

# AnyQuest for Windows

## New Conformance Test: Standard Operating Procedures for Quality Assurance

OR

## Guided Tour with Annotations

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### Opening remarks

This document replaces older, less extensive Standard Operating Procedures (SOPs) for functionality tests. This document may and will be revised, and published again, at the sole discretion of its original author. Its table of contents includes several sub-headings which serve as placeholders for paragraphs which, at the moment, do not contain any additional information. Many of these are flagged “TBD” (To Be Done). The existence of these sub-headings is *not* meant to establish any expectation that the related paragraphs will ever be added (or published).

This document is published to serve either as a tour guide for those interested in AnyQuest for Windows, who want to explore some of its capabilities. Or, it can serve as a blueprint for functionality tests which can be carried out by anyone on versions of AnyQuest for Windows available to them, either partially, or in total. The availability of this SOP is *not* meant to assure to anyone that all these tests have actually been carried out on any version of AnyQuest for Windows by the author. *Neither* does it communicate any warranty that any version of AnyQuest for Windows conforms to the standards set out in this document. However, any interested person can use this SOP to check, in their own environment, whether properties and operations of an instance of AnyQuest for Windows are compatible with the standards, reference findings, and explanations provided in this document.

If you perform such tests, your feedback is welcome - especially if you feel that you found discrepancies between your expectations (or requirements), the description in this document, and the behaviour of the instance of AnyQuest for Windows you examined. The existence of such a discrepancy, however, does not entitle anyone to request or expect a change in AnyQuest for Windows, or related tools, or in this document.

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## 1 Purpose of the following tests

After the software has been changed and/or recompiled, or re-packaged, or after included questionnaire definition files or configurations have been changed, the tests outlined in this script can be used to:

- either: confirm the correctness of selected content of the AnyQuest standard evaluation package (this includes the same software as a licensed/registered version, but - as of 20090610 - does not include a license file \*.lic), and the correct function of selected parts of the software, or other components...
- or: detect missing or erroneous content of the AnyQuest standard evaluation package, and problems in selected parts of the software, or other components.

Considerable background information is included with respect to possible problems that might be observed during the tests, to recommended configurations for editing and production environments, and to functional or technical aspects of AnyQuest for Windows.

Thus, this document can also serve as a very competent tour-guide for users who want to get a thorough introduction to AnyQuest for Windows' features and possibilities, rather than merely a cursory glance.

## 2 Test target

### 2.1 Testing of Software-package, program, QDW, configuration or complete environment

This script is intended to verify the functionality of the AnyQuest for Windows software, and the distribution package `anypak.exe`, by installing it and simulating questionnaire administration sessions as well as some other functions with some questionnaire definition files and configurations that have been traditionally included with this package.

It can also be used to guide checks, whether a newly designed questionnaire definition file or a newly prepared configuration make good use of AnyQuest for Windows' possibilities, and whether they follow some recommendations that are included in this text.

Finally, it can serve as a basis of future locally derived test SOPs which provide guidance for conformance testing of locally generated questionnaire definition files and complete configurations, or of locally defined complete environments for application and evaluation of patient questionnaires.

### 2.2 Coarse (relaxed) vs. strict (comprehensive) testing

For coarse (relaxed) assessment of package completeness and basic functionality of a system or an environment, it is sufficient to download an `anypak.exe` package, install it onto a clean system, and then complete several assessments using some of the included configurations as far as available time permits, and as far as no unexpected behaviour is found.

For more comprehensive testing, it is recommended to simulate questionnaire administrations with all configurations available in the `anypak.exe` package (or locally available configurations), and to follow this guide through all the options that it presents.

For strict conformance testing, typically performed after the preparation of a new questionnaire definition file, or after setup of a new configuration, especially for production systems and specific local configuration systems, it is recommended that locally derived, and documented, site specific tests be carried out, on exactly the same hardware, software, and configuration that shall finally be used. All tests should be run for multiple passes with each configuration. Several pre-established patterns of answers should be applied in different simulated questionnaire administrations, using:

- all minimal answers
- all maximal answers

- special answers in various proportions (“I cannot answer this question”/“I don’t want to answer this question”)
- additional text input
- regular (documented/externally recorded) variations of answers
- randomly generated (documented/externally recorded) answers (to satisfy very high standards)
- answers that cause different ways through non-linear questionnaires by means of conditional branching formulas
- answers that cause different displays or other effects by means of inline formulas
- answers that cause special effects by means of “local intelligence” of individual questions
- answers that cause special behaviour of complex result formulas, “intelligently” generated reference range printout additions, printout colours etc.

Generated \*.anq files should be reviewed with regard to stored patient ID data, session data, raw data as well as computed test results. Questionnaire-filled-in (QFI) documentary printouts (redirected to files, e.g. in PostScript or Portable-Document-Format (PDF)) as well as result printouts should be reviewed.

Statistics printout and data export should be tested with demo/test data sets, if these functions are required for a given project. If live interaction with external infrastructure (database software, file servers, print servers, PDF generators, journal file generators, handwriting recognition, barcode readers, card readers, electronic patient file interfaces) is required, this should also be tested for the above variations in input.

## 2.3 Continued development and local adoptions

This script is the successor to some test instructions which have previously been used in the development of AnyQuest for Windows.

It is intended to grow over time. Its initial edition focuses on tests of basic functionality required to complete questionnaire administrations, generate result files, and produce basic printouts.

Extended functionality and its testing will be added later. Some paragraph headings have already been included with the noted “TBD” (ToBeDone) with this respect. Please do not hesitate to send me a note if any topic is of special interest to your application of AnyQuest for Windows.

The derivation of local and project specific adoptions of this script is highly recommended.

## 2.4 Additional sources of information

- Local staff, local documentation
- System specific documentation
- AnyQuest for Windows on-line help (searchable, extensively indexed)
  - Description of intention, functionality and technical information
  - Product history: additions, improvements, corrections and changes in AnyQuest for Windows over time and version number
  - Document history: changes to the on-line-help itself over time and version number
- AnyQuest for Windows documentation on [www.q1-recorder.com](http://www.q1-recorder.com)
- Contact the author: details to be found in this script, in on-line-help or WWW
- Detailed revision and change notes as well as planned modifications; documented in the AnyQuest for Windows source code (available via the author, as long as this is not a published resource)

## 3 Consequences of testing

Passing these tests successfully, may indicate that an AnyQuest for Windows package is ready for publication.

Failure in passing these tests may indicate that an AnyQuest for Windows package is not ready for publication. Underlying errors must be searched, or documented expected functionality must be updated (as well as respective expected test results, and - if nothing else helps and this is truly warranted: known error lists), before the new package can be published.

## 4 Test environment

### 4.1 Software

This SOP was generated using the published versions of AnyQuest for Windows 3.30 (preparations, installation, configurations “AnyQuest for Windows”, “Demo - Calling of internal and external modules” and “Demo - Computing and commenting duration of sleep”), 3.32 (from configuration “Demo - Computing and commenting duration of sleep” onwards), and 3.33 (application of this SOP before publication).

The SOP is designed to check defined aspects of some elements of a complete `anypak.exe` package.

It should be applicable for all future versions of AnyQuest for Windows, as long as no intended functional changes are introduced.

It should be applicable for all previous versions of AnyQuest for Windows, as long as functions or used questionnaire configurations have already been included in these older versions, and as long as no documented known errors have still existed in these versions.

### 4.2 Platform

#### 4.2.1 Hardware

This SOP was generated using `laptoppii`, with a Pentium II @ 266 MHz, 256 MB RAM, 90.5 MB available on HDU c: (of 7 GB, VFAT), 1024 x 768 pixels display.

It should be usable for installations on other hardware that satisfy AnyQuest for Windows requirements - this may start with 80386sx machines with any graphical display, some minimum RAM and virtual memory, and extend up to the latest compatible, actual or emulated, hardware.

#### 4.2.2 Software environment and configuration

This SOP was generated on a system with:

- Windows 98, Windows controls settings for virtual memory, various smaller programs and drivers running (W98 resource meter, palm pilot backend, rain cpu cooler via halt states).
- A PostScript printer QMS magicolor plus L2 connected to FILE: is installed, so test printouts can be generated and redirected into files.
- GhostScript for Windows 8.00 and GhostView 4.3 are installed to view the content of such virtual printout files.
- The MS Windows standard editor `notepad.exe` is installed to view the content of AnyQuest result files `*.anq`, `usedname.ini` and possibly other files.

It should also apply to any MS Windows system which can run 16-bit applications. This goes back at least to Windows 3.x, includes Windows NT 3.x, Windows NT 4, Windows 2000, Windows 200x variants, Windows XP, and extends at least to Windows Vista 32-bit. It also applies to various compatible environments like WINE, SoftWindows, OS/2 etc.

“Click-right” is assumed to be equivalent to clicking the second mouse button, or a similar button on a stylus or any other interface.

Display settings may vary, but most (possibly all?) prepared configurations supplied by myself have been created on a 1024x768 pixels display. Most (all?) have also been tested on 800x600 and 640x480 pixels displays, with or without font anti-aliasing (which may induce minimal changes in font geometry rendering) and should generally scale without difficulties on any 4:3 system. Other screen proportions may also work, but cause non-proportional geometry changes in answer fields and provided text field sizes.

An acceptable visual impression and the completeness of texts cannot be taken for granted (and must be individually verified, if required) on systems with screen proportions other than 4:3.

## 4.3 Preparation

### 4.3.1 Background

As the tests shall also cover the completeness of the installer, the complete tests shall begin on a system that has no remaining parts of such an installation in the same places that would be used for a new installation.

Please read the following paragraphs completely, before trying to prepare a test system. If you find yourself unfamiliar with anything described here, you may possibly ask a local system administrator or a colleague with some computer experience for help.

**WARNING:** Just removing all AnyQuest related stuff may hurt material that someone else has intentionally installed or collected on the same machine. It is recommended to make sure that such material is not required otherwise / temporarily / definitely, before anything may be removed, moved, or renamed.

### 4.3.2 Recommendation

- Rename (move) a possibly existing AnyQuest for Windows installation from `c:\anyquin` to something like: `c:\anyquin-yyyyymmdd-pre` with yyyy, mm and dd inspired from the current date.
- Rename (move) a possibly existing folder with AnyQuest for Windows Start Menu entries from `c:\WINDOWS[\Profiles\username]\Startmenü\Programme\AnyQuest for Windows` to something like: `c:\WINDOWS[\Profiles\username]\Startmenü\Programme\AnyQuest for Windows-yyyyymmdd-pre` with yyyy, mm and dd inspired from the current date.

The path of the start menu entries depends upon your MS Windows version and configuration. You can usually get there via a context menu or an entry of the Start Menu itself. In more recent Windows NT derivatives, it may be located under `c:\Dokumente und Einstellungen\username\...` with variation coming from your configured country setting, and your installed version of MS Windows.

## 5 Tests

### 5.1 Package download from the WWW or from the package build directory

#### 5.1.1 Normal operation

1. Acquire the software package `anypak.exe` :

- (a) The current published package can be downloaded from:  
`http://www.ql-recorder.com -> Software Library -> anypak.exe`

Depending upon the browser and Internet connection you use, it may be possible to execute the program directly from the WWW, or it may be necessary / recommended to download it first to a known local directory.



