

FLUKE®

— Biomedical

Ansur Test Executive Version 2.3.2

User Manual

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1 Getting Started

1.1 Introduction

Ansur Test Automation Software is the evolution of the PRO-Soft software family and will become the backbone of all Fluke Biomedical test systems in the future. Ansur is a test executive that handles all steps of your test procedures by allowing a mixture of manual/visual tests and automated test sequences. The software is designed to work hand-in-hand with Fluke Biomedical analyzers and simulators as an application where visual inspections, preventative maintenance procedures, performance tests, and safety tests for any device can be performed and stored from one file. The test procedures are stored in Test Template or Test Sequence files (XML format) and the results are stored in Test Result files (also in XML format), which may be viewed and printed with three different detail levels.

Ansur will operate on all Fluke Biomedical analyzers/simulators by using *Plug-in* modules (as they are released), allowing the user to create new Test Templates/Sequences, or expand existing ones, with automated sequences using the new *Plug-in*. The advantage of this is that it gives you the same interface for all Fluke Biomedical analyzers/simulators operated by Ansur. This also means that when you need to operate a new Fluke Biomedical analyzer/simulator, you simply update your existing Ansur software with a new *Plug-in* module. This way, the customer gets only the options and capabilities they need based on their test equipment, but they still work within the general Ansur application.

Ansur is designed for Windows 95/98/ME/2000/XP using *ActiveX* components for the *Plug-in* modules and an explorer-like interface with "drag and drop" functionality when creating Test Templates/Sequences. All data is stored in *XML* format.

1.2 System requirements

The following are recommended minimum requirements for installation:

- IBM PC/XT-compatible Pentium II 350MHz or faster processor
- 128Mb ram
- 50Mb of unoccupied hard drive for software
- Hard drive space for result and template files
- 32 bit Microsoft Windows operating system (98SE/Me/NT/2000/XP)

1.3 About your manual

This manual is designed to assist you in the basic procedures for using the Ansur Test Executive. It also covers all features resident in the full Ansur Test Executive. Familiarity with Microsoft Windows and its features is assumed. If you are unfamiliar with it, we recommend that you use your *Microsoft Windows User's Guide* along with this manual.

This manual contains the following conventions:

This	Represents
Bold title case	Menu items and control buttons that can be selected to perform operations. The underline (<u> </u>) represents the shortcut key. For example, "Select File, Save " instructs you to click "File", then press "Save". The comma (,) between selections indicates that both selections are to be made in sequence.
(Key 1 + Key 2) or "F1"	Shortcut keys. The plus (+) sign indicates that both keys are to be pressed simultaneously. For example, "(CTRL + P)" instructs you to press "Control" and hold it down while pressing "P".
< braces >	Text information that must be specified and entered manually by the operator.
<i>Italics</i>	File names and paths. For example <i>arHeader.rtf</i> .

2 Introducing Ansur

2.1 Test Template

The test template is the combination and order of specific test elements and their properties. These are selected by the template creator to test or inspect a particular piece of equipment.

2.2 Test Sequence

The information that accompanies a test template. This information could include any information about the product being tested, specifics about the template itself, or the result data that is compiled after the test runs. The user also has the option to attach relevant links to the test sequence that can be accessed in the same manner as while navigating through a web page.

2.3 Test Elements

Conceptually, a test element represents one specific MTI test. Each of the measurements available through the particular MTI is represented by one particular test element.

2.4 Service events

Procedures that can be entered in a test template. Each test element in the test template can be assigned up against a service event on when to perform this test.

2.5 Test Setup

The test sequence contains a tab labeled test setup and here the information for the device under test (DUT info) is placed. Related documents for the device can be linked up, and also Plug-in test setup is entered here.

2.6 Plug-Ins

Most Fluke Biomedical devices will have software plug ins that can be installed in the main Ansur program. These plug ins will have unit specific test elements.

2.7 Main window









The window you see when you start Ansur. The main window contains menus on the top, the Ansur test explorer on the left and the test template window centered right.

Menus

Top level menus in Ansur are mostly standard windows menus like file, edit, view, window and help. The test and tools menu contains specific Ansur functions.

Toolbar

The following list is an overview of the functionality available for all tests done in the Ansur test executive

	Abort	Abort a test and go to next dialog screen.
	Previous	Go to previous dialog screen.
	Next	Go to next dialog screen.
	Start	Perform test.
	Stop	Stop test.
	Not applicable	Flag test as not applicable.
	Skip	Skip test and go to next.
	Special feature	Special features for the chosen test, if any. The operation of this button varies and will be documented in the user manual for each plug-in.

Ansur Test Explorer

Ansur Test Explorer contains the general tests such as the compound test, visual tests (Checklist, numerical list and general list) as well as all available automatic test elements and their containers. These test elements are the building blocks for the test template and can be dragged from the explorer to the template window.

3 Creating Test Templates

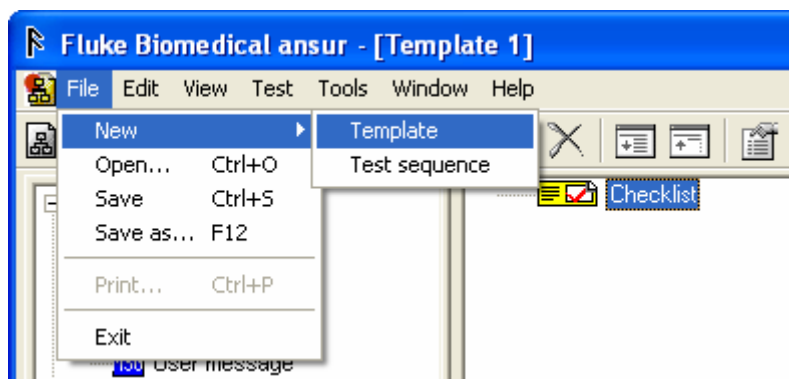
This chapter defines the test template and explains building, storing and retrieving test templates.

3.1 Defining the template

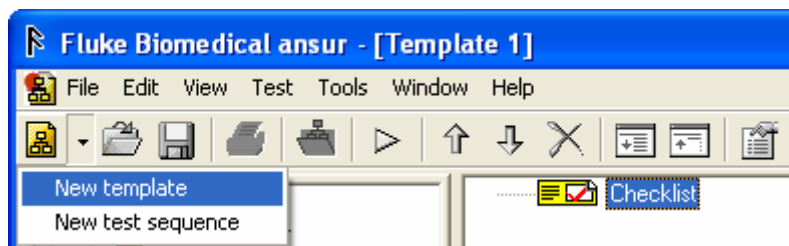
The test template is the combination and order of specific test elements and their properties. These are selected by the template creator to test or inspect a particular piece of equipment.

3.1.1 Creating new test templates

New test templates can be created by choosing **File**, **New** and then choosing **Template** from the menu. They can also be made by selecting the pull down menu from the leftmost button on the toolbar directly above the general test label, and choosing **New Template** from the menu.

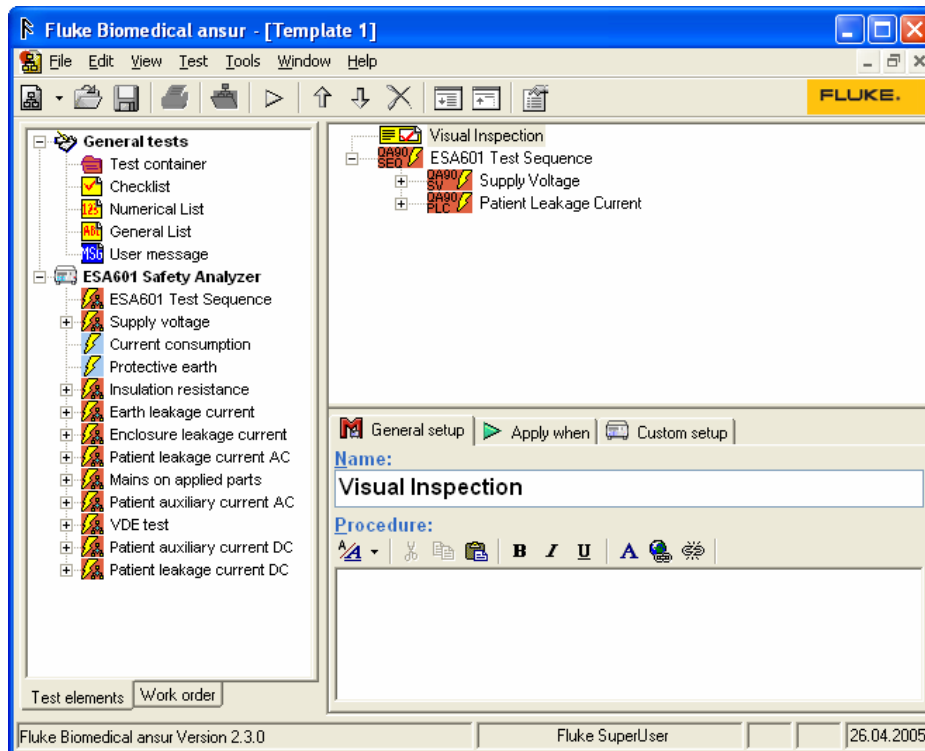


OR



3.1.2 Assigning test elements to a test template

A test element is any item found in the left column of the main Ansur interface. It can include the items found under the general test heading such as user message, visual pass/fail test and visual numerical test, or items under the headings of any plug-ins you have installed. By dragging the element from the left column into the right column, you can add the element to your template.

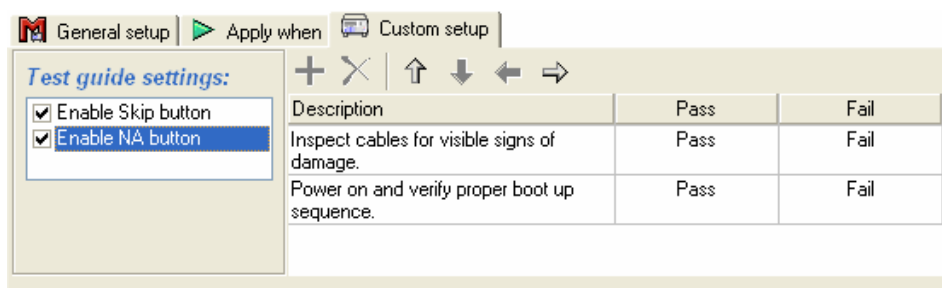


3.1.3 Customizing test elements

Test elements can be customized to fit a user's specific needs. Each element has specific functions and unique properties that can be applied and manipulated by the user as needed.

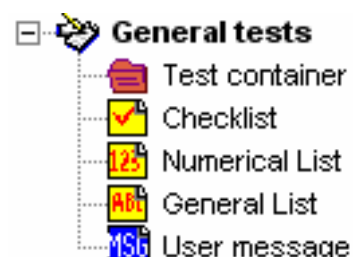
3.1.4 Adding specific instructions (custom setup) for Test Elements

Under the **Custom setup** tab, the user has the option to add specific steps or instructions to a test element within a test template. The options found under this tab can vary between element and installed plug-ins.



3.2 Visual Tests

The tests found under the heading **General tests** are included in the basic Ansur test executive and are not plug-in specific. They include user message, visual numerical test and visual pass/fail test.



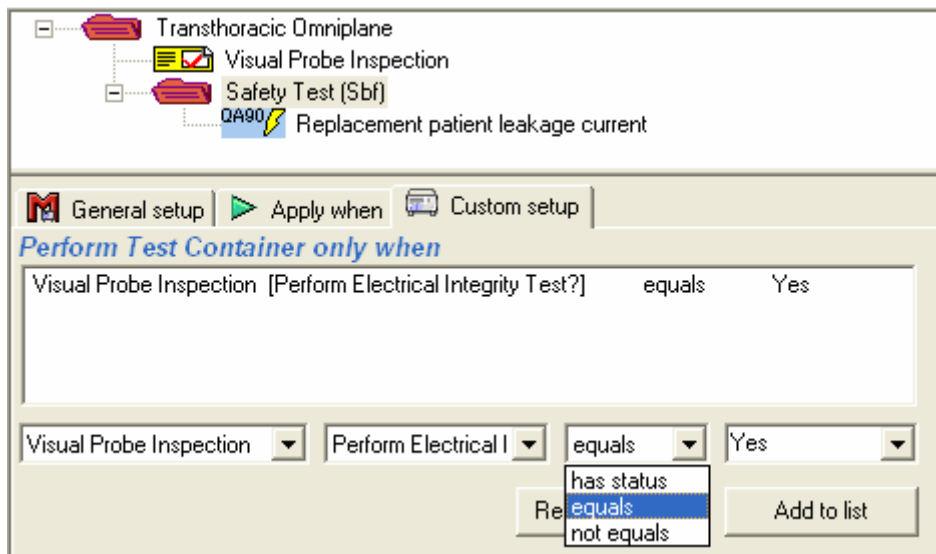
3.2.1 Test Container

The test container is a container that can hold various combinations of test elements decided upon by the user. The elements are selected and designed for the specific application and placed within the test container. The test container is general, and is normally used for structuring/grouping your test so the template is more manageable when you edit it.

