highest and the lowest value within the given group strength. This is also a sliding calculation (as described for the X-chart). The measuring values may appear with two different symbols:

O: value is under statistical control
 #: value is out of statistical control

The control limits (ucl, lcl) as well as the center line (cl) are also calculated and indicated in the x-chart.

The calculation of the control limits, the nominal values of which are indicated in the last line of the graphic, is effected according to the following formula:

Center Line:	$Rq = \Sigma R/n$
Upper Control Limit:	$D4 * Rq$
Lower Control Limit:	$D3 * Rq$

Where represents

R the individual ranges,

n the number of all values,

Rq the average of all individual points of the chart,

D3, D4 the constant which is taken from the table of constants for the relevant group strength.

X-S-chart

This option displays a double graphic. The upper part shows the already described X-chart. The calculation of this chart is effected in precise accordance with the formula already mentioned. The S-chart appears below, S standing for standard deviation.



Each of the points plotted in the S-chart represents the standard deviation of the values determined by the given group strength. This is also a sliding calculation (as described for the X-chart). The measuring values may appear with two different symbols:

O: value is under statistical control

#: value is out of statistical control

The control limits (ucl, lcl) as well as the center line (cl) are also calculated and indicated in the x-chart.

The calculation of the control limits, the nominal values of which are indicated in the last line of the graphic, is effected according to the following formula:

Center Line:	$Sq = \Sigma S/n$
Upper Control Limit:	$B4 * Sq$
Lower Control Limit:	$B3 * Sq$

Where represents

S the single standard deviations,

n the number of all values,

Sq the average of all individual points of the chart,

B3, B4 the constant which is taken from the table of constants for the relevant group strength.

I-R-chart

Here, the distribution chart and the R-chart are presented in one graphic. The presented information has already been explained in the descriptions above.



I- and R-charts are calculated and indicated as described above.

The only difference: in the combination of chart and range chart, as a rule, 2 is used as group strength for the R-chart (independent of the group strength indicated in the QA-chart format and binding for the other charts).

Processing of external data

The term „external data“ is to comprise all data not stored in DIA.

In principle, the structuring of the DIA software allow external data to be processed with DIA's statistical program.

This requires the use of extended statistic functions, which are not part of the basic scope of delivery. For further information, please contact FINK & PARTNER.

Table of constants

The following table of constants shows the numerical values for the different constants. The value to be selected depends on the selected group strength and type of chart (e.g. X/R or X/S). All values were taken from the ASTM publication STP-15D „Manual on the Presentation of Data and Control Chart Analysis“, 1976, pp.134-136. The indications only refer to constants of the charts used in DIA's process control and only comprise the group strengths (n) 2 to 10 (for exceeding constants please refer to the indicated reference).

n	A2	d2	D3	D4	B3	B4
2	1,880	1,128	---	3,267	---	3,267
3	1,023	1,693	---	2,574	---	2,568
4	0,729	2,059	---	2,282	---	2,266
5	0,577	2,326	---	2,114	---	2,089
6	0,483	2,534	---	2,004	0,030	1,970
7	0,419	2,704	0,076	1,924	0,118	1,882
8	0,373	2,847	0,136	1,864	0,185	1,815
9	0,337	2,970	0,184	1,816	0,239	1,761
10	0,308	3,078	0,223	1,777	0,284	1,716

Error messages

Should you encounter any error messages while working with the statistics module, please refer to the annex „Error messages“. The error messages are sorted in alphabetical order.

Preparations for control charts

In order to be able to create SPC charts at all, some preparatory works have to be performed first.

These are:

- definition of SPC-chart formats
- setup of limits (control limits, specification limits)

Appendix A - Troubleshooting

Installation Problems

Diagnosing Communication Problems

How to Get Additional Help

Fink & Partner strives to ensure that your DIA 2000 installation is straight forward and successful. If you encounter problems during installation or runtime that are not covered in this manual, please contact Fink & Partner in one of the following ways and we will address your problem promptly.

