

## AnyQuest for Windows product history

This is the history of the AnyQuest for Windows software product. For the history of the on-line help file itself, please look [here](#).

**Please note:** Beta versions do not necessarily have the capability to read questionnaire definition file formats of earlier alpha or beta versions (but read history note for version 2.20!). If you have questionnaire definition files generated with an earlier alpha or beta version, which you need to use in the future, please [contact me](#). Many revisions documented below have been available only internally during ongoing development; some only within project specific software packages. A list of actually published versions is available at <http://www.ql-recorder.com>

### [anq2hl7.pl](#) Version 0.01 19.09.2012 - 25.09.2012

**Added:** A new perl script provides the ability to convert \*.anq result files from questionnaire administrations into HL7 version 2.x files that can be imported by third party software which can handle examination results or laboratory test results. The HL7 message file can be automatically generated after each questionnaire administration, or the converter can be called to process multiple existing \*.anq result files later on. It works for files generated by AnyQuest for DOS, AnyQuest for Windows, and AnyQuest for Java - running locally or providing an on-line-questionnaire in the context of a WWW site. In either case, the results can be imported by HL7 capable practice management software or hospital information systems. In addition to multiple SQL interfaces available since about 1999, and the bidirectional GDT/LDT interface available since 2001, this provides one more pathway along a major standard in Healthcare IT, for data collected with the Quality-of-Life-Recorder to travel into software applications used by clinical end users, quality management, or outcomes research.

### Version 3.77 01.10.2012

**Corrected:** Disabled remaining active debug output in [aqdialo2.pas](#) during checking of direct text input field content.

### Version 3.76 18.06.2012 - 21.06.2012

**Added:** Ability to remember the cascaded multilevel configuration file \*.ini for each configured parameter and to write back any changes only to the last file that effectively defined the respective parameter. Thereby, interactively made changes to configurations can be written back into cascaded multilevel configuration structures just as easily as they could be written back to simple configuration files before. Specifically, this allows for the provision of configurations to conveniently change printer (or other) settings interactively, while still storing these configurations in one [printout.ini](#) file, and only in that file for a complete setup of configurations. All this without any requirement to manually prepare or maintain any meta-information about the location of these settings.

**Please note:** The ability mentioned above is limited to parameters with a value that does not exceed 255 characters. Parameters with longer values are currently not handled by [aqwrap](#) and therefore not kept in the respective buffer.

**Corrected:** Detailed handling of backup variables for unscaled printout font sizes in the processing of \*.ini files, as another prerequisite for the intelligent cascaded multilevel configuration file write back functionality.

**Improved:** Several recently added hi-color icons were removed from [anyquin.res](#) because they were automatically selected, but not correctly displayed, under WinNT on palmax and Windows 2000 on blackbox.

**Improved:** Update of the InnoSetup script for the AnyPak 2 package version 0.02 and preliminary distribution of the new setup including: AnyQuest for Windows 3.76, the new anypak subdirectory tree, the jssplash menu with newly prepared configurations based upon cascaded multilevel \*.ini files, and the new InnoSetup installer.

### Version 3.75 04.05.2012 - 14.05.2012

**Added:** The local flag [f\\_pdx\\_suppress\\_psf](#) in \*.pd? can be used to suppress the printing

of the patient sticker frame for a individual printout types and individual questionnaires. This would typically be used for a patient satisfaction questionnaire to be collected anonymously, whereas other quality-of-life related questionnaires at the same site would carry a clear or pseudonymized patient ID.

- Improved:** The message that appears on printouts generated without a license key has been changed from "Unlicensed evaluation version. Not for regular use." to "Unlicensed evaluation version. Please register to receive a personalised license. Free licenses available upon request." The settings of control variables in `aqlicfil.pas` have been corrected to actually use all of this new wording - the second part had been prepared before but not yet displayed.
- Improved:** Changed the default internal program name from "SC-JMS Lebensqualitäts-Recorder" to `agglobal.prognamedefault="SC-JMS AnyQuest for Windows"`. The result would appear on printouts. The original content is however still present in `*.msg` files (at least for en and de translations).
- Added:** Moving the PID data into the patient sticker frame was previously possible only via `*.pd?` configuration files. Now, a new flag `[Printout] global_f_move_pid_into_psf=false` is available in the `*.ini` configuration files. By using cascaded multilevel `*.ini` files, one flag can centrally control the option for multiple questionnaires and configurations. The flag is only honoured if a patient sticker frame is produced at all.
- Added:** The following options have previously only been available via `*.pd?` configuration files. Now, the new flags `[Printout] dypidshift=0` and `[Printout] dydoashift=0` are available in the `*.ini` configuration files. By using cascaded multilevel `*.ini` files, one flag can centrally control the option for multiple questionnaires and configurations. These settings get into effect if the corresponding settings from the `*.pd?` file are 0.
- Added:** The parameters `global_f_simple_date_of_assessment=false` from and `global_f_suppress_duration_of_assessment` from `*.ini` configuration files do complement their previously available counterparts from `*.pd?` files. If the first one is true, it will use `pdsxsimpledate` and `pdqxsimpledate` (for single and questionnaire-filled-in-printouts, respectively) whose default values are both `Datum`, if not specified otherwise in a `*.pd?` file. The second one will continue to use the normal label for the point in time of questionnaire administration, but only the date will be shown, whereas the output detailing from HH:MM:SS to HH:MM:SS etc. will be suppressed. This allows for a very comfortable switch to a simplified output format, that will especially not overlap the patient sticker frame.
- Cleanup:** Resorted several parameters in the code reading or writing `*.ini` configuration files. Removed one double line from the writing code.
- Added:** The `*.ini` configuration file parameter `global_f_autogen_custom_header_backup=False|True` controls the automatic generation of fallback semi-custom headers: If the normal header bars are disabled, and no custom header is effectively defined (i.e. `*.pd? pd?numofheaderentries=0`), the program can create a custom header with three lines: One empty line, one automatically underlined line stating "Measurement using (questionnaire name)", and another empty line. While the content is similar to the normal automatically generated header, the presentation is like the custom header, maintaining a clear and more open layout of the printout, without surrounding boxes, much more suitable for header logos etc.
- Added:** An overline/underline functionality for definition of custom header lines in `*.pd?` printout definition files: Any line containing `-` or `=` is automatically expanded to a single or double underline for the preceding or succeeding one. Text length and left/center/right positioning are automatically taken into account.
- Added:** I just wanted the printed output to look good, even if the user wouldn't have acquired any license (not even a free one). So the new `*.ini` configuration file parameter `PrintSuppressLicenseInfoEvenForEvalVersion=False|True` can suppress the license information even for unlicensed evaluation versions of the software (it would have been shown in the title area of the printout before). Any suppressed license information is now always shown in a small grey letters along the right border of the printout. This has been used throughout the new AnyPak 2 package.
- Corrected:** On a multi-monitor setup, if the AnyQuest main window would be displayed on the right or lower monitor, and the mouse pointer would be moved to the left or upwards of that

window, a RTE 201 at 0001:9167 (or similar) was thrown because one function involved would not handle the resulting negative mouse pointer coordinates. This was fixed, and an identical problem causing RTE 201 at 0001:9483 (or similar) as well.

- Improved:** Error output from `aqwrap` is removed (this had been used to support the recent development of `aqwrap`), when debugging output is disabled, because otherwise a WinCRT window would appear under completely normal circumstances, e.g. when a `*.pd?` file would not be found.
- Please note:** The `aqwrap` buffering which significantly speeds up the processing of configuration files applies to `*.ini` files and `*.pd?` files alike. This means that changes in either type of configuration file made while an instance of AnyQuest for Windows is running are not immediately honoured. This had been different for `*.pd?` files before the introduction of the `aqwrap` buffering.
- Improved:** Update of the fast input form: Removed the generation of the two lines "to" and "answer" below "can not" and "don't want". They were ok for the HELPS questionnaires which caused two extra lines at the beginning of the automatically generated content, but they would overlap the first answer fields for other questionnaire definition files.
- Improved:** Removed the icon in the licensebox as the new icon would not look good in this place. The dialog is already too crammed to sport the large new sketch of a tablet PC.
- Improved:** Variables controlling the display of the license-box and the about-box dialog windows during the start of the program were controlled by the presence of a license file before. Now they can be controlled from the `*.ini` configuration file, and the dialogs are disabled by default: `[Special purpose] ini_suppress_show_license_dialog=False` and `[Special purpose] ini_suppress_about_dialog=False`. Currently, the introductory notice on the shareware policy cannot be displayed through the menus either, but the startup is faster, uninterrupted, and the should probably be more appealing to users of the evaluation version.
- Improved:** Computation of line width for answer field frames, linear analog scales, and checkmarks.
- Added:** The `*.ini` configuration file parameter `[Special purpose] draw_soft=False|True` causes answer field frames, linear analog scales and checkmarks to be drawn with soft borders (using a 50:50 mixture with background color). The implementation of this feature has been individually tuned to pen widths of 2, 3 or 4 pixels for various screen resolutions.
- Added:** Short questionnaire names starting with `gcs` are now also allowed for the fast input form operation mode.
- Corrected:** Processing of an empty value for the `*.ini` configuration file parameter `[Printout] JobName_Header`. Before, it would use the default string `AQ-` in this case. Now, an empty string works and this allows for virtual printout (PDF, XPS) filenames including a full timestamp, corresponding `*.anq` filename, printout type, initials, and a 10-digit RFID code for the patient ID.
- Corrected:** The previously planned removal of all special characters from `*.anq` result file names had left the `!` exclamation mark in use. This would however be ignored in MS Windows print job names, and therefore break the link between `*.anq` result file names and `*.pdf`, `*.ps`, `*.xps` etc. virtual printout filenames. If an exclamation mark occurred for a measurement result file, users could not open the corresponding virtual printout files with graphical results through AnyQuests built in dialogs. Now, the exclamation mark has been removed from `*.anq` result file names and only digits 0..9 and characters A..Z will be used.
- Corrected:** Usage of the applicable result file name as one portion of a virtual result printout file to be opened through the built in dialogs for selection and review of questionnaire administration results.
- Improved:** The automatically generated print job name, determining the filename of virtual result printout files `*.pdf`, `*.ps`, `*.xps` etc., has been set by default to follow the pattern: `yyyymmddTYPanqfilenVNrfdnumber`. (date, printout type, `*.anq` result filename, initials, patient ID number - allowing for up to 10 digits typically found on preprogrammed RFID tokens). All dashes between the elements are now disabled. This allows for automatic bidirectional linkage between result file and virtual printout filenames, suitable for AnyQuest's built in dialogs to review previous test administration

results, and for manual searching in folders containing virtual printout files alike. All elements are configurable, and the case ID field could be used instead of the patient ID field. The current pattern completely uses the MS Windows limit for the size of printjob names of 31 characters. Two more characters can be freed by an option reducing the TYP element to one character (from QFI, SNG, CUM, LAY, STA to Q, S, C, L, S). If other information is additionally required, the timestamp could also be disabled as this information is also contained (even to greater detail) in the referenced \*.anq result file.

**Corrected:** When preprogrammed RFID cards were used to enter the patient ID, which contained the characters 0123456789abcdef, a PID entered in the PID dialog and recognized was converted to uppercase letters during PID recognition. So the first written \*.anq result file for a patient would contain lowercase letters, and result files for follow up measurements would contain uppercase letters. All other methods of PID acquisition would return the entered PID without conversion to uppercase. The undesired conversion was identified as a side effect from PID recognition and removed.

**Improved:** On a WeTab using Windows 7, the Open QFI, Open SNG and Open CUM buttons to display \*.pdf virtual printouts with graphical results would occasionally work, but most often they would fail. On nova using Windows XP, and on arogau-PC using Vista, they would invariably work. The problem occurred because a batch file temporarily generated to call the external document was removed after use, and this occurred too early for the lower processing speed of the WeTab. The respective waiting time was increased from 100ms to 500ms, whereafter the buttons reliably worked on the WeTab as well.

**Corrected:** AnyQuest for Windows would not let certain printer definition details from multilevel printout.ini files supersede those read from other ones read before that would not actually contain that information - and thereafter use a resolution of 3600 dpi. This could cause incomplete usage of the available A4 page area in certain situations, as well as GPFs during the debugging of the problem.

#### Version 3.74 13.04.2012 - 21.04.2012

**Improved:** Quality assurance found printouts after the first one created by a given instance of AnyQuest to be missing in PDFCreator under Windows 7 (32-Bit) for configurations prepared for the HELPS project. Handling of printing device contexts was slightly refined to work with this version of Windows as well.

**Cleanup:** Removal of unwanted WinCRT output after the completion of the current major development phase.

**Corrected:** The relatively new handler that could show questionnaire 1, question 1 behind the minimal navigation window as required for the HELPS project, could cause an error when no questionnaire was loaded due to a prematurely ending Boolean evaluation.

**Added:** Support for definition of detailed font settings from secondary multilevel \*.ini configuration files instead of the primary configuration file only.

**Corrected:** The num variant of the newly added custom PID collection dialogs could produce what appeared as small display artifacts, but actually was unwanted creation of buttons close to the frame of the dialog.

**Corrected:** The newly added buffered reading of \*.ini configuration files would leave an excessive number of files open and thereby affect other file related functionality of the system.

**Added:** The character set related information is also written to the \*.anq result file for the new custom font definition, and a priority scheme ensuring that the written setting matches the font actually used for the dialogs is obeyed.

**Corrected:** The character set related information written to the \*.anq result file could have excess characters.

**Improved:** The descriptive statistics output lines will automatically be spaced further apart for dimensions with long labels. Therefore, a simple (non-exact!) estimator function has been implemented to foretell the number of lines required for a given label.

**Improved:** The descriptive statistics table available from built in analysis tools will produce some minimum number of decimal digits for certain parameters independently of the cumulative printout precision set by the user for a given questionnaire. This ensures that decimals will be produced for means (and other parameters) even when the user wanted 0 decimals on the normal single or cumulative printouts (which may be perfectly reasonable).

**Corrected:** Repainting the CustomThankYouBox after using the fast input form could throw a run time error. [N.B.: Future versions may default to the standard thank you box (including a

dialog box) no matter what is specified in the configuration file, whose appearance suits the fast input form mode much better.]

- Improved: Minor changes in `aqprcum` course over time printout printed information.
- Improved: Internal handling of date format validation and automatic correction.
- Added: Support for additional date formats. The ordering (`DDMMYYYY` or `YYYYMMDD`) is now independent of the separation character. The separation character has been "." or "-" before, and is (relatively) now freely configurable. Date formats can still be independently defined for dialogs and generated printouts. The internally used date format is `dd.mm.yyyy` and this is also written to `*.anq` result files (can be changed on the fly when `extract` is used to generate data export tables). The new corresponding `*.ini` configuration file parameters are `DateFormatSepCharDialog=46` and `DateFormatSepCharPrint=46` (specifying a character in the range 32..255; in addition to the previously available: `DateFormatDialog=0|1` and `DateFormatPrint=0|1`).
- Improved: Changed `aqdraw: draw_antworten` to use less stack space.
- Improved: Positioning of the optional "-" and "-" transport buttons and the status lines above the graphical progress indicator will now be adopted to screen resolution and font size. Warning: The positioning will use a constant vertical size of the transport button window; so currently it will NOT support font scaling as built into Windows 7 and activated for some screen sizes (N.B.: The window decorations will not look as good as normal either when larger font sizes are activated.) Also changed the ordering of the items in the status display, so that question number and questionnaire number are located most closely to the graphical progress indicator or transport buttons.
- Improved: Added some reasonable automatic layout generation for the "Start", "...", and "Exit" buttons of the minimal navigation dialog that will produce nicely looking results for screen resolutions between 640x480 and 1440x900 based upon the user configured font sizes. The new algorithm will use the golden section for some elements.
- Improved: Added some reasonable automatic layout generation for the CustomThankYouBox - the previous functionality would end up with the OK button on the text lines for displays with 640x480 resolution. The new algorithm will use the golden section for some elements.
- Tested: Improved rendering of bitmaps within the questionnaire definition file (applying 2D floating point interpolation). Found however that using the default mechanism supplied by the Windows API with higher resolution source bitmaps (even with reduced color depth and run length encoding) would improve rendering quality more efficiently.
- Improved: Scaling of user configured fonts is done by the square root of vertical screen size rather than linearly. (Also tested  $\sqrt[1]{4}$ ; but wouldn't keep that.) Fonts for the PID collection screens will not be scaled because the dialog elements themselves also keep a constant size. The dialog window will however be scaled to extend to the right and to the bottom of the available space after centering, so that the introductory text line will not necessarily be cut off any more, even if the screen size would suffice.
- Added: Scaling of user configured fonts; the new corresponding `*.ini` configuration file parameter is `[Scaling] fonts_lfHeight_reference_aqwinheight`; other applicable parameters from the same section do also work.
- Added: Support of the "Enter" key for the newly added custom PID collection dialogs and other dialogs with manually drawn default push buttons.
- Added: Manually implemented default push button functionality for certain buttons with `wm_drawitem/bs_OwnerDraw` in various dialogs.
- Corrected: The fast input form "OK" button would lose its new custom font setting after any message box would have been displayed (when the program would try to set its default push button property again, thereby removing the `bs_OwnerDraw` style).
- Improved: Greyed rendering of disabled buttons with `wm_drawitem/bs_OwnerDraw`.
- Added: Functionality for the new navigation dialog buttons to heed configuration file settings disabling certain functionality.
- Added: Functionality for the new navigation dialog buttons to directly go into questionnaire definition file layout editing mode, or into one of the analysis tools dialogs.
- Changed: Changed the default values for the `*.ini` configuration file parameters `TitleSuppressRainbow=False` and `TitleSuppressBitmap=False`. This only affects the appearance of the program when it is started without any configuration file specified that contains the respective settings.

**Improved:** Reviewed the rendering of answer fields, text elements, and gray space showing text element size in `aqdraw`, and fine tuned it so that the lower right corner will also lie on the editing grid. Also fine tuned the positioning of crosses and pencils signaling additional text input stored with an answer field, so that they appear exactly centered (they had been off by 1 Pixel in x-direction). Generation of the questionnaire definition file `testv373.qdw` with test cases for layout rendering on nova with 1440x900 pixels, Windows XP Pro, "Classic" appearance.

#### Version 3.72 17.03.2012 - 12.04.2012

**Improved:** Revised the appearance and functionality of the navigation dialog (now with longer button labels and additional buttons leading directly to certain functions), the appearance of other dialogs (removal of window title and improved layout, including message boxes, PID confirmation dialogs, about dialog, password dialog), program icons, and other graphic elements.

**Improved:** Brought `wm_drawitem/bs_OwnerDraw` handlers from various dialogs together into `aqdraw: ownerdraw()`.

**Improved:** Slightly enlarged the input fields for date, PID etc., as well as the buttons in the fast input form dialog. Repositioning of the buttons. Greyed label supported for the `bs_OwnerDraw Help` button font in the fast input form.

**Added:** Support for configurable fonts and character sets in the fast input form dialog.

**Added:** Debug output from various locations moved to a separate `aqdebug` unit and enhanced so that configurable, timed monitoring of events with screen or file output becomes available. Debugging (which starts earlier in the program startup course) can also be turned on with a command line parameter: `anyquin -d outfile.txt`. (Alternatively recognized switch formats: `/DEBUG`, `--DEBUG`, `-DEBUG`, `/debug`, `--debug`, `/Debug`, `--Debug`, `-d`)

**Added:** Buffered reading of `*.ini` configuration file settings in the `aqwrap` unit changes start times on the same multilevel configuration file sets on the WePad to: 0:00.4 / 0:00.8 min:sec; and on the PD-1000 to 0:04 / 0:08 sec. The buffered variant returns config file entries of up to 254 characters; as the Win 9x (and Win XP, but not Win NT) variant of the function, it replaces the first of any trailing spaces in a passed default string (as in a read value) by `#0`. In contrast to the original Windows function, my buffered version will remove embracing single or double quotation marks around a passed default string, however, which the Windows function would only do for a read value - leaving no way to pass defaults with trailing spaces...

**Reviewed:** Startup time with multilevel configuration file sets including 10 files per set: WeTab: after 0:05 min:sec, the program window appears, after 0:10, the questionnaire definition file has been loaded and the "Start" and "Exit" buttons are available. Palmax PD-1000 (30/100 MHz 486..586 level CPU) with doze mode: 1:26 and 3:17; without doze mode: 0:42, 1:23.

**Reviewed:** Date format checking vs. requirements in several countries.

**Added:** Support for `custom` fonts and character sets in the printouts.

**Added:** Support for configurable dialog button text, via the following `*.msg` message file parameters: `confirmok=Ja`, `confirmreject=Nein`, `confirmabort=Abbrechen`, `labelauto=Auto`, `labelstart=Start`, `labelexit=Exit`, `labelok=OK`, `labelcancel=Cancel`, `labelsave=Save`, `labelabort=Abort`, `labelhelp=Help`. So all dialogs that patients (or probands) may encounter during a questionnaire administration session can be fully configured (and translated) by now.

**Added:** The configurable font (and character set) of the "Continue" button is now also used for the "Start" and "Exit" buttons of the minimal navigation dialog.

**Improved:** Layout for the num variant of the PID collection screens in the Greek, Custom and Standard versions: The text input field now starts at `y=17`, the same position as in the alpha and alphanum variants; and the text input field has become broader so it can contain the text 99-99-9999 in a slightly broader font without scrolling.

**Improved:** Automatic change of the content of the button "." to "-" if the configured date format is `YYMMDDDD` or if the instruction text contains "." at an earlier position (which includes: 0 for not at all) than "-".