- (b) Internal notice on JS' development environment: A completely built package, which needs not be published yet, is typically available on:

wapu51://home/jsigle/lifequal/anyquin/anypak/finished/anypak.exe

2. If possible, check the size of the downloaded package (in your download log or in the displayed folder where you downloaded the file to) versus the information displayed on the software library page in <http://www.q1-recorder.com> where the package was downloaded from: The numbers should match and be current.

As of 20090611, this is around 2.1 MB. The package size has slowly grown over the successive releases. If the package file size of a future release comes out smaller by a few hundred KB, without any other explanation, and no problems during installation can be observed, and the included main executable file is also smaller than the preceding version, then a main executable file without debug information may have been included. This will not hinder functionality, but it is not the intended policy at the moment.

### 5.1.2 Possible errors

A new package may not have been correctly uploaded to the WWW: There may be:

- no downloadable package in the WWW at all,
- no completion at all or early termination of the download,
- a discrepancy between the software version inside the package and the one advertised by the WWW site,
- a discrepancy between the package size and the one advertised by the WWW site.

Reasons for these observations may be:

- problem with the Internet connection used for package download (unreliable; MTU problem for providers where standard Ethernet MTU=1500 may not work, even when the provider may not be aware of this, but practical experiments may show that lower settings may be required, like e.g. down to 1205 for cablecom/Switzerland, or 1400+ for many DSL PPoE connections; or unstable analog link, unstable WLAN link etc.)
- no package on the WWW storage server at all,
- old package on the WWW storage server,
- an uppercase/lowercase problem between the link from the WWW site and the actual package name,
- a virus in the publishing system or in the local system adding information to the downloaded file,
- software on the local system interfering with the download (firewalls etc., intended system protection, or malicious software),
- the browser may have some configuration setting or add on that prevents downloads and/or execution of executable files.

## 5.2 Package installation

### 5.2.1 Normal operation

1. Run `anypak.exe` directly from the WWW or from a locally available package.
2. -> Windows may ask some security questions mentioning an unknown publisher of this program etc. Answer them reasonably.
3. -> A text based interface in a window should appear.

4. Chose a language Deutsch/English, chose Yes/Ja/True, chose Yes/Ja/True to unpack and to install the archive.
5. -> The package should unpack itself into a reasonable temporary directory `... \jsunpack`, and the setup program should be started.
6. Click on the button "Install to c:\anyquin"
7. Watch the process of the setup program.
  - (a) If an error message dialog should appear, then record the displayed error message for further reference.
8. -> The setup program should:
  - (a) create a directory `c:\anyquin`, and required subdirectories,
  - (b) unpack each installable file from the temporary directory file, put the unpacked file to its defined subdirectory, and remove the packaged file from the temporary directory - or produce an error message for each file where this is not possible,
  - (c) create a program group "AnyQuest for Windows" for the currently logged on user, open the corresponding folder of the Start Menu structure, and create a link in this folder for each configuration defined in the setup script,
  - (d) produce a final dialog that shows the installation result. This window may be hidden by the "AnyQuest for Windows" program group window on some systems.
9. *Do not* close the newly opened program group window "AnyQuest for Windows" yet - you can use it to conveniently start several pre-installed configurations for the functionality tests.
10. Locate the final dialog window (that may be hidden behind the "AnyQuest for Windows" program group window, which you can move aside or minimize instead of closing it), and click on "OK".
  - > The setup program with the MS Windows dialog interface should disappear.
  - > The automatic archive extraction program with the text based interface should disappear.
  - > The newly created (or at least) opened program group window "AnyQuest for Windows" should remain open.

### 5.2.2 Possible errors

- The available package may not be executable due to incompleteness of the package:  
Check whether the size of the package matches the expected size, or the size advertised on the WWW site.
- The self extracting archive program may not find any archive content inside the package:  
The package may have been erroneously produced. Check whether the package production script `make_anypak.bat` was used correctly and found all required resources while running.  
If the package production environment is available in a very long directory path, DOS may come to its limits; this is why the packaging environment on `wapu51://home/jsigle/lifequal/anyquin/anypak` is also available via the symbolic link `wapu51://home/jsigle/anypakto`; with `wapu51://home/jsigle` typically connected to `j:\`, this would result in `j:\anypak\` - which should not overstress any Windows/DOS client.
- The self extracting archive program may stop and hang unexpectedly while extracting the archive content:  
The available package may not have been downloaded completely, or a broken package may have been on the server, or regions may have been nulled inside the package on the server. The latter has actually been observed in 05/2009 for a custom made package put onto the server at lund1 some months before.
- The self extracting archive program may be unable to extract the contents from the package:  
Storage space on the target machine may be insufficient, or the user may have no rights to create a temporary directory.

- The self extracting archive program may be unable to expand and install the contents from the package:

Storage space on the target machine may be insufficient, or the currently logged in user may have no rights to create the target directory, or the currently logged in user may have no right to write into the target (sub-)directory, or there may be some older, write protected files already in the target (sub-)directory with of the same name as newly arriving ones, prohibiting them from being written.

In MS Windows Vista, and in accordingly configured other versions of MS Windows, the `c:\` directory may not be writable for general users. It may suffice for an Administrator to prepare `c:\anyquin` and grant a user write permissions to enable him to install AnyQuest for Windows.

Further information is available in AnyQuest for Windows' on-line-Help, or in the installation guides (detailed ones in German for eSIRO or eKombiDox) on <http://www.q1-recorder.com>.

### 5.3 Basic checks of software functionality

#### 5.3.1 (Re-)Open program manager group and adjust display (optional, simplifies testing)

1. If you minimized the program group window "AnyQuest for Windows" after the installation, re-normalize (bring it up in normal size) it again.
2. If you maximized the program group window "AnyQuest for Windows" after the installation, and have no special reason to leave it like that, re-normalize (bring it back to normal size) it again.
3. If you accidentally closed the program group window "AnyQuest for Windows" after the installation, or you started after logging in to a system where the software was already installed and this window not open anymore, then you may:
  - (a) either open this window again from your Start Menu - either by using click-right (second mouse button),
  - (b) or follow the directory tree from your system drive down to the correct start menu folder (via `c:\windows`, or `c:\winnt`, or `c:\documents and settings`, or ...),
  - (c) or use another way to go to the properties / settings of your start menu, extended settings, and then further down the respective directory tree.
4. Change the display mode to "View"/"Ansicht" - "Details", in order to see the complete names of the start menu entries instead of merely the first few characters. If the names are still cut too early, then try to press [Ctrl]-[+] ([Strg]-[+]) using the "plus" key on your numeric keypad, or manually adjust the width of the "Filename" column.
5. Sort the entries alphabetically using the menu entries of the Windows Explorer (which happens to be the program behind the start menu folder window you are looking at); or a suitable option down the properties / settings menu of your start menu.
6. Should you be unable to open the respective folder on your system, you may still use the start menu entries directly, but you will have to open the start menu and go down the menu structure via "[All] Programs"/"[Alle] Programme" - "AnyQuest for Windows", and then select the respective entry from the thus opened menu.

#### 5.3.2 Tests with start menu entry: "AnyQuest for Windows"

##### 5.3.2.1 Program start, shareware dialogs, context sensitive on-line help, main window

1. Single- or double-click on the start menu entry "AnyQuest for Windows" to start AnyQuest for Windows with this default configuration. (Be sure *not* to mix that up with "AnyQuery for Windows"!)
  - > The program should appear after up to several seconds and maximize itself,
  - > If a license file `c:\anyquin\anyquin.lic` is *not* available (standard in the WWW evaluation package), two dialog windows will appear one after another:

- one dialog “Welcome to AnyQuest for Windows!” with introductory shareware information, and
- one dialog “About...” with information about the program name, version, release date, copyright, author, contact details, WWW site etc.

(Please note: I’m considering a simplification for users of the evaluation package here: In future version above 3.30, either or both of these dialogs may possibly be switched off even for users without a license file. Such a finding should be noted, nevertheless, until this SOP would have been adopted, but not necessarily hinder publication of a package.)

2. In the “Welcome...” dialog:

(a) Check the context sensitive on-line help system:

- i. In the “Welcome...” dialog, click on “Registration form”.  
-> The context sensitive on-line help should appear and show the registration form.
- ii. Close the on-line help viewer again.
- iii. In the “Welcome...” dialog, click on “Contact details”.  
-> The context sensitive on-line help should appear and show the author’s contact details.
- iv. Close the on-line help viewer again.

(b) Click on “Continue...”.

3. In the “About...” dialog:

- (a) Check the version number and the release date versus the information displayed on the software library page in <http://www.q1-recorder.com> where the package was downloaded from: The numbers should match and be current.
- (b) Click on “OK”.

-> The AnyQuest for Windows program remains maximized, and the “AnyQuest Navigation” dialog appears. It should have the focus, and be application modal (i.e. nothing else in the AnyQuest for Windows application window behind it should respond to any clicking).

-> The “AnyQuest Navigation” dialog should have four buttons: “Go!”, “Edit”, “Help”, “Exit”, and all four buttons should be active (i.e. appear in the same colour, with the same colour font). (Please note: Alternative configuration file settings may result in a “Navigation” dialog that has any combination of the “Edit”, “Help” and “Exit” buttons disabled, or only one “Start” button and nothing else.)

-> The main window menu should contain these options: “File”, “Edit”, “Jörg’s Magic Questionnaire-O-Matic”, “Sound”, “Display”, “Navigation”, “Printing”, “Analysis tools”, “Help”.

(Please note: In any **anypak.exe** created after the homogenization of initialization files, and before 2009-05-14, even this configuration has restricted menu. Only the “Your Own” configuration has options to load and save questionnaires available. On 2009-05-14, menu restrictions were removed for the configurations “AnyQuest for Windows Introduction” from `c:\anyquin\anyquin.ini`, and for the configuration “Demo - Question layout prototype collection”, whose start menu entry was also remained to “Editing - Question layout prototype collection” `c:\anyquin\demo\prototyp.ini`.

If you find a restricted menu, but need a completely unrestricted menu for editing or configuration development, you may change the appropriate entries in `c:\anyquin\anyquin.ini` or completely remove (or rather rename) that file before starting the “AnyQuest for Windows” start menu entry. Further menu configuration review follows far below, after an initial assessment, in tests for the editing functionality.)

-> The main window background should show:

- a rainbow-like graphic,
- a “Woopie”, logo and address in the lower right corner, and
- some text: “Directory of loaded questionnaire definition files:” - “AnyQuest for Windows Introduction English 0.3 2003-10-31 js” in the upper left corner.

-> If the program has come up and the questionnaire definition file has been loaded, the installation has most probably succeeded, and the software is able to load and process \*.ini configuration files as well as \*.qdw questionnaire definition files.

(Please note: Correct interpretation of several other options will be verified in the course of this script, but a complete verification of all configurable options (or processing and content of the supplied \*.msg message files) will not be documented in detail. Problems in these areas would have no rationale to occur separately or spontaneously, without preceding changes in the respective code, or easily become obvious during the development of individual configurations or during the productive use of the systems.)

