FLUKE ®

Biomedical

Ansur Test Executive

Software

Users Manual

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About This Manual

This Users Manual describes the Ansur Test Executive. The manual covers all features specific to the software. Familiarity with both Ansur software and Microsoft Windows and their features will help in the design and use of tests for the supported test instruments. The manual is divided into the following chapters:

Chapter 1 *Introduction* provides information on Ansur software.

Chapter 2 *Getting Started* provides information on how to install and configure the Test Executive.

Chapter 3 *Testing with Ansur* describes the tasks necessary to operate the Test Executive to test medical equipment.

Chapter 4 *Reference* contains details about every Ansur Test Executive feature.

Ansur Software

Ansur Test Automation software is the foundation for all Fluke Biomedical test systems. Ansur manages test procedures by allowing both manual and visual automated test sequences.

The software works hand-in-hand with Fluke Biomedical analyzers and simulators, creating a seamless integration for:

- Visual inspections
- Preventive maintenance
- Work procedures
- Performance tests
- Electrical safety tests

Ansur Plug-Ins

Ansur Test Executive software utilizes Plug-In modules that work with a wide array of Fluke Biomedical instruments. The Plug-In module is a software interface that provides test elements to the Ansur Test Executive program. This scheme allows the use of a similar user interface for all analyzers and simulators supported by Ansur.

With the purchase of a new Fluke Biomedical analyzer or simulator, it is possible to update existing Ansur software by installing a new Plug-In. Each Plug-In module allows users to work with only the options and capabilities needed for the instrument under test.

Software Updates

Updates for Ansur are published on the Fluke Biomedical website, *http://www.flukebiomedical.com*.

Terms and Abbreviations

Table 1-1 lists terms and abbreviations used in this manual.

Table 1-1. Terms and Abbreviations

Term	Description
Ansur	Ansur is a software suite using Plug-Ins to perform test and inspection procedures in conjunction with several Fluke Biomedical test instruments.
Appliance	In the context of Ansur, this is a piece of medical equipment that is undergoing some kind of engineering task (installation, preventative maintenance, or repair). The appliance may also be referred to as a device under test (DUT).
Checklist	A checklist is a general purpose test element used to create checklists in Ansur test templates. The checklist is a part of the visual Plug-In.
DUT	Device Under Test—the equipment subjected to a test using the Analyzer
DUT Info	Information used to identify one particular DUT. DUT info usually consists of a serial number, manufacturer, device type, and model. Ansur also adds a few extra data fields such as location and status.
Field User	The person using Ansur to perform a test template on a DUT.
General List	General list is a general purpose test element used to create lists where the field user enters any kind of data. The general list is a part of the visual Plug-In.
General tests	General tests is the name used in Ansur for the general test.
Numerical list	Numerical list is a general purpose test element used to create lists where the field user enters numerical results that can be validated against limits. The numerical list is a part of the visual Plug-In.
Plug-In	Add-on software program that extends Ansur so that it can interface with a specific Fluke Biomedical test instrument to configure it for a specific test and to automatically collect the measured data (if applicable).
Service Event	Each test element in the test template can be assigned up against a service event on when to perform this test.

Table 1-1. Terms and Abbreviations (cont.)

Term	Description
Test Container	A test container is a test element that can contain other test elements. An Auto Sequence is a test container.
Test Element	An Ansur construct that encapsulates test configuration and results. A test template is built of several test elements.
Test Guide	A window displayed by Ansur or any of its Plug-Ins when a test element is being performed.
Test Record	An Ansur file containing the results of a performed test template. The test record can be printed as a test report.
Test Template	An Ansur file containing a set of test elements that define how a particular DUT is to be tested. A test template can also contain instructions on how to perform service, preventive maintenance, repair, and other tasks on a DUT.
Test Sequence	A test sequence contains a test template as well as additional information about the test and the DUT. 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.
Test Setup	The test sequence contains a tab labeled test setup and in which 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.
Test Record	A test record is an Ansur file containing the results of a performed test template. The test record can be printed as a test report.
General test Plug-In	The general test Plug-In is a part of Ansur that contains the test elements checklist, numerical list, general list, test container, and user message.
Visual tests	Visual tests is often used as a common name for all test elements provided by the general test Plug-In.

Getting Started

Introduction

This chapter tells how to install the Ansur Test Executive software.

Note

To use the Ansur Test Executive software with one or more test instruments, you must install a Plug-In for the test equipment. Go to www.flukebiomedical.com to download Plug-In software.

System Requirements

To use the electronic signature feature, install Ansur Test Executive software and Ansur Executive Server (requires Microsoft SQL Server). You can install in a network configuration, or on individual PCs (non-networked). In a network configuration, one PC is a central PC that is installed with the server software. In a non-network configuration, each PC is its own central PC.

To use Ansur Test Executive without electronic signatures, install the Ansur software only. (You do not need to install the Ansur Executive Server or Microsoft SQL Server). This option does not require the server software and does not use a central PC.

PC Requirements

These are the recommended minimum requirements for Ansur Test Executive:

- Pentium 4 2.0 GHz FSB @400 MHz or faster processor

- 512 MB of RAM

- Microsoft operating systems: Windows 2000, Windows XP, Windows Vista, or Windows 7, Windows 8, or Windows 10.

- 50 MB of available hard drive for software

- Hard drive space (from 100 k to several megabytes) for result and template files

- .Net framework version 3.5

PC Software Requirements – With Electronic Signature

This software is required on the central PC (for a network configuration) or each PC (for a non-networked configuration):

- Microsoft SQL Server 2012 Express, see *Install Microsoft SQL Server* in this chapter.

Note

Microsoft SQL Server 2012, supports Windows Vista, Windows 7, Windows 8, and Windows 10. For older operating systems you can use SQL Server 2008 (Windows XP and Windows Vista) or SQL Server 2005 (Windows 2000 and Windows XP).

- Ansur Executive Server, see *Install Microsoft SQL Server* in this chapter.

PC Software Requirements – Without Electronic Signature.

Install Ansur Test Executive only. See *Install Ansur Test Executive* in this chapter.

Install Microsoft SQL Server

Ansur 3.1.3 supports Microsoft SQL Server 2012, 2008 R2 and 2005 editions.

Install Microsoft SQL Server 2012 Express

If Microsoft SQL Server 2012 Express is not installed on the PC, go to https://www.microsoft.com/en-in/download/details.aspx?id=29062 to download the software.

For help with installation, go to https://technet.microsoft.com/en-us/library/ms143219(v=sql.110).aspx and follow the instructions *How to: Install SQL Server 2012*.

During the installation, make the settings in Table 2-1:

Table 2-1. Installation Settings for Microsoft SQL Server

Settings	Procedure
Installation screen:	
Features Selection	Click **Select All**.
Instance Configuration	Select **Named instance** and enter **SQL Express**.
Database Engine Configuration	1. Select **Mixed Mode (SQL Server authentication and Windows authentication)**. 2. Enter the password and then confirm the password. Make a note of the SQL Instance name and the SQL Login and Password. These settings are required to install the Ansur Executive Server and Ansur Test Executive software. The SQL Authentication defaults are: SQL Instance name **SQLExpress** Login **sa** Password (user defined)

Table 2-1. Installation Settings for Microsoft SQL Server (cont.)

Settings	Procedure
Other settings	
Configure the SQL server to enable remote connections	Go to https://msdn.microsoft.com/en-in/library/ms191464(v=sql.110).aspx and follow the instructions to configure remote access.
Enable the TCP/IP network protocol	Use the instructions from: https://technet.microsoft.com/en-us/library/hh231672(v=sql.110).aspx .
Set the Surface Area Configuration	Go to https://msdn.microsoft.com/en-us/library/ms161956(v=sql.110).aspx. At step 4 in the link, set the **RemoteDacEnabled** property to **True**.

Install Microsoft SQL Server 2008 R2 Express

If Microsoft SQL Server 2008 R2 Express is not installed on the PC, go to https://www.microsoft.com/en-in/download/details.aspx?id=30438 to download the software.

For help with installation, go to:
 https://msdn.microsoft.com/en-us/library/ms143219(v=sql.105).aspx and follow the instructions *How to: Install SQL Server 2008 R2*.

During installation, make the settings in Table 2-1.

Install Microsoft SQL Server 2005 Express

If Microsoft SQL Server 2005 Express is not installed on the PC, go to http://www.microsoft.com/en-in/download/details.aspx?id=21844 to download the software.

For help with installation, go to http://msdn.microsoft.com/enus/library/ms143722%28v=SQL.90%29.aspx and follow the instructions *How to: Install SQL Server Express*.

During installation, make the settings in Table 2-2:

Table 2-2. Installation Settings for Older versions of Microsoft SQL Server

Option	Settings
Installation Screen	
Features Selection	Right-click **Client Components** and set **Entire features in local hard drive**.
Authentication Mode	1. Select **Mixed Mode**.
	2. Make a note of the SQL Instance name and the SQL Login and Password. These settings are required to install the Ansur Executive Server and Ansur Test Executive software.
	The SQL Authentication defaults are:
	SQL Instance name **SQLExpress**
	Login **sa**
	Password (user defined)
Other settings	
Configure the SQL server to enable remote connections.	Go to http://support.microsoft.com/kb/914277 and follow the instructions to configure remote access.

Install Ansur Executive Server

To install Ansur Executive Server:

1. Go to http://www.flukebiomedical.com.

2. Download the Ansur Executive Server executable file (Ansur Executive Server.exe) onto the central PC.

3. Double-click **Ansur Executive Server.exe**.

4. Click **Next**.

   The license agreement opens.

5. Click to accept the license agreement.

   The installation prompts for customer information.

6. Enter the **SQL Instance** name, SQL **Login**, and **Password** and then enter the customer information.

Note

Make sure to enter the same information you used to install Microsoft SQL Server. See Table 2-1 or Table 2-2 for the default settings. If you do not have the installation information, contact your IT administrator.

7. Click **Next**. The destination folder dialog box opens. To put the file in a location other than the recommended location, click the **Change** button and browse to the new location.

8. Click **Next.** The Ready to Install dialog box opens.

9. Click **Install** and then click **Finish** to complete the installation.

Install Ansur Test Executive

The Test Executive must be installed on the PC before the features described in this manual can be implemented. For information on obtaining the Ansur software, contact the local Fluke Biomedical representative or visit the Fluke Biomedical website (http://www.flukebiomedical.com).

Note

To use the Test Executive Software with one or more test instruments, you must install the appropriate Plug-In. Go to www.flukebiomedical.com to download Plug-In software.

1. Open **Windows Explorer** and browse to the Ansur Executive installation program file, usually named **Ansur Executive Vn.n.n.exe**, where *n.n.n* is the Plug-In version number.

Note

For Windows Vista and higher, you must install the program as an Administrator. Contact your local IT department to get administrator rights.

2. Double-click the installation program. The installation extracts the Executive program.

Note

Make sure .Net framework 3.5 is installed on the PC. If .Net framework 3.5 is not installed, an error message appears.

3. Click **Next**. The license agreement opens.

4. Select **I accept the terms in the license agreement** and click **Next**.

5. In the dialog box:

   - To install without electronic signature, click **Skip**.

   - To install with electronic signature, complete the form fields and then click **Next**.

Field	Entry
Server Address	Enter the IP address of the central PC (where Microsoft SQL Server is installed) To find the IP Address of the central PC, see *Find an IP* Address.
SQL Instance **Login** **Password**	Enter the same settings you used to install Microsoft SQL Server. See Table 2-1 or Table 2-2 for the default settings. If you do not have the installation information, contact your IT administrator.

Note

If the SQL Server Authentication fails:

   - *For installations with electronic signature—you can complete the installation, but the electronic signature feature is disabled.*

   - *For installations without electronic signature—ignore this message.*

6. Select **Complete** and click **Next**. Alternatively, select **Custom** to change the destination folder or to remove samples from the installation.

   Fluke Biomedical recommends the **Complete** option.

7. Click **Install** to begin the installation. A progress bar indicates the installation process.

8. Click **Finish** to complete the installation process.

Find an IP Address

Use this procedure to find the IP address of the central PC or local PC.

1. Log onto the PC.

2. Select **Start | Run**.

Note

For Windows Vista and higher, click the Windows icon, and enter
***Run**.*

3. At the command prompt enter: **ipconfig**.

    The IP address of the PC appears. For Windows XP, see Figure 2-1. For Windows Vista and higher, see Figure 2-2.
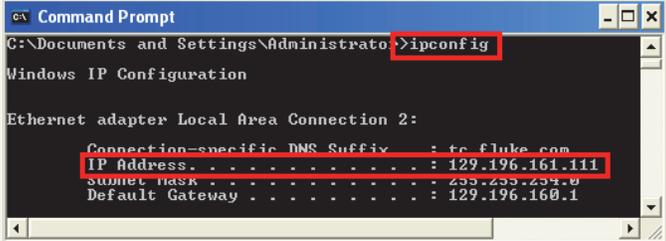
gey337.bmp

Figure 2-1. IP Address for Windows XP

gey339.bmp
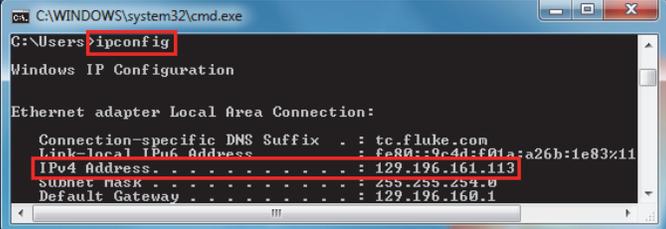
Figure 2-2. IP Address for Windows VISTA and Higher

Start Ansur Executive

Choose one of these methods to start Ansur Executive:

- Double-click the Ansur icon on the desktop.

- Select **Start | Programs | Ansur**.

The login dialog box appears. If the PC cannot connect to the central PC, the Server Address text field displays on the login dialog box. You must enter the correct central PC IP address. See *Find an IP Address*.

Log into Ansur Executive

If this is the first login to Ansur Test Executive, you must set up the User Profiles. Login with the username: **admin** and the password: **admin**. For more information on creating and maintaining user profiles, see *User Profiles Management* in this chapter.

Note

The first time you login to Ansur Test Executive, Ansur prompts you to change your password.

Once User Profiles are established, you can login using one of these methods:

- To use all the features of Ansur available for your authority level, login to Ansur with your username and password. See *Login With Credentials*.

- To use the basic functions of Ansur without electronic signatures, follow the instructions in *Login Without Credentials*. This option restricts features.

- To use Ansur in offline mode (when the network or the central PC is not available) login to Ansur Executive. You will have access to all features including electronic signature. To use offline mode, you must have made a successful login to Ansur Executive on that PC when the central PC was available.

Login With Credentials

1. Make sure the **Disable Electronic Signature** option is not selected.

2. Enter a **Username** and **Password**.

3. Click **OK**.

   You have access to Ansur according to the assigned user profile, see Table 2-3. By default, Ansur loads with users who have previously logged in successfully.

Login Without Credentials

1. Select **Disable Electronic Signature**.

   The Username and Password fields are disabled.

2. Click **OK**.

   You have access to Ansur with the restricted features as listed in Table 2-3.

How to Enter the License Key

When you start Ansur Executive for the first time, you must enter the software license key provided by Fluke Biomedical at the time of purchase.

Note

You can create test templates without a license key by using the demonstration mode. Demonstration mode allows many of the tasks described in this user manual. However, you cannot save or print without licensing the Plug-In.

1. Enter the **Establishment** name and the Plug-In **License key.** If a license key is not available, click the **Demo** button to start Ansur in demonstration mode.

Note

Because the license key is derived from the establishment name, both strings must match the license information provided by Fluke Biomedical. This information is case sensitive and space sensitive. If the establishment name has been entered in the past, this field is already filled in.

2. Click **OK** to start Ansur.

Electronic Signatures

All user profiles have an electronic signature stored in the Ansur database. User profiles with Admin and Author permissions enter an electronic signature on each template and test record they create and save in Ansur. User profiles with User permissions enter an electronic signature on each test record they save in Ansur.

To attach an electronic signature to a template or test record:

1. Click the **Save** button on the Template form or Test record form. The password dialog box appears.

2. Enter the password and click **OK**. The Edit Document properties dialog box opens.

3. Enter a description and comments related to the template or test report and click **Save**.

Note

Ansur automatically increments the version number of a template on every save of the template.

Figure 2-3 is an example test record of tests executed by a user.
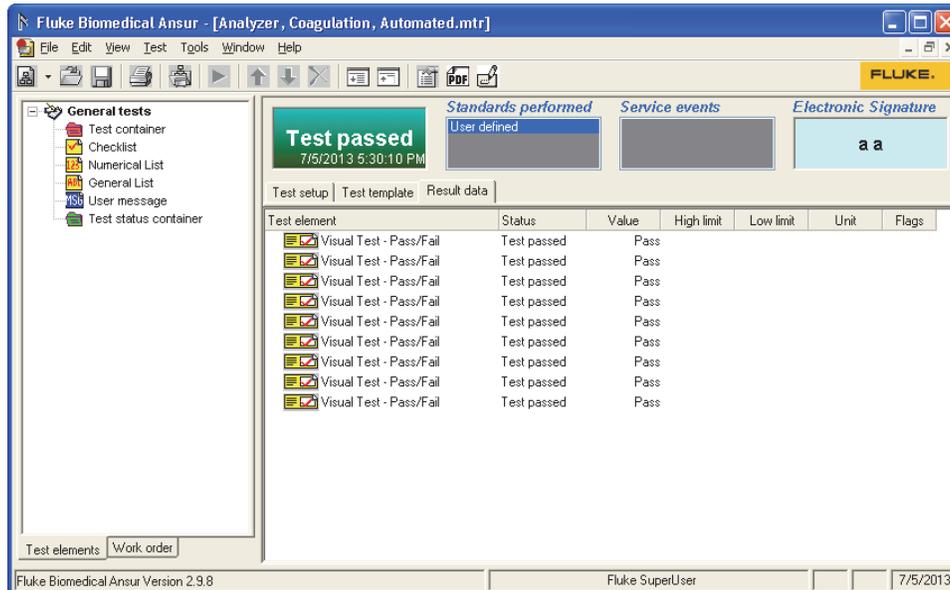
gey303.bmp

Figure 2-3. Example Test Record

How to Customize DUT Information

You can customize the DUT information that shows in the DUT Information tab in the Test Guide window. To customize the DUT Information tab:

1. Start Ansur and select **Tools | Options**. The preference window opens.

2. Click **Ansur Preferences** and then click the **DUT** tab. The DUT page opens. The default fields are shown in Figure 2-4. Each field name that is selected shows in the Test Guide window.
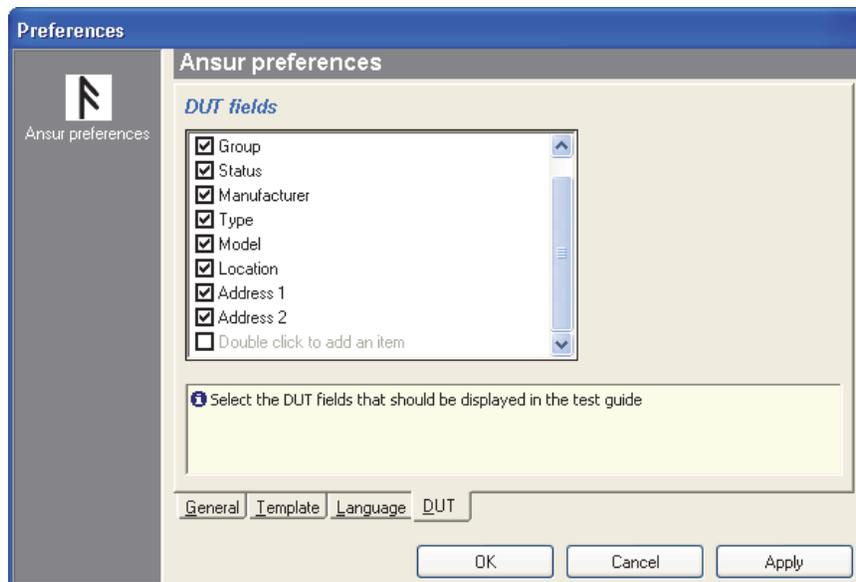
gey340.bmp

Figure 2-4. DUT Field Preferences Window

3. To a customized field, double-click the text of the last field in the list and enter the custom name.

Figure 2-5 shows the DUT Information window with the default DUT fields. You must fill in all DUT fields before the **Next** (🟢) button is enabled.

gey341.bmp

Figure 2-5. Test Guide DUT Information Tab

Note

To delete an added field, right-click on the field name and follow the instructions in the delete dialog box.

Language Selection

Ansur supports these languages:

- English
- French (Francais)
- Italian (Italiano)
- Spanish (Español)
- Turkish
- Japanese
- Chinese
- German
- Portuguese - Portugal
- Portuguese - Brazil

Plug-Ins may install additional language options such as English US.

For Unicode languages (for example Japanese and Chinese), make sure the Arial Unicode MS font is available on the PC. You also must change the system locale to the correct language. To change the system locale, go to **Control Panel | Region and Language | Administrative** tab and select **Change system locale**.

To select a different language, change the selection in the Ansur options.

1. Start Ansur and click **Tools | Options**. The preference window opens.

2. Click **Ansur Preferences** and then click the **Language** tab.

3. Select the language from the list of available languages.

4. Click **OK** to close the preferences window.

Note

You must restart Ansur for the new language selection to take effect. Plug-Ins do not support all languages. If a selected language is not supported by a Plug-In, English is used.

User Profiles Management

Ansur Executive manages user interactions by assigning an authority level to each user profile. The authority level defines the permissions for the user. See Table 2-3 for an explanation of each authority level and permissions.

Table 2-3. User Profile and Permissions

Authority Level	Permissions
User	• Execute templates • Change their own passwords
Author	• Create templates. • Execute templates • Change their own passwords
Administrator	• Create, add, edit and delete users • Manage and edit User Profiles • Change server details • Create templates. • Execute templates • Change their own and other users passwords
none **Disable Electronic Signature** is selected.	• Basic functions (electronically signed templates and results files are not available) Ansur uses this profile for logins without credentials. The electronic signature feature is disabled and some features are restricted.

Use the Tools menu to manage user accounts. The options on the **Tools** menu are based on the authority level of the user profile. Table 2-4 lists the **Tool** menu options for each user profile.

Table 2-4. Tool Submenu

User Profile	Tools Submenu Description
Administrator	**Options:** Lists Ansur preferences.
	Manage Profiles: Adds, edits, deletes, disables, or enables profiles.
	Edit Profiles: Allows administrators to change profile data.
	Change Server Details: Allows administrators to change server details.
Author and User	**Options:** Lists Ansur preferences.
	Change Login Password: Allows authors/users to change their passwords.
	Change Signature Password: Allows authors/users to change their signature password.
None	**Options:** Lists Ansur preferences

Add Users

To add a new user to Ansur:

1. Select **Tools | Manage Profiles | Manage | Add…**.

2. Enter the details and click **OK**. Table 2-5 lists the fields and descriptions for the Add Profile dialog box.

Table 2-5. Add User Profile Fields

Field	Description
Username	A text field that identifies a unique name for the user within the software.
Password	The password a user must enter to access the software. All users can change their own password.
Authority Level	Sets the features the user can access. See Table 2-3 for the Authority Level descriptions.
Remind Change of Password after	Sets the number of months after which the user will be reminded to reset their password.
First Name	First name of the user.
Last Name	Last name of the user.
Unique ID	An ID that is set by the software. The ID cannot be changed.
Signature Password	The password a user must enter to attach the electronic signature to a file. User can change their own signature password.

Edit a Profile

To edit a User Profile:

1. Select **Tools | Manage Profiles** and select a User.

2. Click **Manage | Edit…**. The Edit Profile dialog box opens.

3. Make any changes and click **OK**. See Table 2-5 for a list of fields.

Delete a Profile

To delete a user from the software:

1. Select **Tools | Manage Profiles** and select a User.

2. Select **Manage | Delete…**. Ansur opens a confirmation dialog box.

3. Click **Yes** in the confirmation dialog box.

Enable or Disable a Profile

To enable or disable a User Profile:

1. Select **Tools | Manage Profiles** and select a User.

2. Select **Manage | Enable** or **Disable** in the menu bar.

Change Server Details

You can correct server details. To change server details:

1. Select **Tools | Change Server Details…**. The Server Details dialog box appears.

2. Enter the information and click **OK**. See Table 2-6 for a list of the fields.

Table 2-6. Change Server Details Fields

Field	Description
Server Address	The IP address of the Server
SQL Instance	The name of the SQL instance created when SQL was installed. The default is: **SQLEXPRESS**
Login	The SQL username created when SQL was installed. The default is: **sa**
Password	The SQL password. If you do not have the installation information, contact your IT administrator

Password Management

Users with Admin-level permissions change their login and signature password through the **Edit Profile** dialog box, see the *Edit a Profile* section. Users with Author- or User-level permissions use the procedures in this section to change their own login and signature password.

Change the Login Password

To change your own login password:

1. Select **Tools | Change Login Password…**. Ansur opens the Change Login Password dialog box.

Note

*If you have Admin-level permissions, the **Change Login Password** is not in the **Tools** menu. See the* Profile Editor *section to change your password.*

2. Enter the old password in the **Old Password** field.

3. Enter the new password in the **New Password** field.

4. Enter the new password again in the **Confirm Password** field.

5. Click **OK**.

Change the Signature Password

To change your own electronic signature password:

1. Select **Tools | Change Signature Password…**. Ansur opens the Change Signature Password dialog box.

Note

*If you have Admin-level permissions, the **Change Signature Password** is not in the **Tools** menu. See the* Profile Editor *section to change your password.*

2. Enter the old password in the **Old Password** field.

3. Enter the new password in the **New Password** field.

4. Enter the new password again in the **Confirm Password** field.

5. Click **OK**.

Plug-Ins Installation

To use Ansur with any Fluke Biomedical test instrument, you must install a Plug-In containing the test elements and drivers to control the instrument. To install a Plug-In:

1. Browse to the Fluke Biomedical website and download the Plug-In for the instrument.

Note

*When you install Ansur or any of its components/Plug-Ins on computers running Microsoft Vista or Windows 7, you must do the installation as an Administrator for that computer. Otherwise, the registry is not updated properly and Ansur does not work properly. For installation on a PC running Windows Vista or Windows 7, first download the file to the PC, then locate the installation file, right-click and select **Run as Administrator**.*

2. Open **Windows Explorer** and browse to the saved Plug-In installation program file, usually named **Ansur (Model Number) Plug-In Vn.n.n.exe**, where *n.n.n* is the Plug-In version number.