**Corrected:** Greek font handling detail in `aqservic.pas`.

**Corrected:** In the resource definition files for some customized versions of AnyQuest for Windows, the dialog template `NUMINPUTGREEK` was missing. In some of these files,

the headline for the Greek alpha and alphanum variants was still constant text rather than a placeholder that would have been empty by default, and completely configurable. Even though these files have not been used for Greek configurations so far, they were updated for the sake of code quality and -consistency.

Added:

The buttons of the newly added custom PID collection screens in the alpha and alphanum variants can be completely user defined (rows, columns, available characters, font and character set, spacing). Special functions are concatenation of neighbouring buttons with identical characters (e.g. to generate a space bar or double width buttons), empty fields in the defined grid, and positioning of the previously added "Auto" button which generates a random PID that has not been used on the same system before. The corresponding new \*.ini configuration file entries are: `[Fonts] Custom_PID_collection_and_Printouts=False|True` (overrides ...Greek...), `PID_screens_Custom_alpha_rows=5`, `PID_screens_Custom_alpha_cols=16`, `PID_screens_Custom_alpha_spacingx=12`, `PID_screens_Custom_alpha_spacingy=12`, `PID_screens_Custom_alpha_buttonschars=stringCodePointsSequenceMayInclude#nnnE` the same set for ...alphanum..., `font_for_PID_screens_Custom.lfCharSet=0` (e.g.: Western=0, Greek=161, Turkish=162, Baltic=186, Cyrillic=204, CentralEuropean=238 etc.), `font_for_PID_screens_Custom.lfHeight=0`, `font_for_PID_screens_Custom....=...` (other variables to constitute a complete font description).

Added:

Revised layout for the PID confirmation dialogs, the message window, and the custom thank you box (including both text and buttons).

Added:

New \*.ini configuration file entries: `font_for_PID_Screens_Custom...`, `font_for_message_window_message`, `font_for_message_window_button`, `font_for_texteingabe_window_message`, `font_for_texteingabe_window_editarea`, `font_for_PID_Screens_CustomThankYouBox_Text`, `font_for_PID_Screens_CustomThankYouBox_Button` to configure the fonts used for various dialogs presenting messages or asking for confirmations, the CustomThankYouBox (without dialog window), and for newly added custom PID collection dialogs.

Corrected:

In the \*.ini configuration files, the parameter `Greek_PID_collection_and_Printouts` was read from section `[Fonts]`, but written back to section `[Options]`. As the parameter could not be changed interactively, that would primarily mislead configuration file designers. It might also have affected sessions that were interrupted and saved for later resumption when they used a special character set (assumed, but not tested). Now, the parameter is written to the section `[Fonts]`.

#### Version 3.71 14.12.2011

Corrected:

Version 3.70 would internally still use the 3.69 version label, and also write that onto result printouts and into result files etc.

Improved:

The `Properties - Version - File version` field of the executable program file was changed from "1.0 - PrnJobTitle w/o CFG w PID" back to "1.0" as the printjob names have finally become configurable. The tag had been added after version 3.08 (back in 2007); details are given on the [printer setup](#) page.

#### Version 3.70 27.10.2011 - 28.10.2011

Added:

While other tasks within AnyQuest for Windows use interrupt and callback based system timers, a homemade delay loop was also in use. Its main use was from PC speaker sound effects, e.g. the audible feedback signal when an answer has been selected, or when the thank you box is shown. This homemade delay loop had been an improvement over the original Turbo Pascal function years ago. That had become unusable at some time in the age of 386, 486 and Pentium processors with ever increasing speeds (or due to early TSR programming requirements). But when multitasking became more common, and processors started to vary their clock frequencies for power saving purpose, the homemade delay was also affected: The initial calibration during program startup became time consuming, as available

processing speed would vary even during calibration. Even worse, calibration results would not hold throughout the runtime of the program, and the sound effects could appear faster or slower than expected.

Now, alternative system timer tick (i.e. hardware counter) based delay functions have been added. They have removed any slowdown from calibration during program startup as well as the gross variation in PC speaker sound signals on modern systems. They can also call the yield function to reduce system load while waiting.

Configuration options have also been added to control which implementation of delay loops is used, shown here with their default settings:

```
[Delay]
usetickcount=True
yieldfromwaitloop=True
```

#### Version 3.69 10.10.2011 - 12.10.2011

**Added:** Internal documentation of new features.

**Improved:** Further details regarded newly added printjob name configurability and functionality to open previously generated result printout PDF documents.

#### Version 3.68 08.10.2011 - 09.10.2011

**Added:** Configuration options to determine the elements that are included in the printjob name for automatically generated result printouts. The newly supported parameters and their default settings are (changes from immediately following updates included in this list):

```
[Printout]
JobName_Header=AQ-
JobName_DoT=True (date of test)
JobName_DoTPostDash=True (a dash after the date of test)
JobName_StartTime=True
JobName_PrnType=True (printout type: QFI, SNG, CUM)
JobName_PrnTypeShort=False (switches printout type identifier to Q,S,C)
JobName_ANQfilename=False
JobName_MainINIfilename=False
JobName_Initials=True
JobName_PID=True
JobName_PIDaddZerosUpToNChars=4
JobName_CaseID=False
JobName_CaseIDaddZerosUpToNChars=0
JobName_DoB=False
JobName_City=False
JobName_RemoveAllDashes=False
JobName_UseOriginalTimestampOnRecreate=True (Placeholder, not yet implemented.)
```

#### Version 3.67 01.10.2011 - 06.10.2011

**Added:** Two additional, simplified, versions of the [Analysis tools](#) dialog. The "Analysis tools" menu has been extended and the nomenclature of options improved to offer the following entries: "Select and review results, generate printouts and file lists...", "By predefined filters on certain joined fields...", "By predefined filters on certain individual fields...", "By freely defineable filters on any fields...". Specifically, this makes it more easy to select measurement results for a patient given their patient ID, name or date of birth etc.

**Added:** Additional buttons in the [Analysis tools](#) dialog, to conveniently open previously automatically generated result printouts for selected measurements. The mechanism should use the default PDF viewer available on the current system through the `start` command (thereby it may not work for Windows 3.x based systems).

**Corrected:** A GPF at 0006:3BC1 in `aqsevivr.pas` could be triggered when trying to produce a deferred single printout for a result file created with a certain questionnaire definition file. The problem resulted from an inconsistency between these two files inferred during development and should not occur in normal use of the software, but I added code to catch it anyway. A corresponding GPF at 0006:3BFC was triggered thereafter by the same mechanism; and it was handled the same way.

**Improved:** Dialogs derive a useful default value for the printout directory from the `printoutdir` configuration file setting.

- Improved:** Added a background shade in the "[Course over time plot - options](#)" dialog to match all other dialogs.
- Improved:** Review of the "Select result files..." dialogs: Improvement of the layout, additional columns, new buttons for printout directory and to open previously generated result printouts as PDF documents.
- Added:** An initial framework to locate PDF documents belonging to a given \*.anq result file for opening, even after varying printjob name schemas have been used to generate them.
- Improved:** Hardened the PDF document opening mechanism against side effects of competing file accesses between AnyQuest and the operating system; and protecting the routine against multiple concurrent calls. Requests to open multiple files are now processed reliably one after another.
- Improved:** Empty strings are not added any more to the SeViPr/-Simple1/-Simple2 drop down lists. Technically, this is a cosmetic improvement at the cost of some minor reduction in available functionality. But practically it should prevent confusion of less knowledgeable users, especially as multiple empty entries could be added to any list and this might have looked like a malfunction.
- Improved:** "Pr qfi" buttons disabled on all the SeViPr/-Simple1/-Simple2 dialogs, because loading back raw data individual question results has not been implemented yet. Revision of the button IDs used in these dialogs and in the Statistics dialog.

#### Version 3.66 [01.08.2011 - 02.08.2011](#)

- Added:** Support for basic ANSI single byte to UTF8 multibyte character, and UTF8 multibyte to ANSI single byte transcoding for writing and reading of the temporary \*.pid data exchange file. This file is employed to provide an internally collected (or empty) patient ID data set to external software, and to read back a checked, or completed, or completely externally provided version of that data set. Transcoding between UTF8 and ANSI characters was added specifically for communication with the Microsoft .net based meQ/TSS software prototypes developed in co-operation with Stefan Heckel Medizintechnik, Esslingen. Newly supported configuration file parameters are [\[External applications\]](#) `check_after_PID_collected_out_tx_ANSI_to_UTF8=False|True` and `check_after_PID_collected_in_tx_UTF8_to_ANSI=False|True`. More detailed information is available in section [communication with external software](#) of this on-line help file.

#### Version 3.65 [29.07.2011 - 01.08.2011](#)

- Improved:** Revision of a label for a (currently obsolete) menu entry, without any actual effects, just for improved legibility of code.
- Corrected:** Cumulative printout would appear empty since version 3.64 (unpublished development version). This was one (of a few) side effects from the fact that three lines of code that would write the timestamp into the \*.anq result file had been removed when the code for improved timestamps in printjob names had been added. These lines were restored.

#### Version 3.64 [22.07.2011](#)

- Improved:** Previously, all printjob names carried a timestamp showing when each printjob was issued. Now, names of printjobs which are generated automatically at the end of a questionnaire administration session, will carry a timestamp showing when the questionnaire administration session started instead. The same time is recorded in the [\\*.anq result file](#). In effect, the timestamps of all three printjob names of automatically created QFI, SNG and CUM printouts (if enabled) become identical, deterministic, and completely predictable from the content of the [\\*.anq result file](#). Currently, the scheme for printjob names is: `AQ-YYYYMMDDhhmmss-TYP-FL-NNNNN`, with `YYYYMMDD` derived from the field `date of test` and `hhmmss` from the field `start time`, `TYP` either `QFI` or `SNG` or `CUM`, and `FL`=initials from the fields `first name` and `last name`, and `NNNNN`=first five digits from the field `group/PID`. PDFs, for example, produced by PDFCreator with the AutoSave option and `<title>` as template for the filename will have this filename plus the extension `.PDF`. (Please note: In the future, the scheme may become configurable, e.g. to remove the leading `AQ-` in favour of two additional digits for `NNNNNNN`, or to suppress or use other variables.) Additional details are provided in the sections on [configuration files](#) and [printer setup](#) of this on-line help file.

**Corrected:** Directly specifying a printer in \*.ini would cause a GPF at 0014:3C94 in an internal development stage between 3.63 and 3.64. Review of the additional `globalunlock()` statement temporarily added in version 3.62 in the printer device context initialization in `aqini.pas`. Identification and correction of a missing test for `driver<>nil` in `aqini.pas` responsible for the GPF.

#### Version 3.63 20.07.2011 - 21.07.2011

**Added:** Ability to remove the window title bar (i.e. use a fullscreen window) during questionnaire administration. Available by setting the newly supported parameter `[Options] MainWindowStylePopupInsteadOfOverlapped=True`. Details are provided in the sections on [configuration files](#) and "[Remove Menu & START ASKING QUESTIONS](#)" of this on-line help file.

**Improved:** Added `ws_thickframe` to `ws_popup` in the AnyQuest main Window options, which will remove the black line between the menu and the client area when AnyQuest appears with enabled navigation screen, but disabled title bar, and also during the questionnaire administration mode when `[Options] f_DisableMainWindowSystemenu` or `f_DisableMainWindowMinimizeBox` are used.

#### Version 3.62 08.07.2011 - 19.07.2011

**Added:** Completed multilevel \*.ini [configuration file](#) support. A given configuration file can now reference other configuration files which will be processed before or after itself. Thereby, it is now possible to deploy a scheme of cascaded configuration files, that provide certain aspects of machine-local, user-specific or site-global settings, also across various questionnaire setups, language-versions, or projects, in separate, named files, which can be distributed across networked or local media. For example, a single file `config\common\printout.ini` may include all settings that control the printout features, including which types of printouts are produced (and copied) on virtual PDF or real printers etc., and this file can be referenced by all other configuration files on the systems. So changing printer settings, can be accomplished centrally by editing just one file. Or if one `printout.ini` file is placed onto each local machine in a network, each machine can automatically be instructed to use the network printer located most conveniently to it - etc. As before, both referenced and referencing configuration files only need to contain the settings which they want to change from their default (or from previously determined) settings. To this end, AnyQuest automatically uses adequate discretion in filling in - or not filling in - default values for parameters not explicitly specified in a given configuration file. This behaviour can, however, also be overridden so that a configuration file processed later in the cascade would re-install default values anywhere if desired. [...] Newly supported parameters are `[MultilevelConfig]`, `OnlyReadParametersAlreadyInTheFile=True|False`, `ConfigFileBeforeCurrent1=...`, `.. ConfigFileBeforeCurrent9=...`, `ConfigFileAfterCurrent1=...`, `.. ConfigFileAfterCurrent9=...`. Details are provided in the section on [configuration files](#) of this on-line help file.

**Added:** New \*.ini [configuration file](#) parameters can activate the production of some debug output at runtime. Newly supported parameters are `[Debug]`, `inifile_rw_filename=True`, `qdw_rw_filename=True`, `ini_fontinfo=True`, `ini_prndevnames=True`, `ini_thisprn_try=True`. All debug output initially available through this function is related to configuration file processing. By default, the debug output currently appears in a window which is positioned on a second monitor located in the upper left of the primary monitor. Details are provided in the section on [configuration files](#) of this on-line help file.

**Temporarily added:** One additional `globalunlock()` statement in the printer device context initialization in `aqini.pas`. Further review and testing scheduled (carried out towards version 3.64).

#### Version 3.61 26.06.2011

**Enhanced:** In the built in [patient ID collection dialogs](#): extension of the available field size for "please enter the patient ID code", especially required by the Spanish translation used in the HELPS project.

**Enhanced:** In the [patient ID confirmation dialogs](#) (small, small Greek, and large versions): addition

of a second line of text for the question asking for confirmation, as required for English, Spanish and Dutch versions of the question in the HELPS project.

#### Version 3.60 08.05.2011

- Improved: The [General Editing Tools - Text search and replace](#) functionality can now operate across multiple concurrently loaded questionnaire definitions; this can be controlled via an additional option in the dialog box.
- Corrected: The [General Editing Tools - Text search and replace](#) is now properly supported by the undo functionality.
- Corrected: The [General Editing Tools - Text search and replace](#) will now properly set the "modified" flag - and thus, the colour of any affected questionnaire(s) in the graphic progress indicator.

#### Version 3.59 22.04.2011 - 24.04.2011

- Added: All HELPS questionnaires were approved for [Fast-Input-Form](#) mode. All configurations prepared for the HELPS project are available in two variants; one for patients filling in the questionnaires directly at the computer; and one for trained staff collecting data from paper forms.
- Improved: The checks whether a given questionnaire definition file has been approved for [Fast-Input-Form](#) mode were consolidated and moved into a single new function `aqdlgfrm.check_whether_fif_allowed_for_qnr_shortcode()`.
- Improved: Leading linebreaks were removed from being displayed as leading spaces in [Fast-Input-Form](#) mode for the generic transformation function, but not for the eSIRO specific one.
- Improved: The [Fast-Input-Form](#) mode form does now automatically adjust its size to the available screen size.
- Improved: As a consequence of the new policy of defining special answer fields first ("Can't answer/Don't want to answer"), the automatic allocation of number and character key bindings and navigation using the cursor keys in the [Fast-Input-Form](#) would not work as intuitively expected. The algorithms were changed so that an intuitively expected operation is achieved, no matter whether special answer fields are defined first or last (or wherever) within a question.
- Added: Support of automatic recognition of the system decimal separator character. Addition of an option "auto" to the [data export](#) dialogs, which is now the default option.

#### Version 3.58 11.04.2011

- Improved: When printouts were generated while multiple questionnaires were loaded, and custom reference values, reference ranges, or reference labels were specified via reference definition files `*.rvs`, `*.rrs`, `*.rvc`, `*.rrc`, the a formula number specified the `CND:RFN` statement would be handled as an absolute number (i.e. counting from the first formula of the first loaded questionnaire through to the last formula of the last loaded questionnaire). This was (of course) counterintuitive, and it would also require a change in reference file content depending upon whether a questionnaire was used on its own, or in a configuration loaded together with (and behind) others. The behaviour of the program was changed; so that the local formula number within any given questionnaire can now be used in `CND:RFN` references.
- Improved: Since version 3.52, with `[Options] DirectExit=True`, AnyQuest exits after a questionnaire administration session has been completed. In combination with `DirectStart=True`, this can be used to integrate AnyQuest seamlessly into a menu system or into another external software environment. Before version 3.58, the Navigation Window screen would appear for a moment between the last question and the closing of the AnyQuest main window.
- Added: New parameters for the calling of [external applications](#):  
`[external applications]`  
`notify_after_anq_completely_written_showcmd=0..9`  
`check_after_PID_collected_showcmd=0..9`  
`provide_access_to_data_directory_showcmd=0..9`  
These can be used to control whether the window of an external application appears e.g. visible or hidden, normal or maximized. The meanings of the individual numeric values are:  
`sw_Hide=0`

```
sw_ShowNormal=1
sw_ShowMinimized=2
sw_ShowMaximized=3
sw_ShowNoActivate=4
sw_Show=5
sw_Minimize=6
sw_ShowMinNoActive=7
sw_ShowNA=8
sw_Restore=9
```

The default value is 1. Some values may affect the functionality of the corresponding parameter `external_..._wait=True` because the respective function monitors the existence of the window opened for the called application.

#### Version 3.57 29.01.2011 - 31.01.2011

**Corrected:** When printouts were generated while multiple questionnaires were loaded, and custom reference values, reference ranges, or reference labels were specified via reference definition files `*.rvs`, `*.rrs`, `*.rvc`, `*.rrc`, the a formula number specified the `CND:RFN` statement would be handled as an absolute number (i.e. counting from the first formula of the first loaded questionnaire through to the last formula of the last loaded questionnaire). This was (of course) counterintuitive, and it would also require a change in reference file content depending upon whether a questionnaire was used on its own, or in a configuration loaded together with (and behind) others. The behaviour of the program was changed; so that the local formula number within any given questionnaire can now be used in `CND:RFN` references.

**Added:** A parameter [`Scaling`]  
`suppress_unscaled_area_indicator_frame=True|False`. If this is `True`, the option `suppress_scaling_during_load=True` can be used, and still no indicator frame will be drawn to identify the unscaled extent of the original questionnaire definition file (please refer to entries regarding versions 3.49 ff. for a discussion of previously added scaling related parameters). This is especially useful, if display sizes for questionnaire definition file editing and questionnaire administration are just slightly different (e.g. Windows XP system and -appearance with slightly taller Window Title decoration vs. Windows 2000 system or -appearance). Normally, AnyQuest for Windows would use minor scaling to accomodate for the different client area size on the playback system - but this might affect e.g. the appearance of bitmap graphics (especially logos with diagonal lines), or the aspect ration of square answer fields in the questionnaire screens. If you want to completely suppress any scaling in such a situation, you can now set both parameters to `True` and use the questionnaire content in a completely unscaled way, and without any visible indicator rectangle. Thus, the original answer field geometry and bitmap graphics should be maintained pixel by pixel.

#### Version 3.56 18.01.2011 - 20.01.2011

**Corrected:** In some German message file(s) (e.g. `de.msg`), the string "Diese Fragen wird nun nochmals gezeigt." was corrected to read "Diese Frage wird nun nochmals gezeigt." - The default version of this string compiled into the program, reading "Diese Frage wird gleich wiederholt." had been correct before, so the program itself needed neither change nor recompilation here.

**Corrected:** a GPF at `000A:0B8C` could occur due to an unexpected value of `aktuelle_frage` when the program was started without `*.ini` file, and "Setup" was then selected from the Navigation Dialog, as another side effect of the newly added `ShowQnr1Qn1AsTitleScreen=True` option. A check was added as well to handle the condition correctly.

**Updated:** The year 2011 was added to the "About" dialog etc.

#### Version 3.55 11.01.2011

**Corrected:** A GPF at `0004:1aae` could occur when the program was started with the new option `ShowQnr1Qn1AsTitleScreen=True` and `NumberOfLoadedQNs=0` in the `*.ini` configuration file, which could result in an unexpected value of `aktuelle_frage`. Checks were added in three positions in the repaint code to handle the condition correctly.

**Updated:** The copyright notice written to `*.anq` result files was updated to include 2011.

### Version 3.54 24.10.2010

- Improved:** If the newly introduced option to use questionnaire 1 question 1 as title screen was used, with a skip CBF as described below, and with the regular navigation window, and with the option `DisablePlayInSetupMode` active, then the "Setup" button would be rendered ineffective: Technically correct, the automatic skipping from (title screen replacing) question 1 to question 2 would cause `DisablePlayInSetupMode` to engage and bring the user directly back to the navigation window. This would leave the user unable to make any changes to the setup interactively, without prior editing of the configuration file - therefore, `DisablePlayInSetupMode` was changed to be automatically suppressed when the program changes from showing the navigation window to showing the first question (and processing its CBFs, and skipping forward if thereby required, as long as required, until the first pass through `govorwaerts` has been completed).
- Corrected:** Version 3.53 showed some debug messages related to the `govorwaerts` process (it was only released to a small number of users during project specific development).

