

SmartIS PC Client

4.4

User Guide

HORIZONT Software GmbH

Schäufeleinstr. 7, D-80687, München

Tel. Germany / (0)89 / 540 162 0

Fax. Germany / (0)89 / 540 162 62

Email info@horizont-it.com

Support Email support@horizont-it.com

Support Tel Germany / (0)89 / 540 162 99

www.horizont-it.com

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1 Introduction

1.1 Contact

HORIZONT Software GmbH

Schäufeleinstr. 7
80687 Munich
Germany
Tel.: ++49 / 89 / 540 162 0
Fax: ++49 / 89 / 540 162 62
<http://www.horizont-it.com>

Technical Support:

If you have a problem that requires technical support, please contact your technical support representative:

http://www.horizont-it.com/public_html/contact.htm

1.2 What's New?

Version 4.4.106

- SHOT-6537 - Some log data are removed.
- SHOT-6575 - Changes in transfer of some data.
- SHOT-6585 - Variables added to the link base in Web Browser Interface.

Version 4.4.105

- SHOT-4427 - TCP options in the INI file are correctly overwritten with the once from TCP file.
- SHOT-5137 - Some fields have been renamed in Control-M Job Netplan.
- SHOT-5954 - Installer and zip packages now don't contain xipcc.ini. It was renamed to xipcc.ini.sample.
- SHOT-6393 - Export to JSON data format has been fixed.
- SHOT-6438 - The tool for exporting data in XLSX format was replaced with another one. XLS and ODS export formats are no longer supported.
- SHOT-6445 - The user is informed when TCPPEMCA parameter contains invalid or empty file name when TCPCRYPT >= 3.
- SHOT-6509 - Existing but empty TCPPEMCA value in TCP file overwrites the value from INI file.

Version 4.4.104

- SHOT-6331 - TCPPEMCA value can be relative to the CURRENT_DIRECTORY or absolute or UNC path is used.
- SHOT-6336 - xipcc.exe and xipcc-start.exe are now signed.

Version 4.4.103

- The AES key used to create encrypted password for BIF scripts was removed. See [Configuring TCP/IP communication](#).

Version 4.4.102

- SHOT-5726 - TCPPEMCA value can be relative to the CURRENT_DIRECTORY.
- SHOT-5911 - LC to open Call Diagram incl. Predecessors and Successors added.
- SHOT-5914 - Ctrl+W and Ctrl+F4 can be used to close the active document tab.
- SHOT-5937 - XINFO BIF error with MS SQL and PostgreSQL fixed.
- SHOT-5964 - Silent installation and installing of custom files is supported.

Version 4.3.101

- SHOT-5375 - Fixed a bug when netplans couldn't be opened from JCL Explorer.
- SHOT-5529 - New version of OpenSSL (v3) and new INI parameter TCPTLSSECLEVEL.
- SHOT-5450 - Barcharts work even when data are stored in BIGINT format.
- SHOT-5270 - The user is informed about opened PKI PIN dialog when he presses Cancel button.

Version 4.3.100

- SHOT-4865 - External line commands can now start Windows programs (powershell, cmd, ...)
- SHOT-4919 - Fixed a problem in license checker.

Version 4.3.99

- Open SSL upgraded on 1.1.1t

Version 4.3.98

- SHOT-3505 - The new method of password encryption/decryption added.
- SHOT-4061 - A message is displayed when libchdk-1.dll is missing but required.
- SHOT-4227 - Small changes in TCP files.
- SHOT-4381 - SMF-Adabas charts can be used also in scripts.
- SHOT-4411 - Real numbers are exported to XLS/XLSX with decimal digits.

Version 4.3.97

- SHOT-3908 - Fixed an error when SQL was saved to a profile.

Version 4.3.96

- SHOT-3359 - Fixed an error in computing statistics with floating point numbers.
- SHOT-3362 - Group function has been enhanced.
- SHOT-3162 - The function that allowed to change z/OS password has been removed.

Version 4.3.95

- SHOT-3448 - IWS netplans can be clustered by Application Id + description.

Version 4.3.94

- SHOT-3091 - More web links are opened if more lines in the table are selected.
- SHOT-3386 - X and Y labels are printed in netplan and barchart print preview windows.
- SHOT-3387 - Selected number of pages is displayed in netplan and barchart print preview windows.
- SHOT-3388 - Save Filter As and Save SQL As offer existing filter and SQL names in editable select box.

Version 4.3.93

- SHOT-3122 - Graphical displays can be printed on 25 * 25 pages.

Version 4.3.92

- SHOT-2720 - New DB2 netplan added.

Version 4.2.91

- SHOT-3039 - Numeric labels in bar charts use group separators.
- SHOT-3040 - Labels in bar charts are printed always in black.
- SHOT-3059 - Web links can be dependent on the TCP file.

Version 4.2.90

- SHOT-2734 - Wizard pages of all charts allow to set a font size.

Version 4.2.89

- SHOT-2836 - Added support of ADABAS line charts.
- SHOT-2892 - Labels on X-axis of the line chart can be rotated in 15 degrees steps.
- SHOT-2919 - The new image processing library is used and zlib dependency is removed.

Version 4.2.88

- New PKI library with new PKI INI options

Version 4.2.87

- SHOT-988 - Show data labels option added to line chart's Options wizard page.
- SHOT-1351 - Automic netplan has been extended for new fields.
- SHOT-1449 - OPEN_DOCUMENT BIF command and /showclient command line option have been added.
- SHOT-2353 - Display-specific SQL can be saved to the global list and become available in SQL console.
- SHOT-2664 - A splash screen is displayed when the program starts with xipcc-start.exe
- TCP/IP library has been updated.

Version 4.2.86

- SHOT-46 - The new BIF command has been added: PKILOGON. It allows to log on to BIF using PKI.
- SHOT-882 - A semicolon at the end of SQL is cut off automatically. Its presence could cause troubles in the past.
- SHOT-1196 - Fixed incorrectly displayed date/time separators.
- SHOT-1243 - Fixed an error with filter values containing constants (today, tomorrow, yesterday).
- SHOT-1506 - "Reset from cursor" command has been added to the Action's menu in the filter window.
- SHOT-1995 - Small changes of message formatting.

Version 4.2.85

- SHOT-1629 - Fixed a bug with cut off buttons in the filter window.
- SHOT-1759 - Customized items in a cluster node of IWSd Job Netplan display.

Version 4.2.84

- SHOT-1683 - Fixed a bug when horizontal charts were mistakenly exported as vertical ones.
- SHOT-1714 - CP Netplan now shows all columns

Version 4.2.83

- SHOT-1111 - Displays in a list of favorites and shortcuts can be ordered.
- SHOT-1265 - The new feature that allows to open a web browser with parameters taken from the display has been added. It can be used for integration with BetaUX. See [Web Browser Interface](#) for more details.
- SHOT-1350 - Reset to Defaults button was added to the Options
- The client is now available as x86 as well as x64 application.

Version 4.2.82

- SHOT-1391 - IWS z/OS CP Netplan added.

Version 4.2.81

- SHOT-972 - JSON export format has been added (there is also new CREATE_JSON_FILE script statement).
- SHOT-990 - IMAGE_SIZE script statement now can also set the size ratio in case of charts.
- SHOT-1017 - Load time is displayed in the status bar if the server sends it.
- SHOT-1048 - New graphical display added (Planned jobstreams)
- SHOT-1071 - Welcome page is never displayed in BIF mode.

SHOT-1367 - SET_TITLE script statement now sets also the visible title in the output file.

Version 4.2.80

TCP/IP library has been updated.

New graphical display: Job Netplan for IWSd scanner.

SHOT-551 - Updated layout algorithm in case of invisible links in net plans.

SHOT-576 - Support of long display definitions sent from the server.

SHOT-588 - Fixed a problem with corrupted .DAT file created from dynamic SQL and with SQL reformatting.

Version 4.2.79

- Added USERISSTEPNAME INI file option.

Version 4.1.78

REQ19782 - Format in which real numbers stored as decimal data type has been corrected.

ERR19700 - The latest TCP/IP libraries that fix problem with PKI interface are used.

Version 4.1.77

REQ19666 - ANNOTATION BIF command has been added. It allows to annotate graphical output.

ERR19704 - Export works also if data are invalid - a message is printed to the log in this case.

ERR19738 - Edited chart saved with a new name does not remove the original definition.

ERR19739 - Date/Time format in Line chart wizard has been fixed.

Version 4.1.76

REQ19454 - Browse commands are enabled also for XINFO for Windows (requires z/OS login)

ERR19571 - Fixed a calculation of automatic length of fields in netplans when the system's zoom level is higher than 100%.

ERR19608 - New link types added to Control-M Job Netplan.

ERR19690 - BIF: netplans are created in the same directory as HTML file.

ERR19691 - BIF: SQL command has been fixed.

Version 4.1.75

ERR19462 - Fixed an error with parallel opening of logon files many times.

REQ19510 - Comment lines are supported in license files.

Version 4.1.74

REQ19293 - Option to not cut nodes when printing on more pages has been added.

REQ19458 - Fixed an error with export to CSV.

REQ19459 - Fixed an error with export to CSV from BIF.

Version 4.1.73

REQ19237 - Cobol sources are now displayed in colors.

REQ19271 - Colors of syntax highlighters can be configured in the Options.

REQ19265 - The codepage set in admin.xml sets defaults for all users.

Version 4.1.72

REQ19204 - Virtual columns in line charts are supported also for charts created by scripts.

REQ19223 - New script command CSV_SEPARATOR has been added.

REQ19224 - Create LGN button can be disabled by the new INI option.

Version 4.1.71

REQ19192 - The log file name can be specified as a program parameter.

REQ19198 - Runtime variables can be used in selection files called from inside of a scan block.

Version 4.1.70

ERR19103 - Fixed an error in accessing key/certificate on Smart Card.

Version 4.1.69

REQ19093 - Added support of SMFPARM:OUTPRECFULL custom parameter.

REQ19094 - Empty error code in IWS barchart is processes correctly.

ERR19102 - Reload button added for line command queries.

Version 4.1.68

ERR18920 - The LOGON script command has been fixed.

ERR18933 - A welcome dialog asking for a codepage is displayed when the program starts for the first time.

REQ18978 - Expanded items in the filter window can be removed by a mouse click.

REQ18979 - Fixed copying of selected data into the clipboard.

Version 4.1.67

REQ18775 - The support of Windows certificate store has been added.

Version 4.1.66

REQ18692 - Default view of tabular displays option has been added.

ERR18705 - Fixed logon parameter.

REQ18538 - The client shows a message when the database is off.

Version 4.1.65

REQ18498 - JCL is displayed with syntax colors.

REQ18618 - The program remembers the last used PKI key.

ERR18627 - Canceling database queries is now faster and data are not lost.

Version 4.1.64

ERR18546 - Each document tab shows a close button when a mouse hovers it even when it is not activated.

REQ18548 - Small exit button in the File menu has been changed to a big one.

REQ18563 - Wildcards can be used in DATE/TIME fields in the filter window.

REQ18589 - Try again button added to the message when SQL returns no data or fails.

REQ18602 - Performance optimalization of the Browse window.

Version 4.1.63

REQ18318 - UseLastSQL command has been added to the SQL part of the Filter dialog.

ERR18503 - Fixed an error of import in the chart library.

Version 4.1.62

REQ18241 - HEADING BIF command has been added.

ERR18242 - Fixed an error with exporting PNG files in BIF mode.

ERR18243 - Fixed an error in CLOSE BIF command.

REQ18244 - SHIFT+DEL accelerator is supported in the BIF editor.

Version 4.1.61

ERR18123 - Fixed an error in arrange BIF command.

REQ18124 - LOAD_PRED and LOAD_SUCC BIF commands work also in line commands.

REQ18143 - ARRANGE_DISTINCT BIF command has been added.

REQ18240 - Fixed a problem with logon with long user names.

Version 4.1.60

ERR18175 - Fixed an error in the logon function.

Version 4.1.59

- ERR18148 - Fixed an error with clusters in Control-M job netplans.
- REQ18149 - Smart cards are supported.

Version 4.1.58

- ERR18053 - Fixed an error with an Japanese encoding.
- REQ18083 - The font size used in admin's info and SQL console is the same like in tables.

Version 4.1.57

- ERR18013 - Fixed an error with an encoding.

Version 4.1.56

- REQ17933 - Barcharts are optimized for big screens.
- REQ17953 - Fixed an error with Hebrew text orientation in Browse functions.
- REQ17974 - Added support of AVAS netplans.

Version 4.1.55

- REQ17857 - New job types added to Streamworks netplans.
- REQ17864 - Improved legend fields in the search window.
- REQ17871 - Parameters for TLS communication are now supported also in TCP files.

Version 4.1.54

- REQ17811 - Netplans can now be scrolled using Ctrl key and mouse move.
- REQ17832 - Series in bar charts can be created automatically.

Version 4.1.53

- REQ17771 - Fixed an error of the export function when the table contained a timestamp 01.01.0001

Version 4.1.52

- REQ17736 - The help format can be set in the INI file (CHM, HTML or PDF).
- REQ17737 - The printout of netplans and barcharts can be split to 15 x 15 pages.
- ERR17738 - Page numbers are now printed correctly in netplans.

Version 4.1.51

- REQ14984 - The font used in the print preview and print is now consistent.
- REQ17204 - The chart explorer button on the Table ribbon bar is always enabled.
- REQ17205 - Curves in the line charts can be detected automatically.

Version 4.1.50

- REQ17581 - Added TimeFrom field into CTM netplans.
- REQ17646 - Comments in the SQL are allowed.

Version 4.1.49

- REQ17538 - Full logical expression is supported in IF BIF command. See the [description](#) due to small backward incompatibility.
- ERR17539 - Removed wrong message saying the license will expire soon.
- REQ17545 - create_xls_file and create_xlsx_file BIF commands have been added.
- ERR17546 - Fixed an error in Dynamic displays.
- ERR17548 - NOT NULL operator now works correctly in BIF file.
- REQ17567 - SQL can be saved to a file and loaded from a file in the SQL console.
- ERR17584 - Fixed an error of TODAY, YESTERDAY and TOMORROW constants in the Filter.

Version 4.1.48

REQ17518 - A warning appears when the expiration date of the license is near.

Version 4.1.47

ERR17488 - DECIMAL data format now supports unlimited number of digits.

ERR17507 - Added new INI option PRINTER.

Version 4.1.46

ERR17457 - Fixed an error with exporting big files.

Version 4.1.45

REQ16900 - Virtual columns are now supported in line charts.

REQ17044 - The sequence of fields can be modified in the Group window.

REQ17188 - Fixed a small bug with operators in the Search window.

REQ17199 - The search criteria can be displayed when the document is opened.

ERR17216 - Passwords longer than 8 letters are supported.

REQ17225 - It is possible to copy a file name of the file displayed in the browse window.

REQ17233 - The warning bar displayed when the number of rows transferred from the server has been limited stays visible until it is manually closed.

REQ17317 - New option CHANGE_PASSWORD_ALLOWED added to the INI file.

ERR17384 - Fixed a bug of the Copy function in tabular displays. A pop-up menu added to the Copy button.

Version 4.1.44

ERR17067 - The client accepts also timestamps values in not standard internal formats.

Version 4.1.43

REQ16997 - Added a support of application links in TWS netplans.

Version 4.1.42

REQ14982 - IT-Charts added.

ERR16871 - Fixed an error with # in file names created by scripts.

Version 4.0.41

ERR16589 - Arrange command is now supported also when CSV or TXT files are created from scripts.

ERR16634 - Fixed an error with HTML exports from scripts when # was in the file name.

REQ16696 - Multi client columns can be set in the TCP file and used in the Filter window.

REQ16706 - The password can be changed in the logon window.

ERR16746 - Fixed an error in line commands started from explorer views.

REQ16790 - Drag & drop of DAT files is supported.

Version 4.0.40

ERR16615 - Fixed an error of HTML export function.

ERR16631 - Fixed an error of Hebrew text orientation.

Version 4.0.39

ERR16571 - Fixed an error in CA7 netplans.

REQ16543 - The column name can be used in create_xxx_file in the scan block of a script.

ERR16580 - Fixed an error with missing datasets in the job flowchart started from the JCL explorer for selected step.

Version 4.0.38

REQ15966 - The Expand group command has been added. Now lines in the grouped table can be expanded to the original data (also REQ15736).

REQ16357 - Full pop-up menu is displayed when just one node is selected in the netplan.

REQ16358 - TLS support has been added.
ERR16359 - Fixed an error in the script interpreter (output files don't have to be specified with absolute paths).
REQ16447 - Automatic logon is now possible using the LGN file specified as a command line parameter.
ERR16448 - Fixed an error in the script interpreter (more variables on the same line are now supported).

Version 4.0.37

ERR16198 - A small change in the CallChain display.
ERR16209 - Fixed an error of the sort function in the table view.
ERR16210 - The message that the profile had to be converted to the new format is not displayed in the BIF mode.

Version 4.0.36

ERR15922 - The pop-up message opens when the client disconnects due to the timeout.
REQ15956 - The grouping by sub strings is supported.
REQ16064 - Ctrl+A accelerator is now supported in the SQL console.
ERR16169 - Fixed an error in the JCL Explorer.

Version 4.0.35

ERR15902 - The IN SELECTION operator now ignores empty values in the selected column.
ERR15912 - An error of the Browse function in Windows 10 has been fixed.
ERR15913 - An error of multiple cluster collapsing/expanding has been fixed.

Version 4.0.34

REQ15695 - The Inverse filter option has been added on the Table ribbon bar
REQ15701 - Select All and Toggle buttons have been added to the Table Layout Window
REQ15703 - The separator used in CSV exports can now be configured
ERR15736 - Fixed an error with custom tables having columns longer than 256 characters
REQ15756 - New script commands have been added (max_data_rows and max_browse_rows)
ERR15787 - Fixed an error of clustering
REQ15791 - The sort order can be configured in barcharts.
REQ15793 - The support of custom code pages has been added.
REQ15820 - New IN SELECTION operator has been added to the filter window.
ERR15834 - New INACTIVITY_TIMEOUT option has been added to the INI file.
REQ15837 - The Browse window supports selection of individual characters (also REQ15754).

Version 4.0.33

REQ15661 - New date/time formats have been added
REQ15662 - The font size can be set also for clusters
REQ15670 - Windows' environment variables can be used in the INI file
REQ15672 - More versions of log files can be kept if this feature is enabled in the INI file
REQ15673 - A small correction of tooltips
ERR15680 - Fixed an error of clustering in Control-M netplans
REQ15681 - Automic-Workflow netplans can be clustered by the Plan Name

Version 4.0.32

ERR15583 - Fixed an error in XLS/XLSX exports
REQ15593 - The logon window can optionally be opened on the startup automatically
REQ15594 - The filter window can optionally be opened again automatically when the previous search has returned no data
REQ15607 - Date formats can be controlled by Windows' locale setting
REQ15615 - Table displays have been optimized significantly (require less memory and run faster)

REQ15639 - Codepage 943 has been removed. It is not supported by the Windows API
ERR15640 - The filter form is more strict and doesn't ignore invalid characters

Version 4.0.31

ERR15317 - Fixed an error in Cobol and PL1 explorers
ERR15562 - Fixed an error of some netplans rendered by scripts
REQ15570 - The new icon set is used in the whole program

Version 4.0.30

ERR15407 - Fixed an error of pred/succ netplans with disabled multi-client support
ERR15480 - Fixed displaying of timestamp fields
ERR15539 - Fixed an error in scripts. Now IF statement accepts also column names with blanks

Version 4.0.29

REQ15101 - Hebrew text orientation is supported
REQ15356 - Netplans for AOCS scheduler have been added
REQ15393 - The INI file contains [disabled_options] section that the administrator can use to forbid modifications of some options
REQ15423 - New option APP_TITLE has been added to the INI file
REQ15432 - Printer setup function has been added
REQ15436 - A title can be added when netplans are printed
ERR15443 - Fixed an error in netplans with collapsed clusters

Version 4.0.28

REQ14908 - New display Programs/Source/Call Chain
REQ15311 - Configuration files are read in shared mode
REQ15312 - The summary of the critical path is displayed in the Search Result Bar header

Version 4.0.27

REQ12654 - Fixed Line commands from Call Diagram with Multi Client Support
ERR15185 - Fixed an error of processing incorrect license keys
ERR15239 - Fixed an error of reading server license keys
REQ15242 - Added tooltips to netplan graphics
ERR15243 - Fixed an error of netplan printing on a printer different to the default one
ERR15247 - Fixed an error in RMM DSN Information display
REQ15254 - The TCP file now supports both the IP address and DSN
REQ15266 - Added Pred/Succ netplan command
ERR15268 - Fixed Browse Dataset Line command

Version 4.0.26

REQ15037 - Added First steps chapter to the documentation and readme.pdf file
REQ15090 - Only visible columns are exported to XLS, XLSX, ODS, TXT, CSV files by the Export function
REQ15091 - The filter window accepts timestamps from 01.01.0001-00:00:00
REQ15095 - Some fixes of netplan layouter
ERR15105 - Fixed an incorrect presentation of DBCS content
ERR15134 - Fixed an error with menu opened from the minimized ribbon bar
ERR15152 - Fixed logon window
REQ15175 - The Option dialog allows to select a font used in tables
ERR15218 - Fixed an error in the script interpreter with pred/succ levels

Version 4.0.25

REQ15038 - The Shortcut tab has been added
REQ15039 - The Home icon with admin-defined URL target has been added on the Home ribbon bar

ERR15067 - Fixed a wrong handling of floating point numbers in the decimal format

Version 4.0.24

ERR15024 - The statistics can be exported to XLS/XLSX/ODS formats including the missing columns and the header

ERR15034 - Fixed a problem with remote drives.

Version 4.0.23

- Added Office 2016 visual themes

ERR14966 - Another improvements of support of records with binary zeroes

REQ15007 - The security interface supports also LGN logon files

Version 4.0.22

REQ14978 - CONFIG_DIRECTORY option added to XIPCC.INI

REQ14979 - PROFILE_DIRECTORY option added to XIPCC.IN

REQ14981 - The path to XIPCC.INI can be specified as a command line parameter

REQ14986 - Added support of administrator's notes

ERR14991 - Fixed a problem with remote drives

Version 4.0.21

ERR14966 - Added support of data records containing binary zeroes .

Version 4.0.20

The brand new release of the SmartIS PC Client.

2 Installation

-

2.1 Prerequisites

- Visit [Beta Systems Customer Portal](#).
- Enter your credentials to access the portal.
- Navigate to Software Downloads.
 - Go to DOWNLOAD tab in the main menu.
 - Select Software from the dropdown menu.
 - Filter for XINFO:

 FILTER

Producer:	HORIZONT Software Gm... ▼
Product:	XINFO ▼
Version:	▼
Component:	▼

- Choose the correct package. There are several options available (for 32 and 64 bit architectures and with or without AES (i.e. TCPCRYPT=1) support. There are also installers (zip packages that contain setup.exe program) available:

Product ▲	Version	Component	General Availability	Planned EoS	Size
XINFO	V4R3	Windows PC Client 32bit ZIP	2023-10-26		51.4 MB
XINFO	V4R3	Windows PC Client 64bit ZIP	2023-10-26		53.4 MB
XINFO	V4R3	Windows PC Client 32bit Installer	2023-10-26		48.8 MB
XINFO	V4R3	Windows PC Client 64bit Installer	2023-10-26		60.9 MB
XINFO	V4R3	Windows PC Client 32bit AES ZIP	2023-10-26		51.4 MB
XINFO	V4R3	Windows PC Client 64bit AES ZIP	2023-10-26		53.4 MB
XINFO	V4R3	Windows Installation Package	2022-06-30		455.1 MB
XINFO	V4R3	z/OS Installation Package	2022-06-30		33.4 MB

Showing 1 to 8 of 8 entries

Previous **1** Next

- Download your package.

2.2 Installation process

- There are two installation packages available:
 - **xipcc.zip file**
Copy the all files and directories to a target director of your choice.

- **xipcc.exe file**

xipcc.exe is an installer for the SmartIS PC Client that requires administrator rights. Start the file and follow the instructions:



- **Installing SmartIS PC Client from a network drive**

The program can be installed on a network drive either by unzipping the package or by running the installer there.

The program requires the INI file is located in the installation directory:

- xipcc.ini

Other configuration files must be in the installation directory as well by default. But you can change the location of these files by setting CONFIG_DIRECTORY option in the INI file.

These configuration files are:

- License Key File xipcc.pwd
- TCP configuration files *.TCP
- Administrator's defaults admin.xml (optional).

The main advantage of running SmartIS PC Client from the remote drive is the ease of administration and updates.

The main disadvantage is higher network traffic, maybe slower response from SmartIS PC Client because files are loaded over the network.

- **Installing SmartIS PC Client on a local Windows PC**

Local Windows installation are used if Windows PCs are maintained by software distribution.

For local installations it's important that you distribute an ini file with a proper [CONFIG_DIRECTORY](#) parameter set to a directory on a network drive that can be updated by the XINFO PC client administrator and that can be read by all users. Otherwise new license keys or changes to the TCP files have to be distributed as well.

Advantage: Better performance

Disadvantage: Central administration requires CONFIG_DIRECTORY. Updates have to be distributed again.

- **Using the same profile**

SmartIS PC Client saves its local configuration options in the profile directory on a local PC. This can be changed by setting the [PROFILE_DIRECTORY](#) parameter in the INI file. For more information see INI File - General Setting

- **Administrator defaults**

The SmartIS PC Client supports the default administrator configuration, which is valid in all clients running the program from the administrator's directory. This default administrator's configuration is stored in admin.xml file. When the program finds admin.xml file in its installation directory (or in the CONFIG_DIRECTORY when this option is set in the INI file) then it loads it first.

The admin.xml file can be easily created the following way:

1. Run the program locally on the server where you install it and configure all required options
2. Check where the local profile is stored (Options/General/Basic general options/Local configuration)
3. Copy Setting.xml from the local profile to admin.xml in the installation directory (or CONFIG_DIRECTORY)

Then start the program again and check that the administrator's defaults (admin.xml) is loaded. You can verify it by Options/General/Basic general options/Admin configuration.

2.3 Command line options and custom files

If you want to distribute some custom files to the target directory, you can zip them and name the package custom-files.zip.

If the installer finds such a package in the same directory as the setup program, it unzips the files to the location where the program is installed to.

This way you can prepare TCP files, INI file, PWD file and ensure they are automatically distributed to the target folder.

You can also start the installer in silent (you see just the progress window) or verysilent (you see no window at all) modes.

Just call the installer like this (the sample calls x64 bit versions, but it works also with x86):

silent mode:

```
xipcc-x64.exe /loadinf=file.inf /silent
```

very silent mode:

```
xipcc-x64.exe /loadinf=file.inf /verysilent
```

/loadinf=<filename.inf> parameter allows you to set values that are normally entered in the interactive setup.

As there is no interaction possible in the silent modes, the target path must be provided via the inf file, whose name is set as a command line parameter.

In this case, the needed information is read from file.inf file.

This file must have the following content:

```
[Setup]
Dir=C:\Program Files\Horizont\XINFO PC Client
```

where:

Dir: specifies the target location

3 User Interface

3.1 Docking Windows

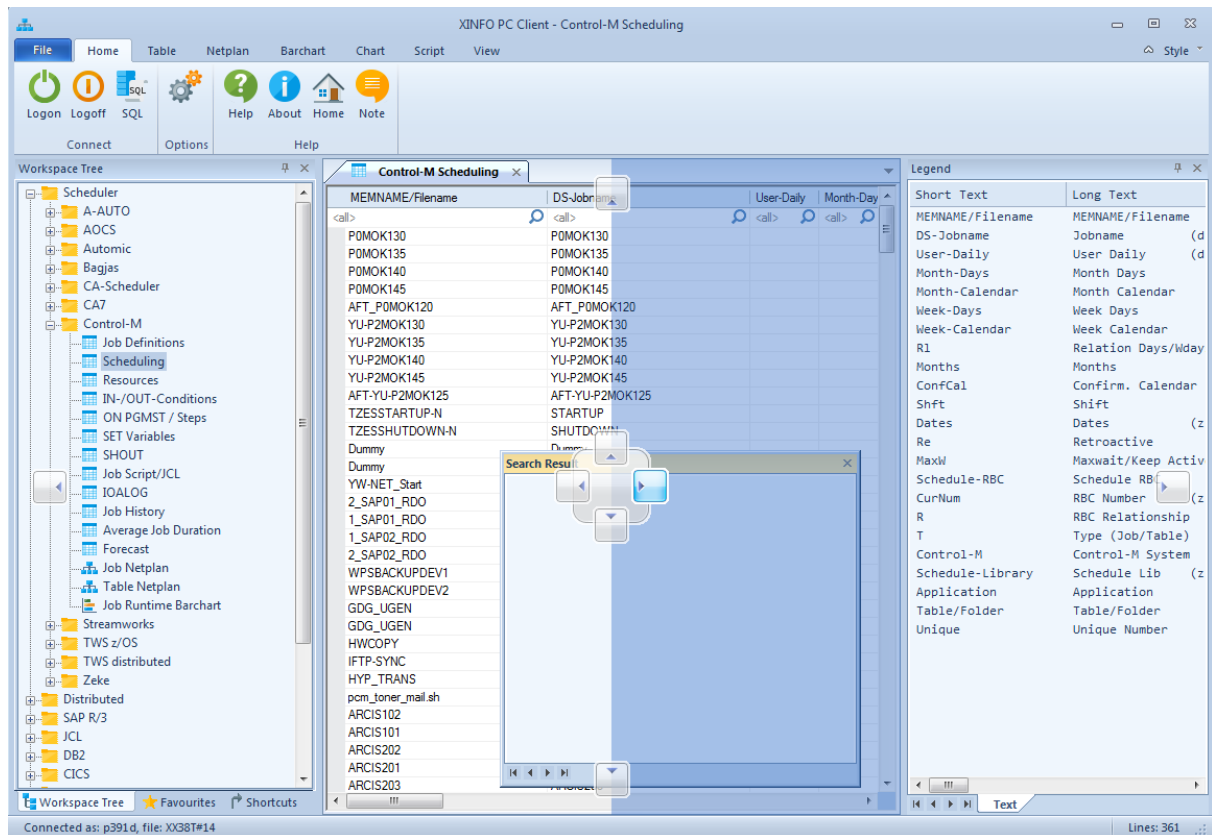
The main program window contains the [document area](#), where you can find all opened documents and several bars that can be docked where ever you want.

There is a [workspace](#) area on the left by default. Here you can see available displays supported by the server in a tree structure, a list or a list of favourite displays.

There is an [output bar](#) and a [legend bar](#) in the bottom area.

You can click on the header of any docking bar and drag it to a new location. The program automatically shows you the new position of dragged bar by highlighting that area.

You can also drag several windows into the same container. In this case tabs appear at the bottom of the container and clicking these tabs shows the bars. This is for instance used by in the workspace by default.



3.2 Documents

Documents are displayed in the document area. Every document (except scripts) can be shown in a tabular view and several documents can be shown in a graphical view. Currently these views are supported:

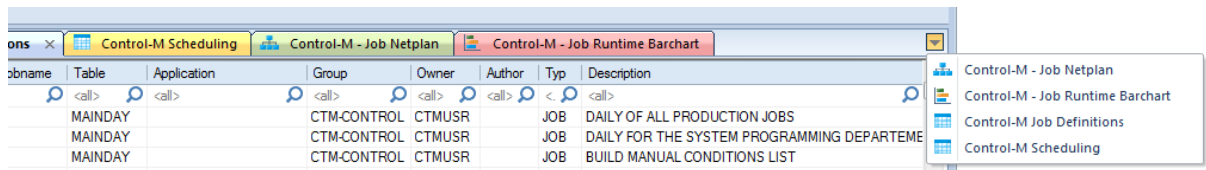
- [Tables](#)
- [Netplans](#)

- [Barcharts](#)
- [Explorers](#)
- [Scripts](#)

If a document contains data that can be shown graphically (netplans, barcharts, explorers), then the graphical view is shown by default.

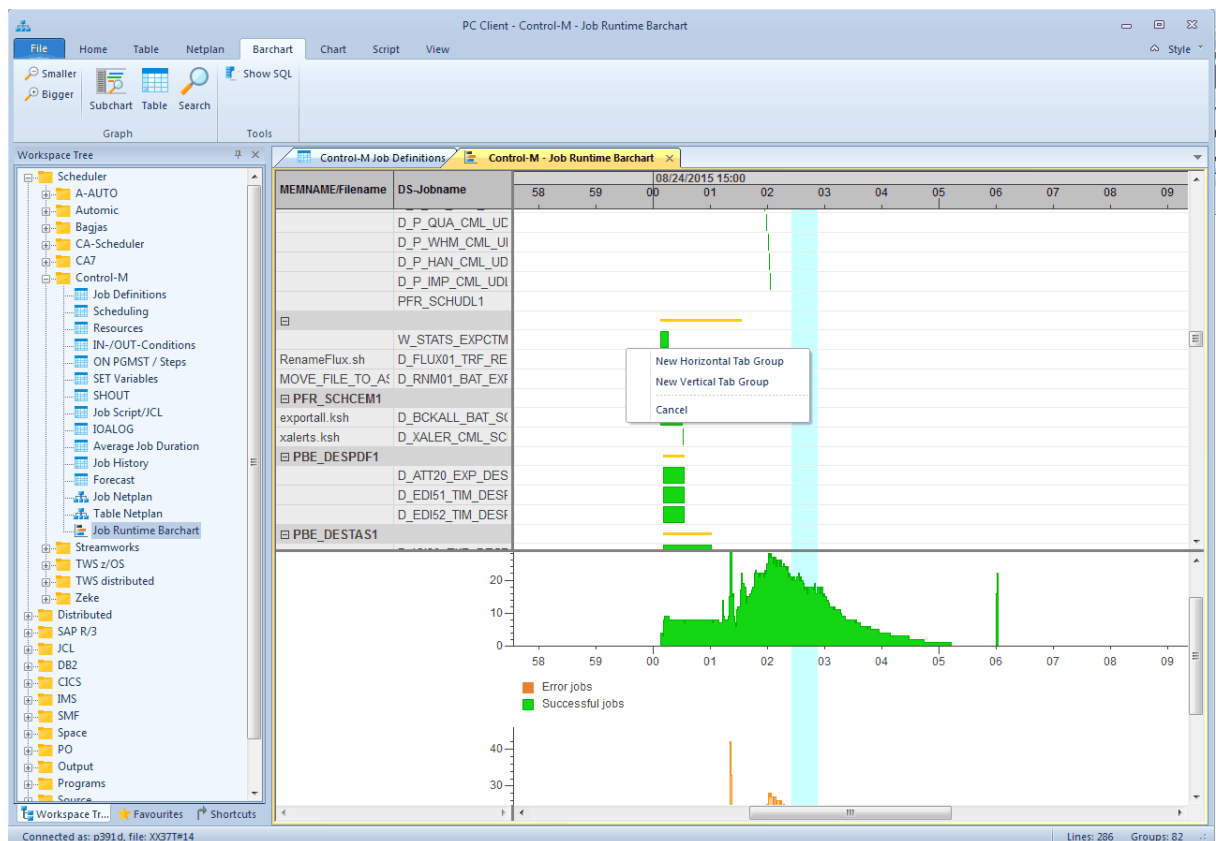
If you want to see the source data used for rendering of the graph, you can click [Table](#) icon on the ribbon bar. This function opens another tabular view of the same document.

Every document is shown under its tab in the document area. If you have too many opened documents, then you can use a small arrow on the right that shows all opened documents in a list.



You can also click the document's tab and drag the document to preferred position within the document area. You can:

- change the document's position in the tab area
- split the document area vertically or horizontally if you drag the tab outside of the tab area into the view.

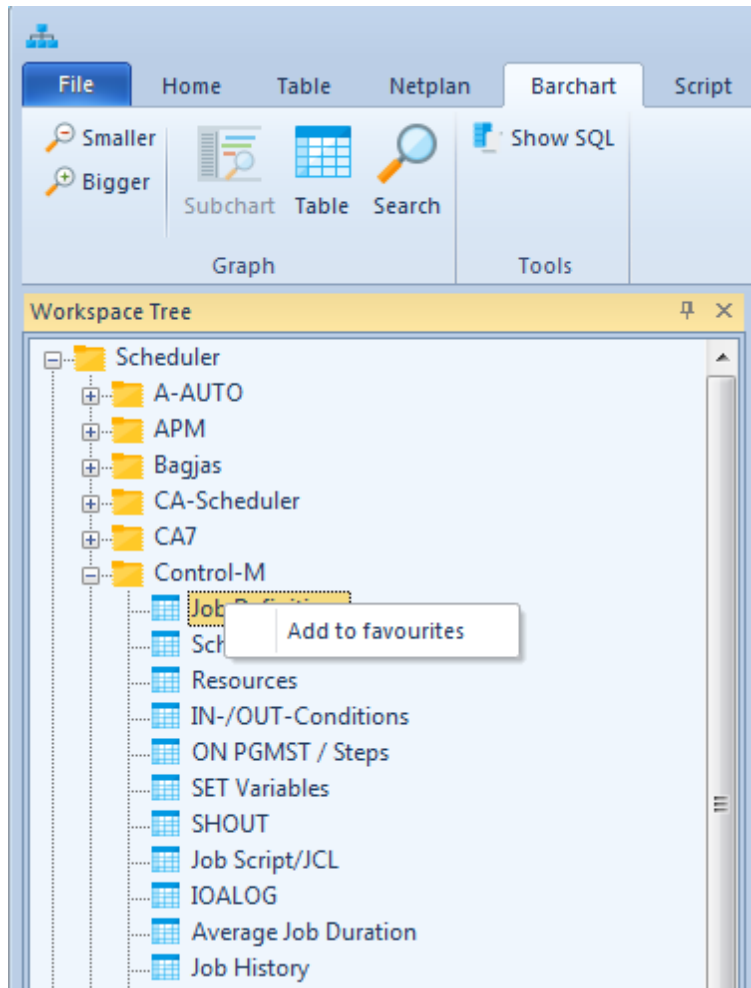


3.3 Workspace

The workspace is created once you [connect](#) to the server. The workspace contains a list of supported [displays](#) and allows you to search and display data.

You can see displays in a tree structure and also in a list.

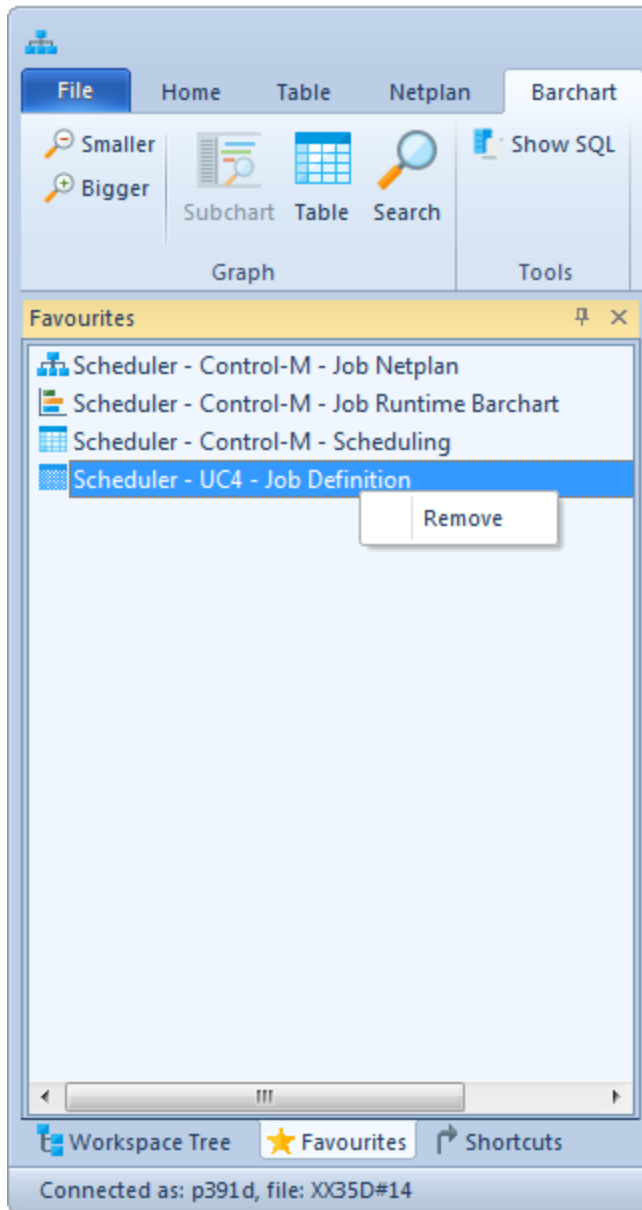
If you are often working with some displays then you can add them to the list of favourites. You can do it by clicking on a display name by a right-mouse button:



You can see favourite displays if you click Favourites tab in the workspace.

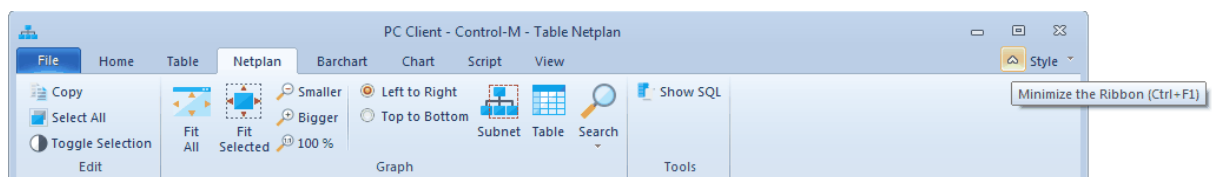
There is also a tab with shortcuts where you can see shortcuts to initialized filters. Shortcuts can be created in the [Filter](#) window.

You can remove any shortcut or a favourite display if you right click it and select Remove from the menu:

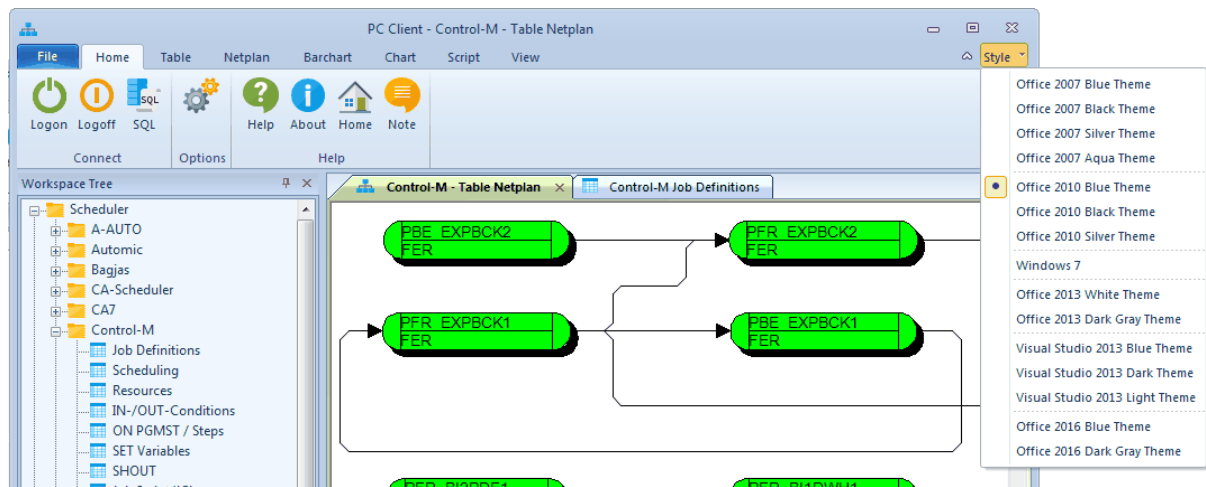


3.4 Ribbon Bar

The ribbon bar replaces a menu used in the past. Whenever you activate a document by clicking to its view, the appropriate panel of a ribbon bar is focused. You can collapse/expand the ribbon bar by a small arrow on the right, which saves you some space you may need on small displays.



Next to this arrow you can find a button that expands a menu where you can choose a visual theme of the whole application.



3.4.1 File

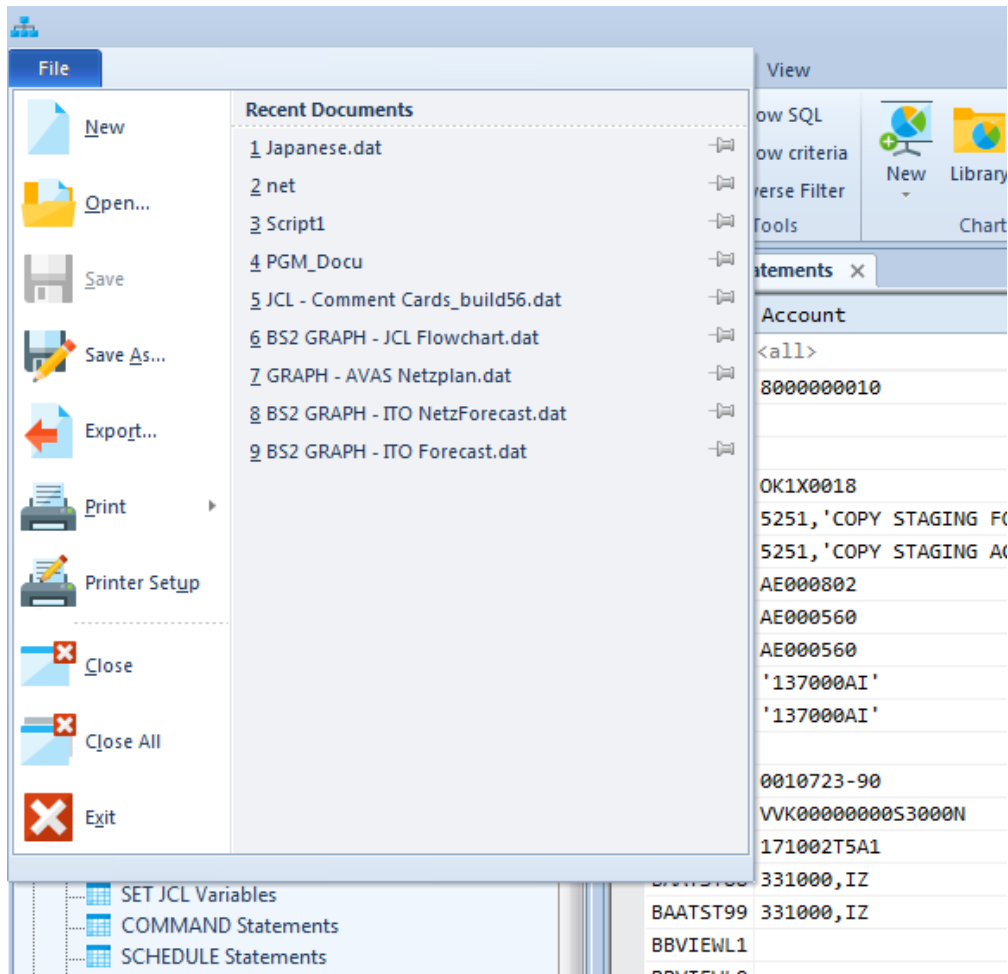
This panel offers standard file operations.