3. Start Ansur and enter the license key as described in the Users Manual for the Plug-In. You can download users manuals from the Fluke Biomedical website.

How to Uninstall Ansur

Use the Control Panel to uninstall Ansur.

1. Open the **Control Panel** from Windows' Start menu and double-click **Add or Remove programs**.

2. Locate and select the entry labeled Ansur. Figure 2-6 shows when Ansur is selected.

gey009.bmp

Figure 2-6. Ansur Selected for Removal

3. Click **Remove** and then **Yes** to verify the removal from the computer. A progress bar shows the removal progress.

4. Unplug any Fluke Biomedical devices connected to the PC through a USB and click **OK**.

Note

*Removing the Ansur Executive does not remove any installed Plug-Ins. Use the **Add or Remove program** to remove Plug-ins.*

When Ansur is completely removed, it is no longer listed in the Add or Remove program window.

Key Concepts

Fluke Biomedical's Ansur software is a ground-breaking application that introduces new concepts into the business of test, inspection, and maintenance. To benefit fully from this manual, you must understand some concepts that will help you design effective Ansur test templates.

Note

If you plan to run the ready-made templates only, then you can skip this section and read Chapter 3. Chapter 3 covers basic tasks including a quick introduction on how to use Ansur to perform tests.

Test Element

A test element contains all data comprising one Ansur test. A test element can be a general test requiring manual entry, a single safety test, or simulation performed using a Fluke Biomedical test instrument, for example, a protective earth measurement performed on the QA-90 Electrical Safety Analyzer.

The data stored in a test element is:

- **General setup** - the name of the test and the procedure. The procedure is formatted text that describes to the field user how to perform the test.

- **Apply when** - defines criteria for when to perform the test element. Apply when also contains a list of the electrical safety standards that the tests are validated against.

- **Expected results** - defines the valid range that the test results must be within. Expected results are not available for all types of test elements.

- **Custom setup** – the settings that are specific for each individual test element. For example, with a QA-45 Discharge Test use custom setup to configure the simulated ECT wave.

Plug-In

A Plug-In is a software module that integrates with Ansur. Plug-Ins provide the test elements used in Ansur. Plug-Ins are normally created for a specific Fluke Biomedical test instrument, but there are Plug-Ins that provide test elements not related to a test instrument such as the General test Plug-In.

The General test Plug-In is the only Plug-In installed when the Ansur Executive software is installed. You must download and install a Plug-In for your specific test instrument before you can use Ansur with the instrument.

Test Template

A test template is an Ansur file that contains one or more test elements whose combination and order of execution are chosen by the template creator to test or inspect a particular piece of equipment. Once created, you can use the template to test or inspect every DUT of the same type. For example, a template created to perform a safety test on a specific type of defibrillator can be used on other defibrillators of the same type.

Test Record

When a test template is executed, Ansur creates a test record that contains any data gathered during the test execution. The test record can contain not only the data collected during the test but also all data entered into the test sequence prior to execution. In addition, an overall status indicates whether all tests passed or failed. You can view, copy, and print the test record, but the test record data cannot be manipulated in any way.

Test Sequence

A test sequence is the combination of a test template and the specific device information that accompanies a test template. This information can include any information about the product being tested, specifics about the template itself, or the result data that is compiled after the test runs.

You can use a test sequence to perform a test instead of a test template.

Service Events

Create Service events on a test template to define when different tests are performed. You can create a single template with service events to handle all tasks that need to be carried out on a specific type of appliance.

When the template is executed, the field user specifies the service event currently being carried out. Ansur makes sure only tests valid for the current operation are presented to the user.

Procedure

Each test element can have a descriptive procedure that explains how to execute the test element. Use Ansur's built-in word processor to format the procedure and enhance the steps with pictures, different fonts, and colors. You can edit procedures in a test element's General setup and the edits are displayed in the Test Guide when the test is performed.

Test Guide

A Test Guide is a descriptive procedure of the test that shows for each test element when an Ansur test template is performed. The Test Guide also shows the test results as well as additional information such as DUT information and comments.

Chapter 3
Testing with Ansur

Introduction

This Chapter describes the tasks necessary to operate Ansur to test medical equipment.

Note

If you plan to run existing tests only, then you can review the new features and skip to the Basic Tasks *section.*

New Features in Version 3.1.3

Version 3.1.3 of the Ansur Test Executive software adds:

- ESA615 and ProSim 8 firmware upload with FTDI v2.12.16
- Ansur PDF Report Modification
- QA-ES III Firmware upload
- Display of Scan port lists RS-232/USB COM ports

New Features in Version 3.0.0

Version 3.0.0 of the Ansur Test Executive software adds:

- Electronic signature for test templates and test results files.
- A new login interface for administrator, author, and user.
- Customization of DUT information.
- Printing of procedures in plain text.
- Unicode support for Chinese and Japanese language.
- Support for additional languages: German, Portuguese (Portugal), and Portuguese (Brazil).
- The ability to disable Electronic Signature.
- An offline Ansur login for existing users.
- Reminders for password expiration.
- Automatic incrementing of the revision number when saving templates.
- Display of different date formats.
- Load previously logged-in status in Ansur Login Screen.

New Features in Version 2.9.7

Version 2.9.7 of the Ansur Test Executive software adds:

- Export PDF and ESA615 firmware upload through a command line.
- An option to save results in PDF format when you execute Ansur at run time.
- Add Ansur MLC v3.4.1 with SPOTLight and ESA615 firmware upload.

New Features in Version 2.9.6

Version 2.9.6 of the Ansur Test Executive software adds:

- ProSim™ 6/8 Plug-In compatibility and firmware upload capability for the ProSim™ 4.
- Automatic scanning of COM ports and automatic detection of test instruments in a test.

New Features in Version 2.9.5

Version 2.9.5 of the Ansur Test Executive Software adds a test status container where you can configure test conditions to override the overall test status to pass.

New Features in Version 2.9.0

Version 2.9.0 of the Ansur Test Executive Software adds exporting test reports to a Adobe pdf file. See the *Result Data* section in Chapter 4 for more information. In addition, you can now create and edit custom headers for test reports. See Appendix A ("Configuring the Report Header") for more information.

Basic Tasks

This section describes the tasks that are commonly used in using the Ansur software to test medical equipment.

Loading an Ansur File

Ansur uses three different files to store test setup and result data.

- **Test templates** define how a DUT is to be tested and are stored with the file extension **.mtt**.

- **Test sequences** contain a test template together with information about the DUT that is to be tested such as its serial number and location. Test sequences are stored with the file extension **.mts**.

- **Test records** contain a test sequence together with test results when a test has been performed. Test records are stored with the file extension **.mtr**.

To load an Ansur file:

1. Click **File | Open** on the menu bar or click on the **Open Template** toolbar button ( ) to open the dialog box shown in Figure 3-1.
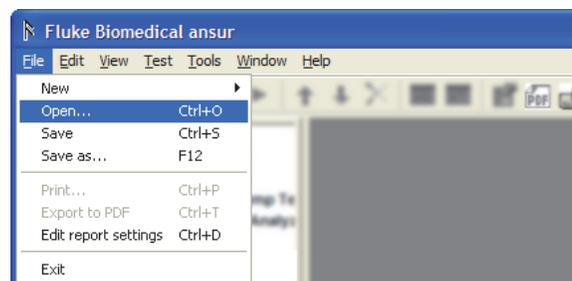
gey301.bmp

Figure 3-1. Loading an Ansur File

2. Browse to the folder where Ansur was installed and double-click the Ansur Test Library folder. See Figure 3-2. The normal location is *C:\Program Files\Fluke* but may have a different name depending on the operating system language.

Note

To view only files of a specific type, click on the drop-down arrow in the **Files of Type** *field and select the desired type of file. The browse dialog will only display files with the selected extension.*
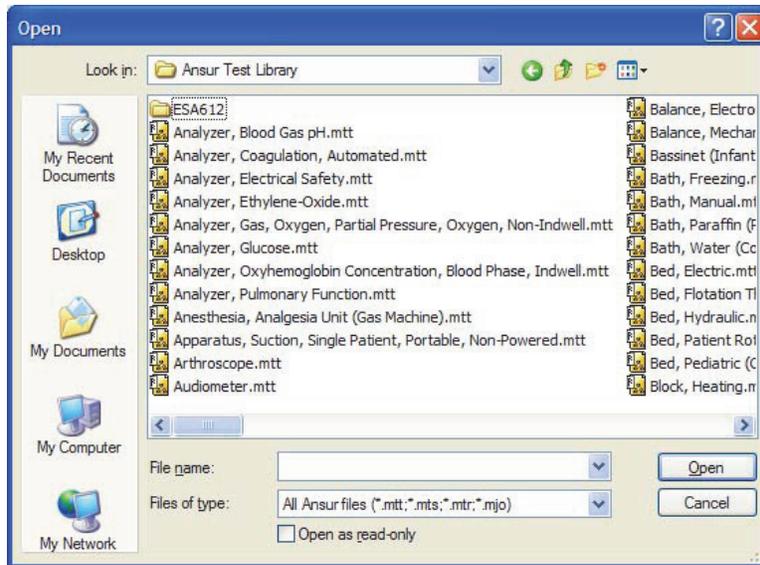
gbv10.bmp

Figure 3-2. Browsing the Ansur Test Library

3. Click a file name and then click the **Open** button, or double click the file name to load the selected template and display its contents.

Running a Ansur Test Template

During the Ansur installation, several test templates are copied to the Ansur Test Library folder. These test templates contain sample test and inspection procedures for a wide variety of hospital equipment and are ready-to-use without further editing.

The Ansur Test Library folder can be accessed from a shortcut named Ansur Test Library on the desktop, or from \..\Program files\Fluke\Ansur Test Library folder, or from **Start | Programs | Fluke | Ansur Test Library**. If additional Plug-Ins have been installed, there may be sub folders containing complete safety tests for the most common standards supported by the actual test instrument.

Folders are organized by Ansur-compatible test device (e.g., ESA620, IMPULSE7000, etc.) as well as ready-for-use generic checklist-style test templates not organized in folders.

Note

*The templates in the Ansur Test Library can be used as a foundation for creating new test templates that are customized for a specific type of test instrument. Just open a test template from the library and use **Save As** to give it another name. It is recommended that the template be saved in a different location than in the Ansur program files folder. Use a location for an official directory on a specific server or local hard drive on which all Ansur test templates will be saved. Now add visual inspections and safety tests to suit the needs of your organization.*

To load a test template:

1. Double-click the Ansur Test Library Shortcut on the desktop, or click on **File | Open** or click the **Open** icon (📁) on the main toolbar to open the dialog box shown in Figure 3-3.
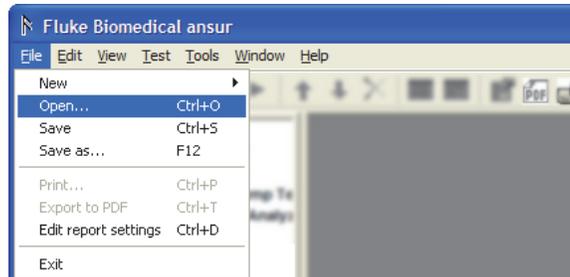

gey301.bmp

Figure 3-3. Opening an Ansur Template

2. Browse to the folder where Ansur was installed and double-click the Ansur Test Library folder. See Figure 3-2. The normal location is *C:\Program Files\Fluke* but may have a different name depending on the operating system language.

3. Click a file name and then click the **Open** button, or double-click the file name to load the selected template and display its contents.

4. To start the template, click **Test | Start Test** or click the **Start Test** icon (▶) on the menu toolbar to display the Test Guide window shown in Figure 3-4.

Note

If the template loaded contains more than one service event, a test initialization window will be displayed. See the Service Events Window *section in Chapter 4.*
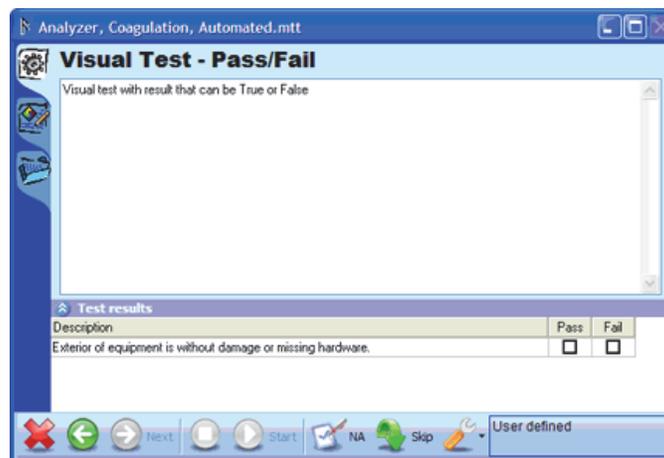

gey027.bmp

Figure 3-4. Ansur Test Guide Window

5. To perform the test, follow the instructions displayed in the Test Guide to complete each step. For automatic safety tests you may have to click the **Start Test** icon (⏵) on the toolbar of the Test Guide.

Note

Ansur automatically senses a connected instrument and establishes a connection.

When the test step is complete, Ansur enables the **Next** icon (⏵) and the toolbar shows the status of the test. See Figure 3-5.

Note

Test elements from other Plug-Ins may require you to complete specific setup operations before you run the test. These specifics are described in the Users manual of the Plug-In.

gey028.bmp

Figure 3-5. Test Guide Toolbar when Test is Complete

6. Click the **Next** icon (⏵) to continue to the next test in the template and show the next Test Guide.

Note

*To repeat a safety test, click the **Back** icon (⏴) to return to the previous Test Guide.*

7. Repeat the instructions in steps 5 and 6 until all tests are complete.

When you click the **Next** icon (⏵) on the last test element, the Test Summary window shown in Figure 3-6 displays.
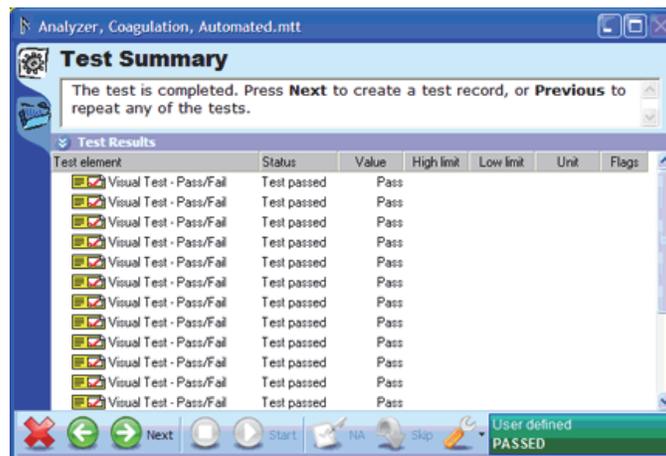

gey029.bmp

Figure 3-6. Test Summary Window

8. Click the **Next** icon (⊘). Ansur creates a Test Record, closes the Test
    Summary window and opens the Test Record window shown in Figure 3-7.
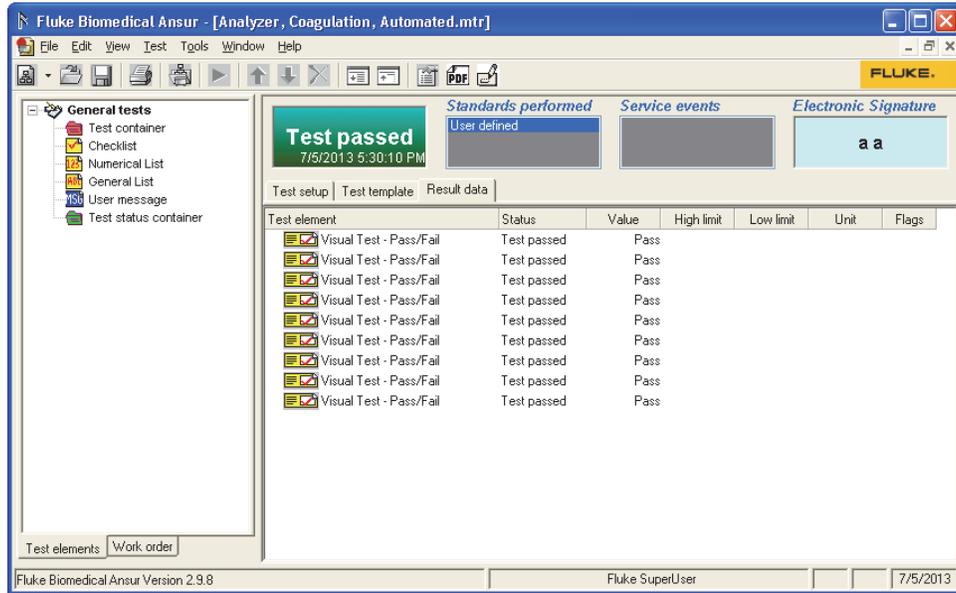
gey303.bmp

Figure 3-7. Ansur Test Record Window

Note

*Do not remove or delete templates in the Ansur Test Library folder.
Before you modify a template, copy the template to another location
and then modify the template.*

Storing Test Data

You can save the contents of a test record or a test template to a file on your
computer. To save a test record:

1. Choose a method to save the test record:

    • To select the location where the file is saved, click **File | Save** on the
      main menu as shown in Figure 3-8.

    • To save to the last location you saved, click the **Save** icon (💾) on the
      toolbar.

Note

*If you click the **Save** icon (💾) the file may save to an unexpected
location.*
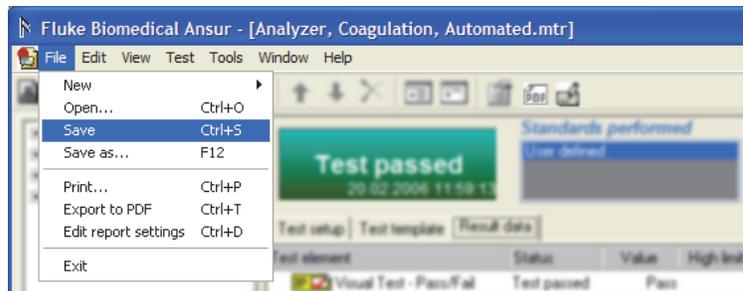
gey304.bmp

Figure 3-8. Saving a Test Record

The Password dialog box for the electronic signature appears. The electronic signature is encrypted with the saved file.

2. Enter the password for your electronic signature and click **OK**. If you click **Cancel**, the Test Record save process is aborted.

3. Browse to the location to save the file, enter a filename for the test record, and then click **Save**.

Printing a Test Report

You can print test reports in these formats:

- **Summary**—prints only the front page. The front page contains DUT info, module setup, and overall status of the test. To generate a Pass or Fail certificate, use this one-page report.

- **Condensed** —prints the summary page, and one line for every test element in the test record indicating whether the test element passed or failed.

- **Detailed** —prints the summary page and all configuration data as well as test result data for each test element in the test record.

To print a test report:

1. Click **File | Print** or click the **Print** icon (🖨) on the main toolbar. The Print Report window shown in Figure 3-9 appears.
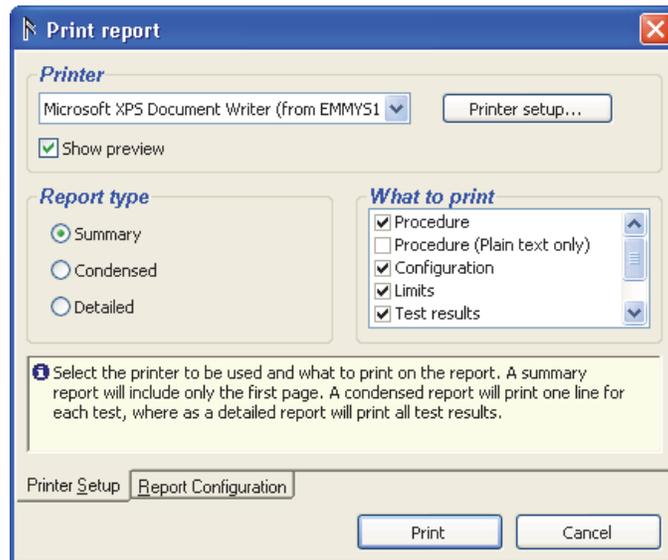
gey034.bmp

Figure 3-9. Print Report Window

2. Select the **Report type** and click **Print**. The Print Preview window shown in Figure 3-10 appears.
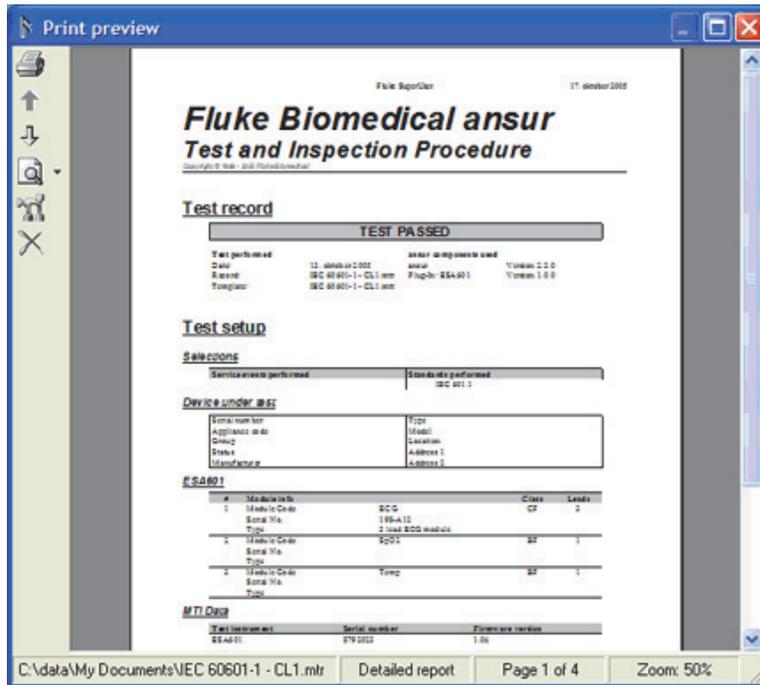
gey035.bmp

Figure 3-10. Print Preview Window

3. Click the **Print** icon (🖨) on the toolbar along the left window border to print the report.

Note

*Clear the **Show preview** checkbox in the Print Report to print the report without the preview window.*

Export to PDF

To save a test report as a pdf file:

1. Click **File | Export to PDF** or click the **PDF** icon (📄) on the main toolbar.

2. In the **Save As** dialog, browse to a directory, enter a filename, and click **Save**.

Edit Report Settings

To change test report settings:

1. Click **File | Edit report settings** on the main menu bar or click the **Edit report settings** icon (📝) on the main toolbar. The Report Settings window shown in Figure 3-11 opens.
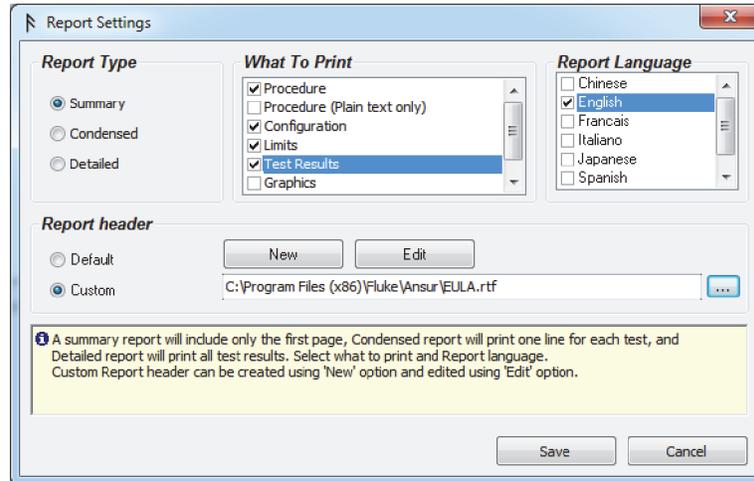
gey423.bmp

**Figure 3-11. Report Settings Window**

2. Change the settings and then click **Save**. See "Configuring the Report Header" in Appendix A for information on how to setup the report header.

Note

Ansur remembers the Report Settings changes and they are available the next time you edit Report Settings.

Working with Procedures

Each test element permits a descriptive procedure to be added explaining how the test is to be executed. The written procedure can be formatted using Ansur's built in word processor, and it can be enhanced with pictures, different fonts, and colors. The procedure is edited in the General setup of a test element and is displayed in the Test Guide when the test is performed.

Ansur supports using plain text, RTF, or HTML in test element procedures. Plain text does not support text formatting or pictures. Plain text is faster and best suited for field users using old computers. RTF is best suited for printed reports while HTML is best for viewing on the web.

The instructions in this section assumes the reader is familiar with all the material in the *Basic Tasks* section of this Chapter.

Displaying a Picture in a Procedure

This section describes how to create a formatted test procedure with an inline picture. This example will use the HTML format.

1. To set the procedure format, select a test element and click **General Setup**. To display the general setup for the test element.