### Version 3.53 08.11.2010

- Improved:** If a configuration with `directstart=true` was loaded with no loadable `qdw`s (e.g. because those listed in the `*.ini` file could not be found), then the program would still not return to the navigation dialog, but stall with a clean white window content.
- Corrected:** The code to branch for processing of `idm_cokaestchen` was there twice (causing no malfunction but affecting clarity of code at least).
- Corrected:** The context menu entry for explanation 2 colour would affect explanation 1, leaving only the colour option in the font dialog and thus a limited selection of colours for this object.
- Corrected:** The colour of special answer field labels was not re-read from `*.qdw` files but copied from the regular answer field label colour in the portion of code that would ensure backward compatibility with old `*.qdw` file formats.
- Added:** Ability to copy the colours of explanation and explanation 2 to all loaded questionnaires similar to what was added for answer fields and check marks in version 3.52.
- Improved:** Refined the changes to the menu made in version 3.52 regarding colour changing and copying entries; including the internally used codes for various related menu options.
- Added:** Ability to produce a label for "dates and times of assessments" in the cumulative printout, through a `*.pdc` parameter like:  
`pdcxdatestimesofassessments=Messzeitpunkte:` (default: empty/no label, same behaviour as before).
- Added:** Ability to suppress the times of measurement (the time of day when the questionnaire administration began) in the cumulative printout, through the `*.pdc` parameter:  
`f_simple_date_of_assessment=True.`
- Added:** Support for `CustomThankYouBox` (can be controlled from the respective parameter added to the `*.ini` file) internally driven similarly to the `AboutBox` dialog window, but with white background, no frame, two lines of 18pt Arial text corresponding to caption and message of previously available `ThankYouBo`, and an OK button in the same font size.
- Added:** Support for `*.pds` file parameters `section#bargraphwidth=i` and `section3minspacesbetweenlabelandxbargraphleft=i` which can be used to change the bargraphwidth per section, and successively the position where printed results are left aligned to. See section "Printer setup..." in the on-line help or exemplary `*.pds` configuration files for details.
- Added:** Support for a button "Auto" on the PID collection dialog. If this is clicked, AnyQuest for Windows automatically generates a PID that has not been used before in the data files it can currently see. The button is controlled by the option `ShowAutogenPatientIDButton` in the `*.ini` file. Currently, a 6 digit numerical PID is generated. Internally, options have been provided to specify the number of digits, charset and prefixes to be used, but these have not been linked with any `*.ini` file or menu options so far. The button may not be available in all custom versions of the AnyQuest for Windows program, because it must be provided in the respective resource file definitions.
- Added:** Ability to use questionnaire 1 question 1 as title screen behind the navigation window. This is controlled by the option `ShowQnr1Qn1AsTitleScreen` in the `*.ini` file.
- Added:** Ability to display a custom navigation dialog, including only a "Start" button, or "Start" and "Exit" buttons, plus a "..." button for "Resume" only displayed when required, on a

white background without a frame at the bottom of the screen. These variant behaviours are controlled by the options `NaviMinimal=True`, `NaviMinimalAtBottomOfScreen=True`, `NaviMinimalShowExit=True|False` in the \*.ini file.

**Improved:** Conditional branching formulas for skipping were not evaluated on the first loaded question before version 3.53. They are now. Typically, a first question of a questionnaire to be used as a title screen, would be generated as an infoscreen with a conditional branching formula with "condition = 1" and "action = skip". Consequently, as soon as the user presses "Start" or "Go", the title screen would disappear, the PID collection dialogs (or a link to external software for the same purpose) would appear, if configured, and afterwards, AnyQuest would skip directly to question 2 of that questionnaire definition. That might typically be another infoscreen, providing the actual questionnaire introduction.

### Version 3.52 23.10.2010

- Improved:** The `color` entry of the answer field context menu was replaced by a submenu with multiple entries, to change the colour of the answer field outline, the mark, or to perform the new operations mentioned below.
- Added:** Ability to copy the colour of answer field outlines (or LASA/VAS scale lines, respectively) and marks from the current questionnaire to all preceding or succeeding currently loaded ones.
- Added:** A set of buttons in the `questionnaire descriptors` dialog with the ability to apply changes without closing the dialog, and to copy the `language` and `version` entries from the preceding or the succeeding, or to all, to all preceding or to all succeeding currently loaded questionnaires.
- Changed:** Separation of internally used button id 4012 and into 4011, 4012 and 6101 - to keep separate variable names with separate values.
- Added:** A new option in the `File` menu: `Save all modified questionnaires to *.qdw files`. This menu option is only available in the editing-enabled menu. It is itself enabled only when modified questionnaires are in memory, otherwise, it appears in gray. It can be used to simplify the handling of multiple questionnaire definitions in projects where these are required.
- Changed:** The new menu option `File - Save all modified questionnaires to *.qdw files` receives the `m` as accelerator key for "modified". To allow for swift operation, the accelerator key for `Memory report` is changed to `r` for "report".
- Added:** The graphical progress indicator bar can display the representation of each loaded questionnaire either in black (as before) or in red, when a questionnaire has the `modified flag` (i.e. veraendert; i.e. edited but not yet saved) set. To achieve an up to date display, the contents of the main window are invalidated and a repaint operation is scheduled when the flag is changed for any questionnaire, as long as the graphical progress indicator bar display is activated.
- Improved:** `Save-for-undo` and handling of the `modified flag` was insufficient or did not exist for `copy-text-to-all...` or `copy-position-to-all...` operations. Now both should work fine. Using these functions, and choosing undo with 55 questionnaires in undo storage may now be a nice little spectacle with the graphical progress indicator now being update after each questionnaire is loaded.
- Corrected:** After an undo operation that restores a whole set of loaded questionnaires, the name of the current questionnaire is now put back to the AnyQuest main window caption. In previous versions, the name of the last of the restored questionnaire definition files would have persisted (at least briefly) in the caption, which could be confusing, disturbing or misleading for the user.
- Added:** The colours to be used for the graphical progress indicator bar can be configured from the \*.ini file by changing the following parameters in the `[Options]` section:  
`GraphicalProgressIndR=0`, `GraphicalProgressIndG=0`,  
`GraphicalProgressIndB=0`, `GraphicalProgressIndModifiedR=255`,  
`GraphicalProgressIndModifiedG=0`, `GraphicalProgressIndModifiedB=0`.
- Added:** An `Exit` button was added to the minimal navigation dialog in order to make AnyQuest for Windows exit-able even when this dialog is used. By default, however, it is invisible and inactive. This can be changed via the \*.ini file by setting the following parameters in the `[Options]` section: `NaviMinimal=True`,  
`NaviMinimalShowExit=True`.

**Added:** An option to directly start a questionnaire administration after the program startup, without any display of a navigation dialog, can be activated via the `*.ini` file by setting the following parameter in the `[Options]` section: `DirectStart=True`. This option is useful if you want to call one or multiple AnyQuest for Windows configurations from an external environment, e.g. from a menu offering questionnaires in various languages or addressing various topics. Such an environment can e.g. be implemented using the `jsflash` program, or the SC-JMS menu program (or many others, of course).

**Added:** An option to skip the `Thank-You-Box` at the end of a questionnaire administration session. With this option, the respective dialog, which would require the user to press the `OK` button, is simply not displayed. The associated sounds (wave file and pc speaker signal) are nevertheless produced. The option can be activated via the `*.ini` file by setting the following parameter in the `[Options]` section: `SkipThankYouBox=True`. This option is useful if you want to supply a `Thank-You-Screen` designed by yourself, as an `InfoScreen` within of your questionnaire definition file.

**Added:** An option to automatically exit AnyQuest for Windows after a questionnaire administration session. The option can be activated via the `*.ini` file by setting the following parameter in the `[Options]` section: `DirectExit=True`. This option is useful if you want to seamlessly embed AnyQuest for Windows into an external environment, from where one or multiple configurations are called, and to where the system shall immediately return after each questionnaire administration session.

#### Version 3.51 14.10.2010

**Improved:** Positioning of the elements of a questionnaire-filled-in-printout (qfi printout) now uses the available space more precisely and systematically. Especially, the graphs of succeeding questions don't overlap nor leave space between them (except for the intended spacer) any more. If `dyspacerscaling=0`, the graphs of succeeding questions (answer fields and or labels) are now placed exactly and seamlessly next to each other, for any of the possible label- and answer-field-arrangement options. Effects of changes in the `*.pdq` file are now more easily predictable, the positioning of the elements is simplified and the available space on each page can be used much better.

**Added:** Support for `dygraphscaling` and `section#numofdytoaddbefore` in the `*.pdq` file controlling the layout of the qfi printout; addition of new reference lines and other information regarding qfi printout element positioning to what is produced when `"Printing"` - `"Show xy coordinates for printout development"` is activated.

#### Version 3.50 02.07.2010

**Corrected:** Setting the option `NaviMinimal=True` would cause slightly higher scaling of questionnaire content in y-direction, and consequently, of all fonts (affecting both height and width) used to display text items of questionnaire content. This could distort answer field geometry and cause final words to be missing in text item display. The option does not only replace the original four button navigation window by a reduced version with only one large `"Start"` button, but also removes the menu bar from the navigation screen. The program measures the available clientrect size on that screen already, and before version 3.50, the missing menu bar resulted in a larger clientrect measurement in y-direction. In version 3.50, the measured clientrect size is reduced by the height of a menu bar plus a non-sizable window frame when `NaviMinimal=True` is set, so both options cause identical (correct) scaling of questionnaire content.

**Added:** In the configuration file, in section `[Options]`, the new parameter `PrintSuppressPatientDOB=True` causes a collected date of birth not to appear on printouts (similarly to the previously existing parameter `PrintSuppressPatientAge` which prevented the computed age of the patient from being printed). The parameter can be set via the configuration file or via the `General printout options` menu.

**Added:** In the configuration file, in section `[*.anq Output File Options]`, the new parameter `anqfile_SuppressDOBWriteOut=True` causes a collected date of birth not to appear in the `*.anq` result file. The new parameter `anqfile_AgeOfPatientPrecision=3` controls the resolution with which the age of the patient at the date of the test is written into the `*.anq` result file. The default resolution is 3 decimal places, the allowable values are 0 to 3. Both parameters can be set via the configuration file or via the `*.anq output file options` menu.

**Known limitation:** The option `anqfile_SuppressDOBWriteOut=True` is currently not compatible with a configuration that collects a date of birth and recognizes a previously used patient ID when the PID is collected by the interactive PID collection screens before the date of birth and the \*.anq result file causing the PID recognition, because an empty date of birth will be read from the external file and as of 3.50, this will cause an error message, but no dialog to manually enter the DOB will be shown.

**Added (preliminary, under development):** In the configuration file, in the new section `[MultiLevelConfig]`, the new parameters `ConfigFileAfterCurrent1=c:\anyquin\mystudy\config\cfgaft1.ini` etc. and `ConfigFileAfterBefore1=c:\anyquin\mystudy\config\cfgbef1.ini` etc. cause secondary, tertiary etc. configuration files to be evaluated before or after the original configuration file. This option is a preliminary implementation - the intention is to use e.g. a single global configuration file providing some common options, for multiple configurations, that can be included from multiple specific configuration files. The intended usage is, however, currently not possible, because *all* possible configuration options are evaluated and default values used for each option that is not specified in a given configuration file.

**Added:** In the configuration file, the new section `[Scaling]` can have the following new parameters: `suppress_scaling_during_loading=True` - causes the loaded content of the questionnaire definition file not to be scaled to any currently seen clientarea size; `show_info_scaling_during_loading=True` - causes debug information to be displayed on the currently seen clientarea size, the size stored in the questionnaire definition file currently being loaded, and the applied scaling factors derived from this information. The parameters `assume_aqwinwidth` and `assume_aqwinheight` can be used to override the measured clientarea size, if either value is set to a value above 0.

**Known limitation:** The values used (and stored in questionnaire definition files) for `aqwinwidth` and `aqwinheight` are one unit above the expected `clientrect` size values. The measures stored in a questionnaire definition file created on a 1024x768 pixel display would be reached using `assume_aqwinwidth=1025` and `assume_aqwinheight=723`. The actual values may vary depending upon the system metrics, which may vary with different versions of MS Windows and user adjustable settings.

#### Version 3.49 13.03.2010

**Corrected:** The variable `numofdytoaddbefore` added in version 3.43 was sometimes not initialized if not specified in a \*.pds file. This could cause the program to throw a RTE 207 at FFFF:FFFF upon single printout; which was especially observed with an internally prepared questionnaire definition file when a test single printout was issued directly after program startup.

**Improved:** The code for interpretation of \*.pds, \*.pdc and \*.pdq printout definition files contained an early exit for the case of the filename stored in the current questionnaire definition unexpectedly not having the extension \*.QDW. Whereas this would not be a user achievable condition, the code was improved to ensure initialization of related variables from their default values even then.

**Corrected:** The (recently added) dialog displaying the warning for formula position changes not being covered by `formula consistency check` was displayed e.g. when the user clicked on the "delete" button in the formula editing dialog and appeared before the actual deletion of the formula would be carried out. If the would issue the next formula deletion while this warning dialog was still displayed, the first formula deletion request would not be completed before the second one and this could ultimately lead to a GPF at 000D:5015 as soon as the warning dialog would finally be closed. This issue has been corrected by placing the code generating the warning dialog after the completion of the formula delete request, and in order to have the formula editing dialog update immediately after the action, the same modification was made for all other button handlers which would change the sequence of formulas and therefore be able to trigger the same dialog.

**Improved:** If a single printout or a cumulative printout was re-produced from the built in analysis-tools dialog, only basic patient id data (group/pid, name or initials, date of birth, age only for the single printout) were re-loaded from the previously made questionnaire administration result file. Now, all patient id variables should be reloaded and included

in the printout if they are available in the old result file. This is especially important when reference values included in the printout are selected based upon patient age or patient sex, because they cannot be correctly selected without this information.

#### Version 3.48 05.03.2010

- Added:** Support for Fast-Input-Form dialog added for various additional short questionnaire names, including (e)SF-12, (e)SF12, (e)SF-36, (e)SF36, (e)HN35, e(PAN26), (e)BR23, (e)EQ5D, (e)EQ, (e)EQ2, (e)MFI20, EPW, HADS, MLHFQ, TTM, BBPatSat, OCT, eC30V3 and (e)LC13. The LC13 is not fully supported yet because of a question which has only one DirectText answer field, so its inclusion is preliminary for internal development purposes only.
- Improved:** Previously only the keys 0..9 worked in the Fast-Input-Form dialog, and would only select an answer field with exactly the corresponding integer number and no decimals. Now, the keys 0..9, A..Z, ÄÖÜß are recognized and can be used to select answer fields according to the following staged matching algorithm: (1) match with the first character of the value of an answer field; (2) match with the first character of the label of an answer field; (3) match with any character of the label of an answer field. This should be sufficient to select most answers quickly and relatively specifically by keyboard input, and therefore enter all data for scoring a paper questionnaire very fast. Where this does not suffice, the TAB and cursor keys or the mouse can still be used.
- Corrected:** The PhysicianID field in the Fast-Input-Form dialog would not accept input and could not be enabled or disabled via the "Navigation" - "Patient-ID-Options to ask for" menu, because its ID values had not been updated after the CaseID field had been inserted and positioned in its original place in the Fast-Input-Form dialog in version 3.41.

#### Version 3.47 03.03.2010

- Added:** Support for differently configured graphs (e.g. circle graphs for section 1 and bargraphs for section 2, or a graphs with displayed x-axis for section 3 and without) on the same result printout or in the same configuration. The parameters `section#AutoSinglePrintoutCross`, `section#AutoSinglePrintoutCircle`, `section#AutoSinglePrintoutConnectingLines`, `section#AutoSinglePrintoutStrongHL`, `section#AutoSinglePrintoutDottedHL`, `section#AutoSinglePrintoutHL`, `section#AutoSinglePrintoutCoordsXAxis`, `section#AutoSinglePrintoutCoordsYAxis`, `section#AutoSinglePrintoutBar`, `section#AutoSinglePrintoutBarFilled`, `section#AutoSinglePrintoutDottedMax`, `section#AutoSinglePrintoutDottedTop`, `section#AutoSinglePrintoutValues`, `section#AutoSinglePrintoutYDottedValue2`, `section#AutoSinglePrintoutYDottedValue4`, `section#AutoSinglePrintoutYaxisLabel2`, `section#AutoSinglePrintoutYaxisLabel4`, `section#AutoSinglePrintoutJoinGraphsWithSameStructure`, `section#AutoCumulativePrintoutFixBarWidth`, `section#AutoCumulativePrintoutBarFilled`, `section#AutoCumulativePrintoutDottedMax`, `section#AutoCumulativePrintoutDottedRight`, `section#AutoCumulativePrintoutBar`, `section#AutoCumulativePrintoutCircle`, `section#AutoCumulativePrintoutConnectingLines`, `section#AutoCumulativePrintoutValues`, `section#AutoCumulativePrintoutYAxisLabel2`, `section#AutoCumulativePrintoutYAxisLabel4`, `section#AutoCumulativePrintoutYdottedvalue2`, `section#AutoCumulativePrintoutYDottedValue4` in the extended printout definition files `*.pds` and `*.pdc`, respectively. These parameters can be used to override the corresponding parameters of the current configuration (be they loaded from an `*.ini` file or be they default settings) on a per section basis.

#### Version 3.46 02.03.2010 - 03.03.2010

**Improved:** In AnyQuest for Windows versions 3.40 and 3.45, a GPF was observed, once per version during preparation of a project related configuration, during tests with fast navigation through questionnaires containing directtext input fields, and semi-random directtext input, at 0004:356D and 0004:3560 respectively. This is the same position in source code, inside `aqstring.pcharLeerweg`. A code review did not recognize erroneous code, but found that the current implementation (made for easy legibility and similarity between different functions) included repeated allocation and deallocation of minuscule memory blocks from the heap, through calls to `pcharAppendFromCharacter` for each character of a processed string, which might (not highly plausibly, but possibly) exhaust system resources (due to heap fragmentation?) at least temporarily and thereby cause the problem. So all pchar and string operation functions in this unit were reviewed. All ineffectively implemented ones received an optimized implementation. Moreover, index pointers were converted from integer to word (and occasionally: longint) in order to handle pchar strings beyond 32k characters as well. Two exemplary functions were benchmarked to compare the performance of old and new implementations, and the new implementations generated speedups of 79 and 196 times (for pchar strings of substantially greater length than in typical operation, so this is probably an overestimate, but it illustrates the inefficiency of the old code). Stress tests with isolated calls to these functions using semi random data btw. failed to reproduce the exact error for both the old and the new implementation but identified the insufficiency of integer pointers and some arithmetic overflows that could occur for long pchar strings (beyond what would be expected to occur inside AnyQuest). This improvement should at the same time reduce the probability of a GPF resulting from heap overfragmentation as well as speed up all pchar text string processing, occurring in UPN formula processing, directtext field processing, patient ID recognition etc.

**Improved:** In an interim development version of AnyQuest towards 3.46, a GPF could be caused, when in `aqdialog.jmsmessagedialog`, the calculation of the dialog layout split supplied text into multiple lines to find out the size of the longest line: If some line would happen to have 0 characters during this process, the updated implementation of `aqstring.PcharNewCopyFromPchar()` would return an empty pchar string as nil instead of a pchar string containing only a terminating zero. The returned nil would then cause Borland Pascal's `StrLen()` to throw a GPF. The code in `jmsmessagedialog` was hardened as to not call `StrLen()` for a returned nil, and the code in `PcharNewCopyFromPchar` was reviewed in order to behave as the previous implementation did. (This should sometimes be checked against the requirements of `strdisposejs`, and possibly, `StrLen()` should be overloaded by `StrLenjs()` with protection against incoming nil pchars throughout the program, but that can be postponed).

**Corrected:** When AnyQuest receives a "close" command during a running questionnaire administration session, the session management dialog appears - and shall be centered on the screen. The computation of the window placement coordinates would fail when the "close" command was sent from the task bar representation of a minimized AnyQuest for Windows, under Windows XP (at least on a dual monitor system used to test this), because in this scenario, MS Windows returned coordinates in the -32000 range for all corners of the AnyQuest window. The computation of new window coordinates was modified to use longint math for this computation, and (although probably not strictly necessary) this approach was copied to all occurrences of similar window placement computations.

#### Version 3.45 15.02.2010

**Added:** Support for additional parameter `ObserveLeadingCharsForStatsOldResProc` in section `[*.anq Output File Options]` of the `*.ini` configuration file. If set to true, AnyQuest for Windows will only evaluate result files `*.anq` with a filename whose leading characters match the current `anqfilename_leadingchars` setting. Effectively, this can be used to store data from multiple configurations that produce `*.anq` result files with different filenames in the same directory, so that PID recognition works across all of these configurations, while at the same time limit processing for on-the-fly statistics and cumulative printouts to `*.anq` result files generated by the current configuration. The new feature works for both standard and fast index based PID recognition.

- Improved:** Tested fast index based PID recognition on Windows XP and Windows 2000, and found that the necessity to index new files is not recognized after the index has once been built on these systems, due to an incompatibility of their findfirst/findnext implementation with the original implementations. As a consequence, I added more detailed information to the warning message regarding the alpha status of fast index based PID recognition shown when the index is first built, and added code that checks the currently used version of MS Windows and inhibits fast index based PID recognition for major version numbers greater than 4 (Windows NT 3.51 and Windows NT 4 have not been tested today).
- Corrected:** In the "Analysis tools" dialog for interactive selection of previous result files, checked checkboxes and actually processed result file sections were off by -1 for "Meta info", "Raw data", "Addn text", "Num results", "Str results" and "Other", and by +7 for "Session log" (after the checkbox for "Session log" had been inserted last, and received the highest id instead of the one matching its position in the sequence of sections).
- Improved:** In the "General editing tools" - "Search and replace text" dialog, a remark was added to the label of the "Answer fields" checkbox, to remind the user that at least one of the "Text..." or "Value..." checkboxes must also be checked in order to process the respective image bitmap or wave filenames.
- Corrected:** Colours used to draw the image bitmap and wave filename in edit layout mode could be the ones left over from the previously drawn text element. Now, the colour used to draw the current text element is used; i.e. the colour of the displayed filenames matches the colour set to be used for the text element.