3.4.1.1 New, Open, Save As and Close

Every document can be saved to a file. The application provides own data format (.dat), which is compatible to the same format used in older version of the product.

That format is easy to read in every text editor, as it is text-based, but please do not manually edit files created by the application!

- **New**
Creates a new [script](#) document.
- **Save**
Saves the current document (the focused one, if you have more documents opened).
- **Open**
Opens a document from a file. After opening the document you will always see it as a table, even when it contains a graphical information. To show the graphical view ([netplans](#) or [barcharts](#)), you have to click the *Graph* icon on the [Table](#) panel. Opened documents are listed in *Recent documents* list. By default, the last opened document automatically appears on the top of this list. If you want to preserve a position of some documents, you can pin them by pressing pin buttons. Documents can also be opened by dragging of one or more DAT files on the main window of the application or on its icon on the desktop.
- **Close**
Closes all views of the current document.
- **Close All**
Closes all views of all opened documents.



3.4.1.2 Export

Every document can be exported to a file. The supported output data format varies depending on the active view.

The output formats are:

- HTML, CSV, TXT, XLSX, JSON for [tabular](#) views
- Image formats for graphical views ([netplans](#) and [barcharts](#))

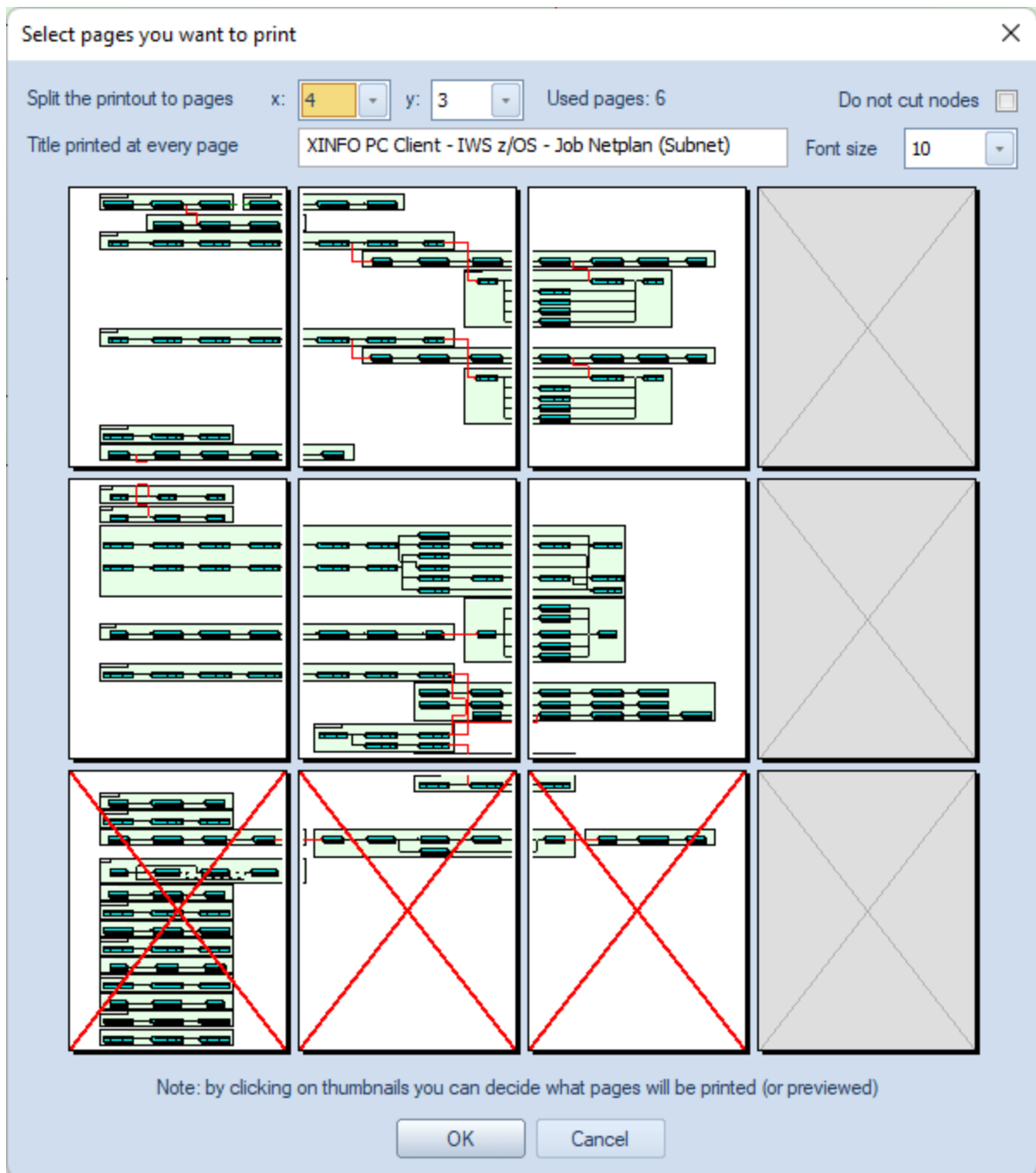
3.4.1.3 Print, Print Preview and Printer Setup

To print or preview a document, select Print or Print Preview commands.

If you do it when a tabular view is active then you get the result immediately (printed on a paper or previewed on a screen).

If you do it when a graphical display is active then you can also split the printout to more pages, which is useful especially when the graphic is too large. You can also remove some pages (if you split the printout) from the list of printed pages, which is useful if you are interested only in some part of the graphic. Just click thumbnails of pages to select and deselect these pages.

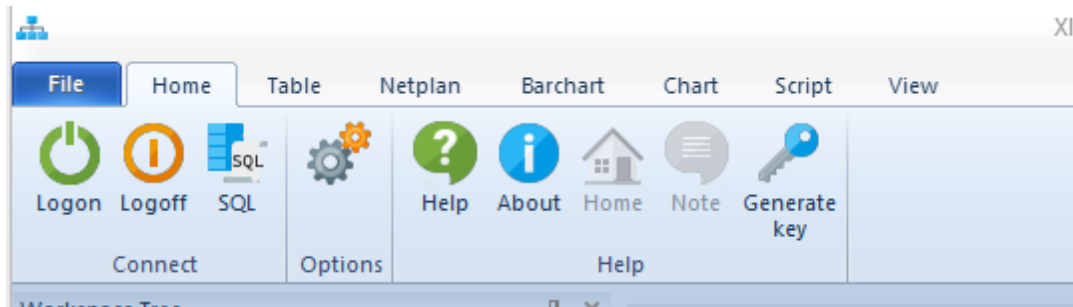
The default printer and its setting is used as long as you don't change it in the SmartIS PC Client.



The Printer Setup function allows you to set the default printer used in the program and to set the paper orientation.

3.4.2 Home

This panel offers main functions for connecting to the server and for the configuration. It can also display the help, program information and administrator's notes.



3.4.2.1 Connect

In the *Connect* section you can see these buttons:

- **Logon**

Opens a window that allows you to select a TCP configuration file that specifies the logon parameters and it optionally asks for your user name and a password.

The program searches for all files with *.tcp* extension in the directory where it is installed or in the location specified by [CONFIG_DIRECTORY](#) option in the INI file and checks whether these files contain a valid logon information. Files with valid logon information are provided in the logon window.

Logon

Configuration file: XX35D#14

☒ Enter login information
 ☐ Use the security interface

User Id: p391d

Password: ●●●●●●●●

☐ Change password

OK Create LGN Cancel

Logon

Configuration file: XX35D#14

User Id: p391d

Password: ●●●●●●●●

☐ Change password

OK Create LGN Cancel

Logon

Configuration file: XX35D#14

OK Cancel

Sample TCP configuration *XX35D#14.tcp*:

```
//-----
// TCP-IP Configuration file
//-----
TCPCOMMONNAME=
TCPCRYPT=
TCPPEMCA=
TIMEOUT=
PORT=XXXXX // Port Number
IP_ADR=XXX.XXX.XXX.XXX // IP-Address or Host-Name
MEMBER=XXXXXXX // TP-Procedure
```

You can use a sample file *sample.tcp.templ*, which is located in the program directory. Create a copy and modify it that it fits your needs.

There are two ways how to specify your user name and password:

- a. Enter them manually
- b. Use the security interface:
This method is available only if it is enabled in the [INI file](#) and it allows you to log on automatically. There are two ways how to log on using the security interface:
 - i. The first one is handy when you have utilities that provide you your user name and a password. If these utilities return you the needed information, you can call them from a script called by the SmartIS PC Client.
A trivial sample of such a script is :

```
@echo P391D
@echo ERF25JIT
```

If you enter these lines to *logon_XXR35D#14.cmd* file then this script will be called whenever you connect using *XXR35D#14.tcp* configuration file. The script name must be *logon_<name of the TCP configuraiton file>.cmd*.

The sample code above is a trivial case that simply prints your name (P391D in this case) and a password (ERF25JIT), each one on a single line. Of course, this is not so useful (even when it saves you time). The main advantage of the security interface is to get the logon information by your system utilities.

- ii. The second one logs on using the user name and password from *logon_<name of the TCP configuration file>.lgn* file. For example, if the TCP file name is *XXR35D#14.tcp* then the logon information is read from *logon_XXR35D#14.lgn* file. This logon file can be created by entering the user name and password in the Logon window and pressing *Create LGN* button. The file has the same format as logon files used in [scripts](#), which means that the password is encrypted.

Create LGN button allows you to create a file with your user name and encrypted password. The created file can be used in scripts or by the security interface.

You can also use LGN file as the command line parameter of the program. Then the program logs on automatically when it starts.

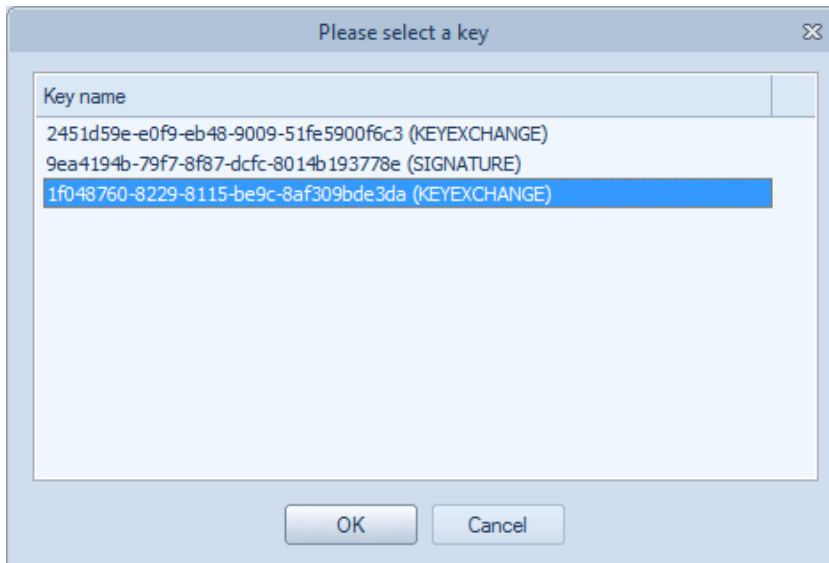
If you want to change your password then enter the valid password and click *Change password* option. After pressing *OK* button you will be prompted to enter the new password.

This option is available only when it is enabled in the [INI file](#).

The program allows you to connect using **smart cards** (PKI interface). This feature must be configured in the [INI file](#).

When PKI interface is enabled and the smart card is connected then only a prompt with TCP file name is displayed.

When there is more than one key on the card then the program also asks what key to use, unless the default key is set in the INI file:

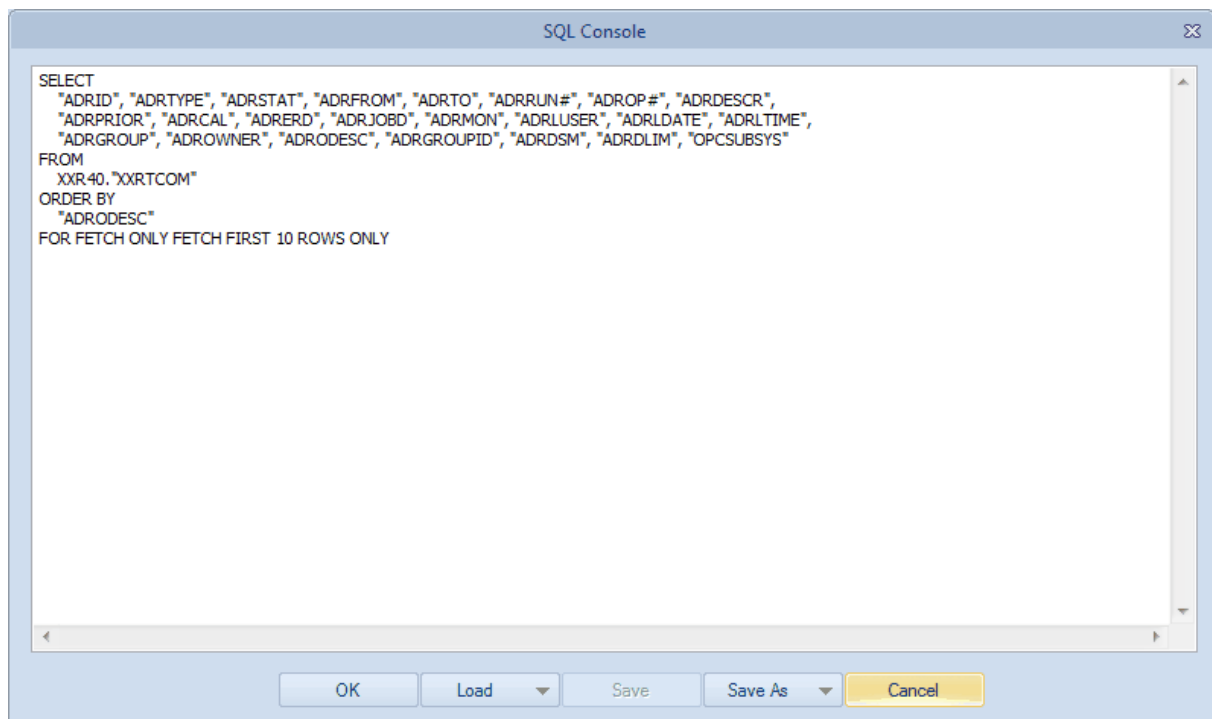


- **Logoff**

Disconnects from the server

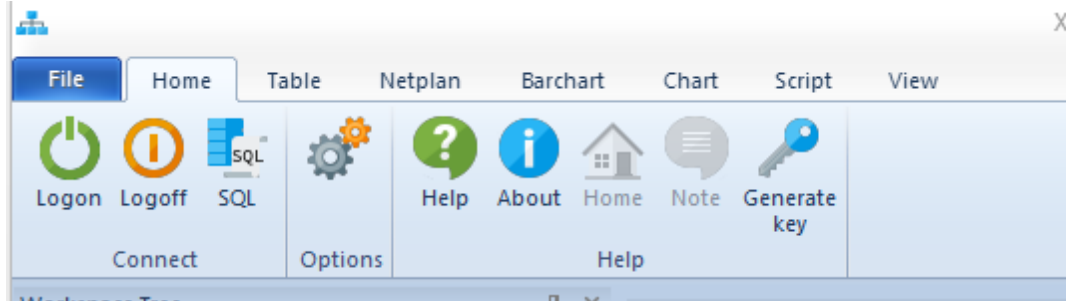
- **SQL**

Shows SQL console that allows you to specify your own SQL queries (if you are using DB2 at z/OS), which are sent to the server. If you are using some queries often, you can save them and load them in your profile or a file by pressing *Save As...* and *Load...* buttons.



3.4.2.2 Options

All program options are accessible in the Options window that can be opened on the *Home* ribbon bar.



3.4.2.2.1 General

The global options that are valid for the whole program or for a set of displays can be found in the *General* section of the *Option* window.

3.4.2.2.1.1 Basic General Options

- **Logging**

Log message level - allows you to set what messages are printed to the log file and to the [output window](#).

Available values are:

- 0 - no logs at all
- 1 - logs only errors
- 2 - logs errors and warnings
- 3 - logs errors, warnings and informations

Maximal number of log lines - specifies the maximal number of lines visible in the [Output](#) window. If more lines are in the output queue then the oldest lines are automatically removed.

Log network communication - when checked then all network communication is logged to the log file and [optionally](#) also to the output window

Log trace messages - when checked then all trace messages are written to the log file and [optionally](#) also to the output window

- **Files and Directories**

Shows location of important files and directories used by the program:

Log directory

The directory where log messages are written to.

Temp directory

The directory where temporary data are created.

Local configuration

A file name of the local profile. All program options and settings, including saved filters, queries, favourite displays and other settings are saved in this profile. The standard path to this file can be changed by PROFILE_DIRECTORY option in the [INI file](#). The local configuration file is maintained by the application and **mustn't be edited by hand**.

Admin configuration

When there is *admin.xml* file in the program's directory or in the directory specified by CONFIG_DIRECTORY option in the [INI file](#) then this file is used as the admin configuration file. Options specified therein are loaded when the program starts. Options from the local profile are appended to these options (or may overwrite admin's ones).

A syntax of this file is the same as a syntax of the local profile. If you want to provide your setting as predefined admin configuration, then you just have to configure all options you want to publish and then copy your profile XML to admin.xml.

- **Wildcards**

Allows you to specify wildcards you want to use in [filters](#). Currently * (all) and % (one letter) are used by default.

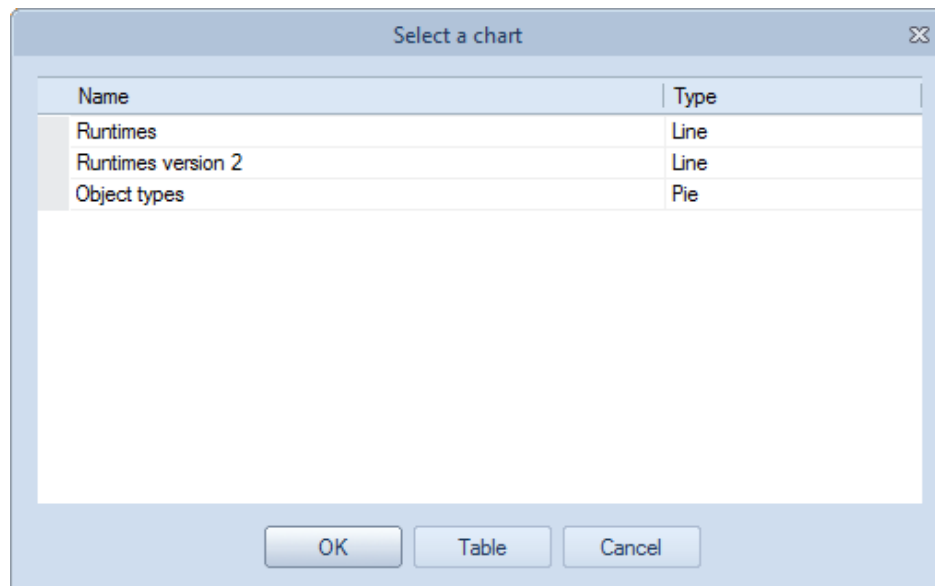
- **Default view of graphical displays**

Allows you to choose how displays with graphical information will be opened by default. If you select *Table* then a table is displayed. If you select *Graphic* then a graphic is displayed. Once the view is shown you can switch from table to graphic and vice versa by pressing *Table* or *Graph* icons on the ribbon bar.

- **Default view of tabular displays**

Allows you to choose how tabular displays having a [chart](#) configured are displayed by default. If you select *Table* then the table is displayed by default. If you select *Chart if it exists* then a chart is displayed in case it exists for the appropriate display. Otherwise the table is shown.

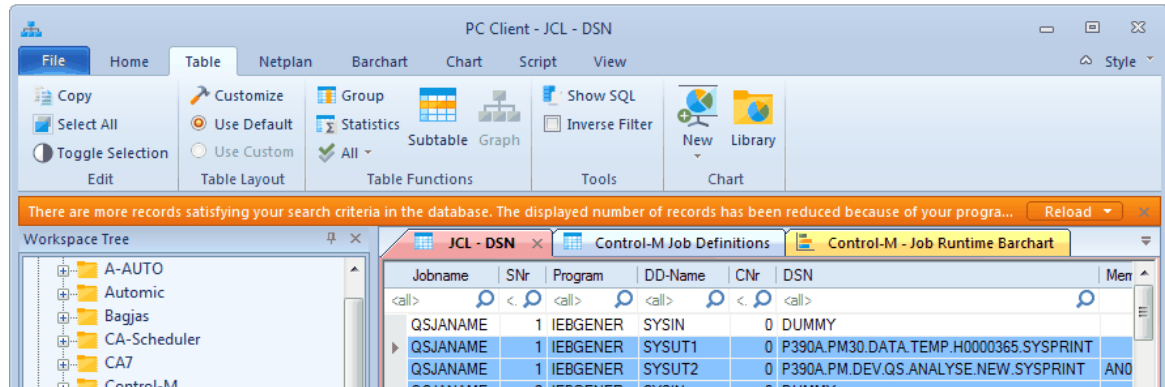
When more than one chart exist for the selected display then a window that allows you to select one of them opens:



If you press *Table* button then the table is shown instead of a chart.

- **Maximum number of data rows**

When these fields are not empty they specify the maximum number of records that will be downloaded from the server for a single request. When more data are available as specified by these values the program displays a warning message:



On the right side of the message there is a button that opens a menu allowing you to reload the same request with a new limit or without any limit.

- **Separator for CSV export**

Allows you to specify the separator used in CSV export.

- **Encoding and format**

Code page

Lets you choose the encoding of your data. You can also select [custom code pages](#) if you have defined them.

Date format

When set to *Server* then the date formats are displayed in the style set on the server.

When set to *Windows* then the Windows' locale setting controls the date format.

- **Ease**

Contains some option for ease of use of the program.

- **Syntax highlighter**

By pressing *Configure syntax highlighter* button you can open a window where colors for some supported languages can be customized:

3.4.2.2.1.2 Netplan General Options

- **Node marking style**

Specifies how selected nodes in netplans are marked. If you choose marking by colors then you have to choose these colors too.

- **Tooltips**

Specifies how tooltips are displayed. Possible options are:

- Disabled:

no tooltips are shown

- Enabled:

they are shown whenever the mouse hovers a node or a link

- Enabled with Ctrl:

they are shown whenever the mouse hovers a node or a link if the CTRL key is pressed at the moment

3.4.2.2.1.3 Table General Options

- **Font**

Specifies the font used in [Tables](#)

3.4.2.2.2 Netplans

In this section you can set options affecting the appearance of all supported [netplans](#).

3.4.2.2.2.1 Graph Options

Here you can set global properties of [netplans](#).

- **Sheet properties**

Orientation

You can set *left to right* or *top to bottom* orientation.

Background color

Specifies the background color of the whole netplan (outside clusters, if you have clustering active).

Active cluster

Allows you to choose fields you want to use for clustering. Nodes sharing the same value of the selected field are grouped in clusters.

- **Cluster style**

This section allows you to set a style of clusters for every cluster level. More cluster levels are available in case of nested clusters.

Frame background color

Specifies a background color of the cluster area.

Node background color

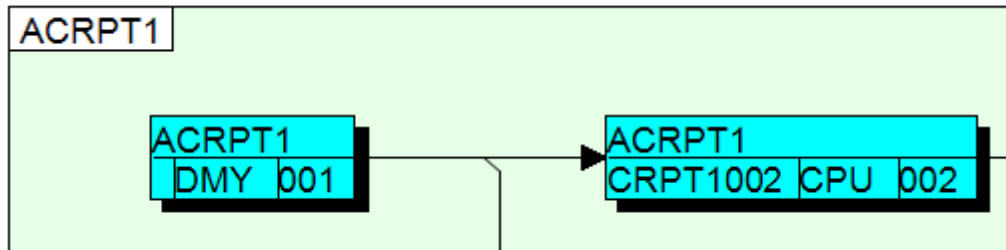
Specifies a background color of the cluster node. The cluster node is shown in the top-left corner of each cluster and shows a value of the common fields.

Node text color

Specifies a text color used in the cluster node.

Font

Specifies a font used in cluster labels and in collapsed clusters.



- **Time ruler**

Allows you to set a background color, text color and time units for a time ruler. The time ruler is available only for netplans having the time information and time ruler internally configured.

- **Dependency levels for line commands**

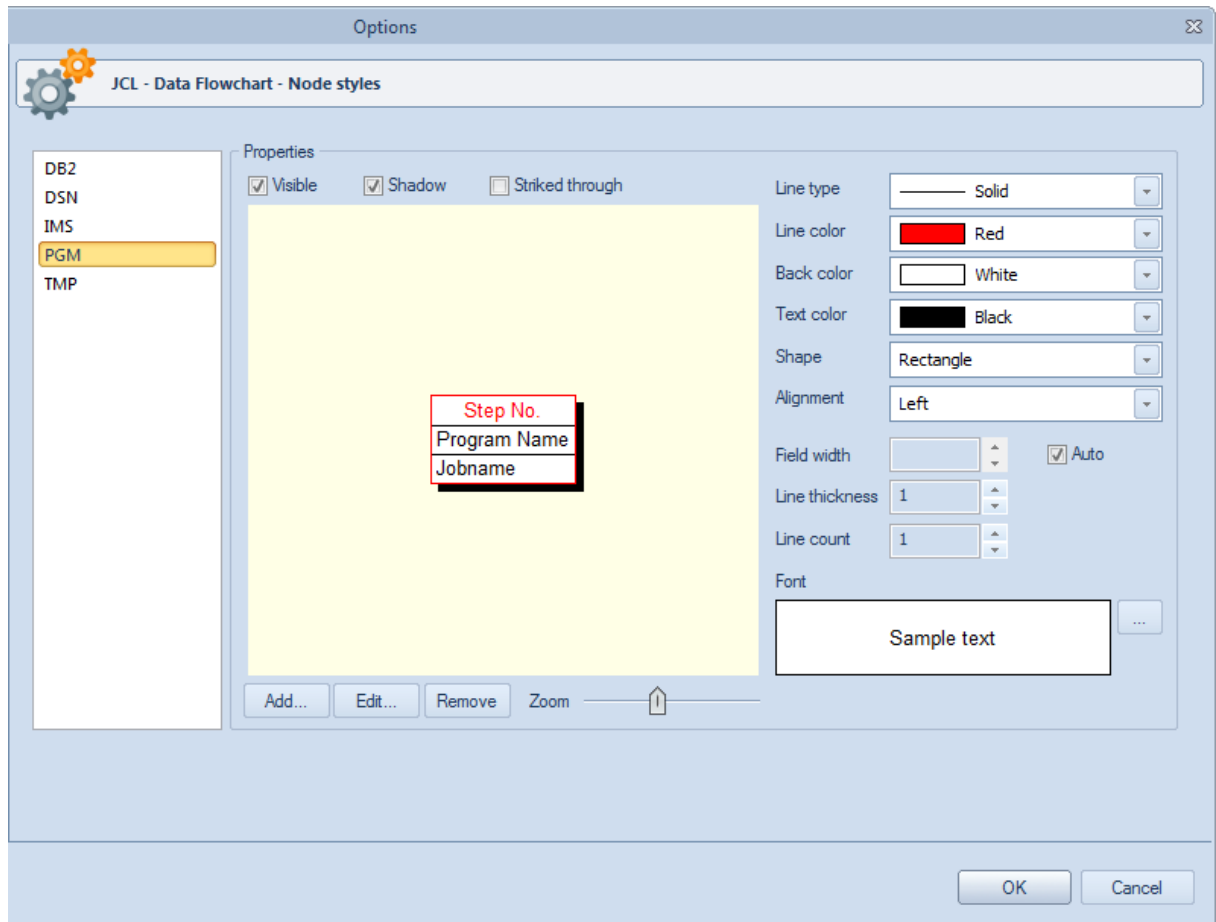
Allows you to set predecessor and successor levels, which are used when a netplan is created from a [Line command](#).

- **Link bundling**

Allows you to set the minimal number of links needed for activation of link bundling.

3.4.2.2.2.2 Node Styles

Here you can configure a visual style of every node. On the left side of the window you can see all available nodes. Click on each of them and set its options.



The options are easy to understand, so let's mention just a few notes:

You can press *the Add...* button to add other fields to the node or you can remove existing fields by clicking them and pressing the *Remove* button.

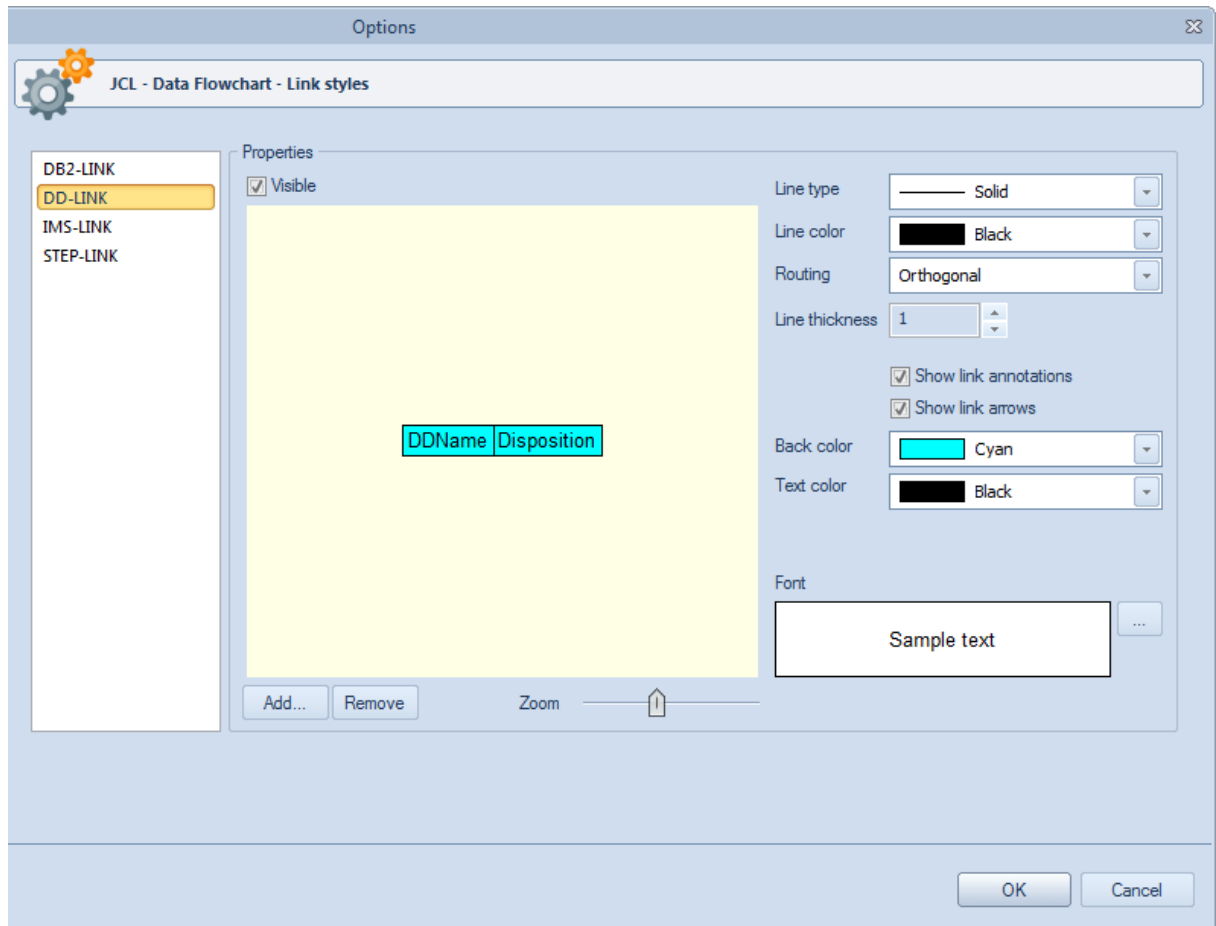
If you press the *Edit...* button then you can specify options for the selected field (select it by mouse). Options defined for a field have higher priority than options defined for the whole node. By this way you can set different colors and other properties for each individual field.

For instance, the screen shot above shows a node with the first field (Step No.) modified this way.

You can also use mouse to move fields to preferred positions.

3.4.2.2.3 Link Styles

Here you can configure visual styles of every link. On the left side of the window you can see all available links. Click on each of them and set their options.



The options are easy to understand, so let's mention just a few notes:

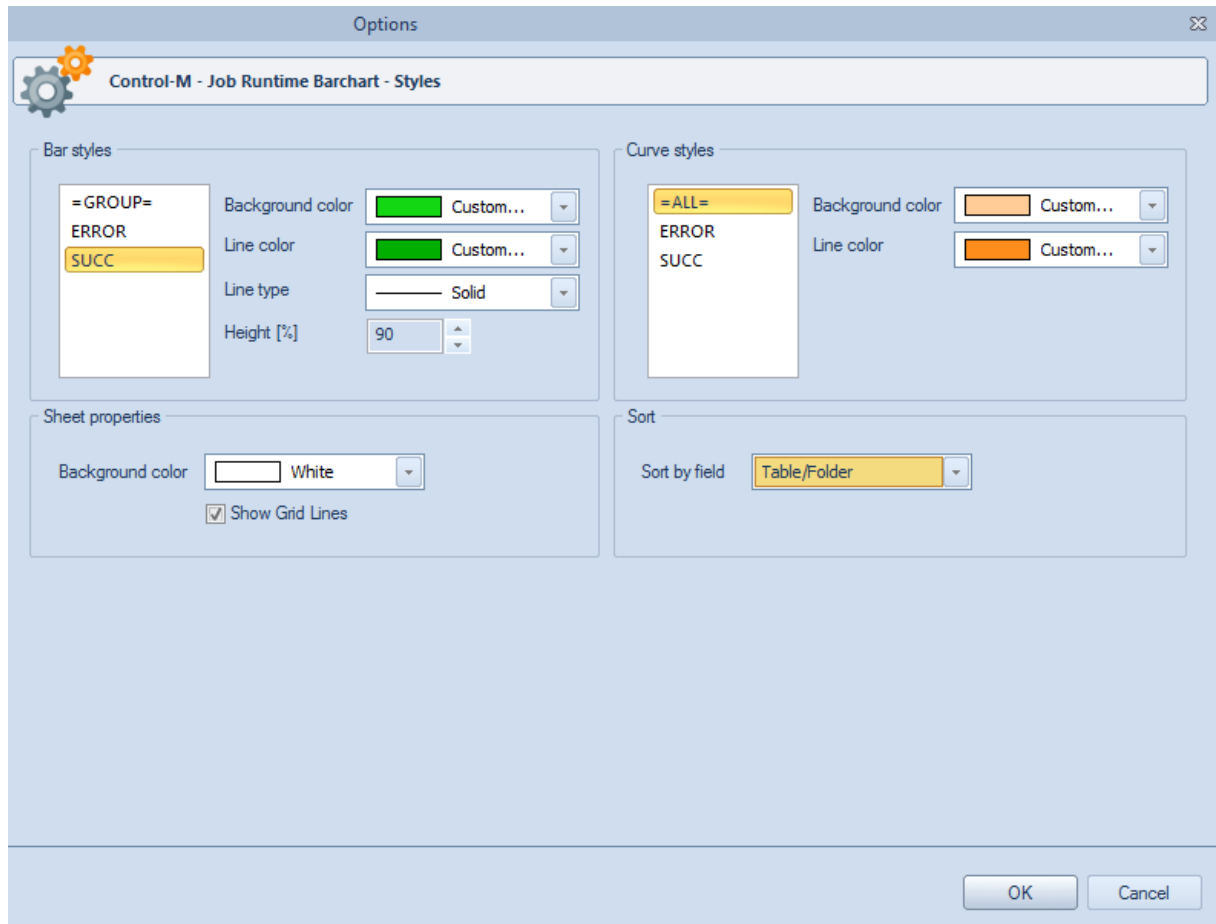
Some links can have annotations. Annotations are nodes shown in the middle of links. To enable the annotation just check *Show link annotation* button and add any field you want by pressing *Add...* button. Annotations don't support setting of colors at field-level, which is available only for [nodes](#).

3.4.2.2.3 Barcharts

In this section you can set options affecting the appearance of all supported [barcharts](#).

3.4.2.2.3.1 Styles

[Barcharts](#) contain two graphical areas, a bar area and a histogram area. Elements of the bar area can be configured in *Bar styles* section, while curves of the histogram area can be set in *Curve styles* section.



- **Bar styles**

The list shows all available bars of the bar area. Except standard bars valid for the appropriate barchart you can see one special bar called `=GROUP=`. This special bar is used when [grouping](#) is enabled and shows the summary range of all bars that belong to that group. By default, the height of this summary group is smaller (15%).

Background color

The background color of a bar.

Line color

The outline color of a bar.

Line type

The type of a line around a bar.

Height

The height of a bar relative to the height of a line in the table.

- **Curve styles**

The list shows all available curves of the histogram. Except standard curves valid for the appropriate barchart you can see one special curve called `=ALL=`. This special curve is used for the summary histogram that is shown at the very bottom of the histogram area.

Background color

the background color of a curve (filler)

Line color

the outline color of a curve

- **Sheet properties**

Properties of the bar area can be configured here.

Background color

The background color of the bar area.

Show Grid Lines

Shows or hides grid lines in the bar area.

- **Sort**

Allows you to select the field by which data are sorted. If the data are [grouped](#) then this option sets the sort field inside of each group. Groups are always sorted automatically.

3.4.2.2.3.2 Data Settings

Here you can specify conditions that control how bar styles are assigned to data records and you can configure how records are grouped.

Options

Control-M - Job Runtime Barchart - Data settings

Expressions

Expression	Bar and curve styles
CX4STAT = 'OK'	SUCC
CX4STAT != 'OK'	ERROR

Restore Default
Move Up
Move Down

Grouping

Group	Description	Column name
<input checked="" type="checkbox"/>	Client	XXRDATCLI...
<input checked="" type="checkbox"/>	Environment	XXRDATENV
<input type="checkbox"/>	MEMNAME/Filename	CX4MEMNA...
<input type="checkbox"/>	DS-Jobname	CX4JOBNAME
<input checked="" type="checkbox"/>	Table/Folder	CX4TAB
<input type="checkbox"/>	Error Code	CX4ERRC
<input type="checkbox"/>	Job Start Time	CX4START
<input type="checkbox"/>	Job End Time	CX4END
<input type="checkbox"/>	Elapsed (Sec)	CX4ELAPSED
<input type="checkbox"/>	Status	CX4STAT
<input type="checkbox"/>	Control-M System	CX4CTM
<input type="checkbox"/>	Order Date	CX4ODATE

Title format string: \$CX4TAB. Auto Fill

Note: The title can contain any text and variables in \$XXX format, where XXX is a column name. Only variables matching selected columns are substituted.

OK Cancel

- **Expressions**

Expressions specified in the table are evaluated from the top to the bottom. The first expression that is evaluated as *TRUE* sets the bar and curve styles of a data record. For example (see the picture above), when a value in *CX4STAT* column equals *OK* then *SUCC* bar and curve styles are used, otherwise *ERROR* styles are used.

As the order of expressions is important, you can move them up and down using *Move Up* and *Move Down* buttons.

You can adjust the expressions if you click them. Once you edit an expression and click outside of it, it is immediately verified. When there is an error in the expression then it becomes red and you must fix it.

To restore any expression to its original state you just have to click it and then press *Restore Default* button.

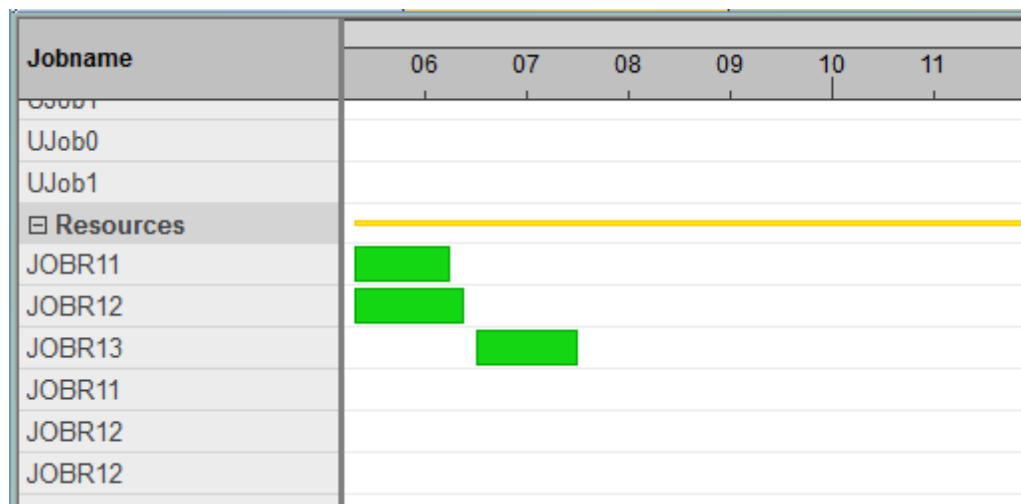
You can refer *Grouping* table to learn names and meanings of available columns.

- **Grouping**

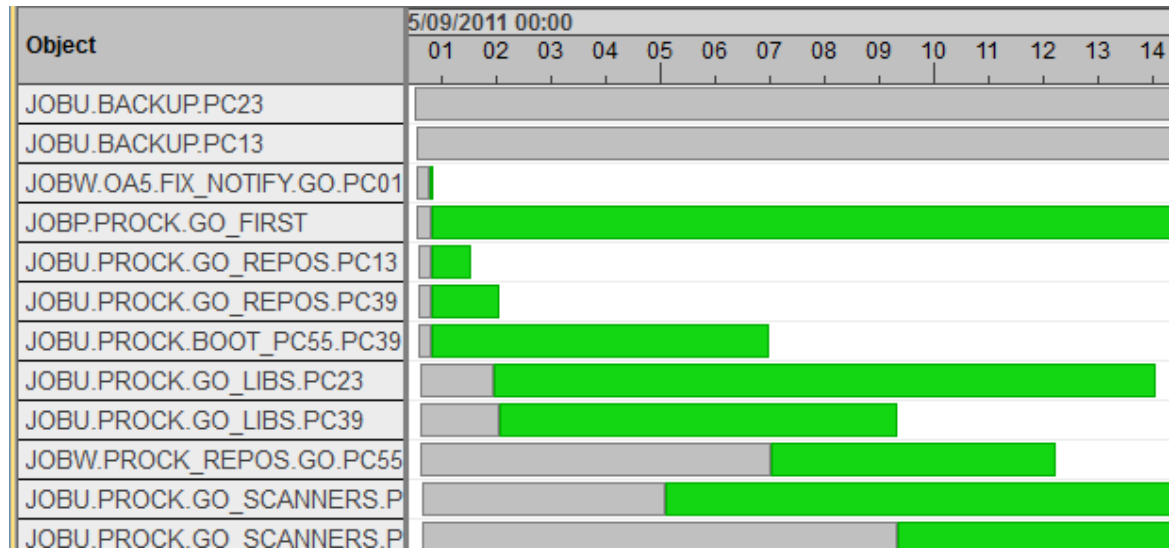
Records shown in the barchart can be grouped. You can check none, one or more columns you want to use for grouping. If no column is selected, grouping is disabled. Each group contains fields that share the same value in columns used for grouping.

Groups graphically appear as records which can be expanded and collapsed and they have a bar rendered using *=GROUP=* style.

The *Title format string* specifies how a label of a group is created. You can specify any text and you can use also variables in \$XXX format, where XXX is a column name used for grouping. Such variables are substituted by real values when the barchart is rendered.



Grouped Barchart



Not Grouped Barchart

3.4.3 Help

The main page of the Help document is opened if you click on the **Help icon** on the Home ribbon bar. The information about program version is displayed if you click on the **About icon**. If you are connected to the server then also the server version is displayed.

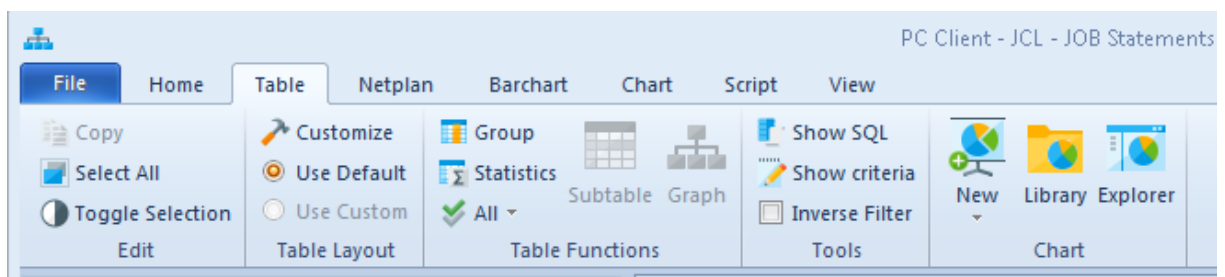
The **Home icon** is active if the [home](#) web page is set and it opens this page in the web browser.

The **Note icon** is active if some administrator's [note](#) exists and it shows it.

The **Generate key icon** allows to generate a key which is used for encryption and decryption of logon files.

3.4.4 Table

This panel offers functions for the [tabular](#) view.



3.4.4.1 Edit

- **Copy**
Copies selected lines of a table into the clipboard in HTML format.
- **Select All**
Selects all lines of a table.
- **Toggle Selection**

Selects unselected lines of a table and vice versa.

3.4.4.2 Table Layout

Some tables are very wide and horizontal scrolling can be necessary. You can customize the table layout so that you see only columns you are really interested in. You can also set the order of columns and their sorting. Hiding some columns can also significantly improve the performance of huge tables.

- **Customize**

Shows a window where you can specify which columns are visible in the table.

You can set the order of columns by pressing *Move Up* and *Move Down* buttons.

You can select sorting options in the *Sort* column.