2. Click the arrow on the Format drop down button (⌃A ▾) shown in the toolbar just below the Procedure heading to display the format menu shown in Figure 3-12.
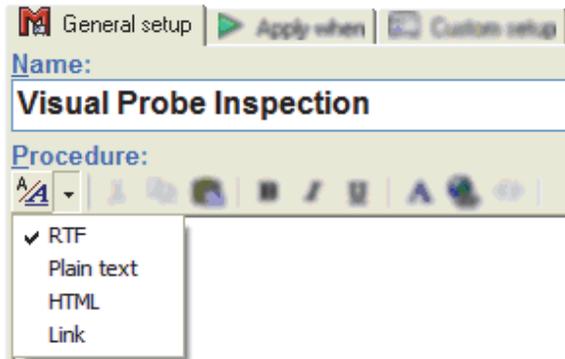
gey050.bmp

Figure 3-12. Procedure Format Menu

3. Click **HTML** in the format menu to set the procedure format to HTML and change the toolbar to support HTML.

4. To insert a picture, click the **Insert Picture** icon (🖾) on the procedure toolbar. The picture dialog box shown in Figure 3-13 is displayed

gey051.bmp

Figure 3-13. Picture Editor Dialog Box

5. Click the **Browse** button to open the file dialog shown in Figure 3-14.
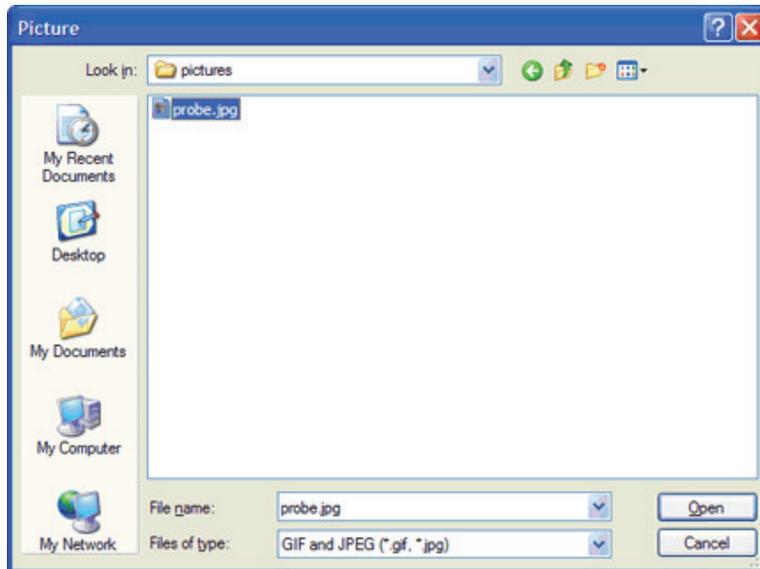
gey053.bmp

Figure 3-14. Select Picture File

6. Locate the picture to be inserted into the procedure, click its filename, and then click the **Open** button. You can also double-click on the filename.

The filename is now listed as a Picture Source in the picture dialog box as shown in Figure 3-15.
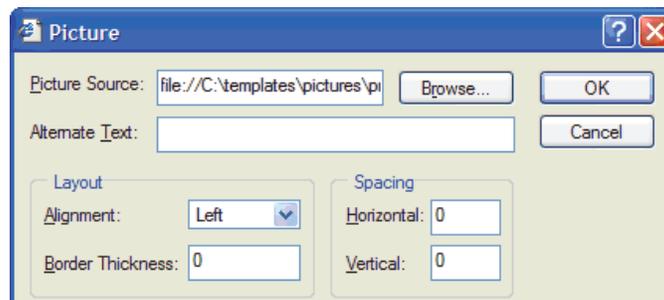
gey054.bmp

Figure 3-15. Picture Dialog Box

Note

Pictures referenced by Ansur must be stored in the same location on every computer that uses the template. It is a good idea to create a common location for all pictures used in Ansur Templates.

7. Click the dropdown named **Alignment** and select **Left** in the dropdown menu. This will make the picture be aligned against the left margin of the procedure and allow text on the right side of the picture.

Note

Values for horizontal and vertical spacing can be entered to create a margin between the picture and text. If the border thickness is set to something other than zero, a black frame will display around the picture.

8. Click **OK** and the selected picture is displayed in the test element procedure as shown in Figure 3-16.
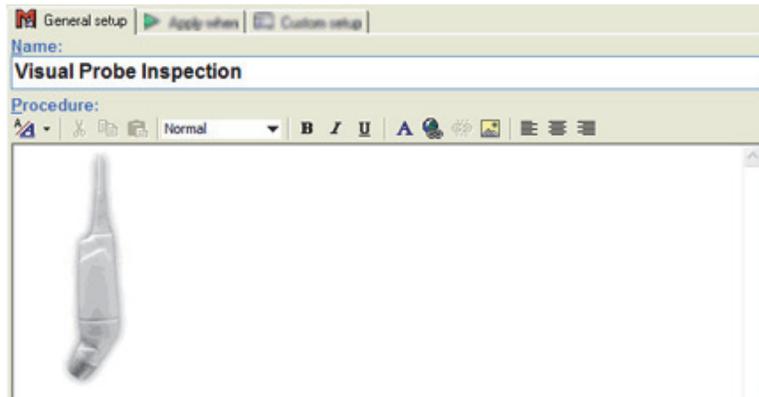
gey055.bmp

Figure 3-16. Procedure with Picture inserted

9. To enter text, click inside the procedure editor on the right side of the picture. A blinking text cursor is shown inside the editor.

10. Click the Styles dropdown menu on the toolbar and select Heading 1 as shown in Figure 3-17. Then enter the text that will serve as a heading in the procedure. Text is shown in bold face. HTML procedures support four predefined styles for formatting headings and normal text.
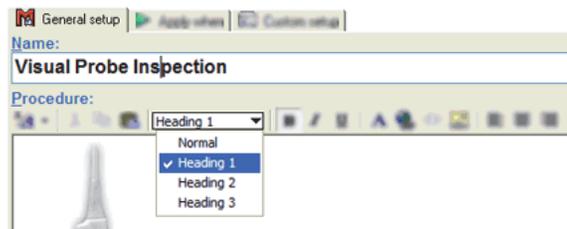
gey056.bmp

Figure 3-17. Procedure Editor Style Menu

11. Press the **Enter** key and continue to enter the body text of the procedure. After pushing **Enter**, the style is automatically reset to normal. All text entered is displayed in the procedure editor as shown in Figure 3-18.
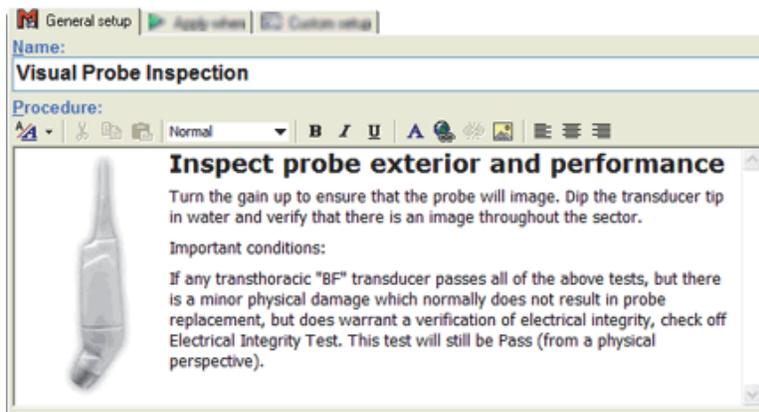
gey057.bmp

Figure 3-18. Procedure Using Text Styles

Note

> *A picture can be pasted into an RTF-formatted procedure by first
> pasting to Word Pad and then to the Procedure tab in Ansur.*

12. To apply text formatting, select the text to be formatted.

13. Click the **Font** button (𝐀) on the procedure toolbar. The font dialog box is displayed.

14. Adjust the formatting as desired and click **OK** to update the selected test with the new formatting.

Inserting a Hyperlink in a Procedure

Every test element procedure in Ansur can contain hyperlinks to other documents. Either to a file stored on the computer or to a web address.

Hyperlinks can only be used in RTF or HTML procedures.

1. Select a test element and click **General setup** to display the general setup.

2. Select the text that is going to be the hyperlink.

3. Click **Insert Hyperlink** on the editor toolbar to display the Insert Hyperlink window.

4. Specify the address of the document that is the target of the hyperlink. The document can be a picture, an HTML document, a PDF document, or a Word document.

Note

> *If the linked document has a file type of PDF or Word then the field
> user must have Acrobat® Reader or Microsoft® Word on their
> computer to view the document.*

5. Click **OK** to close the Insert Hyperlink window and the selected text is underlined and in blue.

Note

> *Documents referenced by Ansur must be stored in the same location
> on every computer that is to use the template. It's a good idea to
> create a common location for all documents used in Ansur
> templates.*

Using an External File as a Procedure

Instead of using Ansur's internal editor to write test element procedures, an external editor can be used to create a file and then link the file to a test element procedure. When the test is performed, Ansur will display the linked document inside the Test Guide for the test. The document can be an HTML document, a Microsoft® Word® document, a text file, an Adobe® PDF™ document, or a picture.

The purpose of the link-to-file procedure is to allow the use of advanced formatting in the procedure than supported by Ansur's editor, e.g. tables. To use an external file for a procedure:

1. Create a document with the procedure text and/or pictures using the text editor of your choice and store the document in a known location.

Note

Documents referenced by Ansur must be stored in the same location on every computer that is to use the template. It's a good idea to create a common location for all documents used in Ansur templates.

2. Select a test element and click **General setup** to display the general setup for the test element.

3. Click the arrow on the **Format** drop down button (⁴⁄A ▾) shown in the toolbar just below the Procedure heading. Then click the **Link** menu as shown in Figure 3-19.
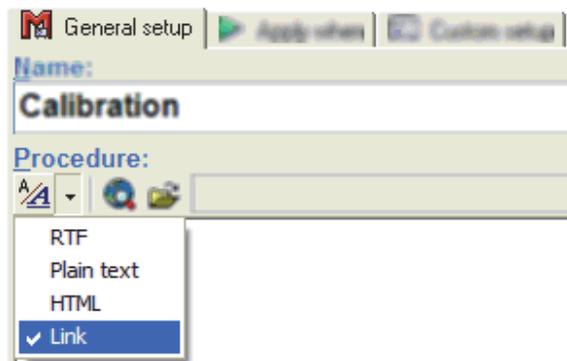
gey063.bmp

Figure 3-19. Selecting Link as Procedure Format

4. Click **Select File** (📂) on the procedures toolbar to open the file dialog box.

5. Browse to the document that is to be displayed in the procedure of the test element. Click the filename and then click the **Open** button. The select file dialog box is closed and the procedure is updated to display the procedure.

6. Select **View | Preview test element** from the Ansur main menu. The Test Guide is displayed with the linked document as shown in Figure 3-20.
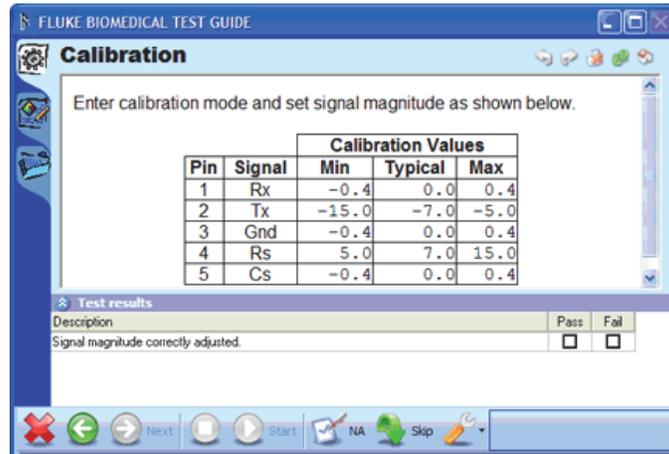
gey066.bmp

Figure 3-20. Test Guide Display with Linked Procedure

Note

Keep in mind that the content of linked procedures is stored external to the test template. Because of this, test results will not contain the content of a linked procedure either.

Working with General Tests

General Tests is the name of a Plug-In that comes pre-installed with Ansur. It provides test elements specifically targeted towards visual inspections. It also contains a special test element named Test Container that can be used to group and modularize test templates.

Creating Test Blocks

The ability to create test blocks in Ansur gives a hierarchical overview of tests and service procedures. Test blocks are created using test containers and allow related test elements to be grouped together. Test blocks are also useful when using service events as illustrated in the Running Different Tests based on the *Job Performed* section later in this chapter.

To create a test container:

1. Click the plus button (⊞) next to the Plug-In name in the Test Explorer of Ansur to access the test elements provided by the Plug-In. This action expands and displays a list of provided tests.

2. Click and hold the left mouse button on the **Test Container** element in the Test Explorer.

3. Without releasing the mouse button, drag the test element onto the blank test template as shown in Figure 3-21.
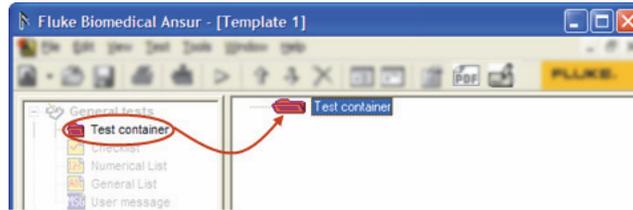
gey309.bmp

Figure 3-21. Creating A Test Container

4. Release the left mouse button.

5. To name the test container, click **General Setup** in the element setup which is shown in the lower half of the template window to display the general setup of the test container.

6. Click the **Name** textbox and enter a descriptive name for the test container. The name displayed in the template window changes when a new one is typed in the element setup.

7. To add tests to the test container, select another test in the test explorer and drag it to the template window. Drop it on the name of the text container already created as shown in Figure 3-22. A new test element is displayed in the template as a subordinate of the test container.
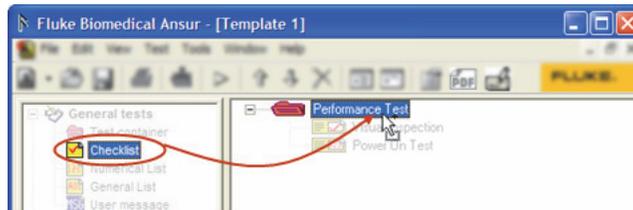
gey310.bmp

Figure 3-22. Adding a Test to a Test Container

Note

If the test element is dropped below the test container, it will not be a part of the test block but placed outside it.

Creating a Checklist

A checklist is a test element that displays a list where each item can be given a status of Pass or Fail.

Normally, Ansur will open with a blank test template from which a new template can be defined. If a blank template is not already open, one will have to be opened before a checklist can be created.

To open a blank template:

1. Click **File | New | Template** as shown in Figure 3-23 or click the **New Template** icon (🖳) on the main toolbar.
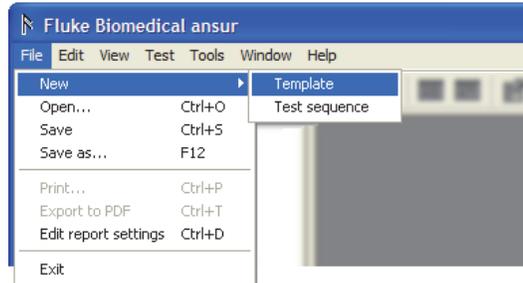
gey305.bmp

Figure 3-23. Creating a New Template

Note

In order to create a test template comprising several tests and/or inspections, you must add tests to the template from the Ansur Test Explorer.

2. Click the plus button (⊞) next to the Plug-In name in the Ansur Test Explorer to expand the Plug-In entry to access the test elements provided by the Plug-In.

3. Click and hold the left mouse button on the **Checklist** element found under the heading **General tests**.

4. Without releasing the mouse button, drag the test element onto the blank test template. The test element is highlighted, and the mouse pointer changes to a drop cursor. See Figure 3-24.
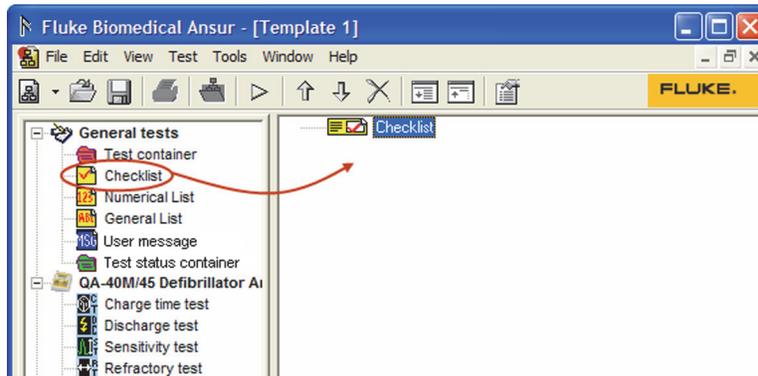

gey306.bmp

Figure 3-24. Creating a Checklist

5. Release the left mouse button. A copy of the test element is shown in the test template window.

   The template now has a single test element assigned to it. The test element should now be configured with a procedure that describes the test for the field user.

6. Click **General Setup** in the element setup shown in the lower half of the template window to display the general setup for the checklist.

7. Click the **Name** textbox and enter a descriptive name for the test element. The name displayed in the template window changes when a new one is typed in the element setup.

8. Click in the **Procedure** textbox and write a procedure that describes how the test is to be carried out to the field user. See Figure 3-25.
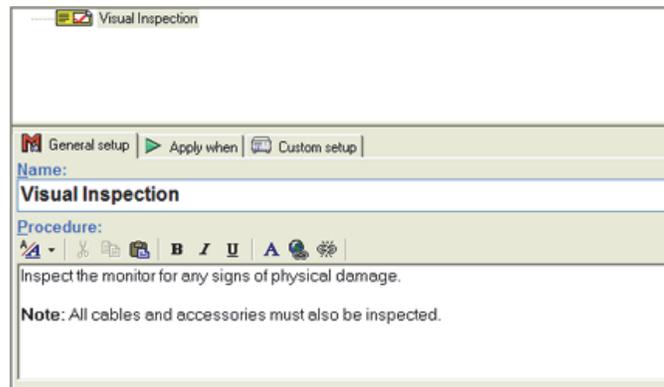
gey038.bmp

Figure 3-25. Configuring a Test Element

The template should now contain a single test element (Checklist) that has been updated with a new name and a descriptive procedure. The items comprising the checklist must be defined.

9. Click **Custom Setup** in the element setup which is shown in the lower half of the template window to display the custom setup for the checklist.

10. Click the textbox below the column header named **Description**. A blank textbox is added in the column under Description shown in Figure 3-26.
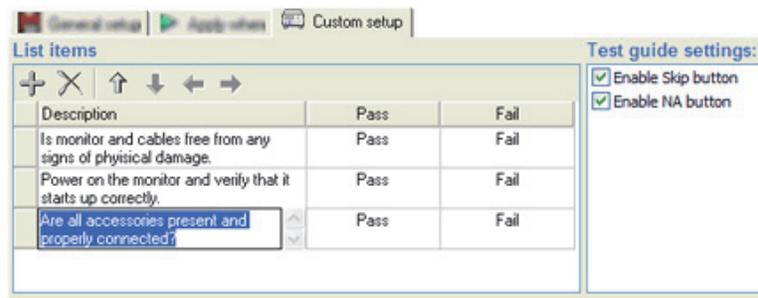
gey039.bmp

Figure 3-26. Defining the Checklist

11. Click the **Add** button (✛) above the column header to add more checklist items. **Ctrl+Enter** when editing a checklist description will add another description textbox to the items.

12. To see how the checklist will appear to the field user, select **View | Preview test element** from the Ansur main menu.

13. Click the **Abort** button ( ) to return to the test template. When asked if you want to abort the test template, you must click the **Yes** button. The Test Guide for the checklist will be displayed as shown in Figure 3-27.
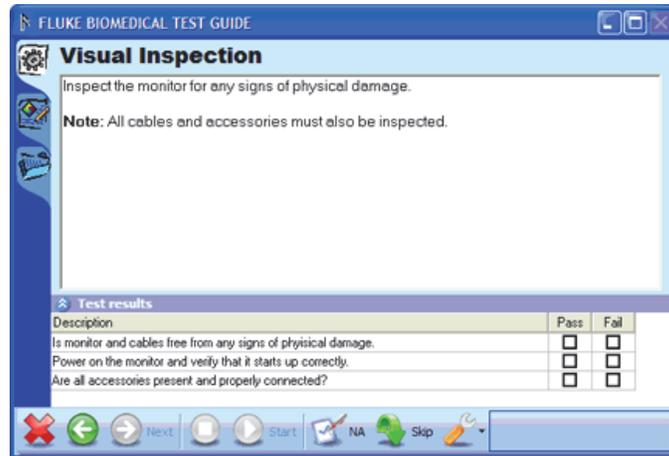

gey041.bmp

Figure 3-27. Test Guide Previewing a Checklist

Note

Remember to save changes on a regular basis. For example, after verifying the preview of the checklist.

Changing Options on a Checklist

A checklist is by default created with two options. Pass and Fail. When the field user performs a checklist, its test results are shown as displayed in Figure 3-28. The field user checks either Pass or Fail.

gey068.bmp

Figure 3-28. Checklist with Default Options

However, in certain situations Pass/Fail may not be a valid answer. Considering the question in Figure 3-28, a more proper reply would be Yes or No. In the example, the particular DUT may not even have an SpO2 module as that could vary between different models of the same type of equipment.

In order to cope with such a situation, it is possible to change the options provided by the checklist into something that better suits the task at hand. Figure 3-29 displays an example where the same checklist has been altered to provide Yes, No, or NA (not applicable) options.

gey069.bmp

Figure 3-29. Checklist with Three Options

To add a new option to a checklist:

1. Create or select a checklist and click **Custom Setup** to display the custom setup.

2. Right click in the column named **Fail** in the **List Items** frame shown in Figure 3-30 to display the edit option menu.
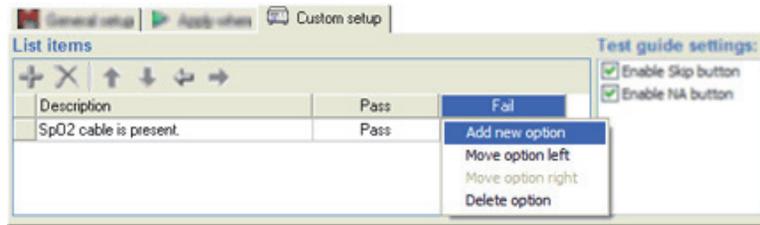

gey070.bmp

Figure 3-30. Edit Option Menu for a Checklist

3. Select **Add new option** in the edit option menu to insert a new option to the right of the fail column.

4. To change the name of the option, click the column header named **Pass**. A text box is shown on top of the column header to accept the new option name.

5. Enter the new name for the option. Figure 3-31 shows the Pass option name being changed to Yes.
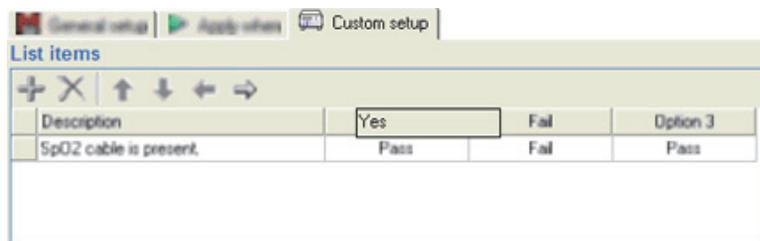
gey071.bmp

Figure 3-31. Altering a Checklist Options with Custom Name

Note

*Do not press the **Enter** key while editing an option name unless a line feed is required in the option name. To complete the editing of the name, just click anywhere else in the list items table.*

6. Repeat the previous step for all other columns (options) that need to have the name changed. Figure 3-32 shows the option names changed to Yes, No, and NA.
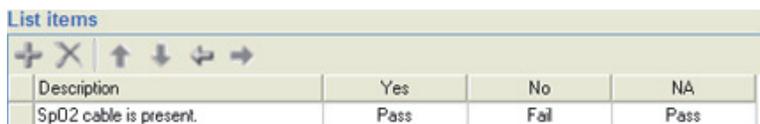

gey072.bmp

Figure 3-32. Three Checklist Options with Custom Names

Each cell shown in the list items table that displays a status (Pass or Fail) corresponds to a check box when the checklist is performed by the field user. While defining the checklist, the status of each check box when it is clicked by the user can be set to four values: Pass, Fail, Not Applicable, and Ignored.

7. To set the status of an option, click on the cell below the option name you want to change. In Figure 3-33, the status for the **NA** option is being changed to Not Applicable.

gey073.bmp

Figure 3-33. Checklist Option Status Menu

8. Click on the menu item labeled Not Applicable to update the status. See Figure 3-34.
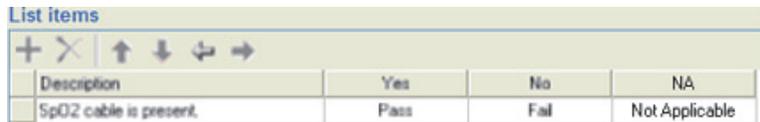
gey074.bmp

Figure 3-34. New Status for One Checklist Option

Note

To add several list items that will have the same status for the options, set the options first. New items will copy the option status settings of the previous list item.

More list items may be added as described in the *Creating a Checklist* section earlier in this chapter.

Figure 3-35 shows the Test Guide window with the newly defined checklist.
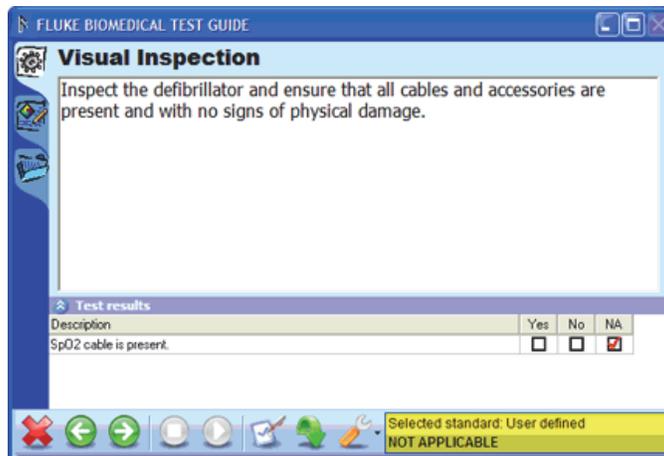
gey075.bmp

Figure 3-35. Performing a Checklist with Multiple Options

Creating a Numerical List

A numerical list is a test element that displays a list where the field user must enter a numerical value for each item. Each item in the list can be assigned a high and low limit against which the entered results will be validated.

To add a numerical list to a template:

1. Locate the **Numerical List** test element listed under the **General tests** Plug-In in Ansur Test Explorer.

2. Click and hold the left mouse button on the test element in the Test Explorer.

3. Without releasing the mouse button, drag the test element onto the test template. The test element is highlighted, and the mouse pointer changes to a drop cursor.

4. Release the left mouse button. A copy of the test element is displayed as shown in Figure 3-36.
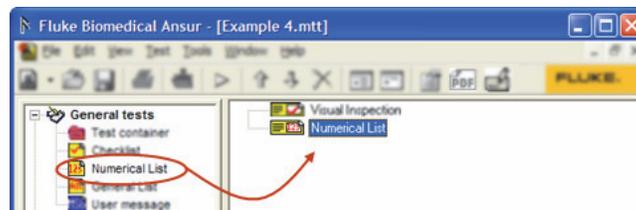
gey307.bmp

Figure 3-36. Adding a Numerical List

5. Click **General Setup** in the element setup which is shown in the lower left half of the template window. The general setup for the numerical list is displayed.