For general questions, common problem resolution, your first line of support should be the Fink & Partner Knowledge Base, a web-based searchable index of all Fink & Partner technical information. This is located at

<http://www.analyses-management.com/support>

If your installation is not successful, or you encounter problems not documented in the DIA 2000 manuals or on the Knowledge Base, contact Fink & Partner Customer Support in one of the following ways:

- via e-mail at support@analyses-management.com or the support request form located at the Support section of <http://www.analyses-management.com>.
- via fax at +49 (0) 2821 / 75 15 15
- via telephone at +49 (0) 2821 / 75 15 0

Appendix B - Instrument Interfaces

Spectro Analytical Instruments

Standard-Data-Transmission Protocol, Version 4.3

Fink & Partner reserves the right to modify protocol or message format without notice.

All characters transferred are ASCII-coded, except ENQ, STX, ETX, ACK and NACK.

No. Bytes	Type	SPECTROLAB	external computer	comment
1	C	ENQ #05		Enquiry
			ACK/NACK	Acknowledge
			# 06/#21	Not Acknowledged
1	C	STX #02		Start of Text
4	N	rec.length		Record length from date w/o check sum
6	N	date		date (DDMMYY)
6	N	time		time (HHMMSS)
1	A	status		Flag Byte
				1=Concent
				2=CorrInt
				3=Recal Intens
				4=Intens.Ratio
				5=RawIntensit.
1	A	Qual Flag		QualCntrl. Y/N
1	A	data type		N = SingleMeas
				Y = Average
				S = abs StdDev
				R = rel StdDev
2	A	instrument		F = Flame
				L = Lab
				T = Test
1	A	Type of transmiss		B = Buffer
				D = Direct
9	A	Reserve		
10	A	Progr.Name		anal.Prog.
30	A	ID 1		e.g. SampleNr
30	A	ID 2		e.g. SampleID
30	A	ID 3		Quality
30	A	ID 4		additional Sample IDs
3	N	No. of values		
n*18		n * Meas		„n“ is the number of measurements (see Annex below)
2	N	No of add. ID-fields		
10 A	A	Name ID- field		„n“ is the number

	field	number
n *		

30 A	ID-field	of ID-fields
4 N	Check sum	ACK/NACK see Annex 2 below
		#06/#21
1 C	ETX #03	End of Text

Description of Data types:

- A Alphanumeric (leftbound with following blanks)
- N Numeric (rightbound with leading blanks)
- C Control characters (chars between 01 dec to 31 dec)

Note: The last ID-field contains as the 30th character a "#".

Annex 1

Description of n * Mes

No of bytes	Type	Description
6	A	Element symbol
		1. char capital, others small
1	A	Quality control (+ = overriding) (- = underriding)
1	A	Calibration control (> = above calibration) only LAB (< = below LOD) LAB & ICP (! = integrator overflow) ICP (≈ = above calib. range) ICP (- = negativ value for intens./ concentrations) ICP
1		reserved
9	N	value in ASCII-format (concentrations/intensities) (inkl. decimal points)

Error codes

For data transfer from and to DIA/DC/SDC the programs SEND.EXE or RECEIVE.EXE are being used, respectively. The program RECEIVE.EXE can also be used without/outside DIA/DC/SDC.

The following list of error messages is also applicable for direct transmission from with SPECTROFLAME software.

The error codes have the following meaning:

Code	Explanation / Cause
1:	Line interruption

2:	Synchronize error
3:	Parity error
4:	Data Overflow
5:	Time-out
6:	Driver/Interface inactive
7:	Buffer switched off
8:	Interface not assigned
9:	Wrong Baudrate
10:	Wrong Parity
11:	Wrong number of Data bits
12:	Wrong number of Stopbits
13:	Wrong Handshake
101:	Terminated by keystroke
102:	not used
103:	Package received is larger than the buffer
104:	Channel not opened / Driver in CONFIG.SYS wrong or missing
105:	Invalid parameter for number
106:	Wrong character instead of ENQ received
107:	Wrong character instead of ACK received
108:	Wrong character instead of NACK received
109:	Wrong character instead of STX received
110:	Three attempts unsuccessful
111:	Wrong Checksum received

Error Messages for direct transmission from SPECTROLAB

#1:	SENDATA.DAT missing
#2:	Init. V.24 faulty
#3:	no ACK (at start)
#4:	NACK received
#5:	no ACK (at end)
#6:	more than three attempts

Parameter setup

Data communication will be performed using SEND.EXE or RECEIVE.EXE together with the INT14.SYS driver. INT14.SYS will be introduced to the CONFIG.SYS during installation (provided you performed the automatic update of system files).