You can also rename columns' headers or their legend to a text that suits better to you.

By *Frozen columns* value you can set how many columns are fixed when the table is scrolled horizontally.

Visible	Sort	Column Header	Column Legend
<input checked="" type="checkbox"/>		System	Atomic-System
<input checked="" type="checkbox"/>		Clnt	Atomic-Client
<input checked="" type="checkbox"/>		Object Name	Object Name
<input checked="" type="checkbox"/>		Object Title	Object Title
<input checked="" type="checkbox"/>		Creation Date	Creation Date
<input checked="" type="checkbox"/>		Creation User	Creation User
<input checked="" type="checkbox"/>		Last Update Date	Last Update Date
<input checked="" type="checkbox"/>		Last Update User	Last Update User
<input checked="" type="checkbox"/>		Last Used Date	Last Used Date
<input checked="" type="checkbox"/>		Usage Count	Usage Counter
<input checked="" type="checkbox"/>		Active	Active Y/N
<input checked="" type="checkbox"/>		ArchKey1	Archive Key 1
<input checked="" type="checkbox"/>		ArchKey2	Archive Key 2
<input checked="" type="checkbox"/>		Int. Account	Int. Account
<input checked="" type="checkbox"/>		Max.Paral.	Max. Parallel
<input checked="" type="checkbox"/>		Else	Max. Par. Else
<input checked="" type="checkbox"/>		Prio	Priority
<input checked="" type="checkbox"/>		Timezone	Time Zone
<input checked="" type="checkbox"/>		GenRT	Gen. at Runtime Y/N
<input checked="" type="checkbox"/>		Auto. Deactivation	Auto. Deactivation
<input checked="" type="checkbox"/>		DDelay-Days	Deact. Delay (Days)
<input checked="" type="checkbox"/>		DDelay-Mins	Deact. Delay (Mins)
<input checked="" type="checkbox"/>		Deact. When Status	Deact. When Status
<input checked="" type="checkbox"/>		Result OK Status	Result OK Status
<input checked="" type="checkbox"/>		Result Else Execute	Result Else Execute
<input checked="" type="checkbox"/>		MaxRC	Return Code Max OK
<input checked="" type="checkbox"/>		Return Else Execute	Return Else Execute
<input checked="" type="checkbox"/>		Proc	Process Y/N
<input checked="" type="checkbox"/>		Explorer Path	Explorer Path

Frozen columns: 1

Select All Toggle Move Up Move Down

OK Reset Cancel

- **Use Default and Use Custom**

These buttons are available when a customized layout exists for the current type of a table.

If a customized layout exists then you can switch from the default one (provided by the program) to your one by a single click.

The program remembers the last set layout for each table. If you open the same table next time, the layout used previously is applied automatically.

3.4.4.3 Table Functions

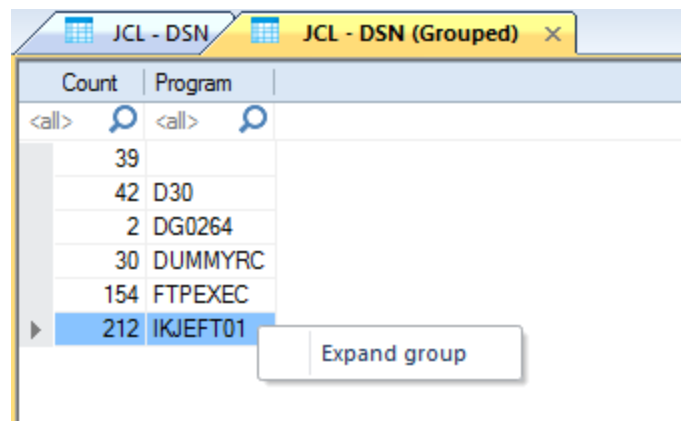
- **Group**

Shows a window where you can check columns you want to use for grouping. As a result, a new document is opened where records are grouped by the columns you have selected. The new document contains columns you have selected and a number of records of the original table that have the same values in these columns.

You can also group data by a sub string. In this case enter the start position and the length in the group dialog.

The grouped result can be expanded to the original data if the original table is still opened. You can do it by the *Expand group* command from the pop-up menu.

If the original table is not opened any more then the *Expand group* command is unavailable.



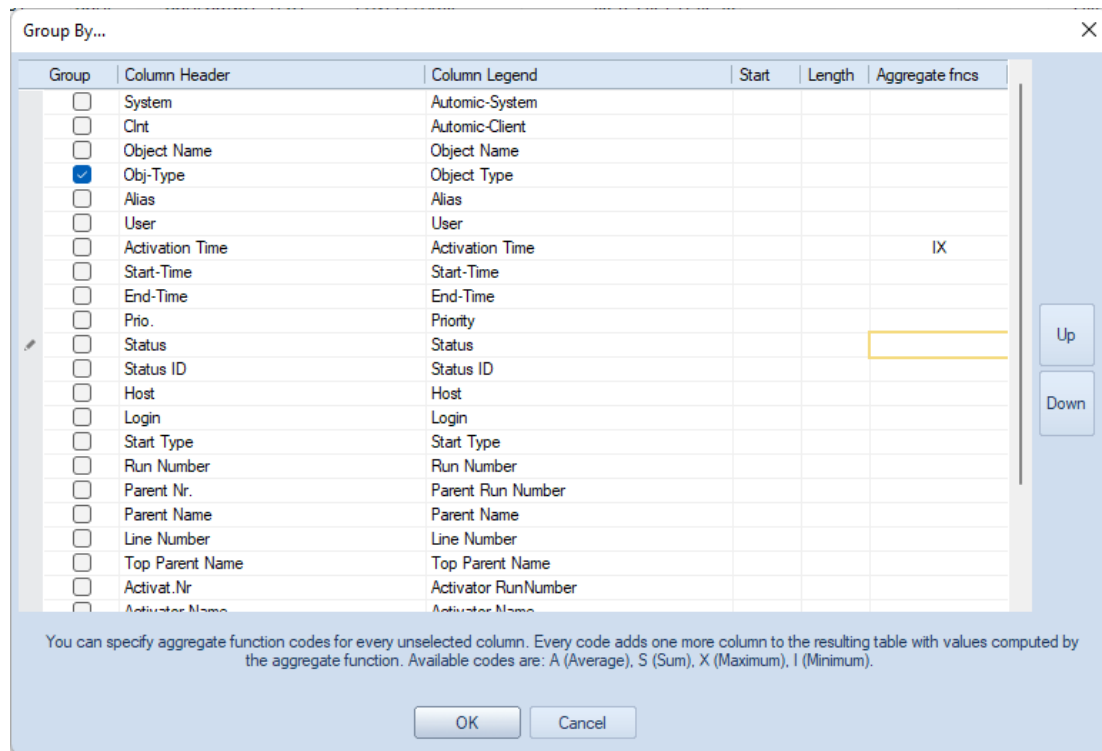
The screenshot shows a software window with two tabs: 'JCL - DSN' and 'JCL - DSN (Grouped)'. The 'JCL - DSN (Grouped)' tab is active, displaying a table with two columns: 'Count' and 'Program'. The table contains the following data:

Count	Program
<all>	<all>
39	
42	D30
2	DG0264
30	DUMMYRC
154	FTPEXEC
212	IKJEFT01

A pop-up menu is visible over the '212 IKJEFT01' row, containing the text 'Expand group'.

When you group your data in the Group By window you can also specify some aggregate functions. They are specified by function codes entered in the last column. Function codes can be entered only for unselected columns and every letter entered creates a new column with result of the aggregation. For example, if you want to display minimal and maximal values of a column then enter IX on its line. Available function codes are:

I - minimum
X - maximum
A - average
S - sum



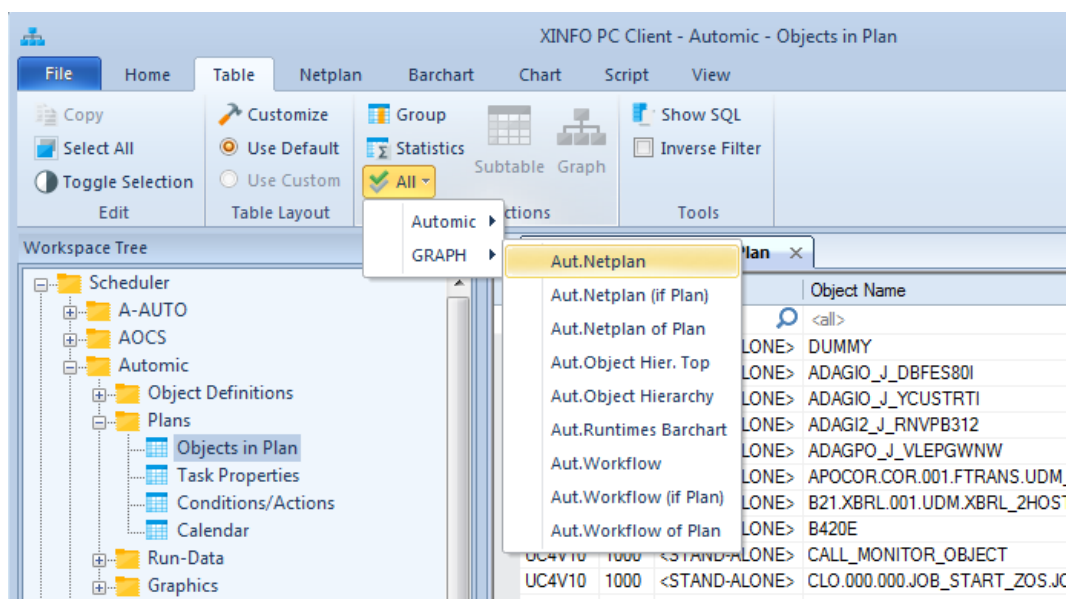
- **Statistics**

Scans the whole table and displays its statistics. The statistics contains numbers of not empty records of every column and minimal and maximal values of each column.

- **All**

Shows a menu with available line commands for the current display and executes the selected [line command](#) for every line of the table. This function can take a long time in some cases and therefore you should use it carefully.

When no line commands exist for the current table then this command is inaccessible.



- **Subtable**

Creates a new document (table) that contains only lines selected in the original table.

- **Graph**

When the current document contains data that can be shown as a graph ([netplans](#), [barcharts](#)), then the graph can be displayed by pressing that icon. A combination of *Subtable* and *Graph* functions can be very useful for graphical displays as it helps you to create graphs of only selected records.

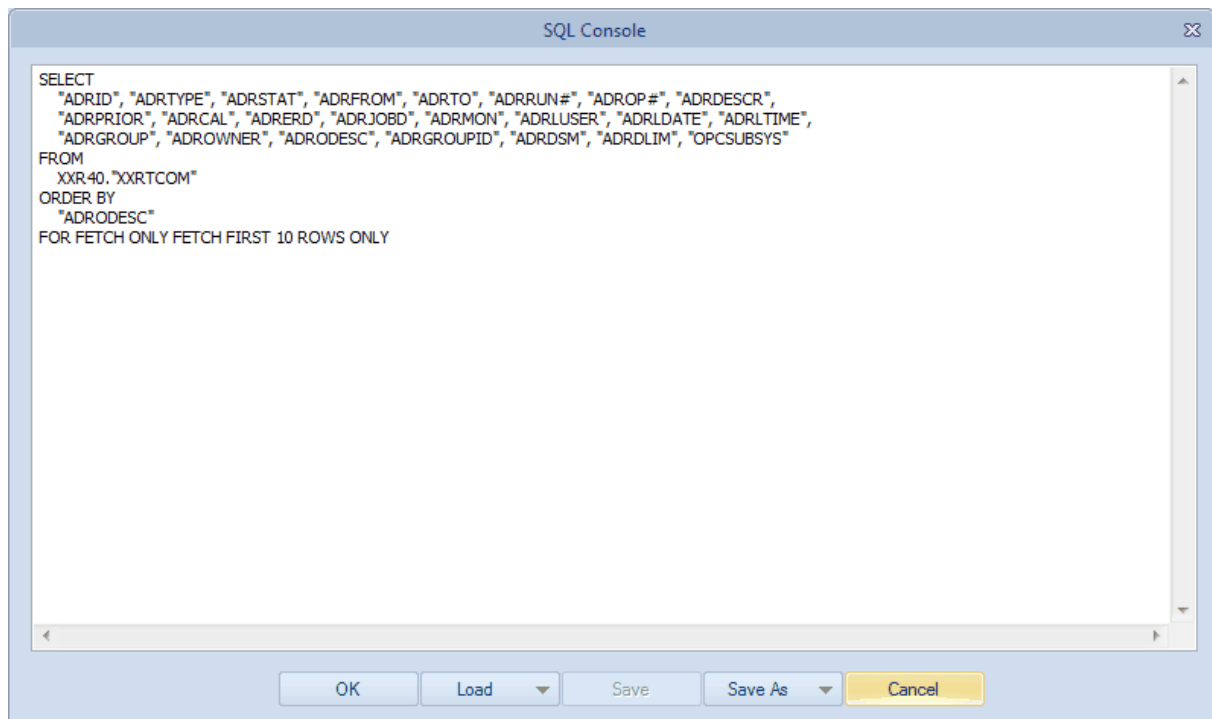
3.4.4.4 Tools

- **Show SQL**

Shows the SQL query that was used for creating the current table.

You can modify that query manually and submit it by pressing *OK* button. Modifying of columns and tables is allowed only when you are connected to DB2 at z/OS.

Modified queries can be saved for later use by pressing *Save As...* button and loaded from the profile or a file by pressing *Load...* button.



- **Show criteria**

Shows the search criteria used for creating of the current table.

- **Inverse Filter**

When this option is checked then the filters in the very first row of any table work in the inverse mode. That means, the table hides records matching the entered values.

3.4.4.5 Chart

- **New**

Opens a wizard for definition of the a chart.

- **Library**

Shows a list of all charts defined for the current display. Every display can have its own set of charts.

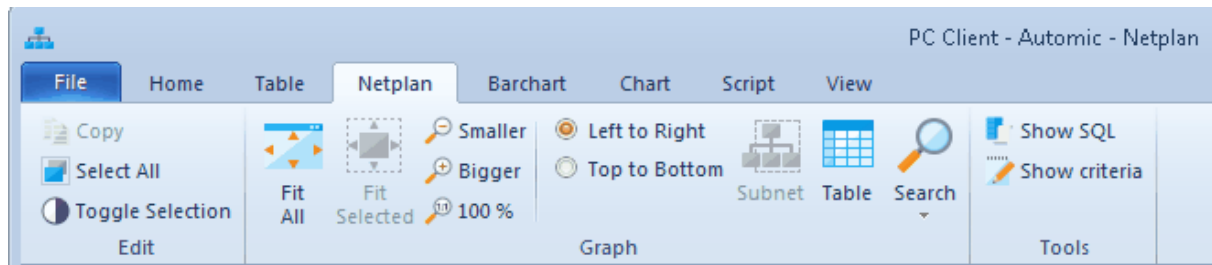
- **Explorer**

Shows all charts that are defined in SmartIS PC Client.

See [Charts](#) section to learn more about charts.

3.4.5 Netplan

This panel offers functions for the [netplan](#) view.



3.4.5.1 Edit

- **Copy**

Copies selected nodes into the clipboard in HTML format.

- **Select All**

Selects all nodes.

- **Toggle Selection**

Selects unselected nodes and vice versa.

3.4.5.2 Graph

- **Fit All**

Fits the whole netplan to the screen.

- **Fit Selected**

Fits selected nodes to the screen. Nodes can be selected by dragging of a rectangle over them or by Ctrl + clicking the left mouse button.

- **Toggle Selection**

Selects unselected nodes and vice versa.

- **Smaller**

Zooms the netplan out. You can also use Ctrl + mouse wheel.

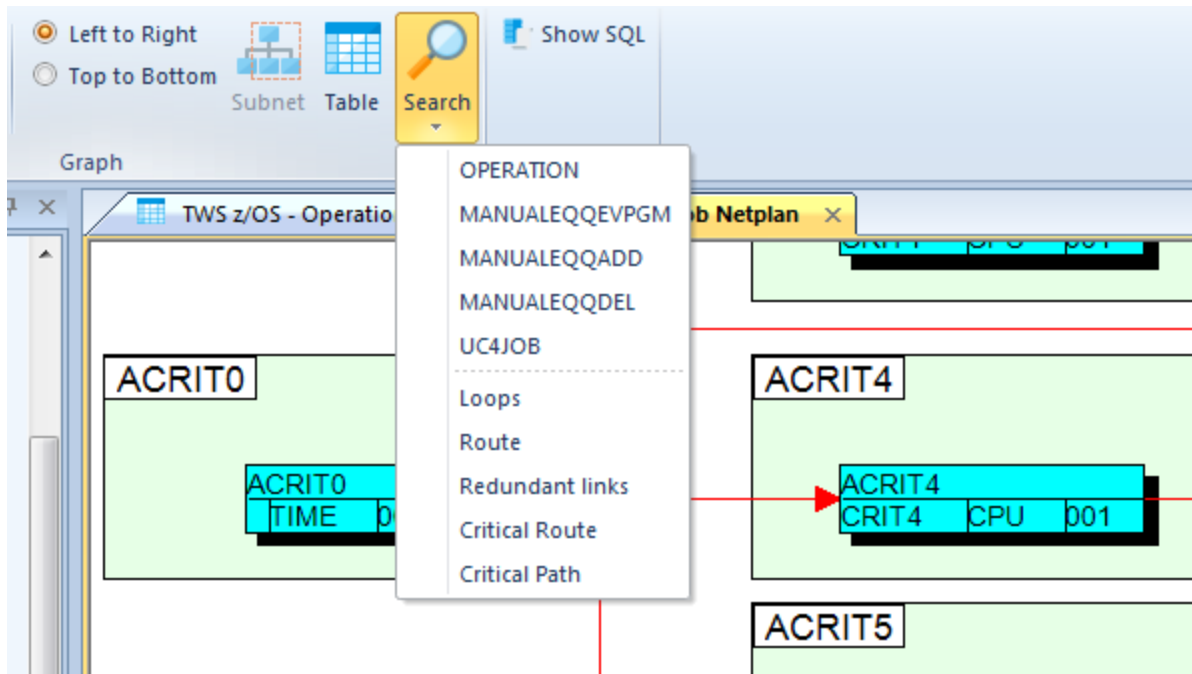
- **Bigger**

Zooms the netplan in. You can also use Ctrl + mouse wheel.

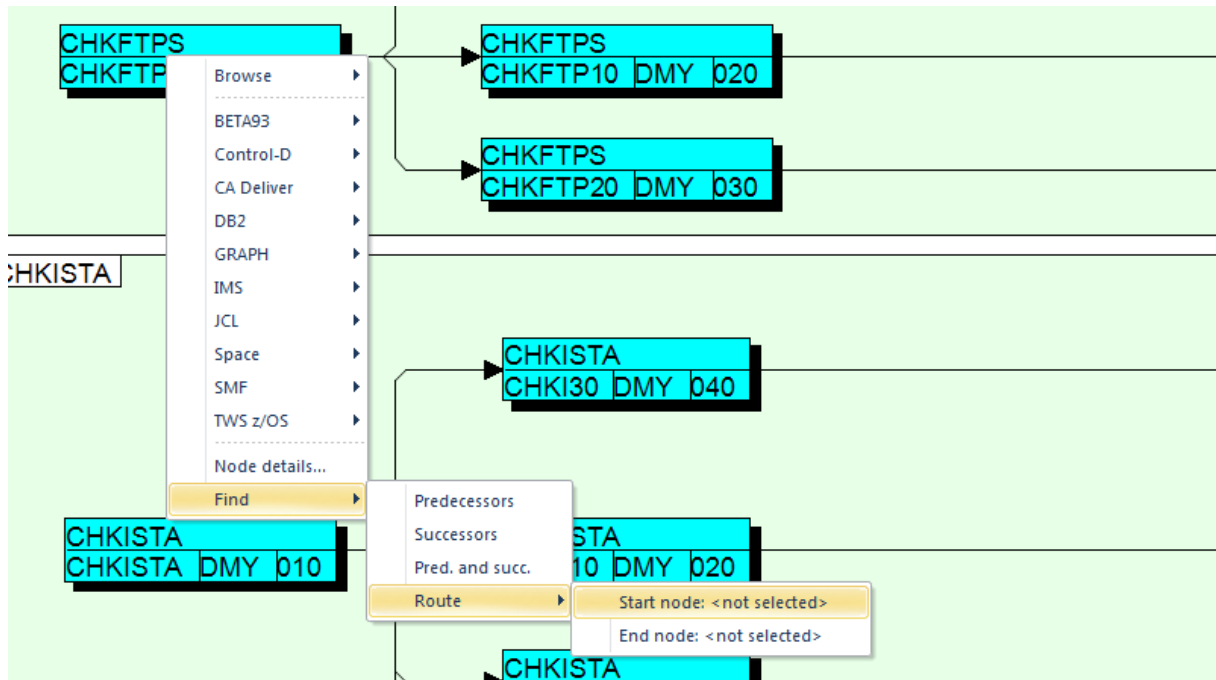
- **Left to Right**

Sets left to right orientation. The default orientation can be set in [Options](#).

- **Top to bottom**
Sets top to bottom orientation.
- **Subnet**
Creates a new document that contains only nodes selected in the original document.
- **Table**
Shows the source data of the current netplan in a [table](#).
- **Search**
Opens a menu that allows you to search for nodes and some special objects. The search result is shown in the [Search Result Bar](#).



The Route command searches for all routes between selected objects. Before this command can be executed the nodes have to be selected. This can be done in the active netplan by right-clicking on required nodes:



3.4.5.3 Tools

- **Show SQL**

Shows the SQL query that was used for creation of the current netplan.

You can modify that query manually and submit it by pressing *OK* button. Modifying of columns and tables is allowed only when you are connected to DB2 at z/OS.

Modified queries can be saved for later use by pressing *Save As...* button and loaded from the profile or a file by pressing *Load...* button.

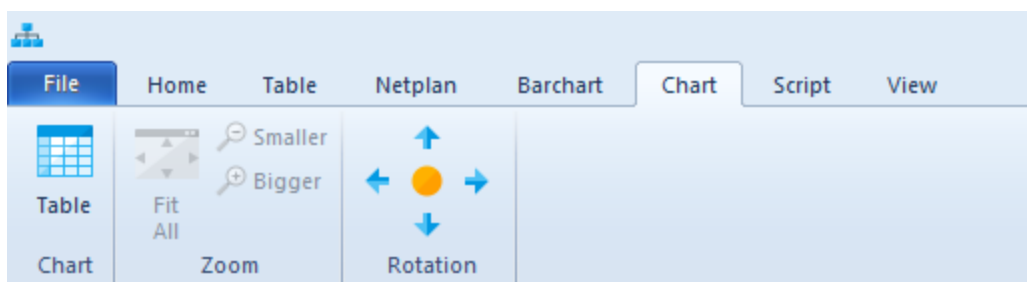
If you submit a query from *Show SQL* window then you get a netplan only if you haven't changed columns and tables. Otherwise you get a table display only.

- **Show criteria**

Shows the search criteria used for creating of the current netplan.

3.4.6 Chart

This panel offers functions for the [chart](#) view.



3.4.6.1 Chart

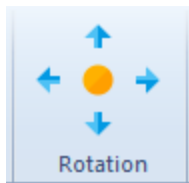
- **Table**
Shows the source data of the current chart in a [table](#).

3.4.6.2 Zoom

- **Fit all**
Fits the complete chart in the visible area of the window.
- **Smaller**
Zooms the chart out.
- **Bigger**
Zooms the chart in.

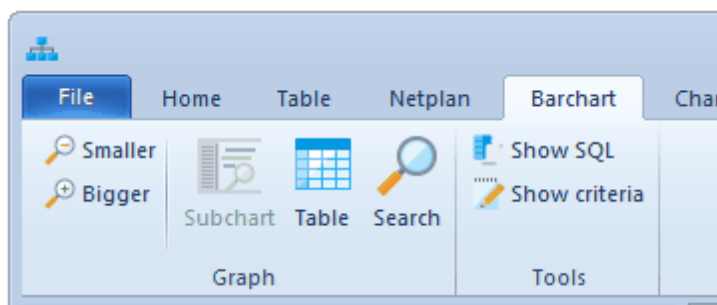
3.4.6.3 Rotation

This control is enabled only when 3D charts are displayed (3D bar charts and 3D pie charts). These charts can be rotated by the arrows. If you press the orange circle in the middle of the control then the view is set to the original state.



3.4.7 Barchart

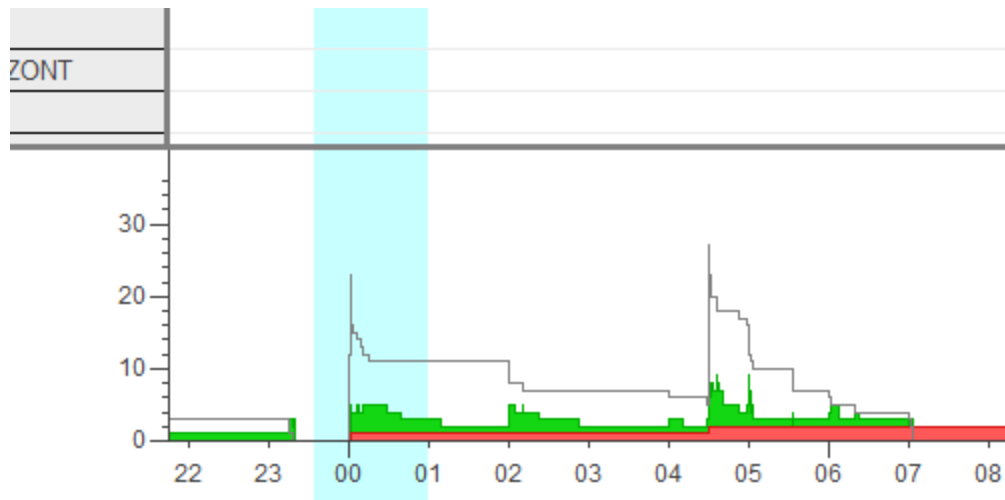
This panel offers functions for the [barchart](#) view.



3.4.7.1 Graph

- **Smaller**
Zooms the barchart out. You can also use Ctrl + mouse wheel.
- **Bigger**
Zooms the barchart in. You can also use Ctrl + mouse wheel.
- **Subchart**

You can use mouse for marking a part of the barchart you are interested in. If you mark that region and press the *Subchart* button, then a new document is created. This new document contains such records from the original chart that intersect with the marked area.



- **Table**

Shows the source data of the current barchart in a [table](#).

3.4.7.2 Tools

- **Show SQL**

Shows the SQL query that was used for creation of the current barchart.

You can modify that query manually and submit it by pressing *OK* button. Modifying of columns and tables is allowed only when you are connected to DB2 at z/OS.

Modified queries can be saved for later use by pressing *Save As...* button and loaded from the profile or a file by pressing *Load...* button.

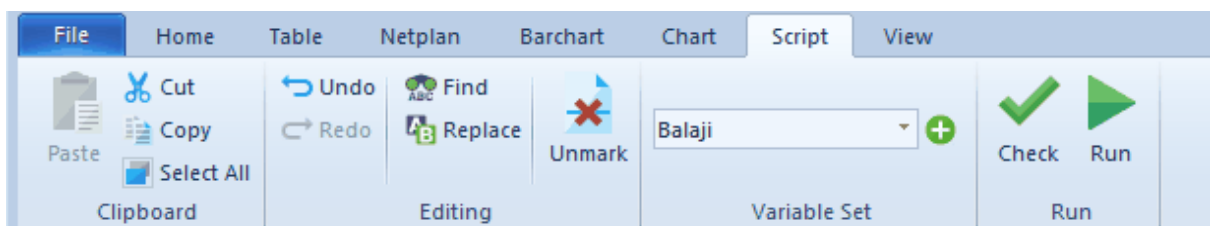
If you submit a query from *Show SQL* window then you get a barchart only if you haven't changed columns and tables. Otherwise you get a table display only.

- **Show criteria**

Shows the search criteria used for creating of the current barchart.

3.4.8 Script

This panel offers functions for the [script](#) view.



3.4.8.1 Clipboard

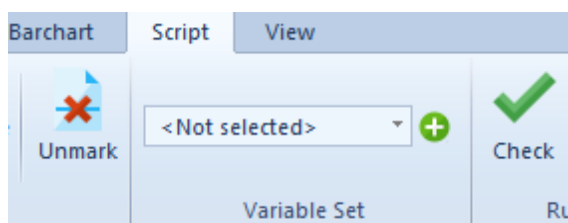
- **Paste**
Inserts text from the clipboard.
- **Cut**
Cuts selected text to the clipboard.
- **Copy**
Copies selected text to the clipboard.
- **Select All**
Select all text in the editor.

3.4.8.2 Editing

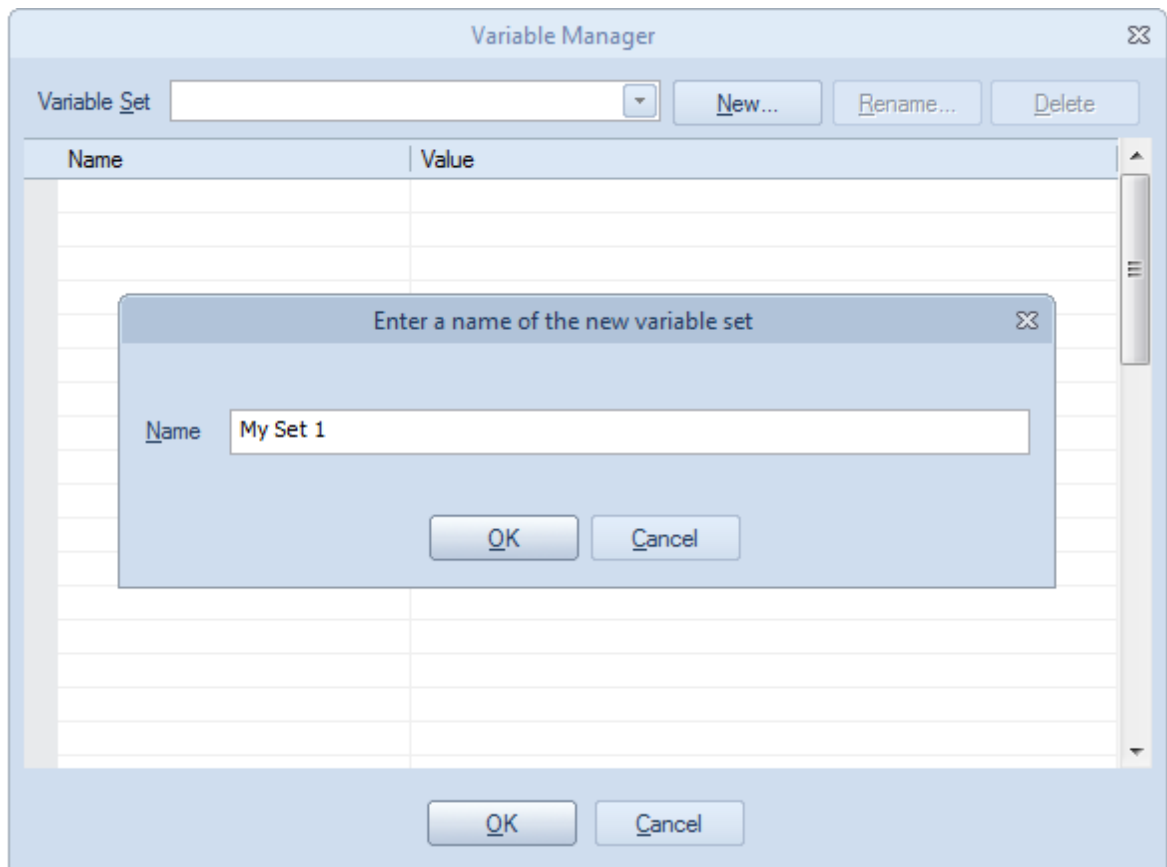
- **Undo**
Recalls last changes.
- **Redo**
Returns back recalled changes.
- **Find**
Shows standard Find dialog.
- **Replace**
Shows standard Replace dialog.
- **Unmark**
Removes the highlighter of errors and warnings created by the parser.

3.4.8.3 Variable Set

The script language of SmartIS PC Client supports [variables](#). Variables are particularly useful when the script starts from a [command line](#), but you can use them also in [GUI](#) mode. The combo box in Variable Set section offers all available variable sets. Once the set is chosen then all variables it contains can be used in the script. You can create your own variable set if you press + button next to the combo box:



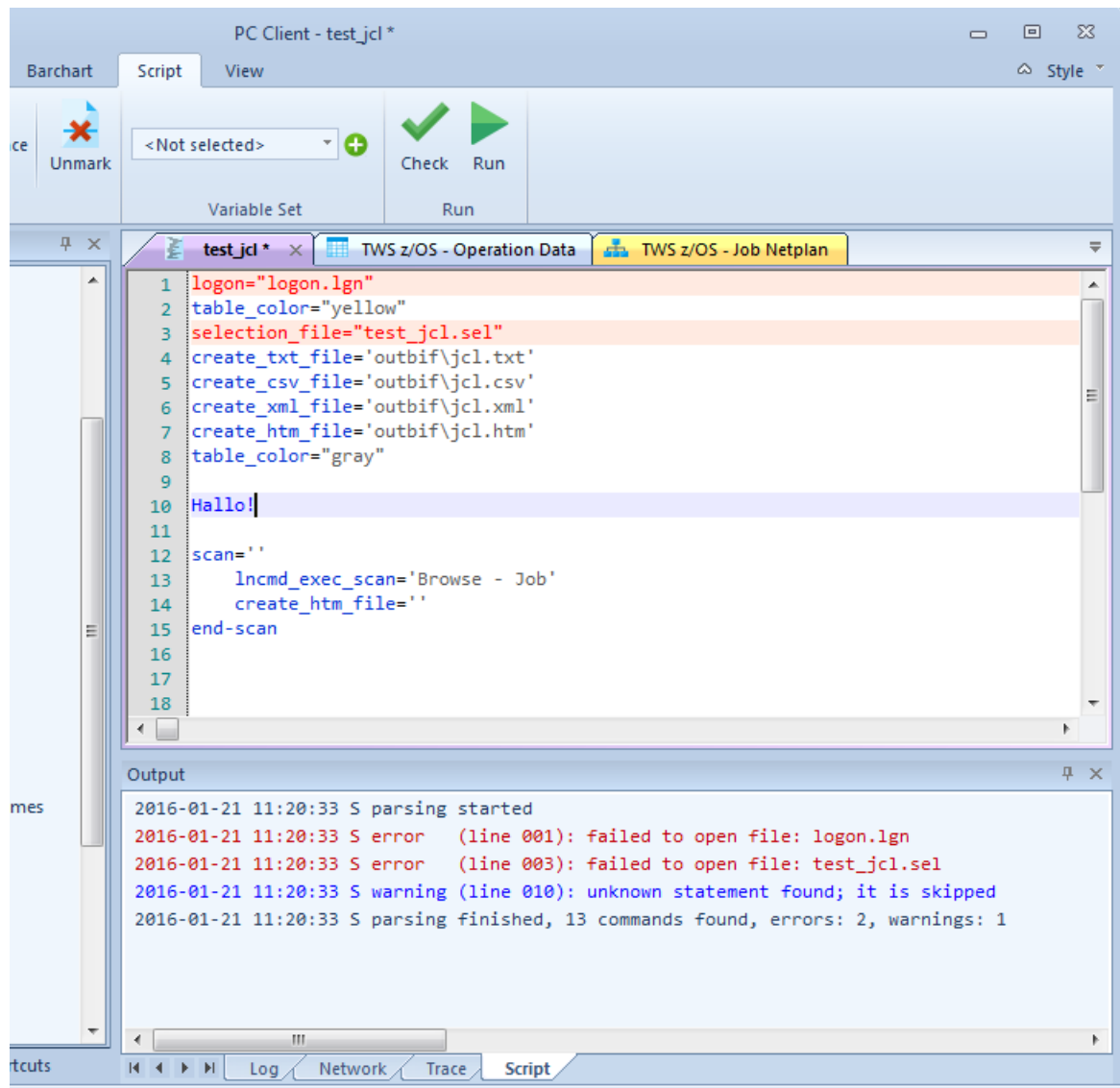
In the Variable Manager that opens you can create a new set by pressing *New...* button. Then you can enter variables in the table.



Rename button allows you to change the name of the selected variable set and *Delete* button removes the selected set completely.

3.4.8.4 Run

- **Check**
runs the [syntax](#) checker. This checker does all checks that are possible in the offline mode. It checks a syntax of the script and also included logon and selection files.

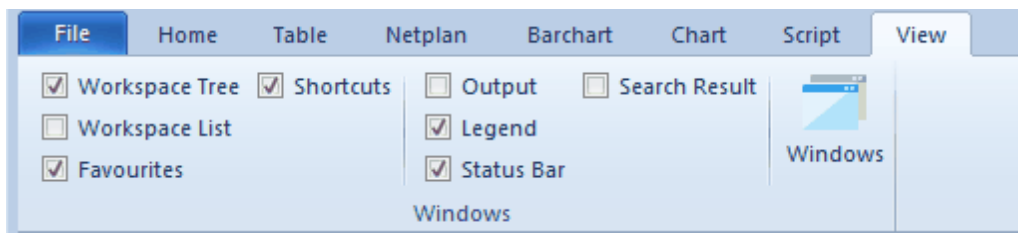


- **Run**

executes the script. The running script can be stopped by pressing the Cancel button in the progress window. The progress window is closed and opened repeatedly while the script is running.

3.4.9 View

This panel allows you to set the visibility of control bars and windows.



3.4.9.1 Windows


- **Workspace Tree**
Shows the [workspace](#) as a tree structure.
- **Workspace List**
Shows the workspace as a list.
- **Favourites**
Shows a list of favourite displays.
- **Shortcuts**
Shows a list of [shortcuts](#).
- **Output**
Shows the [output bar](#).
- **Legend**
Shows the [legend bar](#).
- **Status Bar**
Shows the status bar.
- **Search Result**
Shows the [search result bar](#).
- **Windows**
Shows the window manager (manages all opened documents).

4 Displays

All the data that the program can show are shown using displays. You can see all available data displays in the [workspace](#).

Following displays are supported:


[Tabular display](#)

Shows data as a table. It can be identified by this icon in the workspace:  Application Data

[Netplan display](#)

Shows data as a netplan. It can be identified by this icon in the workspace:  Job Netplan

[Barchart display](#)

Shows data as a table. It can be identified by this icon in the workspace:  Job Run Times Barchart

[Explorer display](#)

Shows data in an explorer style. It can be identified by this icon in the workspace:  Explorer

[Chart display](#)

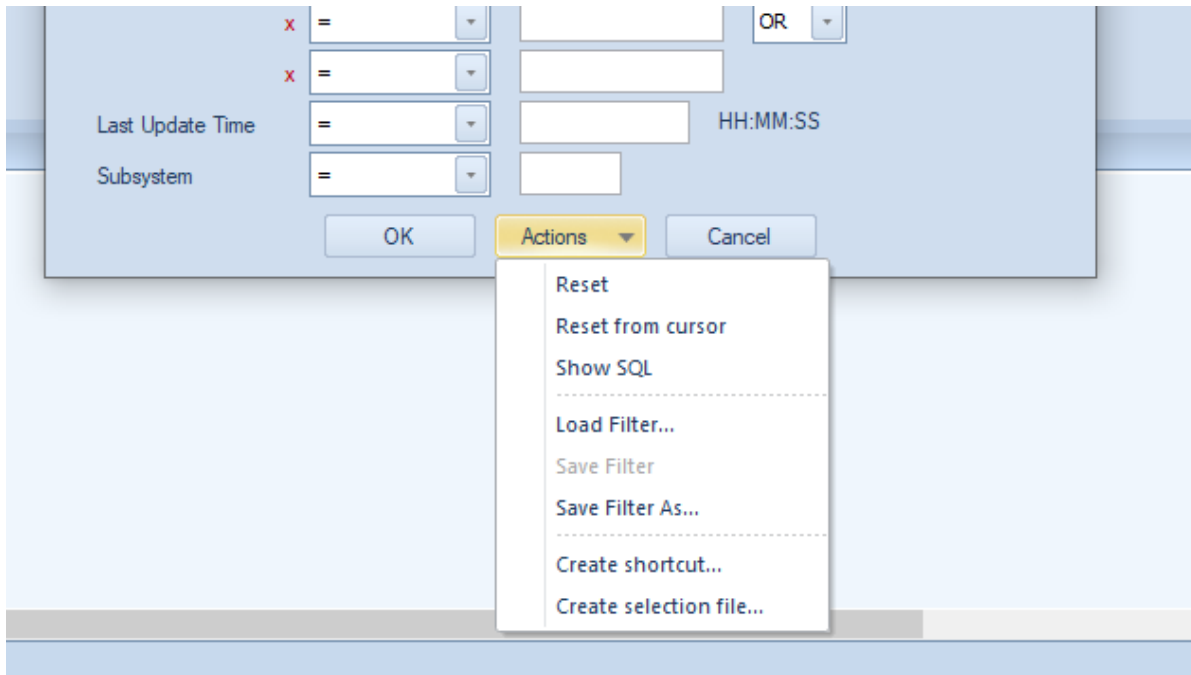
Shows data as a chart. Charts can be created from data of any display.

On-line display can be opened by double-click on its icon in the workspace. As a result, a [filter](#) is shown, where your selection criteria can be specified.

Off-line display can be opened by loading [saved](#) display from a file. If you work in off-line mode then not all function supported by the program are available.

4.1 Filters

Filters are shown whenever you select a display from the workspace. The filter remembers the last entered values. It is not necessary to specify any search criteria here, but it is recommended, as it reduces the amount of data transferred from the server.



If you want to specify some search criteria, you must select an operator and a value. You can use wildcards configured in [Basic General Options](#).

Date/Time fields support only an asterisk as a wildcard. This asterisk can be used instead of any date/time segment (year, month, day, hour, minute, second).

The value field is disabled when it has no sense (for instance for *IS NULL* operator).

You can combine more filters of the same field using logical operators (*AND*, *OR*). To add a new line of a field just click its title.

To remove it you can click the red x symbol.

In case of graphical displays you can also set the required predecessor and successor levels.

Fields requiring data in DATE or TIMESTAMP formats accept also these variables:

- TODAY
- YESTERDAY
- TOMORROW

If you enter only the variable, the date (in case of DATE format) or real time timestamp (in case of TIMESTAMP format) is used.

For timestamps you can combine both the variable and the time. For example, you can code "TODAY,15:30:00", which is transformed to 15:30:00 of the current date:

The filter supports one special operator **IN SELECTION**, which is available only when the filter is started when some [table](#) is active and has some lines selected.

In this case the value field changes to the select box where you can specify a column of the active table. The filter uses values in the specified column of all selected lines in the active table as the search criteria. This saves you time for entering many '=' operators in some situations.

Currently you can select only 100 lines in the active table. More lines would produce too complicated SQL query.

Pressing the *Actions* button opens a menu with these functions:

Reset

Clears entered search criteria.

Reset from cursor

Clears entered search criteria starting from the field where you have a cursor to the bottom.

Show SQL

Shows the SQL based on entered search criteria. This SQL can be edited before submitting. It can also be saved in the same way as filters. You can't edit columns and table names if you are not connected to DB2 at z/OS. If you are connected to DB2 at z/OS and change some columns or tables then you always get a table display as a result, even when you have selected a graphical display from the workspace.

There is also *Use Last SQL* command, which replaces the current SQL by the last one used for the same display.

Load Filter

Loads saved filter from your profile.

Save Filter

Saves the loaded filter.

Save Filter As

Saves the filter with a new name.

Create shortcut...

Saves the filter as a [shortcut](#).

Create selection file...

Saves the filter as .sel/ file that can be used in [Scripts](#).

Create SQL file...

This command is available in Actions after you click *Show SQL* button. The command creates the selection file in SQL format and it can also be used in scripts.

If you are using multi-client support in your installation then SmartIS PC Client can automatically fill the extra columns with predefined values.

You can set it in your TCP file. Sample:

```
//-----  
// TCP-IP Configuration file for PC Client  
//-----  
PORT=20000           // Port Number 20000-20001  
IP_ADR=192.168.47.14 // P390NEW IP-Addres or Host-Name  
MEMBER=XX35D#14      // TCP/IP Scheduler Member-Name (DD JCLLIB)  
MULTI_CLIENT_VALUES=CLIENT,ENV,INFO
```

In this case the client is always set to CLIENT, environment is set to ENV and additional info is set to INFO. All these three columns are visible in the filter and are disabled.

All values must be defined without spaces.

The program does not check whether the server has multi-client enabled or not. If the values are defined then it always set the first three columns.