Conditional test containers

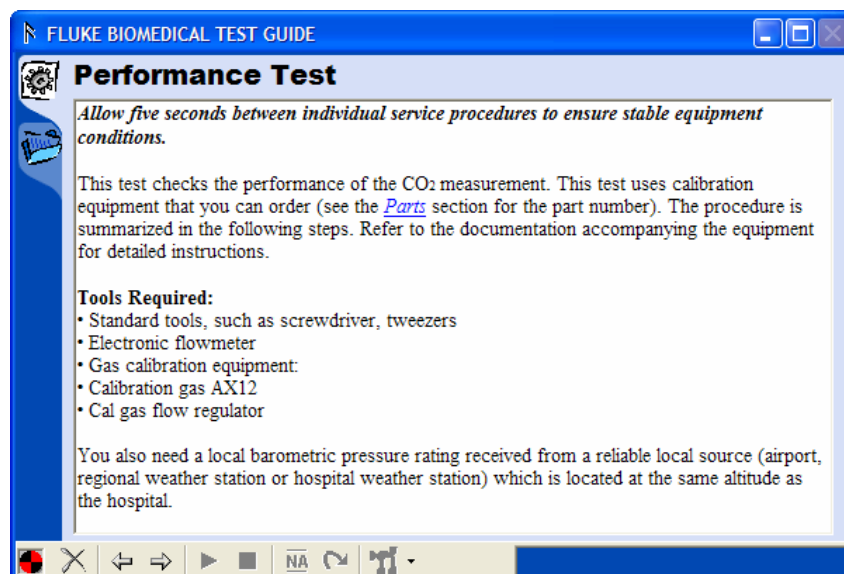
A test container can also be used to include tests only when a certain condition is met. E.g. an electrical safety test can then be performed only if there are signs of damage that may compromise the safety of the equipment.

To create a conditional test add a Test Container and go to the **Custom setup** window. In the first drop down menu select the test which condition is to be tested. To test an individual step, select it in the second drop down menu. In the third and fourth drop down menu, select the comparison to be made and the valid outcome. Then click the **Add to list** button.



Test Guide

If the **Display test guide** setting is ticked off, the Test Container will display a window with it's procedure text when being performed. The window displayed by the Test Container will be similar to a User Message and it will be displayed before any of the tests within the container. If **Display test guide** is empty, the test container will not display a Test Guide.



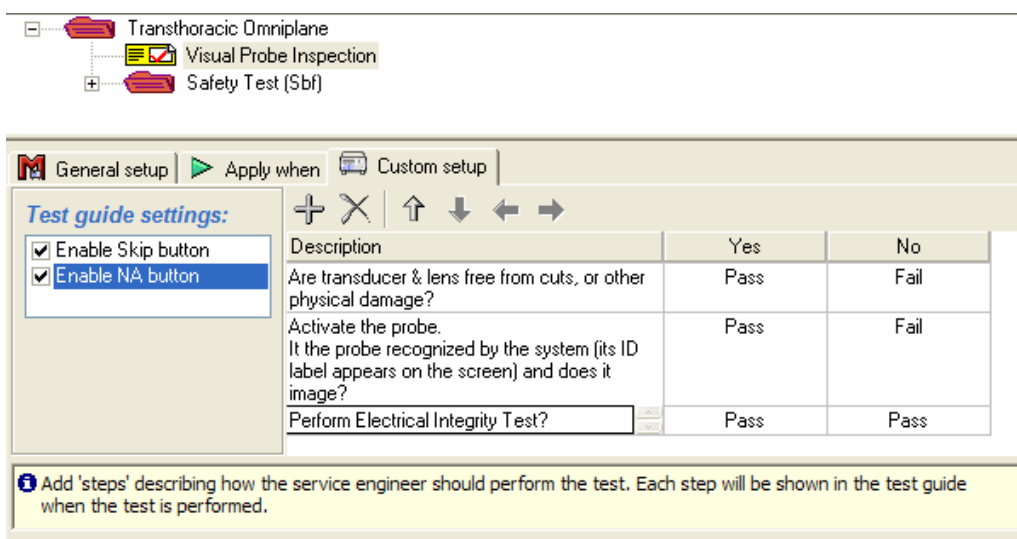
3.2.2 Checklist

A checklist is a test element that contains no quantifiable data. They are successful or unsuccessful based solely on what the user/operator can perceive without applying any kind of range to the test. The visual tests have a unique feature over automatic tests, there can be several instructions (or steps) given to the user. This gives a checklist like facility available through the **Custom Setup** window of the selected visual test element.

Adding check items

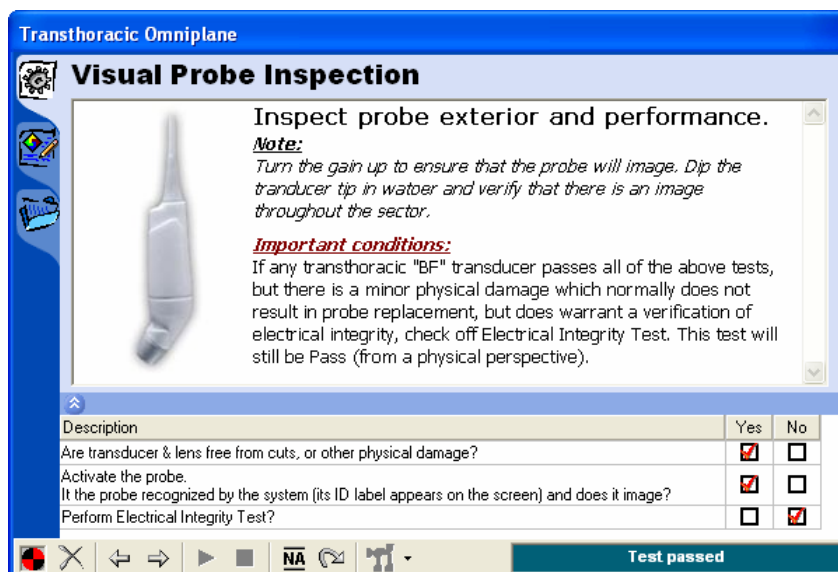
Click the + button to add new check items to a check list. Click a cell to edit an item's description. To add a new column, click any of the option columns' title and click the + button. To change the name of the option, click the option column's title and enter a new name.

The text Pass or Fail in the cells next to the description determines the status that the test element will be given when the user checks off an option when the test is being performed. To change the status for a given item, click the cell to be altered and select a new status from the pop up menu.



Test Guide

When a Checklist is being performed a Test Guide with the procedure and the checklist will be displayed.

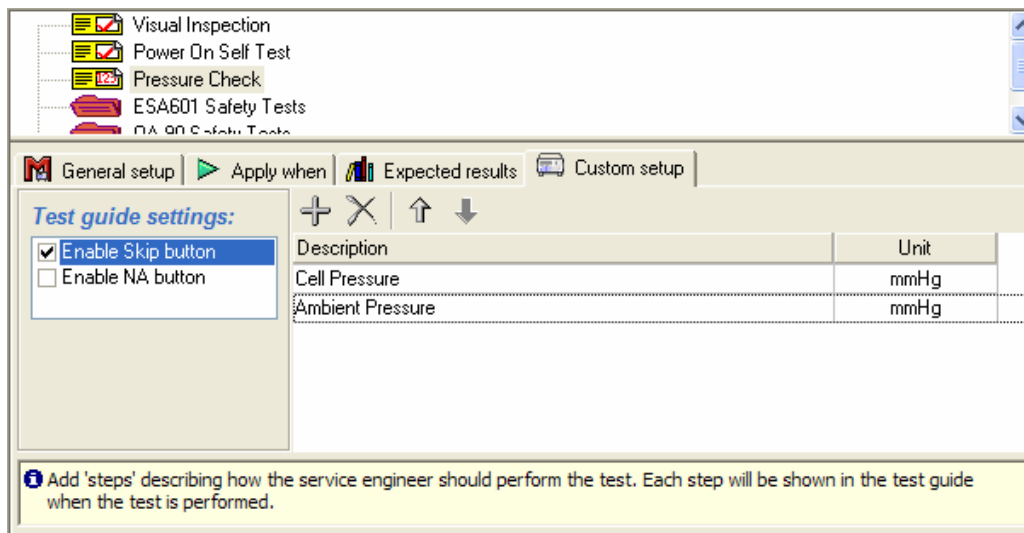


3.2.3 Numerical List

A Numerical List is a test element that use a combination of user observation and a quantifiable data range to determine whether a particular piece of equipment passes or fails a test/inspection.

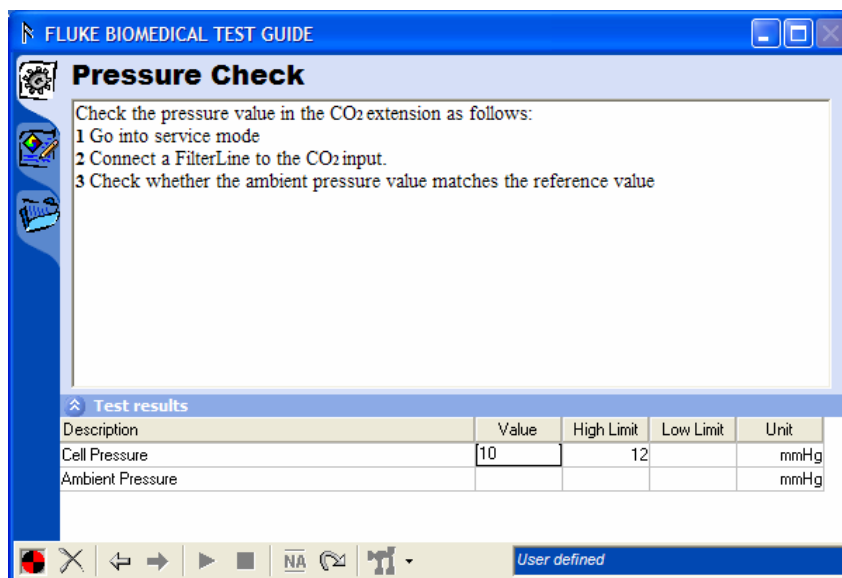
Adding result items

Numerical Lists are defined very similar to checklists except that they can not have multiple columns. Each item can be given a description and a unit of measurement. By clicking the **Expected Results** tab each result item can be given a high and/or low limit.



Test Guide

Each item added will request the field engineer to enter a value.

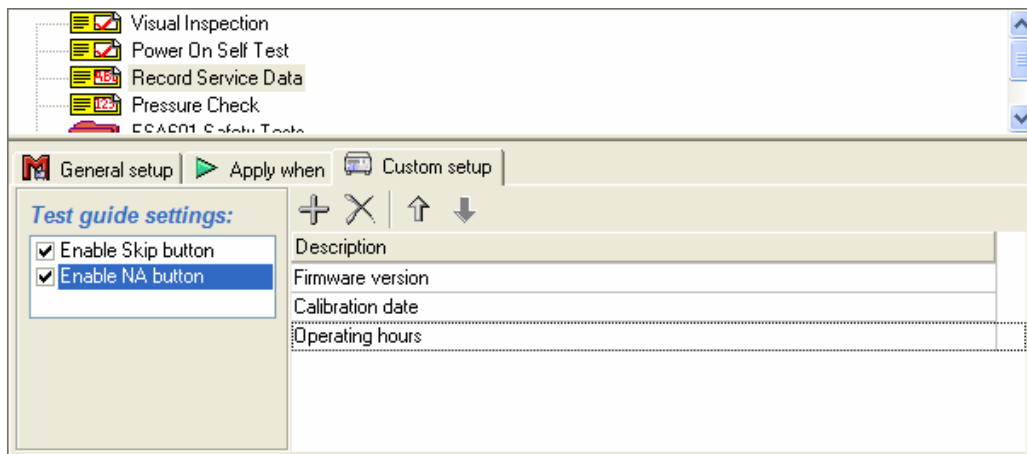


3.2.4 General List

A General List is a test element that can contain input value that contains numbers and letters i.e. an instruments serial tag number or other identifier.

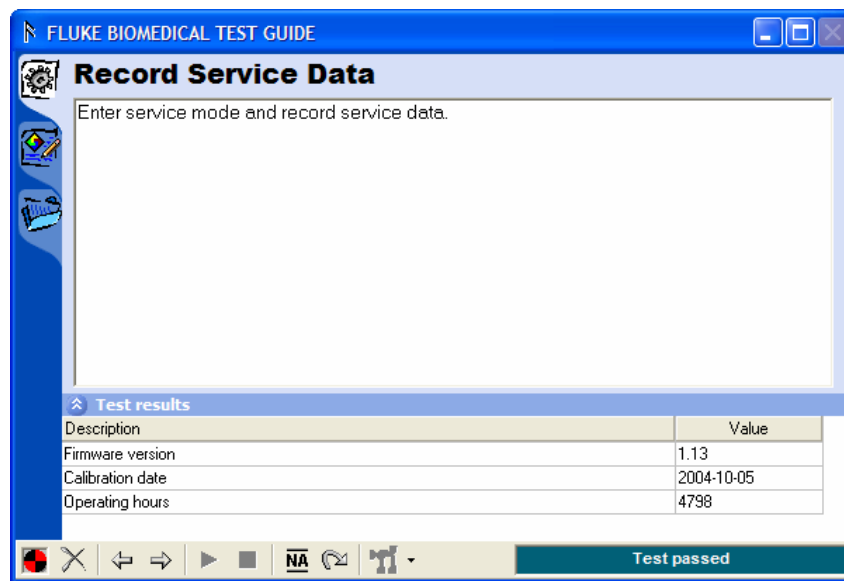
Adding list items

General Lists are defined very similar to Numerical Lists except that they do not have a column for measurement unit. Nor can General List have limits against their list items. Hence the General List does not have an **Expected Results** tab.