Example for CONFIG.SYS entry:

DEVICE = C:\DIA\INT14.SYS

Further resident programs may interfere with INT14 ! Also the use under MS-Windows will cause problems. When having problems with data transmission, first check your system for other resident programs.

The send- and receive programs use the ASCII parameter files SEND.PAR and RECEIVE.PAR, in which the interface configuration is stored and can be adapted.

Note: During installation all settings will automatically be made and should only exceptionally be modified.

Example for parameter files:

SEND.PAR	RECEIVE.PAR	Comment
COM2	COM1	serial interface
19200	19200	Baudrate (50 to 19200)
NONE	NONE	Parity (NONE, EVEN, ODD)
1	1	No of Stopbits (0,1,2)
SWHS	SWHS	Handshake (SWHS,HWHS,NOHS)
ANALYSEN.DAT	ANALYSEN.DAT	File to be saved
0	0	Timeout in Seconds

Note: The interfaces COM1 and COM2 are supported by the software. Baud rates can be 50, 75, 110, 134.5, 150, 300, 600, 1200, 1800, 2000, 2400, 3600, 4800, 7200, 9600, 19200.

The parameter Timeout describes the waiting time after which data transmission will be aborted. When 0 no Timeout is active.

Appendix C - Feature List and Modules

General properties	BASIC	Extension Module 1	Extension Module 2
32bit application	•	•	•
Fonts, font-sized (depending on Windows setup)	•	•	•
any Screen resolution	•	•	•
various date/time formats (depending on Windows setup)	•	•	•
Various icons for quick access to output functions or dialogues	•	•	•
Drop lists for File, Filter, View	•	•	•
unlimited number of elements	•	•	•
unlimited number of sample id fields	•	•	•
Help as HTML file	•	•	•
Manual as MS-Word file or PDF (Acrobat Reader)	•	•	•
Language switch (pre-configured languages are GER, ENG)	•	•	•
NO SUPPORT for older installations of SDC or DIA (no update possible)	•	•	•
Database			
Borland Database Engine	•	•	•
ODBC pseudo-replication	-	-	•
Archive function, database manager	•	•	•
Communication & Instrument interfacing, Import, Export			
File Interface to Spectro instruments	•	•	•
Serial communication	-	-	•
Import function via Open Instrument Interface (O.I.I.)	-	-	•
Serial communication (only receive, with various protocols)	-	-	•
Instrument code table	•	•	•
Instrument manager for one Spectro instrument with file interface	•	•	-
Native instrument drivers for different manufacturers (incl. Spectro)	-	-	•
Instrument manager for multi-instrument, serial com, file interface	-	-	•
TCP/IP socket-communication (task-to-task)	-	-	opt.
DDE export (spreadsheet & word processor, requires these software packages)	•	•	•
DDE command line editor	•	•	•
Export to Spectro 4.3 file	•	•	•

ASCII export	-	-	•
ODBC export	-	-	•
Analyses Merge function	-	-	•
Auto-Redirector (exports to Spectro 4.3, internal, ASCII, ODBC)	-	-	•
Documentation			
Standard print routine	•	•	•
Report generator with free number of print formats	-	-	•
Certificate software (requires MS-Word)	-	-	•
Print on standard/default windows printer	•	•	•
Printer selection in print dialogue	•	•	•
Print Preview	•	•	•
Sort for printing	•	•	•
Printer setup	•	•	•
Analyses management			
Archive function, database manager	•	•	•
Spreadsheet-like analyses table	•	•	•
unlimited number of views for analyses table (combinations of ID fields and elements in columns, widths, dimension, decimals, etc.)	•	•	•
Search function for all data fields in view	•	•	•
Filter function with any ID field and/or element, dynamic setup, etc.	-	-	•
Edit function for analyses	•	•	•
AuditTrail function	•	•	•
Click'n'mark analyses selection	•	•	•
Display formats with elements, dimensions, decimals	•	•	•
Analysis copy function	•	•	•
Formula expression as quality limit	-	-	•
Units & dimensions (unlimited number)	•	•	•
Manual analysis input	•	•	•
Data selection tables (filter)			
edit and store one selection table	•	•	-
create, edit, and store an unlimited number of selection tables	-	-	•
transparent access thru all sample-ids & element fields	•	•	•
dynamic date/time range	-	-	•
applicable for all analyses views and outputs	•	•	•
Evaluations			
SPC charting	-	•	•

