

Vitrek QTEnterprise

Installation and User Guide

v1.1.2

System Requirements

- **Supported Operating Systems:**
 - Windows 7
 - Windows 10
 - Windows 11
- **Supported Architectures:**
 - x86 (32 bit)
 - x64 (64 bit)
- **Hardware Requirements:**
 - Recommended Minimum: 2 GHz Processor Speed or higher with 2GB RAM (Hardware requirements may be greater due to OS requirements)
- **GPIB Interface Adaptor Requirements (optional):**
 - One (or more) GPIB interface adaptor installed with the latest available drivers from the adaptor manufacturer for the computer OS and OS architecture.
 - Adaptors from National Instruments and Agilent have been tested by Vitrek, other manufacturers adaptors should function properly if installed correctly for the computer operating system and they use the National Instrument interface method (either gpib-32.dll or the latest NI 488.2 methods).
 - Different manufacturers' adaptors cannot be inter-mixed in the same system except in certain (special) circumstances.
- **RS232 Interface Adaptor Requirements (optional):**
 - One (or more) Windows compatible RS232 communications port(s) with 9600, 19200, 57600 and/or 115200 baud rate capability and CTS/RTS hardware handshaking capability.
 - A separate port is required for each unit (tester and switch unit) interfaced using RS232.
- **USB Interfacing Requirements (optional):**
 - USB 2.0 or above
- **Ethernet Interfacing Requirements (optional):**
 - An IPv4 network (or direct connection) is required with TCP/IP protocol capabilities.
- **Tester:**
 - A Vitrek 951, 952, 953, 954, 955, 956, 957 or 959 instrument running main firmware v2.02 or later
 - A Vitrek V7X instrument running main firmware version 1.10 or later recommended
- **Switch Units (optional):**
 - Any of Vitrek model 948, 964, V75, V76 instruments. Different models cannot be inter-mixed in the same system.

Prerequisites

All previous versions of MS SQL must be uninstalled for the first-time installation of [QTEnterprise](#). Installation and operation of [QTEnterprise](#) requires that the user have Windows administrator rights. Ensure that all updates are installed and any pending restarts have been performed.

Installation and Update

The **QTEnterprise** installer/updater is available by downloading from Vitrek.com or on CD media.

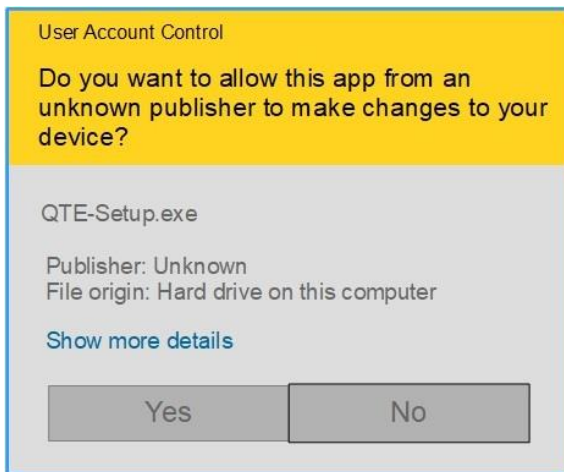
If you downloaded **QTEnterprise** you had a choice of one of three installers:

- Offline
- Online
- Workstation

The CD contains the offline installer. The offline installer contains the SQL Server installer and does not require an Internet connection. The online installer will fetch the SQL Server from the Internet. The workstation installer does not install the SQL Server as it is expected another workstation runs the database.

These same executables are used to update your **QTEnterprise** to a newer version.

After launching the executable depending on your version of Windows and your security settings you may be prompted to proceed with the install:



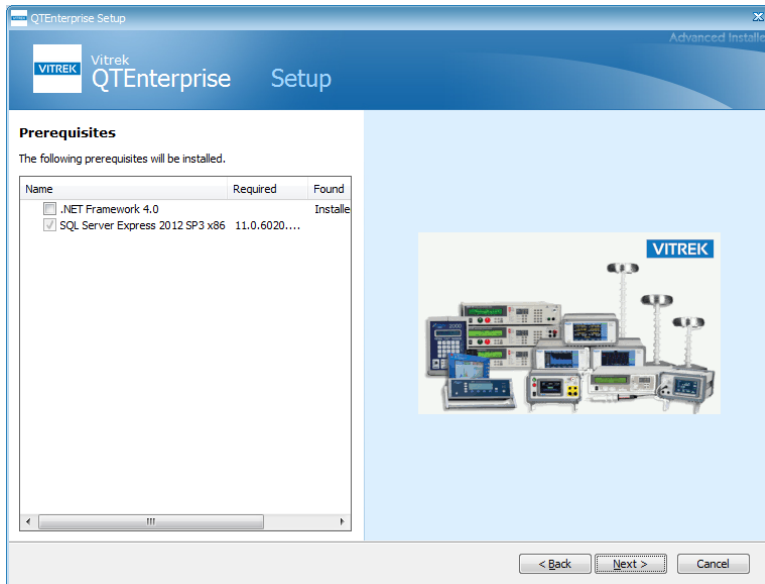
Click on Yes.