#### Version 3.44 13.02.2010

- Added:** Support for additional parameters `buttons_selection_PID`, `buttons_selection_CaseID`, `buttons_selection_physiciannumber`, `buttons_selection_sex`, `buttons_selection_ethnicity`, `buttons_selection_nationality`, `buttons_selection_group`, `buttons_selection_subgroup`, `buttons_selection_cycle`, `buttons_selection_subcycle`, `buttons_selection_rater`, `buttons_selection_infosource`, `buttons_selection_assessment` in the `*.msg` file to control which buttons are actually enabled in certain PID collection related dialogs.

#### Version 3.43 12.02.2010

- Added:** Support for the parameter `section#numofdytoaddbefore` in `*.pds` files which can be used to control the y-positions where sections start in single result printouts.
- Improved:** Review, enhancement of robustness and cosmetic refinement of code in `aqprsnq`, `aqprcum`, `aqprqfi` and `aqwrap`.

#### Version 3.42 10.02.2010

- Corrected:** Code in `aqdialog.govorwaerts` was subject to causing a "Run-Time-Error RTE 201 at 000C:7D85" in (not publicly available) AnyQuest Version 3.41. A central part of `govorwaerts` was rewritten to prevent the error from occurring again. It was observed with a configuration for the (not publicly available) SDQP4DE.QDW questionnaire definition, after a single printout (plus optionally other printouts) and the result file had been completely written. The error could be reproduced several times when questions were left unanswered first, using the page down button, so that the system would present them again and ask for their completion. The error could not be reproduced with the latest published versions 3.36 thru 3.40 so far, and the update includes a range check before the critical section of code. A complete review is currently outstanding.
- Added:** Postal address in Switzerland added to the "About" dialog - height of this dialog extended accordingly.

#### Version 3.41 26.01.2010

- Added:** Support for the field "CaseID" (Fall-ID, Fallnummer) in the Patient-Identification (PID) section, available via PID dialogs as well as for the Fast-Input-Form. The CaseID is handled similarly to the fields "cycle" and "PID", with regard to the PID recognition feature and related menu entries and configuration options.
- Updated:** Copyright notice in `aqglobal` updated from 2009 to 2010.

### Version 3.40 19.12.2009

**Added:** Support for new parameters in the \*.pds and \*.pdc enhanced printout definition files, to control per defined section of graphs for single and cumulative printouts: the display or suppression of automatically generated numerical graph labels at the minimum, 1/4, 1/2, 3/4 and maximum positions on the y-axis, as well as the display or suppression of numerical results next to (or inside) the graph bars, and the colour of the x-axis and y-axis lines, and the lines depicting the extremes of each graph in either direction. The respective parameters are: `section#noqlq3labels=True|False`, `section#noq2label=True|False`, `section#nomnmaxlabels=True|False`, `section#nonumvalue=True|False`, `section#colorstrongpenr=byte`, `section#colorstrongpeng=byte`, `section#colorstrongpenb=byte`, `section#colordottedpenr=byte`, `section#colordottedpeng=byte` and `section#colordottedpenb=byte` (with # to be replaced by the respective section number).

### Version 3.39 06.12.2009

**Improved:** Enhancement of Questionnaire-Filled-In (QFI) printout capabilities: Added ability to display directtext answer fields and their content. The reproduction of questions and answers now uses the fonts specified in the questionnaire definition file for regular answer field labels, directtext answer field labels, and directtext answer field content, instead of simply using the small printout font. The respective fonts are auto-scaled for the printout according to printer resolution. Text items are reproduced using the same code that is employed for screen display, including clipping to the available textitem area, as well as processing for #UPN inline formulas. #UPN processing for printout generation is limited to statements that do not alter collected data nor questionnaire elements nor computed results. All statements referring to external file-i/o or calling of external applications are also suppressed for printout generation. Restriction of #UPN processing is performed in a way that maintains as much functionality of the contained #UPN code with an unrestricted execution environment as possible. For directtext field content (i.e. free text patient input), any #UPN inline code recognition or processing is completely prohibited. To this end, support for control of UPN processing functionality on individual command level or on command group level was added to the UPN processing machine and to `drawtext_taking_care_for_options()`, and the latter also received the capability to completely ignore #UPN processing upon request. Answer fields, labels, checkmarks, and directtext content are now reproduced in colour. Directtext answer fields are displayed in the same way as on the screen, i.e. with dotted left/top/right lines. Field frame thickness is specified in pixels for now and not adjusted for printer resolution, i.e. they will appear thicker on lower resolution printers, but checkmarks are drawn so that they are located reliably inside the answer field frame (just touching the frame from inside).

**Improved:** The default printout header frames, trailer (footer) frames, and patient sticker frame can now be produced with round corners. This has also been chosen as default mode, but the old mode using standard rectangles can alternatively be selected in the "Printing" - "General printout options" menu or via a configuration file parameter. Two separate configuration parameters are available for the header/trailer frames and for the patient sticker frame.

**Corrected:** Single printout used the file output settings (from the result formula definition dialog) for digits and precision of displayed numerical result values, instead of using it's own settings.

**Corrected:** On multipage printouts (observed in a single printout), with suppressed default headers and trailers, and without any colour control by \*.PD? files, the patient sticker frame could appear in the default bargraph bar gray fill colour.

**Corrected:** In edit layout mode, the number, numeric or text value, and several options were displayed for directtext answer fields only while special answer field display was activated; i.e. this information was not displayed while special answer fields were hidden.

**Improved:** In edit layout mode, the selection status of additional (all currently available) answer field options (i.e.: require non-empty/numeric/positive/time/date input) is now displayed for both directtext answer fields as well as for regular answer fields with activated "open text input dialog upon check" option.

**Improved:** For questions combining both directtext and regular answer fields with discrete answers, from which a single one should be checked, (i.e. some question saying:

"Please specify what you rate in the directtext answer field, and then rate it by checking one of the regular answer fields!"), a truly meaningful test whether a displayed question had been answered at the end of questionnaire administration required the directtext field to have an empty "numeric or text value" in order to require the checking of one of the regular answer fields for the question to pass as completed. This would cause the automatically computed numeric and string results of this question to become undefined when any text was entered in such a directtext answer field, and thus, more code would be required in the result formula to compute and receive these results. --- Now, this has been enhanced to allow for simple and intuitive use. - In detail: The completeness checking algorithm has been diversified and handles questions of this type specially, requiring the checking of one regular answer field if regular answer fields are there at all for the question to pass as completed, independently from the numeric or text value that may be specified for any directtext input fields of such a question. This effectively allows you to design a question that has a directtext answer field with a numeric value of 0 or with any non-empty text value, neither of which will change the automatically computed numeric result of that question when the user writes text into this directtext answer field (especially that will not make the numeric result of the question invalid as an empty numeric or text value field for the directtext answer field would do), and still the completeness checking cannot be passed by only writing text into that directtext answer field, but if any regular answer field(s) is(are) available, then one of these must additionally be checked.

**Improved:** A number of string variables still allocated on the stack for aqdialog.govorwaerts were moved to the local heap, thereby significantly reducing stack space requirement of that procedure and making the use of writeln to produce monitoring output in this procedure possible again.

**Improved:** Printout generation code has been enhanced by adding basic protection against overflows resulting from the usage of large paper sizes and/or very high printer resolutions, like 4.000 dpi on A3 paper. The Borland Pascal - Microsoft Windows API uses integer variables and thus imposes a coordinate range of -32.767 .. 32.768 in either direction. When the available printout area is measured at the beginning of any printout, basic overflow detection is attempted, and accepted printout area dimensions are limited to a range of 0 .. maxint - 1000 at various stages. This provides a security margin e.g. for labels that may exceed the expected printing area. As a consequence, when you use A3 paper in a 4.000 dpi PDF virtual printer, you may notice that AnyQuest for Windows only uses part of that space for its printout. Similar basic protection was added against negative or unreasonably large printout margins. - Please note however, that neither protection has been designed to be perfect nor to cover all situations. Especially, addition of coordinates of two objects might still overflow an integer variable, possibly leading to side effects like premature page breaks etc.. A resolution of 1.200 dpi on A4 paper (with a maximum pixel coordinate of { 9.921 ; 14.031 } i.e. below maxint div 2) however has been tested for several printout types and worked without problems.

#### Version 3.38 27.11.2009

**Corrected:** Removed one left over debug message from the recent revision of the UPN formula handling. The unwanted debug message would appear in a new window as "element[top]: 1 using undefined: 1.10000...E+4932" whenever the result of a SUM command would be undefined.

#### Version 3.37 07.09.2009

**Corrected:** Processing of jump destinations in CBFs specified as a negative relative offset did subtract the current question number from the offset instead of vice versa and thus usually produced a wrong, usually negative question number as jump target, that would result in an error message.

**Improved:** Support for "Threshold" as UPN formula definition statement in addition to "treshold" (this was a spelling error, now both spellings are supported to maintain compatibility with previously made formulas).

**Improved:** When a result formula is deleted for the first time after the result formula editing dialog has been opened, the same warning message with regard to references by FN UPN statements appears as when a result formula is inserted or is moved.

Version 3.36 07.09.2009

- Added: Ability to move the position of an individual result formula up and down in the sequence of result formulas of a given questionnaire definition file in the result formula definition dialog.
- Improved: The warning message advising the user to check formulas for side effects of insertion or changing the sequence of formulas is triggered only once upon any such action after each opening of the formula editing dialog.
- Improved: The result formula addition/insertion functionality was made much more intelligent and useful with regard to re-use of existing formula definitions before or after the newly added/inserted one. Now, both the UPN formula and the labels of any formula before the newly added/inserted one are independently assessed and: If the item is a label and begins with "Result No. ", the new routine behaves as the old one did. Otherwise, if an item (either label or UPN formula) ends in a number (composed from digits 0..9), this number is incremented, and an additional digit is added, if necessary and possible. Otherwise, the item is copied without any change. This improved algorithm turns out very helpful, for either of the following tasks: (1) Definitions of a series of result formulas that transfer answers of individual question into results with labels consisting of a prefix and an incrementing number, like: v2->AW1, v3->AW2, v4->AW3... (2) Definition of a series of result formulas according to any other schemes with incrementing numbers in the end of labels or formulas, and (3) Definition of a series of result formulas that use a labels which maintain a common part across multiple result formulas. Previously, all these tasks would have required changes (or even complete copy and paste) for much of the UPN formula and all of the labels; now, these tasks can be completed either without any manual interaction, or only require manual interaction for portions that change unsystematically, or in a more complex way than feasible to foresee while producing a generically usable algorithm. The algorithm to protect from accidental generation of a whole series of new formulas by pressing the "up" button for the result formula number for a prolonged time was adopted to accommodate for the new behaviour.
- Improved: The result formula dialog, when opened, now shows the number of the last result formula defined for the currently active questionnaire definition file, or 0, if none is defined.
- Improved: Transfer of another mouse related routine into the respective separate unit.

Version 3.35 17.07.2009; 10.08.2009 - 12.08.2009; 29.08.2009 - 02.09.2009; 05.09.2009 - 07.09.2009

- Added: PC-Speaker feedback for keyboard controlled editing is now switchable via the menu option "Sound" - "PC speaker keyboard edit control".
- Added: A new menu option "Edit" - "Editing tools dialogs" provides access to a newly added dialog with "General editing tools" (beginning with a versatile multiline text search and replace facility) and an alternative way to the "Question" - "Options" dialog. (An additional entry for alternative access to "Answer field" - "Options" was included in the menu as well, but not completely supported yet and consequently disabled in Version 3.36 prior to any release.)
- Added: The entry code for the "Question" - "Options" dialog is guarded against being called with no question loaded, and the new menu entries are turned into controlled ones which are active only when at least one questionnaire and one question are actually loaded.
- Added: Checkmarks are placed in front of the respective new menu entries when corresponding dialogs are selected for being shown (please note that even in this conditions, the dialogs may remain hidden while no questionnaires or questions are loaded).
- Added: Settings of the newly added text search and replace tools are maintained in \*.ini file variables.
- Improved: Dialog captions and menu entries were reviewed to ensure the consistent use of three trailing dots "..." wherever a menu entry will open a dialog that offers further options.
- Quality assurance: Checked printing functionality under Linux kernel 2.6.30, wine 1.0.1, CUPS 1.3.11 in a debian testing environment. PDF printout generation as such worked flawlessly - detailed printer configuration was not tested.
- Added: Display of filenames in edit layout mode for bitmap or wave files linked to question elements.
- Added: Display of a frame and an error message in edit layout mode instead of bitmap files which cannot be correctly displayed. The respective error message is controllable via

the \*.msg file, and German and English variants have been included in the default supplied \*.msg files.

- Added: New routines to measure distribution of all/regular/selected answer fields in the current question, and to distribute all/regular/selected answer fields over their currently occupied x/y range either with equal distance of midpoints or with equal distance between the space occupied by individual answer fields.
- Added: New buttons in the "Question" - "Options" dialog make the latter algorithm available to users to make questionnaire layout editing more comfortable.
- Improved: Transfer of mouse related routines into a separate unit.
- Added: Display of mouse pointer coordinates or selected items was enhanced. All information is now permanently available (instead of alternatively depending upon whether objects are selected), and new items like width/height of a selection and letters providing a key to the various numbers have been added.
- Added: The new context menu entry "Size" offers new functionality: "Paste from position on private clipboard (with fixed center)", "Adjust to text size (...)", and "Adjust to bitmap size (...)" and making questionnaire layout editing more comfortable. Respective keyboard shortcut commands have also been added:
- Corrected: Answer fields where not selectable for size and position change while having the "direct-text input" option checked (because that option had not existed when the selection code was originally written). The functionality was added, and separate handling for `type=directtext` was added in other sections of the code, including recomputing and repainting of the selection frame and its handles, to ensure consistent program behaviour throughout these regions.
- Added: A new "Insert" button in the result formula definition dialog can insert a new formula at the current position (previously, new formulas could only be added after all previously existing ones, because there was no user interface to insert a formula - even though the internal code had "insert" capability).
- Improved: The result formula addition/insertion functionality, for the new formula, examined any preceding formula (if available) and maintained the UPN formula, while re-setting all new labels to "Result No. n", with n chosen equal to the sequence number of the new formula in the questionnaire definition to which it belonged. The behaviour was changed so that the labels of the preceding (or succeeding, if no preceding one was available) formula were maintained unchanged, because in real life, this would cause less necessity for typing or copying and pasting of label portions, than the usage of default label content. The algorithm to protect from accidental generation of a whole series of new formulas by pressing the "up" button for the result formula number for a prolonged time was adopted to accommodate for the new behaviour.

#### Version 3.34 12.07.2009

- Corrected: When Jörg's Magic Questionnaire-o-Matic came across the first special answer field in a given question, while spreading values or labels from a text file to answer fields, it would stop processing this question and continue with the next one. This behaviour was sufficient with questions designed in the traditional style, where special answer fields would typically be added after all required regular ones. But it made the Questionnaire-o-Matic effectively skip all answer fields of each question generated with the new default question layout introduced in version 3.33: That defines two special answer fields before any other, regular, answer fields, in order to keep the special answer fields, which are usually located at special positions as well, from interfering with the simple and smooth addition of more regular answer fields to any given question. The Questionnaire-o-Matic was now changed, so that special answer fields are skipped, but any next answer field that might still be available in the same question, would be correctly processed.
- Corrected: The UPN function str checked only for 2 items being on the stack before it acted. As this function processes 3 parameters, a wrongful formula invoking it with only two items on the stack could result in a stack underflow with the stack pointer going below 0 to -1. That would not be captured and later cause an RTE 201. The str UPN function was changed to require 3 values on the stack, and otherwise throw a stack underflow error message. The code later evaluating the stack content was changed to check for `stack.top <=0` instead of `=0`, as it was before, and returning "undefined" instead of making an access to unallocated memory for either condition.
- Improved: The flag signaling a modification having occurred in an edited questionnaire-definition is

not set any more immediately when the Questionnaire-o-Matic is initiated, but only when actual changes to the questionnaire definition occur.

Version 3.33 14.05.2009 - 21.05.2009

- Overview:** Improvements in questionnaire editing / undo functionality in special situations; improvements in editing related dialog handling; **a highly improved default question layout** for generation of new electronic questionnaires from scratch; **addition of all editing grid related commands to an "Edit" - "Grid..." menu**; improved support for Chinese, other Asiatic, and other non-European character sets; improvements of appearance and code cleanups.
- Corrected:** Systematic testing revealed some errors in the undo function, when some previous editing action in the first loaded questionnaire definition in memory was undone, while a question from the second questionnaire in memory was currently being displayed.
- Improved:** After an editing action in the first loaded questionnaire definition in memory was undone, while a second questionnaire was currently loaded, the graphical progress indicator would display representations of questions from the two questionnaire definition files in reversed order (this would actually truly reflect the new arrangement of questions in memory after the undo operation, but would neither match user expectations nor the order of the questionnaire definition files). Now, the graphical progress indicator obeys questionnaire definition ordering at a higher priority than question ordering in memory, thereby remaining consistent with user expectations.
- Corrected:** The delete\_questionnaire() function checks whether the "Questionnaire Descriptors" dialog is open before it deletes a questionnaire. If yes, it destroys the dialog window before questionnaire deletion, to avoid a later possible reference to a questionnaire that does not exist any more.
- Corrected:** If the editing dialogs for result formulas, conditional branching formulas and questionnaire descriptors are open before a question or a questionnaire is deleted, inserted, including as a side effect of undo operations, and in several other circumstances where there no special handling towards consistency of content of these dialog windows had been there.
- Corrected:** Very few minor errors in the dialog related code which had been introduced through code re-use among the various dialog function variants were also corrected.
- Improved:** Saving for undo was added before sound file distribution Questionnaire-o-Matic-runs, and closing of open dialogs before any Questionnaire-o-Matic runs.
- Improved:** The result formula definition dialog, when opened, now shows the last defined result formula of the current questionnaire, similar to the conditional branching formula definition dialog, instead of the first one, as it did before.
- Corrected:** When the last question of the first loaded questionnaire definition in memory was deleted, (only!) when questions from another questionnaire were available in memory behind that question, the currently displayed question was not decremented. The first following question would then become the currently displayed one, but the displayed number of the current questionnaire and the graphical progress indicator would not be updated (and thus be flawed) until the user displayed another question. Now, when the last question of a questionnaire is deleted, the number of current question is also decremented (in line with user expectations), if questions of *another questionnaire* are available after the deleted question.
- Improved:** Improved formula editing dialog with regard to allowance/refusal of new formula definitions, with regard to code clarity and modularity, handling of save for undo and unsaved changes flag, resorted actions counting up and down in formula number control. Simple changes in the scroll buttons of the numeric input fields will not cause direct changes in memory any more, but comparison to previous memory contents and transfer will only occur when formula-numbers are counted up or down, or when the dialog is closed, or when the current question or questionnaire are changed.
- Improved:** Adoption of the new improvements from the result formula definition dialog, and further small code cleanup.
- Improved:** Further improvement of the result formula and conditional branching formula editing related triggering of undo functionality, resulting in different (but more reasonable and more intelligent) behaviour with regard to what AnyQuest considers a result formula worth saving before changes, and with regard to what it maintains in memory.
- Improved:** Removal of code controlling the display of editing dialogs from the aqrpnt.repaint into aqdialog.check\_all\_windows\_state, so that dialogs are not displayed any more during

the title screen when activated from the \*.ini file.