6. Click the **Name** textbox and enter a descriptive name for the test element.

7. Click in the **Procedure** textbox and write a procedure that describes how the test is to be carried out to the field user. See Figure 3-37.
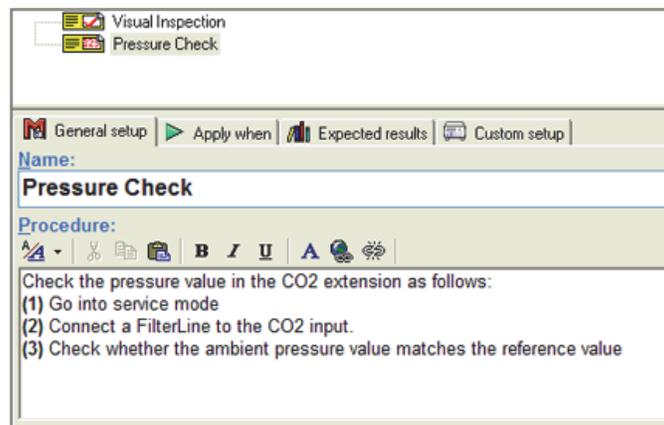

gey043.bmp

Figure 3-37. Configuring a Numerical List

8. Define the list by clicking on **Custom Setup** in the element setup which is shown in the lower half of the template window to display the custom setup of the numerical list.

9. Click the textbox below the column header named **Description**. A blank textbox is added in the column under Description shown in Figure 3-38.
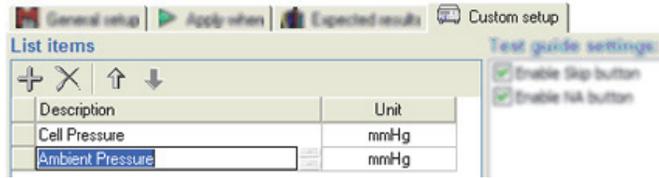
gey044.bmp

Figure 3-38. Defining the Numerical List

10. Click the **Add** button (+) above the column header to add more checklist items. **Ctrl+Enter** when editing a checklist description will add another description textbox to the items.

11. Click the cell in the column named Unit to enter a unit for the measurement.

12. To see how the numerical list will appear to the field user, select **View | Preview test element** from the Ansur main menu.

13. Click the **Abort** button (✖) to return to the test template. When asked if you want to abort the test template, you must click the **Yes** button. The Test Guide for the numerical list will be displayed as shown in Figure 3-39.
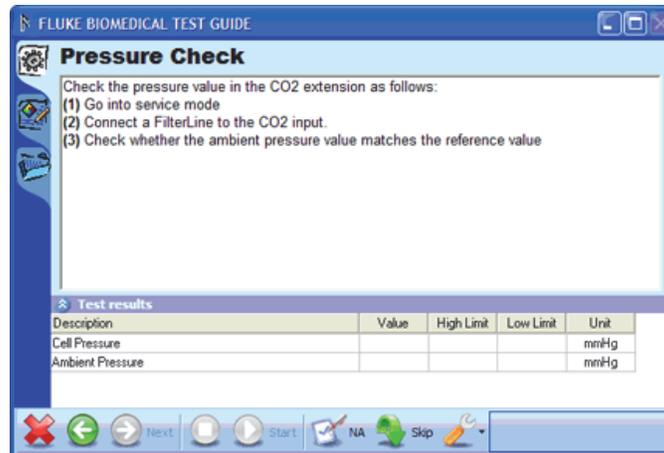
gey045.bmp

Figure 3-39. Preview of Numerical List

Note
Remember to save changes on a regular basis.

Adding Limits to Numerical List

Of the general tests, only the numerical list can contain limits. Limits define a range for the test results to be valid against. Any test result outside the limits will fail the test.

1. Create a numerical list and define the list items in the **Custom Setup** page. This example creates two list items named "Low Flow" and "High Flow", both with mmHg as measured units. Figure 3-40 shows created list items.
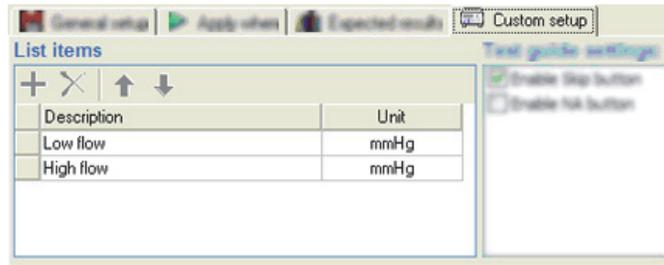
gey076.bmp

Figure 3-40. Adding Limits to Numerical List

2. Click the **Expected Results** tab to display the limits table shown in Figure 3-41.
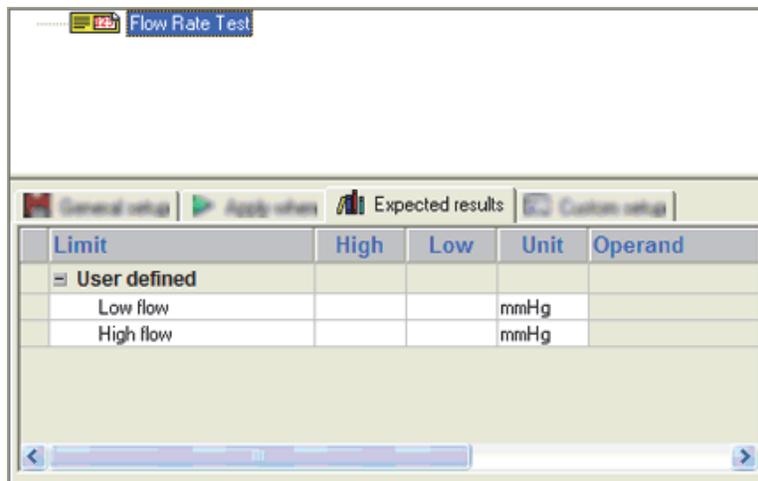
gey077.bmp

Figure 3-41. Numerical List Expected Results

3. Click the cell in the High column for the first list item (Low Flow) to open the cell for editing.

4. Enter the maximum allowed value for the list item and press enter. The entered value is shown in the cell and the next cell is opened for editing.

5. Repeat step 4 to create high and low limits for both list items. See Figure 3-42.

Limit	High	Low	Unit
⊟ User defined			
Low flow	70	50	mmHg
High flow	180	160	mmHg

gey078.bmp

Figure 3-42. High and Low Limits Entered in Expected Results

In order to see how the limits are presented and handled, run the test template

by clicking the **Start** icon (▶) in the Ansur main toolbar. Figure 3-43 shows a Test Guide with a numerical list with limits.
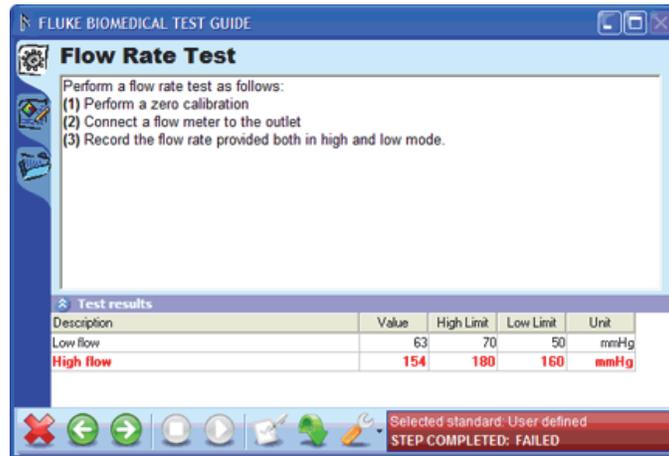
gey079.bmp

Figure 3-43. Test Guide Showing a Numerical List with Limits

Creating a General List

A general list is a single test element that displays a list where the field user can enter any text for each item.

1. Locate the **General List** test element listed under the **General tests** Plug-In in Ansur Test Explorer.

2. Click and hold the left mouse button on the test element in the Test Explorer.

3. Without releasing the mouse button, drag the test element onto the test template. The test element is highlighted, and the mouse pointer changes to a drop cursor.

4. Release the left mouse button. A copy of the test element is displayed as shown in Figure 3-44.
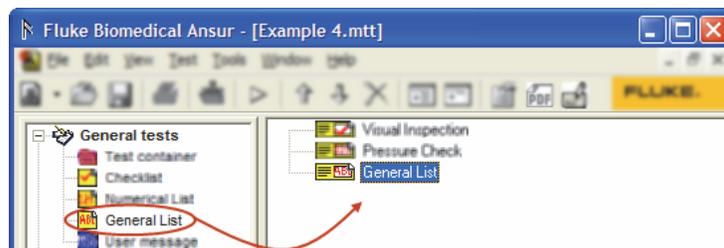
gey306.bmp

Figure 3-44. Adding a General List

5. Click **General Setup** in the element setup which is shown in the lower left half of the template window. The general setup for the general list is displayed.

6. Click the **Name** textbox and enter a descriptive name for the test element.

7. Click in the **Procedure** textbox and write a procedure that describes how the test is to be carried out to the field user. See Figure 3-45.
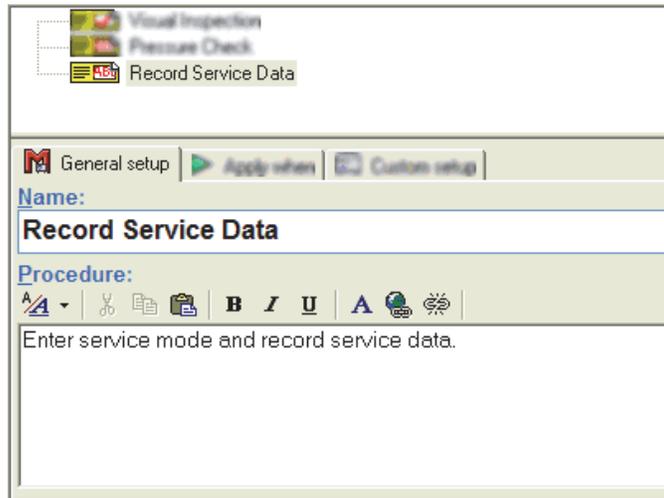
gey047.bmp

Figure 3-45. Configuring a General List

8. Define the list by clicking on **Custom Setup** in the element setup which is shown in the lower half of the template window to display the custom setup of the general list.

9. Click the textbox below the column header named **Description**. A blank textbox is added in the column under Description shown in Figure 3-46.

gey048.bmp

Figure 3-46. Defining the General List

10. Click the **Add** button (+) above the column header to add more checklist items. Press **Ctrl+Enter** when editing a checklist description will add another description textbox to the items.

11. Click the cell in the column named **Unit** to enter a unit for the measurement.

12. To see how the numerical list will appear to the field user, select **View | Preview test element** from the Ansur main menu.

13. Click the **Abort** button (✖) to return to the test template. When asked if you want to abort the test template, you must click the **Yes** button. The Test Guide for the numerical list will be displayed as shown in Figure 3-47.
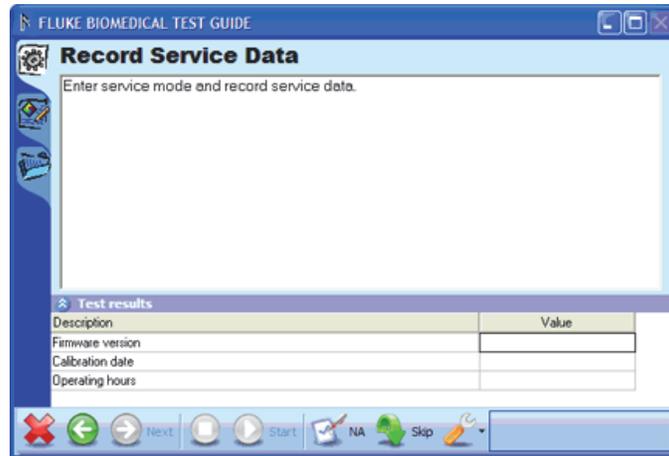
gey049.bmp

Figure 3-47. Preview of General List

Note

Remember to save changes on a regular basis.

Creating a Test Status Container

A Test status container holds the Test elements. You can set conditions with these test elements to override the overall test status to pass.

Normally, Ansur will open with a blank test template and you can start defining your template there. If you have closed the blank template (and the main window contains a big dark gray frame) you will have to create a new test template.

To open a blank template:

1. Click **File | New | Template** as shown in Figure 3-48 or click the **New Template** icon (📇) on the main toolbar.
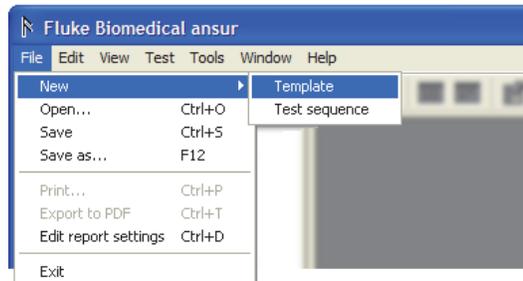
gey305.bmp

Figure 3-48. Creating a New Template

2. Click the plus button (⊞) next to the Plug-In name in the Ansur Test Explorer to expand the Plug-In entry to access the test elements provided by the Plug-In

3. Click and hold the left mouse button on the **Test Status Container** element found under the heading **User Message**.

4. Without releasing the mouse button, drag the test status container onto the blank test template.

5. Release the left mouse button. A copy of the test status container shows in the test template window. See Figure 3-49.
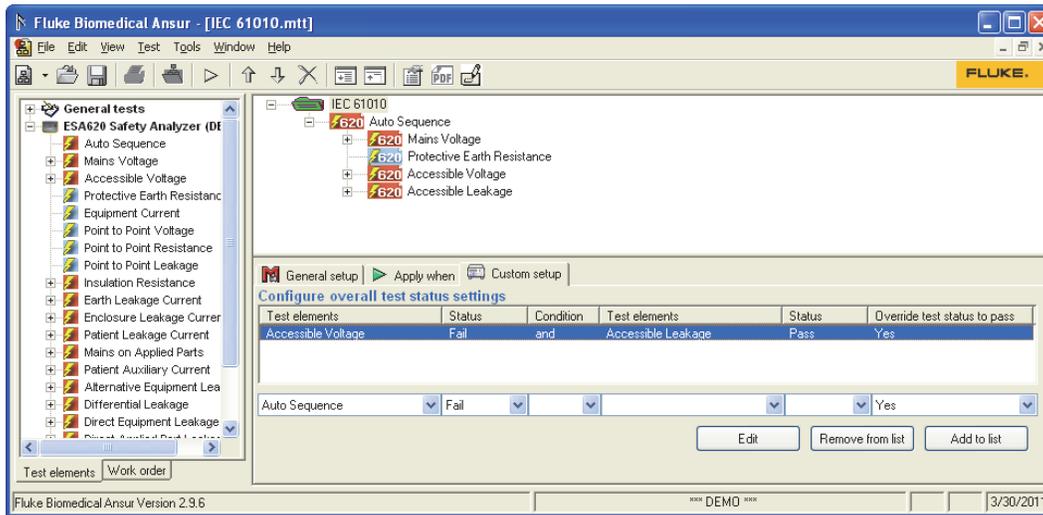
gey326.bmp

Figure 3-49. A Test Status Container in the Test Template

6. Drag and drop other test elements under test status container in the test template window.

   With the override condition defined, click the **Add to list** button.

7. Click **Custom setup** tab and select the required test elements to set conditions. The function of the three buttons are:

Edit	Updates the selected conditions
Remove from list	Removes the selected condition from the list
Add to list	Adds a condition to the list

When you include a Test Status container in an Ansur Test Template, you can assume a failure condition in one or more of the template test elements will be over-ridden to Pass, if certain other test elements have a Pass result. Therefore, the template designer must specify the override conditions.

To specify the override conditions:

1. Click the down arrow at the right end of the **Test elements** combo box as shown in Figure 3-50 and highlight the test element that is relevant to the first part of this condition.
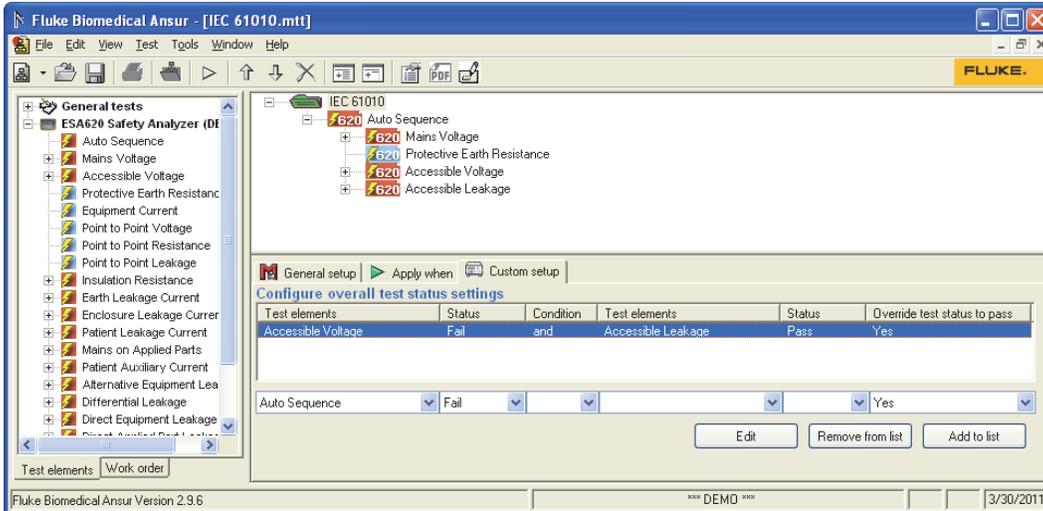
Gey326.bmp

Figure 3-50. Add First Test Element to Override Condition

2. Click the down arrow at the right end of the **Status** combo box and highlight **Pass** or **Fail** to set the status that will satisfy the first part of this override condition.

3. If you want two test elements to be used to set the override condition, click the down arrow at the right end of the **Condition** combo box. Highlight **And** or **Or**. Highlight **Nothing** if you are removing the second test element from the override condition.

4. Click the down arrow on the right end of the second **Test elements** combo box shown in Figure 3-51 and highlight the test element that will satisfy the second part of this override condition.
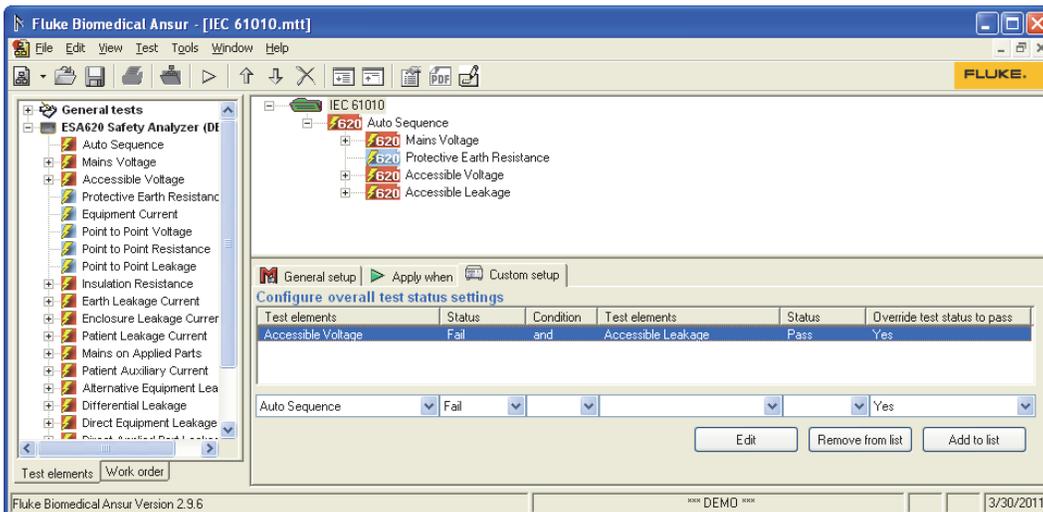
gey326.bmp

Figure 3-51. Add Second Test Element to Override Condition

5. Click the down arrow at the right end of the second **Status** combo box and

highlight **Pass** or **Fail** to set the status that will satisfy the second part of this override condition.

6. Click the down arrow at the right end of the **Override test status to pass** combo box and highlight **Yes**.

Working with Test Templates

A test template is an Ansur file that contains one or more test elements. 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.

This section presents more details on working with Ansur test templates over what was presented in the *Basic Tasks* section of this chapter.

Moving Test Elements

To move test elements up or down, use the up and down arrow icons in the main toolbar as shown in Figure 3-52. Test elements can also be moved by clicking and dragging them within the template.
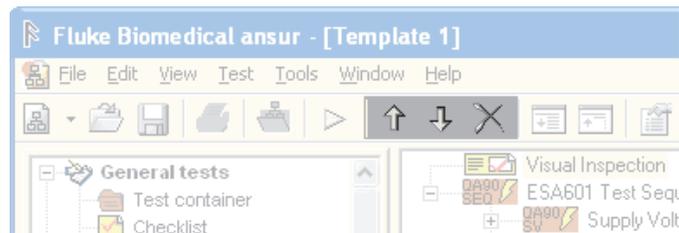
gey082.bmp

Figure 3-52. Moving Test Elements within a Template

Test elements can be removed by clicking on them to select them and then clicking on the **Delete** button (✗) next to the arrow buttons.

Copying Test Elements

To copy a test element:

1. Click and hold down the control button (**Ctrl**) on the keyboard.

2. Click the test element you want to copy and hold down the left mouse button while you drag the test element to its new location. The cursor changes to a "copy" cursor and a horizontal line indicating where the test will appear is displayed in the template window as show in Figure 3-53.
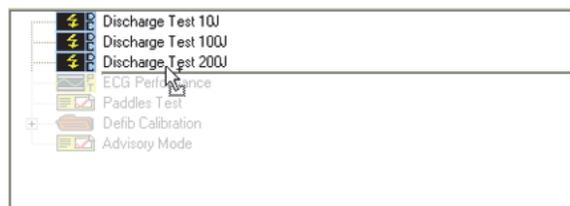
gey084.bmp

Figure 3-53. Copying a Test Element

3. Release the mouse button to create a copy. Do not release the control button until after the mouse button is released. A copy of the selected test element is created and displayed in the template window.

>   *Note*

>   *If multiple test elements are needed but only have slightly different
>   configuration, then it is best to copy the test element several times
>   and then change the settings in each copy.*

Copying Tests from Another Template

Copying test elements between two templates is easy and requires both
templates be opened at the same time. To copy a test element from one
template to another:

1. Open the template holding the test element to be copied.

2. Open the template to which the test element is to be copied. If this is a new
   template, then create the template or use the template that is automatically
   created by Ansur when it starts.

3. Select **Window | Tile Vertically** to align the two template windows next to
   each other.

4. Click a test in one template, hold down the mouse button and drag it across
   to the other template. When hovering above the other template, the cursor
   changes to a "copy" cursor as shown in Figure 3-54.
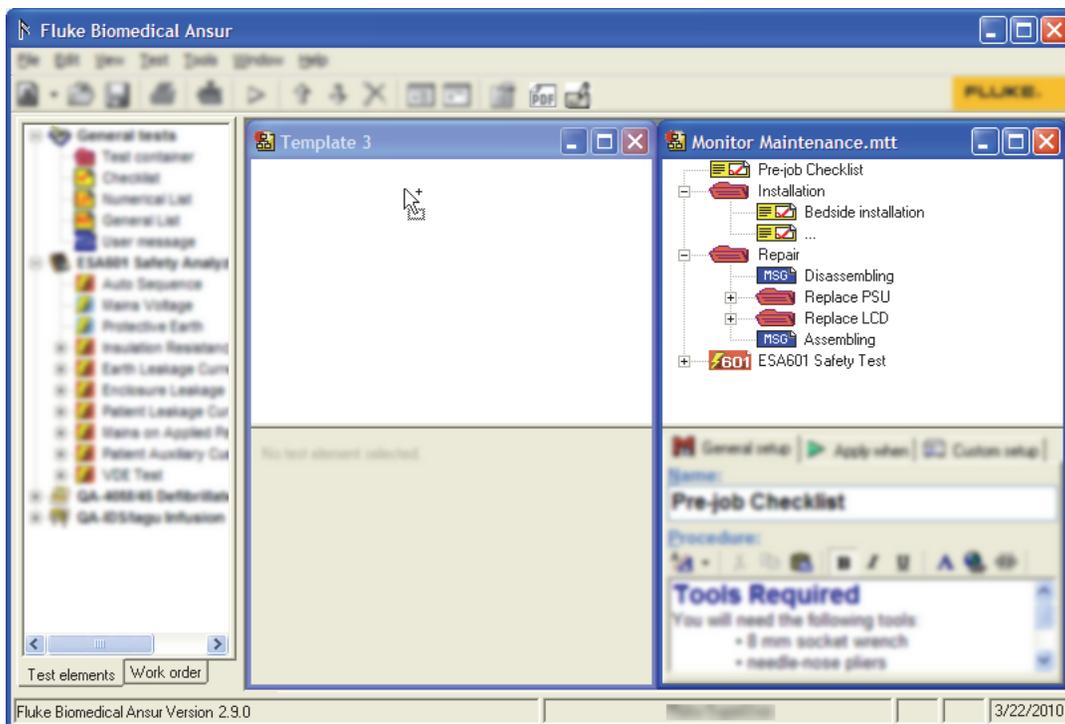
gey311.bmp

Figure 3-54. Copying Tests Between Templates

5. Release the mouse button. A copy of the selected test element is displayed in the new template as shown in Figure 3-55.

Note

When copying test elements between templates, service events are not copied.

gey088.bmp

Figure 3-55. Test Element Copied to Another Template

Testing Against Multiple Standards

An important feature of Ansur is its ability to perform tests against multiple standards in one test run. In certain situations it can be valuable to have Ansur verify your test results against both international and national standards. The example in this section is a simple electrical safety test using the QA-90 safety analyzer against both IEC 601.1 and VDE 751.

Note

The example in this section is not a complete IEC or VDE test, it just illustrates how to create a template to test against multiple standards on one test run. In order to use safety tests for the QA-90 instrument, a QA-90 Plug-In must be installed. If only Ansur is installed, then the only standard listed will be Anur – User Defined. If a Plug-In has been installed, such as the QA-90 Plug-In, several additional standards will be listed.