Realtime, online SPC	-	•	•
Quality database	•	•	•
Quality control function	•	•	•
Quality identification	-	-	•
Display of quality control in the analyses table	•	•	•
autom. check of received qualities for existence	•	•	•
Formula editor with extended possibilities	-	-	•
Formula calculation	-	-	•
Numeric statistics (no., sum, average, abs./rel std dev., min, max, range)	•	•	•
Macro programs, with asynchronous execution	-	-	•
Macro sequences, with asynchronous execution	-	-	•
Job server for automatic event, or scheduled macro execution	-	-	•
Add ons			
Network/multi-user version, 3-, 5-, 10-users	-	-	Opt.
DIA 2000 JM, job management (LIMS)	-	-	Opt.

Appendix D – Serial communication with SerCOM

DIA 2000 SE comes with a tool for serial communication: SerCOM. It will be installed in the DIA 2000 SE program directory (e.g. C:\DIA2000SE).

The configuration needs to be done manually thru the SerCOM.ini file which can be found in the same directory.

The structure of the ini file is as follows:

```
[DIA]                      DIA Section
Version = DIA2000 SE

[COMPORT_2]                COM port section, needs to be repeated
                           for each com port that you want to
                           configure. The number following the
                           underscore states the com port. In our
                           example we are setting up COM2: !

Protokoll = SP              Specifies the protocol to communicate
                           with the instrument.
                           Supported protocol codes are:
                           SP = Spectro 4.3
                           OI = Open instrument interface

Baudrate = 009600          Specifies the communication speed in six
                           digits. Values between 000300 and 115200
                           are supported.

ParityBit = N              Parity bit may be
                           N = None
                           E = Even
                           O = Odd

DataBits = 8               Databits are typically either 7 or 8

StopBits = 1               Stopbits are typically either 0 or 1

HandShake = [None]         Handshake may be entered if necessary.
                           Default is [none], else [RTS/CTS=On],
                           [DtrDsr=On], [Xon/Xoff=on]. All options
                           may also have the parameter 'off'

TimeOut = 2000             Timeout in milli seconds

EndOfRecord = 0            Currently not used
```

Remember to create a COMPORT_x section for each COM port that you want to use. COM ports 1 thru 9 are supported.

SerCOM only handles the

If you want to use serial communication, it is recommended that you create a shortcut and start the program automatically in the auto Startup group.

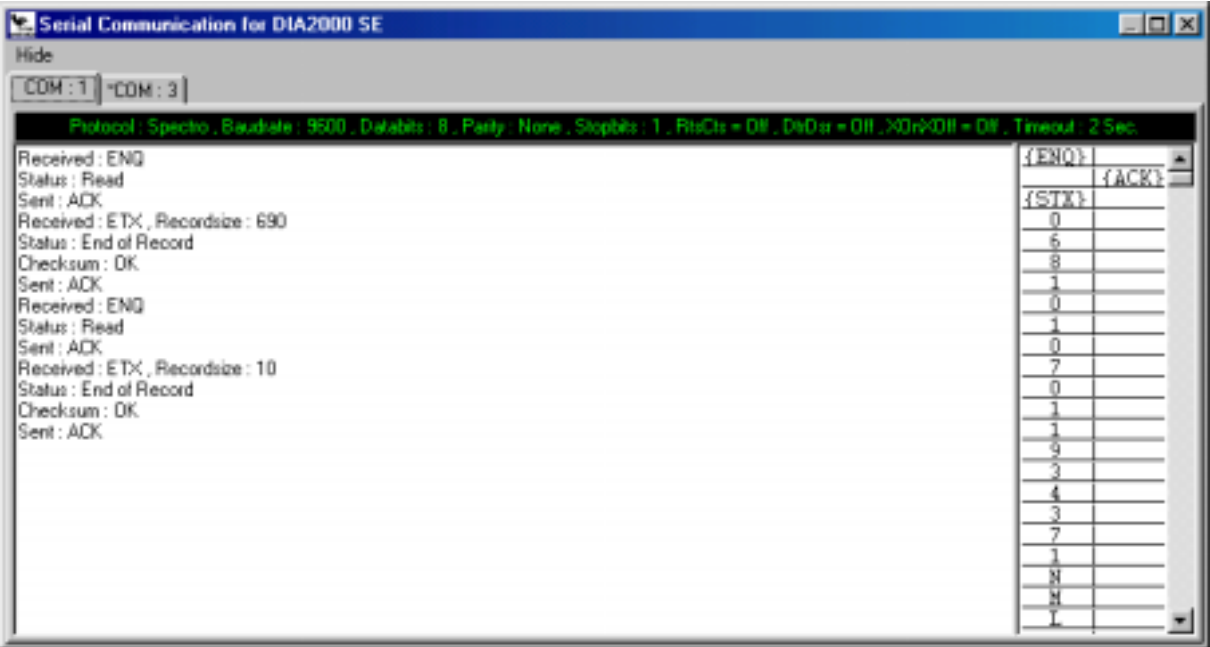
DIA 2000 SerCOM will be started as a Windows service. The program symbol will appear as a minimized indicator in the lower right part of Windows' taskbar.