(Please note: The “Directory of loaded questionnaires” can be replaced by or enhanced by a freely configurable custom text. Each of the main window background display elements can be disabled in the configuration file, and I considered doing this to give the evaluation user a more “serious” impression of the program. Since the option of disabling these elements is available, I usually do it for custom configurations, as long as they do not include a custom version of the executable with custom background graphics anyway. For future versions, I planned to give the standard executable the ability to load freely configurable graphics here, but this has not been implemented for the title/default background screen so far.)

(Please note: In a typical production system, and also in a system used to edit questionnaire definition files, the Windows Menu- and Task-Bar should not be visible for patients when AnyQuest is running - see the on-line help on secure configuration and the comprehensive eSIRO or eKombiDox guides, or other guides, on installation and configuration of the system.)

### 5.3.2.2 Questionnaire administration session, navigation, review and changing of given answers, display options, special answer fields, additional text input

**General information:** The configuration which comes up with an introductory “questionnaire” definition file allows the new user to try out a complete questionnaire administration session, including collection of patient identification data (as configured), generation of printouts, and production of a result file. At the same time, it provides some basic information on how questions are presented and on answers are selected, and on some other basic concepts in AnyQuest for Windows.

**Fast test:** For a very coarse conformance test using this configuration, it is sufficient to just complete one or a few questionnaire administration sessions - trying only whether going back one question and changing an answer is possible using the “<-” button, and the Ctrl-F5 and Ctrl-F11 related display options and the simple recording of one additional text information, from those features described below - and go on to review the produced \*.anq result files and printouts.

This can be done within a few minutes.

**More comprehensive test:** This should include all the display options and features described here, including the various display and navigation options, and entering, reviewing and changing additional text information.

1. In the “AnyQuest Navigation” dialog: Click on the “Go!” button.

-> The menu of the AnyQuest for Windows main window disappears, and if it has not been before, the main window is maximized and goes to the foreground.

-> The patient identification (PID) collection dialogs which are activated for this configuration appear one after another.

(Please note: In a production environment, the MS Windows Start-Menu/Task-Bar should not be visible any more now. If it were merely auto-minimized and a thin line were left visible in the foreground (not recommended anyway), that should at least better be positioned in the top/left/right border of the display screen, because patients may move the cursor towards the lower border of the screen while clicking at the “Continue...” button, and might thereby accidentally reveal any auto-minimized-always-kept-in-foreground MS-Windows Task-Bar, that might be confusing and provide a security and stability risk as well. Finally, if a complete, not-fixed, Task-Bar were shown at the

lower border of the screen, patients aiming at the “Continue...” button could accidentally resize the task bar to its minimum size (=unusable, until extended again) and cause confusion even for the operator or administrator who may not be familiar with this ability of the MS Windows Task-Bar.

Please note: For the Tablet-PC editions of MS Windows: more recent revisions of Tablet-PC support show a writing palette, which is however, usually separate from the text input field for which it is meant to provide hand-writing recognition. Older revisions of the pen-computing support provided hand-writing recognition which allowed writing directly into any text input field. The newer variant may be permanently enabled e.g. at the lower screen border; this may change the expected screen geometry so that the display of PID collection dialogs and the questionnaire content must be reviewed before going into productive use.)

-> Should the configured data directory (For the “AnyQuest Introduction” configuration, the default is `c:\anyquin\data`) not be accessible for writing (which is very improbable if you followed this configuration), an information dialog may appear, and you may try to use the same directory again or select a different data storage directory.

(Please note: Access to the configured data storage directory is indeed verified before each questionnaire administration session is begun - thereby, a problem with data storage can usually be detected before a questionnaire is administered. Nevertheless, the program is also relatively robust when the data storage directory is lost during questionnaire administration, and will offer to retry or to use another target when it finds that it cannot write the collected/computed information to the originally desired one.

Moreover, it is possible to specify in a configuration file an external program (plus parameters) to be automatically called in case the configured data directory cannot be accessed. This feature can be used e.g. to have a network-drive assignment automatically restored, when that should have become detached, which can quite easily be happen on an MS Windows network.)

2. Enter the following ID (using the on-Screen buttons or a keyboard or a Tablet-PC pen based input facility):

- (a) alphanumeric PID: 123
- (b) FIRST name: MAX
- (c) LAST name: MUSTERMANN
- (d) Date of birth: 010203

(Please note: This will later be re-formatted, using the configured date-format, which has been set to `yyyy-mm-dd` or `yymmdd` for the English evaluation package. The `DateFormatDialog` and `DateFormatPrint` parameters in the `*.ini` file control this.)

If this is the first session administered for this PID (i.e. if you have removed previously collected data before starting this QA session, and if you have carried out the testing exactly in the sequence suggested by this script), then all items mentioned above should be collected. Should however, results from a previous session administered for the same PID 123 exist, then the PID should be recognized immediately after you entered it, and the other details should be filled in as available in the old result file, and only a confirmation dialog should appear.

During PID collection, you may try out the “<<<” button displayed on the screen. This should delete the character left to the cursor (function like the backspace key), or, if some data was selected before pressing it, delete all that, or, if the cursor is in the first position of the input field, go back to the previous PID collection dialog, and show the previously entered data all selected.

During PID collection, you may try out the “ESC” key on a keyboard (or a special Tablet-PC key). This shall abort the PID collection and return directly to the “AnyQuest Navigation” dialog. [If an `*.anq` result file ± a session-log was configured to be written even for aborted sessions, a `*.anq` file with the respective information, and possibly with empty start- and end-of-test time/date might be generated - the recorded start time of a session is measured when the first question is displayed, which has never occurred when a session is aborted already during PID collection.]

3. After the PID collection is complete, the first “screen” of the questionnaire definition file of this configuration appears. Check for the following:

- (a) The system menu, and the minimize, restore, and close buttons at the top of the window are visible.

- (b) The “minimize” and “restore” options called via the system menu, or the buttons, however, are both non-functional. The “move” and “change size” options in the system menu are disabled (i.e. the window can neither be minimized nor its size changed, not via the system menu, nor via the title bar, nor via the specialized buttons).
  - (c) Clicking at the “close” button or choosing “close” from the system menu, or pressing Alt-F4, does not close the application, but bring up a session control dialog instead - this allows you to enter a comment, interrupt and save, abort, or continue the session (you could chose either option for extended testing, but for now, please chose “continue”).  
(Please note: The “Help” button may be non-functional in this dialog to avoid a user opening the on-line help system during a questionnaire administration session. The MS Windows on-line help can allow a user more access to system ressources than may be desired, at least in some environments. More information on preparation of a secure configuration is available in documentation from the QL-Recorder WWW site or in AnyQuest for Window’ on-line help.)
  - (d) The long and short questionnaire names should not be visible now.
  - (e) A graphical progress indicator should be visible at the lower right corner.
  - (f) For the first displayed screen, no “|<-” button (to go back one question) should be displayed in the lower right corner - because it is not possible to go back any further than to the first question.
  - (g) The first screen of the “AnyQuest for Windows Introduction” does not contain a true question, but a so called InfoScreen: Information given to the patient, where no answer can be selected. A “Continue...” button should be visible instead, at the bottom of the screen. This button should not overlap the text displayed above at any time.  
(Please note: The font, font-size, and button size are controlled from the used \*.ini configuration file; the text of the button is controlled from the used \*.msg file - which is specified from the used \*.ini configuration file as well. If you use non-standard settings for the size of your window borders, window title bar, screen geometry, font sizes, display resolution etc., you may notice deviations from the desired layout and have to change the environment to something more suitable, or adopt your AnyQuest for Windows configuration as required.)
4. Click on the “Continue...” button, or press the “Enter” (or “Return”) key, or press “PageDown”, to advance to the second screen. Then check for the following:
- (a) A single “<-” button (to go back one question) should now be displayed in the lower right corner. If you click on it, the previous screen is displayed. The “<-” button disappears (you can go back only one question with this most recommended configuration of this button, a variety of other options are configurable). As that previous question is an InfoScreen, you can click on “Continue...” or press “PageDown” again to advance to the second screen again.
  - (b) Also try to use the “PageUp” and “PageDown” keys to go backward and forward between the first two screens.  
This mode of questionnaire navigation should not be used by patients, but is available at all times.  
Cave: It is possible to deviate from the way through a questionnaire with or without conditional branches or conditionally shown questions that was intended by its developers, and to cause undesired effects e.g. with regard to questionnaire completeness checking, result computation etc.
  - (c) Click/tap onto the screen four times in a row in the lower middle area of the screen, but *not* onto the “Continue...” button or any other element:
    - i. The “<-” button in the lower right corner should disappear, and a complete navigation bar should appear, replacing the “Continue...” button.
    - ii. Try to use the “<” and “>” buttons of this navigation bar to go backward and forward between the first two screens. You may as well use the “|<<” and “>>|” buttons of the navigation bar to go to the first or last question/screen of the current questionnaire defintion file - please watch the graphical progress indicator.  
This mode of questionnaire navigation should not be used by patients, but is available at all times when either the navigation bar or the response to the four-times clicking are activated in the configuration file.

Cave: It is possible to deviate from the way through a questionnaire with or without conditional branches or conditionally shown questions that was intended by its developers, and to cause undesired effects e.g. with regard to questionnaire completeness checking, result computation etc.

- iii. Click/tap onto the screen four times in a row in the lower middle area of the screen, but *not* onto the navigation bar buttons or any other element.
  - iv. The navigation bar should disappear again. The “Continue..” button should re-appear, and the single “<-” button in the lower right corner as well, when at least the second screen is being displayed.
- (d) Click on the “Continue..” button for each succeeding InfoScreen, until the screen “Patient instructions:” appears, that shows a Linear-Analog-Scale (or Visual-Analog-Scale) with one checkmark already set.

On the way there, you may either read the displayed text carefully or at least scan for obvious layout problems. You may also watch the graphical progress indicator advance.

When the “Patient instructions screen is being displayed, please check the function of some configurable display options. Most of these items are used mainly during questionnaire definition file editing, and during preparation and testing of configurations. They can be controlled via Ctrl-Fn key combinations for ad-hoc testing purposes, and more permanently from the \*.ini configuration files:

- i. Press Ctrl-F1 to activate the display of the long questionnaire name. This can be freely positioned for each questionnaire definition file. Here, it appears in the top middle region of the screen, but usually I place it to the top left or to the top right corner.

The long questionnaire name is shown on the standard startup display of loaded questionnaires (if not disabled in the used configuration), and is also written into the \*.anq result files, and on the standard printout header (if not disabled in the used configuration).

I recommend to display this information during questionnaire definition file editing, but not in production systems during questionnaire administration: Patients should not usually need to know the name of the questionnaire they’re completing, and what is not shown on the screen cannot distract or confuse the patient. I recommend to hide any information from the patient that does not serve any well defined purpose, thereby avoiding any avoidable stress or load for the patient’s reading, understanding and information processing capacity.

- ii. Press Ctrl-F2 to activate the display of the short questionnaire name.  
The short questionnaire name is included in \*.anq output files in front of each line of output that is specifically generated from a given questionnaire definition file. It is also used in the column headers of results exported in tabular format.  
The same recommendations as for the long questionnaire name apply.
- iii. Press Ctrl-F1 and Ctrl-F2 to hide the long and short questionnaire names again.
- iv. Press Ctrl-F3 to hide the display of the explanation 1.