To set Ansur to test against multiple standards:

1. Create a new test template and add the required safety tests. This example places all safety tests in a QA-90 Test Sequence so that they are performed automatically. See the Users Manual for the QA-90 Plug-In for more information on automatic test sequences. Figure 3-56 shows the safety tests in the template.


gey089.bmp

Figure 3-56. QA-90 Safety Test Template

2. To select the standards, select the QA-90 Test Sequence test element and click **Apply when** in the test element setup to display the Apply when page.

3. In the list named **Apply when performing**, select the standards against which the test is to be performed. The standards are listed in the Apply when performing box as shown in Figure 3-57.
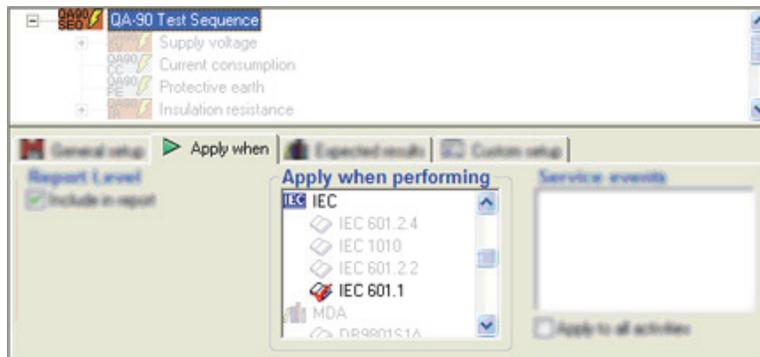
gey090.bmp

Figure 3-57. Selecting Standards

Note

*The tests from the QA-90 Plug-In will have limits assigned to the IEC 601.1 and VDE 751 standards. This is not the case for all tests and all standards. See the Users Manual for the Plug-In for more information on the tests that have limits assigned. Click the **Test | Start Test** or click the **Start Test** button (▶) on the main toolbar to display the Test Guide window.*

4. Connect the QA-90. Define modules and calibrate the test leads if needed. See the QA-90 Users Manual for more information on preparing for a QA-90 safety test.

5. Click the **Start Test** button (▶) to perform the automatic safety test. Ansur automatically looks for the COM ports and makes a connection to the QA-90 device. If a QA-90 connection is not made, Ansur tells the user to make the connection and turn on the device. A progress indicator is displayed in the lower right corner of the test guide while the safety test is being performed as shown in Figure 3-58.
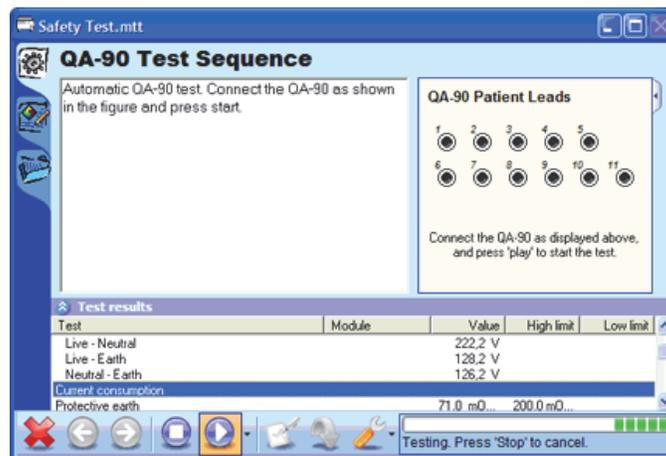
gey092.bmp

Figure 3-58. Performing a QA-90 Safety Test

6. While the test is running, or when it has completed, right-click the list of test results to bring up the standards menu. To view limits for the VDE 751 standard, select **VDE 751** in the menu. Limit values are updated in the test results. When the test completes, the process bar disappears and the color of the status bar is updated to reflect the current status of the test as shown in Figure 3-59.
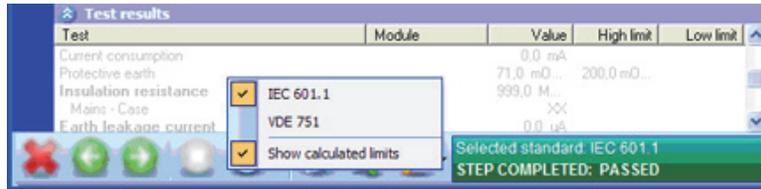

gey093.bmp

Figure 3-59. Standards Menu for Test Guide

7. To complete the test, click the **Next** button (☉) to display the test summary window.

8. Click the **Next** button (☉) again to create a test record. The test record is shown in Figure 3-60.
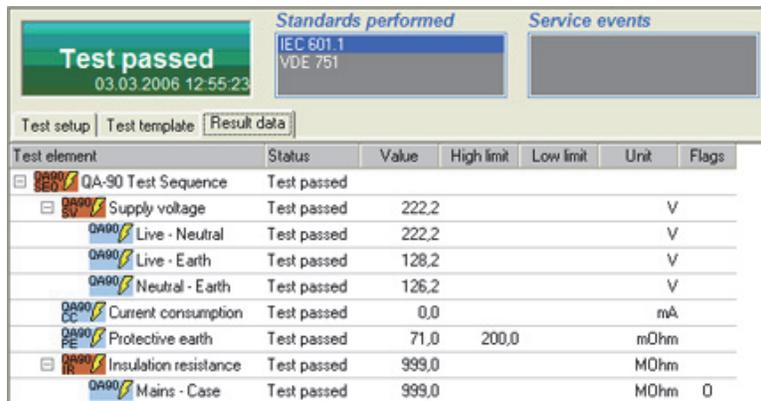
gey094.bmp

Figure 3-60. QA-90 Safety Test Record

9. In the list named **Standards performed**, click a standards name to have the test results show information pertaining to that standard.

The safety tests have now been performed and validated against both the IEC 601.1 and the VDE 751 standards.

Running Different Tests Based on the Job Performed

Depending on the state of the appliance and the work to be performed, a different set of tests and instructions may be needed to complete the job. Consider an installation of a monitor versus the repairing the monitor by replacing the power supply. These two cases will require two different service procedures, but the required safety tests may be the same. Ansur can ensure that the correct procedures are followed and that the correct safety tests are performed.

Place all safety tests, inspections, and maintenance procedures for a specific appliance model in one Ansur file. Then set up service events to define which parts are to be performed based on the job to be carried out.

In the example in this section, a template containing service procedures for both installation and repair will be created. The final safety test is the same for both activities. The details of each test are not covered in this example because the focus is on how to have Ansur run only the tests that apply to the selected service event.

Note

The template in this example is not a complete test template for a medical monitor. It is just an example indicating how the handle different service events using the same test template.

To run different tests based on the job performed:

1. Create a test template and add visual tests and safety tests to meet the needs for service procedures and safety testing. Figure 3-61 shows an example template with the Ansur explorer hidden.
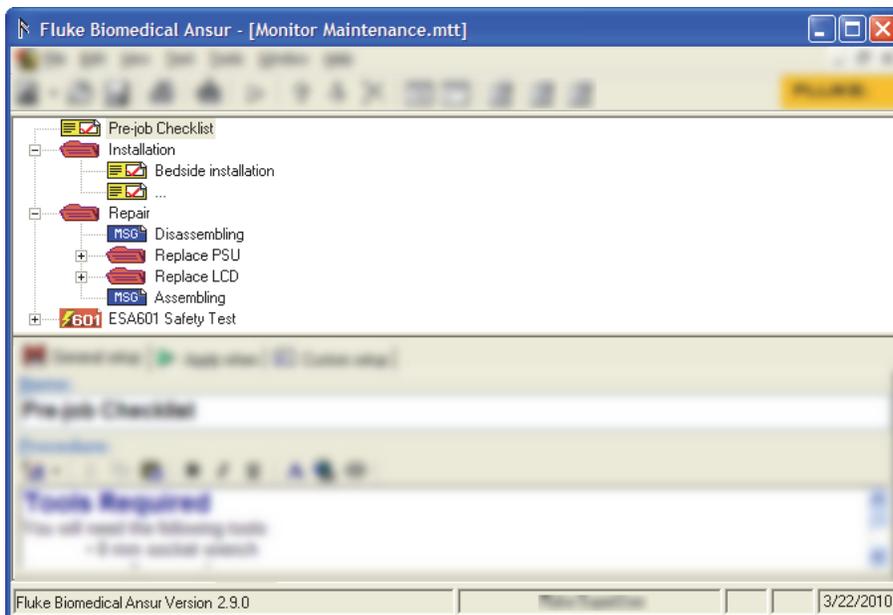
gey312.bmp

Figure 3-61. Sample Template for Monitor Maintenance

The example template contains three main test blocks: Installation, Repair, and ESA601 Safety Test. These test blocks have been created by placing test elements within test containers.

Next, the template is setup so that the Installation test block is only run when the field user performs an installation, and that the Repair test block is only run when a repair is carried out. It will ensure that the Pre-job Checklist and ESA601 Safety Test are always run.

2. Define a service event by clicking on **Edit | Service events** to display the service events window shown in Figure 3-62.
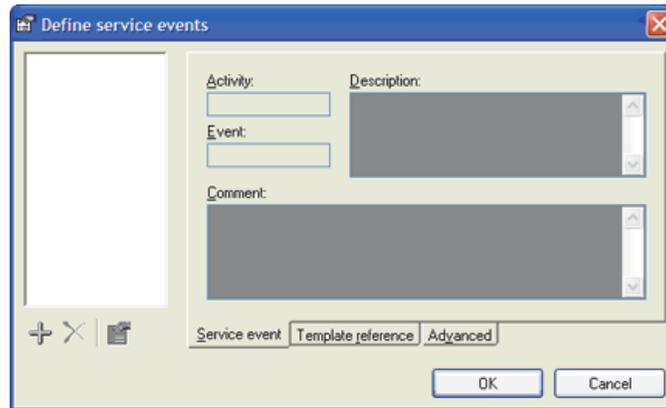
gey097.bmp

Figure 3-62. Service Events Window

3. Click the **Add** button (✛) to create a new service event to open the service event window.

4. Enter a short name for the service event in the **Activity** textbox shown in Figure 3-63.
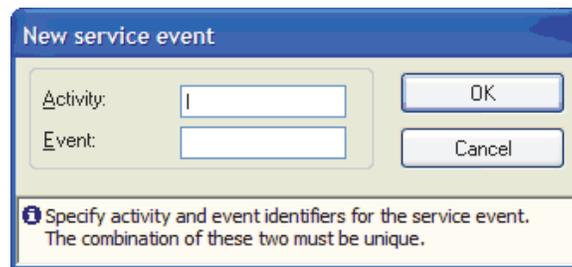
gey098.bmp

Figure 3-63. Creating a New Service Event

This name is used as an identifier by Ansur and keeping it short is a good idea. A more descriptive name for the field user can be added later. Use an upper case "I" to represent installation.

Note

*Leave the **Event** textbox empty in this example, but it will become useful if you have several related activities. In such cases create service events that have the same activity name, e.g. I for installation, but different event name, e.g. 1 for stand-alone installation and 2 for networked installation.*

5. Click **OK** to close the new service event window and display the service event created in the list in the left part of the service events window.

6. Repeat steps 4 and 5 and add a second service event with activity name R to represent repair. Figure 3-64 shows the two service events just created.
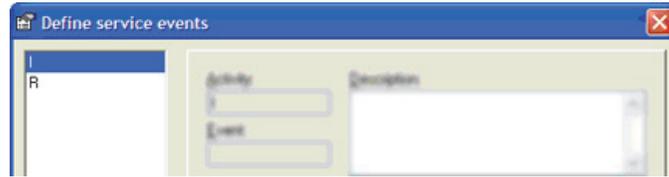
gey099.bmp

Figure 3-64. Service Events Window Listing Two Service Events

7. Click the first service event (I) in the list to the left. Then click inside the **Description** textbox and enter a proper description for the service event. This is the text that the field user will relate to and in this case it should be "Installation".

8. Click the second service event (R) in the list to the left. Then click inside the **Description** textbox and enter a description for the service event, in this case "Repair". Figure 3-65 shows the description assigned to the selected service event.
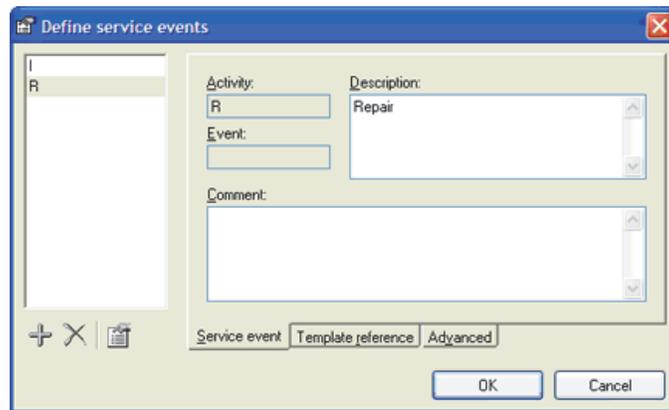
gey100.bmp

Figure 3-65. Adding Description to Service Events

9. Click **OK** in the service events window to close the service events window.

10. To assign tests to a service event, click the test element named **Installation** in the template window show in Figure 3-61. Then click the **Apply when** tab in the test element setup frame. The service events just created are listed in the frame named **Service events** as shown in Figure 3-66.
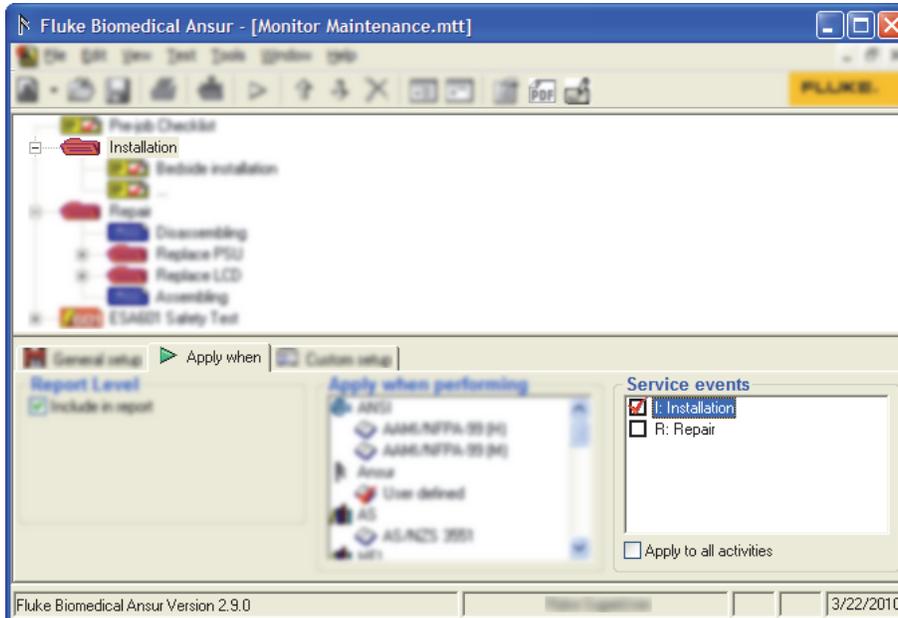
gey313.bmp

Figure 3-66. Assigning Service Events

11. Click the checkbox **I:Installation** displayed in the **Service events** list. Installation is checked in the Service events window so the test block should only run when the field user has selected the installation service event.

12. Click the test element named **Repair** in the template window shown in Figure 3-67.
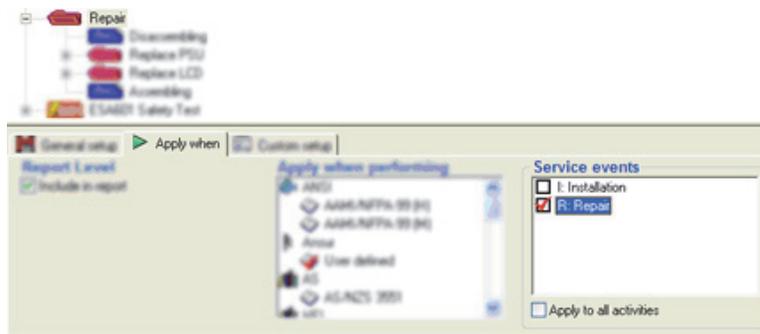
gey102.bmp

Figure 3-67. Assigning Service Events to Repair

13. Click the checkbox **R:Repair** displayed in the **Service events** list. This sets Ansur to only run the test elements when the field user has selected the repair service event.

Note

No changes to the Pre-job checklist and ESA601 Safety Test is necessary. When a test element has not been marked for a specific service event it will always be performed.

14. Perform the template by clicking **Test | Start Test** or click the **Start Test** button (⊙) on the main toolbar. Figure 3-68 shows the Test Initialization window displayed at this point.
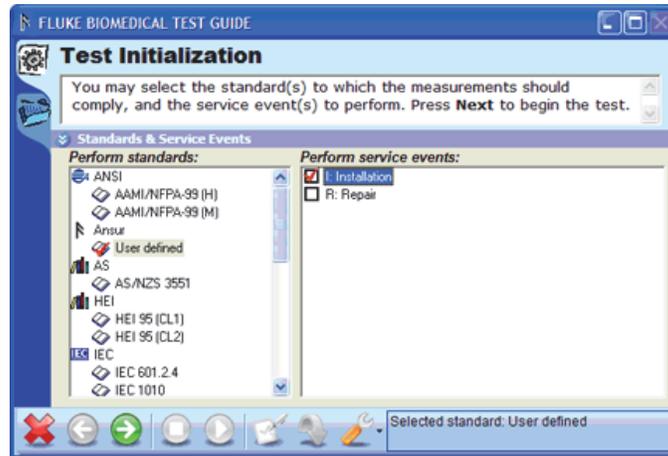
gey104.bmp

Figure 3-68. Selecting Service Events on the Test Initialization Window

15. Select the service event that is to be performed and click the **Next** button (➡) to continue to the first test guide. The Pre-job Checklist is displayed. When this test is completed and next is clicked, the initialization and repair tests are only included if the corresponding service event is selected.

Working with Test Sequences

A test sequence is the combination of a test template and specific DUT information that are associated together in 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.

Creating a Test Sequence

To create a test sequence:

1. Click **File | New | Test Sequence** to display a new test sequence window.

2. Click **Edit | Add template** or click the **Add template** button (🖨) on the main toolbar.

3. Browse to the folder containing the template to add to the test sequence. Click on the file name and either click the **Open** button or double-click the filename. Ansur loads the selected template, adds a new page to the test sequence window and displays the template as shown in Figure 3-69.
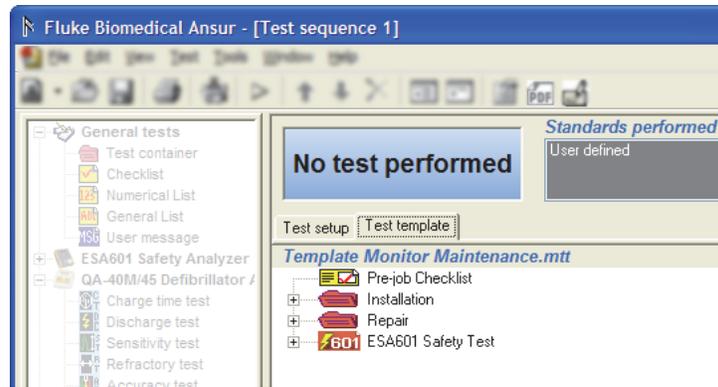
gey314.bmp

Figure 3-69. Template Added to a Test Sequence

Editing DUT Information

To edit DUT information:

1. While viewing a test sequence, click the **Test setup** tab to display the test sequence window.

2. Click an entry in the table named **Device under test** and enter the information for the device to be tested. Figure 3-70 shows the DUT information window.
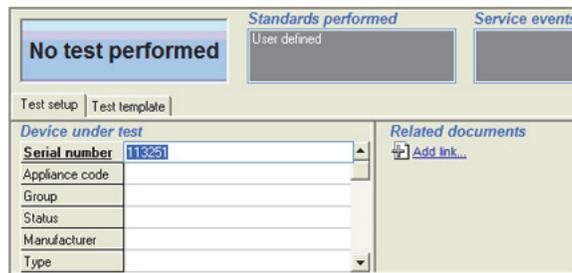
gey107.bmp

Figure 3-70. Editing DUT Information

Working with Test Records

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 test run, or information gathered during the test/inspection is not available to be manipulated in any way.

Determining the Status of a Test

The test status displayed in the upper left corner of the test record window can display five different statuses, each giving you important information on the test performed. Table 3-1 lists the status indications and their descriptions.

Table 3-1. Ansur Test Status

Status	Description
Test passed 28.10.2005 12:44:45	All performed tests passed. The date and time indicates the point when the test was completed.
Test failed 02.03.2006 11:57:21	One or more tests failed.
Not applicable 02.03.2006 11:59:24	All performed tests are flagged as not applicable.
Test aborted 02.03.2006 11:58:30	The test was aborted by the field user and was not completed properly.
No test performed	No test has been performed.

Viewing Skipped Tests

You can filter the test results so that it only displays tests that failed or even tests that were skipped when the template was performed. By default Ansur will display only the tests that have been performed.

1. Right-click the test results list to bring up the test results **Display** menu as shown in Figure 3-71.
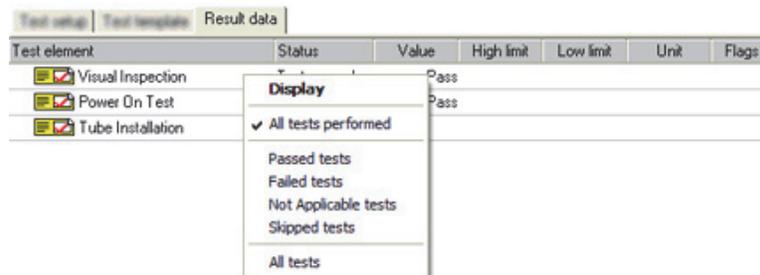
gey113.bmp

Figure 3-71. Test Results Display Menu

2. Click **All tests** to display all tests, whether they have been performed or not. Figure 3-72 shows all test results, including those not performed, in the test results list.

gey114.bmp

Figure 3-72. Test Results Displaying All Tests

Note

Test results grouped by test status (Passed, Failed, and Not Applicable) as well as skipped tests can be selected through the test results display menu.

Printing Failed Tests Only

To print test reports of only the tests that failed:

1. With a test record open, click **File | Print** or click the **Print** button ( ) on the main toolbar to open the print report window.

2. Click **Detailed** in the **Report type** frame and scroll down to select **Failed tests only** in the list named **What to print** as shown in Figure 3-73.
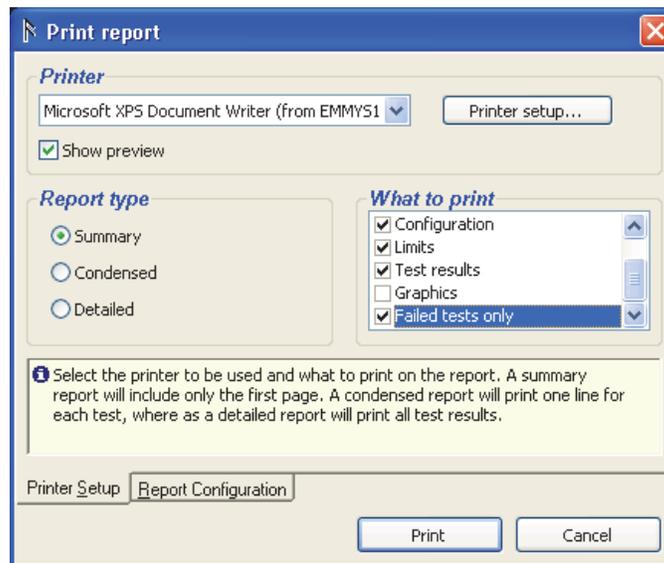
gey115.bmp

Figure 3-73. Printing Failed Tests Only

3. Click the **Print** button. The print preview shows only the tests that failed.

Changing the Language of a Report

To select the language used on a printed report:

1. With a test record open, click **File | Print** or click the **Print** button (🖨) on the main toolbar to open the print report window.

2. Click the **Report Configuration** tab. The available languages are shown. The Ansur preference language is the default.

3. In the **Report language** list, select the language for the printed test report and then click **Print**.

Note

Ansur remembers the changes made in the print report window and will use them on the next report.

Exporting the Test Template

A test record contains the test template that was run to create the test results. This test template cannot be edited when contained within the test record. The test template can be exported to a separate test template file. To export a test template:

1. With a test record open, click **File | Save As** on the main menu to open the Save As dialog box.

2. Open the drop down list named **Save as type** and select **Test templates (*.mtt)** to list only those files with a test template extension.

3. Specify a name for the test template and click the **Save** button. The save as window is closed and the template contained within the test record is stored as a test template file using the file name specified.

    To view and edit the template, load it into Ansur.

Introduction

This chapter contains additional information on some of the Ansur Executive features.

Main Window

The main window is the window that appears when Ansur is started. This window contains menus along the top border, a test explorer on the left, and the test template window in the center right as shown in Figure 4-1.
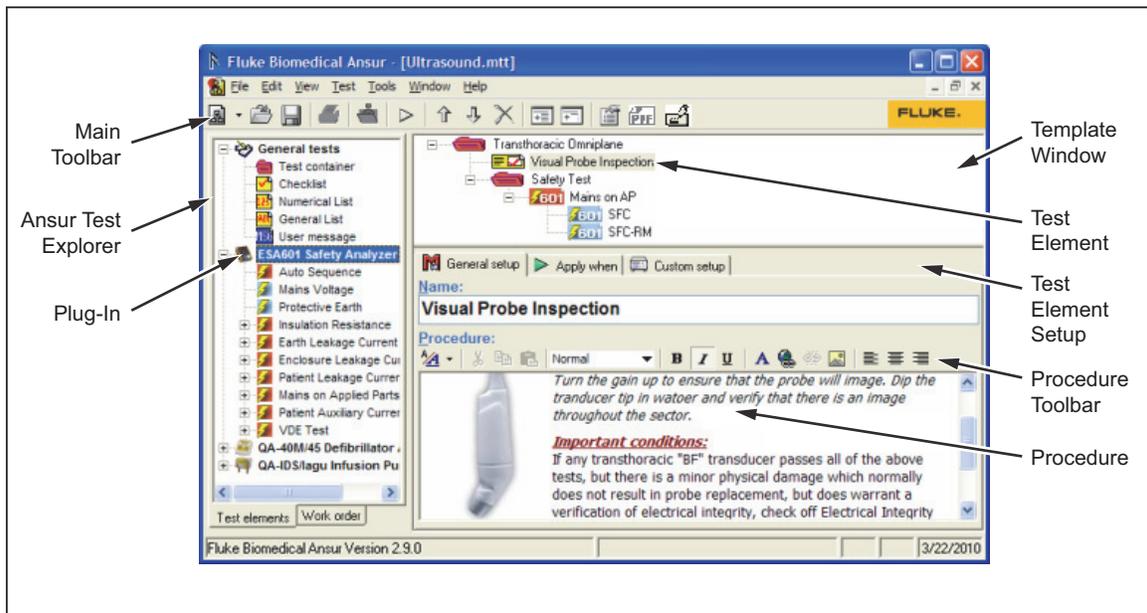
gey318.eps

Figure 4-1. Ansur Main Window

Main Toolbar

Table 4-1 lists each toolbar icon and the description of each button function.