Test Guide

When a General List is performed, the field engineer is prompted to enter a text value for each list item defined.

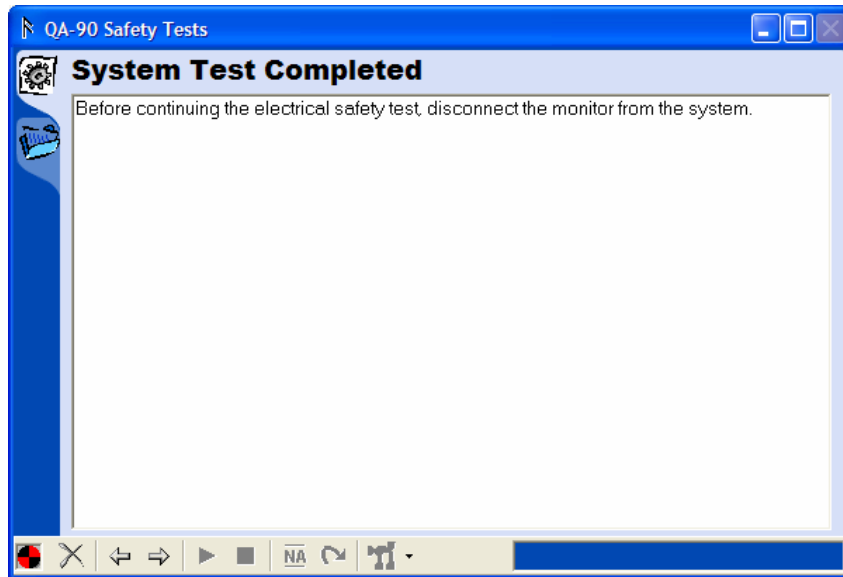


3.2.5 User message

The person setting up a particular template will be able to communicate a desired message to the operator by placing a user message into the template. The user message does not have any expected results nor does it have any custom setup.

Test Guide

When a user message is displayed to the field engineer, the procedure occupies the entire test guide.



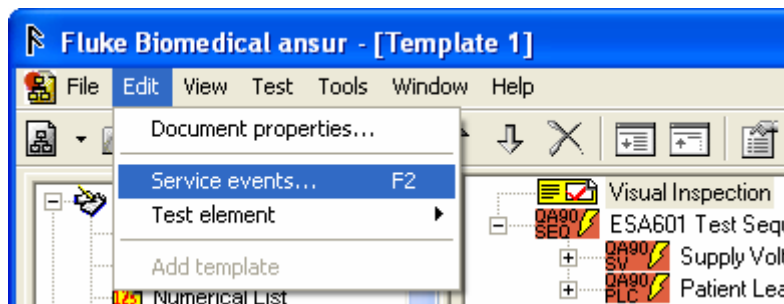
3.3 Creating Service Events

A service event defines the type of activity for which the test element is applicable (i.e. if it should be executed for PM, certain types of repair activities, etc).

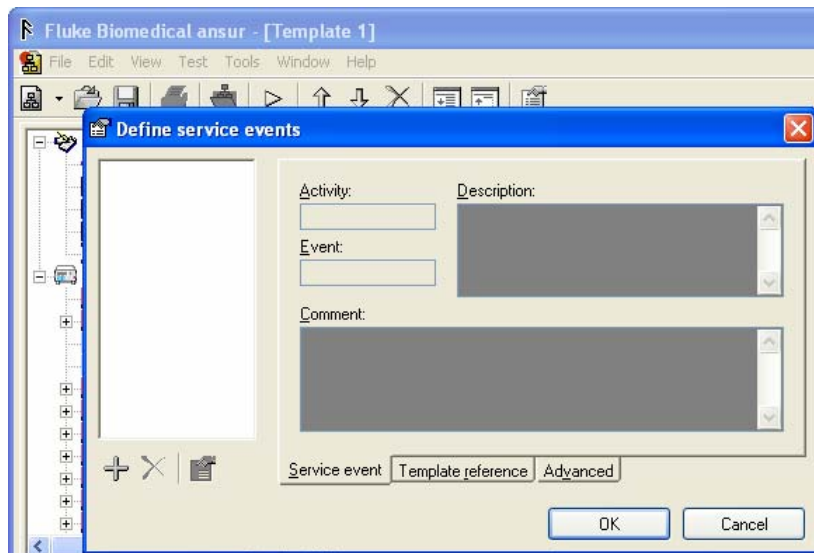
A service event defines the type of activity for which the test element is applicable (i.e. if it should be executed for pm, certain types of repair activities etc.). Service events can be named and their properties defined by selecting the **E**dit and then **S**ervice events from the menu. The events added will be available for all elements within a template. The user has the option to include individual elements in a specific element in the **A**pply **W**hen tab by checking the boxes in the service event field.

3.3.1 Defining Service Events and Activities

Service events and activities can be defined by selecting the **E**dit tab from the menu bar and clicking on **S**ervice events. Here a new event/activity can be added by clicking the **+** icon, removed by clicking the **X** button, or renamed by selecting the button to the right of the **X**. The user can also further define the event/activity and its properties using the comment and description fields.

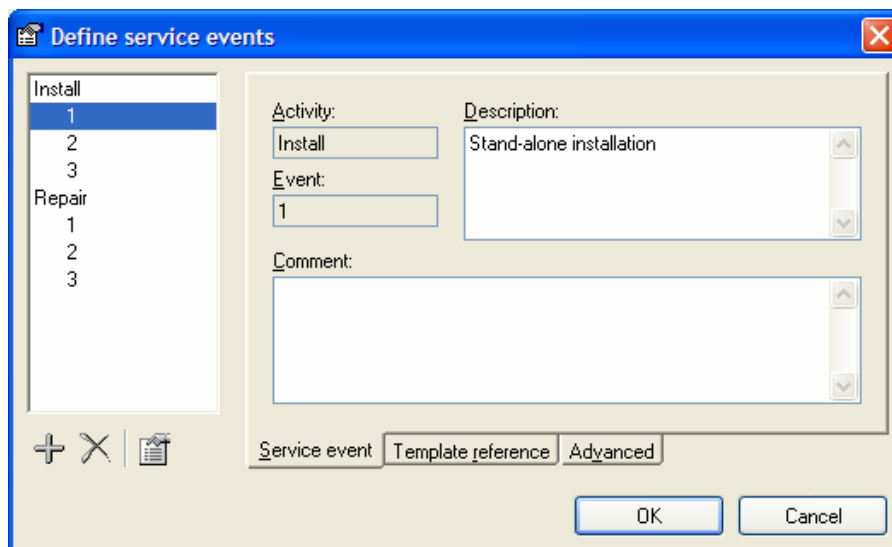


THEN



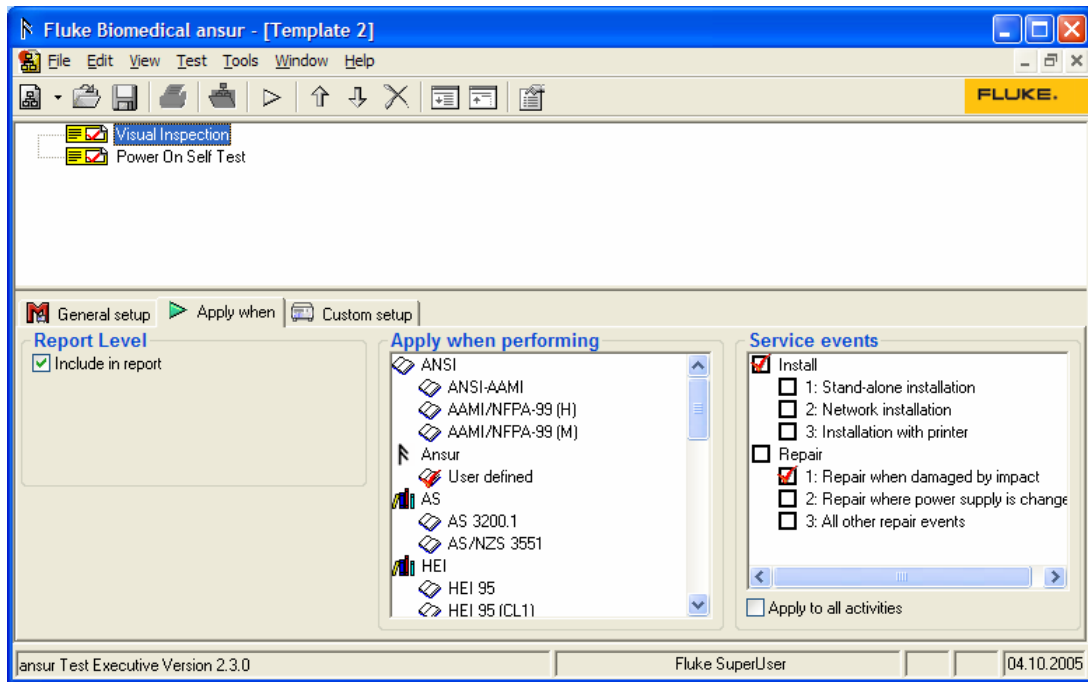
3.3.2 Filtering tests

For several service events that can be placed together define the service events with the same activity (e.g. Install) and then differentiate them by assigning a different event for each (e.g. Install 1). All the service events for installation can be grouped like this:

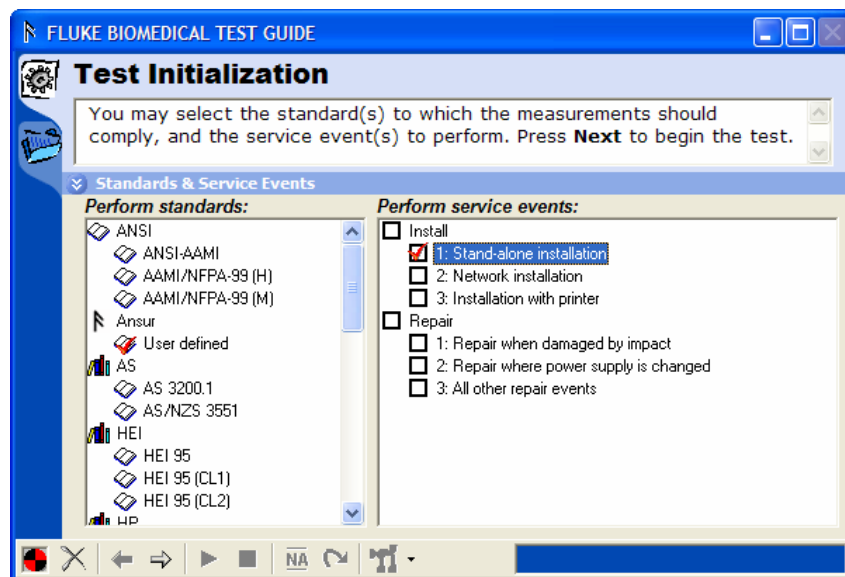


A test element is assigned to the different service events by ticking them off in the **Service events** list in the **Apply when** configuration window. When several events are grouped into a common activity (such as Install 1, 2 and 3) it is possible to select the Activity in the service events list so that the test is performed for all events within the same activity.

In the example displayed below, the Visual Inspection test will be performed for all Install service events as well as Repair 1.



When a test is started in Ansur, the operator must specify which service events are being performed. When a test is filtered using Service Events it will be performed if any of the service events assigned in the **Apply when** configuration window is selected in the **Test Initialization** window shown below.