4.2 Tables

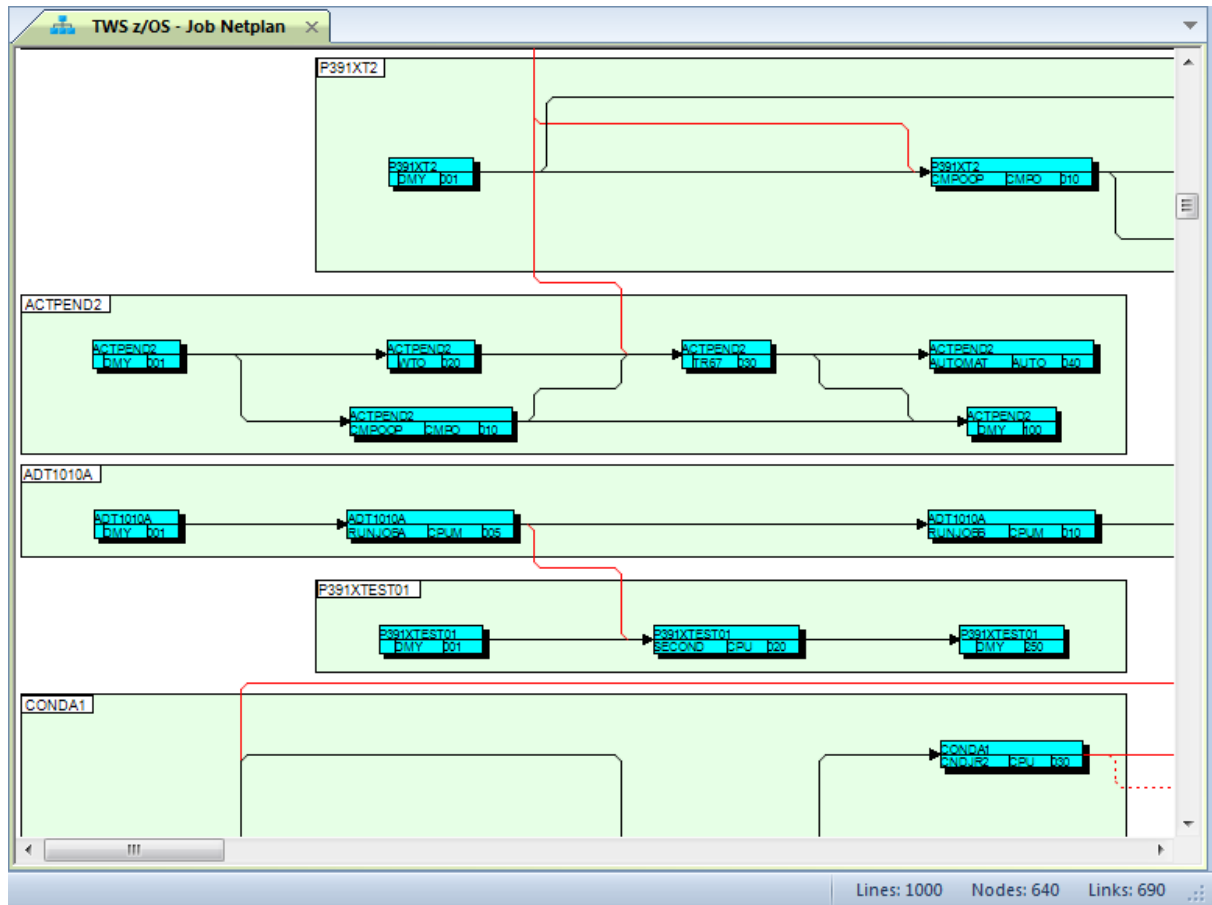
The [Table](#) ribbon bar is automatically focused when a tabular display is activated.

Jobname	Account	Programmers Name	C	M	NOTIFY	PR	REGION	RESTART	T
<all>	<all>	<all>	<all>	<all>	<all>	<all>	<all>	<all>	<all>
QJSJANAME	DEFAULT	'CRE MEMBER'			&SYSUID		0		
QJSJAPROV	DEFAULT	'CRE MEMBER'			&SYSUID		0		
QJSJGENME	DEFAULT	'CRE MEMBER'			&SYSUID		0		
PMADRDSU	DEFAULT	ADRDSU	A	T	&SYSUID		0		
QJSJAN060	DEFAULT	'PM QS ANALYSE'			&SYSUID		0		
P391BRE			D	T	&SYSUID				
PMVSAMBA	ACCOUNT	'HORIZONTAL'		L	&SYSUID				
P391BRE			D	T	&SYSUID				
#EQQADD					&SYSUID				
MIGISPF	DEFAULT	'MIG. ISPF TO VSAM'			&SYSUID				
OPC830I			A	T	&SYSUID		0		
#SDPJA25			A	T	P390K		5120		
#TESTCOM				T	P391T		5120		
#VARXIT	%O#BK,%OACC,P00,%O#SGB.ZZ	'#VARXIT'	P	P			0		
#VARXIT2	%O#BK,%OACC,P00,%O#SGB.ZZ	'#VARXIT2'	P	P			0		
A				T	P390K		5120		
ABEND		'HORIZONTAL'	A	T					
ABEND#		'HORIZONTAL'	A	T					
ABEND1									
AHZ0001			A	T	P390K		5120		
AHZ00010			A	T	P390K		5120		
AHZ00011			A	T	P390K		5120		

- By double-click on a row you can show a window with details.
- You can select rows of a table by standard commands (Ctrl or Shift + mouse click).
- When you click a row (or more rows) and then right-click then a menu with [line commands](#) is opened (when there are some line commands associated with the display).
- In the very first row of the table you can enter in-screen filters. Once you type in these fields, the data rows are immediately filtered out so that only records that contain the text you've entered are displayed. These fields don't support wild cards.
- You can click headers of columns to sort data records. If you click once, data are sorted in ascending order, if you click for the second time, they are sorted in descending order, if you click for the third time, the sorting is turned off. You can also click more columns. In this case left-to-right order of columns is used. If you need to sort data first by the column that is at right to another one, you can change columns' positions by clicking [Customize](#) icon on the ribbon bar.

4.3 Netplans

The [Netplan](#) ribbon bar is automatically focused when a netplan display is activated.



- By double-click on a node you can show a window with details.
- By double-click on a cluster node (the label in the top-left corner of a cluster) you can collapse/expand the cluster. You also can click a cluster with the right-mouse button and collapse the cluster from a menu.
- You can select nodes by dragging a rectangle over one or more nodes. Selected nodes are marked by the style you have set in [Netplan General Options](#). You can also select/unselect nodes by pressing **CTRL** and clicking them.
- To zoom in/out you can press **CTRL** and rotate the mouse wheel.
- If you click a node with right-mouse button then a menu with [line commands](#) is shown. There are additional commands at the bottom of this menu:

Node details

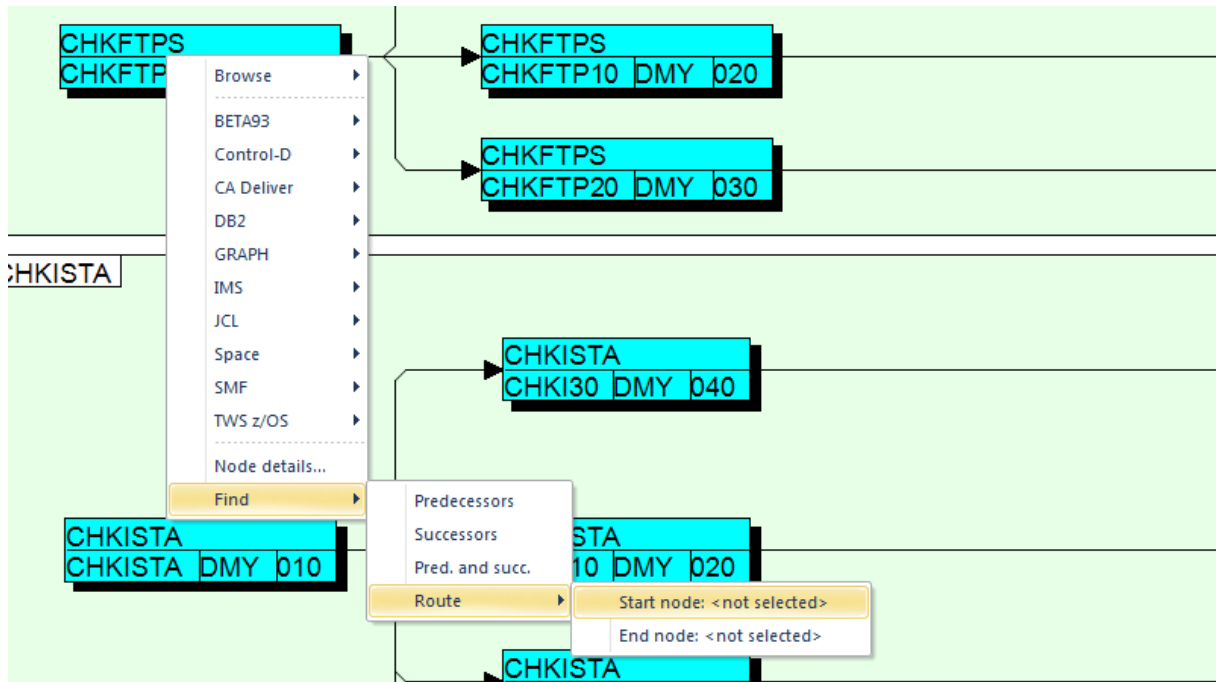
Shows a window with details (like if you double-click on a node)

Pred/Succ netplan

Shows a netplan with required pred/succ levels. The program sends a request to the server and receives/shows the data even when they are not already present in the current netplan.

Find Predecessors/Successors

Searches for predecessors and/or successors to the required level in the current netplan. The minimal level is used and displayed when there are redundant links in the graphic.

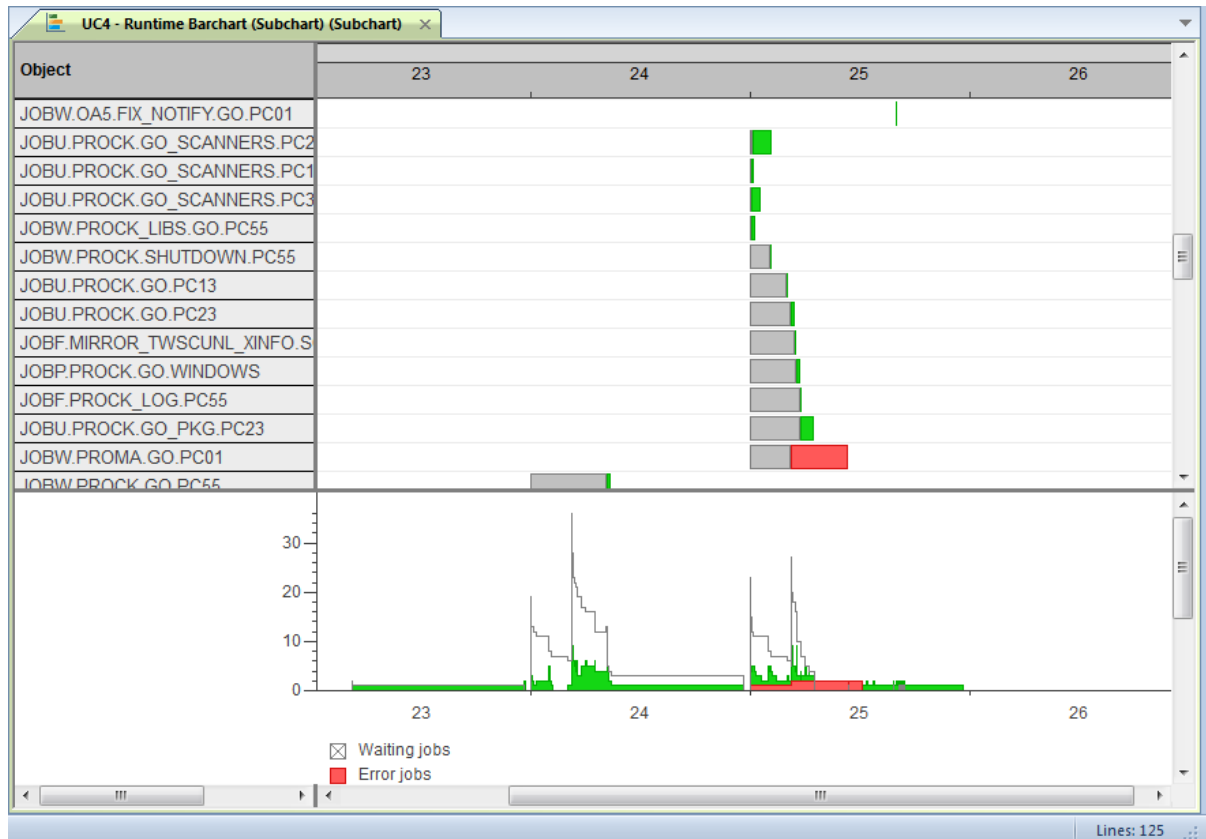


Find Route

Sets Start and End nodes for searching of a route. Once the nodes are selected, the searching can be executed from the ribbon bar's [menu](#).

4.4 Barcharts

The [Barchart](#) ribbon bar is automatically focused when a barchart display is activated.

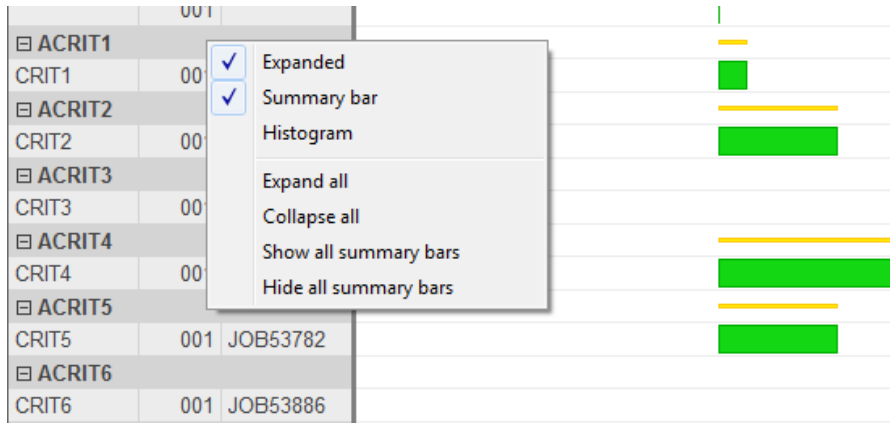


Barcharts contain three parts:

- Table area
- Bar area
- Histogram area

Table area

- By double-click a row you can display a window with details.
- By clicking a row with the right-mouse button a menu with [line commands](#) is displayed.
- If [grouping](#) is activated then by double-click on a group you can collapse/expand it.
- If grouping is activated then by clicking a group with the right mouse button a menu is shown:



Expand

Expands or collapses the group.

Summary bar

Shows or hides the summary bar.

Histogram

Adds or removes a histogram for the group you have clicked on. The histogram is added at the bottom of the histogram area.

Expand/Collapse all

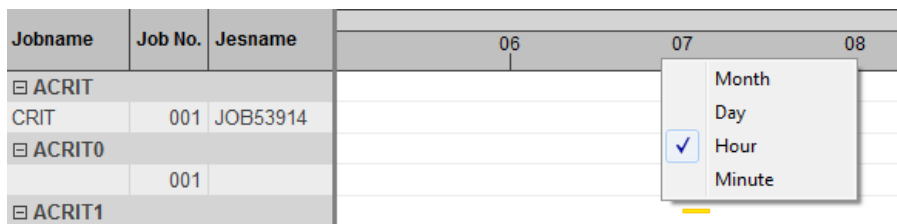
Expands/collapses all groups.

Show/Hide all summary bar

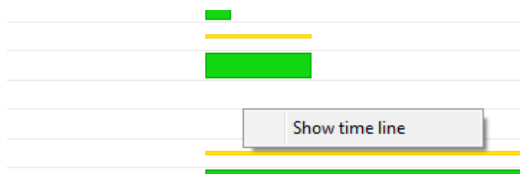
Shows/hides all summary bars.

Bar area

- Double-click on a row displays a window with details.
- Right-click on the header shows a menu that allows you to change time units:



- Right-click on the graphic shows a menu that allows you to show a time line:



- You can press *CTRL* and rotate the mouse wheel to zoom the graphic in and out.

- You can change sizes of table, bar and histogram areas by dragging their borders.
- You can select a time interval by moving your mouse with left button pressed.

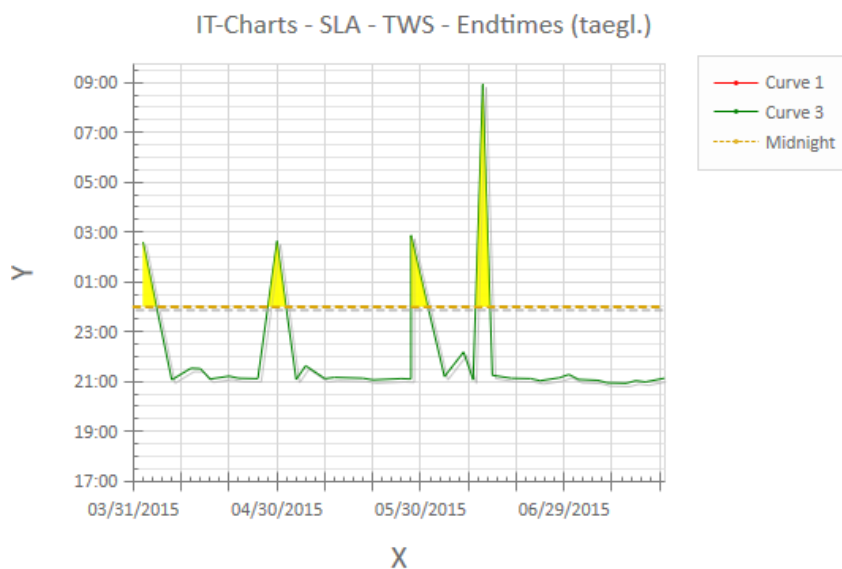
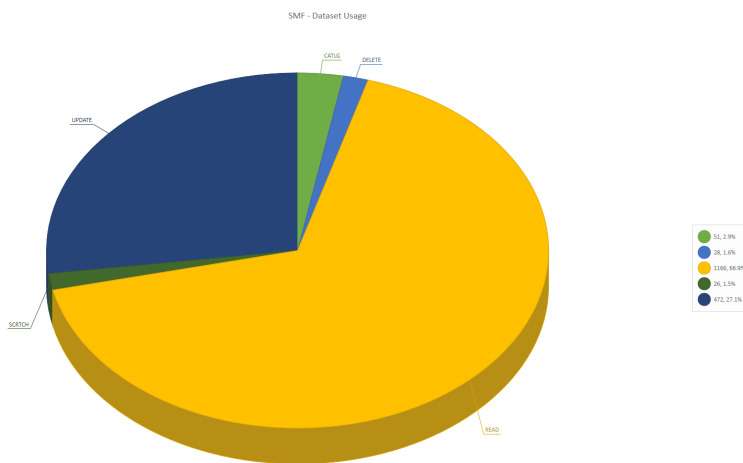
Histogram area

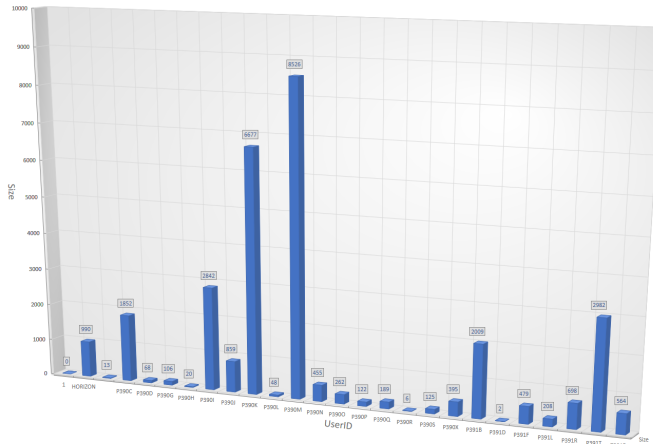
- You can change time units and show the time line from a menu displayed after you click the area with the right-mouse button.

4.5 Chart

The [Chart](#) ribbon bar is automatically focused when a chart display is activated.

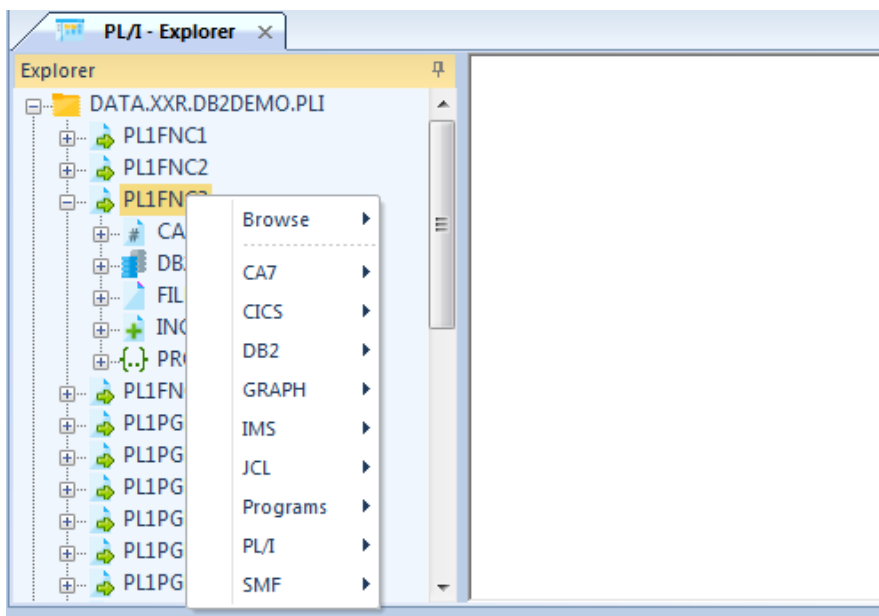
You can create a new chart from the [Table](#) display. [Pie](#), [Bar](#) and [Line](#) charts are supported.





4.6 Explorers

Explorers are special displays that are able to show data as [tables](#) or [netplans](#). Depending on the data the correct ribbon bar is focused.

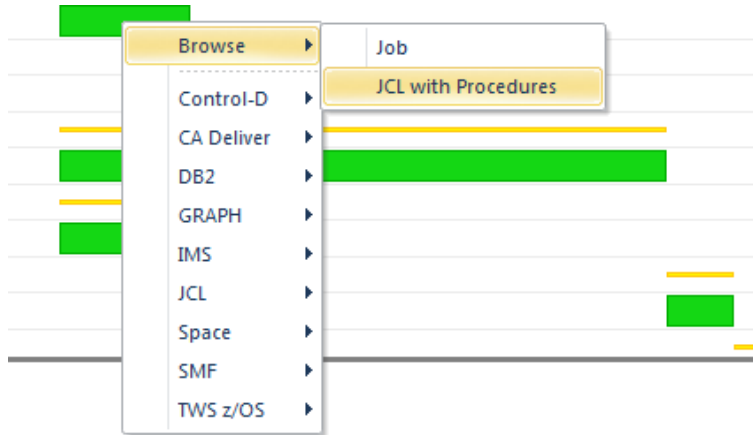


Right-click on items in the tree part of the explorer view opens a menu with line commands and functions that show netplans or tables. The content and location of this menu depends on the selected display. If you click items in the tree with the left mouse button then the appropriate record is highlighted in the graph or table area.

5 Line Commands

Line commands allow you to display a document with data that are logically linked to the original data rows of a [table](#), [netplan](#) or [barchart](#).

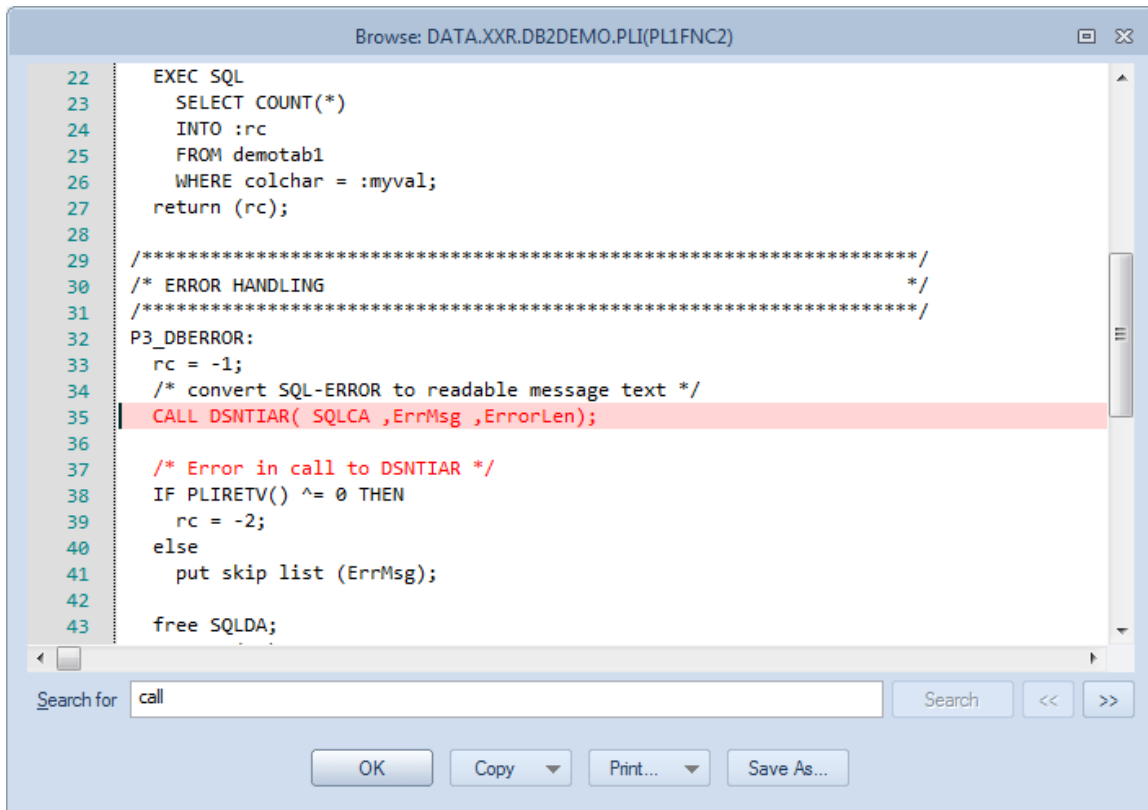
Line commands are configured on the Server and are sent to the Client together with data of each display. A menu with line commands is shown after right-click on a data row, a node or a bar.



In some cases the [Browse](#) sub menu is part of the menu. It contains commands (which depend on the selected display) for browsing jobs, procedures or datasets.

6 Browse

The Browse window opens when the Browse command is selected from [Line Commands](#) menu. The Browse window shows data directly downloaded from z/OS. More Browse windows can be opened at the same time.



```
22 EXEC SQL
23     SELECT COUNT(*)
24     INTO :rc
25     FROM demotab1
26     WHERE colchar = :myval;
27     return (rc);
28
29 /******
30 /* ERROR HANDLING
31 /******
32 P3_DBERROR:
33     rc = -1;
34     /* convert SQL-ERROR to readable message text */
35     CALL DSNTIAR( SQLCA ,ErrMsg ,ErrorLen);
36
37     /* Error in call to DSNTIAR */
38     IF PLIRETV() ^= 0 THEN
39         rc = -2;
40     else
41         put skip list (ErrMsg);
42
43     free SQLDA;
```

Search for: Search << >>

OK Copy Print... Save As...

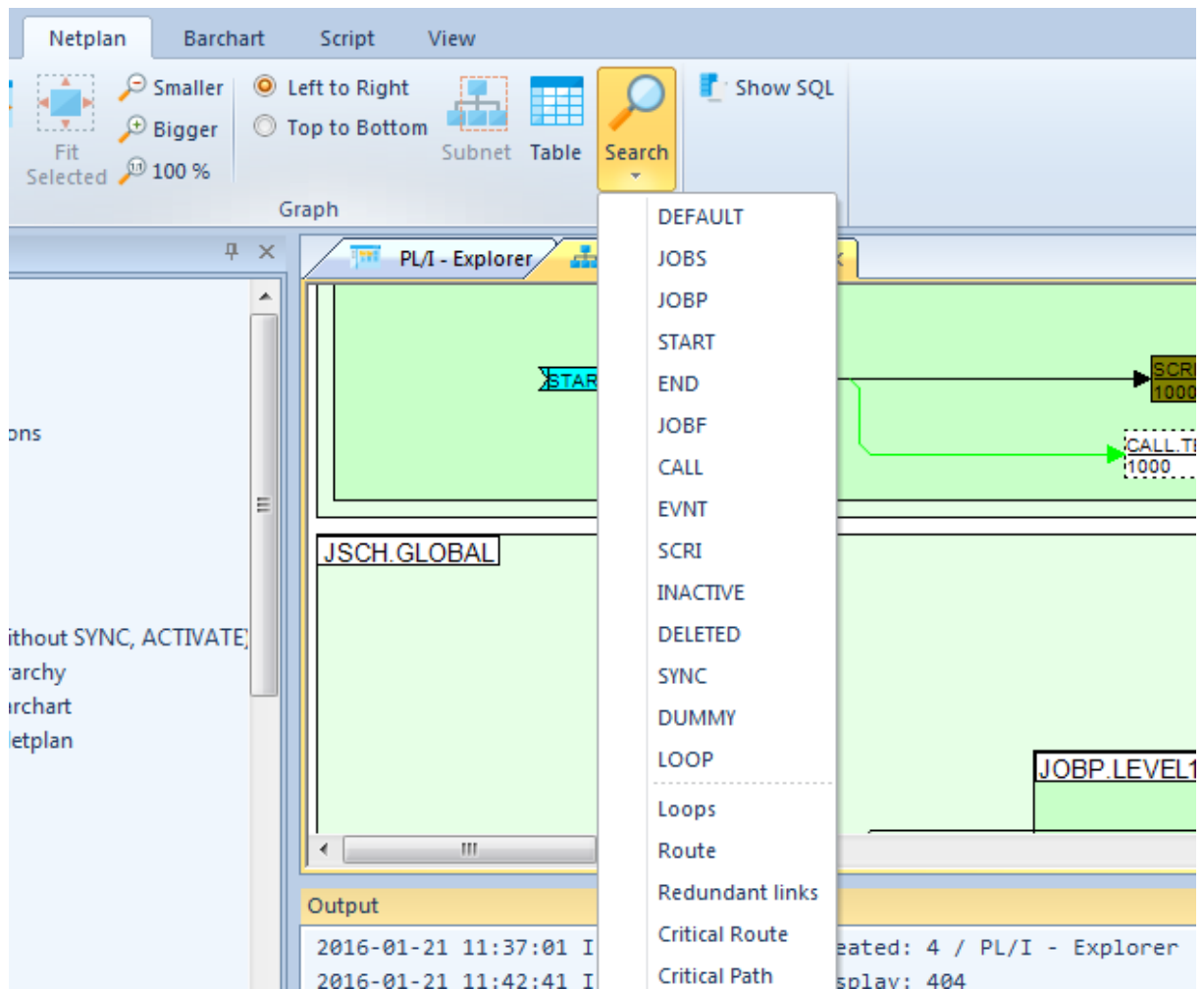
- If you enter some text into the search field and press *Search* then all occurrences of this text are marked by red color and the *Search* button becomes disabled. By clicking on buttons with left and right arrows the cursor skips from one marked line to another. If you change the text in the field then the *Search* button becomes enabled, which allows you to search again.
- *Copy* button opens a menu that allows you to copy all or selected lines to the clipboard.
- *Print* button opens a menu that allows you to print all or selected lines.
- All displayed data can be saved to a file by *Save As* button.

7 Search

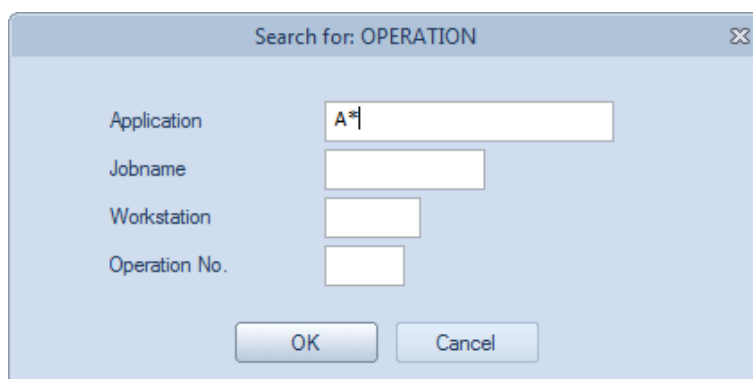
The ribbon bars for [netplans](#) and [barcharts](#) contain the Search button that opens a search window. The content of this window is predefined by displays and it usually allows you to search for all types of nodes you can see in these graphs. The *Search* icon opens a menu with objects you can search for. Besides objects available in the graphic there are in some cases also additional search commands. Whether these additional search commands are visible depends on the active netplan. Not all netplans support all of them.

- **Loops**
searches for loops in the netplan.
- **Redundant links**
searches for redundant links.
- **Route**
finds all nodes on the route between two selected nodes. These nodes have to be [selected](#) prior the command is executed.
- **Critical Route**
finds the longest route between two selected nodes. These nodes have to be selected prior the command is executed.
- **Critical Path**
finds the critical path, which is the longest path through the whole netplan.

The value used by critical path and critical route functions for evaluating the length of each node is taken from a predefined column in each netplan that offers this function. The column usually contains the average run time in seconds.



You can specify [wildcards](#) in the search window:

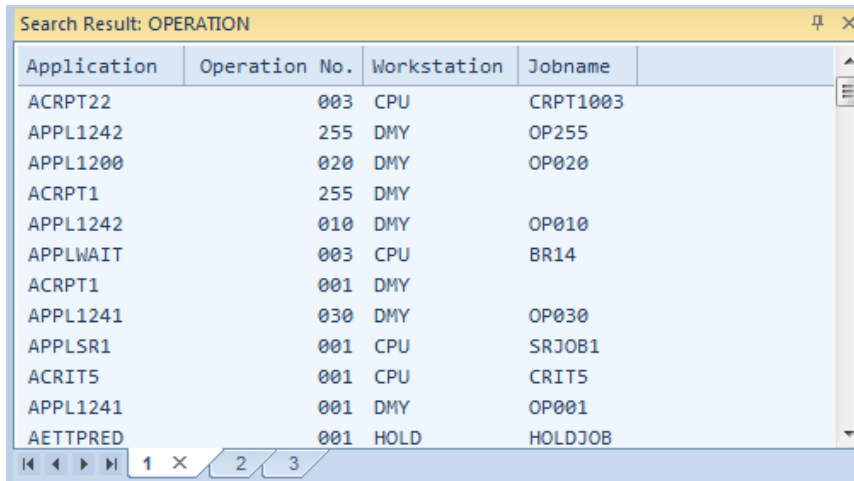


The result is displayed in the [Search Result Bar](#).

8 Search Result Bar

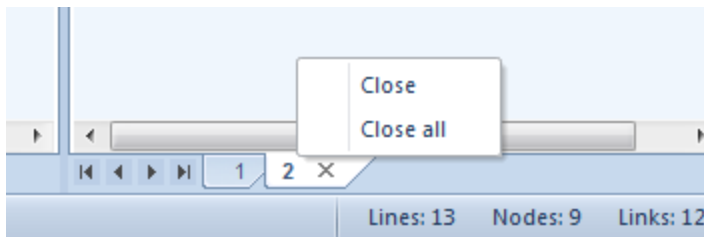
The Search Result bar contains all search results. Whenever you [search](#) for data and when some data are found, a new tab with the result is added to that bar.

The visibility of the Search Result bar can be set in the [View](#) menu (also other bars can be set there). By default, the result bar opens automatically when the search is finished.



Application	Operation No.	Workstation	Jobname
ACRPT22	003	CPU	CRPT1003
APPL1242	255	DMY	OP255
APPL1200	020	DMY	OP020
ACRPT1	255	DMY	
APPL1242	010	DMY	OP010
APPLWAIT	003	CPU	BR14
ACRPT1	001	DMY	
APPL1241	030	DMY	OP030
APPLSR1	001	CPU	SRJOB1
ACRIT5	001	CPU	CRIT5
APPL1241	001	DMY	OP001
AETTPRED	001	HOLD	HOLDJOB

- If you do not need the result any more, you should close its tab. Otherwise it remains allocated, even when you hide the window.
You can close it by clicking on the cross of the active tab or from the menu opened after right-click on any tab:



- Clicking on a row in the search result locates the found object in the graph (netplan), if the linked [netplan](#) is focused.
- If you double-click a row in the search result then a window with [details](#) is shown.
- Columns of the Search Result bar depend on the object you've searched for. For instance, if you search for loops you can see a loop number and the node number in the first column. The loop number can be used for marking individual loops. Just choose *Select Loop* command from the pop-up menu and nodes that are part of that loop are marked both in the bar and in the graphic. By clicking [Subnet](#) button on the ribbon bar you can then show that loop in a new document.
- Menu displayed when you click the right-mouse button on a row in the Search Result bar depends on the found objects.
It can offer you commands for selecting rows if you searched for nodes:

APPL1200	020	DMY	OP020
A	255	DMY	
A	010	DMY	OP010
A	003	CPU	BR14
A	001	DMY	
A	030	DMY	OP030

or it shows functions for locating predecessor and successor nodes if you searched for redundant links:

Search Result: Redundant links		
Link No.	From	To
01	ACRIT0 - - TIME - 001	ACRIT3 - CRIT3 - CPU - 0
02	ADHOC	ADHOC#HZ0001 - AHZ00011
03	ADHOC	ADHOC#HZ0001 - AHZ00012
04	CONDY	CONDY - CNDYR1 - CPU - 0
05	CONDY	CONDY - CNDYR2 - CPU - 0
06	CONDY	CONDY - CNDYB - CPU - 05
07	CONDY	CONDY - CNDYB - CPU - 05
08	CONDY	CONDY - CNDYB - CPU - 05
09	CONDZA - CNDZA - CPU - 010	CONDZB - CNDJB - CPU - 0

or it allows you to select nodes that form a cycle if you searched for loops:

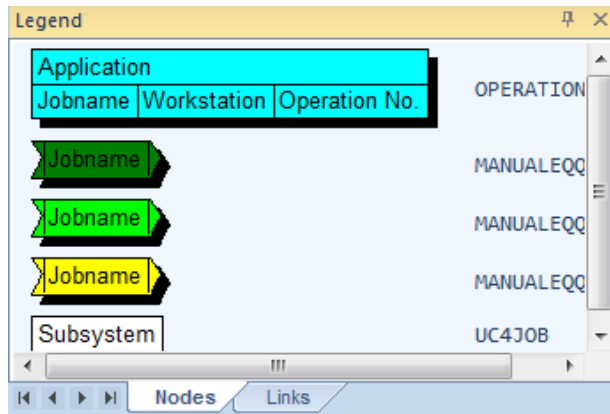
Search Result: Loops	
Loop.No	Value
1.1	CONDT - - DMY - 001
1.2	A - CPU - 002
1.3	MY - 255
2.1	W00201A - CPU - 005
2.2	W00201A - CPU - 005

9 Legend Bar

The Legend bar contains text or graphical legend for tabular and graphical displays.

The Legend is automatically updated whenever you change the focused document.

The visibility of the Legend bar can be set in the [View](#) menu (also other bars can be set there).

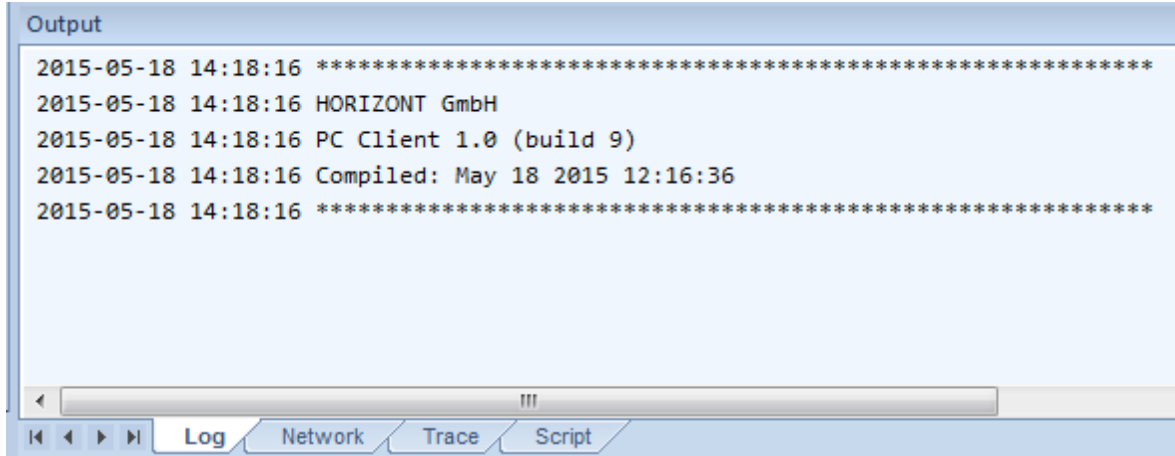


10 Output Bar

The Output bar shows log, script and optionally also network and trace messages generated by the application.

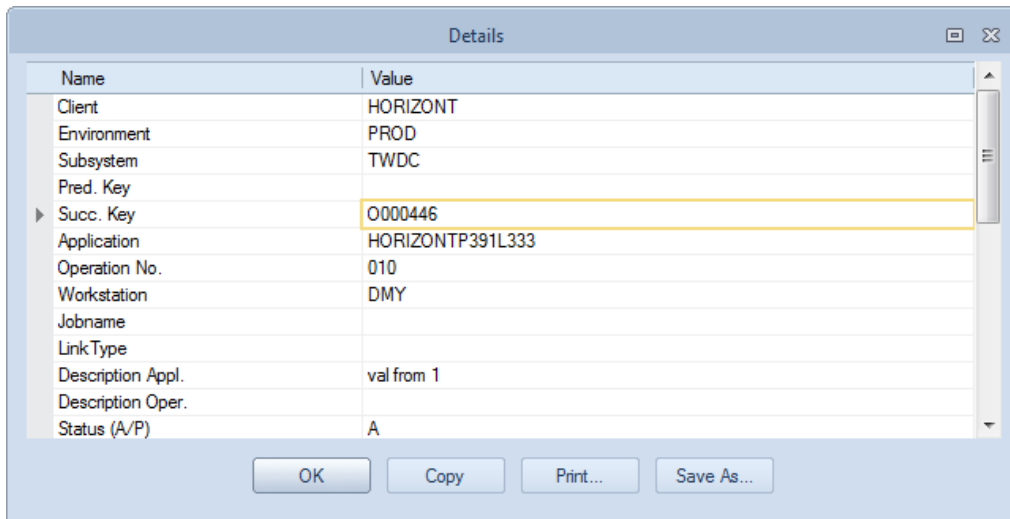
The same output visible in this bar is also printed to the [log](#) file.

By default only log messages are printed to the Output bar. Logging can be configured in [General Options](#). Network and trace messages are important mainly for analysis of internal functionality of the application. Therefore they can be activated only in the [INI](#) file.



11 Details

If you double-click on a node in a [netplan](#) or a row in a [barchart](#) or [table](#) then a window with details of the selected record is displayed.



The image shows a window titled "Details" with a table of attributes and values. The table has two columns: "Name" and "Value". The attributes listed are Client, Environment, Subsystem, Pred. Key, Succ. Key, Application, Operation No., Workstation, Jobname, Link Type, Description Appl., Description Oper., and Status (A/P). The values are HORIZONT, PROD, TWDC, O000446, HORIZONTP391L333, 010, DMY, and A. The "Succ. Key" row is highlighted with a yellow background. At the bottom of the window are four buttons: OK, Copy, Print..., and Save As....

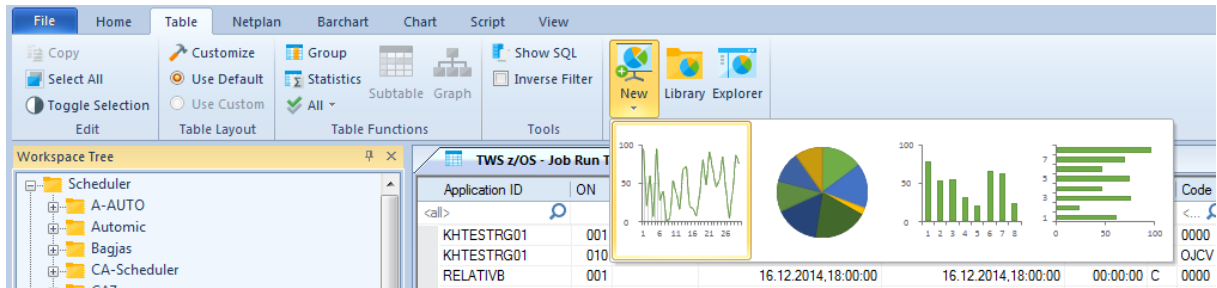
Name	Value
Client	HORIZONT
Environment	PROD
Subsystem	TWDC
Pred. Key	
Succ. Key	O000446
Application	HORIZONTP391L333
Operation No.	010
Workstation	DMY
Jobname	
Link Type	
Description Appl.	val from 1
Description Oper.	
Status (A/P)	A

You can copy all details to the clipboard or you can print them. Values in each line can be selected by a mouse and copied to the clipboard.

12 Charts

The program can create various types of charts from data of any display. Each chart must be configured by the wizard and it can optionally be stored into the [chart library](#). Charts from the chart library can be opened by just one click.

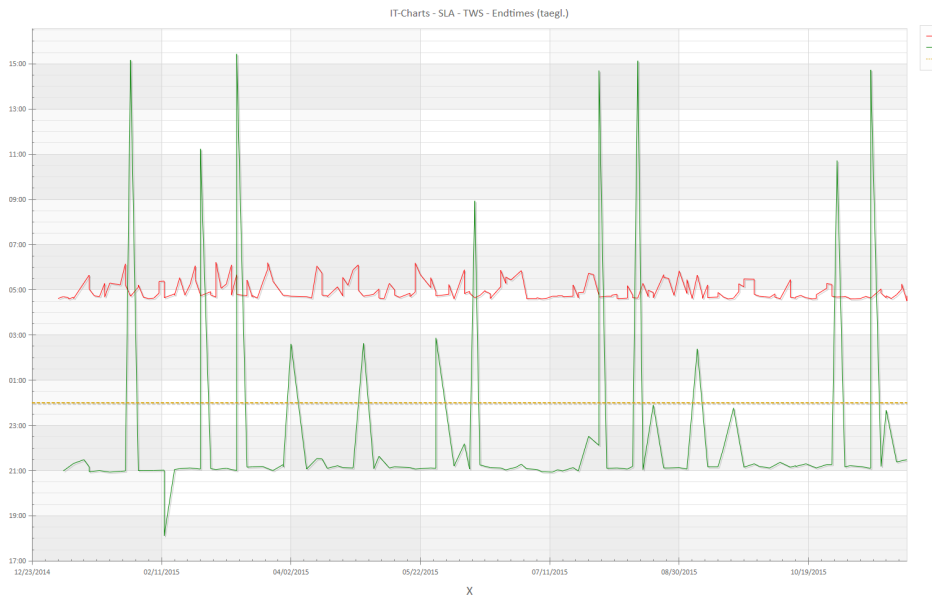
To start the wizard click the *New* icon on *Table* ribbon bar and select the chart you want to create.