SerCOM also allows you to monitor the serial communication. To see the program's screen, you need to double-click on the icon indicator in the right task bar. The program will appear as a foreground task in the taskbar.

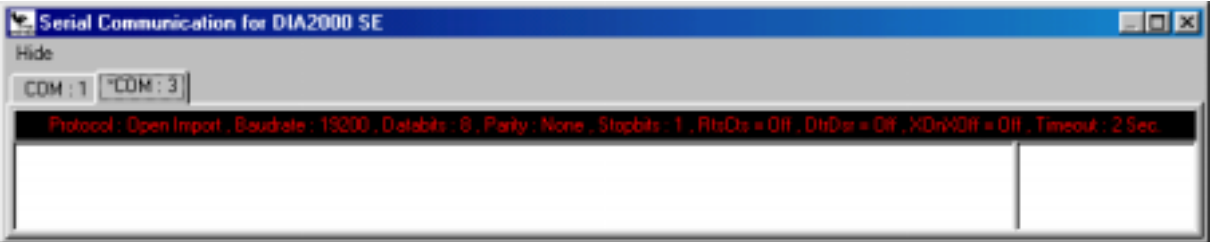


With a single click you open it.
After receiving an analysis, the screen would typically look like this:



You may click on the tab controls to open a window for each COM port configured in the SerCOM ini file.
The first line of the window shows the communication parameters as they were setup in the SerCOM ini file. If this line appears in green, SerCOM successfully opened and initialized the port.
In the left part the protocol flow is shown. Protocol character like ACK, NACK, ENQ, ETX, EOL will appear, as well as indications if a checksum has been calculated, the received recordsize, etc.
On the right side of the window, a two-column table shows the actual data that were sent or received. The left column shows the sender, the right the receiver (SerCOM). Each single character received will be shown. Reserved characters will appear embraced with their meaning (e.g. ASCII #05 as {ENQ}).

A COM port marked with an asterisk indicates that SerCOM failed to open the port successfully. The port parameters are displayed in red to show that there is a problem in accessing the port.



Appendix E – ODBC-Export

Introduction

DIA 2000 offers an open database interface (ODBC=Open Data Base Connectivity), which allows the transfer of analyses from DIA into any relational database system.

This feature is supported in three different functions within the program:

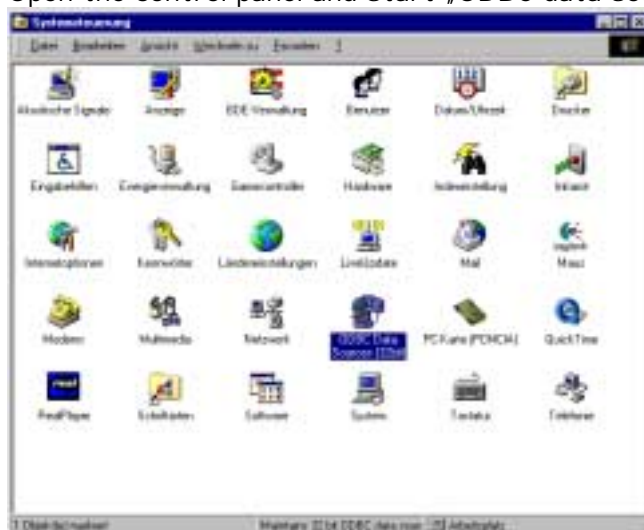
1. In the „File - Export“ menu you may export selected analyses in export format „ODBC“.
2. the same applies for the export button in the analyses table
3. In „Config - Auto. Re-Direct“ you may automatically send incoming analyses into an ODBC database. For this purpose you may use any of the selection filter that you created.