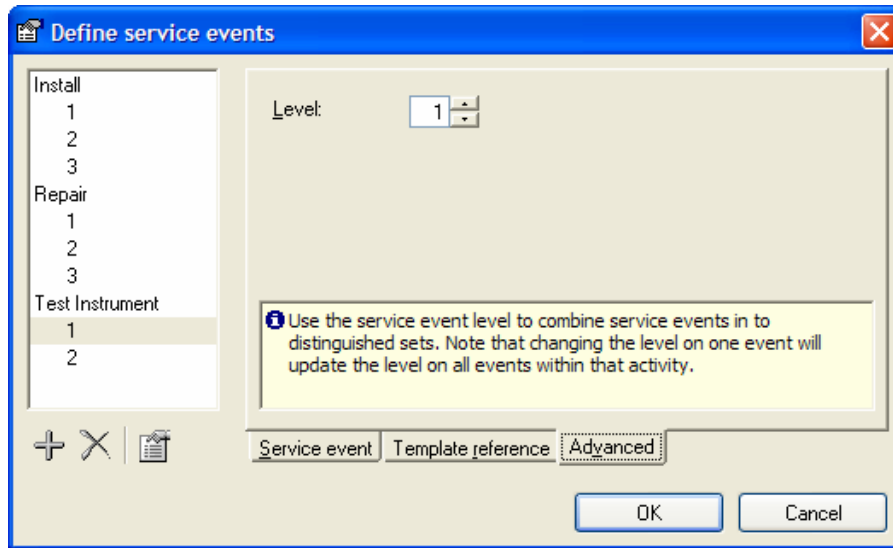


3.3.3 Service event levels

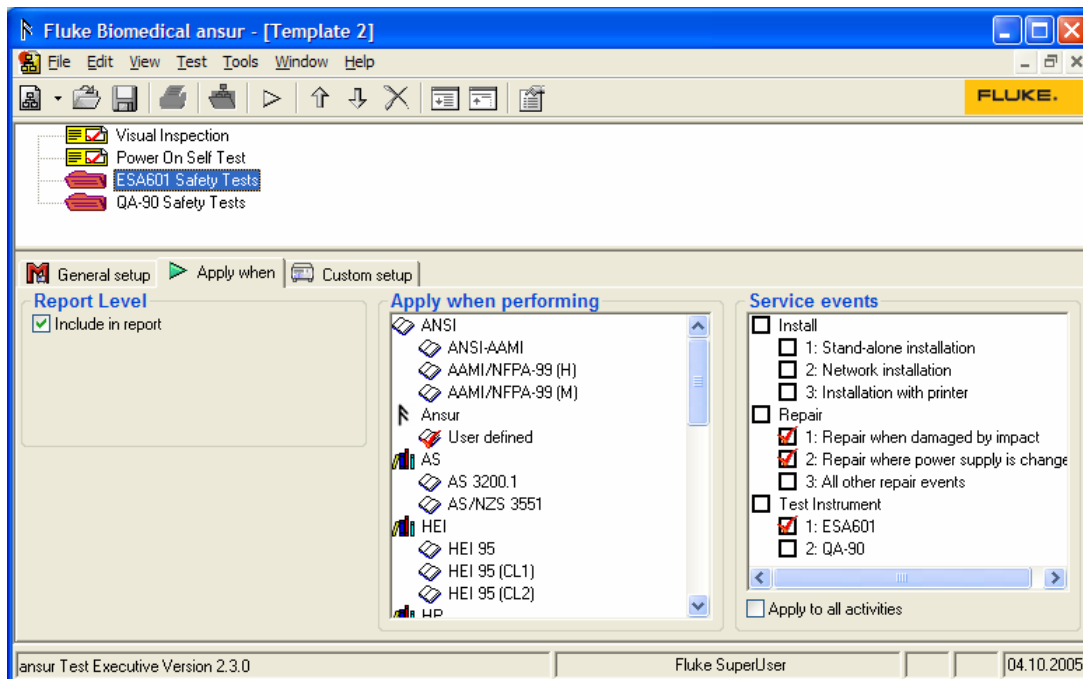
Each group of service events (i.e. Activity) can be assigned a level. When a test is to be performed it must correspond to a selected service event on each level to which it has been assigned. This allows us to include different tests depending on the DUT model or tools and test instruments available.

Common examples where service event levels are handy are situations where the field engineers use different Fluke instruments to perform service on the same type of DUT. The regular service events will still be Installation, Repair, Preventive Maintenance and so on, but the field engineer must also be able to select the test instrument to be used.

To create service events on a different level, add a new group of activities using the **Define service events** window. Click the **Advanced** tab and increase the **Level** field. When changing the **Level** field for one service event, all events within the same activity will be assigned the same level.



Assign service events as usual, but for instrument specific tests assign the proper Test Instrument event. The picture below has two test containers with safety tests. One with ESA601 safety tests, the other with QA-90 safety tests.



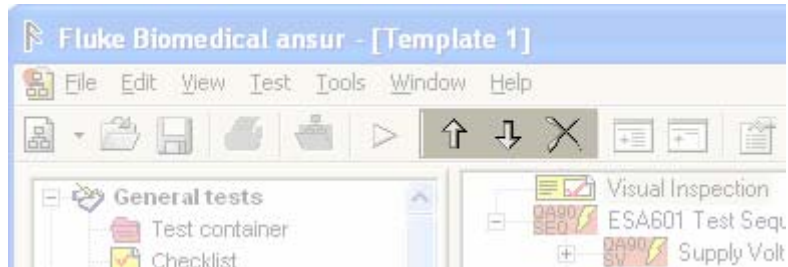
3.4 Test template editing

3.4.1 Adding tests

Adding a test to the test template is done by drag and drop the desired test element from the Ansur test explorer into the test template. To place the test element into an existing group of test, hold the test element over the desired over the desired test container so it highlights blue and drop or hold the test element between the existing test elements and see a line that indicates where the test element will be placed.

3.4.2 Arranging test elements within the template

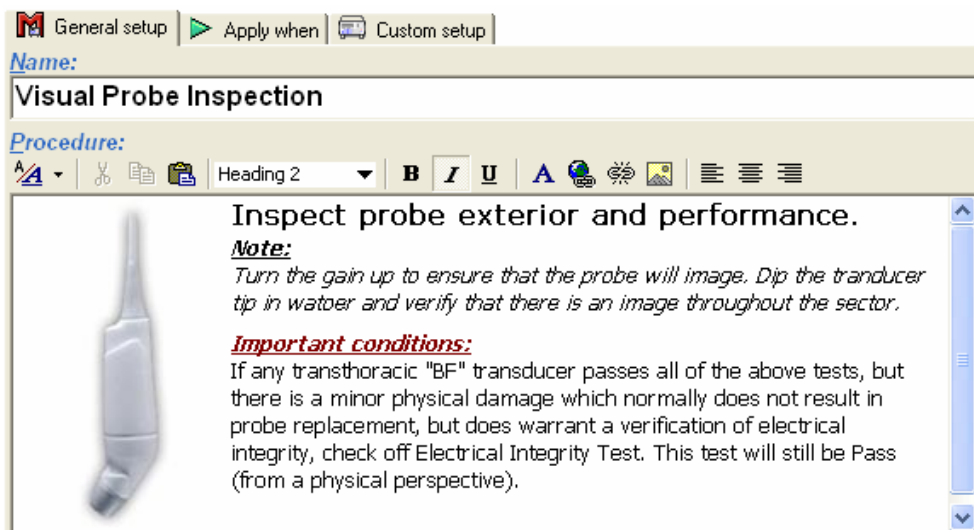
To move test elements up or down, you will find a group of icons on the toolbar directly above the screen containing the general test label. On that toolbar you can use the up and down arrow buttons to move elements up and down within the template. Elements can also be removed from a template by clicking on the element and then clicking on the X icon next to the up and down arrow button.



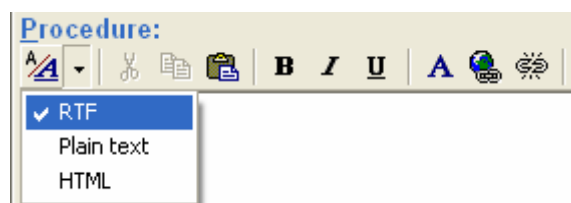
3.5 Writing procedures

Each test element permits a descriptive procedure that elucidates its execution. This description can take the form of plain text or pictures or moving pictures or a mixture thereof.

Selecting the desired test element within the template and selecting the procedure window at the foot of the screen accesses the procedure.



The Ansur has support for RTF and HTML formatting as well as plain text.



Plain text formatting contain no formatting of the text written in the procedure field. The text written is presented with default text font, color and size. Cut, copy and paste functions are also disabled in this formatting mode.

RTF formatting allows the user to edit font (Ctrl + d), color and size to the text and also if the inserted text shall be **bold** (Ctrl + b), *italic* (Ctrl + i) or underline (Ctrl + u). Cut (Ctrl + x), copy (Ctrl + c) and

paste (Ctrl + v) functions are also enabled in this formatting mode. Hyperlinks (Ctrl + L) can also be added in RTF formatting modus. The hyperlink can connect to local or external files.


HTML formatting all the formatting features as RTF formatting does, and in addition the option to insert pictures into the procedure field. The text and pictures can also be justify right, left or center in the HTML formatting modus.

3.6 Creating limits

Only the numerical list can contain limits. Limits will define a range for the test results to be valid against. Any test result that is entered outside the limits will fail the test.

3.6.1 Setting limits and expected results for test elements

To set limits and/or expected results to a test element, select a test element within a template and choose the **Expected results** tab at the bottom of the screen. Here you can add a quantifiable range for a unit's performance (visual numerical), or information regarding what should be seen (visual pass/fail). When running the template this will be what determines whether a unit passes or fails.

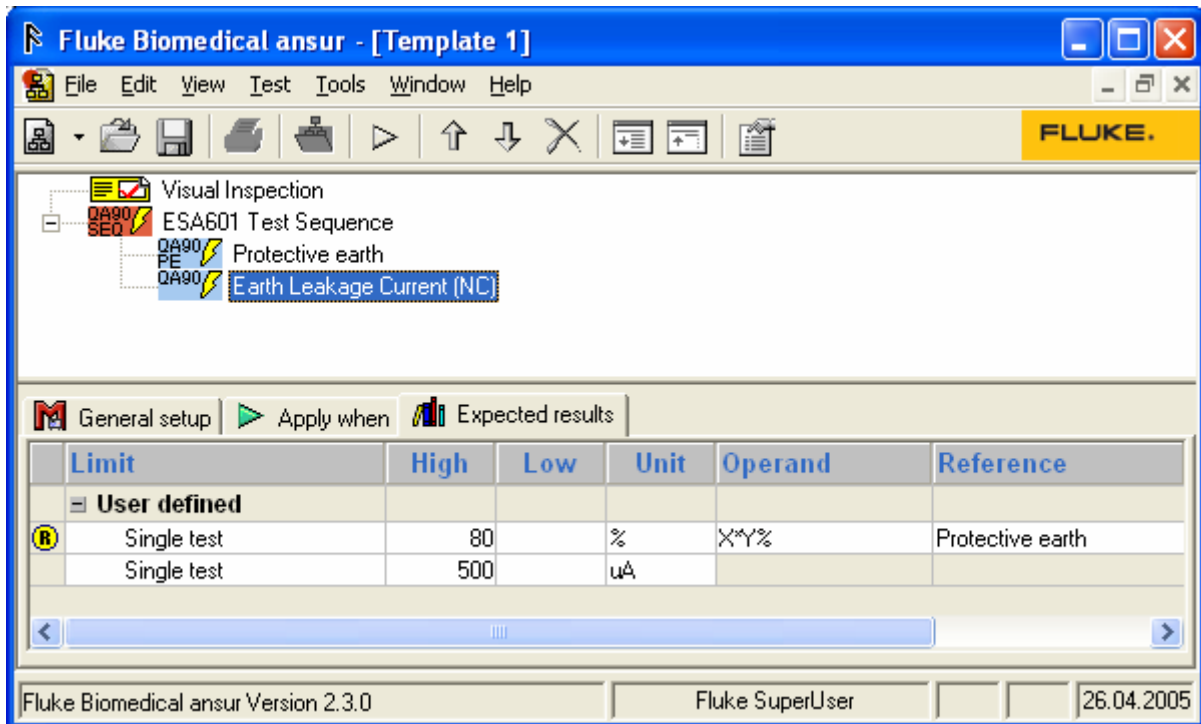


Limit	High	Low	Unit
 IEC 601.1			
Body	100		uA
Body Float	100		uA
Cardiac Float	10		uA

3.6.2 Relative limits

Relative Limits: This facility permits any test element with numerical limits to have those limits referenced against the results of a previous like test element.