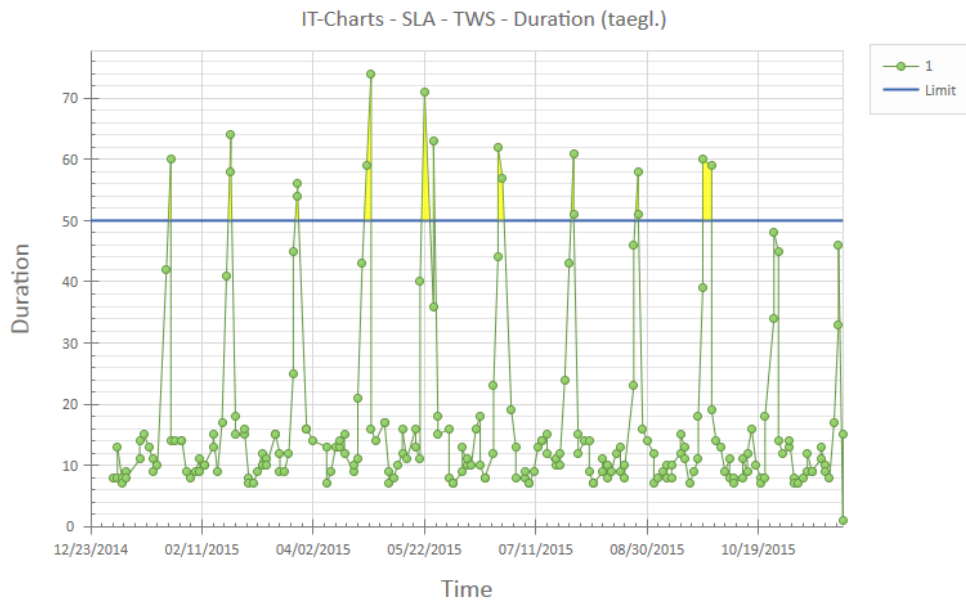


To open the chart from the library click Library button. Only charts defined for the current display are listed in the library.

12.1 Line chart wizard

Samples of line charts created by SmartIS PC Client:





The line chart wizard contains following pages:

12.1.1 Data definition

On this page you can assign columns of the data source to X and Y-axis, set their data format and choose how data are assigned to curves.

Data definition

Assign data fields to axes

Virtual columns

Name	Based on	Function	Format

New...
Edit...
Delete

Data assignment

X-Axis: Start-Time
Y-Axis: CPU Time
X-Format:
Y-Format: HHMMSS
Start time: HH:MM

Curves in the chart

☒ Single curve (all data in one line)
☐ More: System (Select the column that determines the curve)

Next Cancel

- **X-Axis**

Select the column that contains the data which should be displayed on X-axis.
The select box offers columns of integer, date, time or timestamp types.

- **X-Format**

This field is enabled only when the type of X-axis column is defined as Integer on the server.
In this case you can set how integer values in this column are formatted.
The select box offers columns of integer or time types.

- **Y-Axis**

Select the column that contains the data which should be displayed on Y-axis.

- **Y-Format**

This field is enabled only when the type of Y-axis column is defined as Integer on the server.
In this case you can set how integer values in this column are formatted.

- **Start time**

This field is enabled only if the Y-axis has time format (defined on the server or set in Y-Format field for integer values).
In this case it defines the minimal value on the Y-axis. The default time is 00:00 and the maximal width of the whole Y-axis is always 24 hours in the time mode.
Values lower than *Start time* are handled like the times of the next day.

- **Curves in the chart**

If *Single curve* option is selected then all data of the data source are used for creating the single curve.
If *More* option is selected then more curves can be created. In this case select the column which determines the curve.

You can also create virtual columns and assign them to X or Y axis. Virtual columns are useful in cases when the important information for X axis or Y axis is stored only as a part of another value.
For example, you can have a time stamp value stored in some column and you want to assign the time to X axis and the date to Y axis. To do it you have to split the time stamp into two fields - one containing the time, the other one the date. The following picture shows it:

Data definition

Assign data fields to axes

Virtual columns

Name	Based on	Function	Format
TestTime	Start-Time	MID(8,6)	HHMMSS
TestDate	Start-Time	LEFT(8)	YYYYMMDD

New... Edit... Delete

Data assignment

X-Axis: TestDate Y-Axis: TestTime

X-Format: Y-Format:

Start time: HH:MM

Curves in the chart

☒ Single curve (all data in one line)

☐ More: System (Select the column that determines the curve)

Next Cancel

Press **New** to add a new virtual column. A window where the column is defined opens:

Virtual column

Column definition

Name: TestTime

Based on: Start-Time

Function: MID(8,6)

Format: HHMMSS

OK Cancel

- **Name**
A name of the new column.
- **Based on**
The source column (must have time stamp format in this particular sample).
- **Function**
The function which returns the desired data. Supported functions are:
 Left(x) returns x leftmost characters
 Right(x) returns x rightmost characters

Mid(x,y) returns a substring of length y starting at position x.

The function is always called on data in the raw format (not formatted one). All date-time values are sent by the server in YYYYMMDDHHMMSSStttt format (or parts of it).

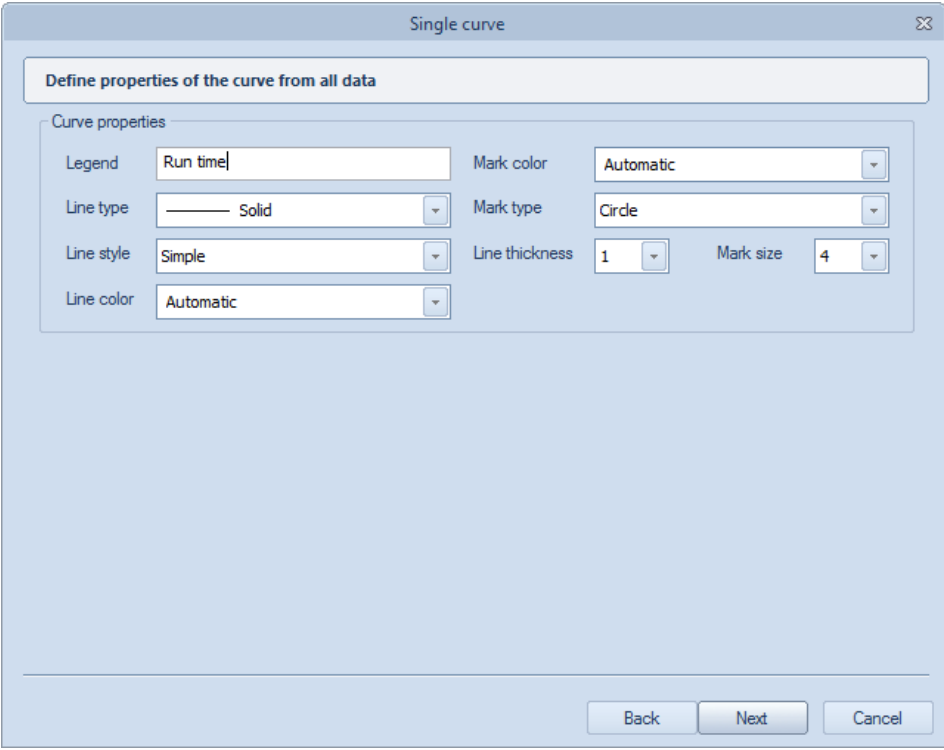
Therefore, to extract the date use LEFT(8) function. To extract the time use MID(8,6) function.

- **Format**

The format of the new column.

12.1.2 Single curve

You can configure the properties of the curve on this page. This page is available if the grouping is disabled on [Data definition](#) page.



The screenshot shows a dialog box titled "Single curve" with a close button in the top right corner. Below the title bar is a section labeled "Define properties of the curve from all data". Underneath this is a "Curve properties" section containing several configuration options:

- Legend:** A text input field containing "Run time".
- Line type:** A dropdown menu showing "Solid".
- Line style:** A dropdown menu showing "Simple".
- Line color:** A dropdown menu showing "Automatic".
- Mark color:** A dropdown menu showing "Automatic".
- Mark type:** A dropdown menu showing "Circle".
- Line thickness:** A numeric input field showing "1".
- Mark size:** A numeric input field showing "4".

At the bottom of the dialog box are three buttons: "Back", "Next", and "Cancel".

- **Legend**

The legend of the curve.

- **Line type**

The line type of the curve.

- **Line style**

The line style of the curve. If you select a style different from *Simple* then [Interline areas](#) page will not be displayed.

- **Line color**

The color of the curve.

- **Mark size**
The size of marks which are printed exactly at positions of data points. If you set it to zero then other mark options are disabled.
- **Mark type**
The type of marks.
- **Mark color**
The color of marks.
- **Line thickness**
The thickness of the curve.

12.1.3 Multiple curves

You can configure the properties of curves on this page. This page is available if the grouping is enabled on [Data definition](#) page.

Multiple curves

Define one or more curves grouped by values

Curve properties

Field value Legend

Line type Mark color

Line style Mark type

Line color Line thickness Mark size

Value	Legend	Line color
1	Curve 1	■ Red
3	Curve 3	■ Dark green

Set the following values for every curve you want to show in the chart. If you need to edit a curve you have already added then select it in the list, edit its setting and press *Update*. Without pressing *Update* the data will not be actualized. By *Up* and *Down* buttons you can change the order of curves, which is important because you can use wildcards in the *Field value*.

- **Field value**
All data records matching the mask entered in this field are used for creating the curve. Wildcards are supported here.
- **Legend**
The legend of the curve.

- **Line type**

The line type of the curve.

- **Line style**

The line style of the curve. If you select a style different from *Simple* then [Interline areas](#) page will not be displayed.

- **Line color**

The color of the curve.

- **Mark size**

The size of marks which are printed exactly at positions of data points. If you set it to zero then other mark options are disabled.

- **Mark type**

The type of marks.

- **Mark color**

The color of marks.

- **Line thickness**

The thickness of the curve.

Automatic detection of curves:

You can also keep value and legend fields empty for all curves. In this case curves are created automatically.

A curve is created for every unique value found in the data.

By this way the program creates as many curves as it finds in the data. If the data contain records for more curves than is the number of defined curve styles on this page then a warning is displayed.

If you decide to use the automatic curve detection then all curves on this page must have empty value and legend fields.

12.1.4 Constants

You can add any number of constant curves (horizontal lines) on this page. This is useful for example when you want to print a limit and see where your curve based on the data source exceeds it.

Constants

Define constant lines

Constant line

Value:

Legend:

Type:

Line thickness:

Line color:

Add Update Delete

Value	Legend	Line color
0:00	Midnight	Automatic

Back Next Cancel

Set the following values for every constant you want to show in the chart. If you need to edit a constant you have already added then select it in the list, edit its setting and press *Update*. Without pressing *Update* the data will not be actualized.

- **Value**
The value of the constant. It must be compatible with the format of column assigned to Y-axis on [Data definition](#) page.
- **Legend**
The legend of the constant.
- **Line type**
The line type of the constant.
- **Line color**
The color of the constant.
- **Line thickness**
The thickness of the constant.

12.1.5 Interline areas

On this page you can define areas which are filled with a color. The areas are regions between two curves. This page is available only if the type of all curves is *Simple* line and if you have at least two curves defined (it can also be one standard curve and one or more constants).

Interline areas

Define interline areas

Interline area

Curve A: Curve 1

Curve B: Midnight

Region: A above B

Fill color: Yellow

Opacity: 50%

Add Update Delete

Curve A	Curve B	Region	Fill color
Curve 1	Midnight	A above B	Yellow

Back Next Cancel

Set the following values for every area you want to show in the chart. If you need to edit an area you have already added then select it in the list, edit its setting and press *Update*. Without pressing *Update* the data will not be actualized.

- **Curve A and Curve B**

Select curves you want to use to define the area. The select box offers you standard curves and also all [constants](#).

- **Region**

Select how the area is defined. It can either be the area where curve A is above curve B or vice versa,

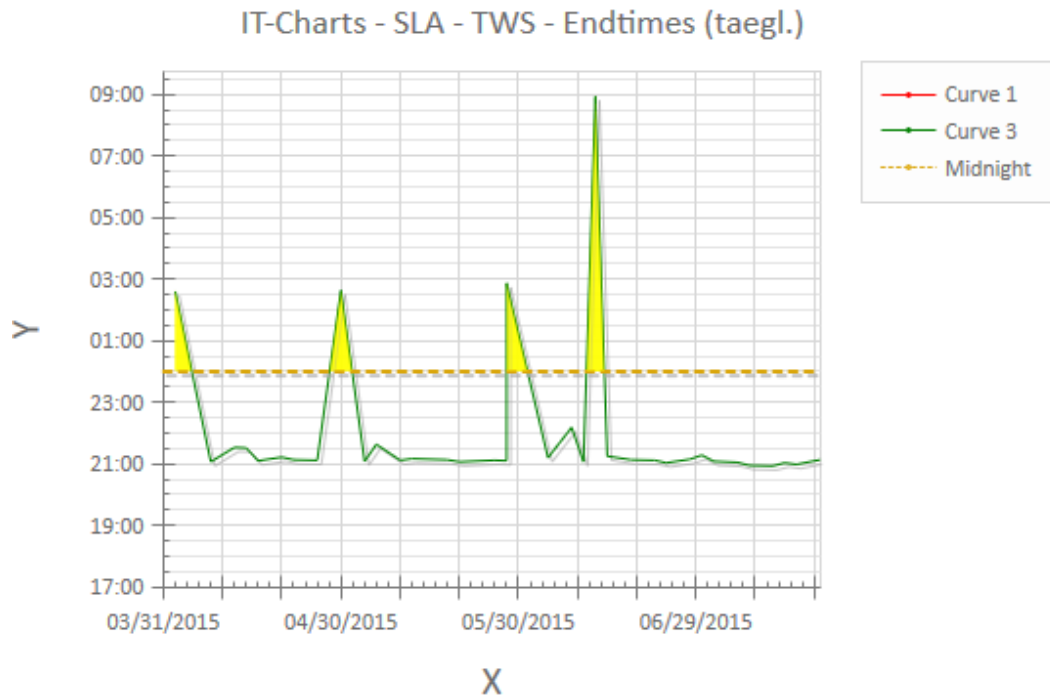
- **Fill color**

The background color of the area.

- **Opacity**

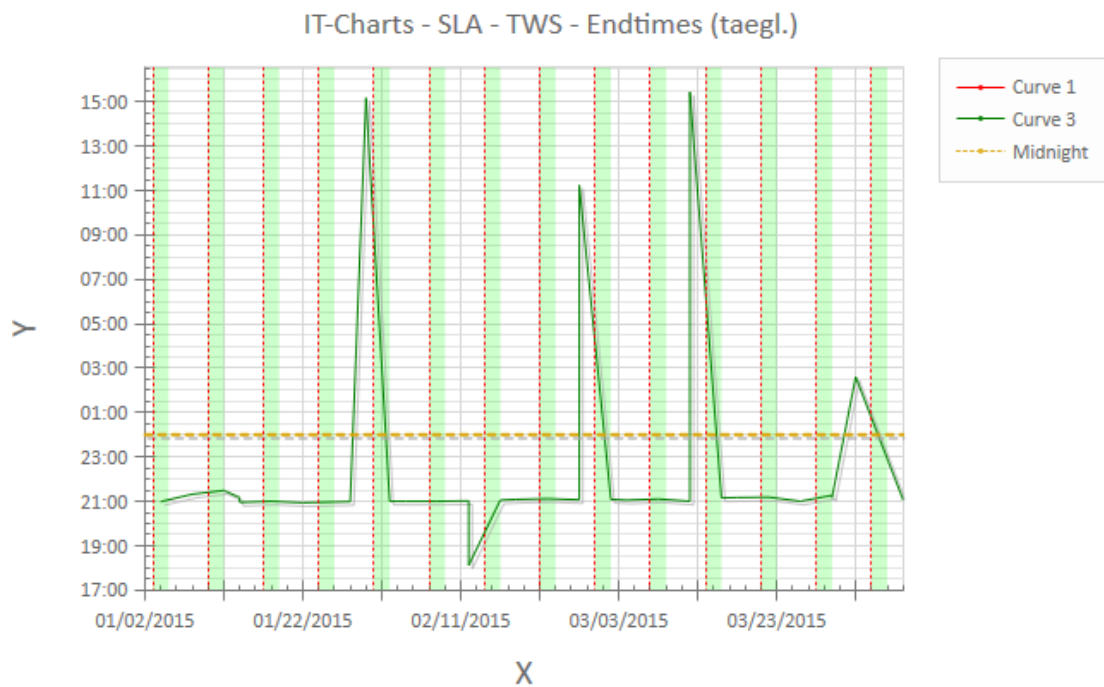
The opacity of the background.

Sample of a chart with interline areas:



12.1.6 Custom vertical objects

On this page you can add vertical lines and bands to the chart. Lines and bands are illustrated on the following picture. There are all weekends marked by light green background color (bands) and the start of every weekend by red color (line).



Custom vertical objects

Define vertical objects

Type: Line

Line properties

Position: 02/04/2017,00:00:00 MM/DD/YYYY,HH:MM:SS

Frequency: 7.00:00:00 DAYS:HH:MM:SS

Thickness: 1

Color: Red

Line type: Dashed

Band properties

Position: MM/DD/YYYY,HH:MM:SS

Frequency: DAYS:HH:MM:SS

Width: DAYS:HH:MM:SS

Color:

Opacity:

Zero value: ☐

Add Update Delete

Type	Position	Frequency	Color
Band	02/04/2017,00:00:00	7.00:00:00	Green
Line	02/04/2017,00:00:00	7.00:00:00	Red

Back Next Cancel

Set the following values for every vertical object you want to show in the chart. If you need to edit an object you have already added then select it in the list, edit its setting and press *Update*. Without pressing *Update* the data will not be actualized.

- **Type**

Choose line or band.

- **Position**

Enter the position of the object (line) or the beginning of the object (band). The value must be typed in the format shown in the legend.

- **Frequency**

If you want to repeat the object across the whole chart in fixed intervals then enter the distance between two succeeding objects. Keep it empty if you want to show the object only once.

- **Width (bands)**

Enter the thickness of the band. If you for example want to create bands that mark weekends, enter 2.0:0:0 or only 2 (hours, minutes and seconds will be set to zero automatically).

- **Thickness (line)**

Enter the line thickness.

- **Color**

Enter the line color or background color of bands.

- **Line type (line)**

Enter the line type.

- **Opacity (band)**

Enter the opacity of the background color of bands.

- **Zero value (band)**

When this option is checked then the value on Y-axis is set to the minimum at positions of bands. The minimal value equals zero unless the [start time](#) is specified. In this case it equals the start time.

12.1.7 Options

On this page you can set graphical options of line charts and you can save your definition to the [chart library](#).

Options

Set additional options

Options

Legend position: Right-Top X-axis labels' rotation: 15 deg. Base font size: 14

☒ Show horizontal major grid lines ☒ Show vertical major grid lines ☐ Display shadow

☒ Show horizontal minor grid lines ☐ Show vertical minor grid lines ☐ Show data labels

☐ Show horizontal interlacing ☐ Show vertical interlacing

Description

X-Axis: Interval start

Y-Axis: Command frequency

Title: SMF - ADABAS Command Frequency

Save to library as

Name: SMF - ADABAS Command Frequency

Back Finish Cancel

- **Legend position**

Defines the position of the legend relatively to the chart object.

- **X-axis labels' rotation**

Sets the angle of labels on X-axis. This is useful mainly when timestamp values (which occupy a lot of place) are on X-axis.

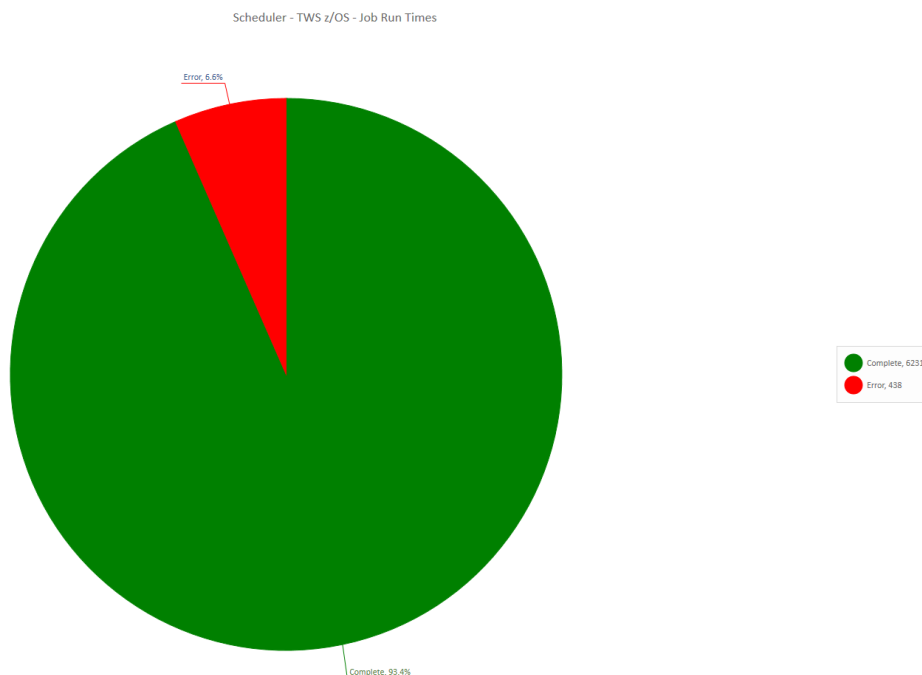
- **Base font size**

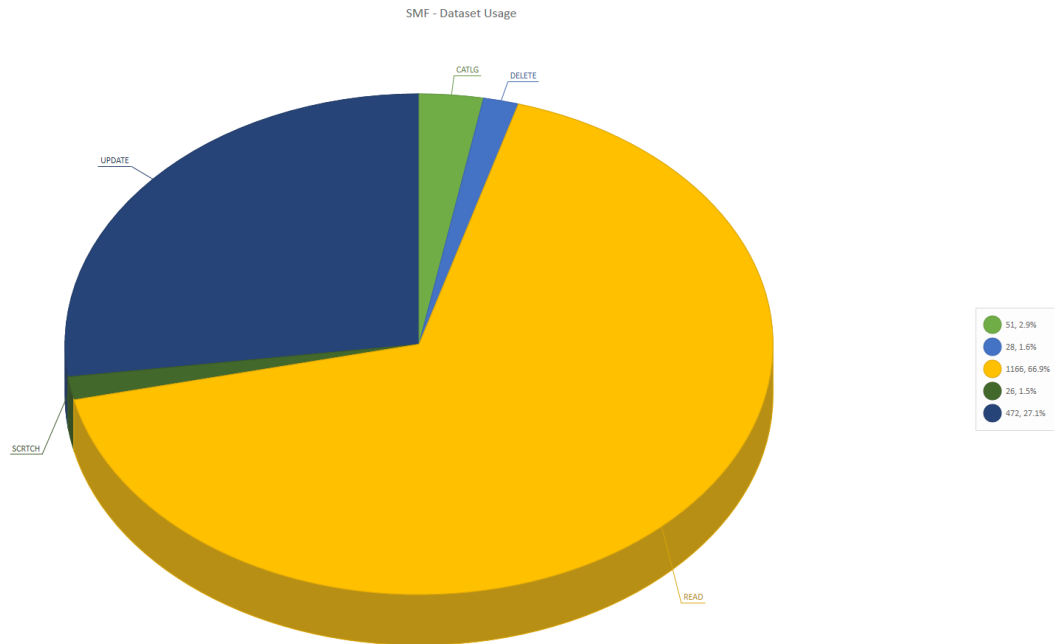
Sets a font size of data labels and a legend text. Font sizes of the chart's title and axis names are derived from this base value (they are a little bit bigger).

- **Show grid lines**
Shows the selected grid lines in the chart.
- **Show interlacing**
Shows vertical and/or horizontal interlacing - adds bands filled with light gray color. The distance between them is one major unit.
- **Display shadow**
Shows shadowing effect.
- **Display data labels**
Shows values at each data point.
- **X-Axis description**
Sets the label printed on X-axis. The default one is taken from the data source.
- **Y-Axis description**
Sets the label printed on Y-axis. The default one is taken from the data source.
- **Title**
Sets the title of the chart
- **Name**
Allows you to save your definition to the chart library. Next time you want to show the same chart you can just open it from the library without configuring it.

12.2 Pie chart wizard

Samples of pie charts created by SmartIS PC Client:





The pie chart wizard contains following pages:

12.2.1 Data definition

On this page you can define how the size of segments of the pie is computed.

- **Segment size**

If *Number of records* is selected the the segment size corresponds to the number of records with the same value in the segmentation field.

If you click *Sum of field values* then the segment size corresponds to the sum of values in the selected field of all records with the same value in the segmentation field.

- **Segmentation**

Select the field for segmentation. Each unique value in this field can result in a new segment.

If you select automatic assignment then the program creates a new segment for every unique value in the selected field.

In case of manual assignment you can choose what values of the selected field create segments (see [Segment definition](#)) and you can define your own labels for each segment.

Example 1: Return codes of steps

Shows the pie chart where each segment corresponds to an unique return code.

The size of segments is determined by the number of steps with particular return codes.

Display	SMF - Step Information
Field	Return code
Assignment	Automatic
Segment size	Number of records

Example 2: Run time of steps with all possible return codes

Shows the pie chart where each segment corresponds to a unique return code.

The size of segments is determined by the sum of time consumed by all steps with particular return codes.

Display
Field
Assignment
Segment size

SMF - Step Information
Return code
Automatic
Sum of field values (Duration)

12.2.2 Segment definition

On this page you can define your own segments and set their properties.

Segment definition

Define segments

Segment properties

Field value: *

Description: Other return codes

Color: Yellow

Explosion level: 0

Buttons: Add, Update, Delete, Up, Down

Value	Description	Color	Explosion
CC 0001	CC 0001	Dark green	0
CC 0004	CC 0004	Custom	0
CC 0012	CC 0012	Custom	0
*	Other return codes	Yellow	0

Buttons: Back, Next, Cancel

- **Field value**
Defines the mask (you can use wildcards). All records that match this mask are counted to the same segment.
Because wildcards can be used then the order of definitions in the table is important. You can move the definitions up and down by pressing *Up* and *Down* buttons.
- **Color**
Defines the color of a segment.
- **Description**
Contains the description of a segment.

- **Expansion level**

Non zero value in this field defines how far of the center of the pie the segment is moved.

If you want to edit the definition you already have then select it in the table and change it. Finally press the *Update* button. The values are not updated without pressing *Update*.

The picture above defines 4 segments (in the data of *SMF - Step Information* display).

Jobs with RC=CC 0001 are included in the green segment

Jobs with RC=CC 0001 are included in the blue segment

Jobs with RC=CC 0012 are included in the red segment

All other jobs are included in the yellow segment

12.2.3 Options

On this page you can set graphical options of pie charts and you can save your definition to the [chart library](#).

Options

Set additional options

Options

Legend position: Right Base font size: 36 ☒ 3D style ☐ Doughnut

Title: JCL - JOB Statements

Save to library as: bie

Show in labels

☐ Index ☒ Description ☐ Value ☐ Percent

Show in legend

☐ Index ☐ Description ☒ Value ☒ Percent

Back Finish Cancel

- **Legend position**

Defines the position of the legend relatively to the chart object.

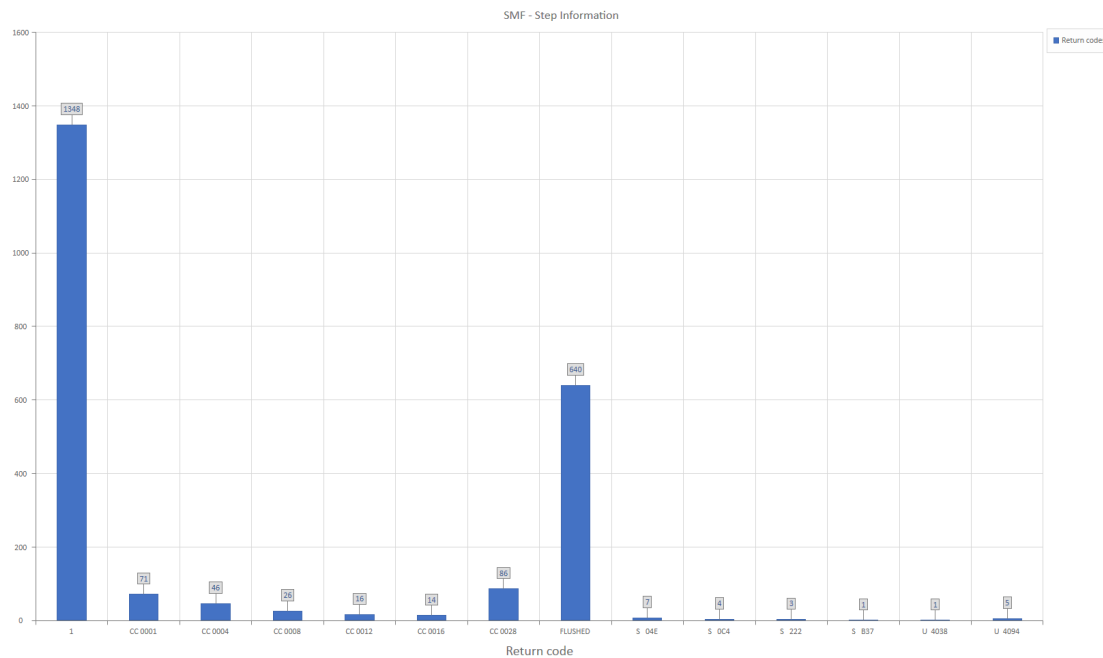
- **Base font size**

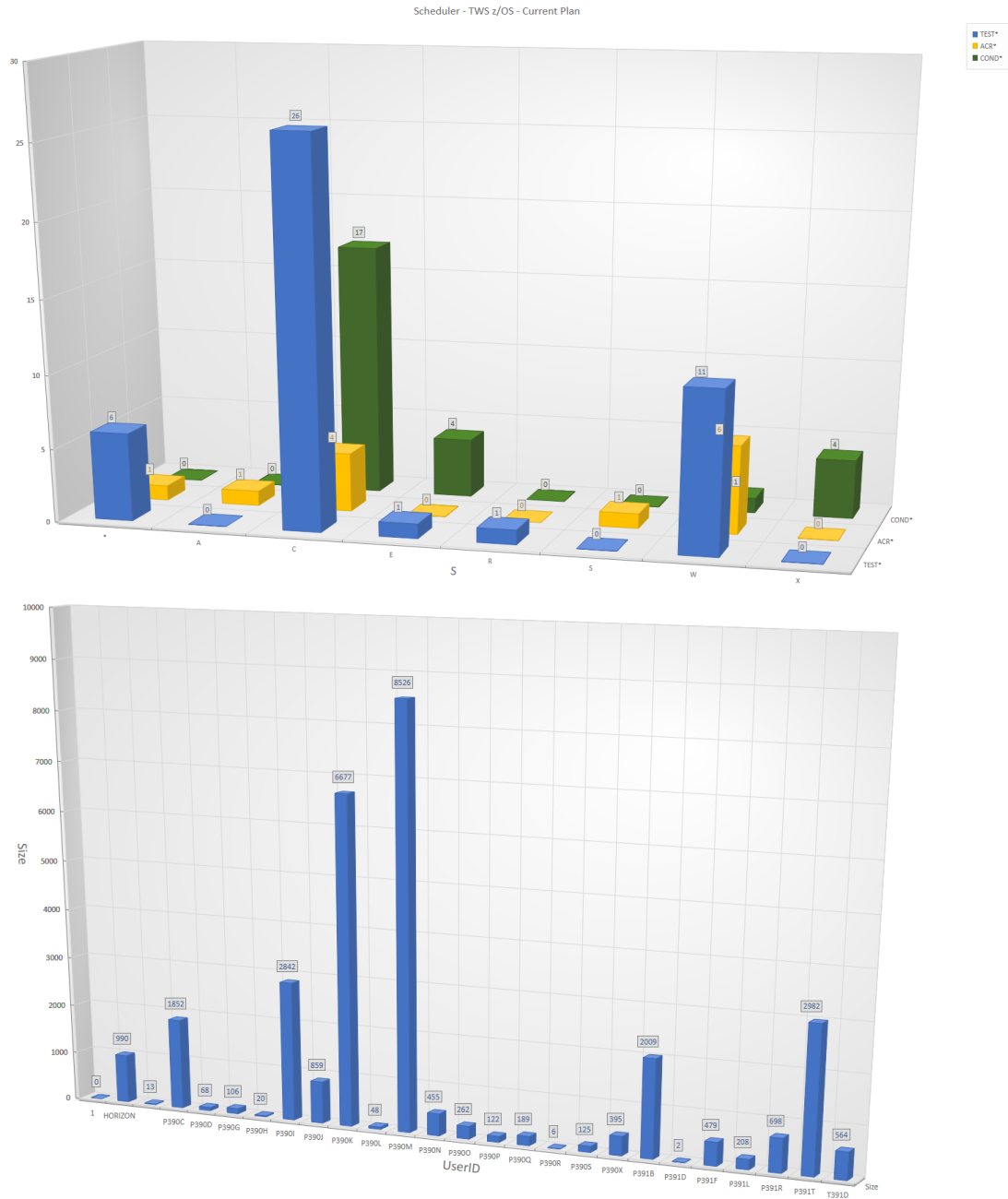
Sets a font size of data labels and a legend text. A font size of the chart's title is derived from this base value (it is a little bit bigger).

- **3D style**
Enables or disables the 3D appearance of the chart.
- **Doughnut**
Shows a doughnut chart instead of a pie chart.
- **Title**
Sets the chart title.
- **Save to library as**
Allows you to save your definition to the chart library. Next time you want to show the same chart you can just open it from the library without configuring it.
- **Show in labels**
Allows you to choose what information is displayed in chart labels.
- **Show in legend**
Allows you to choose what information is displayed in the legend.

12.3 Bar chart wizard

Samples of bar charts created by SmartIS PC Client:





The horizontal and vertical bar chart wizard contains following pages:

12.3.1 Data definition

On this page you can define how the size of bars of the chart is computed.

Data definition X

Select data fields

Bar size

☐ Sum of field values

☒ Number of records

Bar bundles

Field X

Format HHMM

Assignment Automatic

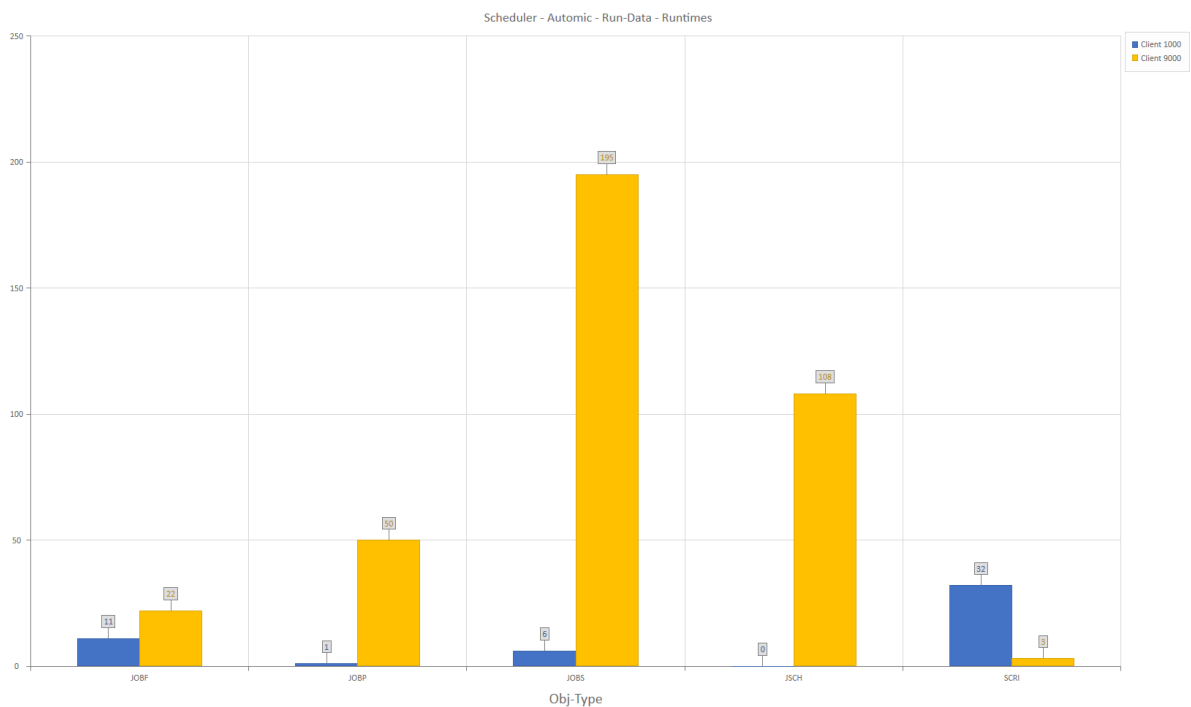
Series

☒ Single series (one bar in each bundle)

☐ More series (more bars in each bundle) defined by

Next
Cancel

For understanding of the wizard it is important to know what the bundle and series are. It can be illustrated on the following picture, which shows how many Automatic objects run on two clients. There are 2 series in this picture (blue and yellow) and 5 bundles.



- **Bar bundles**

If *Automatic* assignment is selected then the program automatically creates a bundle for every unique value in the selected field.

If you select Manual assignment then you have to assign the bundles manually on [Definition of bundles](#) page.

If the field you select contains integer values then you can also define in what format the values are encoded. There can be real integers or for example data in HHMM or YYYYMMDD format.

- **Series**

If *Single series* option is selected then the chart contains bars of only one color.

More series option allows you to define criteria which split the data source to more series (in the picture above we used series for two different Automatic systems).

- **Bar size**

If *Number of records* option is selected then the size of each bar is determined by the number of records that are counted into the particular bar.

Sum of field values option does not count the number of records, but the sum of values of these records in the selected column. It is for example possible to sum the total duration of jobs that form every bar.

12.3.2 Definition of bundles

On this page you can define bundles if [Manual bundle assignment](#) is selected.

Definition of bundles

Define bundles

Bundle properties

Field value:

Description:

Add Update Delete Up Down

Value	Description
JOBF	JOBF
JOBP	JOBP
JOBS	JOBC

Back Next Cancel

The program creates only bundles defined on this page. Each bundle includes records with the field value matching the value entered in *Field value* field.

You can use wildcards in the *Field value* and you must enter a description, which is displayed in the chart.

12.3.3 Multiple series definition

On this page you can define properties of series if *More series* option is selected on the [Data definition](#) page.

Value	Description	Color
1000	Client 1000	Automatic
9000	Client 9000	Automatic

The program creates a new series for every value defined on this page. The picture above shows how to create two series. The first one corresponds to rows of the data source with value = 1000 in the column set on the Data definition page. The other one corresponds to rows with value = 9000. The description is shown in the legend of the chart and colors of series are chosen automatically by the program.

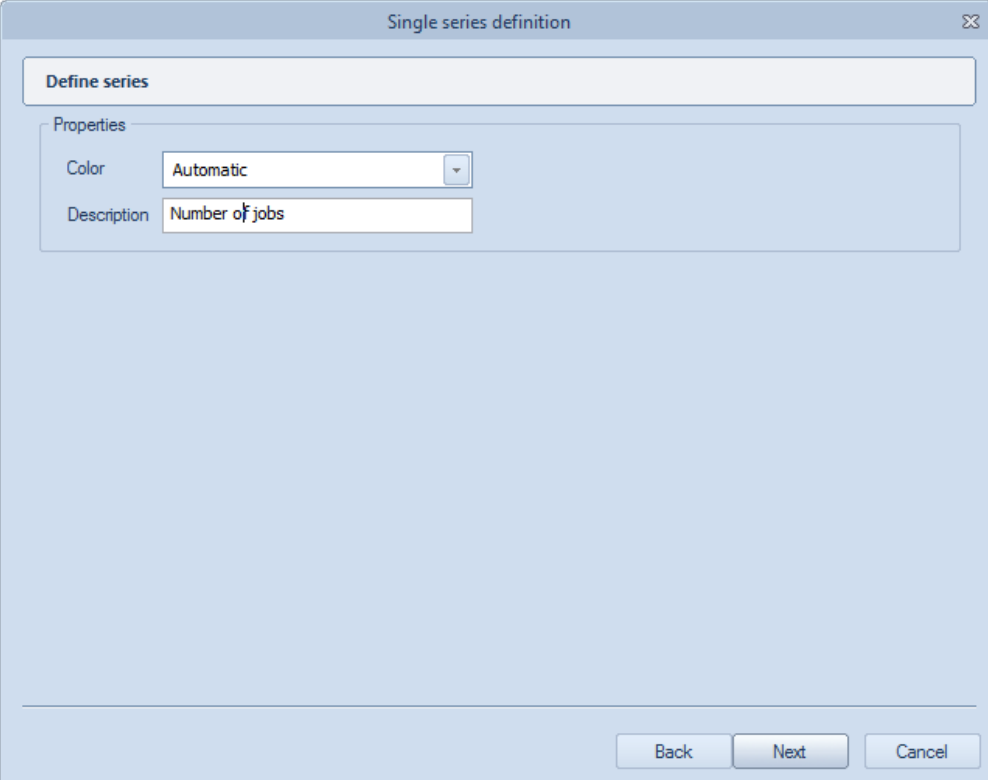
It is also possible to set an empty value and description. If you do it then you must do it for all series on this page.

Empty values enable automatic series creation. The program then creates series automatically from the data (i.e. one series for every unique value found in the data). The program takes styles of these automatic series from your definition on this page (Color) from top to the bottom. If more series are found in the data than you define on this page, an information is displayed when the chart is rendered.

12.3.4 Single series definition

On this page you can configure the only one default series which is created when *Single series* is selected on the [Data definition](#) page.

You can select the color and the description, which is displayed in the chart legend.



A screenshot of a software dialog box titled "Single series definition". The dialog has a light blue background and a standard window border with a close button in the top right corner. Inside the dialog, there is a section titled "Define series" with a light gray background. Below this, there is a "Properties" section. Within "Properties", there are two labels: "Color" and "Description". The "Color" label is next to a dropdown menu currently showing "Automatic". The "Description" label is next to a text input field containing the text "Number of jobs". At the bottom right of the dialog, there are three buttons: "Back", "Next", and "Cancel".

12.3.5 Options

On this page you can set graphical options of bar charts and you can save your definition to the [chart library](#).

Options

Set additional options

Options

Legend position: Right-Top

☐ Show the summary bar for bundles which can't be displayed

☐ 3D style

☒ Show labels

Bundle style: Cluster

Base font size: 30

Description

X-Axis: Jobname

Y-Axis:

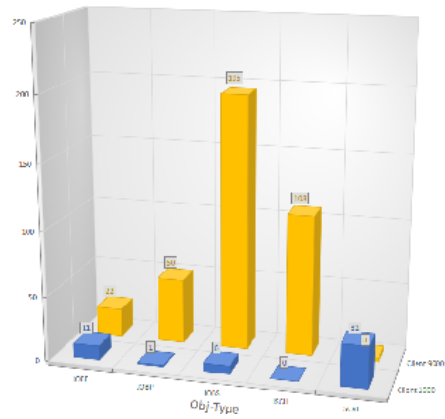
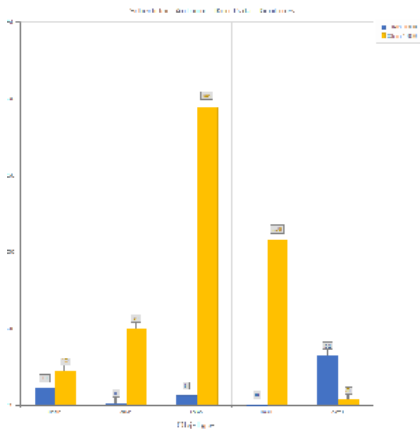
Title: JCL - JOB Statements

Save to library as

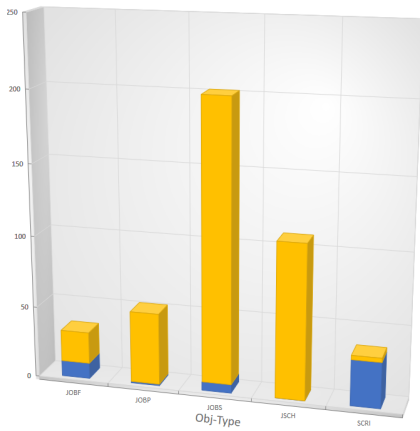
Name: VBAR - more series

Back Finish Cancel

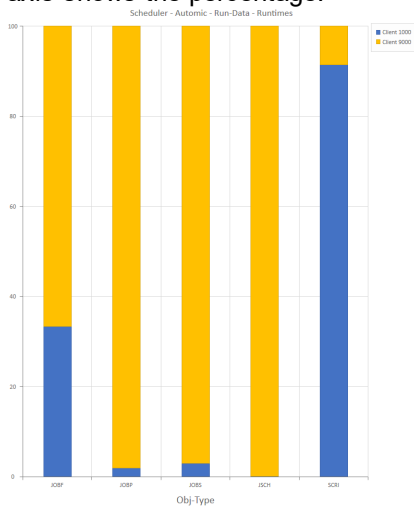
- **Legend position**
Defines the position of the legend relatively to the chart object.
- **Base font size**
Sets a font size of data labels and a legend text. Font sizes of the chart's title and axis names are derived from this base value (they are a little bit bigger).
- **3D style**
Enables or disables the 3D appearance of the chart.
- **Show labels**
Prints the label with a value on the top of every bar.
- **Bundle style**
Cluster - prints a bar of each series as an unique bar. It looks differently on 2D and 3D mode:



Stacked - bars of each series are stacked one on another:



100% Stacked - bars are stacked one on another and always fill the full height of the chart. The vertical axis shows the percentage:



- **X-Axis**

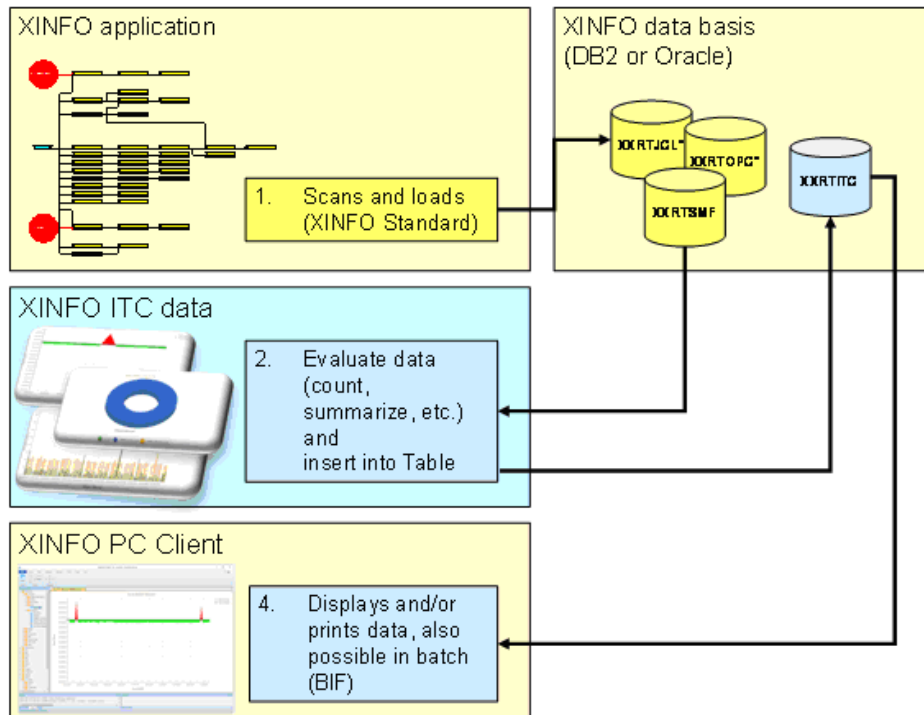
Sets the description of X-axis.