In the preceding questions, this field alone was used to show all introductory texts.

In a screen that displays a typical question, however, it is intended to show some short explanation before or after the main question text. It can have the same color and font size as the main question, or use different ones.

(Please note: I have noticed, that simply changing an explanation text from black into dark blue color (which has lower contrast, but still not very much!) may definitely cause an occasional patient to overlook it. Specifically, I have found this by closely observing and interviewing patients who were filling in electronic questionnaires based upon the EORTC QLQ-C30 where an introductory “During the last week...” was never overlooked when written in black, but was occasionally overlooked when written in dark blue, otherwise unchanged. Maybe patients are more conditioned to judge black-on-white type as important, or to judge everything that has a lower contrast or a more colourful color as less important. Maybe this applies only to the dark blue color, if used for short introductory explanations positioned over much more black main question text, whereas the layout presented in this InfoScreen shows another color and layout arrangement that has a rather low probability of anything being overlooked. In any case, I recommend you to test any color combination that is not purely black and white, and especially test it on the target display intended for production use, because some flat screen panels can let colours appear very differently e.g. when viewed from various angles, with different backlight settings, or with different ambient lighting and different clothing of the user.)



- v. Press Ctrl-F3 to show explanation 1 again.
  - vi. Press Ctrl-F4 to hide explanation 2 (and leave it turned off for now!)
  - vii. Ctrl-F5 is not demonstrated here - because the elements it controls are not included in this InfoScreen. It is covered extensively further down.
  - viii. Press Ctrl-F6 to show the number of the currently displayed questionnaire definition file. (Please note: AnyQuest (both, later versions of AnyQuest for DOS, and AnyQuest for Windows) can load multiple questionnaire definition files at the same time, which can be presented either linearly one after another, or which can be used as an item-pool, or question-repository, or repository of modules, that can be presented in a non-linear fashion, controllable by previous answers or by parameters obtained from patient identification variables, or from external sources.  
This can be achieved by using Conditional branching formulas (CBFs), many of which can be connected to each individual question, and additionally by inline formulas, which can be inserted into almost any text contained in any screen (question).)
  - ix. Press Ctrl-F7 to show the number of the currently displayed question (screen) within the questionnaire definition file.
  - x. Press Ctrl-F8 to show the current numeric result and string result of the current question (screen). (A little bit more information on this will be provided below.)
  - xi. Press Ctrl-F9 to hide the graphical progress indicator.
  - xii. Press Ctrl-F6, Ctrl-F7, and Ctrl-F8 again to set the respective options to the recommended default configuration for productive systems.
  - xiii. Now press Ctrl-F4 to re-activate the display of the explanation 2 again.  
(Please note:  
Ctrl-F10 is currently reserved for further options.  
Ctrl-F11 controls something very special: When a new question (screen) is displayed, AnyQuest can either keep the mouse pointer position unchanged, or move it away from the screen, thereby effectively making it invisible. The effect of pressing Ctrl-F11 becomes visible as soon as the next question (screen) is being displayed after an automatic advancement after a question has been answered (but not after a manual advancement after the "Continue..." button has been clicked).  
The hidden mouse pointer behaviour removes another potential distractor from the screen while it is not required, obtaining highest simplicity and clarity of the display. It also removes the mouse pointer's potential ability to give some ever-so-minute advantage in attracting the patient's attention to answer fields located in the same screen area as the one, that had been selected in the preceding question. This option is, however, only tailored to systems that have a touch-screen or a pen (pen-computers, Tablet-PCs): Would it be used with a mouse or a trackball, the moved away cursor would require additional mouse-movements before the user would find it again, and to bring it back towards one of the answer fields. This configuration option addresses a very specific detail, but AnyQuest provides the necessary functionality if you want to care for it. There is also a utility that allows you to comfortably switch a complete collection of configurations over from one setting to another.)
- (e) Click on the "Continue..." button for each succeeding InfoScreen, until the first true question appears which is *not* an InfoScreen. It does *not* have a "Continue..." button.  
On the way there, you may either read the displayed text carefully or at least scan for obvious layout problems. You may also watch the graphical progress indicator advance.
- (f) This question ("How did you feel today?") offers a Linear-Analog-Self-Assessment-Scale (LASA) or Visual-Analog-Scale (VAS): Click somewhere on the line between the two extremes.  
-> A mark should appear indicating where you clicked, and after a small pause,...  
-> a white screen should appear (this is configurable, it did not appear after the InfoScreens), and after a small pause...  
-> the next question should appear.
- (g) This question ("How did you feel yesterday?") offers four discrete answer fields, of which only one needs to be checked. Check one by simply clicking at it.  
-> A mark should appear indicating where you clicked, and after a small pause,...  
-> a white screen should appear (this is configurable, it did not appear after the InfoScreens), and after a small pause...

-> the next question should appear.

- (h) This question (“Please tell me what you would like...”) offers four discrete answer fields. Now, *any combination of all available answers* can be checked. Therefore, the “Continue...” button appears and needs to be pressed when all desired answers have been checked.
- Press Ctrl-F8 to activate the display of the numeric and string results of the current question (screen). This is partially hidden behind the single “<-” button.
  - Click four times in the lower middle area to hide that “<-” and the “Continue...” button and show the larger transport bar instead. Now you can see the numeric and string results of question completely.
  - Try to check (and uncheck, by clicking them again) various combinations of the four answer fields and watch the results display after each change: the numerical result shows the sum of the individual values of all checked answer fields, or “—” (for: “undefined”) if none is checked. The string result shows the strings of all checked answer fields concatenated.
  - Press Ctrl-F8 to hide the numeric and string results of the current question (screen).
  - Click four times in the lower middle area to hide the transport bar and show the “<-” and the “Continue...” button again.
  - With at least one answer field checked, click on the “Continue...” button.

-> the next question should appear.

- (i) This question (screen) demonstrates irregular layout possibilities. Otherwise, it is unspectacular. Please click into any answer field - and, within less than 0.1 seconds, click again into the same answer field:

-> A mark should appear indicating where you clicked,...

-> and when you click the second time into the same answer field, the mark disappears again. This is what would happen if a patient were uncertain, had severe tremor, or used a touch-screen or a pen for a Tablet-PC that would erroneously sense multiple clicks when the patient meant only one.

This situation may also result when a patient goes back one question using the “<-” button, and then clicks onto the same answer field that had been checked before.

In either situation, if no mark remains after the final click, AnyQuest will not move on to the next question.

- (j) Now, finally, please click onto the selected answer field only once, and then no more.

-> A mark should appear indicating where you clicked for the last time...

-> a white screen should appear (this is configurable, it did not appear after the InfoScreens), and after a small pause...

-> the next question should appear.

- (k) This question (screen) demonstrates special answer fields for “I cannot answer this question” and “I do not want to answer this question”, and the ability to collect additional text information via a popup dialog.

(Please note: These special answer fields should be included with all questions in a questionnaire except for very rare exceptions, where at least one other answer must (and can) definitely be provided by any person in any questionnaire administration session. Otherwise, a person who would not want to (or could not) answer a question, would have to check a (more-or-less) random answer instead, thereby adding *wrongness* to your data, instead of the less problematic *uncertainty*. One exceptional, relatively acceptable reason for not including these fields with a given question is: if that question has a conditional branching formula connected to its results, and the author does not have sufficient time or understanding to implement a complete (three state logic or so) evaluation for all combinations that would become possible with the special answer fields.)

(Please note: AnyQuest for Windows also supports direct text entry fields, which need not be checked and which can directly collect and display free text, free numeric, date or time information.)

- Press Ctrl-F5 to hide the special answer fields.
- Click (or tap) four times in a sequence into the lower left area of the screen. This should reveal the special answer fields again.

(Please note: Special answer fields are usually located in the lower left corner of the screen for most questionnaire definition files; that’s why their four-magic-clicks-sensitive-area is located in the lower left corner of the screen.)

- iii. Click (or tap) four times in a sequence into the lower left area of the screen, but not into the special answer fields. This should hide the special answer fields again.  
(Please note: Although I recommend to add special answer fields to almost all questions, I recommend to prepare default configurations for production systems to start up with *hidden* special answer fields. Patients shall not see (nor be distracted or stressed by) what they do not definitely require; they shall be instructed at the beginning to call for staff assistance whenever they can't answer a question, or don't want to answer a question. Staff will then reveal the special answer fields, assist the patient with marking one of the special options, type in additional text info if required, and hide the special answer fields again afterwards. This configuration setting (hidden special answer fields) is among the primary reasons for the recommendation to protect configuration files against accidental overwriting.)
- iv. Press Ctrl-F5 to reveal the special answer fields.
- v. Click into either of the special answer fields.
  - > A mark appears in the selected special answer field and...
  - > a new dialog window appears and asks for further information (if configured). The question written in the dialog window matches the special answer field you selected.
- vi. Enter some text, and click on the "OK" button.
  - > If you are fast, you can see that a mark appears in the selected special answer field, and also the image of a pencil is drawn across it, to indicate that additional text information has been recorded for this answer field.  
(Please note: Pressing "Enter" (or "Return") will have the same effect as clicking on the "OK" button. If you want to input a line break instead, you should type "Ctrl-Enter". Whereas AnyQuest for Windows uses this convention wherever it provides the same text input dialog window, line breaks (and other special characters) will be replaced in the recorded input when the additional text input is written to the \*.anq result file, because there, only one output line is available for all additional text information that has been recorded for a single answer field. Similar simplification will be applied when additional text is processed in formulas or transferred into printouts.)  
*(Please note: How many characters can be recorded in this window? I have just tested it with some 18.000 characters - that works, and really produces an \*.anq result file with a single line that has a reported length of 18.742 bytes.*  
*AnyQuest itself will not process all of that information when re-reading the same file for later processing towards, e.g., data export, because some file processing code is limited to 255 characters per string. Consequently, the Analysis Tools interactive result file selection, with "additional text input" manually selected for processing, transfers only 215 characters into its "value" drop down box when "AnyQuin Intro text input to qn nr. 5.3:" is the preceding label, occupying 40 characters. For any practical use and especially for the originally conceived purpose of these additional text input fields, these limits are probably acceptable.*  
*Other postprocessing software may impose even lower limitations: Even 80 characters net input might cause problems when \*.anq result files are to be dumped to a plain text processing device (like a line printer) that cannot handle line lengths beyond 80 characters, because the "ShortQnName additional text info qn. x.y:" string will precede the net saved information.*  
*So quite probably, AnyQuest will be able to reliably transfer anything that a patient or nurse may be expected to type into these dialog windows, into the \*.anq files. And with these files being plain text files, anything that went in there can probably be retrieved, if not by any other means, then using a text editor, even for exceptionally large input.*  
*Should you plan to apply any automated postprocessing steps, however, you should definitely make sure that all involved programs can (a) process and preserve strings as long as you want to have them, and (b) do not crash upon encountering a long string, or fail to correctly process the remainder of the file due to something like a framing error or another problem.)*
  - > Similarly to when you checked a "normal" answer field, AnyQuest will advance to the next question.
- vii. Click on the "<" button in the lower right corner to go back to the question with the special answer fields.
  - > You can see the selected special answer field, with the mark, and with the additional

image of a pencil in it again.