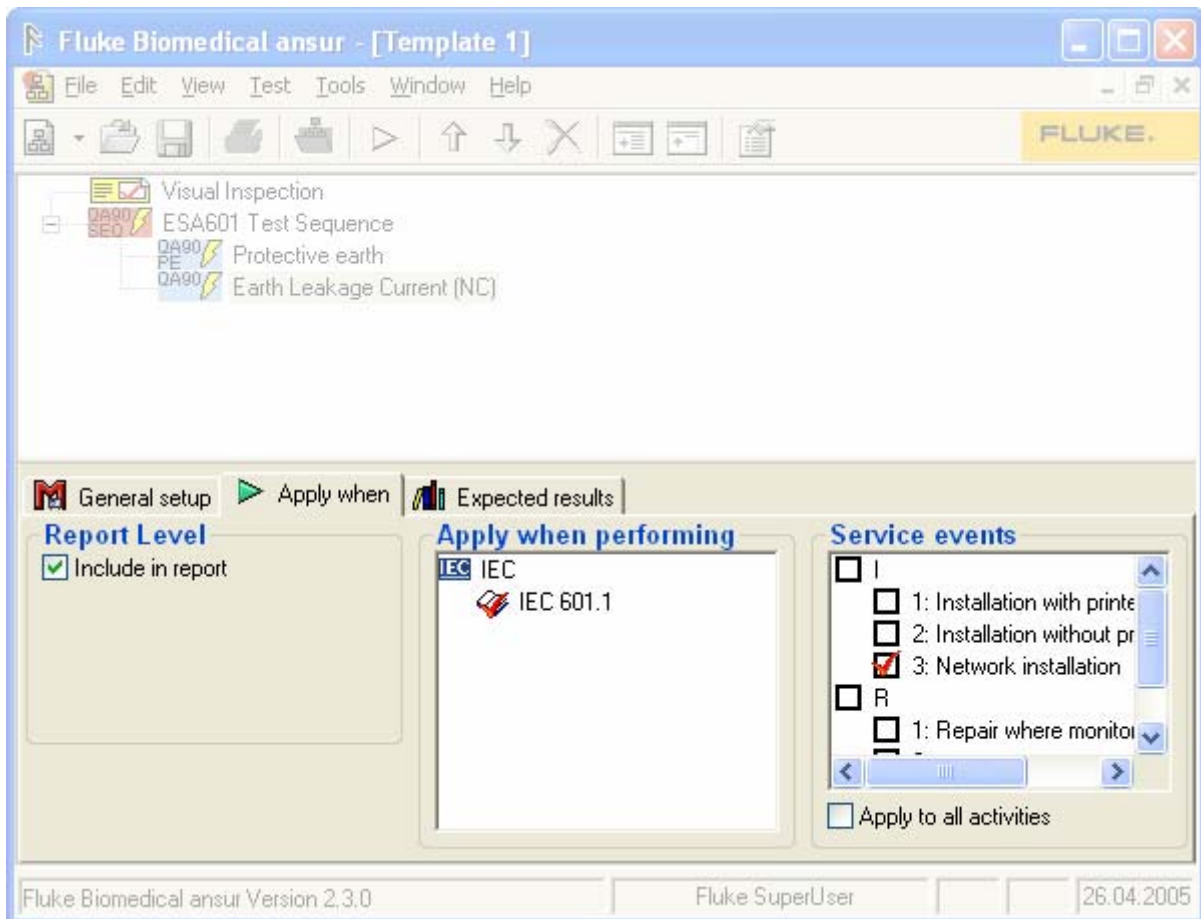
To accomplish this, the user must first select the test element to contain the referenced limits and then display its Expected Results window at the bottom of the screen. The user then has to select the desired referenced test element and drag over the desired limits. Once complete an icon is displayed to the left of these limits. The user can then set these limits as a percentage of the result obtained for the referenced test element.



When designing the template ensure that the referenced test element will be executed prior to the test element with the referenced limits under all service events, standards and any other test filter. Otherwise this last test element will have no limits on execution.

3.7 Assigning report levels, standards, and service events to Test Elements

The user can decide which test elements will be included in a test report (see section 1.5, Ansur Terminology, number 25) when making the template. Select an element within a template and then the Apply When tab at the bottom of the screen. In the area under the heading **Report Level**, check or uncheck the box marked Include in report level



3.7.1 Selecting standards

In the tab marked Apply When the user can also define standards for any test element. After selecting an element within a template, the user can choose from the list in the box marked **Apply when performing** to decide which standards are applied when the template is run.

3.7.2 Selecting service events

This facility is an ideal method for filtering the tests to be executed other than through standards. Their advantage over standards is that they are user defined for each template. For example service events may be calendar based schedules or corrective actions.

3.7.3 Inheritance

When a service event is selected for a test container the service event apply to all tests within the test container. The service event is inherited from the top level test container.

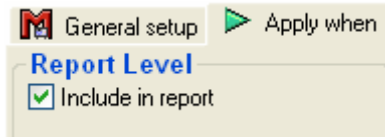
3.7.4 When will it be run

When the test is started you can choose which service event to perform. If not any service events are checked off all service events will be performed. If there are selected service events to perform at the beginning of the test, Ansur will run all tests that apply to these service events.

3.8 Other test element settings

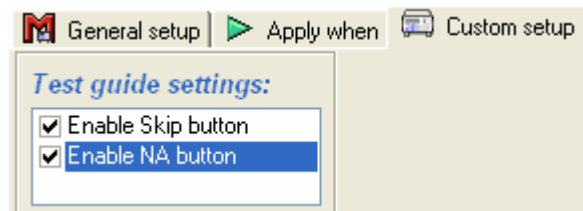
3.8.1 Include in report

The **Include in report** is default checked off when a new test is added to the test template. If the include in report is checked off the test results from this test is exempted from the test result summary.



3.8.2 Test guide settings

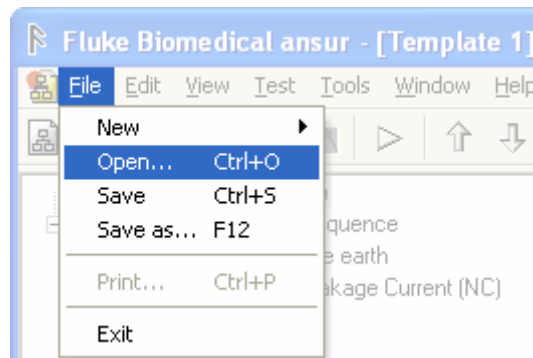
Test guide settings are available from the custom setup. The options are enabling or disable skip button and enabling or disable NA button. The skip button gives the option wherever the user would be able to skip the test within the test guide. The NA button gives the option wherever the user would be able to set the test to not applicable within the test guide.



4 Loading and Saving Files

4.1 Loading a test template

Test templates can be opened/ retrieved by opening the Ansur program, going to **File, Open** and then choosing the test template you want to open, remembering that test templates are saved under the file extension *.mtt* (medical test template).



OR



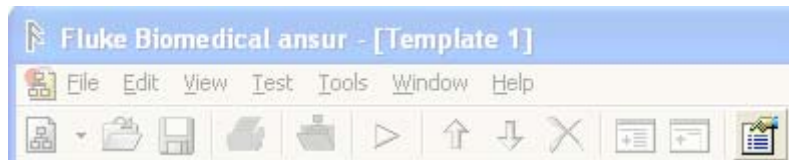
4.2 Saving a test result

After running a test template, the user can save the results by selecting **File**, and **Save as** or clicking the **Save** button on the toolbar. If the user tries to close the result screen without saving he/she will be prompted to save the results as a file with the extension *.mtr* (medical test record). Choosing yes will allow the user to decide what to name and where to store the record.



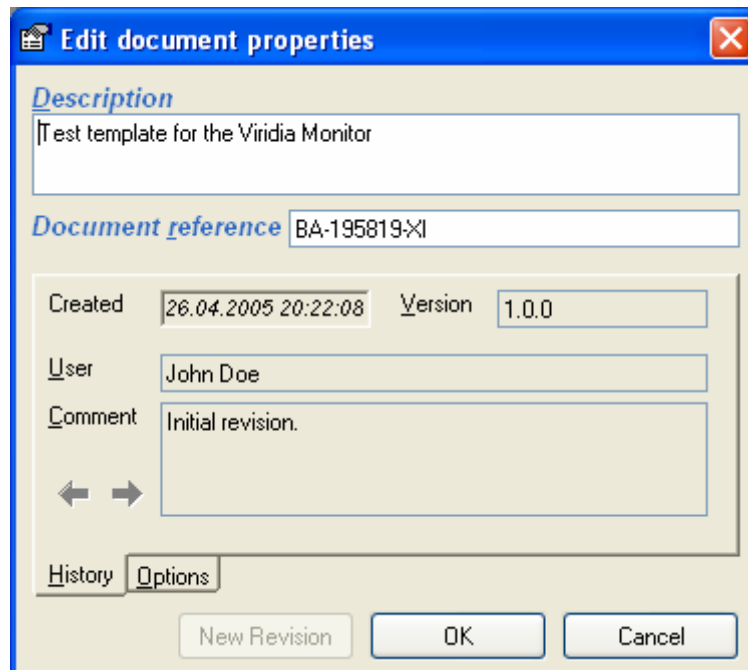
4.3 Document properties

The document properties window is available by clicking the properties button on the main toolbar. The document properties contain revision history for the test template.



Document history

Detailed information that can include a description, version number, user name, comment, date of last change, and T/I matrix number.



Template history and property options

Under the menu **Tools, Options** the user will have the option to add a document history when saving. This allows the user to add more specific information regarding template history. This information can be viewed by opening the **Edit** tab and choosing **Document properties**.

Working with a protected document

Protected documents will be restricted to Ansur installations licensed to the same establishment. The user can protect the document by selecting **Edit, Document properties**, and then checking the box marked **protect document**, or if the add document history when saving tab is checked under **Tools, Options**, the user will be prompted to protect the document when saving.

5 Performing Test Sequences

This chapter defines the test sequence and explains building, storing and retrieving test sequences.

5.1 Test initialization

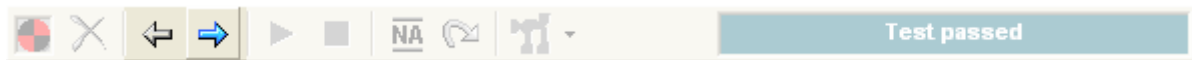
Initiating a test

By pressing the green play button on the main toolbar the user can start test templates.



Working through the test elements

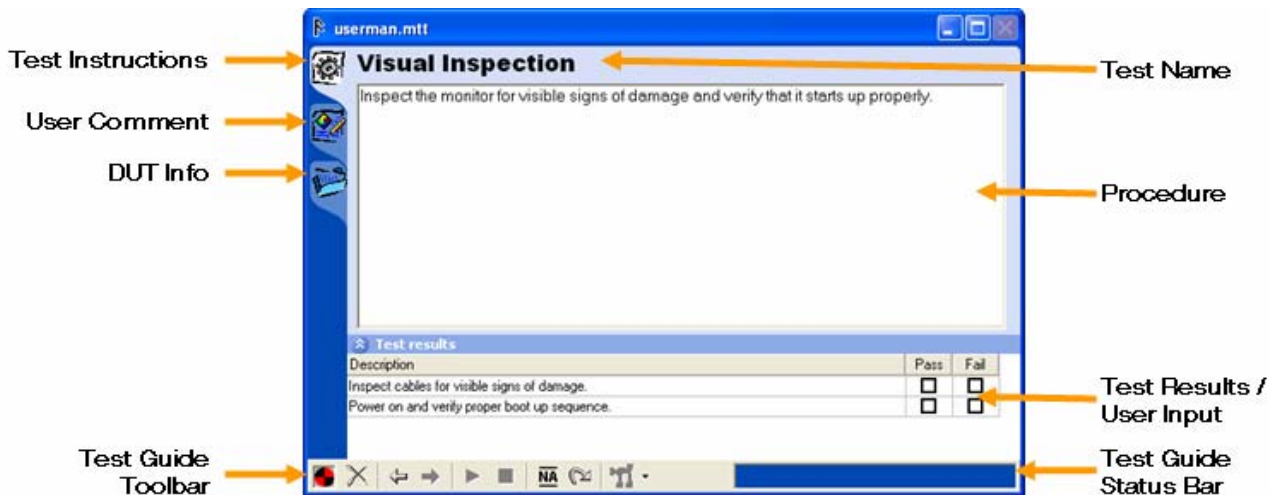
Once the template has been started, the user can work through the test elements with the blue arrows at the bottom of the Test Guide window. The option to continue using these arrows won't be made available until the current test element is completed. Selecting the abort button (X) allows the user to exit a test at any time.












5.2 Test guide

The test guide is the window that appears when the user starts the test and has selected the standards to perform and which service events to perform. The test guide will present all selected tests to perform for the test, and will guide the user through the test. The test guide will also show a test summary at the end of the test.

5.2.1 What are the different parts of the test guide



5.2.2 Test guide toolbar buttons

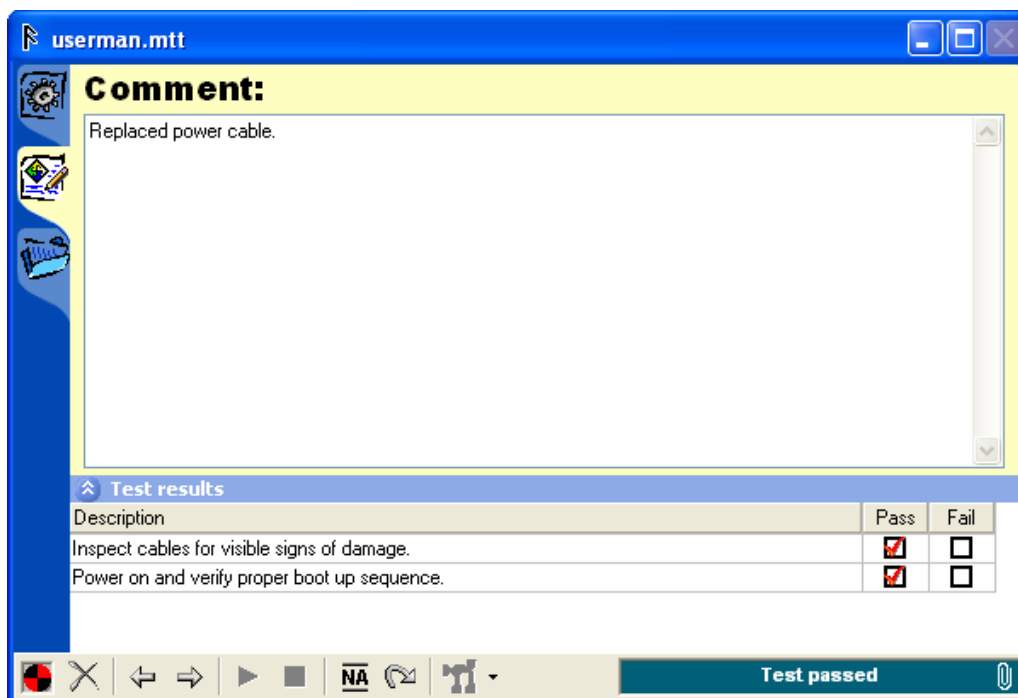
	Abort	Abort a test and go to next dialog screen.
	Previous	Go to previous dialog screen.
	Next	Go to next dialog screen.
	Start	Perform test.
	Stop	Stop test.
	Not applicable	Flag test as not applicable.
	Skip	Skip test and go to next.
	Special feature	Special features for the chosen test, if any.
	Information	Displays test guide information/ enter comments.