Table 4-1. Ansur Main Window Toolbar

(toolbar image)	gey319.bmp

Icon	Name	Description
	New template	Create a new test template.
	Load	Load an Ansur file.
	Save	Save the current file.
	Print	Print test results. Only enabled when a test record is being viewed,
	Add template	Add a test template to a test sequence or test record.
	Start	Start a test.
	Move up	Move selected test element up. Only enabled when a test element is selected in a test template file.
	Move down	Move selected test element down. Only enabled when a test element is selected in a test template file.
	Delete	Delete selected test element. Only enabled when a test element is selected in a test template file.
	Expand All	Expand all test containers in the currently viewed test template.
	Collapse All	Collapse all test containers in the currently viewed test template.
	Document Properties	Edit document properties for the currently viewed document.
	Export to PDF	Save a test report as PDF file. Only enabled when a test record is being viewed.
	Edit report settings	Edit the test report settings.

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

File Menu
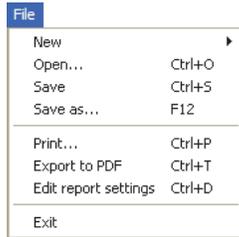
New creates a new test template or test sequence.

Open loads an existing Ansur file.

Save stores the currently viewed file.

Save as stores the currently viewed file using a new filename.

Print prints test results. It will only be enabled for test records.

Export to PDF saves the test report as a PDF file. It will be enabled only for test records.

Edit report settings to edit the test report settings.

Exit will exit Ansur.

gey321.bmp

Edit Menu
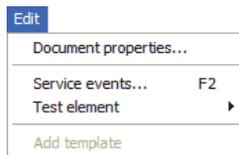
Document properties opens the document properties window for the currently viewed document.

Service events displays the service events window for the currently viewed template.

Add template adds a template to a test sequence or test record.

gey134.bmp

View Menu

gey135.bmp
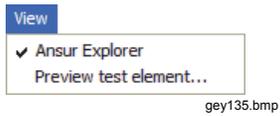
Ansur Explorer shows or hides the test explorer.

Preview test element opens a test element test guide for preview.

Test Menu

gey136.bmp
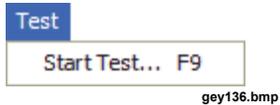
Start Test starts the template in the currently viewed file.

Tools Menu

Options displays Ansur preferences.

gey137.bmp

Window Menu

gey138.bmp
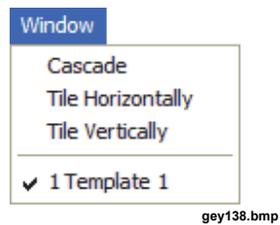
Cascade arranges all open windows in a cascading manner.

Tile Horizontally tiles all open windows horizontally.

Tile Vertically tiles all open windows vertically.

1 Template 1 displays a list of all open windows.

Help Menu

gey139.bmp

About Ansur displays a dialoig box containing information about the software and which Plug-In versions are installed.

Ansur Test Explorer

Ansur Test Explorer, shown in Figure 4-2, lists all the Ansur Plug-Ins installed on the computer. For each Plug-In, all test elements provided by the Plug-In are listed. Plug-In names are shown in bold face font, test elements are shown in a plain font.

These test elements are the building blocks for the test template and can be dragged from the explorer to the template window.
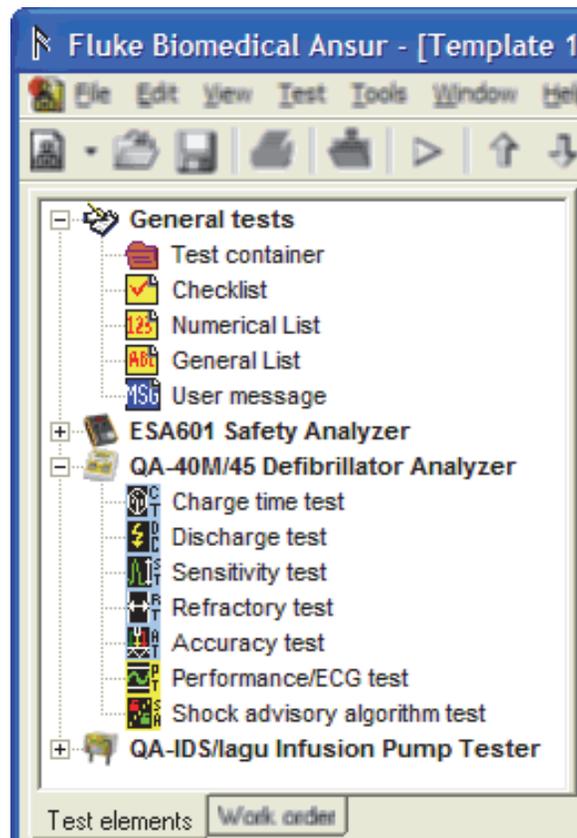
gey140.bmp

Figure 4-2. Ansur Test Explorer

Test Template Window

The test template window displays a tree view of all the test elements in the template. The lower half of the window contains test element setup. This frame is updated to display settings for the currently selected test element.

The test element setup consists of four different pages: General setup, Apply when, Expected Results, and Custom Setup. Figure 4-3 shows the Test Template Window with the General Setup frame exposed.
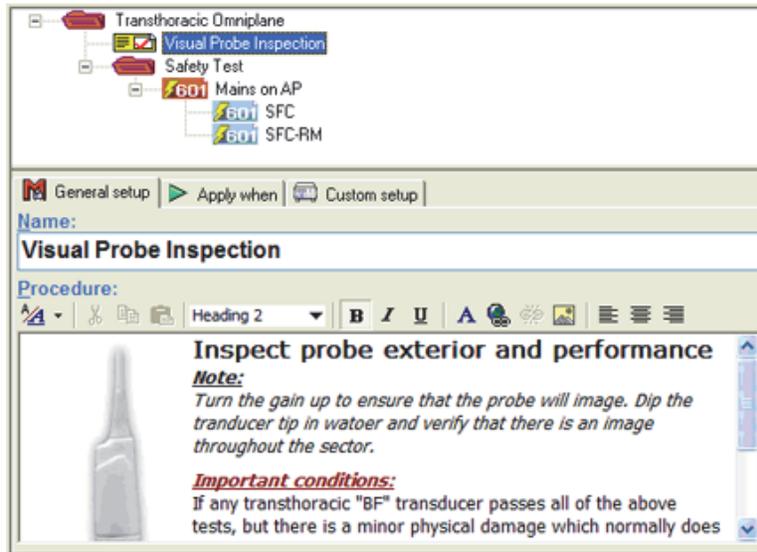
gey141.bmp

Figure 4-3. Test Template Window

General Setup

General setup contains the name of the test element and the procedure that describes to the field user how the test element is to be performed. See Figure 4-4. Both the name and the procedure are displayed to the field user in the test guide for the test element.
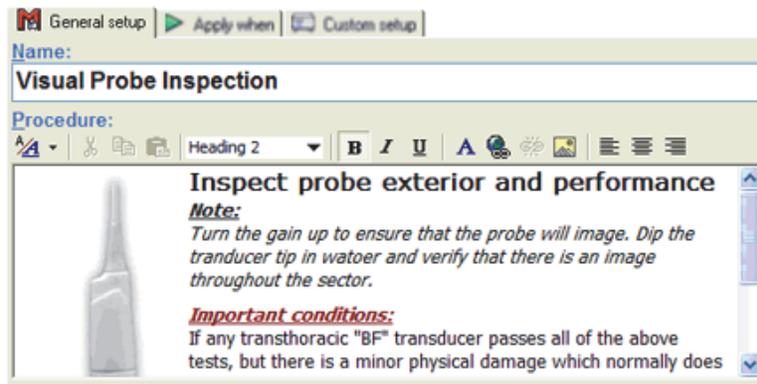
gey142.bmp

Figure 4-4. General Setup Window

The procedure editor supports four formats: RTF, HTML, plain text, and link. The format can be chosen from the format menu as shown in Figure 4-5.
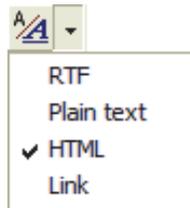
gey143.bmp

Figure 4-5. Format Menu for Procedure Editor

The RTF formatting allows the user to edit font, color, and size of the text and whether the inserted text shall be bold, italic, or underlined. Cut, copy, and paste functions are also enabled in this formatting mode. Hyperlinks can be added in RTF formatting mode. The hyperlink can connect to local or external files.

Table 4-2 lists the toolbar icons with their description.

Table 4-2. RTF Toolbar for Procedure Editor

gey144.bmp

Icon	Menu Item	Shortcut	Description
	Format Menu		Displays the format menu shown above.
	Cut	Ctrl+X	Copy selected text to clipboard and delete it from the procedure.
	Copy	Ctrl+C	Copy selected text to clipboard.
	Paste	Ctrl+V	Paste text from clipboard into the procedure
B	Bold	Ctrl+B	Toggles selected text bold.
I	Italic	Ctrl+I	Toggles selected text italic.
U	Underline	Ctrl+U	Toggles an underline on selected text.
A	Font	Ctrl+D	Opens the font dialog box where the format of the selected text can be changed.
	Insert hyperlink	Ctrl+L	Displays the insert hyperlink window. The hyperlink will be inserted on the selected text.
	Remove hyperlink		Removes the hyperlink inserted on the selected text.

Font Selection

Click the **Font** button (A) to change the font used in the procedure. This will bring up the font dialog box shown in Figure 4-6.
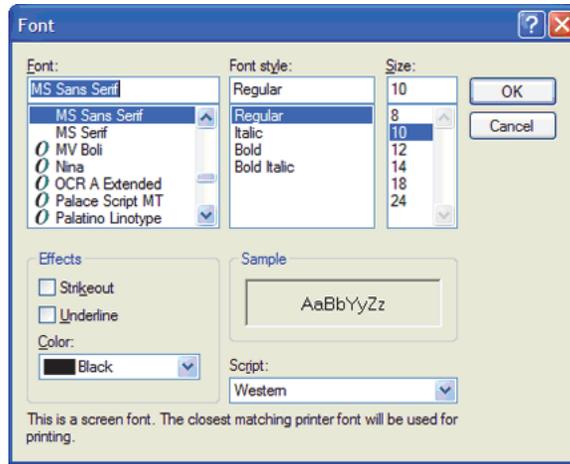
gey155.bmp

Figure 4-6. Font Dialog Box

Insert Hyperlink

Select a portion of text and click **Insert hyperlink** button (⬤) to insert a hyperlink in the procedure. In the insert hyperlink window shown in Figure 4-7, enter the address of the document to be hyperlinked and click **OK**.

gey156.bmp

Figure 4-7. Insert Hyperlink Dialog Box

The hyperlink address can be to a document or an external web server such as http://www.server.com/document.htm, or to a local file using file://c:\documents\picture.jpg.

Plain Text Procedure

Plain text formatting contains no formatting of the text written in the procedure field. The text written is presented with default text font, color, and size. When editing plain text, no formatting options are presented on the procedure editor toolbar as shown in Figure 4-8.

gey157.bmp

Figure 4-8. Procedure Editor Plain Text Toolbar

HTML Procedure

HTML formatting provided all the same formatting features as RTF, and in addition the option to insert pictures into the procedure field. The text and pictures can also be justified right, left, or center in the HTML formatting mode. Table 4-3 lists the HTML toolbar icons with their description.

Table 4-3. HTML Editor Toolbar

gey158.bmp

Icon	Menu Item	Shortcut	Description
	Format Menu		Displays the format menu above.
	Cut	Ctrl+X	Copy selected text to clipboard and delete it from the procedure.
	Copy	Ctrl+C	Copy select text to clipboard.
	Paste	Ctrl+V	Paste text from clipboard into the procedure.
	Style		Select a style to be applied to the selected text. The available styles are Normal, Heading 1, Heading 2 and Heading 3. These styles are defined in the cascading style sheet referenced by Ansur preferences.
B	Bold	Ctrl+B	Toggles selected text bold.
I	Italic	Ctrl+I	Toggles selected text italic.
U	Underline	Ctrl+U	Toggles an underline on selected text.
A	Font	Ctrl+D	Opens the font dialog box where the format of the selected text can be changed.
	Insert hyperlink	Ctrl+L	Displays the insert hyperlink window. The hyperlink will be inserted on the selected text.
	Remove hyperlink		Removes the hyperlink inserted on the selected text.
	Insert Picture		Insert a picture at the location of the cursor.
	Align left		Align selected paragraph left.
	Align center		Align selected paragraph center.
	Align right		Align selected paragraph right.

Font Formatting

Click the **Font** button ($\mathbf{A}$) to change the font used in the procedure. This will bring up the font dialog box shown in Figure 4-9.
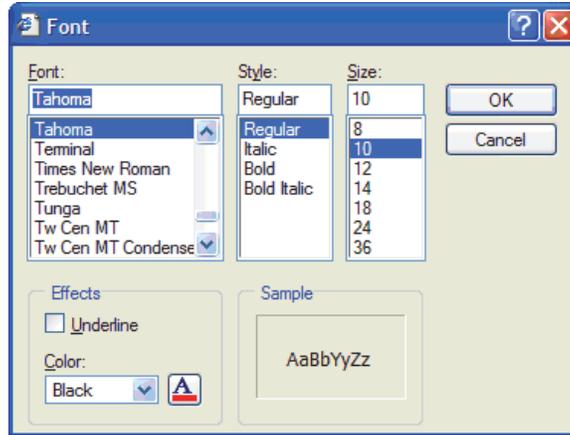

gey163.bmp

Figure 4-9. Font Dialog Box

Insert Hyperlink

Select a portion of the text and click **Insert hyperlink** button (🔗) to insert a hyperlink in the procedure. In the insert hyperlink window shown in Figure 4-10, enter the address of the document to be hyperlinked and click **OK**.

gey164.bmp

Figure 4-10. Insert Hyperlink Window

The hyperlink address can be to a document on an external web server such as http://www.server.com/document.htm, or to a local file using file://c:\documents\picture.jpg.

Insert Picture

To insert a picture into the HTML procedure, click the **Insert picture** button (🖼️).

Configure **Layout** and **Spacing** to control where the picture will be displayed in the procedure and the amount of white space between the picture and the text.

Link Procedure

Link format enables you to create the procedure as a link to an external file. The linked file can be an HTML document, a Microsoft® Word® document, a text file, an Adobe® PDF™ document, or a picture. Table 4-4 lists the Link icons and their description.

Table 4-4. Procedure Editor Link Toolbar

Procedure:

gey166.bmp
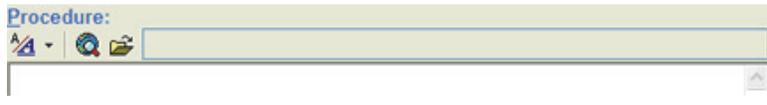
Icon	Format Menu	Description
ᴬ𝐴 ▾	Format menu	Displays the format menu shown in Figure 4-5. Select an item in the menu to change to a different format.
🔍	Link to URL	Create a link to a document on an external computer, e.g. a web server.
📂	Link to file	Create a link to a file stored on the local computer.
	Link address	Displays the address to the document displayed in the editor.

Link to URL

Click the **Link to URL** button ( ) to open the dialog box shown in Figure 4-11 to create a link to a document stored on an external computer. Specify the address of the document to be linked to and click the **OK** button.
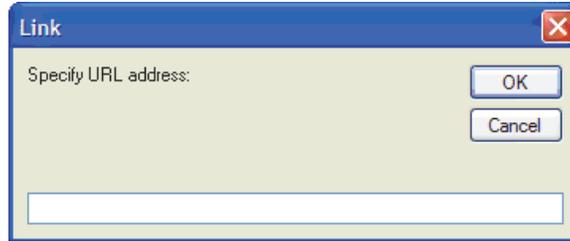
gey170.bmp

Figure 4-11. Creating a Procedure Linked to an URL

The address of the linked document will be shown on the toolbar. A preview of the document will be displayed in the procedure editor below the toolbar. It is not possible to edit the linked document.

Link to File

Click the **Link to file** button ( ) to create a link to a document stored on the local computer. An open file window will be displayed as shown in Figure 4-12. Browse to the file that is to be used as the procedure and click the Open button. You can also double click the filename.
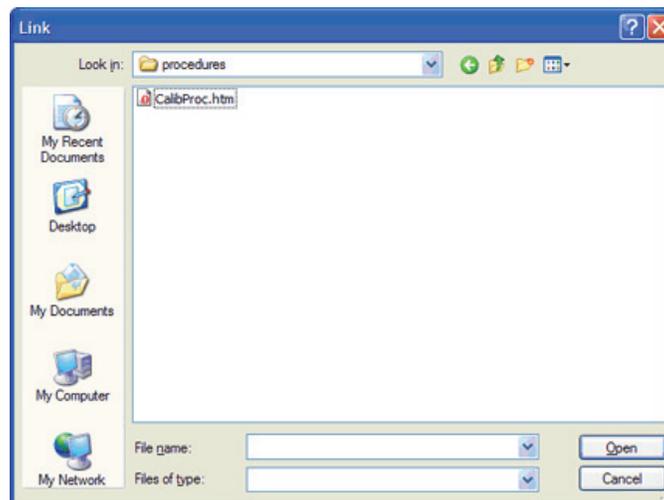

gey171.bmp

Figure 4-12. Creating a Procedure Linked to a File

The address of the linked document will be shown on the toolbar. A preview of the document will be displayed in the procedure editor below the toolbar. It is not possible to edit the linked document.

Apply When

The test element setup page named **Apply when** controls when the test is performed. It also allows specifying the standards that can have limits assigned, as well as whether the test should show up on the printed report. Figure 4-13 shows the **Apply when performing** frame of the test element setup window.


gey172.bmp

Figure 4-13. Apply When Window

Report Level

Include in report specifies whether the test should be shown on the printed report. Uncheck this to remove the test from the printed report.

Apply When Performing

The list displays all standards available to Ansur. For a default Ansur installation without any additional Plug-Ins, only the User defined standard will be listed. See Appendix C for information on how to add custom standards.

The standards selected will also be displayed on the **Expected results** page where limits can be assigned.

Note

If the test element is placed within a container, the list will only display the standards selected on the container. If no standard is selected on the container all available standards will be listed.

Service Events

The service events list shows all activities defined in the template. 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). See the *Service Events Window* section for more information on service events.

If one or several service events are checked, then the test element will be performed if at least one of the selected events also is selected in the Test Initialization window (See Figure 4-30) when the template is performed.

For activities containing several events (e.g. I1 and I2 on Figure 4-13) it is possible to check mark the overall activity to have the test element execute for all events in this activity.

The test element will always be performed if no service events are selected.

Note

If the test element is placed within container, the list will only display the service events selected on the container. If no service event is selected on the container all service events defined in the template will be listed.

Expected Results

The test element setup page named **Expected results** shown in Figure 4-14, displays a table that lists every measurement taken by the test for each standard selected in **Apply when**. A maximum (high) and minimum (low) legal value can be assigned.

gey173.bmp

Figure 4-14. Expected Results Window

There are three types of limits that can be used in Ansur:

- **Absolute limits** where the value entered will be the limit applied to the test.

- **Dynamic limits** where the value entered will be added to or subtracted from a given predefined value. This is used with tests where the DUT should provide a know value, e.g. a defibrillator discharge test. Dynamic limits will be indicated by this icon (D) next to the name of the limit.

- **Relative limits** will retrieve a value from another Ansur test and use it to calculate the limit value to be applied. Relative limits will be indicated by this icon (R) next to the name of the limit.

Dynamic Limits

Dynamic limits are supported by several test elements in some of the additional Plug-Ins (e.g. the charge time test found in the QA-45 Plug-In and the flow test found in the lagu Plug-In).

The value entered in expected results for a dynamic limit will be used in a calculation together with a predefined value for the measurement to create the final value against which the measurement will be compared.

The energy limits displayed in Figure 4-15 will be calculated as ±10 % of a preset energy level that is entered in the test element's custom setup. Hence a preset energy of 360 J will be tested against the limits 396 J and 324 J.
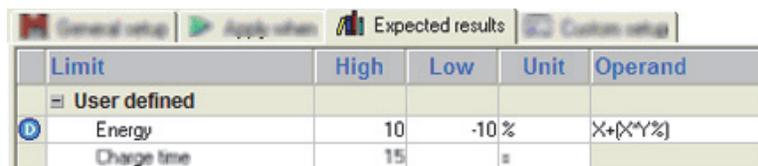
gey174.bmp

Figure 4-15. Dynamic Limits Frame

It is also possible to change how Ansur will calculate the limits by changing the formula displayed in the **Operand** column. Click the formula to bring up the **operand menu** shown in Figure 4-16.


gey175.bmp
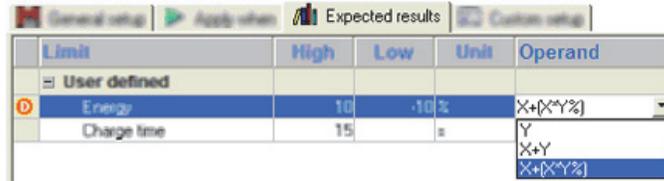
Figure 4-16. Dynamic Limit Operand Menu

The formulas listed in the **operand menu** may be different than the one shown here depending on the test element being edited. The formulas will be documented in the user manual for the Plug-In, but the most common ones are:

- **Y** where Y represents the value written in the high and low cells. Selecting Y as an operand will turn the limit into an absolute limit where Ansur uses the entered values as limits.

- **X + Y** where X is the preset value and Y is the entered high or low value. The limit applied to the test will be the sum of X and Y.

- **X + (X * Y%)** where X is the preset value and Y is the entered high or low value.
  The limit applied to the test will be the preset value (X) plus a percentage of the preset value specified by the entered value (Y). For instance an entered low value of -10 and a preset value of 100 will give the low limit 90 (100 + (100 * -10/100))

Relative Limits

Relative limits enable you to use the result of one test as the limit for another. To create a relative limit select in the template window, the test is to be used as the reference for the limit and drag it to the expected results frame shown in Figure 4-17, and then drop it onto the appropriate row.

gey176.bmp

Figure 4-17. Relative Limits Frame

When the reference test is dropped, a menu is displayed in the measurement column listing all the measurements provided by the dropped test. You must select one of these to be the source of limit values.

Not all tests can be used in a relative limit. If the test dropped into the expected results page cannot be used, an error message is displayed.

It is also possible to change how Ansur will calculate the limits by changing the formula displayed in the **Operand** column. Click the formula to bring up the **operand menu**. The operand menu is described in the previous section.

Note

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 the test element in question will have no limits when it is executed prior to its reference test.

Custom Setup

The **Custom setup** page is specific for each type of test element. Some test elements do not even have a custom setup.

Figure 4-18 displays the custom setup from the flow test found in the Iagu Plug-In. The settings here are described in the manual for the Iagu Infusion Pump Tester Plug-In.

The *Visual Tests* section describes the custom setup pages for the tests found in the General Tests Plug-In.
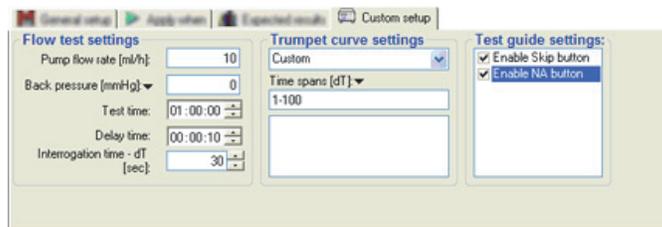
gey177.bmp

Figure 4-18. Custom Setup Window

Test guide settings are available on the custom setup page for most test elements. The options are enable or disable the skip button and enabling or disabling the NA button. The skip button enables the option wherever the user would be able to skip the test within the test guide. The NA button enables the option wherever the user would be able to set the test to not applicable within the test guide.

Service Events Window

A service event defines the type of activity for which the test element is applicable (i.e. if it should be executed for preventive maintenance, certain types of repair activities etc.). Individual test elements can be included in specific service events by checking the boxes in the service event list in the in the test elements **Apply When** page.

Service events can be named and their properties defined by selecting **Service events** from the **Edit** menu to open the Service events window shown in Figure 4-19. The events added will be available for all elements within a template.
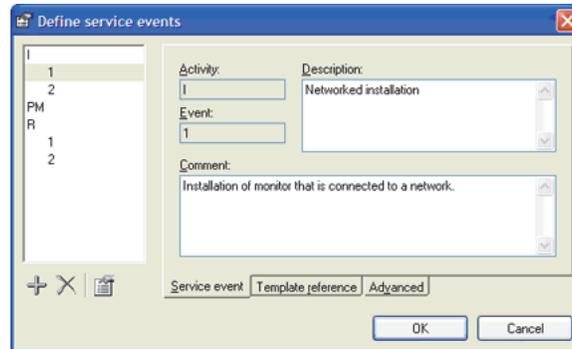
gey178.bmp

Figure 4-19. Service Events Window

The list on the left hand side of the window displays all service events currently defined. The toolbar below the list is used to add, remove, or change the service events. Table 4-5 lists the icons on the toolbar with their description.

Table 4-5. Service Events Window Toolbar

Icon	Menu Item	Description
✚	Add service event	Displays the new service event window.
✗	Delete service event	Deletes the selected service event.
🗒	Edit service event	Edits the selected service event.