- viii. Click onto the same answer field once more.  
-> The additional text input dialog window appears again, and shows the text you had entered before. All of it is now selected, i.e., if you should not change that selection status, e.g. by clicking somewhere into the text input field first, all the selected text will be replaced by the next character you type.
- ix. Do not change the selection status, but delete all the selected text by pressing the “delete” or “backspace” keys. Then click onto the “OK” button.  
-> The dialog window disappears. As you deleted the additional text connected to this answer field, the image of the pencil and the check mark both disappear as well. The question returns to the unanswered status.  
-> You could of course edit the recorded text in the same way, instead of deleting it.
- x. Now click at the other special answer field, and enter some additional text.  
-> Check mark and the image of a pencil appear in this other special answer field.
- xi. Now click at a normal answer field (“Yes” or “No”).  
-> The special answer field loses its check mark, and the pencil - the additional text information for “I can’t/I don’t want to answer this question” is automatically deleted, when the patient selects one of the normal answer.

And vice versa: when either of these special answer field is selected, any selected normal answer fields lose their selection status.

(Please note: This also works for more complicated questions that might allow multiple discrete answers to be checked, or have additional free text input fields among the “normal” answers, or provide a VAS/LASA-Scale plus special answer fields etc. For added flexibility (and very special question constructs), even “normal” AnyQuest answer fields can have an option set that clears all other possibly checked answer fields of the same question, when a certain field is selected, that has this option set - making it behave quite like a special answer field would upon being checked. Some application examples are provided among the questionnaire definition files included in the `anypak.exe` package.

These features provide specialized, configurable “local intelligence” to AnyQuest’s individual questions, which can be fine-tuned to a certain application’s needs, and can probably be reproduced very easily (at all, or at least, without programming) in other environments like HTML forms or GUI toolkits. [And we haven’t touched CBFs or inline formulas in text elements yet...]

- (l) If you the last question is still there, please finally click an previously unmarked answer field in order to proceed.
- (m) Then, use the “Continue...” button to advance through the remaining InfoScreens, further observing the graphical progress indicator.  
-> After the last InfoScreen, a “Thank-You!” box dialog will appear.
- (n) In the “Thank-You!” box dialog, click on “OK”  
-> If you left any question that was displayed unanswered, the program will show a notice, and display that question again, expecting you to answer it.

-> When all questions that were displayed have an answer, the program will compute some results. It will also generate an `*.anq` result file, with information on the collected PID, session and questionnaire definition file related meta information, collected raw data, and computed test results.

Should the configured data directory (For the “AnyQuest Introduction” configuration, the default is `c:\anyquin\data`) not be accessible for writing (which is very improbable if you followed this configuration), an information dialog may appear, and you may try to use the same directory again or select a different data storage directory.

-> Afterwards, the program will create the configured printouts: Questionnaire-Filled-In-alike (QFI), single result, and cumulative result printout. These will appear on your configured standard printer, which can also be a virtual printer generating PDF documents (Adobe Acrobat Distiller, FreePDF etc.), or a printer driver with output redirected into a file (preferably a PostScript printer, that generates `*.ps` files, to be viewed e.g. with GhostScript or to be further archived, printed, and/or converted into PDF documents.)

### 5.3.2.3 Session interruption, abortion, comments, saving, resumption

**General information:** At least once after each software update, session interruption, saving and resumption should be tested.

**Fast test:** This interrupts and saves one session, then resumes and completes it.

**More comprehensive test:** A more comprehensive test does the same for multiple sessions started using various configurations, with different, and at least in one configuration, multiple concurrently loaded questionnaire definition files.

**Strict test:** Very comprehensive testing may use questionnaire definitions that have been created in AnyQuest's memory only and not saved into \*.qdw files yet, so the questionnaire definition files, are created only as temporary files in the saved snapshot of the configuration active when the session as interrupted. The same can be tested for configuration options (i.e. visibility of special answer fields, switchable with "Ctrl-F5", or anything else switchable with "Ctrl-1" through "Ctrl-9"), checked answers, entered additional text input etc.

The resume function should also be tested from the Navigation dialog of another configuration: If it works on the same temporary directory, it should still show a resumable session from any other configuration. When such a session is resumed, the configuration state saved together with the resumed session should be loaded for the resumed session, and after the resumed session has either been completed or aborted, and the "Navigation" dialog for the originally started configuration re-appears, the originally started environment should also be restored again.

The latter is true, even when the configuration state of that environment was temporarily changed (i.e. the environment of the "outer" session was changed after loading it, with regard to the configuration file, from which the "outer" environment was loaded: that "outer" environment should be preserved in a temporary configuration file of its own, while the resumption of another ("inner") saved session (with another, independent configuration environment) is processed; and when the resumption is finished, aborted, or interrupted and saved again, the temporarily saved "outer" environment should be restored just as it had been directly before the resumption was initiated. This should be true for both configuration settings as well as for loaded questionnaire definition content, for situations with only one loaded questionnaire definitions, or multiple questionnaire definitions loaded.

A complete evaluation of this functionality also uses at least one configuration that has session log information writing enabled, and production of result files even for aborted (and thus incomplete) sessions. The result files produced by these sessions should contain an additional [session log] section, that grows with every interruption, comment, continuation, saving, resumption, abortion of a session; and it is possible using these options to generate a result file that has no start time or end time information recorded, when a session is aborted as early as during the PID collection (i.e. the first question of the loaded [set of] questionnaire definition file[s] has never been shown).

### **Operation:**

1. Session abortion during PID collection is immediately issued by pressing the "ESC" key on a keyboard or from the few keys usually available on a Tablet-PC.
2. During questionnaire administration (i.e. when at least the first question has been displayed after PID collection), Session interruption (saving, recording of a comment, continuation, or abortion) is initiated by clicking on the "Close" button of the mai window, or selecting the "Close" option from its system menu, or by pressing Alt-F4. This brings up the session control dialog, which offers all the available options.
3. When any saved session is available, an additional button appears in the "AnyQuest Navigation..." dialog of any configuration started using the same (temporary working) directory. This button is labeled "Resume..." for the standard "AnyQuest Navigation..." dialog, and merely "..." for the simplified start-button-only dialog.

Clicking this button, brings up a list of sessions that are available for resumption. Selecting any of these and clicking on "Resume this session" loads the respective configuration, as it was when it was interrupted. It can be completed (or interrupted etc. again) from there on.

## Checks:

1. All partially filled in data must be correctly saved and restored.
2. All sessions must be resumed at the exact points where they were stopped.
3. All configuration settings as well as the questionnaire definition files must be correctly saved and restored together with the session information, including temporarily changed configuration settings that may differ from those which belong to the initial configuration file of the respective session.
4. Session log information, if configured to be collected, must be available in the \*.anq result file and report the correct events.

### 5.3.2.4 Result files

1. After each session (or once at the end): Please look for the generated \*.anq files in c:\anyquin\data - these are small human readable plain text files that can be viewed with any simple text editor, e.g. the notepad included with MS Windows (Alternatively: with TextPad, PSPad, kedit, nedit, joe, pico, vim, vi, xemacs, emacs, edit, ed, ... and even with e.g. Excel - useful for very special applications).
2. The used filenames should follow the scheme: 00000000.anq, 00000001.anq, 00000002.anq ... 0000000a.anq, 0000000b.anq ... 0000000z.anq, 00000010.anq etc. Please note that in addition to numbers and alphabetic characters, a few additional characters may be used.
3. For a strict review, please also open the (usually available) `usedname.ini` file (or a similar file of another name, if that has been changed for your own configuration). The file should contain the non-fixed positions of the last used \*.anq filename.

(Please note: Multiple `usedname.ini` files with varying names (typically sharing a fixed prefix of the \*.anq they are related to) may be located in the same data storage directory for your own configurations. Theoretically, the generation of a `usedname.ini` file might also be disabled, but that would only be found for an outdated configuration, because the generation of this file does usually not have any disadvantages.)

(Please note: The data storage directory may also hold temporary files used to exchange PID data or other data with external applications, as well as virtual printouts (redirected into files) if no other directory has been "current" when AnyQuest was started, and no other directory has been specified to store the virtual printouts.)

4. Double click on an \*.anq file and instruct MS Windows to open it using the simple text editor, or open the text editor and drag an \*.anq file into it (or use another method of opening the file).
5. Detailed information about the \*.anq file format is available in the on-line help. You may need this for a strict review. Each section is preceded by one header in square brackets. In the questionnaire specific sections, each line is preceded by the short questionnaire name. For a coarse review, please check:

- (a) In the first line:

SC-JMS AnyQuest for Windows V 3.30 © 1996-2009 Dr. med. Joerg M. Sigle, <http://www.q1-r>  
(The numbers provide the version and publishing year of the software that produced this result file.)

- (b) A section [`AnyQuest license`] that may show the registered user of the software, and/or the origin of this data file especially for multi-center studies.
- (c) A section [`patient identification`] with the patient identification. Minimum written fields are: group/PID, name, date of birth, first name, last name. A large variety of optional fields can be configured.
- (d) A section [`time stamp`] with date, start time, end time, and duration of test, and/or additional information on these items.
- (e) An optional section [`session log`] with information on interruptions, resumptions, abortions, and comments recorded in the session control dialog.

- (f) For each used questionnaire definition file: A section with a header:  
`[ShrtQnrName = Long Questionnaire Name]`  
 and subsequent subsections for:
- i. `[ShrtQnrName meta information]`
  - ii. `[ShrtQnrName raw data]`  
 (in maximum precision scientific notation, or — for missing value, plus optional information)
  - iii. `[ShrtQnrName additional text information]`  
 (content written only if recorded at all for an individual question.answer\_field)  
 -> In the “AnyQuest Introduction”, when the last true question regarding has been answered by checking a special answer field (“Can’t answer”/“Don’t want to answer”), and additional text has been recorded for either checked answer field, there should be one line similar to: “AnyQuin Intro text input to qn nr. 5.3: abc...” or “AnyQuin Intro text input to qn nr. 5.4: abc...”, depending on the answer field that received the additional text input.
  - iv. `[ShrtQnrName computed test results]`  
 (with configured digits/precision, plus optional configured unit, or — for missing value)  
 -> In the “AnyQuest Introduction”, when the last true question regarding has been answered by checking a special answer field (“Can’t answer”/“Don’t want to answer”), the respective numeric result “AnyQuin Intro Existence:” should read: “— Units”.
  - v. `[ShrtQnrName computed test string results]`  
 (or details if any computation errors occurred)  
 -> In the “AnyQuest Introduction”, when the last true question regarding has been answered by checking a special answer field (“Can’t answer”/“Don’t want to answer”), the respective string result “AnyQuin Intro s Existence:” should read: “Undefined”.
  - vi. An `[end of file]` marker.