5.2.3 Entering results

Test results are entered manually into visual tests or retrieved automatically from automated test procedures.

5.2.4 Entering comments

To enter any comments or remarks during the test click the enter comments/ remarks tab and write your comment/ remark in the window displayed. A paperclip icon is shown in the bottom right and indicates that this test has comments/ remarks entered.



5.3 Test summary

The test summary shows all test carried with status of test result, value of test result and the limits and units measured. The summary also shown if any comments are made for any of the carried out tests by showing a paper clip icon next to the test.

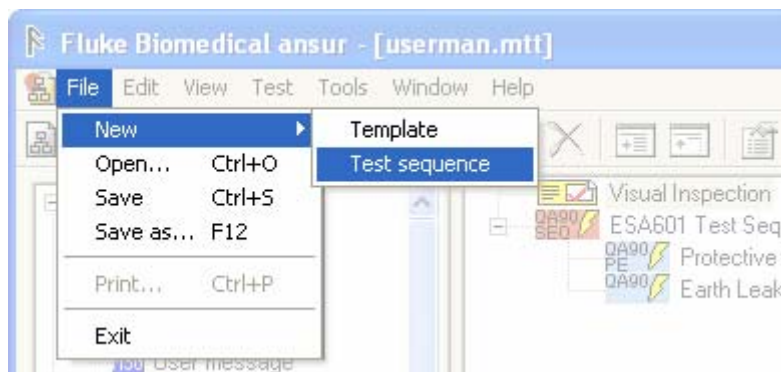
The test containers can be expanded or collapsed.

5.4 Defining the Sequence

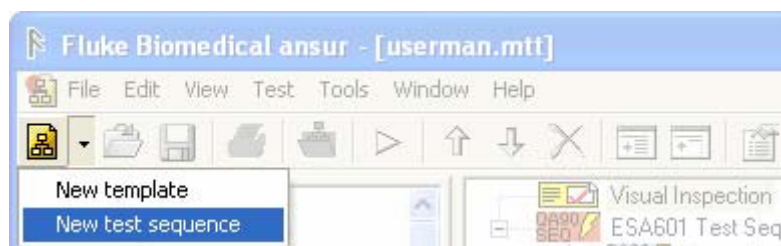
A test sequence is the combination of a test template and the specific device information that accompanies a test template. This information could include any information about the product being tested, specifics about the template itself, or the result data that is compiled after the test runs. The user also has the option to attach relevant links to the test sequence that can be accessed in the same manner as while navigating through a web page.

5.4.1 Creating a new sequence

New test sequences can be made by selecting **F**ile from the uppermost toolbar, and then **N**ew, and then choosing **T**est sequence from the menu. Selecting the pull down menu from the leftmost icon on the toolbar directly above the general test label, and choosing test sequence from the menu can also make them.

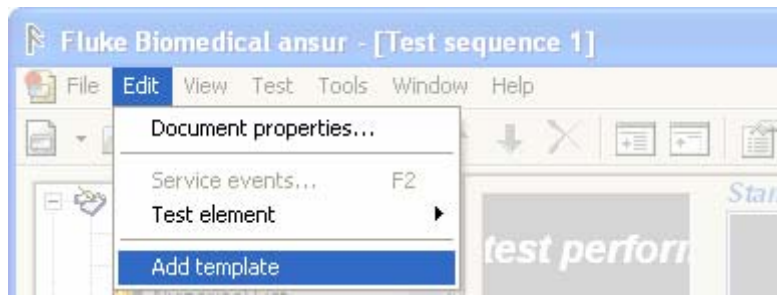


OR

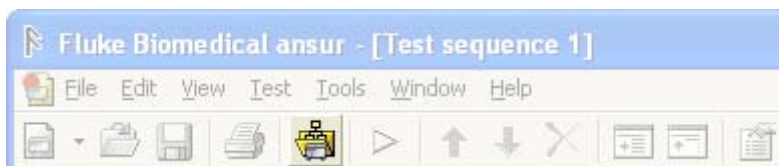


5.4.2 Adding a template to a sequence

A test template can be added to a test sequence by selecting the **E**dit menu, choosing **A**dd template and then selecting the desired template, or by selecting the icon between the printer and the start button and then selecting the desired template.



OR



5.4.3 Saving the test sequence

Test sequences can be named and saved by clicking **File, Save as** on the main menu. Here you will be able to navigate through your computer in an interface similar to windows explorer. After selecting an appropriate directory, the file will be saved as the name you selected with the file extension *.mts* (medical test sequence).

5.4.4 Retrieving the test sequence

Test sequences can be opened/ retrieved by opening the Ansur program, going to file, open, and then choosing the test sequence you want to open, remembering that test sequences are saved under the extension *.mts*.

6 Handling Test Records

This chapter describes test records and explains printing, storing and retrieving test records.

6.1 Test setup

The test setup will contain the standard and service events filters used in obtaining the test results from the test template.

6.2 Test template

The template that was executed when arriving at the final result.

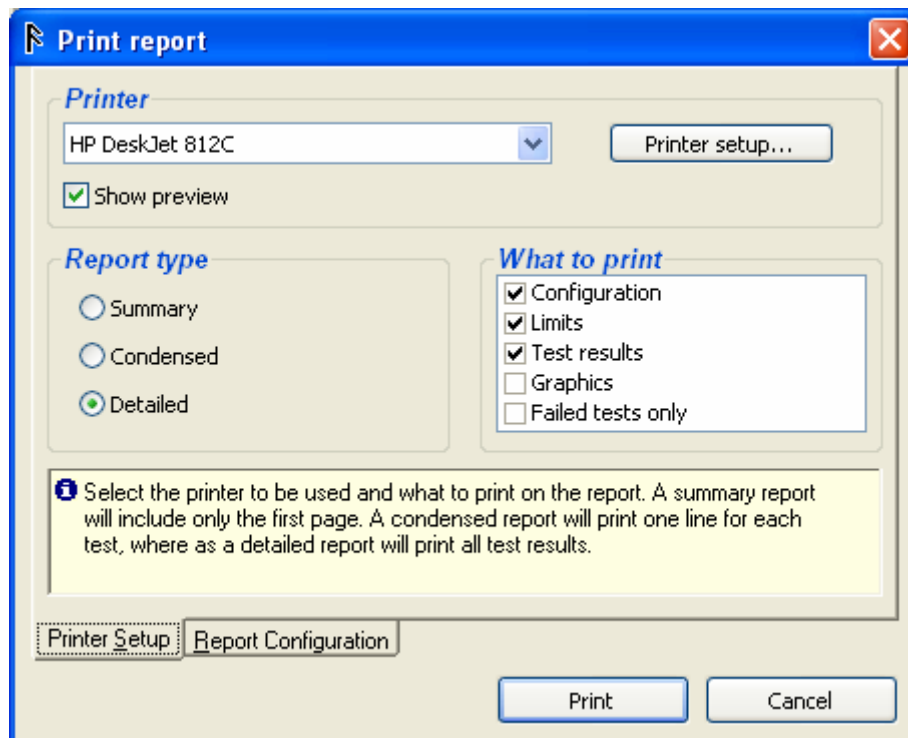
6.3 Test results

The information compiled after the test template runs. It can consist of any data gathered while testing/inspecting a piece of equipment, the particular test template (and its properties) used to test the equipment and any information that was entered into the test sequence prior to testing. While the information is available to view, copy or print, anything that was entered into the template or sequence prior to the testing, or information gathered during the test/inspection cannot be manipulated in any way.

6.4 Printing results

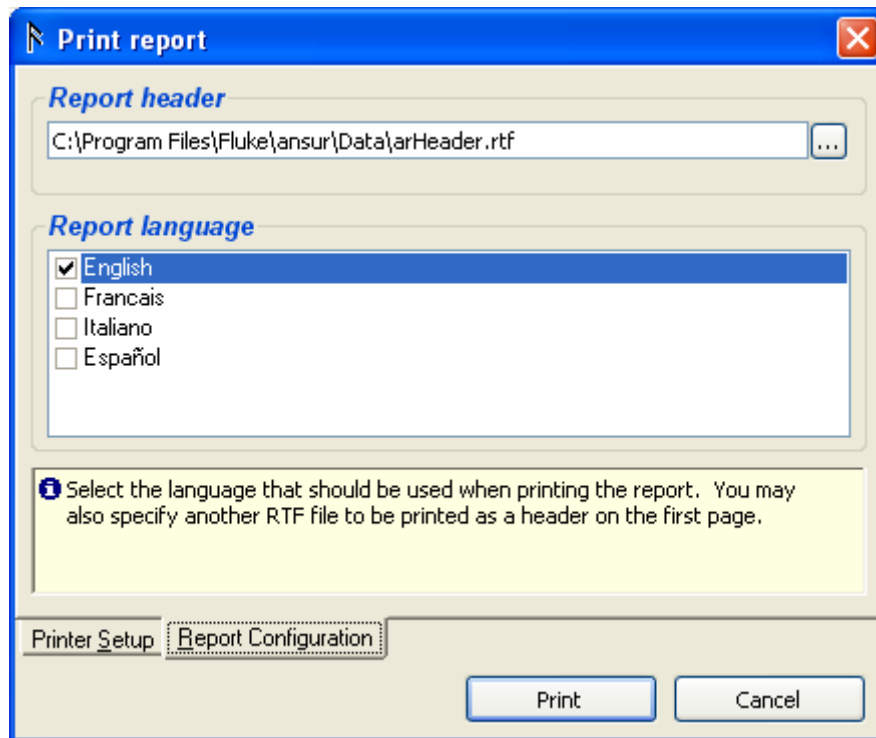
6.4.1 Printer setup

Printer setup is accessed when the print icon is pressed. The default printer is automatically selected as default printer for Ansur. The standard printer settings can be accessed from the Ansur printer setup and changes for the printer can be made from here.



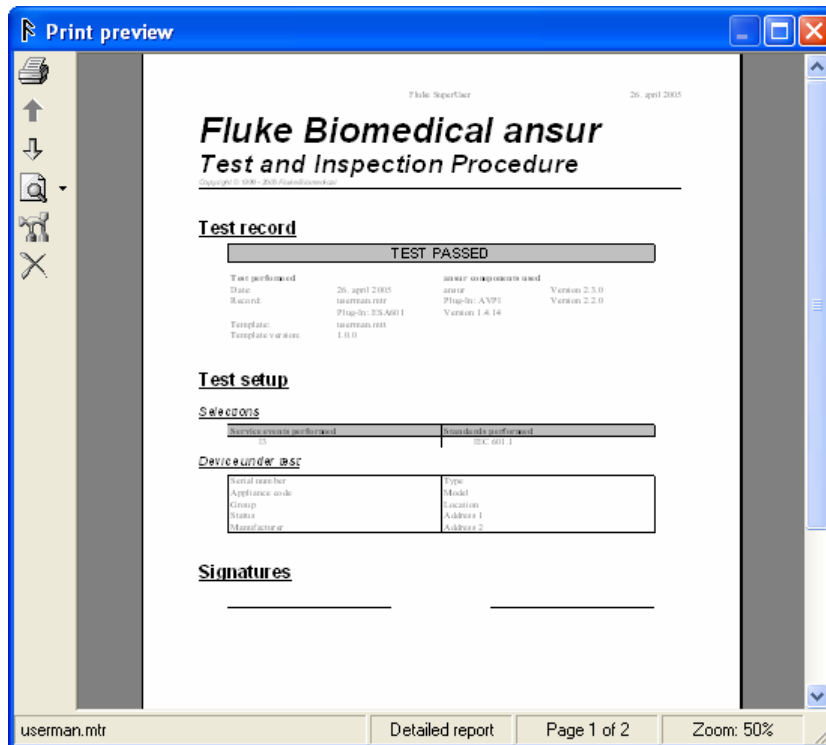
6.4.2 Report configuration

In the report configuration the user can set up which language the print report shall be printed in. The header on the print report can also be attached to a .rtf file that contains the relevant information.