Certainly, the ODBC gateway is the most elegant and comfortable way to transfer analyses data into an other database. However, the detour through standard ASCII export (and import) may in certain environments be the easier and sometime even faster way to achieve the same goal. In most cases, where the DIA ODBC gateway is used, it represents a pseudo-replication using the auto re-director.

Setup

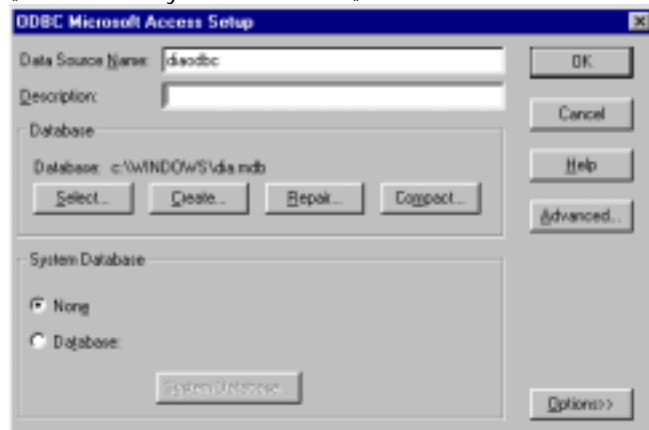
Before you can export data from DIA 2000 to ODBC, the corresponding ODBC driver of the selected target database must be activated. Please perform the following steps:

- Open the control panel and start „ODBC data source “



- Select the register „System DNS“ and click on „Add“
- now select the driver of your target database and click on „Finish“. After that you have to assign a name for your data source. Enter „diaodbc“ (in this spelling!) and under

„Advanced“ you introduce „dia“ as a user.



- Then click on „Create“, to create a new database. Choose the required path and file name. The system (hopefully) responds with a message that the database has been created successfully.
- With the first export DIA 2000 automatically creates two result tables. There is no need to create these two tables manually.

With this you complete the setup of your DIA ODBC gateway !

Remark:

Depending on your actual Windows version, the screen dialogues may slightly vary !

Please remember that some of these actions require specific authorisations in Windows, your network, and your database !