Figure 4-20 shows the dialog box for entering a new service event.
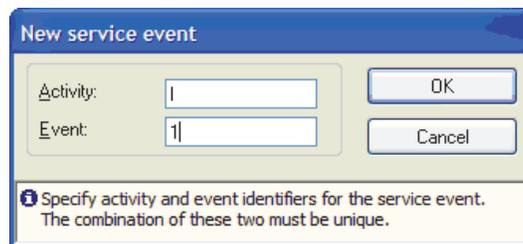
gey182.bmp

Figure 4-20. New Service Event Window

The **Description** text displays in the template and when starting the template.

Comment can be used to enter a descriptive text for each service event to the creator of the template.

Note

See the Test Initialization Window for information on how the field user selects the service events when starting the template.

Template Reference

Template references create references to another template. This feature is reserved for database integration.

Advanced

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 inclusion of different tests depending on the DUT model or tools and test instruments available.

Common examples when 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 shown in Figure 4-21. 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.
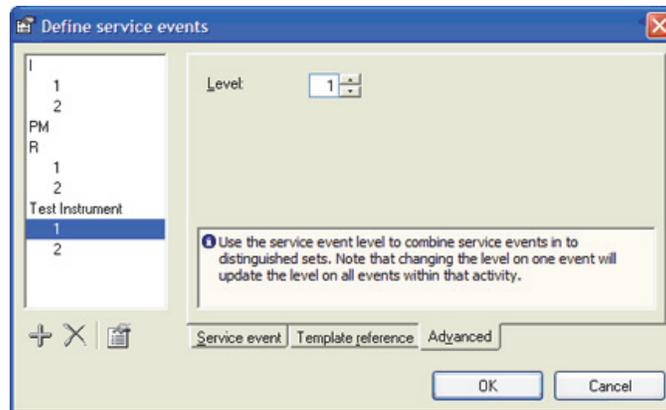
gey183.bmp

Figure 4-21. Advanced Service Events Setting Window

Assign service events as usual, but for instrument specific tests, assign the proper Test Instrument event. As shown in Figure 4-22, there are two test containers with safety tests. One with ESA601 safety tests, the other with QA-90 safety tests.
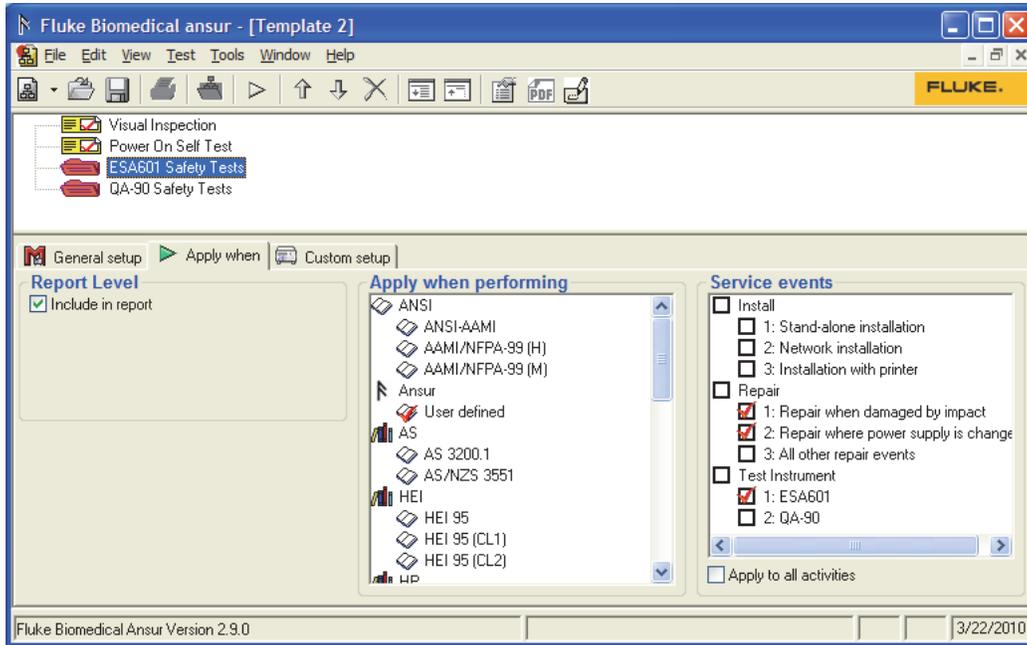
gey320.bmp

Figure 4-22. Service Events Levels Window

Document Properties Window

The document properties window contains the revision history for the test template. When **Add document history** is selected in Ansur preferences, the document properties window displays each time the user saves an Ansur file.

1. Click the **Document Properties** button on the main toolbar. The window shown in Figure 4-23 appears.
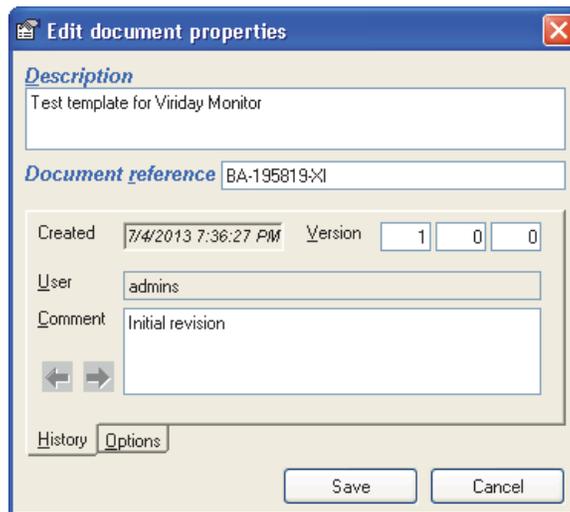
gey185.bmp

Figure 4-23. Different Parts of the Test Guide

2. Click the **New Revision** button to edit the version history.

3. You can edit **Description** and **Document reference** at any time.

4. Click **Save** to store the document, or **Cancel** to abort the save operation.

Note

Each time the document is saved, the version number is automatically incremented.

Document History

Document history includes a description, version number, user name, comment, date of last change, and T/I matrix number.

Note

*To add a new revision, **Add document history** must be turned on in Ansur preferences. See the* General Preferences *section later in this chapter.*

Document Options

Figure 4-24 shows the window for setting the document options.
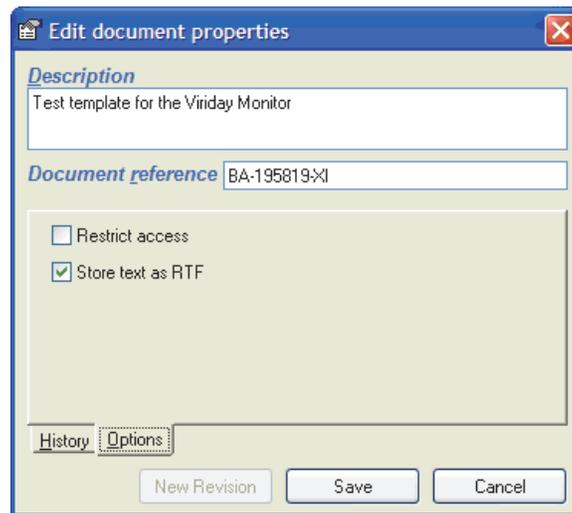
gey186.bmp

Figure 4-24. Document Options Window

You can protect documents by restricting access to Ansur installations licensed to the same establishment only. This prevents users that have Ansur licensed to another establishment from opening the file.

To restrict access to a document:

1. Click the **Options** tab. The dialog box in Figure 4-25 opens.
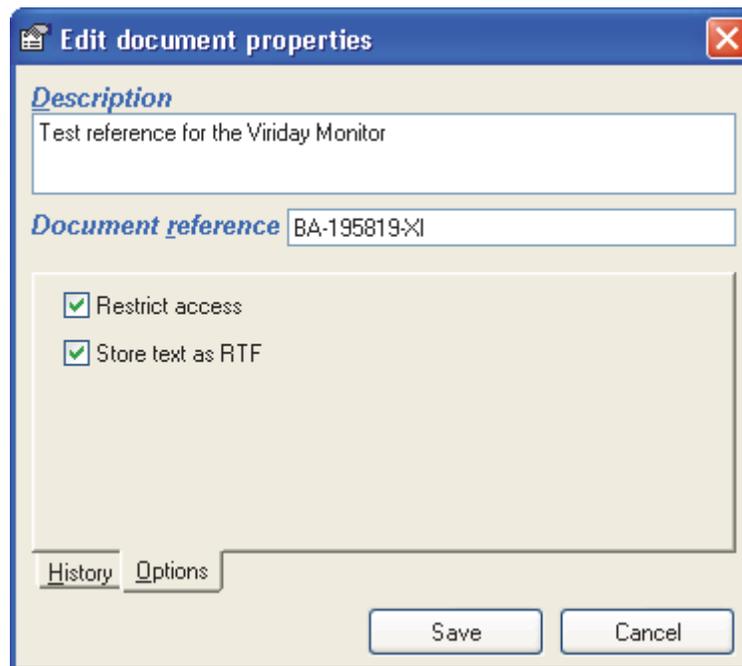
gey331.bmp

Figure 4-25. Edit Document Properties Dialog Box

2. Select **Restrict access**.

3. Click **Save**.

Store Text as RTF

If **Store text as RTF** is not selected, RTF and HTML formatted procedures are converted to plain text and all formatting is removed from the procedures.

Test Guide

The test guide window appears when the user starts the test and has selected the standards to perform and which service events to perform. The test guide presents all selected tests to perform for the test, and guides the user through the test. The test guide also shows a test summary at the end of the test.

The test guide may differ slightly between different test elements, but its main functions will always be present. Figure 4-26 identifies the common parts of the test guide that always will be present.
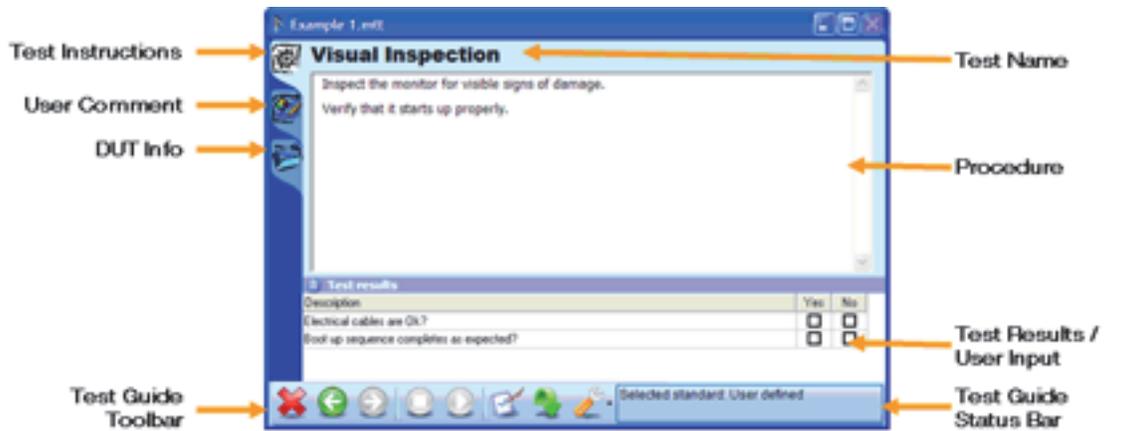
Figure 4-26. Different Parts of the Test Guide

gey187.bmp

Test Guide Toolbar

Table 4-6 lists the icons in the Test Guide Toolbar and describes the function of the common buttons that always will be displayed in the test guide.

Table 4-6. Test Guide Toolbar Icons

Icon	Menu Item	Description
	Abort	Abort a test and go to next.
	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.
	Tools	Contains a menu for selecting which standard to display in the test guide, as well as an option to customize the toolbar. The tools menu may also contain special features for the chosen test, if any. Special features will documented in the user manual for each Plug-In.

Customizing the Toolbar

In order to customize the test guide toolbar, click **Customize**… under the **Tools** menu in the test guide to open the window shown in Figure 4-27. Any changes made to the toolbar will be valid for all test guide windows.

gey196.bmp   gey197.bmp
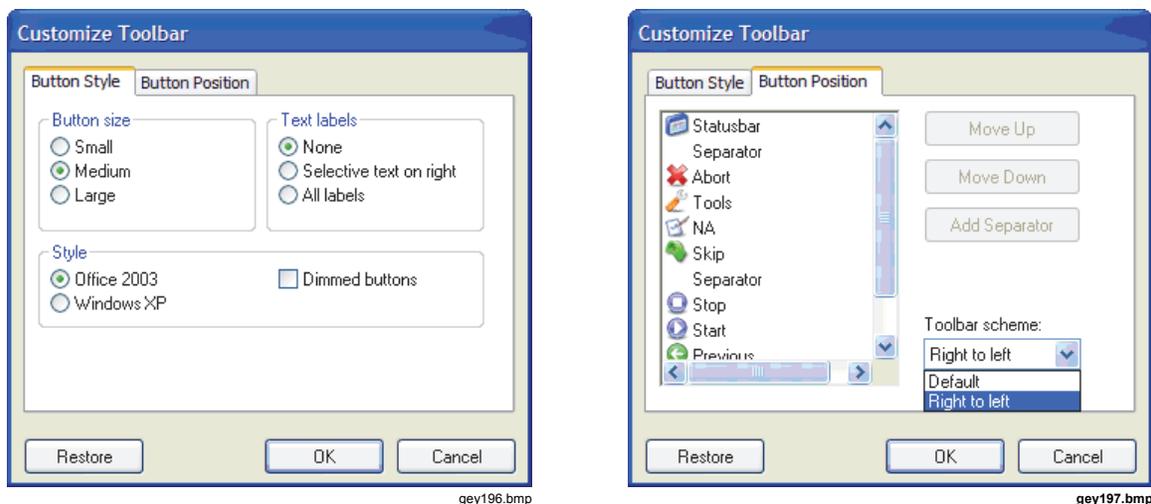
Figure 4-27. Customizing the Test Guide Toolbar

The size and the style of the toolbar buttons can be changed. The position of the buttons can also be altered.

Ansur provides two pre-defined toolbar schemes. The default scheme orders the toolbar buttons from left to right as shown in Figure 4-26. Selecting **Right to left** will order the buttons from right to left as shown in Figure 4-28.

gey198.bmp

Figure 4-28. Test Guide Toolbar Oriented Right to Left

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 shown in Figure 4-29.
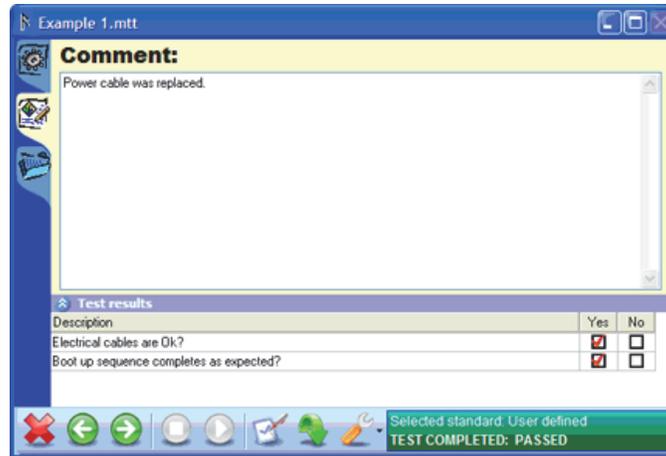
gey199.bmp

Figure 4-29. Entering Comments with Test Results Window

Test Initialization Window

If the template to be run has multiple service events defined, the test initialization window shown in Figure 4-30 will be displayed before the test guide of the first test. This allows the field user to specify which service event(s) are to be carried out.
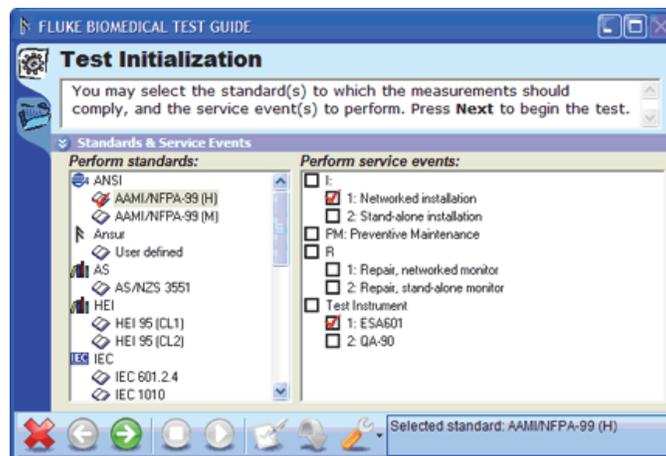
gey200.bmp

Figure 4-30. Test Initialization Window

The list of standards to perform will be pre-selected with all standards used in the template, while there will be no selections made in the list of service events. Check the service events to be performed and click the **Next** button (⊙) to continue to the first test.

Note

*The test initialization window will not be displayed if the template defines only one or no service events. In the case of on service event, this service event will automatically be selected and the test guide for the first test element will be displayed. If you need to change the settings when the test initialization window is not displayed, click the **Back** button (⬅) in the first test guide. This will bring up the test initialization window.*

Test Summary Window

The test summary window shown in Figure 4-31 displays when all the tests in a test template have been performed. The summary lists all the testing performed and displays the overall status of the test.

Click the **Next** button (➡) to complete the template and create a test record. Click the **Back** button (⬅) to go back and repeat any of the tests.
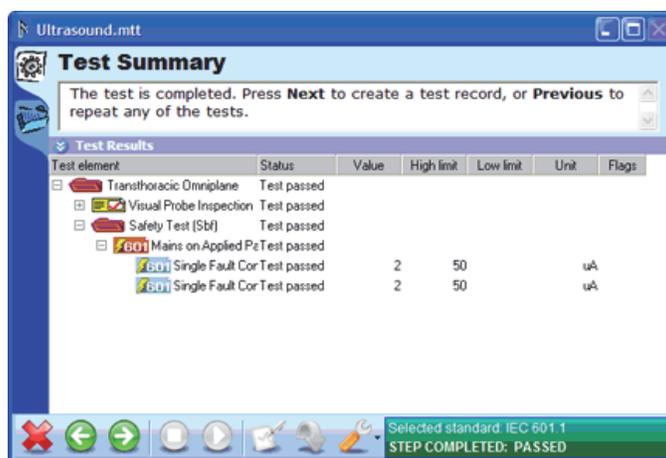
gey201.bmp

Figure 4-31. Test Summary Window

Visual Tests

The tests found under the heading General Tests are included in the basic Ansur test executive and are referred to as visual tests. The tests provided by the visual Plug-In are a test container, checklist, numerical list, general list, and user message. This section will present the details on these test elements.

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 tests so the template is more manageable when it is edited.

Conditional test containers

A test container is also used to include tests only when a certain condition is met. For example, an electrical safety test may only need to be performed 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 second drop down menu select the test which condition is to be tested. To test an individual step, select it in the third drop down menu. In the fourth and fifth drop down menu, select the comparison to be made and the valid outcome. Then click the **Add to list** button.

When adding several conditions to the same test container, the first drop down menu selects the logic that will be used to test whether or not to perform the container. The available selections are:

- **And** – The container will be performed only if both the condition with the and-operator and the condition above evaluates to true.

- **Or** – The container will be performed if either the condition with the or-operator and the condition above evaluates to true.

When the list of conditions contains multiple entries combined with both and-operators and or-operators, the and-operators will always have precedence and be evaluated first. Hence a combination on the form:

"Condition 1 OR Condition 2 AND Condition 3"

Will be evaluated as:

"Condition 1 OR (Condition 2 AND Condition 3)"
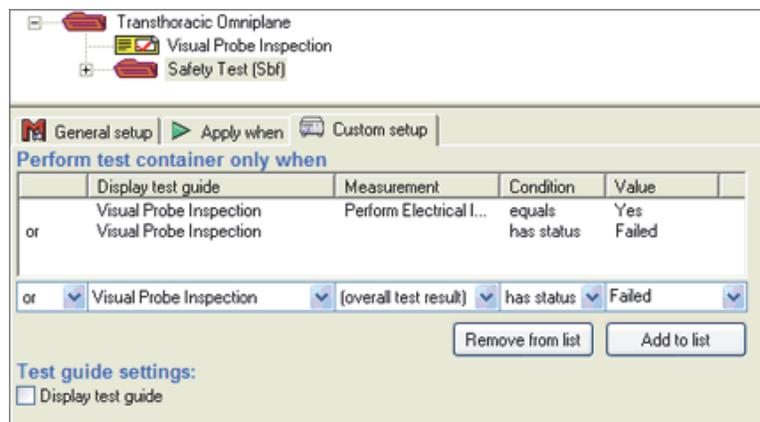
gey203.bmp

Figure 4-32. Test Container Custom Setup

Test Guide

If the **Display test guide** setting is checked, the Test Container will display a window like the one shown in Figure 4-33, with its 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.
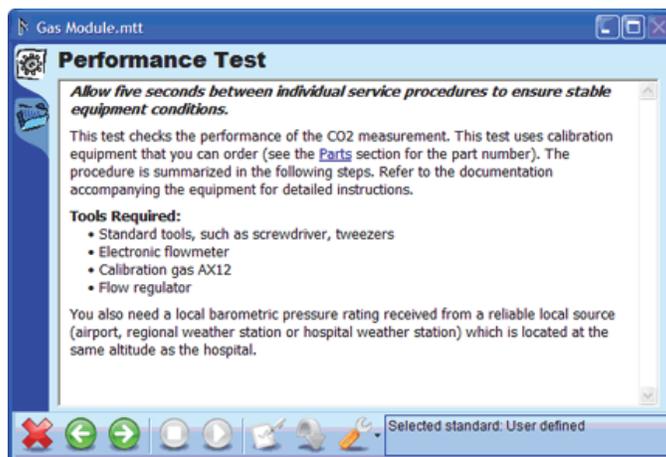
gey204.bmp

Figure 4-33. Test Container Test Guide

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 (list items) 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. Add a new column by clicking any of the option columns' titles and click the **+** button. To change the name of the option, click the option column's title and enter a new name.

Cell Status

The text Pass or Fail in the cells next to the description determines the status the test element will be given when the operator 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.

There are four possible values that a cell can have:

- **Pass** – If a cell has status pass, the test will be given the status pass when the corresponding checkbox is clicked in the test guide.

- **Fail** – If a cell has status fail, the test will be given status fail when the corresponding checkbox is clicked in the test guide. The failed item will always take precedence over any other items.

- **Not Applicable** – If the operator clicks a checkbox that has its status set to Not Applicable, the test will be flagged as Not Applicable. However, this status has the lowest precedence. Hence if there exists another selection that is pass or fail, the test will be set to pass or fail instead.

- **Ignored** – By setting the status of the cell to Ignored, no checkbox will be displayed in the Test Guide and this option becomes unavailable to the operator.

Required Items

Each list item added to a checklist will be required by default. A required item will require an answer before the operator is allowed to continue in the test template. Consequently, the operator must check off all required items before the next button is enabled in the test guide.

Items that are not required will be shown with an alert icon (⚠) next to the description.

To change an item's 'required' attribute, click the alert icon or right click the item's description. In the pop up menu that is displayed, click the 'Required' menu item.

Test Guide

When a Checklist is being performed, a Test Guide with the procedure and the checklist will be displayed as shown in Figure 4-34. In the example below, the last item is not required hence the test is shown as completed even though the last item is not checked. Also the last item does not have a checkbox in the 'No' column because its cell status has been set to 'Ignored'.
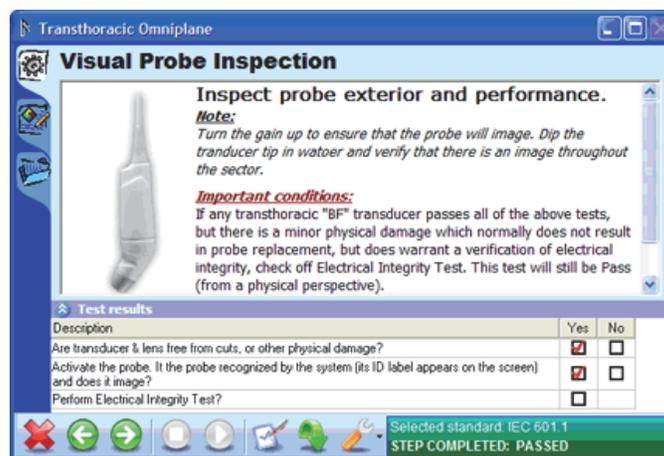

gey207.bmp

**Figure 4-34. Checklist Test Guide**

Numerical List

A Numerical List is a test element that uses 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 cannot 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. See Figure 4-35.

Even for numerical lists, it is possible to specify whether a list item should be required or not.
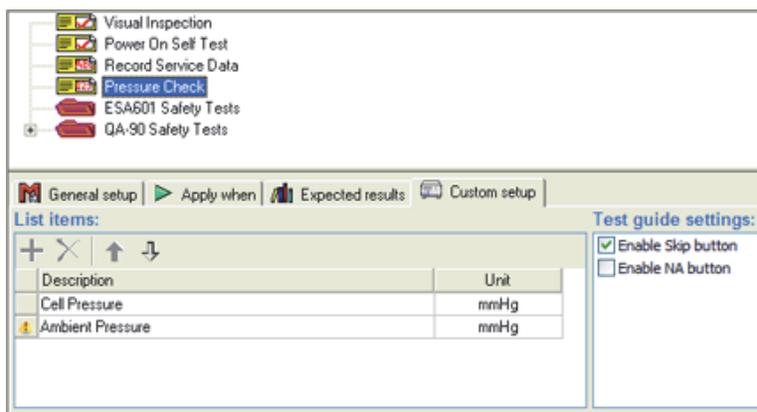

gey208.bmp

Figure 4-35. Numerical List Custom Setup

Test Guide

Each item added will request the field user to enter a value. Figure 4-36 shows the Numerical list test guide.
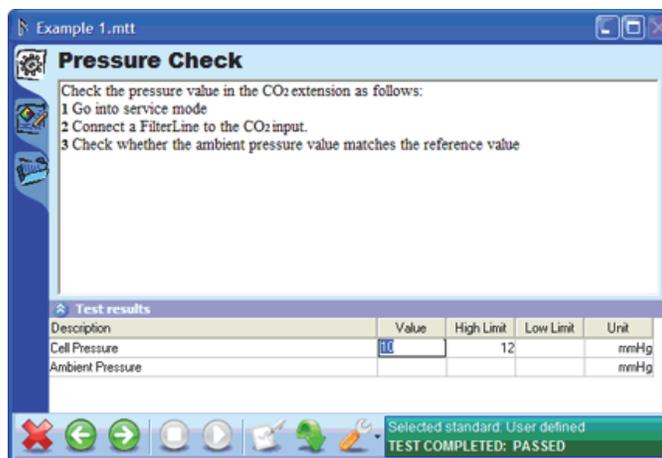
gey209.bmp

Figure 4-36. Numerical List Test Guide

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 they do not have a column for measurement unit. Nor can a General List have limits against its list items. Hence the General List does not have an **Expected Results** tab.