After the program loads you will be presented a welcome dialog:



Click on **Next>**.

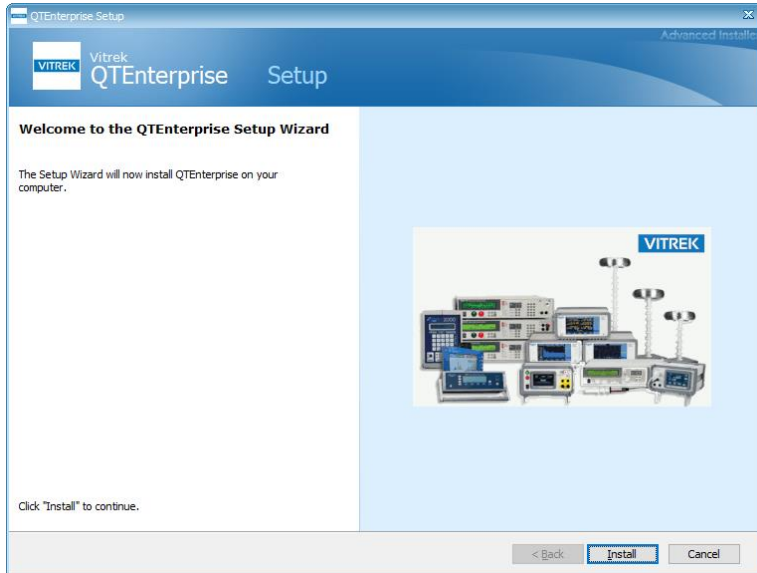
The software components on your PC will be evaluated and depending on the results you may be presented with a list of prerequisites to install. First time installs will always require **SQL Server**, you may also need **.NET 4.0**:



It is recommended that you leave the checkboxes alone. The SQL Server Express version is not necessarily representative of your experience.

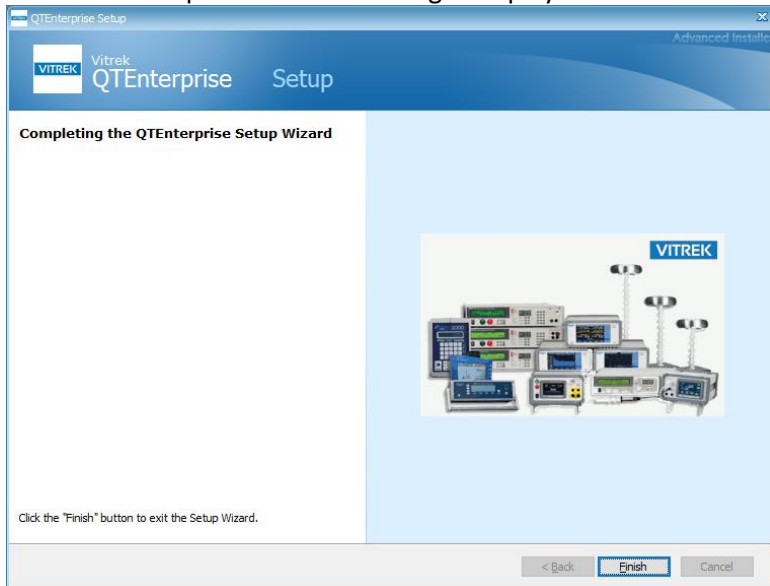
After you click on **Next>** the prerequisites are installed, this may take several minutes.