Export to ODBC

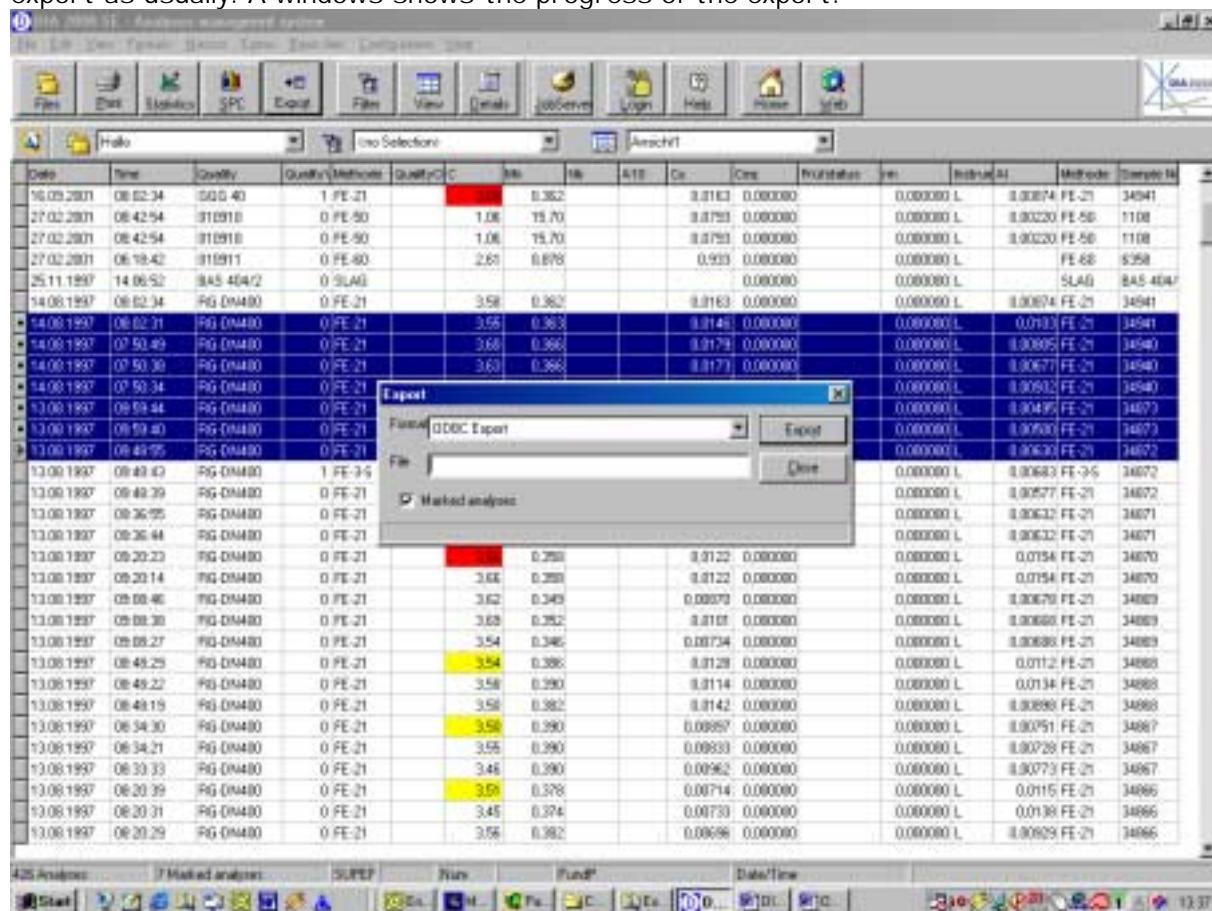
In order to export data from DIA 2000 to ODBC no further setup is needed within DIA 2000 !

As already mentioned, ODBC export is available in three functions within DIA.

You use the export function as usually, only for the format you select ODBC.

Just call the list of available export formats and select „ODBC (File)“. Start the

export as usually. A windows shows the progress of the export.



The export format name is optional. It allows to specify the elements to be exported. If you keep it blank, DIA 2000 will export all element stored in the selected analyses records. The list of ODBC Export Formats shows you all the display formats available. Of course you may create a new display format specifically for ODBC-export (under „Formats - Display Formats“). You may, thus, determine which elements will be transferred !

Again: if you do not specify an ODBC Export Format name, all element values stored in the selected analyses will be transferred.

After that you may open your target database and check the new entries.

ODBC-Database definition

DIA's ODBC export creates two tables in the database. Following the record structure of these tables:

1. Table definition „analyses header“
2. Table definition „analyses ident“
3. Table definition „analyses values“

The two table are linked using the key field „AnalysesNo“. This is an internal analysis number, which is unique within the „analyses header“ table.

Table definition „analyses header“

Fields	Type	Size	PrimaryKey
AnalysenNo	LongInteger		*
DateTime	TimeStamp		
SampelNo	Alpha	30	
Quality	Alpha	30	
QualityVer	Short		
QualityChk	Logical		
QualityOK	Logical		
Status	Short		
Type	Short		
Instrument	Alpha	10	
Methode	Alpha	10	
CreateDa	TimeStamp		
CreateBy	Alpha	10	
ModeDate	TimeStamp		
ModBy	Alpha	10	
VStatus	Short		
VDate	TimeStamp		
VBy	Alpha	10	
VMemo	Memo	10	

Secondary Key

Index Name	Fields
SampleNoAnaNo	SampleNo
	AnalysisNo
AnalysisTimeStampNo	DateTime
	AnalysisNo
Quality	Quality

Table definition "analyses ident"

Fields	Type	Size	Primary Key
AnalysisNo	LongInteger		*
IdentName	Alpha	8	*
IdentValue	Alpha	30	

Secondary key

Index Name	Fields
IdentName	IdentName

Table definition "analyses values"

Fields	Type	Size	Primary Key
AnalysisNo	LongInteger		*
ItemName	Alpha	8	*
ItemValue	Number		
Diemension	Alpha	8	
CalibrationFlag	Alpha	1	
QualityFlag	Alpha	1	
MiscFlag	Alpha	5	