- **Title**
Sets the description of Y-axis.
- **Title**
Sets the chart title.
- **Name**
Allows you to save your definition to the chart library. Next time you want to show the same chart you can just open it from the library without configuring it.

12.4 IT Charts

12.4.1 Introduction

ITC (IT Charts) creates typical graphics (jobs/year, terminations/month, average runtimes, etc.). Primary data sources are XINFO tables. Based on this you will be able to summarize data and build a history of them.



12.4.2 Prerequisites

IT charts are available in the SmartIS PC Client only when they are installed on the host. The z/OS installation is described in the xxrdinse.pdf 'z/OS DB2 Objects and Scanners Installation Guide'. Please follow the instructions in Chapter 2.19. USEITC: IT Charts. At the end of the installation, the following components are installed:

- XXRTITC Table
- Sample Displays (ITC*) needed in the examples

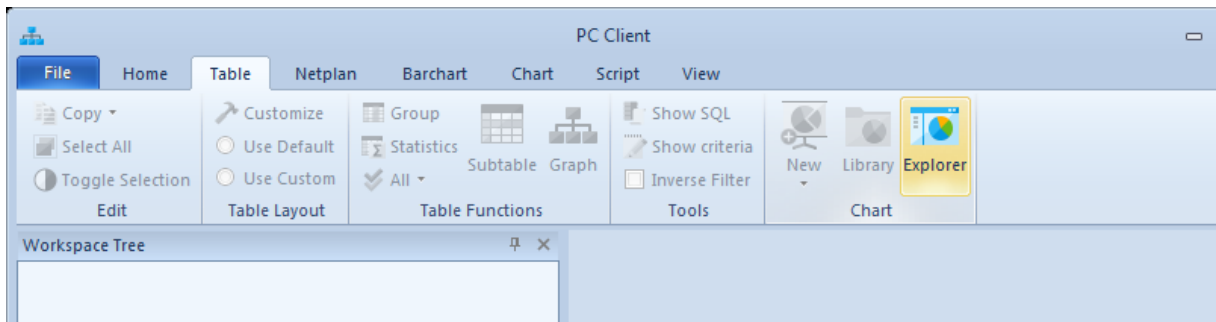
- Sample Jobs (ITC*) to collect data in <Installation Qualifier>.SAMPLIB

The client requires that [Sample IT Charts definition](#) is imported from chart_definition.xml file, which is a part of to the SmartIS PC Client package.

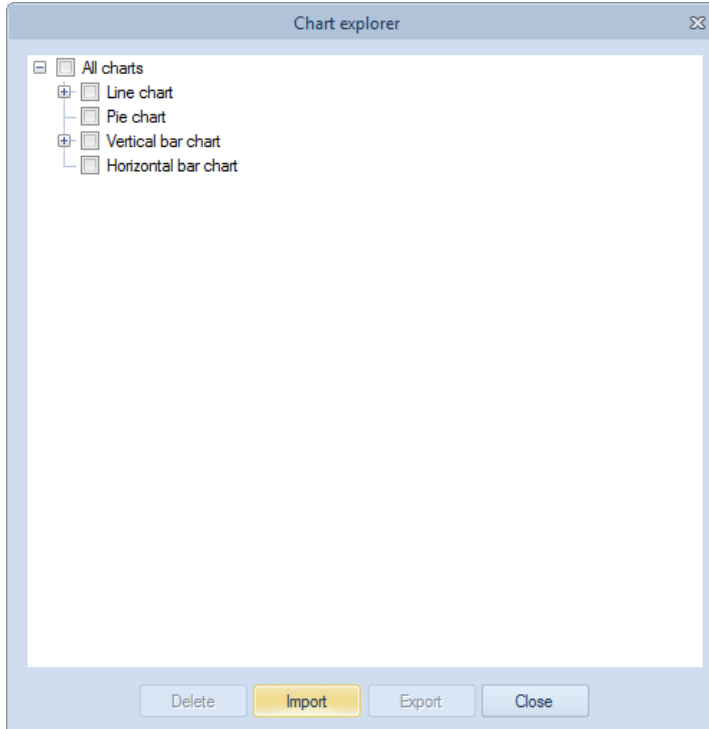
12.4.3 Sample IT Charts definition

With the installation of the SmartIS PC Client, the sample definitions chart_definition.xml file is saved in the installation path.

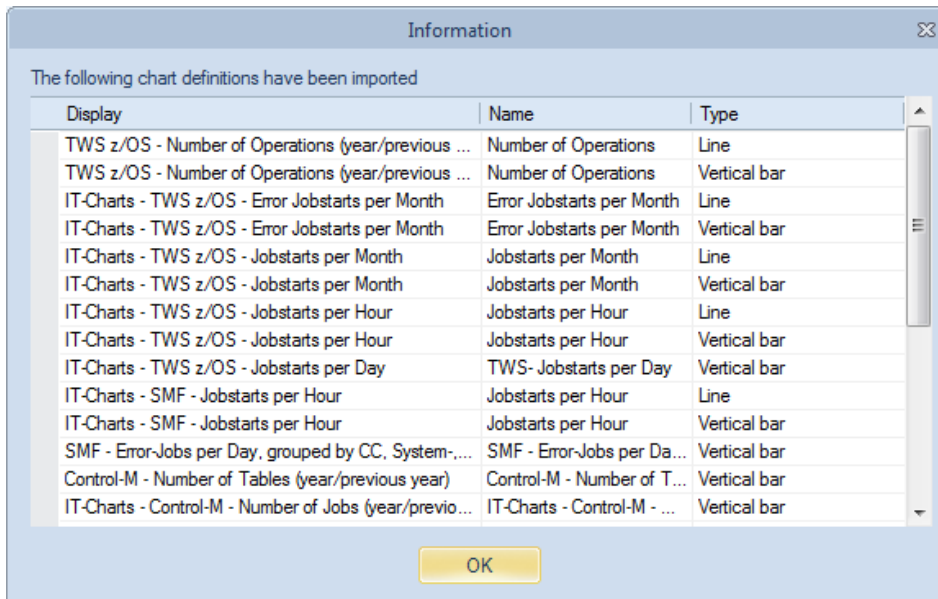
To import these definitions, click on the *Table* tab and then click on the *Explorer* button on the right hand side:



Now the *Chart explorer* window will open. In this window, click on the *Import* button. Search for chart_definition.xml and confirm your selection.

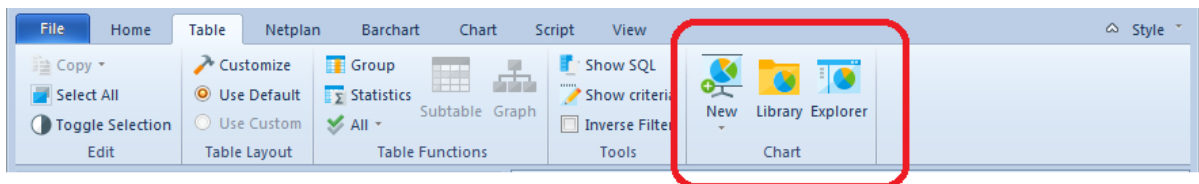


When the charts were successfully imported then they become visible in the *Chart explorer*. Also the list of imported definitions opens:



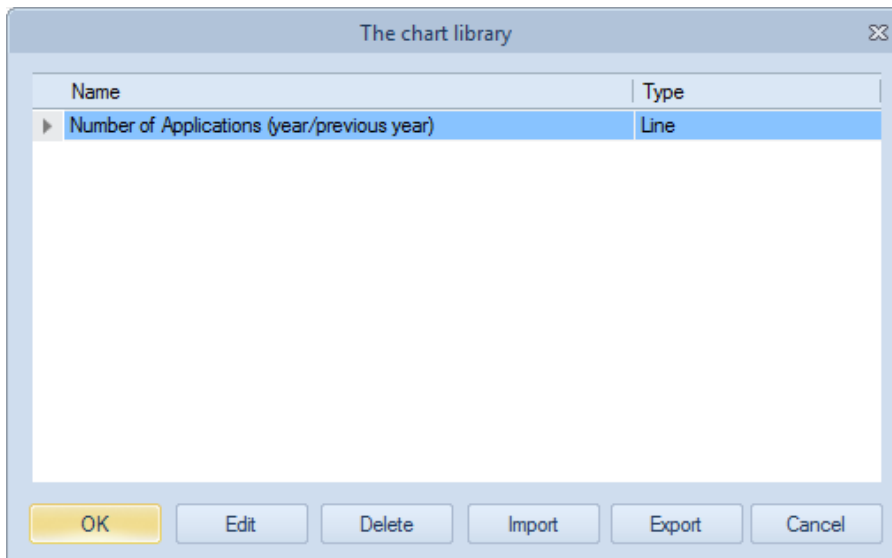
12.4.4 Using IT Charts definitions

There are *Library* and *Explorer* buttons on the *Table* ribbon bar:



Library

It opens a window with charts available only for the opened display. The chart can be created by pressing OK button:

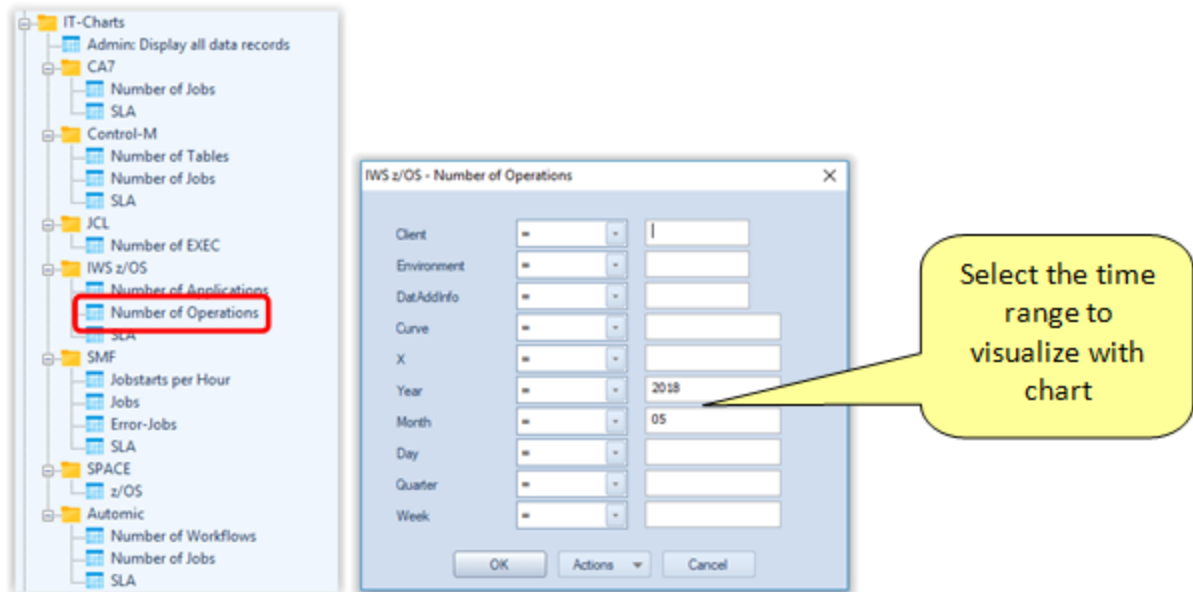


Explorer

It shows a tree of all charts available in the SmartIS PC Client. Charts can't be created from the explorer.

12.4.4.1 First step: Selecting data

For creating a chart you need some input data first. The selection of the data is done by a normal SmartIS PC Client query like this:

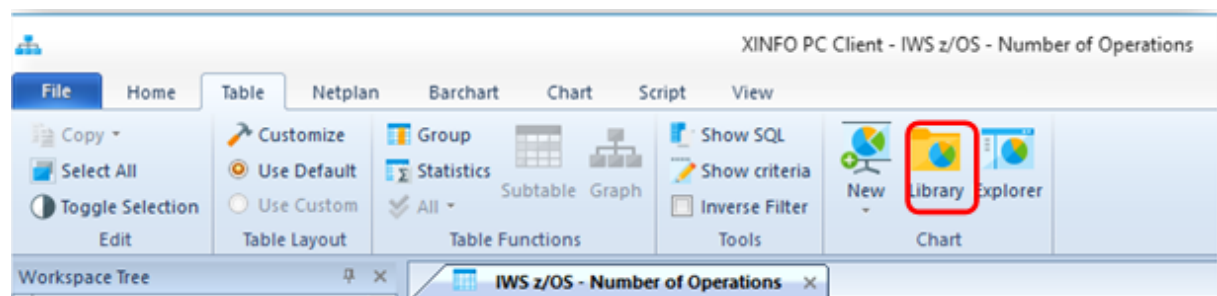


Then you get the result table as the basis of a chart:

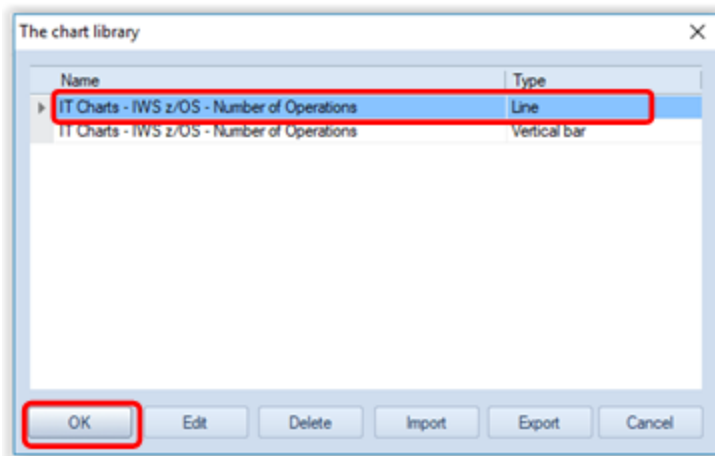
Client	Environment	DataInfo	Graphic-Type	Curve	X	Y	Year	Month	Day	Quarter	Week	Hour	Minute	Second	Fillup
HORIZONTAL	PROD	INFO	ITCTWSZOPR	1	20180504	6659	2018	5	4	2	18	0	0	0	N
HORIZONTAL	PROD	INFO	ITCTWSZOPR	1	20180503	6659	2018	5	3	2	18	0	0	0	N
HORIZONTAL	PROD	INFO	ITCTWSZOPR	1	20180507	6670	2018	5	7	2	19	0	0	0	N
HORIZONTAL	PROD	INFO	ITCTWSZOPR	1	20180507	6688	2018	5	7	2	19	0	0	0	N
HORIZONTAL	PROD	INFO	ITCTWSZOPR	1	20180507	7255	2018	5	7	2	19	0	0	0	N
HORIZONTAL	PROD	INFO	ITCTWSZOPR	1	20180508	7255	2018	5	8	2	19	0	0	0	N
HORIZONTAL	PROD	INFO	ITCTWSZOPR	1	20180509	7015	2018	5	9	2	19	0	0	0	N
HORIZONTAL	PROD	INFO	ITCTWSZOPR	1	20180510	7515	2018	5	10	2	19	0	0	0	N

12.4.4.2 Second step: Chart figure

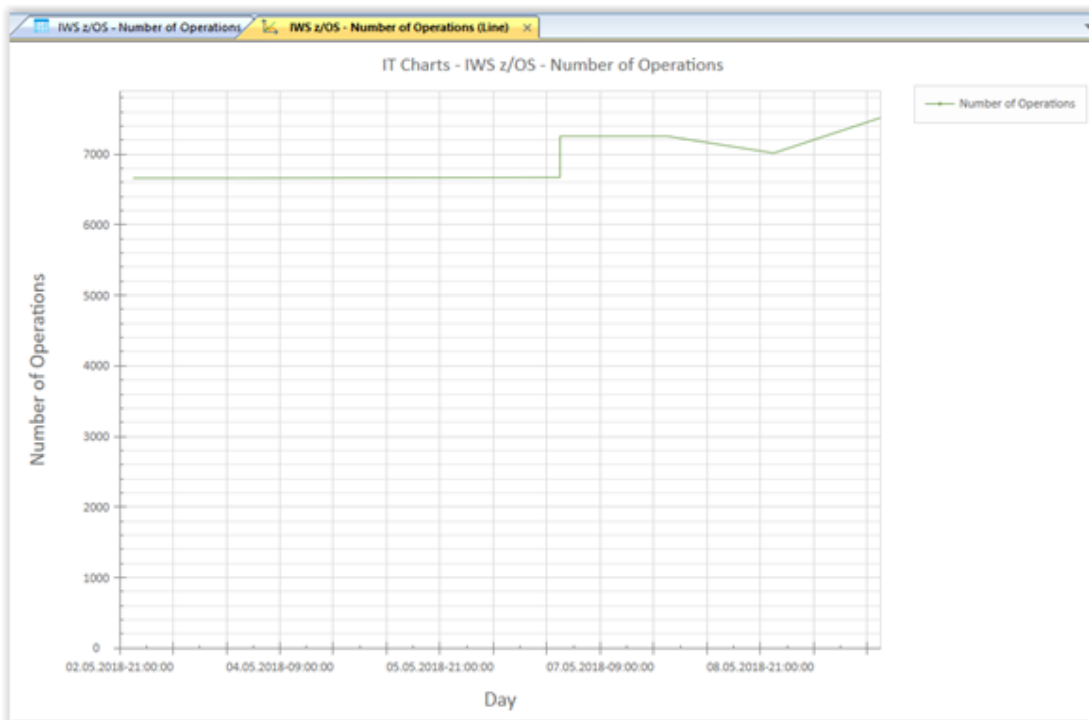
Now select the chart definition from the chart library. Please remember: Loading these definitions is described in [Sample IT Charts definition](#).



The name of the display is the key item to show all relevant chart definitions for this data. All these chart definitions are selectable in the next step:



The result (line chart in this case) is shown as a new tab:



Go back to the result table and select the vertical bar chart and you will get this result:



12.4.5 Automation with scripts

If you want to create the chart automatically from your scheduling environment and save it or send it via email, you are able to call SmartIS PC Client in a batch command to do this.

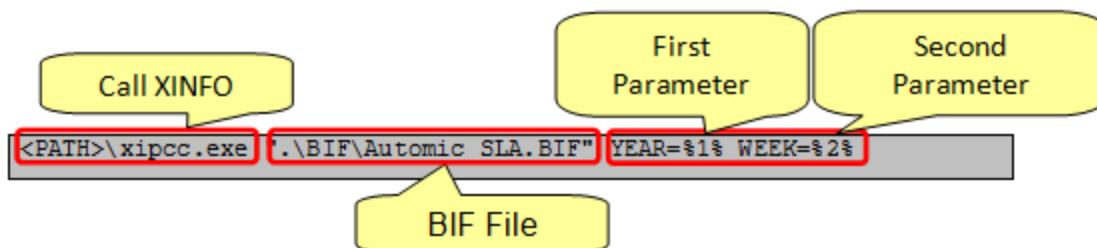
You can create the script directly in SmartIS PC Client. To learn more about the script syntax, see [Scripts \(Batch Interface\)](#).

These components need to be implemented for automatic creation of charts:

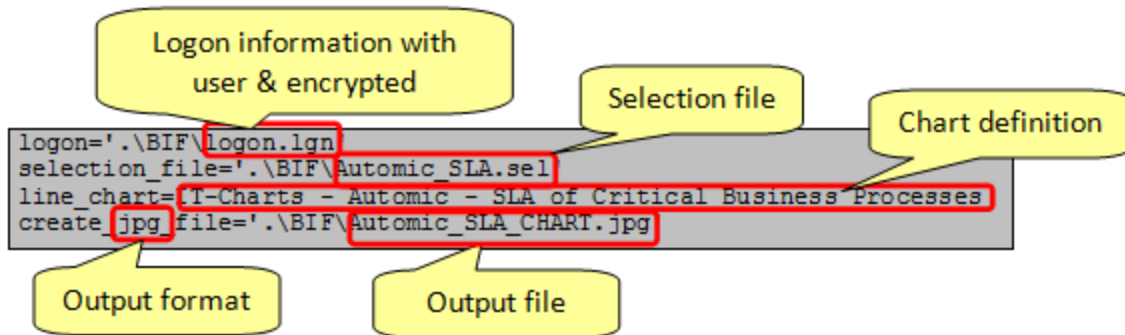
- Bat file to call xipcc.exe with parameters
- Script telling what to do and where the result should be saved
- Selection file that contains the selection criteria

The following example will describe how to create a JPG file with an SLA Chart. The data selection file must contain year and week numbers that are forwarded from the call to the Script file.

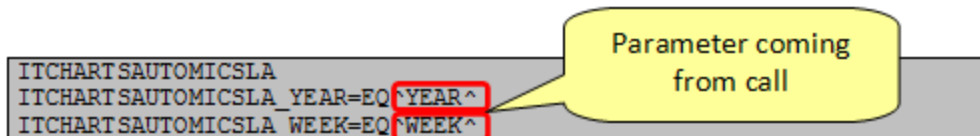
1. Batch File calling XINFO PC Client:



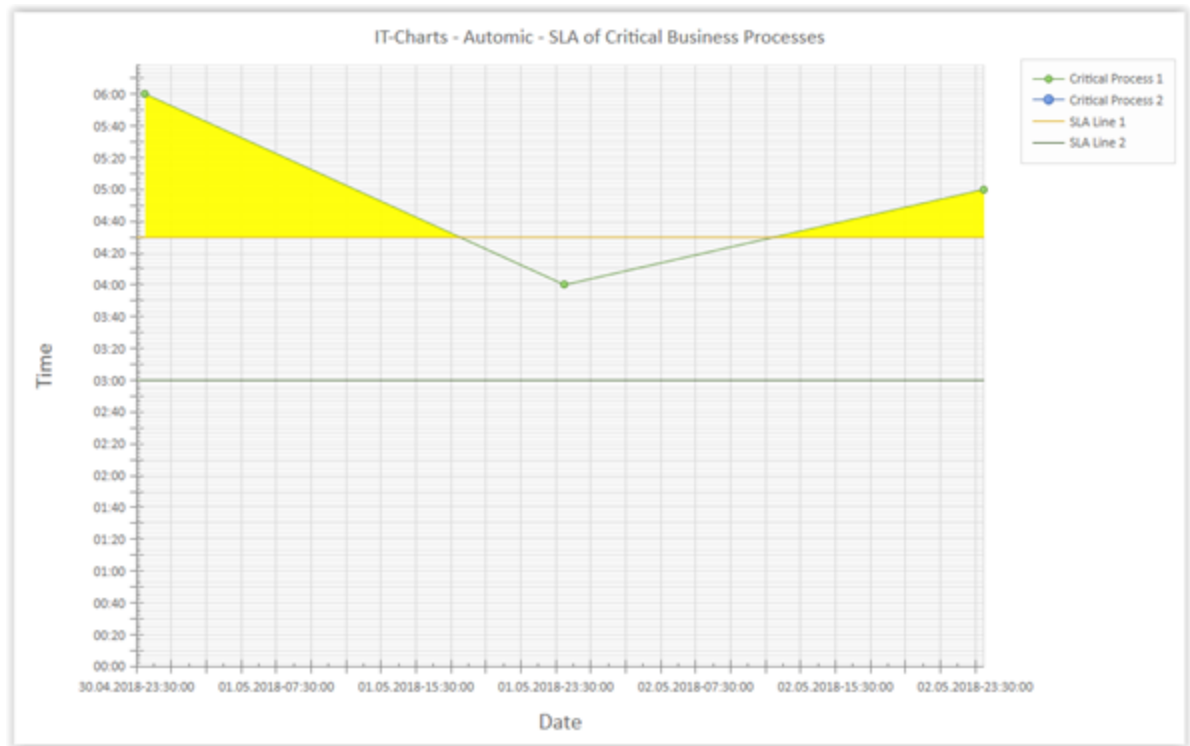
2. Script file *Automic_SLA.bif*:



3. Selection File *Automic_SLA.sel*:



And that is a possible result:



12.5 Working with chart definitions

Chart definitions can be manipulated from the *Chart library* and *Chart explorer*. Both of them can be started from the *Table* ribbon bar:

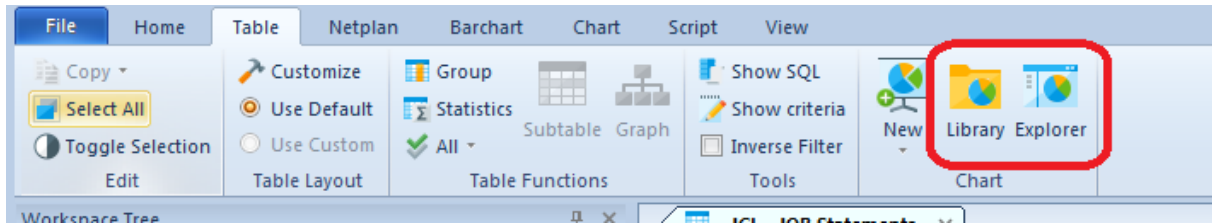
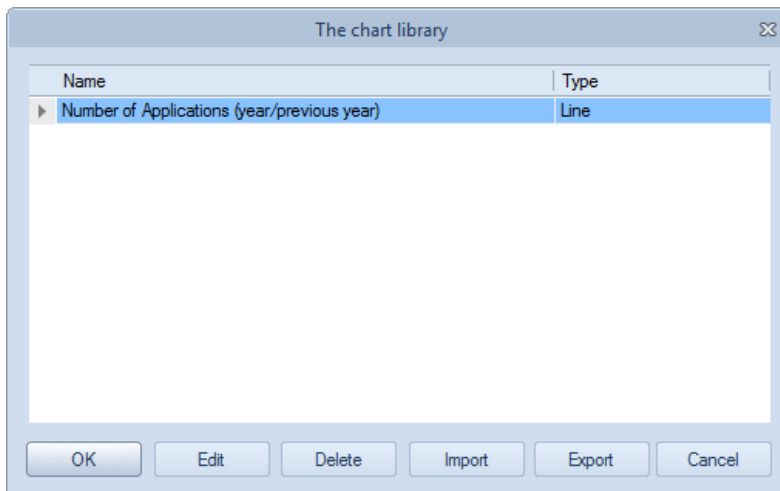


Chart library

When there exists a chart defined for the opened display then it is listed in the window opened by *Library* button:

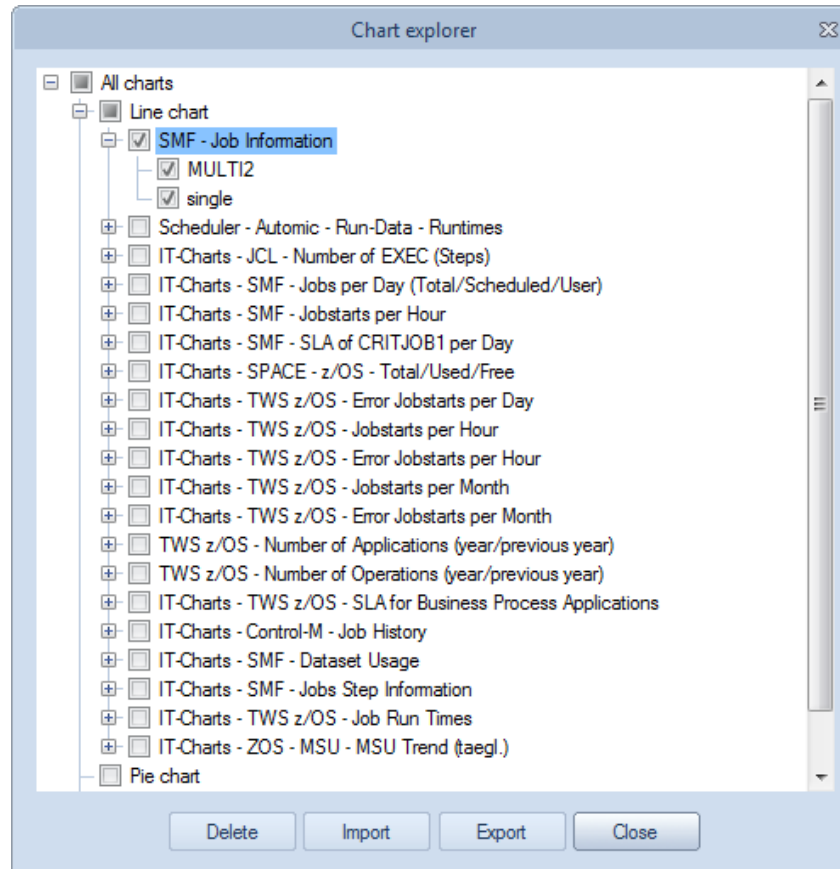


Available buttons are:

- **OK**
Creates the chart from the data of the opened display.
- **Edit**
Opens the chart definition for changes. Based on the chart type it can open [Line](#), [Pie](#) or [Bar](#) chart wizard.
- **Delete**
Removes the selected chart from SmartIS PC Client.
- **Import**
Imports charts from XML file. You can import [Sample IT Charts definition](#) this way or import any other chart definition previously exported from the *Chart library*.
- **Export**
Exports selected charts into XML file.
- **Cancel**
Closes the window.

Chart explorer

Shows in a tree structure all chart definitions available in SmartIS PC Client.



Available buttons are:

- **Delete**
Removes selected charts from SmartIS PC Client.
- **Import**
Imports charts from XML file. You can import [Sample IT Charts definition](#) this way or import any other chart definition previously exported from the *Chart library*.
- **Export**
Exports selected charts into XML file.
- **Close**
Closes the window.

New charts can be created by pressing New button on the ribbon bar. See [Charts](#) for more details.

13 Scripts (Batch Interface)

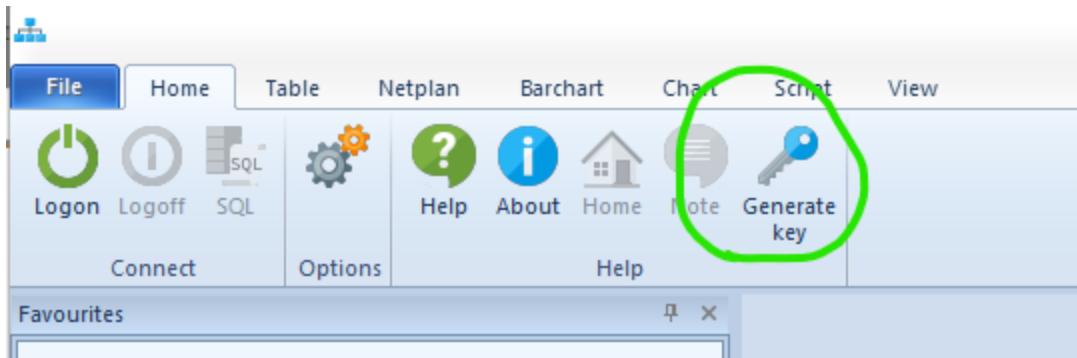
The program allows to open [displays](#) and run line [commands](#) from a script. This functionality is useful for creating reports because the scripting language provides commands for creating HTML files, including images of netplans and barcharts.

Scripts can be developed in integrated editor from where they can also be executed, but they can also be started from a command line.

13.1 Encryption key for logon

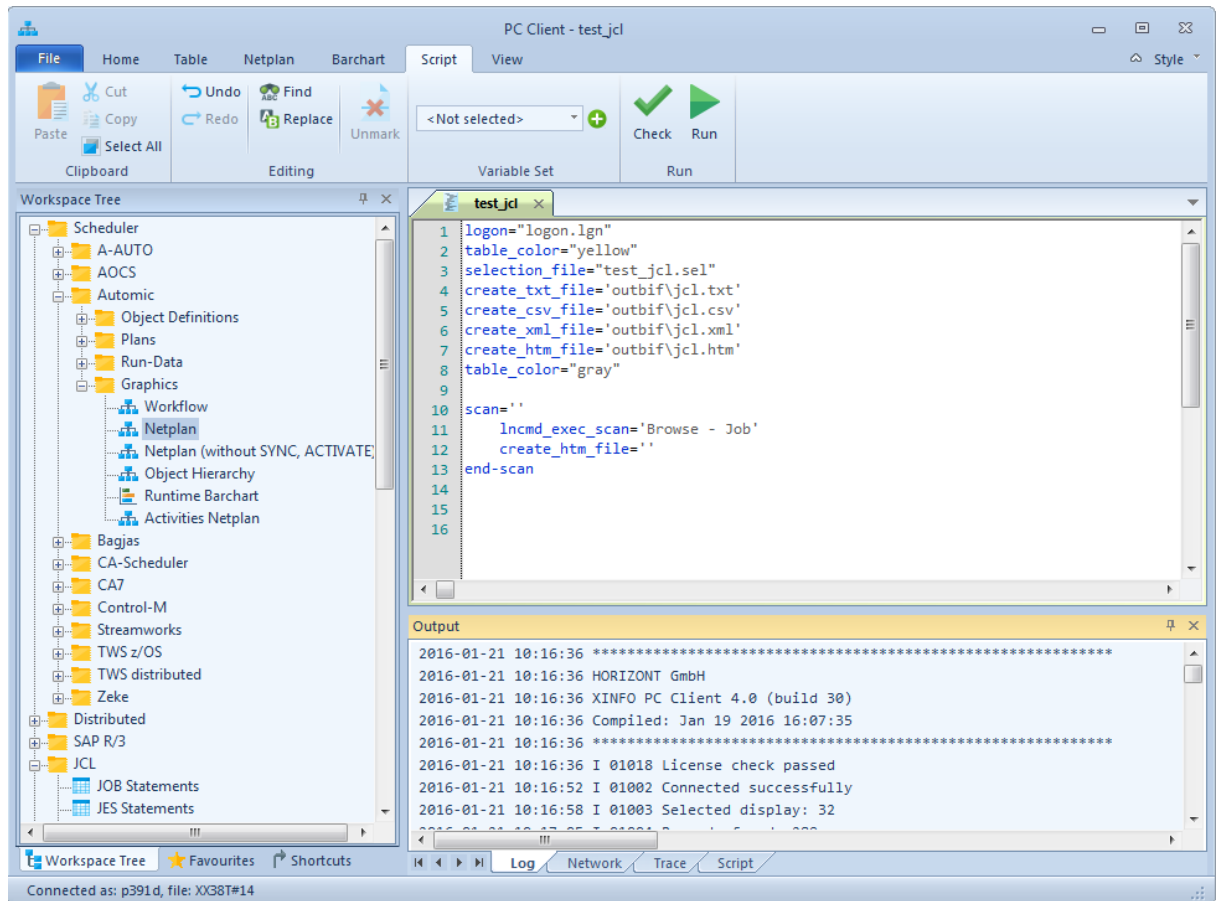
For security reasons the AES key used to create encrypted password for BIF scripts was removed with XINFO4.4. Therefore, you have to generate your own encryption key first. Please store this key in a separate directory and set the permission for this directory as limited as possible.

To create the Key we added new Option Generate Key in the Home Menu:

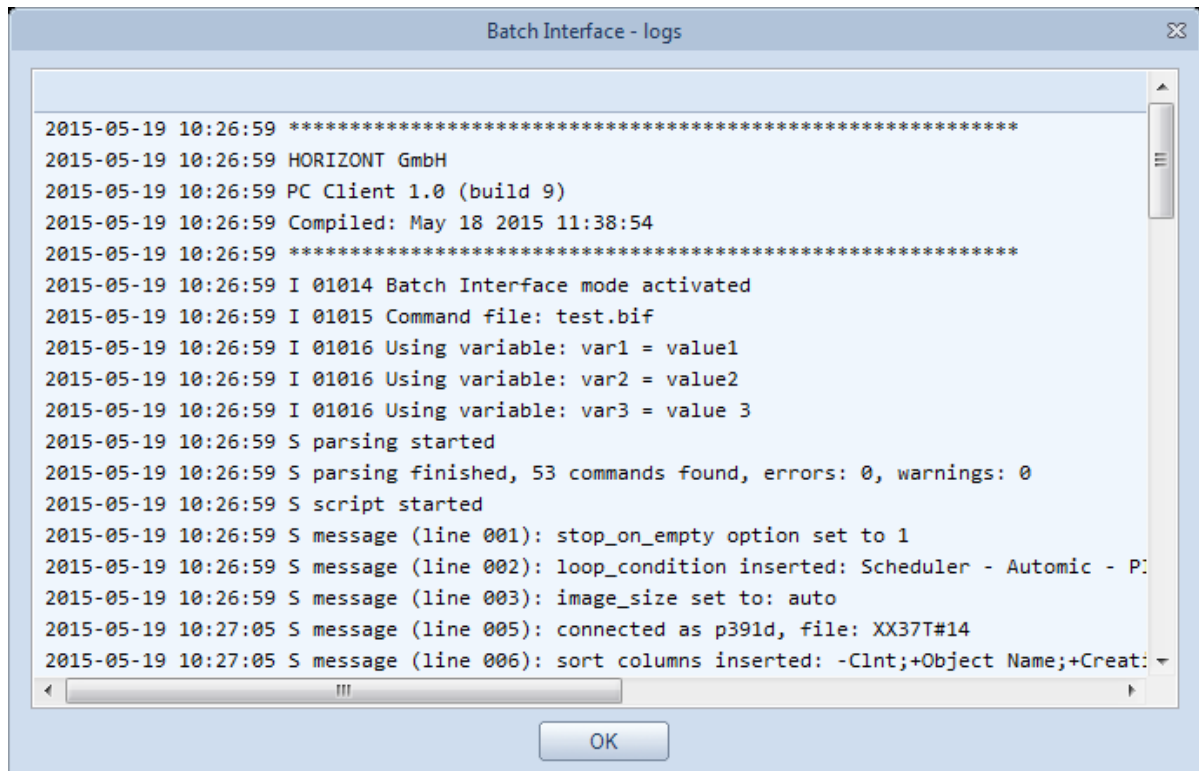


13.2 GUI mode

GUI (Graphical User Interface) mode allows you to create, edit, test and run scripts in the application. This mode is activated after creating or opening a [script](#) file (it must have .bif extension) from the [File](#) menu.



13.3 Command line mode



This mode is activated when the program receives parameters on the command line when it starts. The syntax is as follows:

```
xipcc.exe "PathToYourScript.bif" [var=value] [/silent] [/ini=PathToINIFile] [/log=PathToLogFile] [/showclient]
```

- **Script name**

If the file is located outside of the program directory, you must specify the full path. If the path contains spaces then you must enclose it with quotes.

- **Variables**

If your script uses [variables](#) then you must define them in the command line. The number of variables is not limited.

- **Silent mode**

By default the script processor ends when the script has ended successfully and when [exit](#) instruction has been found in the code.

If the silent mode is activated then the window is always closed when the script has ended regardless of whether it was successful or not and whether the exit instruction was reached.

- **Path to the INI File**

This option allows to change the path to the [INI file](#). If the file specified by this parameter is not found then the INI file is read from the directory where SmartIS PC Client is installed.

- **Path to the LOG File**

By this option you can set the log file name. All log messages created by the program are redirected to that file.

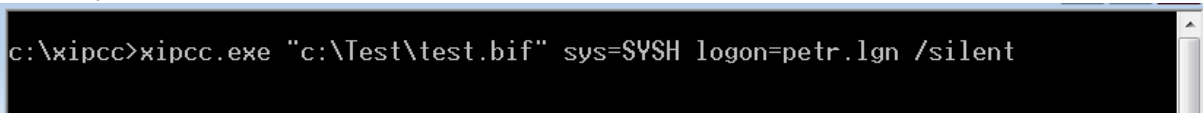
- **showclient**

By this option you instruct PC client to start in the standard mode when BIF file name is specified. That means that the full client is displayed.

It allows you to start the client and open/run the BIF automatically. Variables still can be used and when they exist then a new [variable set](#) called "BIF_CMD_LINE_VARS" is created.

When the client is shown then BIF can contain also [OPEN_DOCUMENT](#) statement, that is otherwise (in command line mode without /showclient option) not allowed.

Sample:



```
c:\xipcc>xipcc.exe "c:\Test\test.bif" sys=SYSH logon=petr.lgn /silent
```

This command starts C:\Test\test.bif script in the silent mode and uses two variables:

sys=SYSH

logon=petr.lgn

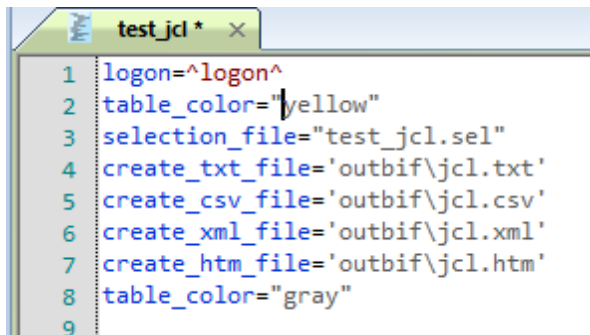
The logon is always executed when the [LOGON](#) command is reached by the parser.

The logon parameter of the command line in this sample does not do a logon, but it only sets the logon variable, which is replaced in the script.

If the script doesn't use the logon variable then the value set in the command line has no effect.

In the command line you can set any variables you want and then you can use them in your script.

If you set the logon variable in the command line, then it is used only when the script looks like this:



```
1 logon=^logon^
2 table_color="yellow"
3 selection_file="test_jcl.sel"
4 create_txt_file='outbif\jcl.txt'
5 create_csv_file='outbif\jcl.csv'
6 create_xml_file='outbif\jcl.xml'
7 create_htm_file='outbif\jcl.htm'
8 table_color="gray"
9
```

Logs

The program writes all logs into the log directory specified in [Basic General Options](#).

In case of errors you can read it and check what was wrong.

The program returns the return code to the operating system. Possible return codes are:

0 - when there was no error

8 - when any error was found

13.4 Syntax

13.4.1 Comments

Two type of comments are supported. The integrated editor shows them by green color.

- **line comments**

they start with // and continue to the end of the line.

- **block comments**

they start with /* and end with */

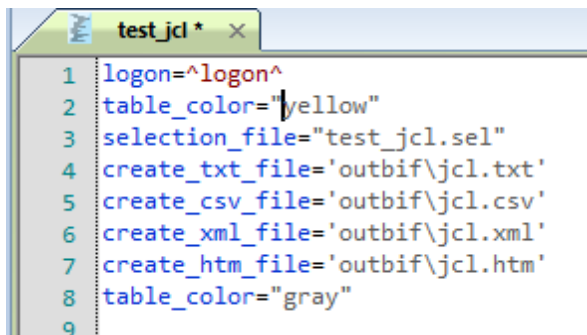
they can be coded on more lines or only a part of a line can be commented out

```
1 stop_on_empty=Y
2 legend=N
3
4 logon="C:\XInfoPC\bif\logon.lgn" // my logon file
5 //selection_file='test_exec.sel'
6 selection_file='test_exec2.sel'
7 create_csv_file='outbif\TEST.dat'
8
9 scan=''
10     lncmd_exec_scan='Browse - Job'
11
12     /* create the output
13     * -----
14     */
15     create_htm_file='outbif\TEST.htm'
16 end-scan
```

13.4.2 Variables

Variables are supported on the right side of commands and also in selection files. If they are used in the script then they must be defined before the script is started. You can define them using [Variable Manager](#) in [GUI mode](#) or as command line parameters in [Command line mode](#).

Variables are coded as ^var^, where var is the variable name. The integrated editor displays them by red color:



```
1 logon=^logon^
2 table_color="yellow"
3 selection_file="test_jcl.sel"
4 create_txt_file='outbif\jcl.txt'
5 create_csv_file='outbif\jcl.csv'
6 create_xml_file='outbif\jcl.xml'
7 create_htm_file='outbif\jcl.htm'
8 table_color="gray"
9
```

13.4.3 Unknown statements

If an unknown statement is found then the program displays a warning message, but it continues in script execution. If you want to insert some description to the script then you should always use comments.

```
1 Hello World
2 table_color="yellow"
3 create_txt_file='outbif\jcl.txt'
4 create_csv_file='outbif\jcl.csv'
5 create_xml_file='outbif\jcl.xml'
6 create_htm_file='outbif\jcl.htm'
7 table_color="gray"
8
9 scan=''
10     lncmd_exec_scan='Browse - Job'
11     create_htm_file=''
12 end-scan
13
14
15
```

Output

```
2016-01-21 11:50:11 S parsing started
2016-01-21 11:50:11 S warning (line 001): unknown statement found; it is skipped
2016-01-21 11:50:11 S parsing finished, 11 commands found, errors: 0, warnings: 1
```

13.4.4 Statements

All statements start with a predefined keyword, which is displayed in blue by the editor. Depending on the statement none, one or more parameters can follow. Statements are not case sensitive. All supported statements are described in this section.

13.4.4.1 ANNOTATION

This commands allows you to add text description to any graphical file created with scripts. This annotation is printed below the image in mono space font. If more lines are needed then you can use \n line separator within the text. You can also use [variables](#) and runtime variables. Runtime variables have of course sense only if images are created in a scan block.

```
logon=c:\bif\logon.lgn
selection_file='c:\bif\selection.sel'
create_htm_file='c:\bif\output\report.htm'
scan=""
lncmd_exec_scan='GRAPH - IWS z/OS Job Netplan'
annotation="Application ID: %Application ID%\nValid From      : %Valid From%\nValid To      : %Valid To%"
create_png_file=''
end-scan
close=ALL
```

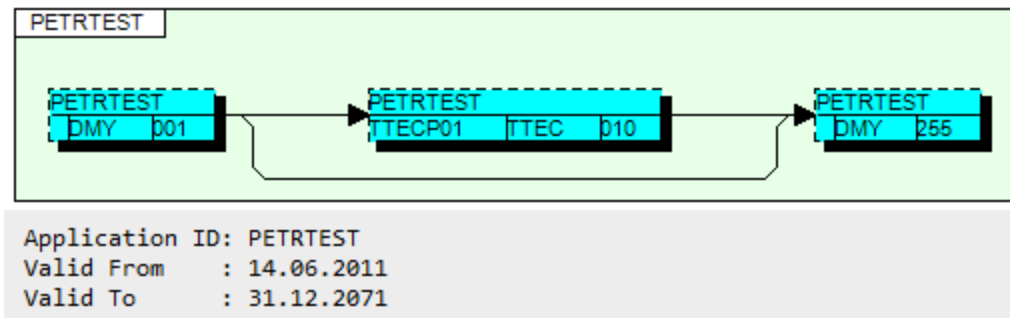
Here the annotation spans over 3 lines. The first one contains Application id, the next one Valid from and the last one Valid to.