- Improved:** Addition of similar code for the conditional branching formula editing dialog.
- Improved:** Initial cleaning of the questionnaire descriptors dialog; final cleaning of the result formula and conditional branching formula definition dialogs.
- Improved:** Improved control of questionnaire descriptor dialog; save for undo upon receiving of data from the result formula, conditional branching formula, and questionnaire descriptor dialogs only when actual changes are about to be received from the dialog into memory. **Remaining limitation:** Questionnaire descriptor dialog saves information from the dialog into memory only, when the "OK" button is pressed, and not when the dialog is closed, or when the current question or questionnaire are being changed (this is a issue and may require conceptual re-consideration before programming; it has however been included in the "Known errors/known limitation" section of this document).
- Improved:** Optimization of startup sequence, so that no editing dialogs nor any questionnaire content become visible (not even shortly) during the startup phase before the navigation dialog is displayed. This renders a very clean, unflashy, startup sequence. **Remaining limitation:** I did not get the same result for the exit sequence of the program, related to conceptual considerations, because I want the actual state of the dialogs to be saved into the configuration file (if not prohibited) and did not want to add additional code now (low priority issue).
- Improved:** Removed a conditional debug output line in aqundo, and an obsolete condition handling in aqdialog.
- Improved:** **Developed and added a new default design for newly added questions.** Instead of simply adding two regular answer fields, and other elements in a very basic arrangement, now, a completely and usably layouted question with both special and 7 regular answer fields, horizontally arranged, and much more usably arranged other elements, everything aligned to a grid, is generated. New built in default texts, and default texts in \*.msg files were added or extended to provide more usable editing related information.
- Improved:** **Added all editing grid related commands, which had previously been available only via keyboard shortcuts (gs, gl, g0..g9, qcg, rcg), to the menu "Edit" - "Grid".** Changed default grid settings from gs=0, gl=0, 50 pixels, to gs=1, gl=1, 20 pixels. This resolution is quite suitable for 1024 x 768 pixels displays, and the newly added default question layout was made with it.
- Improved:** **Added support for #nnn in \*.msg file processing.** So messages loaded from the \*.msg message definition file can now contain special characters, or control characters like #013#010 for a line break.
- Improved:** **Some improvements in the Chinese SF-36 configuration** in the default package [anypak.exe](#), after some research on Chinese character display, so that it will display a Chinese "Directory of loaded questionnaires:" and Chinese characters on the "Continue..." button, "Thank you" box, and "Answers are missing..." dialogs, even on a standard European Windows 2000 system with installed Chinese language support. Before, behaviour depended much more on the actual environment, and it might work on a Chinese Windows 2003, but not on the European Windows 2000 system, after transition to other character sets than originally used on a European Windows 98 system.
- Improved:** Printing will now use the character set specified in font\_for\_PID\_screens\_Greek.IfCharSet (e.g. 134), when Greek\_PID\_collection\_and\_printouts=True; instead of always using the Greek IfCharSet 161 in this case (setting Greek\_PID\_collection\_and\_printouts=True is used to change the way the buttons are labelled in the PID dialog).
- Improved:** Added Chinese IfCharSet support for the large and small PatientID confirmation dialogs. For this purpose, an alternative, redesigned version of each dialogs using BorStatic Text and BorPushbuttons was added; the old versions were however maintained for normal use (in configurations where the IfCharSet is not switched), because only the standard button style provided enough space for the standard German "Abbrechen" button label.
- Improved:** Adjustment of font size + width + weight for the Chinese SF-36 configuration; added spaces around the Chinese "Continue..." on the respective button.

**Corrected:** The correction made towards version 3.31 was annihilated by a missing dollar sign in the finally published version - with the result that the built in stack size security check would prevent this version from running at all. The affected version 3.31 was publicly available only very briefly, but a new version number was nevertheless issued.

#### Version 3.31 13.05.2009

**Added:** An updated and extended SOP for conformance tests was begun, not merely for internal use, but also to be published on the WWW site.

**Corrected:** Systematic testing revealed that entering a text with a wrong format, i.e. not interpretable as a valid HH:MM:SS, into the direct text input field with checking for time format in the "Compute and comment on duration of sleep" demo configuration, would not produce an informative message dialog, but a RTE 202 at 0017:CA81 (Stack overflow). The allocated stack was 6 bytes too small for this function. As I had freed available data segment space in the previous update, the allocated stack could be increased without other resources competing for that space any more; this was done for both stack and global heap. **An update is recommended.**

#### Version 3.30 03.04.2009 - 01.05.2009

**Corrected:** The two error messages denying the creation of additional result formulas, and conditional branch formulas, while the youngest formula is still empty, both included "...for this question."; but the one for result formulas should have read: "...for this questionnaire." This has been corrected in the program and in all message files, where this message appears in either English, French or German.

**Improved:** Internal memory handling for global and temporary string variables was largely revised: a few global variables were moved from the global data segment to the global heap. Usage of message, msg and cptn (was: caption) was homogenized throughout the program. To a much greater effect, certain strings of text, mainly identifying configuration and message file parameters and defaults, were transferred from being typed pchar constants into being simple string constants, and thereby also moving them out of the global data segment. At the same time, the robustness of AnyQuest against unexpeced configuration file parameters was improved. The necessary effort to achieve this is a consequence of peculiarities of the Borland Pascal adoption of the MS Windows API, and my finally solving this problem frees some resources and is a prerequisite for ongoing extensions of the AnyQuest's functionality.

**Improved:** Internal memory handling of the statistics, cumulative and course-over-time printout functions was largely revised. AnyQuest's statistics functions had originally been designed to be capable to process up to 16382 old \*.anq result files, evaluating up to 6553 result formulas at the same time. Windows' memory handling, however, turned out to impose lower limits - at about 2500 or 7500 files depending upon the Windows version, or even much lower on a highly loaded system, and with AnyQuest immediately and completely aborting when Windows would not provide some requested memory. Now, AnyQuest is more tolerant, and when a lot of result files are available, but memory does not suffice to perform a configured request, it automatically (and temporarily) adopts its internal parameters to match the abilities of the system, and provides informative messages. Improved memory management now allows for true processing of up to 16382 old result files for statistics and 16382 old result files for cumulative/course-over-time-graphics at the same time (i.e. reference values computed by the internal statistics modules from that number of old results can be imprinted on a graph computed from that number of [theoretically: other] old results); and all that for up to 405 formulas at the same time. The latter number has been reduced to ensure the number-of-files-capabilities also on smaller or more loaded systems, and to improve processing speed at the same time; it can be re-adjusted in a customized version upon individual request back to 6553. Worst case memory requirements were reduced from 512 MB (before, with guaranteed inability to reach the theoretical file processing limitations due to Windows memory handle limitations), to 128 MB (after, with guaranteed achievability of theoretical file processing limitations even on older versions of the OS or on smaller systems, and with tolerance against shortages and dynamical adoption). All these changes, including tuning variables controlling the Borland Pascal Heap Manager, and performance measurements for a large variation of settings for the number of old files to be processable, should not merely improve AnyQuest's performance, but its robustness as well. (Compile time configurable) Debug output,

HeapError handling, and error- and information messages were added. Performance of these modules was tested and optimized with 18000+ old files available and configurable options turned to processing of the maximum number of files possible.

**Improved:** For the built in statistics functionality, the selection of the last n files had been based upon the order of files returned by the operating system from its underlying directory structure. This was changed to the more precise usage of the date/time of measurement maintained inside each result file. To keep the performance penalty low, the implied sort algorithm was tuned to highly improved efficiency; this also benefits the cumulative/course-over-time printout graph creation, which has used dot-based sorting before.

**Improved:** Internal variable handling for the strpasjs() function was adjusted to use the stack instead of a global heap variable (this is actually a return to a previous version), because this function may be called when the global heap is already full and shall still work in this situation. Few other variables were (at least temporarily) returned into global, or unit global, pre-allocated variables in order to be reliably available for storage even when a global heap shortage situation should occur.

**Improved:** The statement "yield" was added to the old result file reading loops in the statistics and analysis modules, in order to give other programs a chance to run in co-operative multitasking environments. (However, the expected beneficiary effect was not really perceived at least under W2K).

**Improved:** The unit aqinimsg was split into agglobal, aqini, aqmsg, and license information management was moved from an external file to unit aqlicfil to simplify the current program structure and future improvements.

**Added:** In the Analysis tools - Statistics dialog, the progress indicator now shows the name of the currently processed old result file as well as the number of files already processed (in addition to the name of the currently processed [selection] list file and number which have been shown before).

**Added:** The key (Legende) for internally reference lines or reference areas computed by the built in statistics module does now not simply show the configured maximum number of old results, but the actually processed number of old results (or the range, if these differ for different result dimensions), and optionally, the configured value in square brackets, if that differs from the actually processed number(s) of files. The configured value may typically be higher in the beginning of a data collection, when only one or a few old results are available, or if at least one of the processed old result file contains missing results.

**Reviewed:** Some comparative code reviews were performed especially among the statistics and cumulative/course-over-time printout modules; small updates that had been applied only in one of these were adopted to the other if applicable.

#### Version 3.29 23.01.2009

**Added:** Extension of the expiry date for the unregistered evaluation version.

#### Version 3.28 01.10.2008

**Added:** Creation of two new custom versions of the executable file: galidgaq.exe and galileon.exe to power a www.qm08.com giveaway provided in cooperation with Dr. Gregor Viethen, Galileon GmbH. Opened Fast-Input-Form mode for questionnaires with short names like kdpzsv. A compile time option DEFINE idm\_loadqn\_clears\_qdw\_history was added to simplify the clearance of \*.qdw histories for questionnaire definition files, which were accidentally adopted from other \*.qdw files that had been used as layout templates.

#### Version 3.27 01.09.2008

**Improved:** When a patient clicks at an answer with a mouse, a pen or a his finger on a touch-screen, the pc-speaker sound signal now comes after the redrawing of the answered question. This reduces the delay before visual feedback, when pc speaker sound signals are activated.

#### Version 3.26 07.07.2008

**Improved:** When a patient PID was recognized and the name of the patient read from a previous \*.anq file, only the name: line was evaluated and split into the internal first name and last name variables at the first space if any occurred, or transferred completely into the

internal `last name` variable, if no space was found. Now, if the `*.anq` file contains non empty fields `first name:` or `last name:`, they are given priority over the field `name:`. If the more specific fields are not available or empty, `name:` is evaluated as it was before. If all these fields are empty, the field `simplename:` is additionally evaluated. The effect becomes visible if a patient has multiple first names separated by a space. The detailed internal processing had been unimportant as long as AnyQuest's standard mode was used, and when data was written only back out to the `name:` field of the `*.anq` file again. But when data was going to the advanced fields, or to external software, or to the input fields in the Fast-Input-Form dialog, the new behaviour became important.

Input into the `PID data fields in Fast-Input-Form mode` used to have all special characters below #33, including spaces, replaced by underscores `"_"`; **now spaces are not replaced any more** so that multiple first names can remain separate unaffected words in a single input dialog window.

Instead, **capitalization has been extended** from the first character in each input field to the first character in each input field and each first character after a space.

**Corrected:** Review of the `AutoMagic Index (Re-)Builder for index-based patient ID recognition`: it failed to process the first file in a given directory. It also received some cosmetic corrections, a more informative ALPHA-status message, and a more informative note in the control file.

Removal of a useless leftover line of code from `aqdlgfrm.pas`.

#### Version 3.25 30.07.2008

**Added:** A `go-forward [ >>> ] button for Fast-Input-Form mode` and appropriately extended checking for missing answers and cursor/highlight control after pressing the `[OK]` button.

**Improved:** Robustness of the Fast-Input-Form against questions with zero answer fields which were not Infoscreens. Robustness of the Fast-Input-Form against questions with exactly one regular answer field. Both setups are probably not useful and do not currently occur in questionnaire definition files for which the Fast-Input-Mode is opened, but if constructed they could cause RTE 201 and RTE 207, respectively.

**Quality assurance:** Checking of behaviour with questionnaire definition files without any result formulas and without any questions.

#### Version 3.24 30.07.2008

**Added:** `Fast-Input-Form mode` enabled for questionnaires whose short questionnaire name begins with `eOSCE` in addition to the previously supported `SIRO`, `SF-36`, `C30V3`, `FLZMseq`, `SCL90R` (upper- and lowercase spelling does matter).

Honouring of the `Ctrl-F5/Show special answer fields can't answer/don't want to answer` setting in the Fast-Input-Form mode, so that the special answer fields can be hidden or displayed in this mode as well.

`Infoscreens` after the first question/screen of a questionnaire are automatically transformed and suitably layouted in `section headings` in the Fast-Input-Form mode. If such a section heading would remain alone at the bottom of the dialog window, the whole section including this heading will be moved to the next dialog window for the next section.

#### Version 3.23 14.07.2008

**Added:** New configuration file parameters `TitleSuppressRainbow` and `TitleSuppressBitmap` control the display of the JMS-Rainbow and of any graphic logo on the title screen. Setting both parameters to `True` gives the title screen a plain empty white background.

#### Version 3.22 24.05.2008

**Added:** Support for `*.RVS`, `*.RVC`, `*.RRS`, `*.RRC` files by which multiple, dynamic, color coded reference values, ranges and labels can automatically be included in printouts (e.g. a combined display of one global reference range in grey, and an additional age and gender specific reference range in rose/light-blue, dynamically selected according to sex and age collected in the patient ID data dialogs). A detailed description of the new features and file format definitions will be added to the on-line help later on.

**Improved:** Some code reviews, testing, and improvements throughout the way of the last additions.

#### Version 3.21 03.05.2008

**Added:** Support for direct entering of answers via number keys on the keyboard in Fast-Input-Form mode. This mode is active after the cursor has moved from the PID collection fields to the answer fields for the first question. When an answer is recorded, the cursor moves to the next question. Cursor key support has been changed from standard windows dialog behavior to a more intuitive one: arrow up or down move to the previous or next question, respectively, and special suitable behaviour is also implemented for the beginning and the end of the currently displayed range of questions.

#### Version 3.20 02.05.2008

**Corrected:** Since multiple page Fast-Input-Forms were implemented, the date of test was always kept at the date of recording. Patient ID data were printed too far left, depending upon which data items were checked for being suppressed in the printout. This occurred due to the computation of field positions using a too small font.

**Added:** Patient-ID-Recognition capability for the Fast-Input-Form as well. If PID recognition is activated, and an alphanumeric PID entered in the Fast-Input-Form, and the ENTER (RETURN) key pressed, the program will check whether the same PID has been used before, and if yes, fill in the remaining fields from previously used values.

**Please note:** You still have to check the current validity of these values and must probably update some of them. Especially, the "cycle" and "subcycle" fields are filled in from the first found previous values, which should typically be outdated in a follow up questionnaire administration. In contrast to standard questionnaire administration mode with its built in dialogs, there is currently no separate confirmation dialog displayed in Fast-Input-Form mode: we are in a dialog anyway, and can escape/start over immediately anyway.

#### Version 3.20 24.04.2008

**Added:** New standard entries for some of the new variable fields in de.msg and def.msg; support of xphonework..xnationality now being read from the message file.

**Please note:** Should you be using the fast index based patient recognition feature (which is formally still in alpha development stage and has known limitations), you will see a notice saying that the index files are in an old format after an update to version 3.20. You should remove your index files `... \DATA\INDEX\PIDINXD.INI` and `PID12.INX` in order to make AnyQuest rebuild them. The rebuild occurs automatically when the first PID recognition is attempted after the removal of the old files. It may take up to several minutes, depending upon the number of result files that must be scanned. After testing, I am actually confident that a change in the file format marker would not have been necessary to ensure compatibility of the index based PID recognition function with the new data fields. However, a full review of the affected code is still pending, so I changed the index file format marker based upon a feeble-minded (you may say) decision. Please also note that I found in the course of the reviews that the PID recognition index file rebuild process will systematically ignore the first result file `00000000.anq`, and that it still displays its alpha-status message. These issues will be addressed in a future update.

#### Version 3.20 21.04.2008

**Corrected:** With activated PID recognition, some extended variables (like the fields of the German health insurance card, sex, ethnicity, etc.) were not refilled even if they were available in the file that caused the PID recognition.

**Added:** New selectable (additional or more specific) PID fields for phone number at work, mobile phone number, phone number of a relative, e-mail address (including specific PID collection dialog with several added special characters), place of birth, and nationality; including the respective UPN commands to transfer values between these variables and questionnaires, and variables for file-output and printout labels. Extension of the larger PID confirmation dialog by the new phone number and e-mail related variables.

#### Version 3.19 08.04.2008

**Corrected:** When in a UPN formula, a simple mathematical function was applied onto an empty stack, this would cause the program to exit ungracefully - in versions 3.17 and 3.18 you

would see a "Run Time Error 201 at 0017:2A45" message. This resulted from a check whether any operand was undefined, occurring before a check for sufficient operands being available on the stack. Now, strict checking for sufficient operands is in place, and it occurs before these operands are checked for anything else, and the stack underflow error message will appear on the screen and in the result of an UPN formula that uses mathematical functions with too few operands. - Moreover, the statement Pi would not put Pi on the stack in addition to what was already there, but instead, change the top element into Pi. - Moreover, trying to generate a QFI printout for a newly designed questionnaire with long Inline UPN commands failed as the strpas() function was used instead of strpasjs() to copy strings longer than 255 characters. All code reviewed and all occurrences of strpas() replaced by strpasjs().

**Improved:** Whereas respective behaviour was relaxed in version 2.57 in a (misguided, I think) attempt to simplify the use of the CSTOP formula, I have re-instituted (and actually, made more strict) the same checking for the availability of the required number of operators also for simple functions that require only one parameter. Since version 2.57, the usage of things like CSTOP, SIN, NOT etc. on a completely empty stack would neither change anything nor cause an error message. Now, it will cause an error message to be displayed, both on the screen and in the result of the formula containing such the erroneous statement. Addition of separating lines and additional warning hints to the UPN debug functionality output.

**Added:** The two new functions ABS and SGN return the absolute value or the sign of a supplied value. The Tabc function also added abc to the result string, if T was undefined - not only if it was true. As such, it was perfectly complementary to the Fabc function, but not specific. Since version 3.19, Tabc is specific for the "true" case, Fabc remains specific for the "false" case, and a new "Uabc" was added specifically for the "undefined" case.

**Cave:** **Due to the UPN implementation changes described before, upgrading to this version may require some UPN formulas to be corrected, if they did either use Pi, or relied on the unspecific action of Tabc in the "undefined" case, or (incorrectly) contained functions operating on no supplied arguments, which was hitherto gracefully ignored.** Thus you should not upgrade any productive system without need, and if you perform the upgrade you should also perform a UPN code review and testing, especially if you wrote your own UPN formulas, and relied on the unspecific Tabc behaviour for the "undefined" case, or you used Pi, or you might have practiced relaxed coding habits and want to exclude any unexpected messages now possibly proclaiming illegal UPN code.

**Please note:** Such testing and reviewing should also cover any inline UPN code possibly used in conditionally displayed question text. Most users (with questionnaire definition files using only basic UPN functions) should not experience any different behaviour with this upgrade. Together with UPN code review/testing, I would still recommend it to users who write their own UPN code, because benefits from the strict UPN code checking should be worth the small upgrading efforts.

#### Version 3.18 05.04.2008

**Added:** Opened the new ShowQnrFastInputForm mode for the SCL90R and FLZMseq questionnaires.

#### Version 3.17 02.04.2008

**Improved:** Update of some \*.ini files supplied with default packages on the WWW to contain more modern options, including default activation of white filler screen between questions, default activation of single question back button, default activation of response to multiple clicks in lower screen area for keyboardless control of special options, default inactivation of response to minimize and change size attempts for the main window during questionnaire administration, default language specific reconfiguration of DateFormatDialog and DateFormatPrint. Change of the Fast-Input-Form mode can't/don't want to answer labels into English (still preliminary). Addition of first \*.msg file configurable messages for Fast-Input-Form to application and most provided \*.msg files. Extension of the date of test and date of birth input fields in the Fast-Input-Form to honour the DateFormatDialog configuration variable and to provide more useful pre-/re-formatting of the supplied date in language specific environments.

#### Version 3.16 28.03.2008

- Improved:** The course over time printout uses its own indicator COT-listfilename for print job names now instead of using CUM (for cumulative printout).
- Added:** Extension of Fast-Input-Form mode (originally added specifically for the eSIRO questionnaire) to a more generic implementation.

#### Version 3.15 04.12.2007

- Corrected:** The default file extension shown in the selection dialog for bitmaps associated to question screen objects was changed from `*.wav` to `*.bmp`.
- Improved:** Some reworking of internally used `idm_...` variable definitions.
- Added:** Support of individual printout targets for each of the following printout types: [Single-](#), [Cumulative-](#), [Questionnaire-filled-in-](#), [Statistics-](#), [Layout-](#), [Reference-Page-Testdata-Printout](#). Support of [primary](#) and [secondary printout target](#) for each of these printout types, so two copies of each printout can automatically be sent to two independent printers or e.g. to one real printer and one PostScript-File or PDF-generator. [SinglePrn](#) is used as fallback target for auto generated single, cumulative and qfi printouts if no specific target is defined; all other types do always try to use their own target or another default printer derived from the system or a printer dialog. All printouts issued from the analysis tools dialogs do always go to the [StatsPrn](#) and [Stats2Prn](#) targets, even if they are delayed copies containing single or cumulative results. If an [Xxxx2Prn](#) target is empty, the second printout is not generated at all. If "printer setup" is invoked from the main menu, this opens the [SinglePrn](#) setup; if it is invoked from an [Analysis tools](#) dialog, it opens the [StatsPrn](#) setup. All new targets are read from the `*.ini` file alike [SinglePrn](#) has been read before. They are only written back to the `*.ini` file, however, if the referenced [XxxxPrn](#) or [Xxxx2Prn](#) could really be accessed. [New advanced printer setup dialog](#), so that all new printer options can be set up very comfortably; including individual text input fields to specify a [redirection target \(printer port, other device, or path/filename\)](#) for printer output. All new functionality and behaviour are compatible with traditional system setups, but still get the optimal user experience out of these.

#### Version 3.14 03.12.2007

- Improved:** Before UPN references like [Vn](#), [Cn](#), [An](#) are evaluated, if question n has been displayed in the current questionnaire administration session, its numeric and string results are recalculated. This causes some redundant result computation, but ensures that the numeric result of a question is delivered correctly even if the user did not change the answer fields of that question himself, but e.g. they were (pre-)filled (or not even that) automatically by other UPN commands from the content of other questions.
- Corrected:** Default filename extension in the bitmap selection dialog used to link bitmaps to question elements changed from `*.wav` to `*.bmp`.
- Added:** Large extension of printing capabilities: namely comfortable support for different printout targets for different printout types, and support for automatic generation of second copies of certain printout types onto different printout target. This e.g. simplifies the overall system configuration for users who want to automatically generate PDFs of all printout types for archiving and electronic processing, and at the same time want to generate a paper copies for all, fewer, or only one printout type(s).