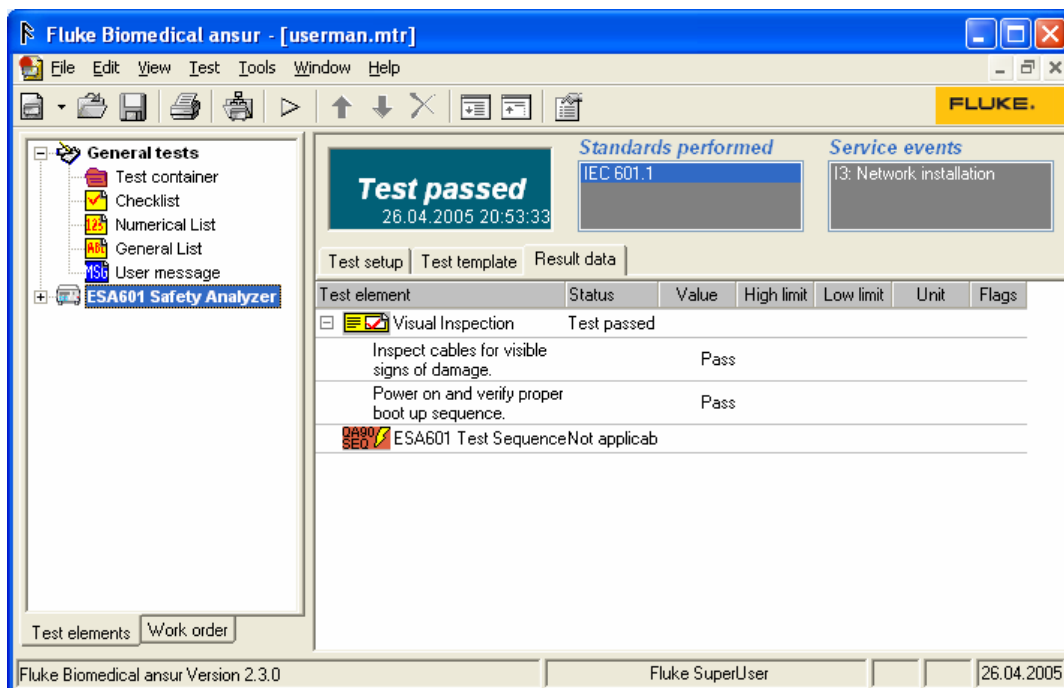
6.4.3 Print preview

The print preview is default checked in the print report. The print preview will show the report layout before printing the report.



6.5 Defining the result

Test records are the information that is compiled after the test template runs. It can consist of any data gathered while testing/inspecting a piece of equipment, the particular test template (and its properties) used to test the equipment and any information that was entered into the test sequence prior to the testing. While the information is available to view, copy or print, anything that was entered into the template or sequence prior to the testing, or information gathered during the test/inspection is not available to be manipulated in any way.



6.6 Saving the result

Test records can be named and saved by selecting **F**ile and then choosing **S**ave as from the menu. Here you will be able to navigate through your computer in an interface similar to windows explorer. After selecting an appropriate directory, the file will be saved as the name you selected with the file extension .mtr.

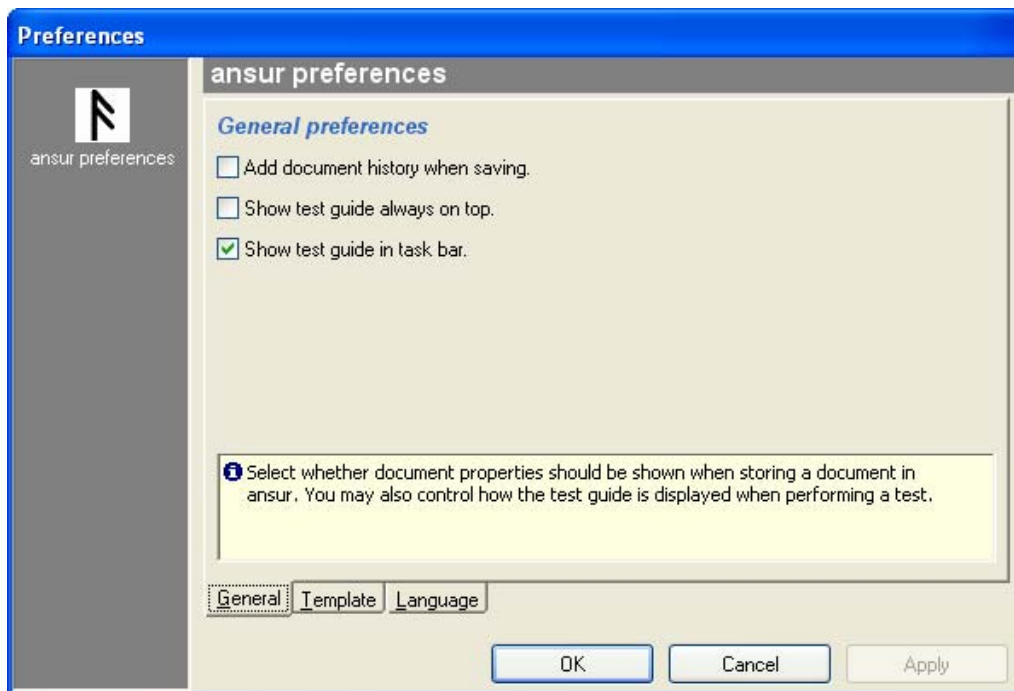
6.7 Retrieving the result

Test records can be opened/ retrieved by opening the Ansur program, going to **F**ile, **O**pen and then choosing the test record you want to open, remembering that test records are saved under the extension .mtr.

7 Ansur Preferences

Through the **Options** item under the **Tools** dropdown menu the user can access the Ansur preferences. These preferences are in two parts, general and language and can be changed at anytime.

7.1 General Preferences



Add document history

When flagged any template or test record that is saved will prompt for document history to be added. By maintaining a document history the user has a good record of the work carried out on each MTI.

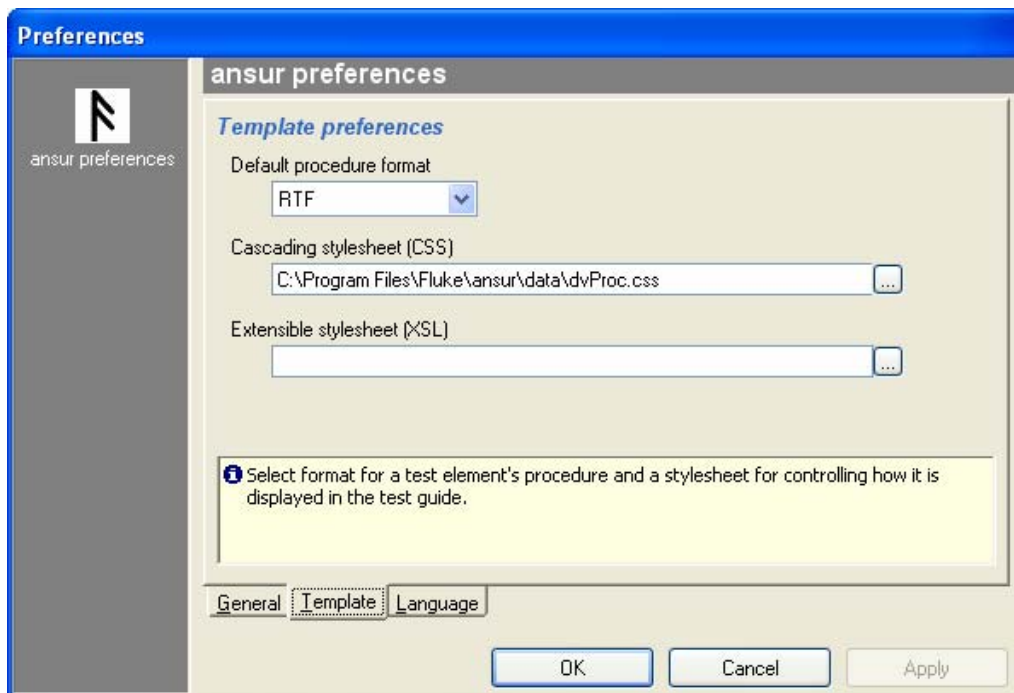
Test Guide always on top

When flagged the test guide shall remain uppermost regardless of the application selected by the user.

Test Guide in task bar:

When flagged the test guide shall be displayed in the task bar alongside all other running applications.

7.2 Template preferences



Default procedure format

Select the procedure format that is to be used when new test elements are added to a test template.

Cascading stylesheet (CSS)

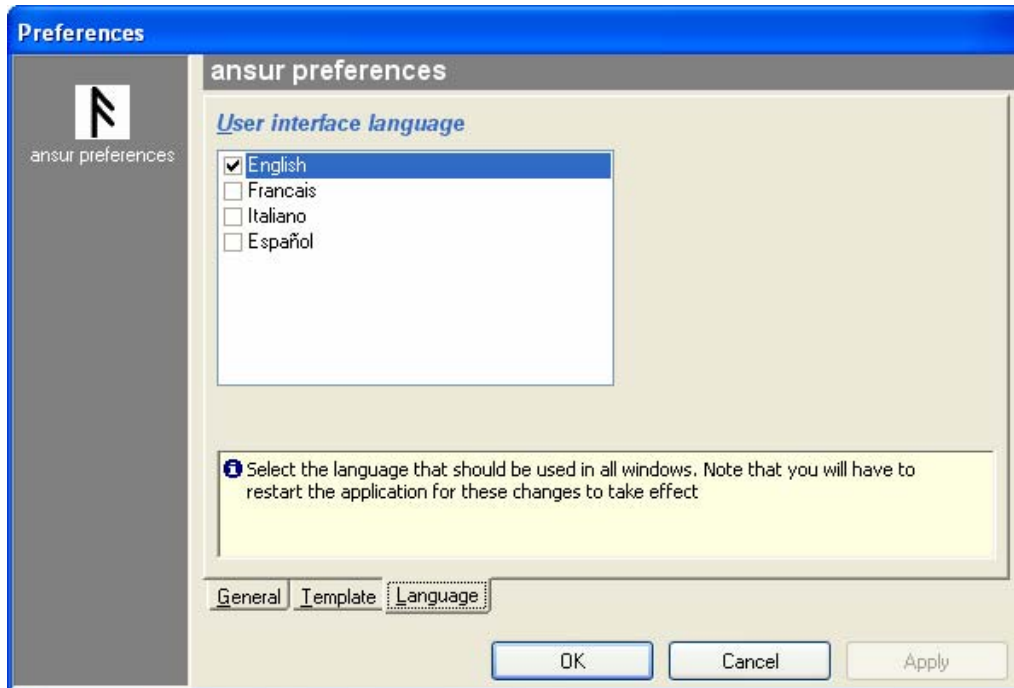
Specify a style sheet that will be used to format the procedure of all tests elements that has an HTML formatted procedure.

Extensible stylesheet (XSL)

An extensible style sheet can be added to every file stored by Ansur. By adding a link to a proper style sheet test templates and test records can be viewed in Internet Explorer or another web browser.

7.3 Language Preferences

The user is presented with a list of available languages. This selection can be changed at anytime but will only be enforced on rerunning the *Ansur* application.



8 Work Orders

A work order is a file normally created by 3rd-party databases/applications that interfaces to Ansur. The Work order file contains information on the device to be tested (name, type, serial number, modules), in addition to which Template to use, name of the result file (and possibly where to store the result file). - The 3rd-party applications start Ansur with the work order file as a parameter. Ansur then knows which Template to use and how the device to be tested is configured.

8.1 Work order format

Example Work Order

```
<?xml version="1.0" encoding="iso8859-1" standalone="yes"?>
<METRONFile Version="1.3.3" Type="JobOrder">
  <JobOrder>
    <OutputDir>C:\My Documents</OutputDir>
  </JobOrder>
  <Setup Template="Testing1.mtt" ResultFile="Testing2.mtr">
    <ServiceEvents>
      <Activity Type="" Event=""/>
    </ServiceEvents>
    <Standard AlphaName="HP" CompleteName="HP Factory"/>
    <DUT>
      <Item Name="Appliance code" Ord="1" Caption="Appliance code">DUT</Item>
      <Item Name="Serial No" Ord="2" Caption="Ser No" Key="True">12345</Item>
      <Item Name="Status" Ord="3" Caption="Status">OK</Item>
      <Item Name="Group" Ord="3" Caption="Group">Defibrillators</Item>
      <Item Name="Manufacturer" Ord="5" Caption="Manufacturer">HP</Item>
      <Item Name="Type" Ord="6" Caption="Type">Codemaster</Item>
      <Item Name="Model" Ord="7" Caption="Model">XL+</Item>
      <Item Name="Location" Ord="8" Caption="Location">Datavisjon</Item>
      <Item Name="Street" Ord="9" Caption="Street">Stoperigt 16b</Item>
      <Item Name="City" Ord="10" Caption="City">N-4014 Stavanger</Item>
    </DUT>
  </Setup>
</METRONFile>
```

8.1.1 METRONFile

The document root of all Ansur files is named <METRONFile>.

```
<METRONFile Type="Record" Version="2.0.1">
  ...
</METRONFile>
```

8.1.2 JobOrder

The <JobOrder> element can only exist in job order files. It contains general settings for the jobs stored in the job order file.

```
<JobOrder>
  <Language GUI="" Report="">
  <OutputDir>
</JobOrder>
```

<Language>

Specifies the language to be used in Ansur when the jobs in this job order file are performed.

<OutputDir>

Specifies a path where the test record files created from each job should be stored.

8.1.3 Setup

The <Setup> element is used to define information not related directly to the test template, but that is specific for each device under test (DUT) the template can be used to test. This includes such things as serial number(s), model, type, module configuration etc. The <Setup> element may contain one <DUT> element a <ServiceEvents> element, one or more <Standard> element, a <Links> element and any number of <PlugInData> elements. An overview is shown below:

```
<Setup Template="" ResultFile="">
  <ServiceEvents>
  <Standard>
  <DUT>
  <Links>
  <PlugInData>
  <TestInstruments>
</Setup>
```

<ServiceEvents>

The <ServiceEvents> element is used in the <Setup> element to select an Activity and Service Event that is to be performed.