Spaces ensure nice formatting, because mono space font is used.

The annotation uses runtime variables, which are coded as column names of the parent display surrounded with %.

In this particular example the parent display has 'Application ID', 'Valid From' and 'Valid To' columns.

The result can look like this:



13.4.4.2 ARRANGE

Lets you choose what columns are printed to HTML/XLSX/TXT document. The names of columns selected by ARRANGE must match the names you can see in the document when you open it from the [workspace](#).

```
arrange="Column1;Column2;..."
```

```
arrange="Creation Date;Last Update User;Auto. Deactivation;System"  
selection_file='test.sel'  
create_hm_file="report.htm"
```

In this case only 4 selected columns are written to report.htm.
After the file has been written the option is cleared.

13.4.4.3 ARRANGE_DISTINCT

Lets you choose what columns are printed to the HTML/XLSX/TXT document. The names of columns selected by ARRANGE_DISTINCT must match the names you can see in the document when you open it from the [workspace](#).

```
arrange="Column1;Column2;..."
```

```
arrange="Creation Date;Last Update User;Auto. Deactivation;System"  
selection_file='test.sel'  
create_hm_file="report.htm"
```

In this case only 4 selected columns are written to report.htm.
After the file has been written the option is cleared.

The command prints only unique lines. No same line is ever repeated.

13.4.4.4 CLOSE

Closes a result set. All resources associated with the result set are freed.

```
close=ALL
close='DataSetName'
close
```

ALL option closes all opened result sets.
 Close with a parameter closes the specified result set.
 Close without any parameter closes the current result set.

13.4.4.5 CREATE_XXX_FILE

Creates a file in XXX format from the current result set. Currently supported file formats are:

- HTM - HTML document (can include also images)
- CSV - CSV document
- TXT - TXT document
- XLSX - XLSX document (Excel 2007+)
- DAT - DAT file (DAT format of SmartIS PC Client)
- XML - XML document (useful if you need to analyze the result by your own tool)
- JSON - JSON document
- WMF - netplans only
- EMF - netplans only
- BMP - netplans and barcharts only
- JPG - netplans and barcharts only
- TIF - netplans and barcharts only
- PNG - netplans and barcharts only

This command has one parameter that specifies the file name. If this parameter equals an empty string then the result is appended to an already opened file. Concatenation of files this way is useful only for HTML documents.

If you create images (netplans or barcharts) and keep the file name empty then a random file name is created where the image is saved and the link to this file is appended to the already opened HTML file. If no HTML file is opened the program prints an error.

If you specify also the file name when a graphic file is created then only the image is created.

If this command is called from a scan block then the file name can contain runtime variables. These variables are coded as %ColumnName%, where ColumnName is a name of the column as it appears in the report's header. This variable is then replaced with the real value of the column. The value is taken from the parent display.

```
create_htm_file="output\test.htm" // creates new HTML file test.htm
create_htm_file=""                // appends HTML table to already opened HTML file
create_png_file=""                // creates PGN file and insert link to this file
to already opened HTML document
create_png_file="output\image.png" // creates only PNG file
```

13.4.4.6 CSS

Inserts a link to a CSS file name to the HTML document:

```
<link rel="stylesheet" type="text/css" href="filename.css">
```

```
css="filename.css"
```

Because every HTML table has specified the display name in class attribute then you can use your own CSS styles.

Short type of display names are used, for example:

```
<table class="DSPLTU4K">
```

CSS option can't be combined with TABLE_COLOR option.

13.4.4.7 CSV_SEPARATOR

Changes the default CSV separator set in the Options. You can code the new value with or without quotes:

```
csv_separator=","  
csv_separator=,
```

This new CSV separator is used in CSV files created by scripts.

13.4.4.8 EXIT

Stops processing of the script and in case of [Command Line mode](#) also exits the application when there was no error.

```
exit
```

13.4.4.9 GOTO

This statement jumps to the specified label and continues executing the script from there as a procedure. Once the code finishes (exit or end of the script is reached) then the execution continues with the next statement after GOTO. The label can be any text followed by a colon:

```
. . .  
START:  
scan=''  
    if Obj-Type = 'JOBP'  
        . . .  
        goto=START  
    end-if  
end-scan
```

13.4.4.10 HBAR_CHART

Defines the name of the horizontal bar chart that is created for example by [create_png_file](#) command. The chart must be already defined in the program (see [Charts](#)).

```
hbar_chart=NameOfTheHBarChart.
```

13.4.4.11 HEADING

Lets you change default headings of columns printed to the HTML/XLSX/TXT document. The number of headings specified must be less or equal to the number of columns in the table. It is recommended to call this function together with [ARRANGE](#) command.

```
arrange="Heading1;Heading2;..."
```

```
heading="Creation Date;Last Update User;Auto. Deactivation;System"  
selection_file='test.sel'  
create_htm_file="report.htm"
```


13.4.4.12 IF ... END-IF

Allows you to control what statements are executed inside of SCAN block.

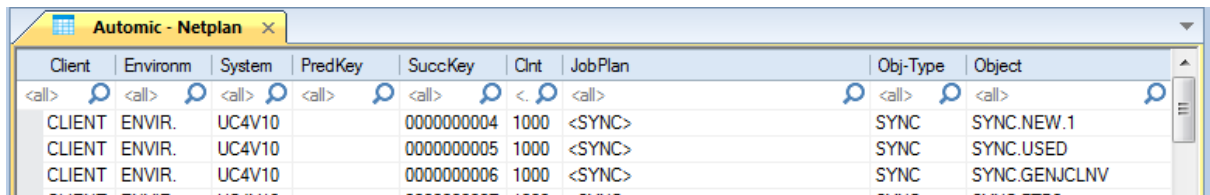
```
if expression
...
end-if
```

Supported operators are: =, >, <, >=, <=, <>

Expression can contain brackets, operators, AND and OR commands and NOT.

Values must be enclosed by apostrophes.

Field must equal a column name of the scanned result set and must be coded exactly as you see it in the program:



Client	Environm	System	PredKey	SuccKey	Clnt	JobPlan	Obj-Type	Object
<all>	<all>	<all>	<all>	<all>	<all>	<all>	<all>	<all>
CLIENT	ENVIR.	UC4V10		0000000004	1000	<SYNC>	SYNC	SYNC.NEW.1
CLIENT	ENVIR.	UC4V10		0000000005	1000	<SYNC>	SYNC	SYNC.USED
CLIENT	ENVIR.	UC4V10		0000000006	1000	<SYNC>	SYNC	SYNC.GENJCLNV

In this sample field can be one of Client, Environm, System, PredKey, SuccKey, Clnt, JobPlan, Obj-Type, ...

The value must be enclosed in apostrophes.

Example:

```
scan=''
  if (Client = 'CLIENT' and Object = 'SYNC.USED')
    ...
  end-if
end-scan
```

Caution:

In the past it was allowed to type a column name that contained spaces like this:

```
if (Programmers Name = 'John')
```

This is not possible now. If you want to use a column having spaces you must replace them by underscores:

```
If (Programmers_Name = 'John')
```

13.4.4.13 IMAGE_SIZE

Sets width of netplans and barcharts.

```
image_size=AUTO
image_size=800
image_size=50%
```

AUTO optimizes the best size automatically. The number specifies the size in pixels, you can also code it in percents of the screen width.

In all these cases the image is rendered with 4:3 ratio (the default one - AUTO - is 1600:1200 pixels).

In case of charts it is also possible to specify two comma-separated values, one for width and another one for height. This allows you to control the image size ratio, which is useful mainly in case of long line or bar charts. This ratio is ignored in case of netplans, as their ratio is fixed. The following example creates HTML file and appends a line chart (stored with name TEST in the client) in PNG format with width 800px and height 200px.

```
logon=c:\a\bif\logon.lgn
selection_file="c:\bif\selection.sel"
create_htm_file="c:\bif\out\out.html"
line_chart="TEST"
image_size=800,200
create_png_file=""
```

13.4.4.14 LINE_CHART

Defines the name of the line chart that is created for example by [create_png_file](#) command. The chart must be already defined in the program (see [Charts](#)).

```
line_chart=NameOfTheLineChart
```

13.4.4.15 LINK

Inserts a link to all cells in the specified column in the HTML table.

```
link="Filename"
link="Filename;BLANK"
```

Filename is the target of the link. If you code BLANK then a new window is opened when you click on the link.

The file name must contain just one variable (%var_name%) that has exactly the same name like a column where you want to have the link.

For example:

```
selection_file='test.sel'
link="http://192.168.110.58/data/%System%.html"
create_htm_file="report.htm"
```

In this case it is required that the result of selection_file contains a column named System.

When the report.htm is created then the columns of the created table are checked and if a column System is found then its content is replaced by the link and the variable in the link is replaced by the value.

After the file has been written the option is cleared.

13.4.4.16 LNCMD_EXEC

Executes the selected [line command](#) for all data rows of the current result set. The statement returns data which are put on the top of the stack and become the current result set.

Two variants of this parameter are supported:

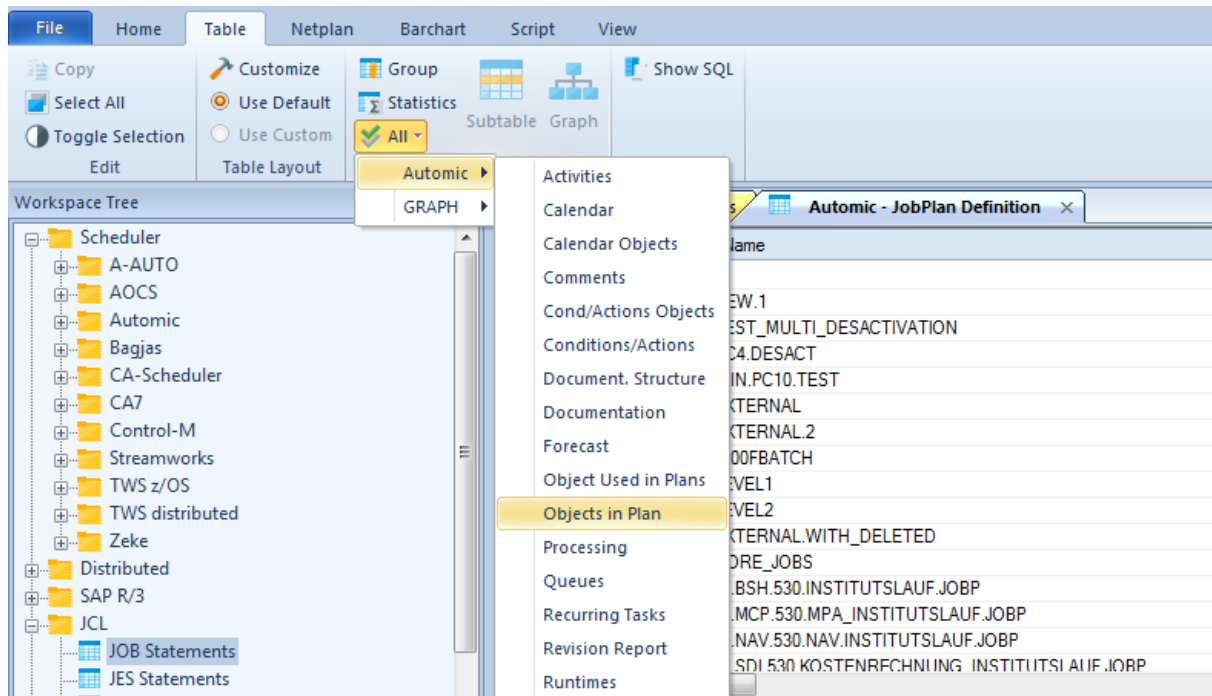
- Incmd_exec="LineCommand"
Executes specified line command for each row of the current result set.
- Incmd_exec="DataSetName;LineCommand"
It executes the specified line command for each row of DataSetName result set.

```
lncmd_exec="Automatic - Objects in Plan"
lncmd_exec="Automatic - JobPlan Definition;Automatic - Objects in Plan"
```

In the first case only a name of the line command is entered. It works only when this line command is available in the current result set.

In the second case also the result set name (document name) is specified. Therefore it works even when this set is not on the top of the stack of data.

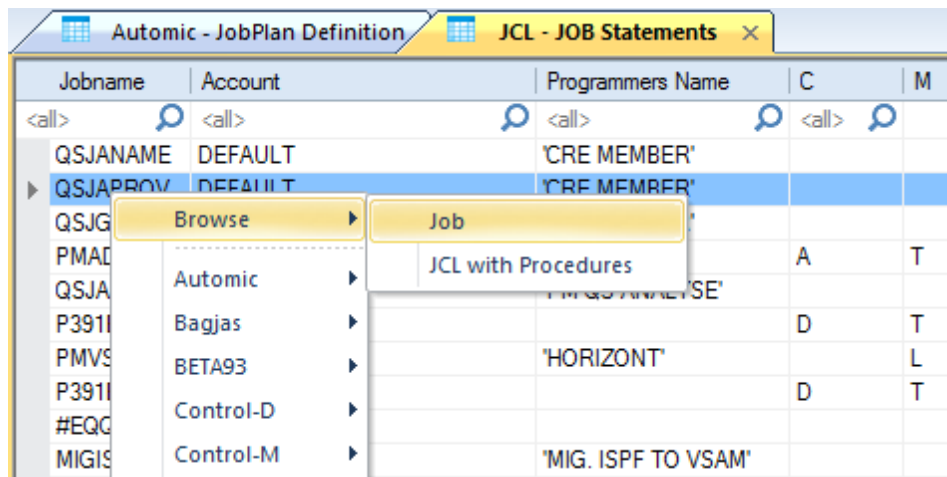
The following picture shows where you can find the correct names - the result set name and the line command name.



You must code the names exactly like you see them in the program. The menu and sub menu part of the line command name must be separated by ' - '.

You can use all available line commands. Even Browse line command is supported:

```
lncmd_exec="JCL - JOB Statements;Browse - Job"
```



13.4.4.17 LNCMD_EXEC_SCAN

Executes the selected [line command](#) for just one record of the scanned result set. This command must be coded inside of the SCAN block.

The requested line command must be specified as a parameter.

This statement allows to run line commands for all lines of the scanned result set or only for some of them if it is used together with IF statement.

```
lncmd_exec_scan="LineCommand"
```

13.4.4.18 LOAD_PRED / LOAD_SUCC

Specifies the number of predecessor and successor levels in netplans. These options have higher priority than the levels specified in the selection file. If they are not coded the levels from the selection file are used.

```
load_pred=5  
load_succ=10
```

13.4.4.19 LOGON

Logs on to the server. Two variants of parameters are supported:

- logon="LogonFile.lgn"
Logs on using the logon file created from the [logon](#) window.
- logon="TcpFile;UserId;Password"
Logs on using TCP file, user and password that are specified directly

13.4.4.20 PKILOGON

Logs on to the server using PKI. Two variants of parameters are supported:

- logon="TcpFile"
Logs on using TCP file and default PKI key type and key name set in xipcc.ini file.
If the default key type and name are not specified in the INI file then the program asks for key selection (if more keys are on the card) or select the only one that exists automatically.
- logon="TcpFile;PkiType;PkiKey"
Logs on using TCP file and PKI key and type specified in the BIF script.

Example (logs on using PKI.TCP file and explicitly specified key type (1) and name:

```
pkiologon=PKI;1;bb4e2d9d-e72f-a45a-8372-8bcf0c89ee4e
```

13.4.4.21 LOOP_CONDITION

If there is a GOTO statement inside of the SCAN block then LOOP_CONDITION should be used to avoid loops. This combination of statements can in some rare cases cause looping.

```
loop_condition='DataSetName;Column'
```

Every line scanned in a SCAN block is checked and the value specified by Column is registered in an internal buffer. If during the scanning the same value in the same result set is found then the iteration is terminated immediately.

13.4.4.22 MAX_DATA_ROWS

Sets the maximal number of data rows received from the server except data returned by the Browse line command.

To limit the number of rows received by the Browse line command please see [MAX_BROWSE_ROWS](#) statement.

```
max_data_rows=1000
```

When this option is not set then the default value from [Options](#) is used.

13.4.4.23 MAX_BROWSE_ROWS

Sets the maximal number of data rows received from the server by the Browse line command.

```
max_browse_rows=1000
```

When this option is not set then the default value from [Options](#) is used.

13.4.4.24 PIE_CHART

Defines the name of the pie chart that is created for example by [create_png_file](#) command. The chart must be already defined in the program (see [Charts](#)).

```
pie_chart=NameOfThePieChart
```

13.4.4.25 SCAN ... END-SCAN

Scans the current or specified result set line by line. Inside of the SCAN block you can call IF statements to check values of fields you are interested in and continue with computation only when the line contains specific information. You can use LNCMD_EXEC_SCAN statement to call a line command for each scanned line. You can combine IF and LNCMD_EXEC_SCAN statements inside of the scan block to create reports containing only information you are interested in.

```
set_title='automic JobPlans base'
logon="logon.lgn"
selection_file='test.sel'
create_htm_file='output\report.htm'

lncmd_exec='Automic - Task Properties'
create_htm_file=''
close

lncmd_exec='Automic - Objects in Plan'
create_htm_file=''
close='automic JobPlans base'

scan=''
  if Obj-Type = 'JOBP'
    lncmd_exec_scan='Automic - JobPlans'
    create_htm_file=''

    lncmd_exec='GRAPH - Aut.Workflow'
```

```

        create_PNG_file=''
        close
        close
    end-if
end-scan

```

Explanation:

1. Selection criteria specified in 'test.sel' file is executed.
2. Data returned from the selection are identified by 'automic JobPlans base' and they are written as HTML table to 'output\report.htm' file.
3. 'Automic - Task Properties' line command is executed for every line of the data and the result becomes the current result set.
4. The task properties are appended to the opened HTML file and this result set is closed. As a result 'automic JobPlans base' result set becomes the current one.
5. 'Automic - Objects in Plan' line command is executed for all lines of 'automic JobPlans base' result set and the result becomes the current result set.
6. Objects in the plan are appended to HTML file.
7. 'automic JobPlan base' result set is closed. At this moment only one result set exists (Automic - Objects in Plan).
8. Scanning of 'Automic - Objects in Plan' line by line starts.
9. IF statement is executed for every line
10. If the value in column 'Obj-Type' doesn't equal 'JOBP' then the iteration continues, otherwise:
 - i. 'Automic - JobPlans' line command is executed for the current scanned line and the result becomes the current result set.
 - ii. The result is appended to HTML file.
 - iii. 'GRAPH - Aut. Workflow' line command is executed for all lines of the current result set (Automic - JobPlans) and the result becomes the current one.
 - iv. PNG file of the workflow is created and a link to it is appended to HTML file.
 - v. The current result set ('Automic - Workflow') is closed.
 - vi. The current result set ('Automic - JobPlans') is closed.

Sometimes it is handy to call another selection_file command from within a scan block and with variables in its values.

Sample script:

```

logon="D:\Test\logon.lgn"
selection_file="D:\Test\selection.sel"
create_htm_file="D:\Test\report.htm"
use_runtime_variables=Y

scan=''
    create_htm_file="D:\Test\chart-%Jobname%-%Stepname%.htm"
    selection_file="D:\Test\selection_chart.sel"
    line_chart="SMF_TEST"
    create_png_file="D:\Test\chart-%Jobname%-%Stepname%.png"
    close
end-scan

```

Here the first selection is done by selection.sel file where are fixed search criteria.

Then the support of runtime variables is activated by use_runtime_variables command. This is necessary, otherwise the parser handles % in the second selection file like a wildcard instead of a variable.

The scan block iterates through all lines returned by the first selection.

The selection_chart.sel file can now use variables referencing values in Jobname and Stepname columns of the current row:

```
SMFSTEPINFORMATION
SMFSTEPINFORMATION_Jobname=EQ%Jobname%
SMFSTEPINFORMATION_Stepname=EQ%Stepname%
```

The variables are substituted before the selection is executed, so the server receives already valid Jobname and Stepname.

Variables can also be used in file names.

13.4.4.26 SELECTION_FILE

Specifies the selection file with search criteria created in the [Filter](#) window. This statement also executes the select-request and returns data.

Returned data become the current result data (they are put on the top of the stack).

The name of the returned result data equals the table name (i.e. the name that is shown in the header of the document when it is not opened by the script), unless it is overwritten by SET_TITLE statement.

```
selection_file="myselection.sel"
```

13.4.4.27 SEPARATOR

Inserts a horizontal separator line to the HTML document.

```
Incmd_exec='automic JobPlans base;Automic - Objects in Plan'
create_htm_file=''
SEPARATOR
```

13.4.4.28 SET_TITLE

This statement renames a result set. The name of result set created by SELECTION_FILE, SQL SELECTION_FILE or SQL statements is by default the same as the one you can see when the document is created with the dialog of the SmartIS PC Client. You can see the name in document's tab. For instance, the default name of result set in the following picture is "Automic - JobPlan Definition".

Table Functions		Tools	
Automatic - JobPlan Definition			
System	Clnt	Object Name	Object Title
<all>	<all>	<all>	<all>
UC4V10	1000	JOBP.NEW.1	
UC4V10	1000	JOBP.TEST_MULTI_DESACTIVATION	

Also if the result set is created by LNCMD_EXEC or LNCMD_EXEC_SCAN then the name is taken from this tab. You can simulate your scripts by opening required documents in the program in the standard way from the [worklist](#) and from [popup menus](#) to know which document names are used.

You can set a new name by calling SET_TITLE statement before a command that returns data is executed. As a result, the created result set has the name you have specified. It is particularly useful if you want to pass the name as a parameter to statements like LNCMD_EXEC, CLOSE and others. Renaming result sets this way gives you much better control over your data.

```
set_title='automic JobPlans base'
selection_file='test.sel'
create_htm_file='outbif\report.htm'
```

Any command that returns data resets SET_TITLE option back to an empty value. If you want to use the same name again, you have to call SET_TITLE again.

13.4.4.29 SORT

Lets you choose how data in the HTML document are sorted.
Data are sorted by the order of the specified columns. If you code - in front of a column then sorting is in descending order.

```
sort="Column1;-Column2;Column3"
```

This example sorts first by Column1, then in descending order by Column2 and finally by Column3. After the file has been written the option is cleared.

13.4.4.30 SQL

Executes free SQL command. It works like SQL SELECTION_FILE but allows you to enter the SQL directly in the script.

```
sql="select * from xinfo37.xxrtjob where jobjn like 'A%'"
```

This statement works only when free SQL commands are not disabled in INI file.

13.4.4.31 SQL SELECTION_FILE

Specifies the SQL selection file created in [Filter](#) window. This statement also executes the request and returns data.

Returned data become the current result set (they are put on the top of the stack).

The name of the returned result set equals the table name (i.e. the name that is shown in the header of the document when it is not opened by the script), unless it is overwritten by SET_TITLE statement.

```
sql selection_file="myselection.sql"
```

If the first line of the SQL in the selection file contains the display name then the columns of the SQL must match the columns available in the display. In this case also the legend is downloaded from the

server and it is shown in the header of generated table. If the display name is missing (i.e. the SQL was modified in the filter or it was coded by hand) then the legend is not received from the server and the SQL is handled like free SQL. Free SQL statements can be executed only when they are not disabled in [INI file](#).

13.4.4.32 STOP_ON_EMPTY

Stops processing of the script when any statement that is able to return data returns an empty result.

`stop_on_empty=Y|N`

13.4.4.33 TABLE_COLOR

Allows you to use one of the predefined color modes for HTML tables. This option can't be combined with CSS option.

`table_color=white | gray | green | blue | red | yellow | brown | pink | cyan | orange | violet`

Sample outputs:

System	CInt	Plan Name	Object Name	Obj-Type	System Jobname	Line
UC4V10	1000	JOBP.LEVEL1	END	<END>		3
UC4V10	1000	JOBP.LEVEL1	JOBP.LEVEL2	JOBP		2
UC4V10	1000	JOBP.LEVEL1	START	<START>		1

Plan Name	Object Name	Line	EarlDays	EarlTime	Earl-TZ	Earl-Act
JOBP.LEVEL1	START	1				Y
JOBP.LEVEL1	JOBP.LEVEL2	2				Y
JOBP.LEVEL1	END	3				Y

Plan Name	Object Name	Line	EarlDays	EarlTime	Earl-TZ	Earl-Act
JOBP.LEVEL1	JOBP.LEVEL2	2				Y

13.4.4.34 TABLE_STYLE

Allows you to choose the style of the HTML table. In RECORD style the table has only two columns where the first one contains the column name and the second one the value. Columns of the result set are written each one on a new line. In NORMAL style the standard table format is created (whole record per line).

`table_style=NORMAL|RECORD`

13.4.4.35 USE_RUNTIME_VARIABLES

If this option is set to Y then runtime variables (%ColumnName%) in selection files called from within a [scan](#) block are supported.

Without this option the runtime variables are not supported and % is treated like a wildcard.

`use_runtime_variables=Y|N`

13.4.4.36 VBAR_CHART

Defines the name of the vertical bar chart that is created for example by [create_png_file](#) command. The chart must be already defined in the program (see [Charts](#)).

```
vbar_chart=NameOfTheVBarChart
```

13.4.4.37 OPEN_DOCUMENT

Opens the current set of data as a new tab in the client.

This statement can be used only when the script is started from the client's GUI or when it is started in BIF mode together with **/showclient** command line parameter.

The statement opens the document depending on its data type. It can be a table, barchart or netplan.

14 Administration

14.1 INI File

The INI file (*xipcc.ini*) is located in the same directory like EXE file of the application. It is reserved for global settings that are not allowed or not recommended to change for normal users in standard working conditions.

The path to the INI file can be changed by a command line parameter of the SmartIS PC Client as is shown in this sample:



```
C:\Xipcc>xipcc.exe /ini="\\192.168.111.3\Xipcc\Xipcc.ini"
```

14.1.1 General Setting

- **DEBUG_MODE**
When set to Y then the [output bar](#) contains network and trace tabs.
This setting also activates creation on additional log file (Debug.log) in the [log](#) directory.
- **SERVER_MSG_LEVEL**
Sets message level of the server.
- **SERVER_TCP_LEVEL**
Sets TCP/IP message level of the server.
- **ALLOW_RELOAD**
When set to Y then the [Reload](#) button is displayed in the caption bar when more records than specified by the limit satisfy your [filter](#) criteria.
- **ALLOW_CREATE_LGN**
When set to N then it is not possible to create LGN files at [Logon](#) dialogs. By default this feature is enabled.
- **SECURITY_INTERFACE**
When set to Y then the [Logon](#) window offers only the TCP configuration files. The user name and password is provided by the security interface.
When set to N then the Logon window requires to enter the TCP configuration file, user name and password.
When set to OPT then the Logon window offers both methods - you can enter the user name and password and also use the security interface.
- **FREE_SQL**
When set to N then the application doesn't allow to execute free SQL commands from the [console](#).
- **APP_WIDTH**
Sets the width of the main window in pixels. It is ignored when it is not set.

- **APP_HEIGHT**

Sets the height of the main window in pixels. It is ignored when it is not set.

- **APP_TITLE**

Sets the new title of the program. If it is not set then SmartIS PC Client is used as the default.

- **CONFIG_DIRECTORY**

Specifies a directory where the [License Key File](#), [TCP configuration files](#), [admin.xml](#) or [administrator's notes](#) are located.

If this option is empty then SmartIS PC Client searches for these files in the directory where it is installed.

You can also use any environment variable defined in the operating system. For example %APPDATA% and others.

- **PROFILE_DIRECTORY**

Specifies a directory where the [local configuration file](#) (Setting.xml) is stored. This file is created and maintained by the SmartIS PC Client.

If %USERNAME% variable is found in the path then it is replaced with the current Windows user.

You can also use any environment variable defined in the operating system. For example %APPDATA% and others.

Sample:

```
PROFILE_DIRECTORY=\\192.168.111.3\Profile\%USERNAME%
```

If this option is empty then the SmartIS PC Client creates Setting.xml file in the standard path in the user's home directory.

- **ARCHIVE_LOG_FILES**

Specifies how log files are archived. If the value equals zero or when it is not specified then log files are not archived but are overwritten when the program starts.

If a non zero integer value is specified then the log files are kept for the requested number of hours.

Older logs are deleted automatically on the program's startup.

In this case the log file names contain also the creation timestamp.

Sample:

ARCHIVE_LOG_FILES=24	keeps logs for one day
ARCHIVE_LOG_FILES=168	keeps logs for one week
ARCHIVE_LOG_FILES=	disables the archiving

- **INACTIVITY_TIMEOUT**

When it is not empty then it sets the time in minutes in which the client automatically disconnects from the server in case of network inactivity.

- **RCV_TIMEOUT**

When it is not empty then it sets the timeout of Receive function in seconds. The default value is 10 seconds, which should be sufficient in most cases.

- **PRINTER**

Sets the default printer. The value set by this option has higher priority than the system default printer.

- **EXPIRATION_WARNING**

Sets how many days before the license expiration a warning should be displayed. Default value is 30 (when nothing is explicitly specified).

- **USERISSTEPNAME**

When set to Y then the user name is used as a stepname in the task started on the host.

- **HELP_FORMAT**

When it equals CHM (the default) then the help displayed after pressing F1 is in CHM format. This can cause sometimes troubles when the program runs from a remote drive, because Windows block the content for security reasons. If this happens, you can try to set PDF help format (HELP_FORMAT=PDF) or HTML format (HELP_FORMAT=HTML). In this case the help is opened with Adobe Reader or with your default web browser.

- **TCPCOMMONNAME**

The XINFO client evaluates the Common Name (CN) of the subject attribute of the server certificate to validate the server hostname during server authentication at connection start. The TCPCOMMONNAME parameter of the client controls the evaluation of the Common Name of the presented server certificate. TCPCOMMONNAME=* disables the Common Name check and the client accepts all presented certificates. Any other value of TCPCOMMONNAME must match with the Common Name of the presented certificate to accept it. The Subject Alternative Name certificate extension is ignored and not used for server hostname validation.

- **TCPCRYPT**

Sets the crypt mode. Allowed values are:

TCPCRYPT=1: Strong password encryption. Passwords on the host can have up to 8 or 14 - 100 characters. No TLS.

TCPCRYPT=2: (reserved)

TCPCRYPT=3: Strong password and data encryption with TLS. Passwords (1-8) and passphrases (14-100) are supported. It requires ROTISHB module on the host for XINFO 4.1 and HORILST module from XINFO 4.2 and all newer releases.

TCPCRYPT=4: Authentication via smart cards. Data encryption with TLS. It requires ROTISHB module on the host.

- **TCPTLSSECLEVEL**

Sets the internal OpenSSL security level (default is 1). Security level 1 requires a minimum of 80 bits of security therefore older TLS versions 1.0 or 1.1 no longer work. Please specify security level 0 to support it.

- **TCPPEMCA**

Specifies the file containing the trusted certificates to use during server authentication. The certificates can be concatenated and need to be in PEM format.

If the value is empty the Windows Certificate Store (Trusted Root Certification Authorities) is used instead.

Please make sure the root certificate of the server certificate can be found either in the file specified or the Windows Certificate Store.

Sample:

TCPPEMCA=hor-ca.pem.crt

In case the value contains a relative path and CURRENT_DIRECTORY option is set then it is relative to this directory.

When CURRENT_DIRECTORY is not set then it is relative to the program directory.

- **CRYPTKEY**

Specifies a path of the key used by the encrypting algorithm. This file must be securely stored on the file system so that only users who are really allowed to view/edit it have access to it.

The key is used for encryption and decryption of logon files used by scripts. If the key is not set then libchdk-1.dll library is used for encryption. If even this library is not present (it is included only in AES package) then logon files can't be used and scripts can't connect to the server. The key can be created by Generate key command available on Home ribbon bar.

- **PKI_INTERFACE**

Sets the PKI interface type. Allowed values are:

PKI_INTERFACE=capi

PKI_INTERFACE=capi_store

PKI_INTERFACE=pkcs11

- **PKI_DEFAULT_KEY_NAME**

- **PKI_DEFAULT_KEY_TYPE**

Sets the default key name and key type. If these values are set and the key is found on the card, it is selected automatically.

- **PKI_CAPI_CSP_NAME**

Sets the provider name. For example:

PKI_CAPI_CSP_NAME=Microsoft Base Smart Card Crypto Provider

- **PKI_PKCS11_MODULE_DLL**

Sets the name of DLL library in case of PKCS interface type. For example:

PKI_PKCS11_MODULE_DLL=itp11.dll

- **PKI_REMEMBER_KEY**

When this option equals Y then the program remembers the selected key and reuses it if a new connection is established.

Otherwise, when there are more keys on the smart card, you have to select the key whenever you connect.

- **PKI_KEY_USAGE_FILTER_TYPE**

Defines the filter type for the certificate key usage extension. It can be used to limit the number of keys displayed. Only keys corresponding to certificates matching the following filter values are displayed.

Allowed values:

- **all**: All certificates regardless of the key usage extension are accepted and the value of the PKI_KEY_USAGE_FILTER is ignored (this value provides the same results than with older versions).
- **exact**: Only certificates that match the key usage value specified by the PKI_KEY_USAGE_FILTER setting are accepted.
- **exact_none**: Only certificates that match the key usage value specified by the PKI_KEY_USAGE_FILTER setting and in addition certificates that have no key usage extension are accepted.

- **PKI_KEY_USAGE_FILTER**

Defines the allowed value of a certificate key usage. The value can be a (bit) mask which means that all (bit) values have to be present in the certificate key usage. If the value is prefixed with 0x then it is interpreted as hex value otherwise it is interpreted as decimal. The pre-defined value of 0x80 for example means that only certificates intended for digital signatures are allowed.

- **PKI_EXT_KEY_USAGE_FILTER_TYPE**

Defines the filter type for the certificate extended key usage extension. It can be used to limit the number of keys displayed. Only keys corresponding to certificates matching the following filter values are displayed.

Allowed values:

- **all**: All certificates regardless of the extended key usage extension are accepted and the value of the PKI_EXT_KEY_USAGE_FILTER is ignored (this value provides the same results than with older versions).
- **exact**: Only certificates that match the extended key usage value specified by the PKI_EXT_KEY_USAGE_FILTER setting are accepted.
- **exact_none**: Only certificates that match the extended key usage value specified by the PKI_EXT_KEY_USAGE_FILTER setting and in addition certificates that have no extended key usage extension are accepted.

- **PKI_EXT_KEY_USAGE_FILTER**

Defines the allowed value of a certificate extended key usage. The value is of type numerical identifier (NID). The pre-defined value of 1.3.6.1.5.5.7.3.2 for example means that only certificates intended for Client Authentication are allowed.

To enable PKI you have to set TCPCRYPT=4. Even when PKI options are defined in the INI file the PKI is disabled until the crypt mode is set to 4.

It is also possible to set the crypt mode in TCP file.

The complete sample:

```
DEBUG_MODE=Y
FREE_SQL=Y
ALLOW_RELOAD=Y
SECURITY_INTERFACE=N
SERVER_MSG_LEVEL=0
SERVER_TCP_LEVEL=0
APP_WIDTH=
APP_HEIGHT=
APP_TITLE="PC Client by HORIZONT"
CONFIG_DIRECTORY=
PROFILE_DIRECTORY=
ARCHIVE_LOG_FILES=
INACTIVITY_TIMEOUT=
PRINTER=
EXPIRATION_WARNING=
HELP_FORMAT=CHM
TCPCOMMONNAME=dummy
TCPCRYPT=4
TCPPEMCA=hor-ca.pem
PKI_INTERFACE=capi
PKI_DEFAULT_KEY_NAME=
PKI_DEFAULT_KEY_TYPE=
PKI_CAPI_CSP_NAME=Microsoft Base Smart Card Crypto Provider
PKI_PKCS11_MODULE_DLL=itp11.dll
PKI_REMEMBER_KEY=N
```

14.1.2 Universal Netplans

SmartIS PC Client supports universal [netplans](#), which can be configured in the INI file. The number of universal netplans is unlimited. You can set the appearance of each universal netplan individually both in [Options](#) and in the INI file. Universal netplans setting can be configured in `[UNIVERSAL_NETPLANS]` section of the INI file. Setting in Options is available only for netplans configured also in the INI file. The most simple setting looks like this:

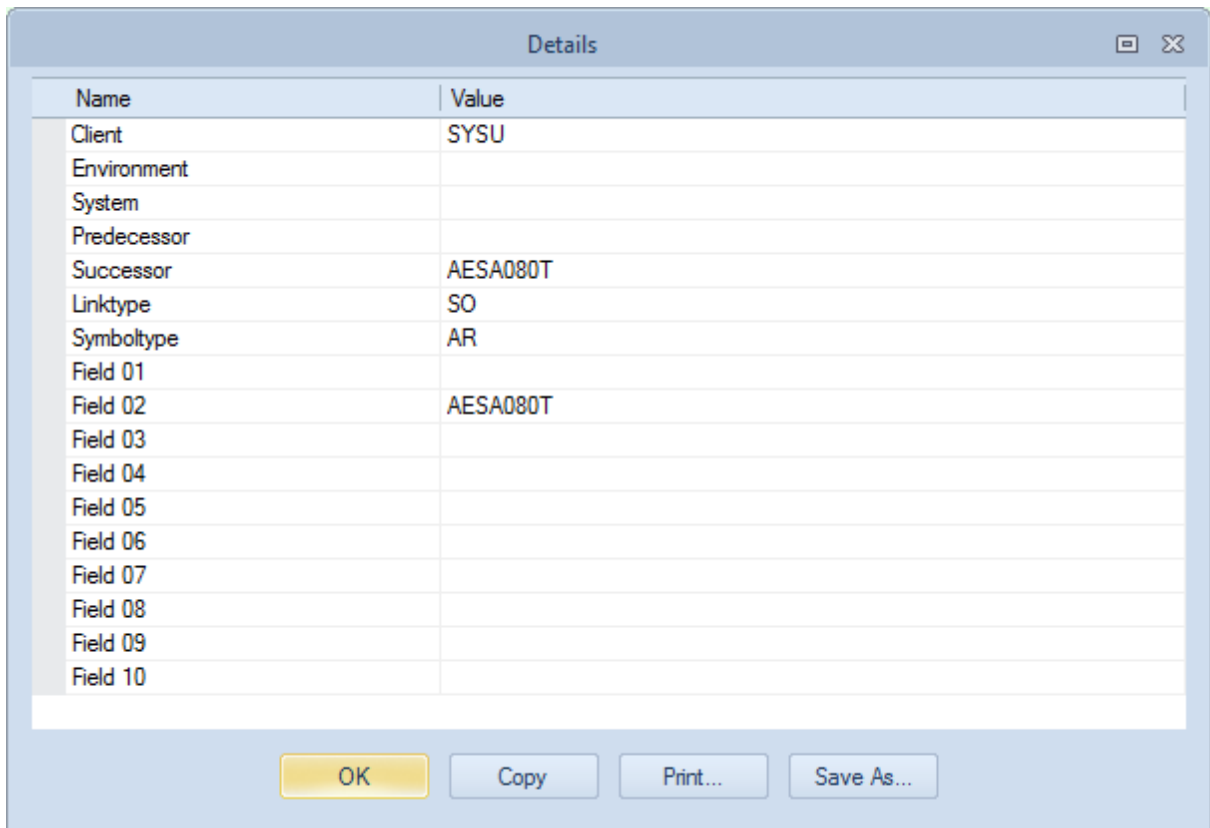
```
[UNIVERSAL_NETPLANS]
GRAPHUNI001.LABEL = "My New Netplan"
```

The first token `GRAPHUNI001` is a name of the display. It must be valid universal display name created by the Display Generator on the server. The name must be in `GRAPHUNIXYZ` format, where `XYZ` are any letters or digits.

The `LABEL` option sets a title of the display. This title is visible in [Options](#) in *Netplans - Universal* category.

Even the minimal setting shown above is sufficient for marking `GRAPHUNI001` as a netplan in SmartIS PC Client. If you connect to the server then you should see a netplan [icon](#) next to the display name in the [workspace](#).

As all universal netplans are derived from `GRAPHUNI` display, they have `UNIFIELD01 - UNIFIELD10` columns in the database table. By default, the client shows Field 01 - Field 10 legends of these columns, as shown in the following picture:



The screenshot shows a window titled "Details" with a table containing the following data:

Name	Value
Client	SYSU
Environment	
System	
Predecessor	
Successor	AESA080T
Linktype	SO
Symboltype	AR
Field 01	
Field 02	AESA080T
Field 03	
Field 04	
Field 05	
Field 06	
Field 07	
Field 08	
Field 09	
Field 10	

At the bottom of the window are four buttons: OK, Copy, Print..., and Save As...

Also the filter dialog shows Field 01 - Field 10 by default.

This is acceptable in many cases, but it is also possible to show more precise legends and only fields that are really used. You can set it by *FIELD* options. For example:


```

GRAPHUNI001.FIELD.UNIFIELD01 = "Workstation"
GRAPHUNI001.FIELD.UNIFIELD02 = "App Id"
GRAPHUNI001.FIELD.UNIFIELD03 = "Jobname"
GRAPHUNI001.FIELD.UNIFIELD04 = "Op. No."

```

As a result, common fields and only four universal fields with modified legends are displayed both in [Details Window](#) and in the [Filter](#). Also [Node Styles](#) options shows modified legends of universal fields.

Another setting allows you to change names of nodes and links.

The default node names are:

- *ARROW-LEFT*
- *ARROW-RIGHT*
- *ELLIPSE*
- *IF*
- *OVAL*
- *PARALLELOGRAM*
- *RECT*
- *ROUNDED-RECT*
- *TRIANGLE*
- *TRIANGLE-UP*.

The default link names are:

- *LINK-DASHED*
- *LINK-DASHED-DOTTED*
- *LINK-DOTTED*
- *LINK-SOLID*

These names say nothing about the real meaning of nodes and that's why you can overwrite them by *NODE* and *LINK* options:

```

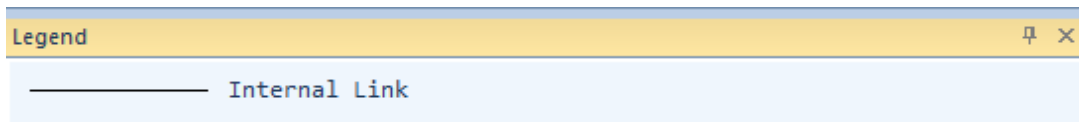
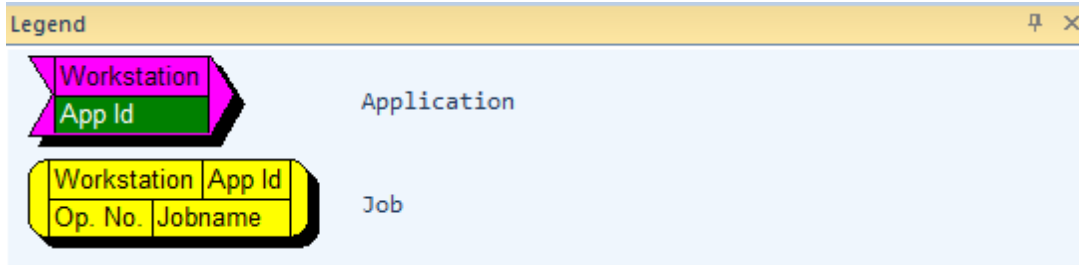
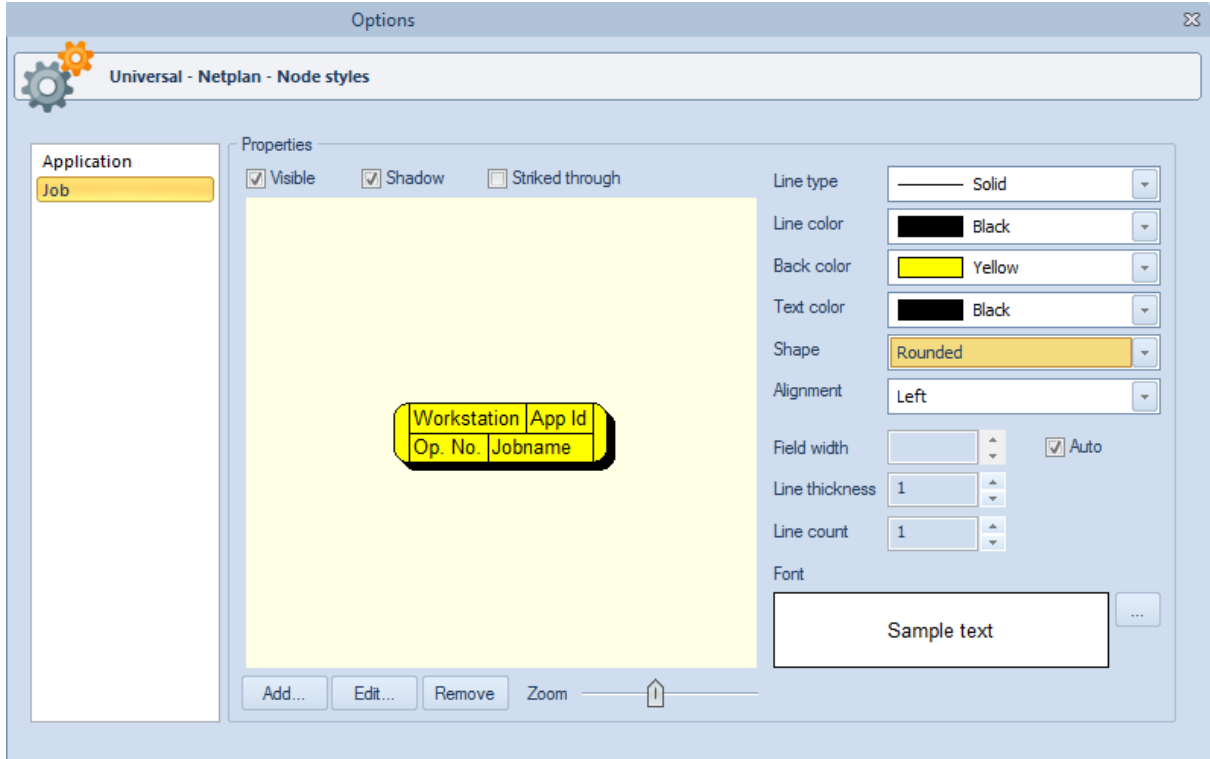
GRAPHUNI001.NODE.ARROW-RIGHT = "Application"
GRAPHUNI002.NODE.ROUNDED-RECT = "Job"

```

```
GRAPHUNI002.LINK.LINK-SOLID = "Internal Link"
```

As a result, *ARROW-RIGHT* symbol name is changed to *Application*, *ROUNDED-RECT* is changed to *Job* and *LINK-SOLID* is changed to *Internal Link*.