#### Version 3.13 29.11.2007

- Added:** Additional configuration file parameters to remove the system menu and the minimize button from AnyQuest's main window. Additional parameters to make AnyQuest ignore several signals causing changed window size - see content of this help file regarding "hardening a configuration".
- Improved:** Corrected an internally used function to compute the number of days since 1800 up to a given date. Hardened several dialogs and configuration file reads against input of numbers exceeding the expected range. Some internal changes in variable space allocation.
- Corrected:** Same date-of-birth-processing debugging output was still active.  
Course-over-time-printout headers could appear left aligned with second column of graphs instead of further to the left e.g. for the `eworde.qdw` and `eworde.pdc` combination.

#### Version 3.12 20.11.2007

- Added:** [Course-over-time plot](#) (originally begun in 2000? or 2002?) reviewed, enhanced, finished a basic version, and made this available.
- Improved:** Corrected an internally used function to compute the number of days since 1800 up to a given date. Hardened several dialogs and configuration file reads against input of numbers exceeding the expected range. Some internal changes in variable space allocation.
- Corrected:** List filename printing position for both course-over-time-plot and cumulative-printout-based-upon-list-filename was too far to the right.

#### Version 3.11 14.11.2007

- Corrected:** Statistics printouts with a result number exceeding a single page would not reset the y printing position for the new page to the top of the page. Thus producing succeeding results one line per page further and further down.

#### Version 3.10 22.03.2007

- Improved:** Cumulative printout generation now also supports the parameters in the \*.pdc file which control moving the PID info into the PID sticker frame, and suppressing the "Results:" line. The [dklmutum.exe](#) custom version for the eSIRO received new logos of the Deutsche Krebshilfe e.v., now generated from a high resolution master.
- Corrected:** In cumulative printouts, the list of points in time of displayed assessment results could exceed the available page width, if the number of displayed results exceeded available space by exactly one. The computation of the exact positioning of the PID info now takes the "name:" label into account even if the offline paper questionnaire evaluation mode is used. Two typos (missing c) in the "[printdcusexext](#)" and "[printdcuseyext](#)" labels on the printout metrics reference page were corrected.

#### Version 3.09 10.03.2007

- Improved:** The UPN commands FRSOUAQMODE and TOSOUAQMODE complement the previously available command COPYC in order to resolve a logical problem that could send the SAQLI based questionnaire definition files into an endless loop during checking for questionnaire completeness, when questions were skipped during questionnaire administration. **Upgrade recommended for users of the SAQLI based questionnaire definition files.** Please read the UPN documentation in this on-line-help for further details. The SAQLI based questionnaire definition files (English and Netherlands language versions) were also improved by adding the sequence FRSOUAQMODE CSTOP before the Conditional Branching Formulas of questions 39, and 69, respectively. Their version numbers were updated from 0.2 to 0.3.

#### Version 3.08 (custom) 31.01.2007

- Changed:** When AnyQuest constructs printer job names, it used to construct something like: AQ-YYYYMMDD-HHMMSS-TYP-CONFIGNM. In this version, the CONFIGNM (name of the currently loaded configuration) has been switched off, and instead, the initials and the group/pid (expanded by leading zeroes to 4 digits, as this is what an xDT/GDT/LDT interface can transport) of the patient which were used for the current questionnaire administration are being used: AQ-YYYYMMDD-HHMMSS-TYP-VN-0000. So if printouts are automatically converted to files, e.g. PDF documents, and stored in an archive directory, which is conveniently possible using GhostScript and FreePDF or PDFCreator, it can be more easily recognized which printout belongs to which patient. This change was meant to be used in a local installation only, but until I make AnyQuest's behaviour completely configurable with this respect, I'll leave the originally thought custom behaviour in the distributed version instead, as this version also received very small improvements in processing of (unexpectedly) empty strings.
- Please note:** This behaviour was adopted as standard for future versions until full control via the \*.ini-file will be implemented.

#### Version 3.08 29.01.2007

- Improved:** Absolute conditional branching destinations previously could only be targeted to the short questionnaire name. Now, they can also be targeted to the (exact, including extension) filename, or to short\_questionnaire\_name.language, in order to allow the interactive selection and presentation of various language versions of a questionnaire

that have the same short questionnaire name. A configuration of this kind will not be perfect by itself as long as it's only simply designed, as external commands should also copy different message files into place... but it may be advantageous ad hoc solution when auto-login shall start such a configuration instead of a selection of links to multiple configurations.

#### Version 3.07 27.10.2006

**Improved:** Before printing a question text in QFI printout, leading and trailing characters below #32 are removed. This means that question texts with leading empty lines are also printed left aligned.

#### Version 3.06 29.08.2006

**Added:** The questionnaire-filled-in-printout now honours entries section#numofquestions and dyspacerscaling in a \*.pdq file correctly.

**Improved:** The placement of elements within the questionnaire-filled-in-printout was once again reworked.

#### Version 3.05 27.08.2006

**Changed:** The algorithm deciding over the generation of printouts now also requires that at least one question was shown in a session for a loaded questionnaire. Thus, questionnaires that include statically coded printout results (i.e. used as informative reminders or reference values) do not print if not used in the session.

#### Version 3.04 27.08.2006

**Changed:** While a questionnaire-filled-in-printout would be generated for every loaded questionnaire definition file if the respective option was activated before, it will now only be generated for those questionnaires, for which either a single printout or a cumulative printout would be generated; i.e. for questionnaires that have printable results from the current session, unless the respective override option in the printing menu is checked.

#### Version 3.03 20.08.2006

**Added:** Support for LASA/VAS scales in questionnaire-filled-in-printouts.

#### Version 3.02 20.08.2006

**Added:** Several new options have been included in the "Printing" menu, which were previously only accessible from the configuration file \*.ini, or for the programmer during development: Automatic generation of a questionnaire-filled-in-printout after each questionnaire administration; generation of a respective test printout; and inclusion of some XY-coordinate markers in printouts for AnyQuest- and Questionnaire definition file development and programming. Alternative ways of arranging answer fields and labels in printouts were added, and a new \*.pdq parameter f\_label\_printing\_rearrange was added to control this functionality. This extends usability of this functionality to questionnaires where answer fields and labels are not arranged in a simple horizontal design, and reduces required configuration tweaking for previously supported question types.

**Improved:** Layout of answer fields and labels on questionnaire-filled-in-printouts was improved (both on each page and during recognition of necessary page breaks).

#### Version 3.01 18.08.2006

**Improved:** Under Windows XP, AnyQuest could be started from auto-start, via start menu entry, as a shell replacement, by double clicking on the program file, or by double clicking on a link - but it could not be started from batch files or from the command interpreter - when you tried, a run time error 215 would occur only for this specific situation. This error would not occur in previous versions of Windows. Now, AnyQuest shows its initial window in ShowCmd mode first, and maximizes it in a second step, and thus, starting it from the command interpreter / from batch files in works in Windows XP again.

#### Version 3.00 06.08.2006

**Added:** New option in \*.anq output file options that can suppress any output to \*.anq files for loaded questionnaire definition files of which not a single question has been shown during a session. This can simplify the output file for configurations where you use one

questionnaire to chose for each individual session which ones from a pre-loaded set of modules or questionnaires shall be applied.

**Version 2.99 29.07.2006**

**Added:** When AnyQuest checks whether the configured data directory can be accessed, if the test fails, an external programm can be launched e.g. to set-up or restore a temporarily broken network connection. Afterwards, the directory access will be retried, and only if that fails as well, the user will be notified. More info under "[external applications](#)" or [\[External applications\] provide\\_access\\_to\\_data\\_directory](#).

**Version 2.98 xx.xx.2006-02.03.2006**

**Improved:** Additional printout options: Configurability of width used for answer fields in [questionnaire-filled-in-printout](#); configurability of the number of copies per printout type via [\\*.pdc](#), [\\*.pds](#), [\\*.pdq](#) configuration files. Improvement of printing functionality for [multiple copies](#). Removal of `print_legende` from follow up pages in `aqprnfi.pas`.

**Version 2.97 27.02.2006-02.03.2006**

**Added:** Prototype of a new printout type (print job named `*-QFI-*`): [Questionnaire-filled-in like printout](#), showing the text of every question, and the respective answer fields, including labels, checks and resulting numeric or string value of this question.

**Quality assurance:** Verification/validation of computations for result formulas of two questionnaires, and of a configuration file for `extract/extract2` external data extraction tool. Verification/validation of constant memory requirements after repeated program runs with 200 cycles generating each possible printout for a questionnaire definition file with pre-set answers per program run on Microsoft Windows 98 in VMware under Linux, Windows 98 natively, Windows 2000 natively, and verification of program function on Microsoft Windows 95 within SoftWindows95 on Silicon Graphics Irix 6.5. - Leading to next version published on the WWW since 2.89.

**Version 2.96 13.02.2006-01.02.2006**

**Corrected:** Quality assurance after printout improvements: Check for memory and ressource leaks; closing of three memory leaks.

**Version 2.95 22.02.2006**

**Corrected:** GPF thrown when started without `*.ini` or `*.lic` and thus without loaded questionnaires, probably introduced during changes of initial program calls made on the way to 2.94 or some time before that.

**Version 2.94 17.02.2006-19.02.2006**

**Improved:** Several internal improvements of code.

**Added:** First implementation of a dialog that can be used to collect results from paper questionnaires into AnyQuest quickly and efficiently, in order to use built in result computation, printing and data storage facilities; this implementation is tailored for a single questionnaire so far, the display of the form is controlled via `ShowQnrFastInputForm` in `*.ini`.

**Version 2.93 16.02.2006**

**Improved:** More accurate new-page-requirement-detection logic for single printout, so available space can be used more completely. - Label printing uses space more closely toward result graph in single printout.

**Added:** Ability to move printed PID into patient ID sticker frame via `*.pds` entry. Ability to adjust printed date of test vertically to first line of PID via `*.pds` entry. Ability to disable printing of duration of test via `*.pds` entry. Ability to print simplified date (only) of test via `*.pds` entry. Ability to disable printing of y-axis labels for minimal and maximal values, middle value and quarter values for individual sections via `*.pds` entry. Ability to scale printout fonts via `*.pds` entries (not affecting PID sticker frame height and printed logos height). Distance of sections in printout can be controlled in more detail via `*.pds` entry.

**Version 2.92 13.02.2006-01.02.2006**

**Added:** Printer job name is not derived simply from program name any more, but now built from

copy(AQ-YYYYMMDD-HHMMSS-SNG|CUM|LAY|STA|METRICS-ConfigurationFileName-copy(initial with special characters and trailing dash removed. This produces a (quite) unique name for every print job, and if e.g. FreePDF and GhostScript are used to redirect printouts into PDFs in a configured directory, all of these PDFs are uniquely named and can serve as a PDF archive of printouts. - Space between various elements of printout can now be scaled via \*.pds/\*.pdc file entry dyspacerscaling. PID y offset can be adjusted via \*.pds/\*.pdc file entry dypidshift. Vertical extensions of graphs in single printout scalable via \*.pds/\*.pdc file entry dygraphscaling. - Multiple line support for labels in single printout, including forced line break using #013 character sequence, with vertical alignment between center of label and center of graph. - Entries in the printout section of \*.ini: bitmapheaderleft, -center, -right, bitmaptrailerleft, -center, -right=pathtoimage.bmp can now specify bitmap files which are produced above or below each generated printout scaled to a height of 4 lines. - The \*.ini parameter NaviMinimal=True switches the navigation window from a "Go!"-"Setup!"-"Help!"-"Exit!"+"Resume" button design into a simpler design with just one large "Start" button and optionally a smaller "..." button to resume interrupted and saved sessions. The entries ConfigTitle=SomeTitleString and DontListQDws=True can change the text displayed on the initial screen of the program. - Single printout now also supports printing of reference ranges from \*.val and \*.rng including a key (Legende), just like cumulative printout. - If suppress-license-info set in general printout options, and the string "EVAL" is not found within the three first licensee strings, the program name and copyright notice are not printed on top of each printout any more, but at the right margin, running upwards from the lower left corner, in small grey print. If the string "EVAL" is there however, printing of the license info cannot be suppressed, neither can the program name and copyright notice be moved down and made small. More printout related improvements related to page composition with empty additional footer. Layout printing now honors the print filled frame in general printout options.

#### Version 2.91 05.02.2006-06.02.2006

**Corrected:** Reading of yaxisdottedvalue2/4 from \*.ini file originally added in 2.90 corrected.

**Improved:** Improvement of coloring code for graph printing.

**Added:** Processing of \*.pds files in analogy to hitherto processed \*.pdc files. Thus, division of single printouts into sections with individual headings and colour schemes, including blending between various colors and color smooth or sharp color transitions at defined positions. Adjustment of new page generation to take into account requirements for graphs or new sections correctly. Support for additional footer lines, freely definable via \*.pds and \*.pdc files for the respective printout. f\_showxyfordebugging (which was added internally in 2.90) now read from and written to \*.ini file.

#### Version 2.90 02.02.2006-04.02.2006

**Improved:** More reworking of the printing code, adjustment of patient ID sticker frame position.

**Added:** f\_suppresstickerframe and stickerframetext parameters in \*.ini file can control patient ID sticker frame production and text of the remark printed within the sticker. f\_showxyfordebugging added internally to control production of simplified printing metrics elements with every generated printout. Multiple graphs from results with similar structure can be joined into a single coordinate system. Enhancement of single printout options and respective dialog towards ability to print bargraphs in addition to hitherto available marks on horizontal lines. Single printout honours all options of this dialog except for those related to reference values or ranges. Call of newly separated aqbigdat.calculate\_fast for single printout test, so that bargraphs, and not just missing value indicators, are produced for a single printout test when it is called while a \*.qdw with (at least some) answered questions is loaded.

#### Version 2.89 13.01.2006-01.02.2006

**Improved:** Internal restructuring and improvement of printing code, among other leading to improved alignment of printed results at the right border. Also improved distribution of entries of the times of measurements list on available space in cumulative printout.

**Added:** Printer metric reference printout. Optional printing of a frame where a patient ID sticker can be fixed together with some configurable remark. Internal provision of code to

include graphical logos from \*.bmp files on printouts.

#### Version 2.88 04.12.2005

**Corrected:** When a questionnaire used a simple decimal point as missing value code, or when a decimal point would occur in a non-numeric result for other reasons, and data export file generation was configured to use a comma as decimal separator, the decimal point would be replaced by a comma even in non-numeric results.

**Added:** New and improved functionality for the data export file generation: Configurable on-the-fly recoding of "can't answer", "don't want to answer" and "missing result" file output codes, and configurable enforcement of either scientific notation or fixed comma with configurable decimal precision notation. This simplifies data export to various targets, no manual replacement of missing values or re-formatting of numbers in the target application needed any more.

#### Version 2.87 09.11.2005

**Corrected:** The date of birth automatically re-supplied from result files from previous questionnaire administrations after successful patient recognition, would not pass validation when the DialogDateFormat was set to YYYYMMDD as possible since version 2.82.

#### Version 2.86 31.08.2005

**Improved:** More detailed configuration of PC speaker signals and PC speaker simple signals; the "OK" sound can now be activated independently for PID collection and questionnaire administration.

#### Version 2.85 30.08.2005

**Improved:** Further enhancement of the newly added simplified transport bar functionality.

**Added:** New \*.ini file parameters allow white filler screens to be displayed between successive screens.

#### Version 2.84 29.08.2005

**Corrected:** Results of pressing F6..F10 were not always displayed immediately, probably as a consequence of some previous modification of code aiming at reduction of unnecessary window repaints.

**Added:** New simplified navigation buttons, in addition to the hitherto available transport bar. New parameters accessible via the \*.ini file control their position and detailed functionality.

#### Version 2.83 29.08.2005

**Improved:** The configurable parameter "labelof" was added in the \*.msg file, in addition to previously available "labelquestionnaire" and "labelfrage", it makes the text for "of" translatable in the display "Question no. x of y". The improvement was included in the files de.msg, fr.msg, en.msg, ne.msg, swe.msg and anyquin.msg distributed with the standard package anypak.exe.

#### Version 2.82 18./21.03.2005

**Added:** The entries DateFormatDialog and DateFormatPrint in the configuration file \*.ini can be used to control the date format for dialogs and printouts. The procedure aqbigdat.validate\_date learned to use - (dash) in addition to . (dot) as date separator, and if two dashes are found, to convert them into dots on the fly for further processing within validate\_date.

#### Version 2.81 18.02.2005

**Corrected:** Calculation of space needed to print labels in the PID section did not take into account the two labels "time/duration of questionnaire administration", so if PID labels were chosen very short, these two labels could be printed over in part by their values. Some debug messages that the printing unit could produce if index based PID recognition was turned on in version 2.80 were switched off.

#### Version 2.80 31.08.2004

**Corrected:** **Version 2.79 had too small limits in stack space, thus a Run Time Error 202 could**

**occur when certain string handling procedures inside the program were called.**

Stack limits were extended, stack use of called procedures was reduced and a dummy procedure allocating some dummy space on the stack at the start of the program for testing purposes was inserted. An update is recommended.

**Version 2.79 10./11.08.2004**

**Improved:** The newly implemented personalisation functionality was extended.

**Version 2.78 10.08.2004**

**Corrected:** Trying to produce a test single printout with no result formula loaded at all produced a run time error.

**Improved:** The implementation of the personalisation for registered users has been changed. Personalised data is not stored in the main executable file anymore, but in a separate file `anyquin.lic` or `eortcqlq.lic` or similar, corresponding to the name of the executable. This means that in the future, registered users can just download an updated generic executable from the WWW site and thereby update their registered version, whereas previously, a manually prepared personalised executable was needed for each update. Moreover, several configuration settings that were previously only accessible during generation of a personalised executable, can now just be changed in the `*.lic` file.

**Improved:** The routine reading the configuration file previously understood only "True" for positive boolean settings. Now, it accepts anything with a first letter among "TtJjYy", namely True, true, Ja, ja, Yes, yes.

**Version 2.77 09.08.2004**

**Corrected:** **Names of temporary state (undo-) files could interfere with each other and overwrite each other. Thus, especially partially filled in questionnaires from the second in a list of saved sessions could be lost.** The temporary file(s) `~1~1.tmp`, `~1~2.tmp` and so on, depending upon the number of loaded questionnaires written to save the current state before resuming a session, could overwrite temporary files especially from the second interrupted and saved session that used the same filenames. If another than the second saved session was being resumed when this happened, first questionnaire(s) of the second saved session would be overwritten and deleted at the end of the resumption of the other session. If the second saved session itself was being resumed when this happened, the saved questionnaires were immediately overwritten by the temporary files holding the status from before the resumption was started. Afterwards, the temporary file(s) were read instead of those from the saved session. This should usually have lead to empty questionnaires appearing instead of partially filled in ones. When the pseudo-resumption itself was completed or aborted, the temporarily stored configuration had already been deleted and could not be read back, at least up to the number of questionnaires loaded in the resumed session. This lead to partially or completely missing questionnaires in the configuration from where the resumption was started. This problem should not have lead to accidentally mixed data, but to data from partially completed, interrupted and saved sessions being lost, and possibly even unnoticed before looking at the results, as questions would only be shown during resumption from the point on where interruption and saving originally had occurred. - Since version 2.77, each instance of AnyQuest for Windows makes its own private temporary directory for its temporary undo files, so multiple instances of AnyQuest can co-exist with this respect, and resumption of more than one saved sessions should also work correctly. Version 2.77 can still resume sessions interrupted and saved with previous versions.

**Version 2.76 04.08.2004**

**Corrected:** The generated export file contained an extra character (probably #0) after the filename in each export row. This caused some import routines, e.g. for SPSS, to be unable to recognize columns correctly, and a pre-processing of the export file in Excel or some text editor capable of removing extra characters below #32 was needed.

**Version 2.75 30.05.2004**

**Corrected:** In sessions that were interrupted and resumed with a time skew that lead to end time

before start time (e.g. on the next day or on machines with a time skew), a computed negative test duration caused the program to abort. Now, computation of test duration takes the test into account and delivers specific notes next to the computed time: The old overall note: "(valid only if start and end timed on the same day)" is not produced anymore. Instead, in normal sessions, no note will appear. In special sessions, one of the following notes will appear: "(session was interrupted and resumed)" or "(end time occurred before start time - probably computer clock time skew found)". In the latter case, the value of test duration is replaced by the missing value code of the first result formula in the loaded set of questionnaires or by '---' if no result formulas are loaded.

**Corrected:** Interrupting and resuming, but afterwards not aborting a resumed session, resulted in the loss of the saved configuration due to recent modifications.

#### Version 2.74 24.04.2004

**Corrected:** Single printout starts new page early enough to leave a distance of one empty line towards the footer.

#### Version 2.73 24.04.2004

**Added:** New keyboard commands controlling new functionality: g1 .. g9, g0: grid resolution 10...100 pixels. go: grid origin: screen center/top left. gl: grid locking. gs: grid show on/off - the grid also shows x/y screen center and x/y 1/4, 3/4 positions. gl: grid lock during editing with specifically comfortable support of moving borders vs. moving complete selections. qcg, rcg: automatic alignment of elements to a regular grid. lal, lar, lab, laa: individual automatic alignment of answer field labels triggered by keyboard commands. lth: individual automatic adjustment of answer field label height triggered by keyboard commands. Selections are not moved any more if the mouse button has not been down for at least 300ms in order to inhibit unintended movement of objects when they only were to be selected. If nothing selected and mouse pointer is moved in edit layout mode, current mouse coordinates are displayed in bottom left corner. Single printout provides the complete patient ID and date/time of test info on each follow-up page, and single and cumulative statistics printout do provide a page count on follow up pages.

**Corrected:** **Possible resource leak in getting a printing context closed** - this could cause system resources to be reduced with every printout. Position of cumulative printout of extra 1/2 and 1/4 y markers could be wrong for graphs with a barmin different from 0 (printed values and main axis labels were correct, however).