### 5.3.2.5 Printouts

1. If you created \*.ps files using a redirected PostScript printer, they are probably placed in the same directory. If you create PDFs using the Adobe Acrobat Distiller or FreePDF, they may probably be placed either in this directory, or on your desktop, or in a previously configured other directory (e.g.: c:\anyquin\printout), depending upon your local configuration. Please review whatever kind of physical or printout you generated as well:
2. Depending upon the virtual printout generator, and the used configuration and version of AnyQuest for Windows, the name of the virtual printout file may include a date-/timestamp, the PID and optionally the initials and/or date of birth of the patient who filled in the questionnaire, the configuration used for the assessment, and the type of the printout.
3. Double click on each generated \*.ps or \*.pdf or any other virtual printout file (if your virtual printout generator has not opened it automatically yet), in order to open it in a suitable viewer.

(Please note: Detailed printout content may be changed to a large degree by several configurable options in AnyQuest for Windows, by various additional printout definition files, and/or reference range and reference value files, and or image files for header and footer logos, by the output of built in statistics functions for reference value/reference range computation, and possibly by result formulas calling external software.

Several printout types can be created only manually (printer tests, calibration, output of built in interactive statistical analysis tools).

The following notes do only cover very simple standard printouts, which have been automatically generated after questionnaire administrations. For each of the 3 printouts, check that:

- (a) (On a production system: printers/print targets/virtual printout generator settings, including target directory and postprocessing options) are configured for each printout type as desired. It is possible to specify up to two independent printout targets, including printer driver and output path, for each printout type.)
- (b) The produced printout filename or print-job contains the information as specified above.

- (c) Up to three header and/or footer bitmap files (left, middle, right) appear as desired. (Default packages use two header bitmap files only: “JMS: ideas & more”, and “Dres. Asklepios and Hippokrates”).
- Specifically, bitmap files with white background should not show a slightly grey background (which may only be seen on a well adjusted display with good color shade resolution, or probing colours from the display using a suitable image processing or utility program). Bitmap files with small y extension (e.g. single or two lines of text) should not be scaled to unwanted, extremely broad sizes, possibly overlapping each other, and renderings should not show jagged contours.
- (Optional: your own image files should have a resolution of some 1.200 x 400 pixels, 256 colours, and not exceed several a few 10 KB or a very few 100 KB.)
- (d) In the unlicensed evaluation version: the software revision, copyright notice, WWW site, and the selected license info appear in the top of the printout. In the licensed version, a shortened notice may appear instead at the right lower border of the printout in fine gray print only.
- (e) A standard header box should have a filled border, and show the long questionnaire name, revision and language information.
- (f) (Optional: A custom header appears as desired.)
- (g) The patient identification is correctly printed, has the desired date format, and the desired fields visible. (Printed fields, format, level of detail and position can be modified; a patient sticker frame can also be printed with a configurable notice in it.)
- (h) Time and duration of assessment appear as desired. (This can be configured as well.)
- (i) The “Results:” heading appears in the correct language for the checked configuration. (This can be configured as well.)
- (j) Specific checks for different printout types:

**QFI printout:** Each true question (not InfoScreens) should be listed; with its numeric result, as well as a graphic reproduction of answer fields resembling the screen display, with readable labels and check marks.

-> For the “AnyQuest Introduction” configuration, this output includes 5 questions: one with a LASA/VAS, one with 4 discrete answer fields/single answer, one with 4 discrete answer fields/multiple answers possible, one with intentionally uneven layout, and one with two discrete answers (“Yes” and “No”) and invisible special answer fields.

(Please note: In QFI printouts, it is a known limitation that screen content is reproduced in a simplified manner. The main question text is always printed separately to the left, and only the answer fields are printed to the right in an way that is suitable for general applications. Off-screen objects may appear, special answer fields and content of direct text input fields may not be displayed, background images and overlays may not be displayed, the standard small printout font is used for labels, etc.)

**Single result printout:** Each result formula with a numeric result and a defined single printout label and numerically differently defined bar-min and bar-max parameters should deliver a graph. By default, both extremes of the graph range are labeled. Result formulas which have both bar-min and bar-max set to zero, should deliver a string result based output.

-> For the “AnyQuest Introduction” configuration, this output includes 5 results which would usually appear in one group with common left and lower border lines. If the lowest result is undefined, which would usually when graphed contribute a lower horizontal line below the x-axis for the whole group of graphs, this common x-axis will not be printed.

(Please note: The detailed arrangement, space allocation, section headings, type and layout of the graph, indicators, grouping, colours, labels, etc. can be extensively configured. References and other information from live statistics as well as from static sources can be included. When a value exceeds the specified range bar-min .. bar-max, special indicators will be printed.)

**Cumulative result printout:** The date and time of reported tests should appear below the PID section.

Each result dimension with a numeric result and a defined cumulative printout label and numerically differently defined bar-min and bar-max parameters should deliver a graph. By



default, they should be equally distributed over the available central printout area; with the numbers of rows and columns so chosen that each graph occupies the largest possible area. Cumulative result labels should be centered below each graph; the horizontal graph center is computed including the area reserved for y-axis labels.

Using a correctly constructed questionnaire definition file, each bar should extend from the  $y=0$  or from  $y=\text{bar-min}$  of the graph to the individual result value. Graphs should be automatically designed to arrange  $y=0$ ,  $y=\text{bar-min}$  and  $y=\text{bar-max}$  in a suitable manner and observing the specified polarity.

-> For the “AnyQuest Introduction”, by default, each graph should have minimum and maximum labels. There should be strong left and lower axis lines, and dotted right and top borders for each graph. Each printed bar should occupy only a fraction of the available total horizontal space in each graph, even when merely one or a few old results are available. No other orientation marks are activated in this very simple configuration.

-> Although configurable, additional circles or printed numbers at the top of the bars are not active in this configuration. A result of “0” will consequently deliver an effectively invisible bar above the respective session number in the graph, nothing else. (Different settings are therefore recommended for production environments.)

-> If the final question, “Existence” should have had one of the special answer fields checked (“Can’t answer”/“Don’t want to answer”), then its result should be undefined. No respective bar should appear, and the respective session number below that graph should appear in brackets, e.g. “(1)” instead of “1”.

(Please note: Up to 7 dates and times can be displayed in a single line. If results from a higher number of old tests are cumulated, another line will be used. If more than 14 results are cumulated, the two lines will show up to 7 oldest and up to 7 most recent timestamps. The number of old results to be reported can be configured.)

(Please note: When an \*.anq result file is available from a questionnaire completion by the same patient that does not provide a valid result for a given result formula of a given questionnaire, the session number and timestamp will still be listed here, but below the x-axis of the graph itself, the session number will be printed in brackets, e.g. “(3)” instead of “3”, at the position where the result for that session would be graphed if a valid result were available.

If the same patient completed a questionnaire administration with a configuration that did not include the questionnaire definition file for which the current printout is generated at all, and that session is included in the number of old sessions configured to be included in the cumulative printout, all printed graphs will show such an “empty slot”.)

(Please note: The detailed arrangement, space allocation, section headings, type and layout of the graph, indicators, grouping, colours, labels, etc. can be extensively configured. References and other information from live statistics as well as from static sources can be included.)

- (k) (Optional, for advanced/custom configurations: layout, section headings, colours etc. are as desired.)
- (l) (Optional, for advanced/custom configurations: reference values and reference areas are computed or produced as desired, and keys (Legende) are correctly displayed / as desired. Content, color, position, conditional appearance and variation etc. etc. can extensively be configured.)
- (m) (Optional: A custom footer appears as desired.)
- (n) A standard footer box should have a filled border, and two lines showing a standard reference to the configurability of this text and the software author’s address.
- (o) (Optional: Up to three footer bitmap files (left, middle, right) appear as desired.)

### 5.3.3 Tests with start menu entry: “Demo - Calling of internal and external modules”

**General information:** This configuration loads two questionnaire definition files (QDWs) at the same time.

The first QDW, “Module Collection”, contains multiple modules, i.e. groups of questions that can be presented in the course of the questionnaire administration starting with a jump to the first question of that group, and a return from the last question of that group to the position in the questionnaire, where the previous jump had originated from.

The second QDW, “External Module”, is merely one additional module, implemented as a QDW of its own which could also be used separately in another configuration.

Both QDWs together provide an item pool as well as item selection logic / flow control, and resources for result computation.

Please note that the graphical progress indicator has two parts of different length, one of them representing either loaded questionnaire definition file.

### **Start of the configuration:**

1. Single- or Double-Click on the start menu entry: “(All) Programs” - “AnyQuest for Windows” - “Demo - Calling of internal and external modules”.  
-> The program should come up after a few seconds, and automatically appear maximized.
2. When the shareware dialog disappears, click on “Continue”, and when the “About...” dialog appears, click on “OK”.  
-> The “AnyQuest Navigation” dialog should appear.

### **Check user protection from accidental handling errors:**

1. Click on the “Setup” button.  
-> The “AnyQuest Navigation” dialog should disappear. The title screen should be replaced by the first question (screen).  

In contrast to the configuration “AnyQuest for Windows Introduction” which was tested before, this configuration should have a reduced menu in its main window: “File”, “Sound”, “Display”, “Navigation”, “Printing”, “Analysis tools”, “Help”. The two options for editing questionnaire definition files (“Edit” and “Jörg’s Magic Questionnaire-O-Matic”) should be missing.
2. Click anywhere inside that screen within AnyQuest for Windows (even into one of the answer fields, if you like), but not on the title-bar nor on the menu bar.  
-> The question (screen) should disappear. The title screen and the “AnyQuest Navigation” dialog should appear again, have the focus, and be application modal (i.e. nothing else in the AnyQuest for Windows application window behind it should respond to any clicking).  

(Please note: The reappearance of the “Navigation” dialog, after you clicked anywhere in the question in setup mode, protects users from accidentally filling in a questionnaire in setup mode. This is usually not desired, because when setup mode is entered from the “Navigation” dialog, no patient-identification-dialogs appear, and AnyQuest’s menus remain visible and usable.

Instead, a user shall normally only be able to fill in a questionnaire after pressing “Go!” in the “Navigation” dialog.

Questions can be viewed in setup mode as well, but only after disabling this protection using another menu option, and this possibility is strictly recommended to be used for fast testing during questionnaire definition file creation work.)
3. Click on the “Setup” button.  
-> The “AnyQuest Navigation” dialog should disappear. The title screen should be replaced by the first question (screen).
4. Click onto the “File” menu to open it.  
-> The restricted version of the “File” menu should appear: In version 3.32, it contains only 4 options, and especially, no option to clear AnyQuest’s memory from loaded questionnaire definition files, nor any option to load or save questionnaire definition files in binary nor text formats.
5. Click anywhere inside that screen within AnyQuest for Windows (even into one of the answer fields, if you like), but not on the title-bar nor on the menu-bar.  
-> The menu should close. The question should disappear. The title screen and the “AnyQuest Navigation” dialog should reappear.

**Questionnaire administration:**

1. Click on “Go!” in the navigation dialog to start a session.
2. Re-use the PID “123” to simplify PID collection. The PID should be recognized and the previously used name and date-of-birth re-used again. A confirmation dialog should appear.
3. The user can first select the desired modules in a question that offers multiple discrete answer fields, any combination of which can be checked together.  
-> The program proceeds through the loaded questions in a partially linear, partially non-linear manner: it calls all selected modules one after another, presents a final question after having returning from the last module, and ends the session after that final question.
4. For a comprehensive test of this functionality, multiple sessions should be completed with various combinations of modules to be used. Please watch the graphical progress indicator during these tests.