<Standard>

The <Standard> element contains the name of the standard to be used when performing the test.

<DUT>

The <DUT> element contains the equipment information (known as Dutinfo from earlier PRO-Soft).

<Links>

The <Links> element contains any number of <Item> elements that each define a link to another related document.

<PlugInData>

The <PlugInData> element is an encapsulation of configuration data needed by a plug-in. Ansur does not define the contents of the <PlugInData>. This is done by each plug-in.

<TestInstruments>

The <TestInstruments> element lists all MTT's used when the test was performed.

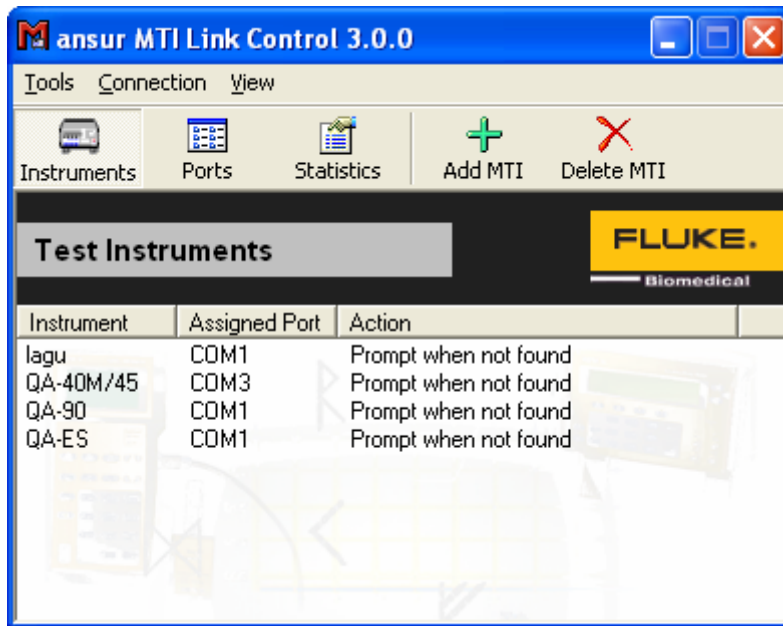
Attribute Values - <Setup>

When the <Setup> element is used within a job order file, it should also contain three attributes: Template, ResultFile and ReadOnly.

Attribute	Legal values
Template	The Template attribute should contain the file name of the template to be used when running the test. This attribute is only applicable when the <Setup> element is used within a job order file.
ResultFile	The ResultFile attribute should contain the name of the test record file in which the test results will be stored. This attribute is only applicable when the <Setup> element is used within a job order file.
ReadOnly	The ReadOnly attribute should be set to "True" to prohibit the test setup from being edited by the operator. Setting the ReadOnly attribute in a JobOrder file will lock the standard and service event lists displayed in the Test Initialization window.

9 Ansur MTI Link Control (AnsurMLC)

The AnsurMLC is a standalone executable enabling direct communication with any compatible test instrument connected. This executable is provided with the installation of the *Ansur* application and can be accessed directly from the start menu.

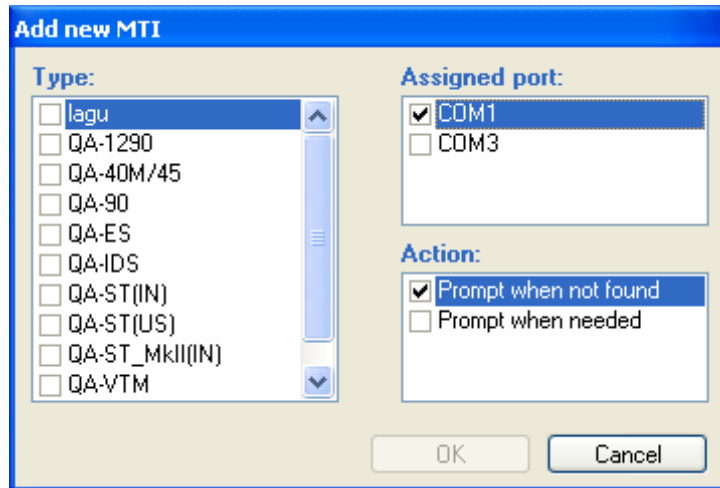


9.1 Assigning a Port to an Instrument

The AnsurMLC can communicate with up to sixteen test instruments via serial ports COM1 through to COM16. The user can assign a port to a test instrument in one of two ways:

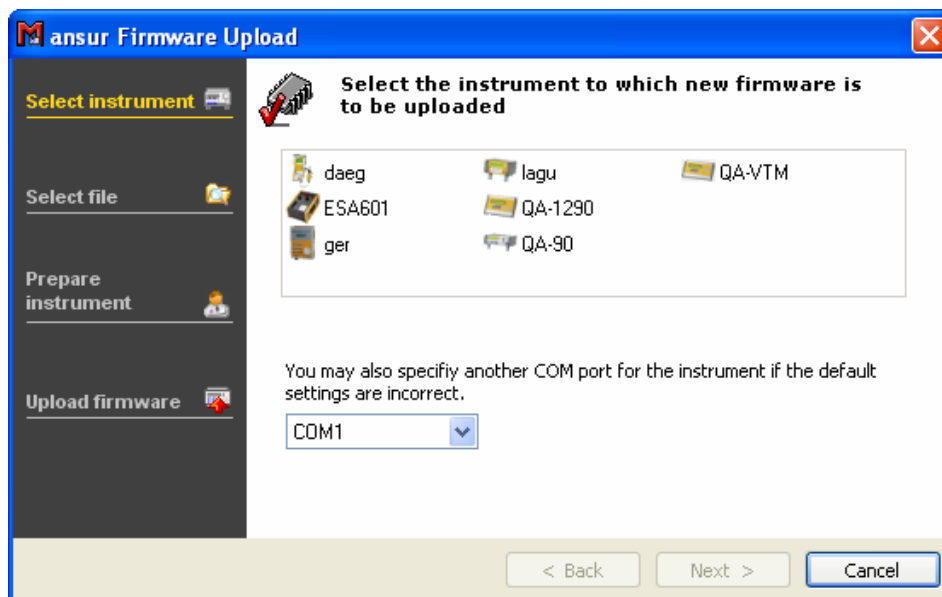
He can directly assign the device to a port of his choice by pressing the **Instruments** button (see above) and double clicking over the desired device. An edit window is made available for the user to assign the devices port and actions. Alternatively he can ask the Ansur MLC to scan the ports to find those MTI devices currently attached. The scan is achieved by pressing the **Ports** button and then the **Scan ports** button.

By clicking the + button one can assign ports to new instruments or several ports to the same instrument if one has more than one connected. The X button will remove the currently selected port assignment.



9.2 Firmware upload

To upload new firmware to your Fluke Biomedical test instrument, start AnsurMLC and click **Upload Firmware** on the **Tools** menu. This will open the firmware upload wizard as displayed below.



Select the instrument to which firmware is to be uploaded and click **Next**. The wizard will guide you through the steps in uploading the firmware.

Appendix A.

Language Translation

The Ansur software suite uses a set of text files to contain all text displayed in Ansur and on reports. These texts can be altered in order to allow for multiple languages in Ansur. The language files used by Ansur should all be stored in the Language directory found in the directory where Ansur was installed. Each file will be named with the language it contains, the component to which it belongs and an .lng extension.

Example:
English (Ansur).lng.

Each component will use some of the texts defined in Ansur's language file English (Ansur).lng in addition to the text provided by its dedicated language file. The different language files available today are:

Language file	Belongs to
<i>English (Ansur).lng</i>	Ansur executive and common texts
<i>English (AVPI).lng</i>	Ansur Visual Plug-In
<i>English (QA-1290).lng</i>	Ansur QA-1290 Plug-In
<i>English (QA-VTM).lng</i>	Ansur QA-VTM Plug-In
<i>English (QA-90).lng</i>	Ansur QA-90 Plug-In
<i>English (QA-4X).lng</i>	Ansur QA-40M/45 Plug-In
<i>English (QA-ST).lng</i>	Ansur QA-ST plug-in
<i>English (lagu).lng</i>	Ansur lagu plug-in
<i>English (QA-ES).lng</i>	Ansur QA-ES plug-in
<i>English (ESA601).lng</i>	Ansur ESA601 plug-in

File Format

The format of a language file is very simple. It requires a predefined header on top, and then each line will contain one phrase that will be used in Ansur.

Header

The header of a language file should contain the name of the language, the ID of the component using it and a version number. These information fields should be separated by a double colon (:).

Example:
English::AVPI::1.0

The different Plug-In ID's will be the same as those listed in the filenames above (AVPI, QA-1290, QA-VTM, etc.)

Comments

Comments are allowed in the language file. They should always be preceded with a semicolon (;).

Example:
;--- Common captions and texts (1 - 99) ---

Text entries

The text entries listed in the language file consist of one numeric ID and text enclosed in apostrophes ("). The ID and the apostrophes are required and must be present in every text entry. The IDs should always be in an ascending order and should never be changed.

Example:
1 " &OK "

Macros

Macros can be present in the text entries. These macros are used to include variable text such as file names, error numbers and the like into the text in the text entry. The macros are designed so that different languages can place the subjects, e.g. filenames, grammatically correct. Currently the following macros are implemented:

Macro	Description
\n	Inserts a line feed in the text. Often used in long error messages.
%%X	The macros named %%1 - %%5 (X being a number from 1 to 5) is used to include variable text into the text entry. A very normal use is "Can not find the file %%1."

Example:

```
"Page %%1 of %%2"
```

Creating a new language

In order to create a new language a new language set should be placed in Ansur's Language directory. By following the steps below you should be able to create such a language set.

1) Create a new set of language files

Create a new copy of each of the English (*.lng) files currently available, and replace the language in the file name with the new language. After this you should have at least two new .lng files in the language directory plus one additional file for each installed plug-in.

2) Update the language file's header

Update the header by replacing the name of the language in front of the first double colon with the name of the new language created. The ID and the version number can be left as is. This operation must be repeated for each new language file created in step (1).

3) Translate the text in the language file

Replace the English text with the translated version in the new language. Note that the macros present in the text should be used also in the translated version. This operation should be repeated for each new language file created in step (1).

Appendix B.

Configuring the report header

To change the details in the header on the print report open the header file in WordPad. The file can be located at: *C:\Program Files\Fluke\Ansur\Data\arHeader.rtf*.

Make the desired changes and save the file. The file can also be saved with a different file name and the path can be set in printer setup in Ansur.

Appendix C.

Changing DUT info

DUT Info

The DUT info can be changed in the registry under HKEY_LOCAL_MACHINE\SOFTWARE\Fluke\Ansur\Executive\Test Record\DUT Info. All keys in the DUT Info key can be altered and even new keys can be added. The new settings on DUT info will apply on all new test records created and saved. Old test records will show the DUT info with the old DUT settings.

Caption

The caption in the DUT info string is attached to the language file. If any changes are made to this string the language file also need to be updated.

Key

Reserved for future use

Ord

The Ord key determines the order the entry will appear. The values are entered in hex decimal.

Required

Reserved for future use

Appendix D.

Retrieving updates

Updates for Ansur are published from Fluke Biomedical's web pages

- <http://www.flukebiomedical.com/>

Appendix E.

Ansur command line interface (AAL)

Ansur will implement a set of command line switches that may be used to control the behavior of the application, and send commands and data to and from the Ansur. This chapter describes the commands available through the interface called *Ansur Access Layer* (AAL).

Run test: /r file [/h]

The **/r** command causes Ansur opens the file specified by name and runs the test. If the **/h** switch is specified we will only show the windows necessary to prompt the user for information. When the test is completed, and after the user is finished viewing the test results, Ansur terminates.

Print file: /p file [/h]

Prints the file given. Specifying the **/h** switch will cause Ansur to operate in hidden mode, and terminate when the printing is completed.

Show file: /s file

The **/s** command starts the Ansur application, loads and displays the file specified.

Appendix F.

Adding Standards

Standards are maintained and accessed via the registry. There are two ways to do this, firstly through a registry file and secondly by accessing the registry directly via the *regedit* Microsoft application.

To add standards' using a registry file requires the instructions listed below.

```
REGEDIT4

[HKEY_LOCAL_MACHINE\Software\Fluke\Ansur\Limits]

[HKEY_LOCAL_MACHINE\Software\Fluke\Ansur\Limits\]
"<CompleteName>"=""
"#icon#"="<Icon file reference>"
```

The <AlphaName> is the shorthand of the <CompleteName>, the <CompleteName> being the full standard name. Any number of user-defined standards may be added into the file. Give it a filename with a "reg" extension and then double click.

From the start menu run the "regedit" internal Microsoft application. Search for the registry path HKEY_LOCAL_MACHINE\Software\Fluke\Ansur\Limits under which will be listed all available standards for Ansur. These standards can be edited, added or deleted at will. If deleting a standard, ensure that no existing template has used the standard as a filter.