**Please note:** If labels appear to be wrong using small integer numbers as extreme values, they may in fact be positioned correctly but you may have to select more decimals in your result formula to print a more exact label value). Single and cumulative statistics printout do now recognize the printable area lower end correctly and change over to a new page early enough, even if a trailer is printed. Modified flag is set and undo file is written before automatic alignment of answer field labels. Read routine for integers and long integers from ini file did read but not interpret all characters, thus regularly diminishing the printer margin settings. Ini file read used AutoSinglePrintoutStrongHL and AutoSinglePrintoutDottedHL, whereas ini file write used these entries without HL at the end - so effectively these two printout options could not be saved in the ini file. Changed for both sides to use the HL variant (chose this for readability, though the other option will survive unused in existing ini files). Ini file write did not write autocumlimitpdotprint. Ini file write did not write BitmapTrailerLeftPath and BitmapTrailerRightPath (which are definitely unused so far anyway). Ini file write did not write external\_app\_notify\_after\_andq\_completely\_written, -\_wait (thereby disabling this function after save/resume cycles), external\_check\_after\_PID\_collected, -\_wait.

#### Version 2.72 22.03.2004

**Added:** Index based PID recognition functionality.

#### Version 2.71 08.02.2004

**Corrected:** The printer test initialization routine has become more robust against invalid configuration data even if running under Windows 2000. The configuration file reading routines can now handle negative numeric data for several parameters, which was e.g. necessary to read all possible dmPrintQuality values without a run-time-error.

Version 2.70 08.02.2004

**Corrected:** The print layout of all loaded questionnaires which caused a run-time error in recent versions during printer initialization was fixed and works again.

Version 2.69 16.12.2003

**Corrected:** The new configurable feature `disable_write_ini_file` added in 2.68 also affected the writing of current configurations when a session should be saved for later resumption. The flag `disable_write_ini_file` will now only be honoured at two points: a.) when the current configuration shall be saved to the currently used configuration file when the program is ended, or b.) when the current configuration shall be saved to the currently used configuration file just before a saved session is about to be resumed. The flag `disable_write_ini_file` will be ignored when a current session shall be saved for later resumption, including the current configuration settings, at this time going into a newly generated extra configuration storage file.

Version 2.68 04.12.2003

**Improved:** Support for extended keyboard-less operation added in 2.63 is now off by default and can be controlled individually for each subfunction by `*.ini` file parameters `kblessctrlspecialclickcheck_1`, `kblessctrlspecialclickcheck_2`, `kblessctrlspecialclickcheck_3`. Another new entry in the `*.ini` file, `disable_write_ini_file`, can make AnyQuest skip the writing out of updated `*.ini` file parameters when the program is closed.

Version 2.67 28.10.2003

**Corrected:** In the UPN function "power" (UPN symbol ^), using a negative base with an exponent other than 0 would cause a run time error 207 (invalid floating point operation). The function can now compute the power of a negative base as long as the exponent is an integer with an absolute value up to  $2^{31}$ . If the base is negative and the exponent is not an integer value in the specified range, it will deliver "undefined" as its result. This improvement was implemented partially by updating my `wfns.pas` library to version 1.93 and 1.94. - During patient identification data collection, even when date of birth collection was not activated, AnyQuest checked the date of birth and showed an error message asking for a correct date of birth. The check will now only be performed when date of birth collection is activated at all. - Use of the "Ask for PID first" feature added in 2.63 would make AnyQuest accept recognizable PIDs only, and thus not allow to administer a questionnaire to a patient with new patient identification data.

Version 2.66 06.10.2003

**Corrected:** Another improvement of the new printing functionality: AnyQuest 2.65 showed a printer dialog before each and every printout. - Please review the "printer setup" section in this on-line help file to learn details about the resulting printout control functionality.

Version 2.65 28.08.2003

**Corrected:** Another improvement of the new printing functionality: Printer settings were partially ignored and landscape printing did not work under certain circumstances.

Version 2.64 16.06.2003

**Corrected:** Small improvement of the new `*.pdc` advance cumulative printout control functionality.

Version 2.63 16.06.2003

**Corrected:** Small correction of interpretation of `#013` like escapes in continue button labelling. Improved window handling for continue button and transport bar, they are not shown under the thank-you-box any more, they are not displayed outside of the AnyQuest main window any more, and will not take the focus away from the AnyQuest main window any more. Messages appearing during collection of patient identification data cannot be made disappear anymore by clicking next to them. Directory of loaded `*.qdws` being displayed during PID confirmation dialog is removed again when another PID collection dialog is displayed afterwards.

**Improved:** Small changes in fixed compiled in German message punctuation. Return to printout handling of `*.qdws` with only empty results. Modification of some default printout settings to true: `PrintFillFrame`, `AutoCumulativePrintoutBarFilled`,

AutoCumulativePrintoutDottedMax, AutoCumulativePrintoutDottedRight. Printouts are now generated with transparent instead of opaque background setting, so the background of overlaying texts or dotted lines won't clear out underlying graphics any more. Printing uses system default printer if no other source is defined instead of asking. Printing dialog controls are supported to a greater extent, including landscape/portrait orientation and many other options. These additional settings are also maintained in the \*.ini file.

**Added:** Support for extended keyboard-less operation: Clicking into the lower left, middle and right third of the screen 4 times in sequence toggles visibility of can't/don't want to answer fields, of transport bar, and playing of PC speaker standard sound. Navigation PID options can be changed to make AnyQuest ask for alphanumeric group/patient ID before the name, also triggering recognition of the PID entered into this field in this configuration. General printout options included to suppress individual parts of a standard printout. Additional markers at 25%, 50% and 75% levels of cumulative printout can be activated. Printing of values in/over bars / below/above circles can be activated. Additional printer setup configuration options can be controlled from \*.qdw specific \*.pdc file, including separation of graphs into sections, paper orientation and advanced color control.

#### Version 2.62 16.06.2003

**Corrected:** Generating a single printout from a \*.anq file using the analysis tools, ignored any computed string results. Since 2.61, when "Printout even for QDWs without printable ResultFormulas" was off, cumulative printouts where all results were undefined could not be generated, and neither could cumulative printouts be generated from the [Analysis tools](#).

**Added:** The built in [Analysis tools](#) can now numerically compare numeric data followed by a unit (e.g. "Years") which is separated by a space. This makes automatic selections of patient groups according to their computed age possible.

#### Version 2.61 14.04.2003

**Added:** If a qdw has result formulas but no single printout label defined at all, a single printout will not be generated for this qdw by default. If a qdw has result formulas but no cumulative printout label defined at all, a cumulative printout will not be generated for this qdw by default.

#### Version 2.60 24.03.2003

**Corrected:** The algorithm for recognition of previously used numeric or alphanumeric PID produced errors since the addition of new ID fields in 2.57.

**Added:** In addition to the "initials" PID field, the fields for "physician number", "group", "subgroup", "cycle", "subcycle", "rater", "information source" and "assessment" can be configured to be asked via Get-PID screens at the beginning of an assessment though the numeric or alphanumeric patient ID was recognized, because this information can change from one assessment to another while all of the other PID information is expected to remain stable.

#### Version 2.59 20.03.2003

**Corrected:** The algorithm for computation of patient age at date of test contained a small error. Depending on the month in which the patient was born, it computed the number of days the patient had lived in his year of birth imprecisely. The resulting errors in the computed age in years (in days), were depending upon the month of birth: Jan +7/+6; Feb -26/-16, Mar +4, Apr -5, May +3, Jun -4, Jul +2, Aug +2, Sep -2, Oct +1, Nov -1, Dec 0. Resulting errors were small in relation to a patient's age (maximum for a child born in February 28th, normal year, rated after 306 days on the following Jan, 1st: -8.5%); the maximum possible errors were below 1.5% for a 5 years old patient, below 0.8% for a 10 years old and below 0.2% for a 40 years old patient. Thus, the error remains within least significant digit of the age provided in output files, being close to the resolution of this digit for most patients, and is below the resolution of the last provided digit in printouts except for very young children. If someone should need perfect results in their \*.anq files, I can provide a utility that corrects computed age data in existing \*.anq files upon request. Version 2.59 and above contain a corrected algorithm. The error became apparent when I experimented with high-resolution output of the computed age

for new purposes. - The file usedname.ini containing the variable part of the last used anq output filename did not work in a well-defined way when it was read by another configuration using a different number of fixed leading output filename characters than the configuration that had last written usedname.ini. Now, excess zeroes are removed or unused zeroes are added to the variable digits read from usedname.ini to exactly match the number of available digits left over by the current fixed leading characters setting each time before the next available filename is generated. Moreover, the algorithm protecting existing anq files from being overwritten by new results after e.g. tampering with or removing usedname.ini did not work with fixed leading characters. Now, it works.

**Added:** The actual filename for usedname.ini can now be specified per configuration; it can be changed in the output file options dialog or in the corresponding \*.ini file. The new function GETAGE has been added to the UPN implementation.

#### Version 2.58 14.12.2002

**Corrected:** The newly added #UPN...#UPN-functionality brought an error that could cause AnyQuin to abort with an RTE when certain questionnaires with empty text elements were displayed. The external modules demo was e.g. affected. In cumulative printouts, reference values and immediately computed local statistical references were not offset in graphs that did not have 0 as minimum. The sequence in which various reference values and ranges are produced has been rearranged: Now you can select multiple combinations of reference values and ranges from internal and external sources without experiencing that value lines become invisible when range bars are drawn over them. Additionally, 1 SD ranges are printed after 2 SD ranges, and inner quartile ranges are printed after outer quartile ranges for the same reason. If there were at least one measurement(s) with questionnaire A, and one new measurement with questionnaire B for the same patient, and you wanted to generate a cumulative printout including questionnaire B which should show imprinted twofold standard deviation computed from the n most recent measurements, AnyQuest would abort with "run time error 205 at address FFFF:FFFF", and only be able to produce the cumulative printout when at least two measurements would exist for the second questionnaire.

**Improved:** Shareware introduction dialog text redesigned.

#### Version 2.57 07.07.2002/11.07.2002

**Corrected:** The UPN function GETC left an undefined value on the stack before its result, thus causing errors reporting unused elements on the stack.

**Improved:** The stack counter may now be decreased to 0 (=empty stack) in the course of any computations. Before, a stack underflow error was already generated when this occurred, so pre-loading was required e.g. if CSTOP should be used.

**Added:** New UPN functions GETVAL, VALS, STRS commands can be used to convert strings and numbers into each other. SETC command can now also uncheck an answer field. In the edit-layout-mode, the number of each answer field is shown additionally before its numeric or text value and other options. The first answer field of each question has the number 1. GETLSC and GETLSNC can now retrieve labels of an answer field depending on whether it is checked. GETMCSSLSC and GETMCSSLNC can do the same for multiple answer fields and automatically concatenate their label texts separated by a comma and a space. The UPN machine was enhanced to be able to process #UPN...#UPN sections within question, explanation, explanation two and answer field label text. Thus, more dynamic questionnaires have become possible, e.g. displaying a patient's name on every screen while presenting the questionnaire.

#### Version 2.56 25.06.2002

**Corrected:** In version 2.54, on-screen buttons with numbers for collection of numeric patient identification data, street address and ZIP code were deactivated in the process of improving the PID collection dialogs. They are available again. The Patient ID recognition feature introduced with 2.54 did not work with non-English \*.msg files. This has been corrected.

#### Version 2.55 13.06.2002

**Corrected:** Fixed a very small memory leak in the new recognize PID code.

#### Version 2.54 26.04.2002

**Added:** Functionality in the Patient ID collection dialogs: [ESC] or [Alt]-[F4] can now exit the PID collection immediately. Pressing on the displayed [<<<] button when cursor is leftmost in text field will go back to previous screen. Recognize PID in follow up session functionality can be activated: it will fill in complete PID from previous ANQ file, if a previously used numeric or alphanumeric patient ID field is entered in one of the name/initials collecting screen.

#### Version 2.53 25.04.2002

**Corrected:** Using multiple an/or large images could make the program and the GUI hang completely. The underlying cause is in a StretchBlit function of the various MS Windows operating systems which has been admitted to be buggy. I've modified the software to display the images in another way. Additionally, a resource leak appearing when images were attached to answer fields was fixed.

**Improved:** After resizing, the AnyQuest main window will now redraw its contents immediately - which is most obvious when you display bitmaps but doesn't affect other contents except for some buttons so far, because questionnaires are designed to be operated with a full screen display layout anyway.

#### Version 2.52 28.03.2002

**Improved:** If you do not select "not empty" from the options of a DirectText answer field, other checked options will only be tested, if anything has actually been written into this field. Error messages after a failed test for a valid time format have previously only been delivered unspecifically, now, a more specific message will appear if reasonable and possible. For all of these tests (valid number, positive number, time, date), the more specific error messages will appear as well, if in addition to the single specific test, "not empty" has been checked. Before, specific error messages would only appear when only the specific test was checked.

#### Version 2.51 11.03.2002

**Corrected:** In cumulative printouts, brackets supposed to appear around missing measurement to distinguish them from zero results had been lost. When Result Formula Labels were right aligned substrings of other Result Formula Labels from the same questionnaire, cumulative output generation could become confused. Re-activation of response to three-level menu restriction parameters in configuration file which did not work any more since version 2.42.

**Improved:** In single printout, horizontal line can now be shown as it used to be, in dotted style, or not at all. Indicators of a result exceeding the min - max range have also been added. Wherever round shapes are printed, the ellipse function is used now instead of pie; resulting in nicer looking shapes without a horizontal line in them. The UPN machine has been made more robust against mathematical expressions rendering undefined results: Division (/), LOG, SUM, AVG, MIN, MAX, GETC, SETC, COPYC now check their parameters before executing and return "undefined" instead of aborting the program when they come across a problematic one. The program now checks long and short names of loaded questionnaires to be not empty and to contain at least one non-space character when a questionnaire administration is started.

**Added:** Printout functionality to generate profiles for both single and cumulative printouts by printing connecting lines between individual measurements. Additionally, options to print circles in both printouts types. Support of various constellations of min and max for graphs: in addition to  $0 < \min < \max$  and  $0 = \min < \max$ , the abscissa is now also printed at  $y=0$  for  $\min < 0 < \max$ ,  $\min < \max = 0$  and even for  $\min > 0 > \max$ . An option was added to ignore the "initials" field under certain conditions when testing for the PID of a result file (to enable people who abused the initials field to conveniently collect a parameter like number of therapy cycle to generate cumulative printouts more easily).

#### Version 2.50 03.01.2002

**Corrected:** In version 2.49, during questionnaire editing, a run time error 202 at 0009:0032 could occur due to a stack overflow in conditional branching formula consistency check when a certain sequence of actions were issued. The respective part of the formula consistency check algorithm was identified and modified to use less stack space. It should also have become faster as a result of the modifications. In version 2.49, a run

time error 5 at 000B:.... could occur when trying to write a \*.qdw or \*.qdt file over a write protected file or something similar. A nicer error handling has been included for this, showing an error message (couldnotbesaved) which has been added to the \*.msg file.

#### Version 2.49 16.09.2001

**Added:** Some new UPN commands to manipulate strings, and to manipulate question text, answer field notes and answer field labels during the presentation of a questionnaire. UPN command to stop the execution of a UPN formula depending on a condition. These features can be used to generate morphing questionnaires, e.g. to allow a patient to enter an additional symptom in a direct text edit field, and later to ask how strong this symptom was in a separate question, or to load question texts or answer field labels during questionnaire presentation from an external application. Formula consistency check for the CCA command introduced with version 2.48.

**Improved:** The automatic cursor reset function available via [Ctrl]-[F11] now sets the cursor outside the lower right corner of the desktop, and no more to the lower right corner of the question. When you browse backwards through the questions and you are not in the edit layout mode, AnyQuest skips backwards until it hits a question which has actually been displayed. Whenever a question is skipped due to a conditional branching formula while advancing forward, any checks and notes which have been added to this question, are now removed. Both features are useful during navigation through interactive questionnaires.

**Corrected:** The formula consistency check did not decrease references from conditional branching formulas when questions were deleted.

#### Version 2.48 08.09.2001

**Added:** Ability to produce deferred single and cumulative printouts looking identical to those which would have been produced automatically by the immediate printout function. Ability to select individual result files or groups of result files using a comfortable dialog and to generate lists of output file names from these selections. Ability to process lists of output file names automatically to generate: Single printouts, cumulative printouts, cumulative printouts ignoring the patient ID, basic statistics printouts, box and whiskers plots, course over time plot, individual export files for subgroups. Ability to write an \*.anq output file even for aborted sessions. Possibility to limit the number of printed date/time of test information items to two lines for cumulative printouts. Ability to write detailed information regarding interruption, continuation, resumption, abortion of sessions into the output file using a new section [session log]. This section can be processed adequately by the data export and file selection tools. UPN machine supports the new command CCA to count the number of checked answer fields in a given question. QDT export and import functionality can now also handle conditional branching formulas. Possibility to suppress printouts for questionnaires with undefined or empty results.

**Improved:** Separate context sensitive helps are now shown for result formula and conditional branching formula editing dialogs. Formula consistency check is automatically deactivated during loading of questionnaires if the edit layout mode is not activated to save time. Stability when trying to use the Undo functionality after starting AnyQuest from a read-only data storage medium. Stability when using keyboard shortcuts to edit non-existent answer fields. Data export routine will not modify decimal separator for unknown sections in \*.anq output files any more. The menus have been re-arranged and a new menu "Analysis tools" has been created. Several internal improvements in the code, mostly regarding memory handling and memory access.

**Corrected:** The functions of the keys [Ctrl]-[F1] .. [Ctrl]-[F4] have been resorted in order to match the description in the on-line help file.

#### Version 2.47 08.08.2001

**Added:** Support of keyboard code "an" for "answer field numeric or coded value". Answer field label and answer field value processing capability in Jörg's Magic Questionnaire-o-Matic.

**Corrected:** After the resource management optimization, Version 2.46 of the generic evaluation version did not ask for the patient date of birth (or another purely numeric identification) any more because the necessary dialog resource was missing.

Version 2.45 25.06.2001

**Corrected:** Run-Time-Error 201 (Range Check Error) at 000A:3BBB could occur when the result formula edit window was displayed when the currently displayed questionnaire definition file had no result formulas and questionnaire definition files with result formulas had been loaded or created and removed before.

**Added:** Functionality to disable specific buttons from the "AnyQuest Navigation" menu in order to prepare a secure configuration.

Version 2.44 26.03.2001

**Corrected:** **Erroneous processing of the FN command was possible under certain conditions.** This could result in FN interpreting the given formula number the wrong way, putting the numerical result of another than the expected formula onto the UPN calculation stack.

Version 2.43 08.03.2001

**Corrected:** Erroneous calculation of test durations above 1 hour. Direct text edit areas and contained text might remain visible when switching from a question directly to the navigation dialog. When the checking of direct text contents was initiated through the continue-button or the transport-bar, after a notice that the direct text answer field contents did not match the requirements, the cursor would not remain in the affected direct text answer field.

**Added:** New UPN command Em:n interprets direct text answer field contents as time, computes the corresponding number of seconds and places them onto the UPN computation stack. New option Edit - UPN formula debug mode allows questionnaire designers to trace execution of UPN formulas step by step, watching the UPN machine's internal condition.

Version 2.42 18.02.2001

**Corrected:** A minor possible memory leak was closed around the calling of external applications.

**Added:** New UPN commands to enable AnyQuest to call external applications at any position in UPN formulas e.g. to perform calculations, and commands and a protocol to exchange data with these external programs. (This functionality was added to create an effective implementation of the SF-36 scoring algorithm as depicted in the SF-36 user's manual.) New options in the \*.ini-file can restrict the menu items available when the program is started, so menus for editing or loading/saving questionnaires can be disabled. Another option controls whether questions can be answered and one can flip through loaded questionnaires in setup mode.

Version 2.41 12.01.2001

**Corrected:** When looking through the [computed test results] section of \*.anq-files for included measurement units, the export file generation now skips all such result dimensions where the last character is a space. It assumes that this indicates that \*no\* unit was defined in the result formulas. Prior versions interpreted everything after the first space as a unit even when there was a trailing space in the result, thereby splitting occasional text results with included spaces into value and unit erroneously at the first space.

Version 2.40 15.12.2000

**Corrected:** Direct text input field immediate check options now also work for the last loaded question.

Version 2.39 17.08. - 16.10.2000

**Improved:** Keyboard editing commands will only be recognised when the AnyQuest main window is the active window. Redrawing approach of patient ID collection screens. Support for building and maintaining versions with custom specific layout with optimized build directory structure and central control of customizing parameters (including internal "howto" covering this topic). When a question is being skipped, now its "was shown"-flag will be reset. This avoids endless "missing questions..." loops which could be provoked by using the navigation keys in earlier versions with special questionnaire definition files.

**Corrected:** Formula consistency check would unwantedly change source and target references in CBFs while questionnaires were loaded. Navigation commands issued with Page-up,

Page-down, Home and End keys would produce a run-time-error when no questionnaire was loaded - now, they are ignored in this case.

**Updated:** SC logo and contact address in the background of the generic version.

**Changed:** Most dialog resource fonts moved from System 10 Pt. (default) to Arial 10 Pt. In patient ID screens, characters from the buttons are now fed directly into the text input field instead of being decoded via a button number. "Jörg" in copyright message for printouts and \*.anq file replaced by "Joerg" to allow correct appearance with Greek (or other nonstandard) fonts. The "T" and "F" UPN commands do not remove the top element from the stack anymore.