**Results files and printouts:** Modules that have not been presented should return undefined raw data, and undefined computed results in generated \*.anq result files and in produced printouts.

As two questionnaire definition files are loaded, generated \*.anq result files will contain two corresponding sections, and produced printouts will have two pages for either printout type.

-> The first 6 result formulas of the “Module Collection” (derived from visual analog scales with a range of 0..100) produce results with a precision of two decimals. The last 4 formulas of the “Module Collection” produces results with integer resolution, i.e. without decimals.

The configuration has the “Printouts” - “Printout even for QDWs without printable ResultFormulas” option checked; so printouts will be presented for both QDWs even if the external module has not been called in a given session.

-> The printed result may exceed the bargraph range to the right when it indicates either of the modules “Leisure”, “Mood” or “Feelings (ext.)” has been selected:

- The last four result formulas of the “Module Collection” QDW have been defined with bar-min=0 and bar-max=1 - which is ok.
- The four answer fields have the values 1, 2, 4 and 8. The numeric value of question 1 (i.e. v1) is the sum of all checked answer fields. So each answer field sets an individual bit in the numeric result when it is selected.
- The corresponding formulas have been defined as: “v1 1 and”, “v1 2 and”, “v1 4 and”, “v1 8 and”. This is not perfect:

The first formula delivers 0 or 1, depending upon the checking status of the answer field whose value is 1. The second formula, however, delivers 0 or 2. The third formula delivers 0 or 4, and the fourth formula delivers 0 or 8.

All results which are not 0 suffice to trigger the conditional branch formula which calls the different modules, but if all formulas were intended to return 0 or 1, which would match the defined range of bar-min .. bar-max, they should rather be defined as: “v1 8 and 0 >” etc.

Although the formulas could (and might) be updated at a later time; for now, they are left unchanged.

(Please note, that current versions of AnyQuest for Windows support advanced UPN statements which can directly check the status of an individual answer field of a given question.)

**5.3.4 Tests with start menu entry: “Demo - Computing and commenting duration of sleep”**

**General information:** This configuration provides two questions. Each of them offers one direct text input fields to enter a time in HH:MM:SS format, and two additional discrete/single-check answer fields to select AM or PM.

Input to both questions is transferred into a numerical value (seconds), and used for further computation in a result formula.

**Questionnaire administration:**

1. Click on “Go!” in the navigation dialog to start a session. Re-use the PID “123” to simplify PID collection. The PID should be recognized and the previously used name and date-of-birth re-used again. A confirmation dialog should appear.

2. First click into the direct text input field with the label HH:MM:SS.

3. Enter “a” and click on “Continue...”

The text input field has an option set that makes it expect a time of day in HH:MM:SS format, and interpret shorter input (i.e. “12”) respectively (i.e. as “12:00:00”). If input does not conform to the HH:MM:SS format, AnyQuest for Windows first tries to make it consistent with that format by adding missing separators and digits, or, if that is not possible at all (for any non-numeric input, or for input with numbers exceeding the numerical limitations acceptable for a valid time of day), it displays a dialog window with a respective error message.

-> An error message regarding the required format should appear.

TBD: If the error message has the wrong language, it may be defined not at all (if it appears in German), or only in English (if it appears in English), in the \*.msg file referenced by the \*.ini file that this configuration uses.

4. Afterwards, enter “12” and click on “Continue...” to test the code that provides the attempt to make input, that can be interpreted at all, consistent with the desired format. Checking either AM or PM field is optional.

-> As the program moves on to the second question immediately after you click “Continue...”, you may not be quick enough the re-formatted code. If you need to go back to check that, click on the “<-” button, and on “Continue...” again after having checked.

5. In the second question, enter a correctly formatted time in the HH:MM:SS format. Checking either AM or PM field is optional.

(Please note: The AM and PM fields are merely features of the \*.qdw questionnaire definition file used in this configuration, which shall illustrate the combined processing of direct text input field content and information drawn from standard answer fields. The provided implementation is merely exemplary, but not meant to be complete.

The two fields are not technically related to the direct text input field, so their status is not automatically checked in combination with the direct text input field content by AnyQuest itself. And as the questionnaire definition file does not include (however technically, it could) any functionality to complain about unexpected combinations of 24-hr-format input in the HH:MM:SS field with unsuitably checked AM or PM fields, you may readily enter 23:01 in the direct text input field, and at the same time check the AM answer field, without receiving any immediate corrective action from this question.

If you should ever require similar functionality for a production system, you should provide the respective checking functionality in your questionnaire definition file: Several configurations from the `anypak.exe` package show how this could be done with some CBFs which can check input and control the display or skipping of additional screens that inform the user about any unexpected findings, ask for corrections, and jump back to the question that has not been answered as expected again.)

6. In the “Thank-You!” box, click on “OK”.

7. If required, use any dialogs that your (real or virtual) printout system might cause to appear.

**Results files:** -> In the generated \*.anq result files, input to either question appears partially in the [CSFTD raw data] and partially in the [CSFTD additional text information] sections.

All that information is also mapped through to the result sections:

-> Input in text format (HH:MM:SS) appears in the [CSFTD computed test string results] section, whereas the respective computed seconds appear in the numeric [CSFTD computed test results] section.

-> Computed duration is provided in hours, in the [CSFTD computed test results] section; and a text comment that depends upon whether duration of sleep exceeds 8 hrs appears in the [CSFTD computed test string results] section.

**Printouts:** -> TBD: Direct text input fields do not currently appear on the generated QFI printout, so a QFI printout is not very helpful for this QDW. The numeric result that appears takes into account the numerical values of each individual answer field; the direct text input fields each have been assigned a 1.

-> Single result printouts provide the time information in text format HH:MM:SS and in seconds format in as number and as bargraph right below.

-> Computed duration is provided in hours, and the respective text comment verbatim below.

### 5.3.5 TBD: Tests with start menu entry: “Demo - Dynamically changing result formula printout”

**General information:** This example configuration was made to study dynamically changing printout labels.

As explained in the first screen of the example, the respective functionality (inline #UPN formula support in result labels) has however not been completely implemented so far.

This restriction applies at least up to the current version 3.32 of AnyQuest for Windows.

The example configuration can technically be used, but it should be considered a prototype for research&development only.

### 5.3.6 TBD: Tests with start menu entry: “Demo - Multi-segmented-non-linear-visual-analog-scale”

**General information:** This example demonstrates support of AnyQuest for Windows for a derivative of Linear-Analog-Self-Assessment-Scales/Visual-Analog-Scales (LASA/VAS):

It has multiple segments, and multiple anchors between them, but the positions and values of these anchors can be freely chosen, so that the resulting overall construct may have a relation between the horizontal position of the placed mark and the reported value which is not simply linear at all.

-> TBD: As of version 3.32, the title screen of that configuration is known to include two non-printable characters in front of the copyright notice.

-> TBD: As of version 3.32, this configuration does apparently NOT heed the disabled “Automatic proceeding to next question”. The settings of “Use filler blind...” and “Show individual back or forward buttons” do not matter.

- Apparently, the additional disabling of AutoCCOE makes the questionnaire administration session return directly into the testing-mode, without Check-Calculate-Output-Erase, thus not displaying a Thank-You-Box either, so the trying out of the MSNLVAS can proceed - but the menu bar has appeared, and although no-one may ever want to disable automatic proceeding to the next question in a real life application, just treating it as enabled no matter what is just not the expected behaviour.
- Nope! It does NOT return to testing mode, at least not completely resetting all the respective variables - even though the menu bar reappears - because when I end AnyQuest in that situation, the save-current-session-for-later-resume... dialog appears.

### Questionnaire administration:

1. Click on “Go!” in the navigation dialog to start a session. Re-use the PID “123” to simplify PID collection. The PID should be recognized and the previously used name and date-of-birth re-used again. A confirmation dialog should appear.

-> The explanation visible with the first question suggests to activate the display of the question results in the lower right corner of the screen, as well as to disable automatic proceeding after a question has been answered. These suggested settings allow you to try out several positions where you can place the mark on the scale, and immediately review the returned result value, without the necessity to start a new questionnaire session for each attempt. These settings have been added to the \*.ini file of that configuration, so you should not require to activate them on your own.

2. Click onto some position of the LASA/VAS scale, and watch the mark appear at the new position, and the computed result value of that question change accordingly. Repeat this as long as you want.
3. Click on “Continue...”
4. In the “Thank-You!” box, click on “OK”.
5. If required, use any dialogs that your (real or virtual) printout system might cause to appear.

**Result files and printouts:** These should contain the value corresponding to the last position on the scale which you marked.

### 5.3.7 Tests with start menu entry: “Editing - Question layout prototype collection”

**General information:** This example provides a collection of questions with various layouts.

If a user wants to adopt a new questionnaire into an electronic form using AnyQuest for Windows, she can first check this collection of question layouts for suitable ones, and re-use them for the creation of new questions (screens).

This configuration has unrestricted menus, so functions for editing and loading or saving questionnaire definition files in binary or text format are available.

#### Prototype collection and editing functionality:

1. Start the configuration adopting to the instructions given for other configurations, until you see its title screen and the “AnyQuest Navigation” dialog.
2. Click on the “Setup” button.
  - > The first question (screen) should appear.
  - > In contrast to other configurations described in this SOP, this configuration, by default, has options set to display the long and short questionnaire name, special answer fields, number of current questionnaire (definition file), number of current question (screen), and current numeric and string results of the current question (screen). This information is required during questionnaire editing, but should not disturb patients while completing an electronic questionnaire. It is necessary to check the produced questionnaire layout without these additionally displayed items as well, in order to create a nicely looking screen layout. These options can be changed in the “Display” menu, or using keys “Ctrl-F1”, “Ctrl-F2”, “Ctrl-F5”, “Ctrl-F6”, “Ctrl-F7”, “Ctrl-F8”.
  - > Some other editing support features are currently not enabled by default for this configuration (intentionally, so that the initial display remains more simple even in editing mode, and that the respective controls can be introduced in this SOP), but this might be changed in the future: Show text rectangle size, show editing grid, lock positions to editing grid.
3. In the “Edit” menu, chose “Edit layout”.
  - > The title bar should change and display:  
>>> Layout edit mode: c:\anyquin\questns\demo\prototyp.QDW
  - > Moreover, the entry “Jörg’s Magic Questionnaire-O-Matic” should change from disabled into enabled (which is usually visualized by a change from gray into black).
  - > Moreover, the “Continue...” button that is typically displayed at the bottom of an InfoScreen (what the first question (screen) of this questionnaire definition file happens to be) should be replaced by a full navigation bar.
4. Use the “<” and “>” buttons from the navigation bar or the “PageUp” and “PageDown” keys to navigate through this questionnaire definition file, and review the various layouts collected here.
5. Navigate to the last question provided in the collection (question number 31) using the “>>|” button of the navigation bar or the “End” key.