Even for general lists, it is possible to specify whether a list item should be required or not.

Test Guide

When a General List is performed, the field user is prompted to enter a text value for each list item defined in the window shown in Figure 4-37.
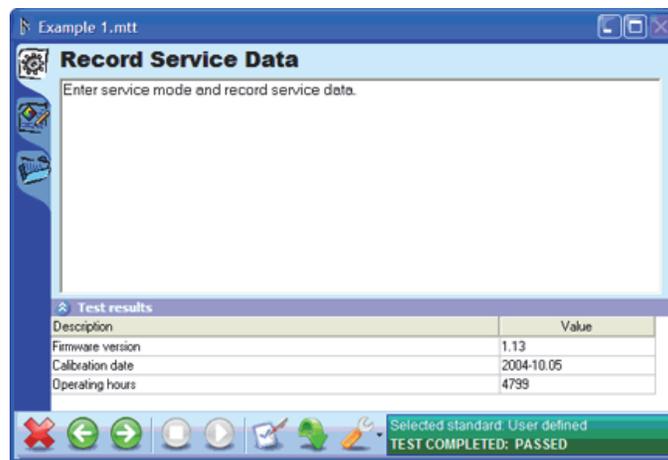

gey211.bmp

Figure 4-37. General List Test Guide

User Message

The person setting up a particular template is 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 user, the procedure occupies the entire test guide as shown in Figure 4-38.
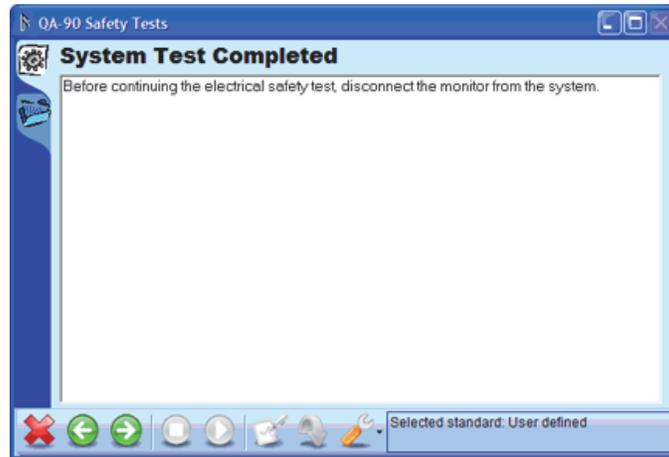
gey212.bmp

Figure 4-38. User Message Test Guide

Test Sequence Window

A test sequence consists of a test template together with details about the device under test (DUT).

A test sequence is created by selecting **File | New | Test sequence** from Ansur's main menu. Add a template to the test sequence by clicking **Edit | Add template**. The Test Window shown in Figure 4-39 displays a test sequence that contains a test template with ESA601 safety tests.
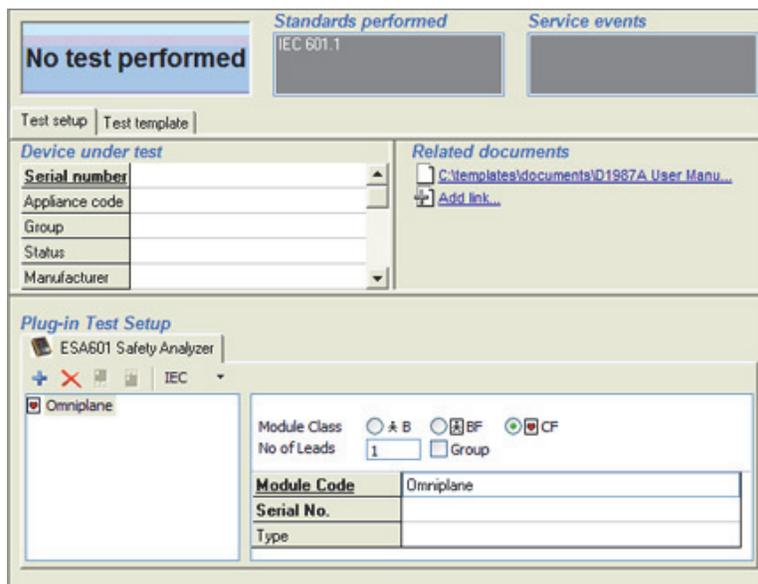
gey213.bmp

Figure 4-39. Test Sequence Window

Device Under Test

The table named **Device under test** contains information about the DUT. This information is stored in the test sequence, as well as in the test record when the test sequence has been performed. The DUT information is also shown on the printed report.

*Plug-In Test Setup*

Plug-In Test Setup will only be used when tests used in the assigned test template requires additional information. Tests from the QA-90 and ESA601 Plug-Ins generally require additional information such as module setup in order to know how to perform safety tests. Documentation on how to use the features displayed in this frame is found in the user manual for the corresponding Plug-In.

If no test in the assigned template requires additional test setup, this frame will be empty.

Related Documents

Related documents is an obsolete feature that is still present in Ansur in order to maintain backwards compatibility. In the related documents frame, links to other documents that are of importance for the test can be created. However, it is recommended the new features for hyperlinks and linked test procedures available in the procedure editor be used.

See the *General Setup* section for more details on editing test procedures and creating links to other documents.

Test Record Window

A test record consists of test setup, a test template, and result data. Whenever a test template or a test sequence is performed, a test record is created.

The test record window, shown in Figure 4-40, contains three pages accessible through tabs just below the status fields at the top of the window:

- **Test setup** is the same as described in the *Test Sequence Window* section above.

- **Test template** contains the template that has been run. The template cannot be edited in the test record window.

- **Result data** displays the results of the test.

The status fields at the top of the test record window display the overall status of the test record as well as listing all standards and service events that have been performed.
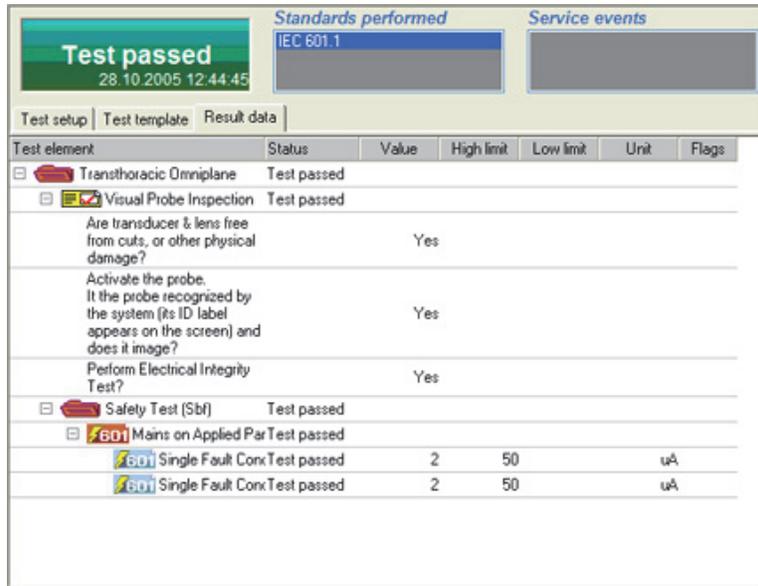
Figure 4-40. Test Record Window

Test Status

The test status displayed in the upper left corner of the test record window can display five different statuses, each giving you important information on the test performed. Table 4-7 lists the status indications and their descriptions.

Table 4-7. Ansur Test Status

Status	Description
Test passed 28.10.2005 12:44:45	All performed tests passed. The date and time indicates the point when the test was completed.
Test failed 02.03.2006 11:57:21	One or more tests failed.
Not applicable 02.03.2006 11:59:24	All performed tests are flagged as not applicable.
Test aborted 02.03.2006 11:58:30	The test was aborted by the field user and was not completed properly.
No test performed	No test has been performed.

Result Data

The result data can be filtered to display only passed or failed tests. Right click the result view to open the display menu shown in Figure 4-41.
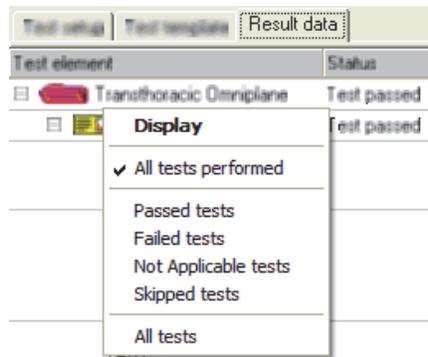

gey216.bmp

Figure 4-41. Test Result Display Menu

Ansur Preferences

Use **Tools | Options**, to access the Ansur preferences. These preferences include general, template, language, and DUT and can be changed at any time.

General Preferences

Figure 4-42 shows the preference window with the General tab selected.
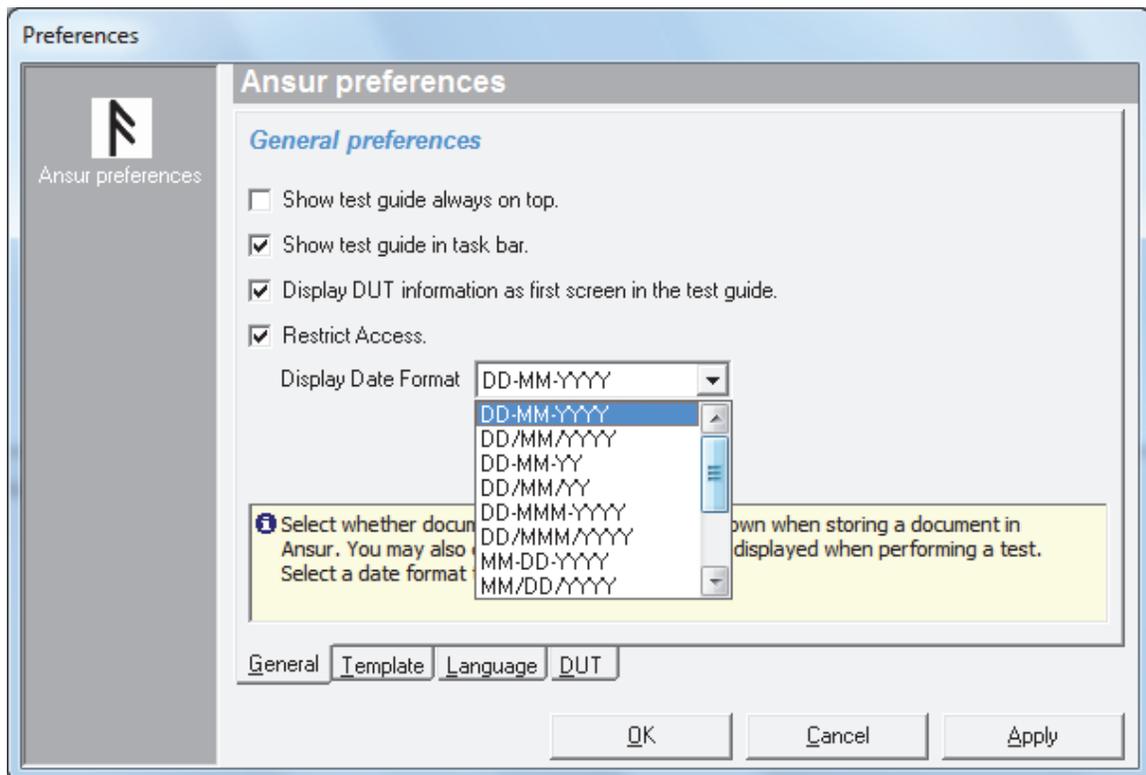
gey517.bmp

Figure 4-42. General Preferences Window

Show Test Guide Always on Top

When enabled, the Test Guide remains uppermost regardless of the application selected by the user.

Show Test Guide in Task Bar

When enabled, the Test Guide is displayed in the task bar alongside all other running applications.

Display DUT Information as First Screen in the Test Guide

When enabled, the Device Under Test (DUT) window is the first screen in the Test Guide window when the template opens.

Restrict Access

When enabled, documents are protected. Ansur grants access to the files only to users licensed to the same establishment. A user from an Ansur installation assigned to another establishment cannot open the protected documents.

Display Date Format

Select the way the date shows in the report. You can change the date format at any time, but you must restart the Ansur application for the change to take effect.

Template Preferences

Figure 4-43 shows the preference window with the Template tab selected.
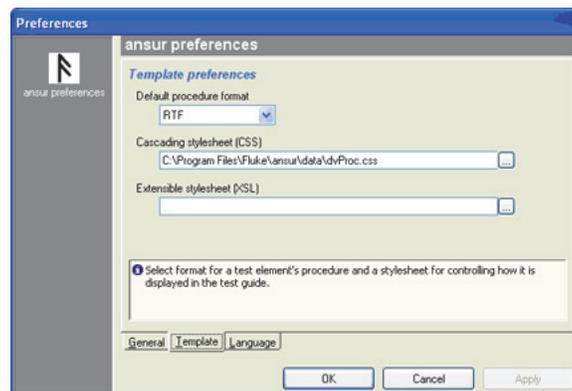
gey218.bmp

Figure 4-43. Template Preferences Window

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 have 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.

Language Preferences

Figure 4-44 shows the language selection window where the user is presented with a list of available languages. This selection can be changed at anytime but will only take effect upon restarting the *Ansur* application.
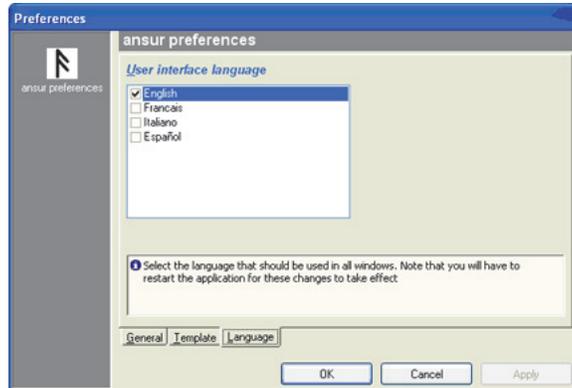

gey219.bmp

Figure 4-44. Language Preference Window

DUT Preferences

Use the **DUT** page in the **Preferences** window to select the DUT fields that will show in the test guide. See Figure 4-45.
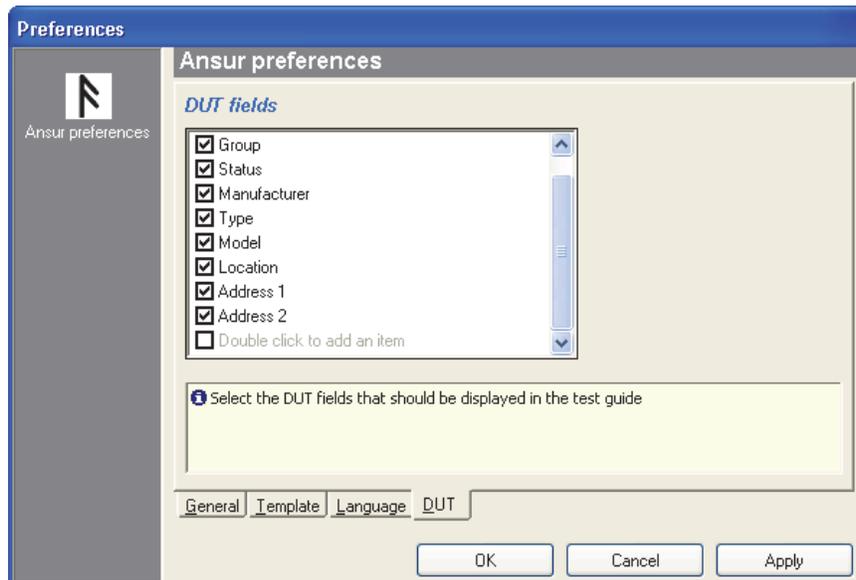

gey340.bmp

Figure 4-45. DUT Page in the Preferences Window

Work Orders

A work order is a file normally created by 3rd-party databases/applications that interface 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.

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>
```

METRONFile

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

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

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.

Setup

The <Setup> element is used to define information not related directly to the test template, but is specific for each device under test (DUT) the template can be used with. 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> elements, a <Links> element, and any number of <PlugInData> elements. An overview is shown below:

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

When the <Setup> element is used within a job order file, it should also contain three attributes: Template, ResultFile, and ReadOnly. Table 4-8 describes these attributes.

Table 4-8. Setup Attributes

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.

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

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

<**DUT**> contains the equipment information (known as Dutinfo in the former PRO-Soft application).

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

<PlugInData> 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> lists all MTI's used when the test was performed.

Ansur Instrument Link Control

Ansur Instrument Link Control (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. Figure 4-46 shows the Instrument Link Control window.
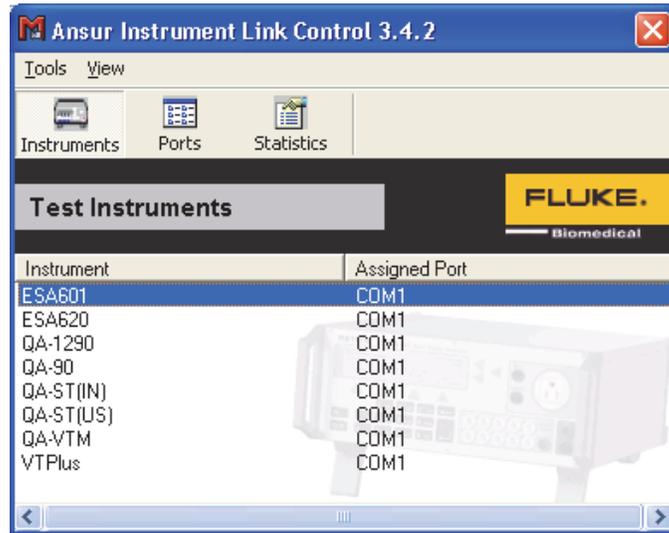

gey220.bmp

Figure 4-46. Ansur Instrument Link Control Window

Firmware Upload

To upload new firmware to Fluke Biomedical test instruments:

1. Start AnsurMLC and select **Tools | Upload Firmware**. Alternatively, from the Window's Start menu, select **Programs | Fluke | Update Firmware**. This starts the firmware upload wizard shown in Figure 4-47.
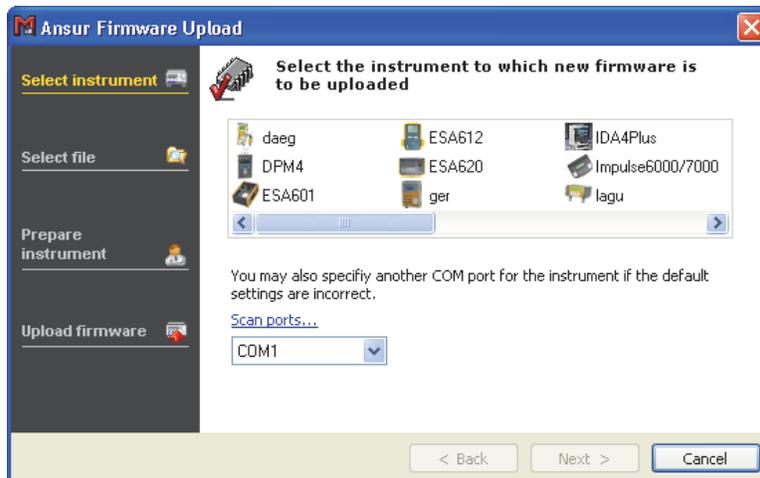

gey222.bmp

Figure 4-47. Firmware Upload Wizard

2. Select the instrument model and the COM port that the instrument is connected to and then click **Next**. (See Figure 4-47).

4-39

3. Select the firmware file(s) to upload to the instrument. Some instruments may have two firmware files, one for the User Interface (UI) and one for the measurement system. You can upload both in the same session as shown in Figure 4-48, or you can upload one file and leave the other blank.
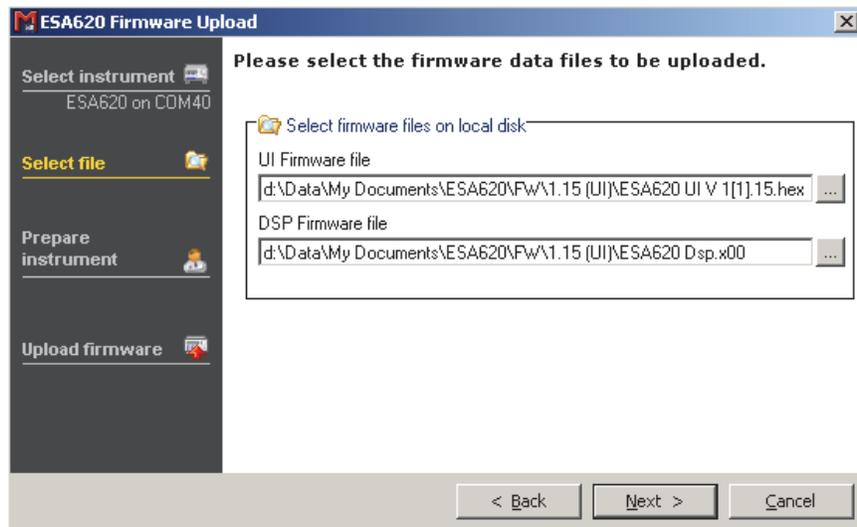
gey223.bmp

Figure 4-48. Firmware Files Upload Dialog Box

4. Click **Next**.

5. Follow the on-screen instructions to upload the firmware to the instrument. The instructions may vary depending on the selected instrument.

    Ansur searches for the instrument. If Ansur detects the instrument, Ansur starts the download. If Ansur detects a different instrument or cannot find the instrument, then Ansur prompts you to check for problems and retry.

Appendix A
Configuring the Report Header

To change the details in a test report header:

1. Select **File | Edit report settings** in the main menu or click 🖉. The Report Settings window shown in Figure A-1 opens.

Figure A-1. Test Report Settings Window

2. Use one of these options to change the header:

   - To use the Ansur default report header, select the **Default** option in the **Report Header** area of the window.

   - To use your own header, select the **Custom** option. The header can include your company logo.

   - To select a header file already created, click the **…** button and browse to the location where the header file is located.

   - To create a new report header, click **New**. A blank window displays and you can create a new header.

3. To edit the header click **Edit**. The Edit Report Header displays the content of the header.

   Table A-1 lists the Report Header Toolbar icons and describes their use.

Table A-1. Report Header Toolbar Icons

Icon	Menu Item	Shortcut	Description
	Cut	Ctrl+X	Cut the selected text from the report header and copy it to the clipboard.
	Copy	Ctrl+C	Copy selected text to the clipboard.
	Paste	Ctrl+V	Paste text from the clipboard to the report header.
B	Bold	Ctrl+B	Toggles the selected text between bold and non-bold.
I	Italics	Ctrl+I	Toggles selected text between italicized and normal.
U	Underline	Ctrl+U	Toggles the selected text between underlined and not underlined.
A	Font	Ctrl+D	Opens the font dialog box where the format of the selected text can be changed.
	Insert Hyperlink	Crtl+L	Opens the insert hyperlink window. The hyperlink will be inserted on the selected text.
	Remove hyperlink		Removes the hyperlink inserted on the selected text.
	Insert picture	Ctrl+Ins	Inserts a picture at the location of the cursor.

gey316.bmp

4. When your edits are complete, click **Save** to save the report header.

Ansur Command Line Interface (AAL)

Introduction

Ansur implements 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 Ansur. This appendix describes the commands available through the interface called *Ansur Access Layer* (AAL).

Run Test (/r file [/h])

The **/r** command causes Ansur to open 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.

Print PDF File (/f file [/h])

Prints the given file in PDF format. The **/f** switch prints the test results file in PDF format and stores it in the same location as the *.MTR file. By default, it is always a detailed report no matter what options have been selected in Ansur. The **/h** switch causes Ansur to print only a PDF file. Ansur is hidden and only the PDF file shows in the display.

Figure B-1 is an example of printing a PDF from the command prompt. The syntax to print a PDF is:

```
\..\Fluke\Ansur\Ansur.exe<space>/f<space>\..\*MTR [/h]
```

```
C:\WINDOWS\system32\cmd.exe                                    _ □ ×

Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\955747>"C:\Program Files\Fluke\ansur\ansur.exe" /f
 D:\test.mtr_
```
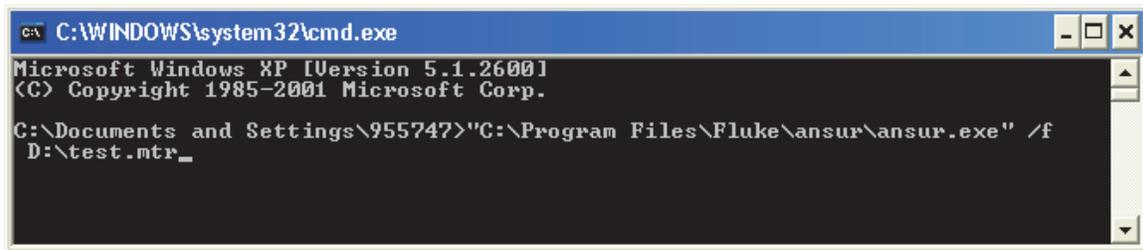
gey523.bmp

Figure B-1. Example of Printing a PDF from the Command Prompt

ESA615 FWU

To upload ESA615 firmware to an ESA615 with AnsurMLC.exe, enter the command lines below.

```
AnsurMLC.exe<space>
dfwu<space>
EAS615<space>
/USB<space>
/f1:UI_FW_FILE<space>
/f2: DSP_FW_FILE<space>
/f3:VNC_FW_FILE
```

The **f1**, **f2**, and **f3** files must have proper firmware file names with a proper path. The **f1**, **f2**, and **f3** files are all optional and you can use any one file to upload.

Adding Standards

Introduction

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.

Registry File

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\<Alphaname>]
"<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.

Edit Registry

Alternatively, 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. If deleting a standard, ensure that no existing template has used the standard as a filter.