**Added:** Support of Greek (and partly, other) character set for the text-edit box, the patient ID collection (including additionally prepared screens for collection of alphabetic and alphanumeric information with 24 Greek character buttons), the Continue-Button (the new any-font-support and auto-sizing/positioning-behaviour of the button are available as an alternative to the old button font and behaviour), the messagebox used to display messages from AnyQuest directed to patients (using a new message box routine, it also displays line-breaking by including #013 in the message text within the \*.msg definition file), result printout label edit fields in the formula definition window, printout elements. Character sets and patient ID screens used can be controlled from \*.ini file, and (partly) from a new menu option. Notification about used character set in the produced \*.anq file. Option to define an external application which is called after \*.anq file has been written and printout has been produced in the \*.ini file (to actively trigger data collection into third party system). Option to define an external application which is called after all selected (or none, if none are selected) patient ID screens have been displayed and thereby collected (or empty) patient ID record has been written to a file in the \*.ini file (to have collected patient ID tested against existing third party database, or completed from existing third party database, or completely supplied by third party software, e.g. a card reader controlling software). Ability to print out patient ID data collected from third party external application. UPN commands undefined and testundefined.

#### Version 2.38 30.07.2000

**Corrected:** When the software was started using a root directory as working directory, it could not write temporary files.

**Improved:** Key assignments to menu items completed for the main menu and the context menus.

**Added:** Keyboard command support for several editing commands, so that a user who creates or edits questionnaires needs to change between pointing device and keyboard less often.

#### Version 2.37 18.07. - 20.07.2000

**Corrected:** File - Import of items from \*.qdw files would not work correctly in several situations. Import is replaced by file load automatically when there is no questionnaire loaded so far. The program would not work correctly when its memory limits would have been reached during loading an old file format \*.qdw. No matter where questionnaires were inserted, their new questions would be appended at the end of the question storage area, so the progress indicator could get confusing during editing; now, questions should always be stored in the same order as their questionnaires. Removed a debug-message which appeared when opening/importing files. When deleting questions, some text fields might not be correctly cleared from memory.

**Improved:** Questionnaires are now not always loaded after all other loaded questionnaires, but directly after the one which contains the current question. When questions are imported from \*.qdw or from \*.qdt files, the first imported question will appear behind the currently displayed question. Improved security of scaling algorithms that handle different display resolutions.

**Added:** Availability of quite complex formula consistency check for result formulas and conditional branch formulas that should treat all formulas correctly when questionnaire definition files are imported into other questionnaire definition files from out of \*.qdw files. Generation of ASCII text files \*.qdt which contain clearly readable representations of main parts of questionnaire definitions which can be edited with an external text editor. Possibility to execute such text files to generate a questionnaire definition. Possibility to select a prototype question which controls the appearance of new questions and answer fields while editing. Possibility to jump to the selected

prototype question while editing. Possibility to select another anchor question. Possibility to jump directly to this other anchor question while editing.

#### Version 2.36 30.06.2000

**Corrected:** When using certain screen layouts for questions of type VAS/LASA, where the x-axis-middle of "Can not answer" / "Do not want to answer" fields would be situated within the x-axis-middles of the VAS/LASA endpoints, computation of numerical results would erroneously include numeric values of these special fields. The error becomes obvious when testing such a questionnaire. It was probably introduced when VAS/LASA questions first learnt to display additional fields simultaneously. - Some remaining old phone numbers removed. Answer field option "Show text input field on check" could not be set using the appropriate checkbox correctly. A run-time-error 201 could occur when editing result formulas while a question without any answer field was displayed.

**Added:** Individual answer fields can now have the property of unchecking all other answer fields of the same questions when checked and vice versa. This can be used to construct answer field groups like: "Check all that apply:" - "No days" - "Yesterday" - "2 days ago" - "3 days ago". New UPN commands: min and max. In result formula editing, leaving the label for single or cumulative printout empty makes the respective result omitted from the printout. New file-format version 2.36.

#### Version 2.35 30.03.2000, rebuilt and packaged 18.05.2000

**Updated:** My phone and fax numbers in the program; usability of evaluation version extended until 31.12.2000.

#### Version 2.35 30.03.2000

**Corrected:** ANQ file would not contain text collected via the additional text input feature of \*regular\* answer fields. Instead, text entered there would be erased immediately after going to the next question. Strange looking behaviour when a regular answer field would be checked, and later on unchecked, after other questions had been displayed: the additional text input windows of "can't answer" / "don't want to answer" from the prior question would open up. Cumulative bargraph printout would not work correctly for result dimensions with minimal value other than zero, instead, bargraphs would exceed maximum value. Questionnaires containing answer fields with empty "numerical or string values" could not be loaded (relatively new automatic decimal-/thousands-separator adjustment caused trouble here). When trying to store recorded data into an invalid targeted data path, AnyQuin would abort instead of showing a dialog. "PC speaker simple sound config" help button activated.

**Improved:** If there is any text entered in an additional text input field of an answer field, a pencil shaped indicator appears in the field. When a questionnaire session is started pressing "Go!" in the "Navigation Window", AnyQuest checks for the availability of the defined target data path even before the session starts. It handles problems appearing after the session quite reasonably now. In personalized (registered) versions, AnyQuest comes up directly with the "AnyQuest Navigation" window, instead of the hitherto remaining about dialog. "Data folder setup" directory browser works now without a filename to be specified.

**Updated:** My e-mail and WWW-Adresses in the program. Common appearance of all dialog windows.

#### Version 2.34 03.01.2000

A version of the main program generated specifically for the preliminary study of an electronic EORTC QLQ application, accompanied by specific on-line-help and setup program; all accompanied by general versions for anypak.

#### Version 2.33 18.11.1999

**Improved:** Cumulative printout function will not include data collected with prior questionnaire definition file versions, if version descriptors have been set. In cumulative printout, undefined results and those from prior qdw versions are indicated by parenthesis around the measurement index to make it easier to distinguish them from results which equal minimum values.

#### Version 2.32 02.11.1999

**Added, improved, corrected:** Several features required by the eIBSQOL; e.g. statistics and reference value printout options for cumulative printout. Generation of a customized version without editing options in the menu.

#### Version 2.32 beta, 11.10.1999

**Added:** New file-format version 2.32. Questionnaire definition file language and version documentation support. More keyboard support: Tab/Shift-Tab now available in all dialogs. Home, End, Page Up, Page Down resemble transport bar functionality. Cumulative printout can include reference value or reference range from external file. Overriding anyquin.msg can be specified in \*.ini file.

**Corrected:** **Limited decimal separator and thousands separator functionality begun in 2.28 would not support old QDW-files on different international configurations producing strange computed results.** Now, the current separators are stored with each QDW-file. On a target system, separators used in purely numeric answer field values are adjusted to local settings. "File" - "Clear-All" would not work correctly in all cases. Last result formula of each qdw could not be deleted in all cases; result formula definition dialog behaviour is now changed. Generating export files would not handle occurrences of multiple parameters with the same label in different sections of the anq file correctly.

**Improved:** Cursor-movement with arrow-keys has accelerating profile. Export table size limit enhanced from 1002 to 16384 columns. Generate export file options are more differentiated now, including questionnaire definition file meta data. While exporting, the search for and replacement of decimal separator in output data now leaves more probable text fields untouched.

#### Version 2.31 beta, 20.08.1999

**Added:** Print margins are now adjustable via printout options dialog.

**Corrected:** Cumulative printout would only read first result section of any \*.anq file, thereby producing empty cumulative printouts for all loaded questionnaires but the first one.

**Improved:** Minor adjustment in cumulative printout: numbers labelling individual bars where shifted down a bit.

#### Version 2.30 beta, 11.08.1999

**Corrected:** **When resuming a session, previous versions would initialize all questions answered in preceding sessions with an undefined numeric result and not-yet-shown-flag.** Now, the values from the interrupted session are retained correctly. Help button for \*.anq output file options works now.

#### Version 2.29 beta, 17.07.1999

**Corrected:** Since version 2.28, date of birth would have been accepted even if a day in the future was entered. In this case, a wrong age would be computed. Both errors are corrected.

#### Version 2.28 beta, 17.06.1999

**Corrected:** Immediate reaction of all answer fields of a question upon text input into direct text answer fields restored. Direct Text edit windows appear with 2 pixels frame on all of their sides instead of an asymmetric one. Run Time Error that appeared, when no questionnaire was loaded and loading a questionnaire was unsuccessful or aborted eliminated. UPN processor and UPN formula consistency check will now be resistant to empty formulas. Internal string processing improved, as dump tree function did not work with long question texts. Finally corrected the error that would cause "modified"-flag to be set when an additional text input window was used. Checking of correct contents of direct text edit windows, before currently displayed question changes. Save/resume/navigation windows have reasonable behaviour now, with correct re-display of questions as required. Undo-mechanism and save/resume do not leave any questionnaires loaded before loading those from the undo-store any more.

**Improved:** Year-2000 Compliance has always been there :-). But now, year 1900-compliance is, too - this means, that the "29.02.1900" will not be accepted as date of birth any more. Some improvements in Save-/Resume functionality and its handling.

**Added:** A question can have the new property "Direct-Text + Discrete answers, single check". New file-format version 2.28. Some limited additional support for international settings

concerning the decimal and thousands separator. Immediate checking in direct text input fields for valid not\_empty\_field, number, positive number, date, time.

\*.anq-output-file options can be set: Ability of AnyQuest for Windows to remember the last used file name in a directory and to continue generating filenames from the succeeding one. Ability to use up to seven fixed leading characters for the generation of \*.anq filenames. Ability to write questionnaire related meta-information into the \*.anq-files. Ability to set the mouse cursor away from the answer fields and to the lower right angle of the question area when a new question is displayed during the application of a questionnaire.

#### Version 2.27 beta, 01.06.1999

- Corrected:** Printout might cause an error when preparing fonts for very high resolution printers. Security-check "questionnaire modified but not saved, do you want to exit anyway?" could appear erroneously since version 2.25. "File"- "Clear all" and "Undo" treat (even filled) direct text edit fields correctly, now (Version 2.27 immediate fix release).
- Changed:** UPN default formula displayed in Result formula edit window replaced by empty string.
- Improved:** File-format expanded to version 2.27, still downward compatible until version 2.13, to allow long result formulas. Result formulas can now be up to 32384 characters long (instead of 255).
- Added:** UPN formula FN to put the result of a previous result formula onto the UPN machine's working stack.

#### Version 2.26 beta, 22.05.1999

- Corrected and improved:** Background colour is showed correctly behind numeric result or string result. Live display of numeric and string result for individual questions. Answer field logic for single- and multiple answers. An answer field's numeric or text value can now be set to empty string without GPF. Statistics display will not disappear for long result strings anymore. Default file extension in dialogs set back to \*.qdw. German internal texts ending with space now show space correctly. Errors upon changing printers corrected. Wording of German error message for missing answers corrected. If you chose to ask for a simple name, this will be asked after christian name, given name and before date of birth now (instead of after patient id code). UPN-Machine now allows for processing of formulas of up to 32384 characters length internally (instead of 255). UPN-Machine now has working stack of 6552 numbers of extended precision (instead of 255). File-format expanded to version 2.26, still downward compatible until version 2.13.
- Added:** Additional text input windows come with different text depending on whether they are Cannot/Don't want to answer or regular answer field. Text input windows in editing mode show the type of the item whose text is being edited. Answer fields can have new property "DirectText" which allows text input fields directly in a question. Status display can display total numbers of questions and loaded questionnaires in addition to current numbers. Graphical progress indicator. UPN formulas to retrieve additional text or direct text from an answer field and to send text to internal patient-id variables. Keyboard support to fill in questionnaires (except for Lasas, so far). All printing related menu commands moved to a new menu "Printing". Cumulative printout generation. Print Layout function. Added functionality in print options. Test printouts directly accessible from menu "Printing". Added functionality to save and resume interrupted sessions. Function "File"- "Memory Report".
- Removed:** Code to generate minimal demo-questionnaire from menu "File".

#### Version 2.25 beta, 13.04.1999

- Corrected and improved:** Private text clipboard enhanced to hold more than 255 characters and to work correctly, if an empty text is copied to it.
- Added:** (Finally...) Undo functionality ☺.
- Added:** Processing of texts coded to answer fields instead of numeric values only (was possible in MS-DOS version before).

#### Version 2.24 beta, 16.03.1999

- Corrected and improved:** Functionality of translation utilities as well as copying of objects' positions.
- Corrected:** Header line of generated \*.anq files.

#### Version 2.23 beta, 15.03.1999

**Re-established:** In Auto-Proceed-To-Next-Question mode, the 300 ms delay after giving an answer was re-established. It had been disabled to speed up processing internally during questionnaire development. Please be careful when comparing questionnaire answering times between questionnaires filled in with different versions of the software! (Note in Helpfile added.)

**Improved:** In Auto-Proceed-To-Next-Question mode, the timer for proceeding to next question after answering, is killed when: any transport-bar button is pressed during timed delay (previously: only after go to next question button) or: a given answer is removed in a single-answer-question.

#### Version 2.22 beta, 07.05.1998

**Corrected:** If text was entered in certain text fields which had been loaded empty, a runtime error occurred. A resource ID concerning properties of answer fields had been used twice - this was corrected, too.

#### Version 2.21 beta, 02.05.1998

**Added:** Display of directory of loaded questionnaires with navigation window. Support for displaying images as background for questions, answer fields and texts.

**Improved:** \*.ini and \*.msg file names specified as command line parameters are expanded to current directory. Most internal strings (especially texts for questions, explanations, labels) have lost the limitation to 255 characters. \*.qdw file format upgrade to 2.21: usually smaller files; formats 2.13 and 2.20 are still supported. Improved default question properties (fonts, questionnaire name position). Corrected: Internal handling of patient identification dialog display, question display, transport bar display and screen refresh. German text for "Messung nach" in printout corrected. "Changed" flag is set correctly after loading a questionnaire. Sound file playing capacities now work correctly.

**Updated:** My address in the startup screen logo.

#### Version 2.201 beta, 06.04.1998

**Added:** functionality to specify an autoload \*.qdw in the command line. Import questions from questionnaire function.

#### Version 2.20 beta, 31.03.1998

**Improved and added:** Functionality of "question - options" for automatic alignment, distribution, size change of answer fields (started briefly on 130398, completed on 310398) and automatic alignment of answer field labels relatively to answer fields. Added "Help" button. File format changed from 2.13 to 2.20, but automatic support for loading of files in older formats (2.13, so far) has been added. Improved handling of added answer fields when they exceed window border.

**Corrected:** Changing answer field options will no more move the corresponding label into a standard position below the answer field. Double entry "clear text" in a context menu removed.

**Invented and added:** Jörg's Magic Questionnaire-o-Matic :-).

#### Version 2.19 beta, 18.01.1998

**Improved:** Single printout: design improved, correct support of printers with other resolutions than 300 dpi added, missing printout of age corrected. Navigation window changed into a modal dialog, i.e., you cannot do anything else with AnyQuest for Windows while it is displayed, especially not mess with any items in a questionnaire being displayed behind the navigation window.

#### Version 2.18 beta, 03.10.1997

**Added:** Functionality to support translation of questionnaire definition files into other languages: ability to copy text from and to next/all/succeeding one/all similar items and to/from private clipboard. Functionality to copy positions of objects, which already had included copy to clip, paste from clip, copy to prev, copy to next, copy to all, extended by copy to all prev, copy to all succ likewise.

#### Version 2.17 beta, 06.08.1997

Addresses of author updated. jsUnPack and Setup now collaborate in cleaning up files

after automatic installations to avoid a Windows protection fault which occurred in some environments.

#### Version 2.16 beta, 11.03.1997

- Added:** Patient ID collection configurable with possible collection of extended address data (not described in the help file yet). Improved dialogs for patient ID collection, including alphanumeric one. Texts from anyquin.msg are actually displayed in dialogs now.
- Corrected:** Uncertain recognition of pointer position within answer fields when using context menus corrected. AnyQuest Navigation Window: Button labels match help file description, and help buttons of sub-dialogs of the "Edit"-Menu work now. (Thanks to Chatchawan Silpakit!).

#### Version 2.15 beta, 28.12.1996

- Added:** Formula consistency check for CB-formulas across all loaded questionnaires.
- Improved:** Formula consistency check inactive for deletion of whole questionnaires. Formula consistency check code given better structure, effectiveness & reentrance-ability. Formula consistency check now works across all questionnaires loaded when a respective command is issued. Behaviour of CB- and result formula windows on deletion and adding of questions more logical (but still maybe not perfect). All (?) dialog boxes can now be controlled using the keyboard immediately. Softer reaction on expiration date, in English.
- Corrected:** **CB-Formula definition dialog UPN and CB-destination string length limit to 10 characters removed.** Go back button updates window-caption in edit mode when moving to another questionnaire.

#### Version 2.14 beta, 16.12.1996

- Added:** Conditional Branch support, including Check for completeness change. Demo Files for CBF. License owner is included in printout and file output. Questionnaire definition file copyright and history documentation.
- Improved:** CBFormulaDefinitionDialog behaviour when stepping through questionnaires. Outputs xage, xyears, errdirdatafolder, generate export file messages and other additional messages now translatable. Display of numeric result is now updated as well after all answers of a question have been unchecked. Numeric results of each question initialized as undefined after questionnaire loading and recomputed before each redraw. Algorithms for computation of numeric question results improved. Initialization routines on startup tidied up.
- Corrected:** **Severe error not transferring questionnaire results which do not have a succeeding unit into export file already imminent in 2.1. Severe result computation error introduced to 2.13 removed again.** Window caption in edit layout mode is set to correct questionnaire after start up. No more debris is saved to \*.qdw-files with UPN formulas.
- Changed:** New \*.qdw-file format.

#### Version 2.13 beta, 01.12.1996

- Added:** More UPN-functions for binary logic, comparisons and stack manipulation.
- Improved:** After startup, first question of first auto-loaded questionnaire is displayed. Variable definitions and procedures for other object support. File header support. Conditional branch formula definition. Small improvements in dump tree function.

#### Version 2.12 beta, 30.11.1996

- Improved:** First post-pre-release version. When a question is deleted, the display will not switch to the preceding question any more if at least one succeeding question is there. Default settings of some options with missing \*.ini-file are now more convenient. International translation file now contains almost all messages.
- Added:** Consistency check for formulas referencing questions when questions are deleted or added. Registration and Author's Address in help menu.
- Changed:** Shareware license, About, Formula definition, Printer setup, Data dir selection, Export dialogs (Context sensitive help added et al.). Formula edit dialog displays formula numbers locally to current questionnaire.

#### Version 2.11 beta, 29.11.1996

**Improved:** jsUnPack and Setup remove temporarily unpacked files after unpacking followed by automatic installation.

#### Version 2.1 beta, 02.10.1996

**Added:** "AnyQuest Navigation"-Window.

**Improved:** Automatic scaling of answer field default radius and distance.

#### Version 2.0 beta, 25.09.1996

**Added:** Supports special answer fields for "Can't answer" / "Don't want to answer". Supports fields for input of additional text information which open up when answer fields are checked, and output of additional text information into a new section of \*.anq files. Supports answer fields in different sizes in a single question. Separate text format for special answer field labels (Can't/Don't want). Supports "Jörg M. Sigle's multi-segmented non-linear Visual Analogue Scales".

**Improved:** Improved handling of added answer fields. Correct removal of extreme LASA/VAS checks, when a new point is checked. Correct handling of LASA/VAS-questions which don't start at 0.00. Generate export file: Corrected handling of name and delta time. No erroneous decimal character replacement in dates any more. Sorting of all found labels from all files according to file-section and original label order. Improved text input fields.

#### Version 1.9 beta, 13.09.1996

**Changed:** Single debug menu options removed from "navigation" menu.

**Corrected:** "Generate demo" corrected.

**Added:** Installation program provided to install from compressed disk files.

#### Version 1.8 beta, 09.09.1996

**Improved:** More robust handling of patient date of birth input. Button "Next Question" re-labelled to "Continue...". Improved memory management and data protection. PC-Speaker sound timings have been improved with respect to machine speed independence.

**Corrected:** Corrected printing font size. Corrected malfunction of "File Load"- and "File Save"-dialogs under Windows NT 3.xx.

#### Version 1.7 beta, 22.08.1996

**Added:** support for different display resolutions. Enhanced \*.QDW file format.

#### Version 1.6 beta, 28.07.1996

First version given to selected people for evaluation.

#### Historic predecessors: AnyQuest for DOS, GraTaSim, extract and others

AnyQuest for Windows has been developed when Pen-Computers (similar to what has been termed "Tablet-PCs" in recent years) with colour displays had become available, namely the [Fujitsu Stylistic ST-1000](#).

It is based upon AnyQuest for DOS, which had been developed and successfully used since ca. 1993. Initial versions of the software could only handle one questionnaire, beginning with the EORTC QLQ-C30 or QLQ-C30+3, but multiple questionnaire and configuration files support had been added very early.

These early implementations of the concept of the [Quality-of-Life recorder](#) all accepted input from a digitizer (graphic tablet) and a TSR (terminate and stay resident) software (GraTaSim), freely programmable by means of a corresponding CAD environment (GraTaGen, GraTaPrn etc.) to implement a user interface that could easily be handled even by elderly or ill patients without any training.

The general principles of operation as well as the result file format and postprocessing tools originally used by AnyQuest for DOS are still compatible with the modern environment.

Please visit <http://www.jsigle.com/prog> and <http://www.ql-recorder.com> for further information!