6. Select “File” - “Show text rectangle size”.
  - > A grey rectangle appears around each displayed text element; this indicates the size of the possible display area for each text element. Where these text rectangles overlap, the grey shades are XORed to indicate the overlapping region as well.
7. Select “Edit” - “Set prototype question”.
8. Before you go on, read the main text of the currently displayed question (screen).
9. Before you go on, review the information at the right lower corner of the screen: It should read:

Questionnaire 1 of 1  
Question 31 of 31  
NResult: —  
SResult:

The graphical progress indicator should show one completely solid strip, meaning that one questionnaire definition is in AnyQuest’s memory, and the currently displayed question (screen) is the last one in that questionnaire definition.
10. Click-Right on the background area, i.e. some white space not occupied by any text rectangle, nor by any answer field itself.
  - > The context menu of the background in editing mode appears.
11. Select “Add Questionnaire”
  - > The numeric information and the graphical indicator at the right lower corner, as well as the long and short questionnaire, as well as the main question text, as well as the window title text, should all indicate that you successfully added a new questionnaire (definition file); and that this has one question (screen), which is now being displayed.
    - (a) Settings for colours and fonts, general layout, explanation texts, answer fields and answer field labels should have been copied from the prototype question previously selected.
    - (b) The main question text is initialized by a default text. Either a built in version is used, which was updated in AnyQuest for Windows 3.33, or a version from an activated \*.msg file may be used.

*You can load the prototype collection questionnaire definition file (temporarily or permanently) whenever you are designing your own questionnaire definition files, and add a question to your own questionnaire definition file with any of the provided prototype layouts very easily. You can also use any question (screen) from any other questionnaire definition file \*.qdw which you have available.*

*Please note, however, that, in order to support the creation of homogeneously appearing questionnaire definition files, each questionnaire definition file (up to AnyQuest for Windows version 3.33) uses only one font or colour setting for each object type for all of its questions; and especially a given layout with long texts or answer field labels that works well in a given questionnaire definition file using small font sizes, may not work similarly well in another questionnaire definition file using large font sizes. If this poses problems to you, you can either adopt the smaller font size throughout your newly created questionnaire to accomodate the longer texts imported from the external prototype question providing questionnaire definition file. Or, if it is absolutely necessary to use different font types for the same object within one questionnaire, you can prepare pre-rendered bitmaps with the texts in any font you wish, and use them as “background image” for the affected AnyQuests text objects, leaving the actual text blank.*

*When adding a new question, AnyQuest for Windows up to version 3.33, will try to use the following sources for templates:*

      - i. *A defined prototype question.*
      - ii. *A question that precedes the newly made one in memory.*
      - iii. *A question that follows the newly made one in memory.*
      - iv. *The built in standard question template. This one was substantially revised for AnyQuest for Windows 3.33:*

- A. *Before, it used to contain only two regular answer fields, horizontally aligned in the middle of the screen, and the question text, explanation text, and explanation 2 text were just lined up below each other.*
- B. *Since version 3.33, it contains a completely and immediately usable layouted question, which has: 2 special answer fields for “I can’t answer this question” and “I don’t want to answer this question” occupying answer field number 1 and 2 and thus not interfering with the addition of more regular answer fields at any given point, 7 regular answer fields, horizontally aligned to cover the whole width of the screen, with numeric values 1 to 7 already assigned to them, and the texts for explanation, question, and explanation 2 aligned on the screen in a readily usable manner. All elements are now aligned to a 20 pixel grid if used on a 1024 x 768 pixel standard display with hidden task bar.*

*This should simplify the design of your own questionnaire definition files a lot, especially when you do not use available prototype questions:*

*In earlier versions of AnyQuest, a new question would typically have to be built from scratch. Special answer fields would usually be either completely left out, or added after all regular answer fields were defined, and thus interfere with the addition of new answer fields, when a following question needed more of them than a previously designed one. This was especially hindering, as AnyQuest (with too much intelligence at this particular, quite common scenario) tries to extrapolate size and position of newly added answer fields from the preceding answer fields of the same question, or from a preceding question, if that exists.*

*Now, the special answer fields are provided by default - so they are not forgotten. They are also provided at a reasonable position, and they are defined as the first answer fields of each question, so they do not interfere in any way with the addition of any number of regular answer fields after them. Of these regular answer fields, so many are provided, that most desired questions can be constructed by just deleting answer fields from the built in default layout, and merely adjusting the numerical value on each answer field as required. Even layouts with vertically arranged questions benefit from this new default question, because all elements are now aligned to a grid, and it is less work to just rearrange the existing answer fields on the screen, than it was to add and then arrange them, when only two existed for a start.*

*Additional built in default formats are planned for future revisions of the software.*

12. This part of this SOP only covers main functionality of provided configurations. Additional editing functionality will not be covered here; so from the main menu, select “File” - “Exit”.
  - > A confirmation dialog will appear. Please click on “Yes”, to lose the newly added questionnaire, and to exit the current configuration.



### **5.3.8 TBD: Tests with other start menu entries of the default package**

## **5.4 TBD: Checks of extended software functionality**

### **5.4.1 Title screen configurability, including custom logos**

### **5.4.2 Controllable persistence of configuration settings**

### **5.4.3 Image backgrounds and image overlays in questionnaires**

### **5.4.4 Talking questionnaires**

### **5.4.5 Usage of message file content**

### **5.4.6 Setup button test**

### **5.4.7 Help button test**

### **5.4.8 Secured configurations**

### **5.4.9 Result formulas, CBFs, text inline formulas**

### **5.4.10 Test and calibration printouts**

### **5.4.11 Additional printout definition files**

### **5.4.12 Static and dynamic, original and enhanced references for printouts**

### **5.4.13 Analysis tools, statistics functions**

### **5.4.14 Integration with external software**

### **5.4.15 Chinese character support**

### **5.4.16 QDW Editing functionality**

A minimum test of this functionality is addressed above.

It uses the configuration available through the start menu entry: "Editing - Question layout prototype collection".

### **5.4.17 QDT export and import**

A questionnaire definition file can be exported to a questionnaire definition file in text format \*.qdt.

This file contains statements which AnyQuest uses to construct a questionnaire definition file.

It can be edited with a text editor, or exchanged with, or generated by external programs (databases, generators of completely dynamic questionnaire content).

When a questionnaire definition text file is edited using a text editors, individual lines can be edited, removed, exchanged, or added. The resulting (or remaining) file can be executed by AnyQuest for Windows, either to load a complete questionnaire described by it, or to add elements to a currently loaded questionnaire.

Statements in a questionnaire definition file need only specify those elements which change from one question to another; i.e., if two questions shall be added, only the first one (or none, if any question is already loaded in AnyQuest's memory) needs to be completely specified with all text coordinates, answer fields etc. For the second question, it is sufficient to specify the request to add the question, and to provide the new target text.

Thus, questionnaires can be scripted in the questionnaire definition file text format very efficiently, and most things that cannot be achieved by the built in graphic editor (comfortably), can possibly be realised quite fast by writing from scratch, or editing some previously exported, \*.qdt statements.

#### **5.4.18 Scaling of QDW content to different screen resolutions**

#### **5.4.19 Jörg's Magic Questionnaire-o-matic**

##### **5.4.19.1 Automatic import and distribution of question texts from a text file onto AnyQuest for Windows questions (screens)**

##### **5.4.19.2 Automatic import and distribution of explanation texts from a text file onto AnyQuest for Windows questions (screens)**

##### **5.4.19.3 Automatic import and distribution of explanation 2 texts from a text file onto AnyQuest for Windows questions (screens)**

##### **5.4.19.4 Automatic import and distribution of answer field label texts from a text file onto AnyQuest for Windows questions (screens)**

##### **5.4.19.5 Automatic import and distribution of answer field values from a text file onto AnyQuest for Windows questions (screens)**

##### **5.4.19.6 Automatic intelligent gathering of sound file names from a directory of sound files and distribution to text elements in AnyQuest for Windows questions (screens)**

#### **5.5 Tests and validation tools defined by external sources**

##### **5.5.1 Tests with the SF-36 test data set and reference results**

A test data set for the SF-36 and reference results are supplied with the SF-36 manual. AnyQuest for Windows in the SF-36 configuration using its external SF-36 result computation module has processed the test data sets and produced the expected results.

Please review the SF-36 manual for more detailed information.

#### **5.6 TBD: Additional and semi-automized tests**

##### **5.6.1 Built in checksumming**

##### **5.6.2 Built in startup stack size check and local heap size check**

##### **5.6.3 Built in license file checks**

##### **5.6.4 Built in memory allocation testing and automatic temporary configuration adoption**

##### **5.6.5 Built in memory availability information and data tree**

##### **5.6.6 Macro recorder based testing**

##### **5.6.7 Random input generator based testing**

##### **5.6.8 Checks with software-illiterate users**

##### **5.6.9 Files with illegal content for robustness tests**

##### **5.6.10 Dialog response to undo (with implicit moving of current questionnaire)**

##### **5.6.11 Dialog response to deletion of questionnaires or questions**

###### **5.6.11.1 Questionnaire descriptors dialog**

1. Open an AnyQuest for Windows configuration with an unrestricted menu.
2. Make sure that at least one QDW is loaded.
3. Activate “Edit” - “Edit questionnaire descriptors...” to show the respective dialog.
4. While the dialog is visible (it is not modal at all), Click-Right into the background (not on any text or answer field or any other object), and from the context menu, select: “Delete Questionnaire”.
  - > In versions 3.32 and below, the questionnaire would be deleted and the “Questionnaire descriptors dialog” updated afterwards, and possibly be filled with information from unallocated variables, maybe while aktueller\_fragebogen might point into an invalid place (unsure, I won’t follow up the exact situation). When the dialog was afterwards closed, the application would possibly cause a GPF.
  - > In versions 3.33 and above, the dialog should contain only valid information at any time:
    - (a) If any other questionnaire is loaded, which becomes the new currently displayed questionnaire, then the “Questionnaire descriptors” dialog will immediately be re-filled with information taken from that questionnaire.
    - (b) If no other questionnaire is loaded, the title screen will appear, and the “Questionnaire descriptors” dialog will remain invisible. But as soon as another questionnaire is loaded or added using the context menu, it will immediately appear again with information filled from that questionnaire, as long as the checked “Edit” - “Edit questionnaire descriptors...” menu option is still left untouched.
    - (c) Even when two questionnaires with different “Questionnaire descriptors” information are loaded, the dialog is displayed, and while the dialog remains open, both questionnaires are deleted one after another, the dialog will contain correct information at all times, become invisible when the last questionnaire has been deleted, and upon usage of the undo function, become visible again, when the last deletion is undone, and as soon as the initial deletion is undone, turn to show information from the respective questionnaire.  
TBD: Check whether previously noted problem in special scenario remains in Version 3.33.
    - (d) This will work even when the affected questionnaire definitions exist only in AnyQuest’s memory and have never been saved into disk files.

#### **5.6.11.2 Result formula definition dialog / formula consistency check**

#### **5.6.11.3 Conditional branching formula definition dialog / formula consistency check**

#### **5.6.12 Ressource meter (or other memory usage monitoring external tools) based testing**

#### **5.6.13 Conditional defines, debug output, and built in test loops**

#### **5.6.14 Reference output from semi-automatized tests**

### **5.7 TBD: Environment checks**

#### **5.7.1 On-line-Help and other documentation**

#### **5.7.2 WWW-Site content**

#### **5.7.3 Distribution CD content, label, cover**