These new names are visible both in [Options](#) and also in the [Legend Bar](#):

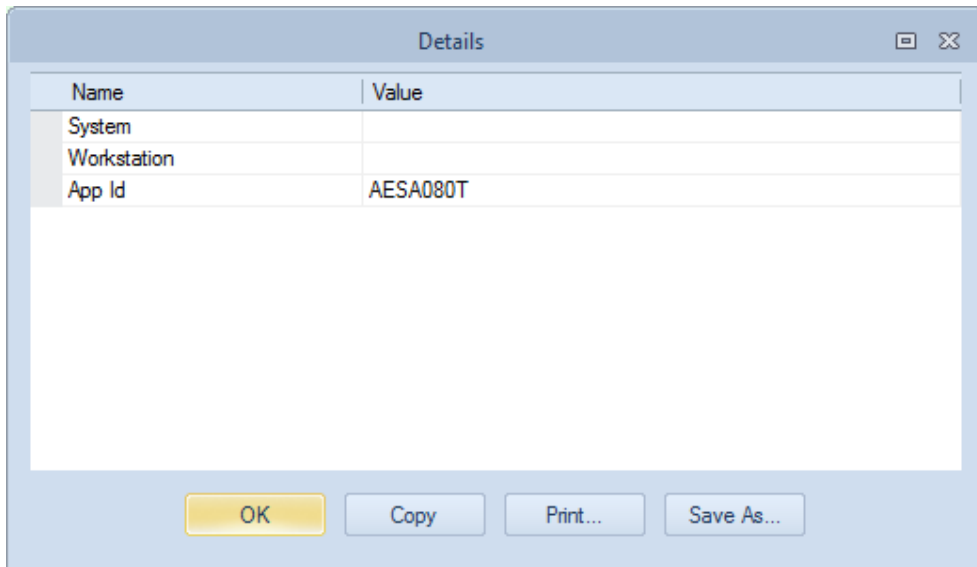


You can also use *DETAILS* option to configure data fields that are visible in the [Details](#) window:

```
GRAPHUNI001.DETAILS.ARROW-RIGHT = "UNISYSTEM;UNIFIELD01;UNIFIELD02"
GRAPHUNI001.DETAILS.ROUNDED-RECT = "UNISYSTEM;UNIFIELD01;UNIFIELD02;UNIFIELD03;UNIFIELD04"
```

This code ensures that *UNISYSTEM* (its default legend is System) and *UNIFIELD01* and *UNIFIELD02* (which are renamed to Workstation and App Id) are displayed if you open the Details window of *ARROW-RIGHT* node (which is renamed to Application).

The system and four universal fields (i.e. Workstation, App Id, Jobname, Op. No.) are displayed for *ROUNDED-RECT* node (renamed to Job).



Field names in the *DETAILS* option must be separated by a semicolon. If you do not specify any *FIELD* option then all common fields and all universal fields are displayed. If *FIELD* option is set then you can use all common fields and only such universal fields that are specified by *FIELD* option.

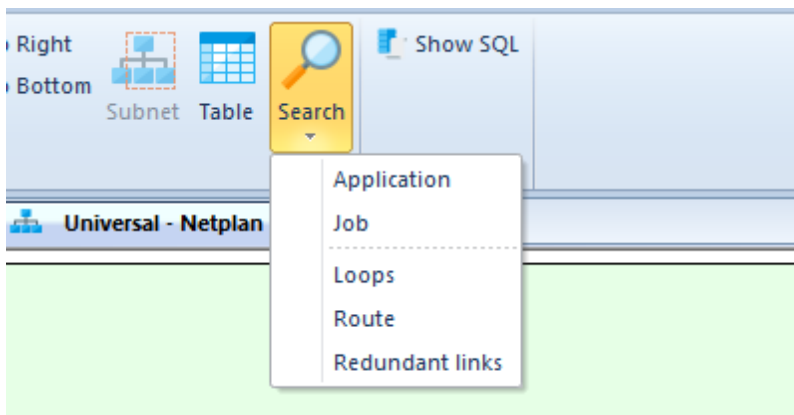
Common fields are: *XXRDATCLIENT*, *XXRDATENV*, *UNISYSTEM*, *UNIPRED*, *UNISUCC*, *UNILINK*, *UNISYMBOL*

Universal fields are: *UNIFIELD01* - *UNIFIELD10*

The last available option *SEARCH* sets what fields are part of the the [Search](#) window. Fields in the Search window may be therefore different to fields visible in Details window. You can use the same fields like in *DETAILS* option.

```
GRAPHUNI001.SEARCH.ARROW-RIGHT = "UNISYSTEM;UNIFIELD01;UNIFIELD02"
GRAPHUNI001.SEARCH.ROUNDED-RECT = "UNISYSTEM;UNIFIELD01;UNIFIELD02;UNIFIELD03;UNIFIELD04"
```

If you click on the *Search* icon, you can see renamed objects (Job and Application):



And fields visible in the Search window for Job and Application are different and correspond to the configuration:

The image shows two screenshots of search dialog boxes. The top dialog is titled "Search for: Application" and contains three input fields: "System", "Workstation", and "App Id". The bottom dialog is titled "Search for: Job" and contains five input fields: "System", "Workstation", "App Id", "Jobname", and "Op. No.". Both dialogs have "OK" and "Cancel" buttons at the bottom.

You do not have to set all these options. This example shows all options together:

```
[UNIVERSAL_NETPLANS]
GRAPHUNI001.LABEL           = "My New Netplan"
GRAPHUNI001.FIELD.UNIFIELD01 = "Workstation"
GRAPHUNI001.FIELD.UNIFIELD02 = "App Id"
GRAPHUNI001.FIELD.UNIFIELD03 = "Jobname"
GRAPHUNI001.FIELD.UNIFIELD04 = "Op. No."
GRAPHUNI001.NODE.ARROW-RIGHT = "Application"
GRAPHUNI001.NODE.ROUNDED-RECT = "Job"
GRAPHUNI001.LINK.LINK-SOLID  = "Internal Link"
GRAPHUNI001.DETAILS.ARROW-RIGHT = "UNISYSTEM;UNIFIELD01;UNIFIELD02"
GRAPHUNI001.DETAILS.ROUNDED-RECT = "UNISYSTEM;UNIFIELD01;UNIFIELD02;UNIFIELD03;UNIFIELD04"
GRAPHUNI001.SEARCH.ARROW-RIGHT = "UNISYSTEM;UNIFIELD01;UNIFIELD02"
GRAPHUNI001.SEARCH.ROUNDED-RECT = "UNISYSTEM;UNIFIELD01;UNIFIELD02;UNIFIELD03;UNIFIELD04"
```

If you have more universal netplans, you must configure all of them in one `[UNIVERSAL_NETPLANS]` section. You only have to use correct display name (`GRAPHUNI001`, `GRAPHUNI002`, ...). You can also redefine the default `GRAPHUNI` display name (without additional 3 letters) in the same way.

14.1.3 Disabled Options

SmartIS PC Client allows to disable some options of the [Options Window](#) by administrator. If the administrator provides his setting using [admin.xml](#) file then he can also set in the INI file that some options can not be changed by normal users. All options that can be disabled are listed below:

```
[disabled_options]
GENERAL.BASIC.LOGGING=1
GENERAL.BASIC.ENCODING=1
GENERAL.BASIC.EASE=1
```

```

GENERAL.BASIC.MAX=1
GENERAL.BASIC.WILDCARD=1
GENERAL.BASIC.CSV=1
GENERAL.BASIC.VIEW=1
GENERAL.NETPLAN.MARKING=1
GENERAL.NETPLAN.MISC=1
GENERAL.TABLE.APPEARANCE=1
NETPLANS.GRAPH=1
NETPLANS.NODE=1
NETPLANS.LINK=1
BARCHARTS.STYLES=1
BARCHARTS.DATA=1

```

To disable the option you must set the value to 1. If the value equals 0 then the option is enabled.

Basic General options:

- GENERAL.BASIC.LOGGING
- GENERAL.BASIC.ENCODING
- GENERAL.BASIC.EASE
- GENERAL.BASIC.MAX
- GENERAL.BASIC.WILDCARD
- GENERAL.BASIC.CSV
- GENERAL.BASIC.VIEW

Netplan General Options

- GENERAL.NETPLAN.MARKING
- GENERAL.NETPLAN.MISC

Table General Options

- GENERAL.TABLE.APPEARANCE

Netplans

- NETPLANS.GRAPH
- NETPLANS.NODE
- NETPLANS.LINK

Barcharts

- BARCHARTS.STYLES
- BARCHARTS.DATA

14.1.4 Web Browser Interface

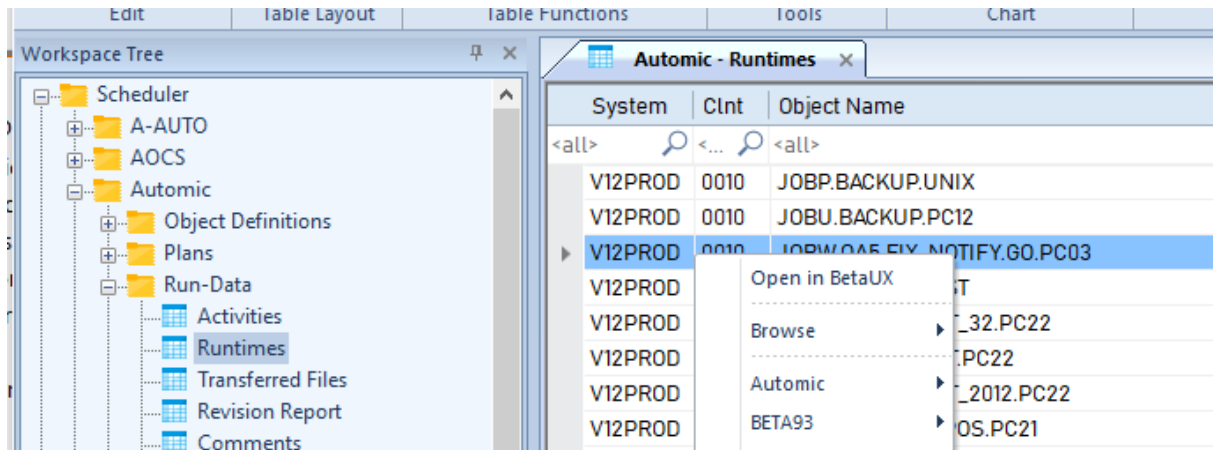
This interface allows to define your own line commands for any display and specify links to be opened in the default web browser. Values of all available columns of the display can be added as URL parameters.

```

[web_link_ln_cmd]
DSPLTU4R.1.NAME           = "Open in BetaUX"
DSPLTU4R.1.LINK_BASE      = "http://some.address?logsource=UC4&favid=YourFavId&"
DSPLTU4R.1.LINK_PARM.systemname = "System"
DSPLTU4R.1.LINK_PARM.runnumber  = "Run Number"
DSPLTU4R.1.LINK_PARM.startdate  = TIME("Start-Time", "DD.MM.YYYY")
DSPLTU4R.1.LINK_PARM.starttime  = TIME("Start-Time", "HH:II:SS")

```

When the above option is specified in the INI file then whenever DSPLTU4R display is opened (Scheduler/Automic/Run-Data/Runtimes) then **Open in BetaUX** line command is added to the standard commands of that display.



When the command is selected, then the URL is constructed from its constant part (defined by LINK_BASE option) and then required columns of the table that are in the current table row are added to the URL.

Values of these parameters are URL-encoded, so they can contain any text.

Names of parameters in the URL are always in lower case.

As a value you can use:

- a column name in quotes - it must exactly match the one you can see in a header of the table.
- a function that converts the column's value to the desired format. Currently these functions are available:
 - i. **TIME** - extracts DATE/TIME information from the value.
 Its first parameter must equal a name of a table column that contains date/time/timestamp value.
 Its second parameter is a format string.
 In the result of the function all special letters of the format string are replaced with date/time components of the current value. Other characters of the format string are preserved. You can use the following special placeholders:
 YYYY - Year coded on 4 positions
 YY - Year coded on 2 positions
 MM - Month (2 positions with leading zeroes)
 DD - Day (2 positions with leading zeroes)
 HH - Hour (2 positions with leading zeroes)
 II - Minute (2 positions with leading zeroes)
 SS - Second (2 positions with leading zeroes)
 - ii. **SUBSTR** - extracts a part of the value.
 Its first parameter must equal a name of a table column.
 Its second parameter is a position where the output value should start (1-based).
 Its third (optional) parameter is the count of letters returned. If not specified then the whole string starting from the start position is returned.

In case of the example above the link can look like this:

```
http://some.address/?logsource=UC4&favId=YourFavId&runnumber=0001715240
&startdate=04.12.2019&starttime=01%3a00%3a31&systemname=V12PROD
```

The URL starts with the value specified by LINK_BASE option and it contains 4 parameters from the current data row:

- runnumber ("Run Number" column)
- startdate (date part of "Start-Time" column in DD.MM.YYYY format)

- starttime (time part of 'Start-Time' column in HH:II:SS format)
- systemname ("System" column).

The number 1 which is used INI definition just after the display name is necessary. If you want to add more line commands for the same display then increase it by one for each of them.

The number of web line commands for each display is not limited.

It is also possible to show the link only for some TCP file. In this case code TCP_FILE option in the INI. This example displays the link only when P391DX TCP file is selected:

```
[web_link_ln_cmd]
DSPLTU4R.1.NAME           = "Open in BetaUX"
DSPLTU4R.1.TCP_FILE       = "P391DX"
DSPLTU4R.1.LINK_BASE      = "http://some.address?logsource=UC4&favId=YourFavId&"
DSPLTU4R.1.LINK_PARM.systemname = "System"
DSPLTU4R.1.LINK_PARM.runnumber  = "Run Number"
DSPLTU4R.1.LINK_PARM.startdate  = TIME("Start-Time", "DD.MM.YYYY")
DSPLTU4R.1.LINK_PARM.starttime  = TIME("Start-Time", "HH:II:SS")
```

You can also add variables directly in the link base. In this case variables must be in \${VarName} format. Example:

```
[web_link_ln_cmd]
DSPLTUJOB.1.LINK_BASE      = "http://some.address/${Jobname}/${Account}/"
```

Here \${Jobname} is replaced with the value in Jobname column and \${Account} with the value in Account column.

Web Browser Interface also allows you to define line commands that start Windows programs.

Example:

```
[web_link_ln_cmd]
DSPLTU4R.1.NAME           = "Test executable"
DSPLTU4R.1.LINK_BASE      = "TestParm.exe -thereIsSomeOption -data "There is Another one""
DSPLTU4R.1.LINK_PARM./flag1    = NULL
DSPLTU4R.1.LINK_PARM.-flag2    = "SomeValue"
DSPLTU4R.1.LINK_PARM.systemname = "System"
DSPLTU4R.1.LINK_PARM.runnumber  = "Run Number"
DSPLTU4R.1.LINK_PARM.startdate  = TIME("Start-Time", "DD.MM.YYYY")
DSPLTU4R.1.LINK_PARM.starttime  = TIME("Start-Time", "HH:II:SS")

DSPLTU4R.2.NAME           = "Test PS"
DSPLTU4R.2.LINK_BASE      = "powershell.exe -file C:\Test\test.ps1 -NoExit -StringParameter"
DSPLTU4R.2.LINK_PARM.systemname = "System"
DSPLTU4R.2.LINK_PARM.runnumber  = "Run Number"
```

1. The first command has "Test executable" title and starts TestParm.exe program. You can specify parameters either in the LINK_BASE (see -thereIsSomeOption, -data and "There is Another one") or you can append additional parameters via LINK_PARM.

When you need to specify only a flag without a value, you should use the syntax used for /flag1. In this case the text entered after 'LINK_PARM.' is appended to the command (in this case /flag1). As a Value you must specify NULL.

If you need to add a parameter having both a name and a value, you can use the syntax of -flag2 parameter. In this case it appends -flag2="SomeValue".

Remaining parameters are obtained the same way as when a web page is opened. You must specify a parameter name appended to the command line and a label of a column from which you want to

extract the value. In this example 4 parameters with data of the current table row are appended to the command line:

- systemname with a value of System column
- runnumber with a value of Run Number column
- startdate with a value of Start-Time column formatted as DD.MM.YYYY (it extracts the date part of the timestamp)
- starttime with a value of Start-Time column formatted as HH:II:SS (it extracts the time part of the timestamp)

2. The second command has "Test PS" title and starts PowerShell.

The command starts with the string entered in LINK_BASE and is followed by additional parameters:

- systemname with a value of System column
- runnumber with a value of Run Number column

Note:

If you specify a parameter name and value in LINK_PARM, then the program first tries to locate the data column having the label equal to the value of the parameter. If such a column is found then its real value is used. If it is not found then the value coded in INI is used.

14.2 First steps

This chapter explains the first steps needed for successful configuration and using of the new SmartIS PC Client. It also explains how this new product is compatible with older versions (3.x).

1. License Key File

The valid license key is provided by HORIZONT. The SmartIS PC Client accepts also licenses created for the previous version of the product. You can copy the PWD file from the old client (3.x) to the new client (4.x).

More information about license keys can be found in chapter [License Key File](#).

2. TCP configuration files

TCP [configuration files](#) are text files with information needed for connection to the server. The format of these files remains the same as in 3.x version. You can copy TCP files from the old client (3.x) to the new client (4.x).

3. CONFIG_DIRECTORY

It is possible to set CONFIG_DIRECTORY option in the INI file, which sets the directory where all configuration files are located (PWD, TCP, admin.xml, ...) To set this option is useful especially when the product is installed by a software distribution package.

4. INI file

The format of the INI file in the new version of SmartIS PC Client is not compatible with the INI file of 3.x version.

The new SmartIS PC Client keeps the most of its setting in Setting.xml file, which is created and maintained by the application and **mustn't be edited by hand** ([Local configuration](#)).

The INI file contains options reserved for administrators, which are explained in chapter [INI file](#).

5. Logon files

LGN files used for logon using scripts (former known as BIF interface) and used for automatic logon with the [security interface](#) are compatible with version 3.x. You can copy LGN files from the old client (3.x) to the new client (4.x).

6. CMD files

CMD files used for automatic logon with the security interface are compatible with versions 3.x. You can copy CMD files from the old client (3.x) to the new client (4.x).

7. Code Page

It is important to set the correct Code Page in the [Basic General Options](#). If you select a wrong encoding then the program can work incorrectly and the user name and [password](#) can be refused by the server.

8. Applying fixes of SmartIS PC Client version 4.x

If you install the fix from the installer then the old binary files are automatically replaced. Passwords and other files (TCP, LGN, CMD, TXT) are not affected by the setup program.

If you install the fix from the ZIP package then you must copy all files to the folder with your existing installation. The ZIP package does not contain empty [PWD](#), [TXT](#) and [URL](#) files to prevent you from overwriting your own ones by a mistake. Names of some DLL files in the fix can be different to file names of the existing installation. It is not necessary to remove the old files before applying the fix, but you can do it to save some space.

It is also possible to install the fix (which is always distributed as a complete program) to a new folder. In this case do not forget to copy all other files (PWD, TCP, ...) from the old folder to the new one and to create new valid desktop shortcuts.

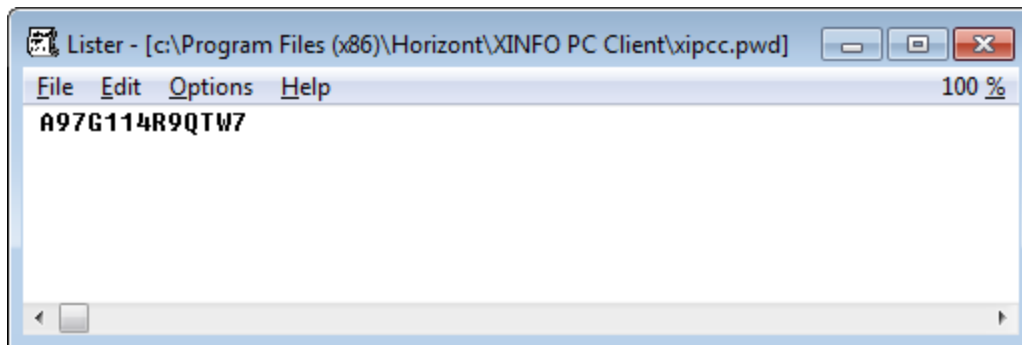
14.3 License Key File

The License Key File is called *XINFO.PWD*, *SMARTIS.PWD* or *XIPCC.PWD* (further called PWD file). The PWD file must be located in the same directory as the client (XIPCC.EXE) or in the location specified by [CONFIG_DIRECTORY](#) option in the INI file.

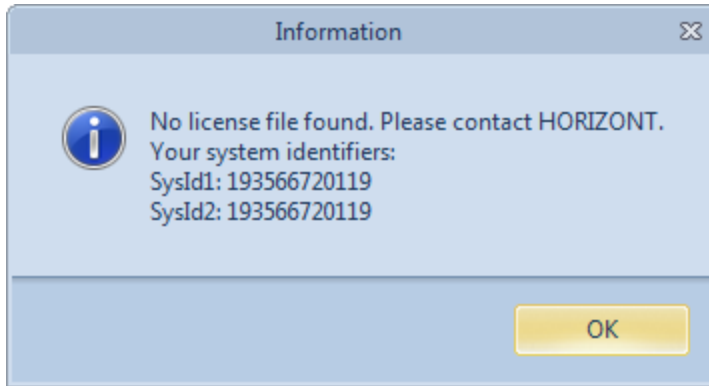
The PWD file is a simple text file that can be edited with any editor, e.g. notepad.

Every line starting with a dash '-' is supposed to be a comment and it is ignored.

A template called XIPCC.PWD.TEMPL is delivered in the installation package. You can enter a valid license key therein and rename it to XIPCC.PWD.



If no valid license key is found or if the PWD file is missing then the program shows this message:



14.4 Home web page

The SmartIS PC Client allows you to define the web page opened by the [Home icon](#) on the ribbon bar.

The web page must be entered in a text file in the program directory or in the directory specified by CONFIG_DIRECTORY option in the [INI file](#).

The name of the text file must be one of the following:

- XIPCC.URL
- XINFO.URL
- SMARTIS.URL

For example, this URL opens <http://www.horizont-it.com>:

`url=http://www.horizont-it.com`

14.5 Administrator's note

The SmartIS PC Client supports administrator's notes, which are displayed to all users automatically when the program starts.

Each unique note is displayed just once. Once the file where the note is stored is edited it is displayed again.

The note can also be opened by pressing the [Note icon](#) on the ribbon bar.

The note must be stored as a simple text file in the program directory or in the directory specified by CONFIG_DIRECTORY option in the [INI file](#).

The name of the text file must be one of the following:

- XIPCC.TXT
- XINFO.TXT
- SMARTIS.TXT

14.6 Administrator's defaults

The SmartIS PC Client supports the default administrator configuration, which is valid in all clients running the program from the administrator's directory.

See [Admin configuration](#) for more details.

14.7 Custom code page

The SmartIS PC Client supports custom code pages, which are used to decode data sent by the server. The code pages must be defined in one of the following files in the program directory or in the directory specified by CONFIG_DIRECTORY option in the [INI file](#).

- XIPCC.CCP
- XINFO.CCP
- SMARTIS.CCP

If one of these files exists and contains a valid definition then the custom codepage is added to the select box with other standard codepages at [Basic General Options](#).

Sample:

```
source_codepage=(Old) HORIZONTAL Default
new_codepage=My codepage
map=120,0x50
map=121,0x51
source_codepage=(Old) HORIZONTAL Default
new_codepage=My codepage 2
map=37,169
```

- SOURCE_CODEPAGE
it must be one of standard code pages (see Basic General Options).
- NEW_CODEPAGE
it is a name of the new code page. The name must not collide with standard code pages.
- MAP
you can define one or more custom character maps. Each map contains two numbers separated by a comma. The numbers can be in decimal or in hexadecimal format (for example 37 and 0x25 are the same numbers).
Every character whose numerical value matches the first number is mapped to the corresponding second number (character).

There can be more than one custom code pages defined in the same file.

The sample above shows two custom code pages. Both are derived from (Old) HORIZONTAL Default codepage.

15 Frequently asked questions

15.1 Automatic logon

You can use LGN file created in the [Logon](#) window to log on automatically when the program starts. The syntax is:

```
xipcc.exe /lgn=filename.lgn
```

You can specify the file name with both relative or absolute paths.

15.2 Configuring TCP/IP communication

Please read Chapter 5 (Z/OS SERVER FOR THE PC CLIENT) in "XINFO - 4.4 - zOS Installation DB2 Objects and Scanners" manual.

Then configure TCP options in the INI file appropriately.

In order to make BIF scripts running, follow these steps:

1. with TCPCRYPT < 3
 - logon files are encrypted using AES key, which requires presence of libchdk-1.dll library. This is no more the default option and using TCPCRYPT=3 is highly recommended.
2. with TCPCRYPT = 3
 - libchdk-1.dll library is not needed (it is not distributed with the latest zip package).
 - You must create the key using [Generate key](#) command on the Home Ribbon bar and store it securely.
 - You must set [CRYPTKEY INI option](#) so that it points to the location of the generated key.
 - The new logon files must be created. They will now be encrypted with the generated key.

15.3 Export netplans as image

You can export netplans to graphic formats by File/Export function.

The maximal size of raster formats is 6000 pixels. This size is sometimes not sufficient if the netplan is too large.

A solution can be to save the image in a vector format (WMF/EMF are supported by the program).

Another method, which produces good results, is to print your netplan on a virtual printer (like PDF creator).

The program uses the full page size for rendering. For this reason setting the maximal page size (A0) is recommended for the best quality.

If A0 is still not enough then you can set your own page size (in PDF creator).

The larger the page is, the more details you get in the created PDF file.

15.4 Help file can't be opened

Sometimes it can happen that when the help file is opened by F1 or an icon on the ribbon bar then the help file is displayed but it is blank.

The tree with topics is filled, but there is no content on the right side of the help page.

This happens when the help file is in CHM format (which we use by default) and it is opened from a network drive.

The reason is that Windows block it and it can't be solved programmatically.

The solution is simple:

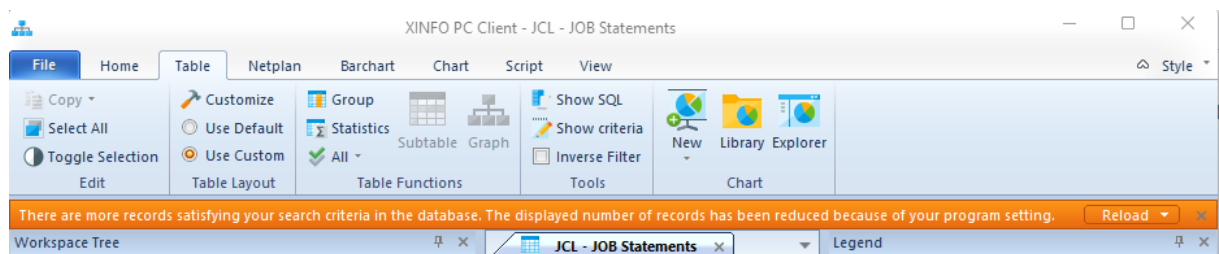
- Right click on xipcc.chm
- Press Properties
- Check Unblock.

Alternatively you can use HTML help format in the [INI file](#).

15.5 Predefine maximal data limit and disable changes by users

If you want to hide the **Reload** button displayed when more data than allowed by the data limit exist on the server then you can set this option in xipcc.ini:

ALLOW_RELOAD=N



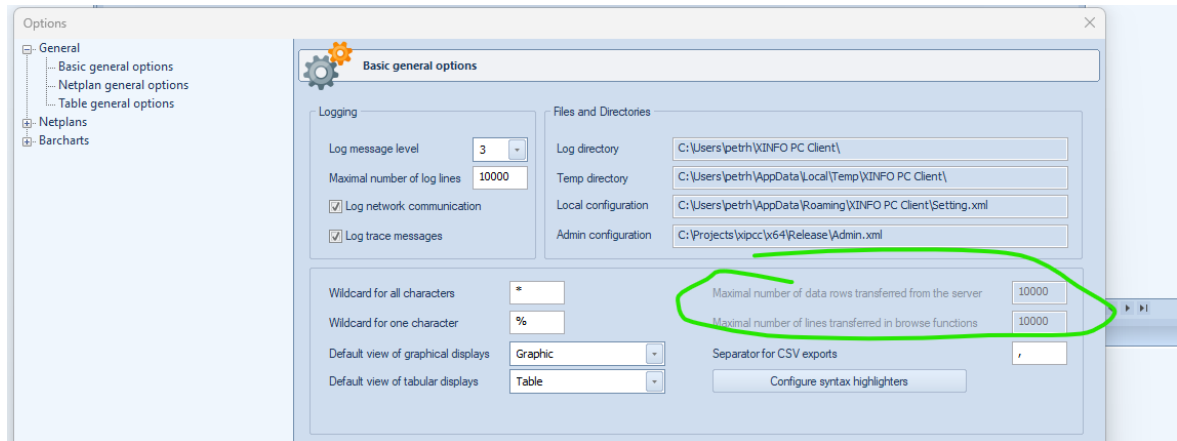
After restarting the client the Reload button is hidden.

If you also want to predefine the the data limit and want that users can't change it, follow these steps:

1. Ensure that admin.xml file contains the limit you want to use (modify it manually or configure it in the client and rename Settings.xml to admin.xml)
2. disable GENERAL.BASIC.MAX option in xipcc.ini by setting it to 1:

```
[disabled_options]
GENERAL.BASIC.LOGGING=0
GENERAL.BASIC.ENCODING=0
GENERAL.BASIC.FASE=0
GENERAL.BASIC.MAX=1
GENERAL.BASIC.WILDCARD=0
GENERAL.BASIC.CSV=0
GENERAL.BASIC.VIEW=0
GENERAL.BASIC.HIGHLIGHTER=0
GENERAL.NETPLAN.MARKING=0
GENERAL.NETPLAN.MISC=0
GENERAL.TABLE.APPEARANCE=0
NETPLANS.GRAPH=0
NETPLANS.NODE=0
NETPLANS.LINK=0
BARCHARTS.STYLES=0
BARCHARTS.DATA=0
```

3. After restarting the client you should not be able to modify limits and the ones from admin.xml will be used:



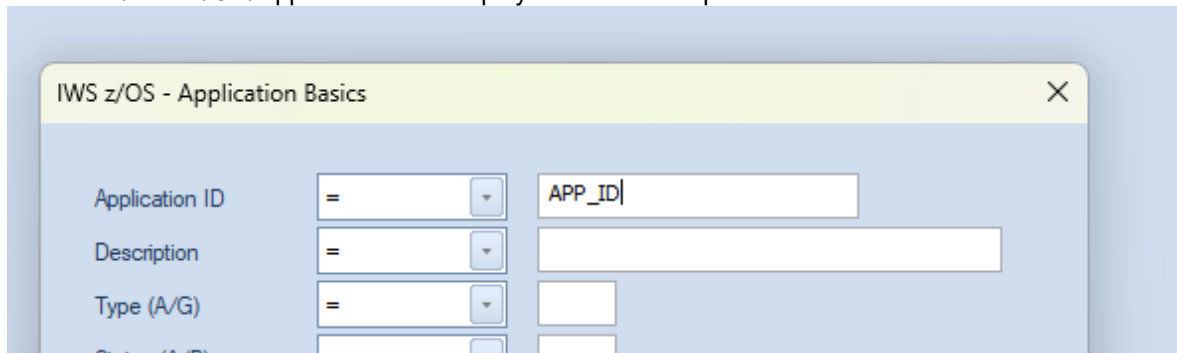
15.6 Reusing selection criteria across search panels

When complicated selection criteria are entered for some display then it would be nice to reuse them in another display without typing them from scratch. This is not a problem if your search criteria have just a few values, but becomes important when the number of values is much higher.

Just imagine you want to search for IWS applications that are on your list (maybe 10, maybe 100,...) and then want to search for operations (which is another display and therefore another criteria) of these applications. It would be nice to avoid specifying them in the dialog again when they have already been entered in the search window of applications.

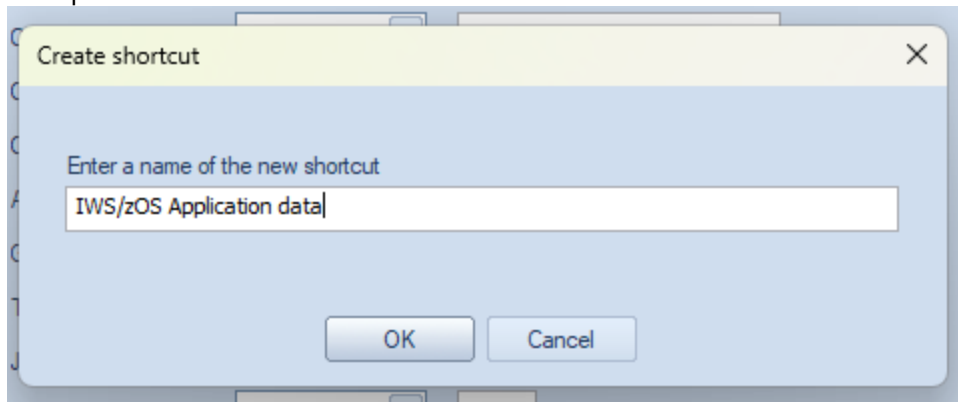
There is no direct solution of this requirement but you can benefit from using shortcuts. Here is the guide:

1. Open the selection window for some display and either configure it (by expanding the item many times) or just type some placeholder that you can later easily identify. For example, Open Scheduler/IWS z/OS/ApplicationData display and enter this placeholder:

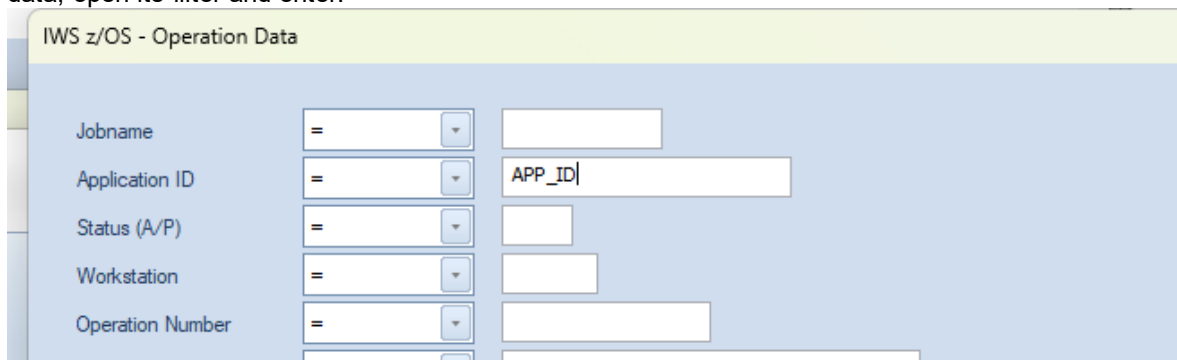


Then click Actions/CreateShortcut and save it. Choose a name that is easy to understand, for

example:

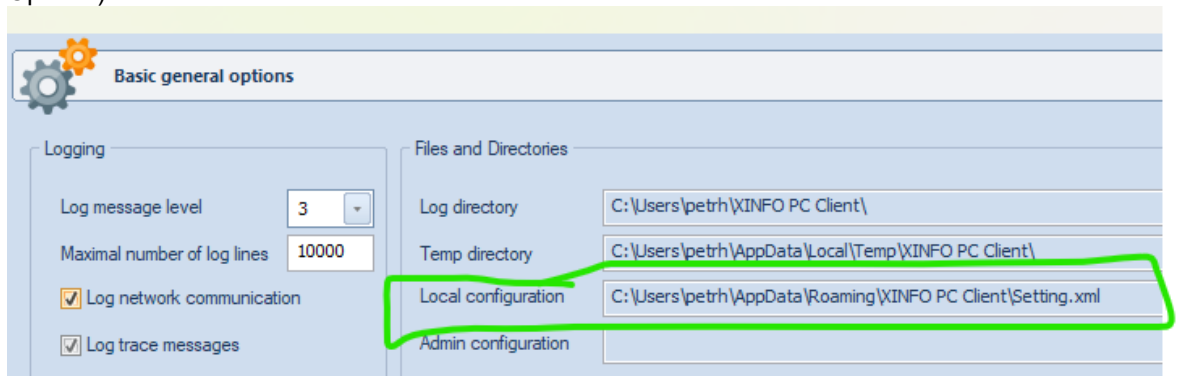


2. Repeat it for all displays where you want to have the same search criteria. For example for Operation data, open its filter and enter:



You do not need to submit the query. This is just a way how to create shortcuts.

3. Locate your profile file in your file system. The file name you can find here (Options/Basic General Options):



Note that AppData folder can be hidden in your PC, so display hidden files if you do not see it.

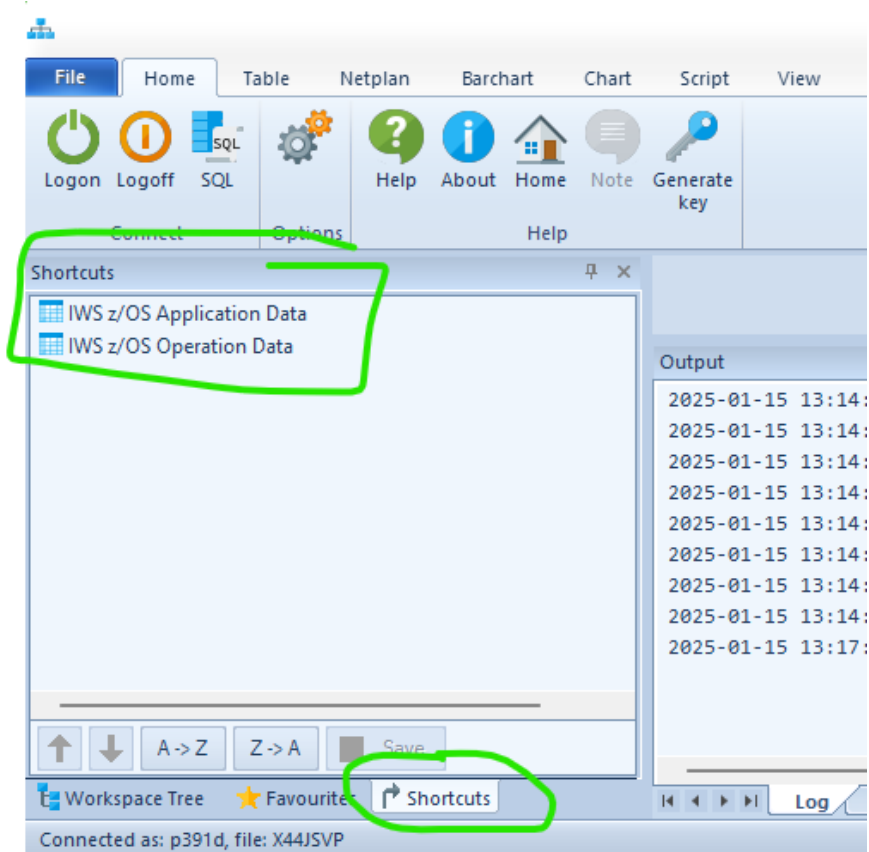
4. Search for shortcut in Settings.xml. You should see something like this:

```
<shortcut>
  <filters>
    <display id="DSPLTCOM">
      <filter name="IWS z/OS Application Data" pos="3" pred_level="0" succ_level="0">
        <item id="1">
          <row value="APP_ID" oper="EQ" log=" "/>
        </item>
      </filter>
    </display>
    <display id="DSPLTOP">
      <filter name="IWS z/OS Operation Data" pos="4" pred_level="0" succ_level="0">
        <item id="2">
          <row value="APP_ID" oper="EQ" log=" "/>
        </item>
      </filter>
    </display>
  </filters>
</shortcut>
```

5. Enter correct search values at places where you see your placeholder - APP_ID. Just repeat the line as many times as you need and modify the search values, for example, for applications APP1,APP2,APP3, enter this:

```
<shortcut>
  <filters>
    <display id="DSPLTCOM">
      <filter name="IWS z/OS Application Data" pos="3" pred_level="0" succ_level="0">
        <item id="1">
          <row value="APP1" oper="EQ" log=" "/>
          <row value="APP2" oper="EQ" log=" "/>
          <row value="APP3" oper="EQ" log=" "/>
        </item>
      </filter>
    </display>
    <display id="DSPLTOP">
      <filter name="IWS z/OS Operation Data" pos="4" pred_level="0" succ_level="0">
        <item id="2">
          <row value="APP1" oper="EQ" log=" "/>
          <row value="APP2" oper="EQ" log=" "/>
          <row value="APP3" oper="EQ" log=" "/>
        </item>
      </filter>
    </display>
  </filters>
```

6. Save the file and restart the client.
Not do not open the display from the display tree but from a shortcut list:



The search window should be initialized with values you entered in Settings.xml file:

IWS z/OS - Application Basics

Application ID	=	APP1	
	x	APP2	
	x	APP3	
Description	=		

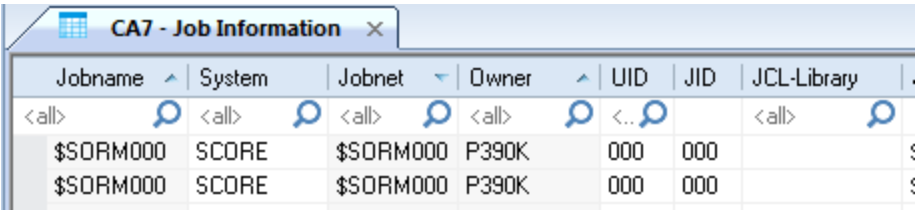
IWS z/OS - Operation Data

Jobname	=		
Application ID	=	APP1	
	x	APP2	
	x	APP3	
Status (A/P)	=		

15.7 Sorting the table

The table display supports sorting by more columns.
First click on the header turns on the ascending sorting, another one descending and another one turns it off. You can do it for more columns.

The program uses sort columns from left to right.
That means the left most column is used first, then the one that follows and so on. If this order is not good for you, you have to move columns in the Custom layout (see below).

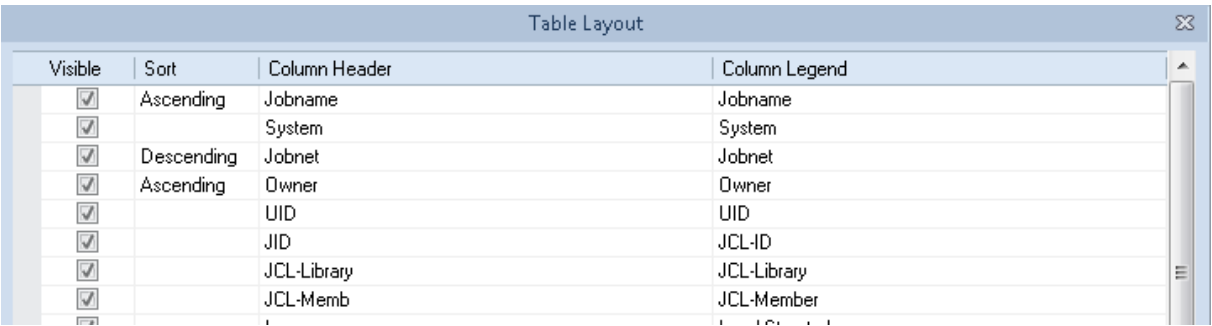


Jobname	System	Jobnet	Owner	UID	JID	JCL-Library
<all>	<all>	<all>	<all>	<...>		<all>
\$SORM000	SCORE	\$SORM000	P390K	000	000	
\$SORM000	SCORE	\$SORM000	P390K	000	000	

In this picture the data are first sorted by Jobname in ascending order. Then by Jobnet in descending order and finally by Owner in ascending order.

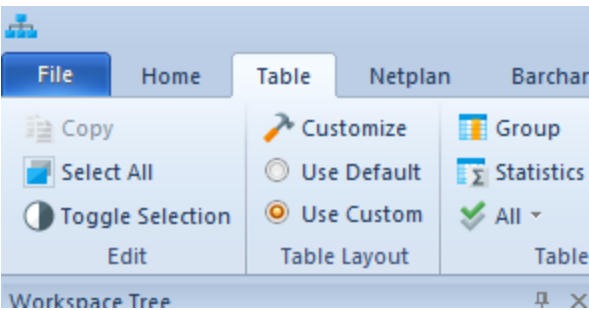
By default the table is not sorted - it contains data rows like they are received from the server.
But you can set the defaults:

- click the Customize icon on the ribbon bar
- then select the Sort order like you want and press OK
- you can also change the order of columns, so that the most important sorted column is the left-most column. Then left to right processing of sort columns gives you the required results.



Visible	Sort	Column Header	Column Legend
<input checked="" type="checkbox"/>	Ascending	Jobname	Jobname
<input checked="" type="checkbox"/>		System	System
<input checked="" type="checkbox"/>	Descending	Jobnet	Jobnet
<input checked="" type="checkbox"/>	Ascending	Owner	Owner
<input checked="" type="checkbox"/>		UID	UID
<input checked="" type="checkbox"/>		JID	JCL-ID
<input checked="" type="checkbox"/>		JCL-Library	JCL-Library
<input checked="" type="checkbox"/>		JCL-Memb	JCL-Member

As a result, the "Use Custom" becomes selected, which means the user-defined layout is applied:



The program remembers the custom layouts for all displays individually.

Next time you open the same display the layout is set to Custom if the last view of the same display used Custom.

16 License

This software is copyrighted by HORIZONT Software GmbH. It uses third-party components with following licences:

- [Boost software license](#)
- [The zlib/libpng License \(Zlib\)](#)
- [The Code Project Open License \(CPOL\) 1.02](#)
- [ICU License - ICU 1.8.1 and later](#)