When the prerequisites have been properly installed the next phase is presented:



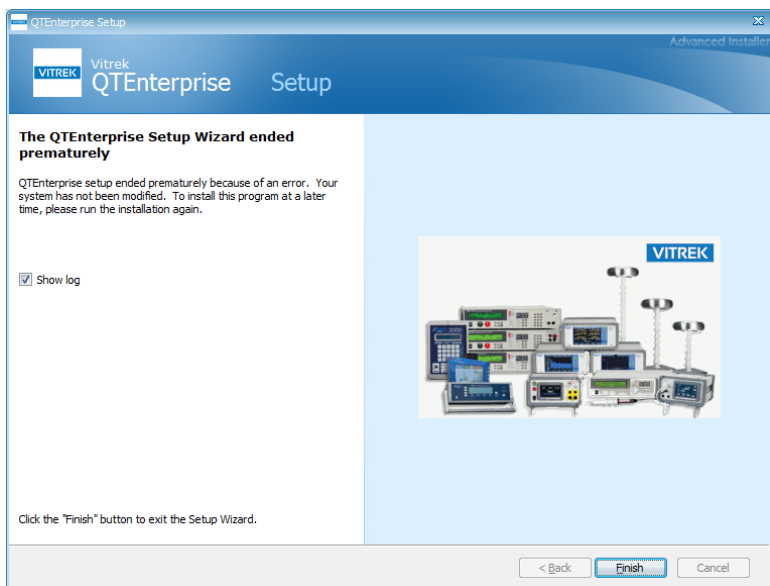
Click on **Install** to proceed with the installation. The executables that comprise **QTEnterprise** are copied to your PC, the database is installed, and in the case of Windows 10 the firewall is configured to allow access to the SQL server.

When this completes the final dialog is displayed:



The **QTEnterprise** executables are installed to **C:\Program Files (x86)\Vitrek\QTEnterprise**.

In the event of an installation error the user is presented with a dialog that offers to show an installation log:



The error might occur because of local security software blocking the installer, or the presence of a past SQL Server installation, or another unanticipated circumstance. It is recommended that you capture the log contents to share with Vitrek support in the effort to correct the problem.

Nomenclature

<i>User List</i>	This is a list of all the user names and access levels for QTEnterprise .
<i>User Name</i>	This is the name by which the user must log in to QTEnterprise to be able to use it. User names are case sensitive, must be between 2 and 30 characters long, cannot start with a space character and cannot contain a comma (,) character anywhere within it. The user name used to log in is included in all printed and saved test results and is located near the top right of the interface while logged in.
<i>Password</i>	This is the password which in combination with the user name identifies the specific user logging on to QTEnterprise . Passwords are case sensitive, must be between 2 and 30 characters long, cannot start with a space character and cannot contain a comma (,) character anywhere within it.
<i>Access Level</i>	Users are allocated an access level according to their user name and password. Since a user is identified by the combination of the user name and the password, it is possible to assign multiple passwords and access levels to a single user name. If multiple users are created using the same user name and password combination, the user defined higher in the list will be loaded. There are three default access levels – • ADMIN USER. This allows access to all of the features of QTEnterprise. • NORMAL USER. This allows access to all features except the viewing, editing or generation of user lists and administrative options. • RUN-ONLY USER. ○ This access level only allows the user to view the loaded system configuration but not alter it. ○ This access level only allows the user to view or load an existing test sequence but not to alter it. ○ This access level allows the user to run the loaded test sequence. Any ADMIN USERS may also create custom user access levels which allow full control over what aspects
<i>Tester</i>	This is the 95X or V7X series unit being controlled by QTEnterprise .
<i>Switch Units</i>	These are the 948 or 964 Switch Matrix units controlled by either the tester or directly by QTEnterprise .
<i>System Configuration</i>	This is the interface configuration between tester and the computer, and the (optional) configuration of the interfacing to any Switch Units.
<i>Device under Test (DUT)</i>	This is the device being tested by QTEnterprise and supporting equipment.
<i>Test Sequence</i>	This is a series of test steps used to completely test a DUT.
<i>Test Step</i>	This is a single step within a test sequence. Several types of operations can be configured to be performed within a step, but only one of these can be executed in a single test step. Test steps include those needed to perform timing duties and changing the states of switches in Switch Units.

General Information Regarding Use

System configuration settings, test sequence settings, user profiles, and registration keys are stored in the MS SQL Express database on a single workstation or a selected server/workstation in a multiple station environment. For individual windows user accounts **QTEnterprise** remembers the most recently used system configuration and test sequence in the AppData folder.

QTEnterprise runs as a fixed size window that is approximately 1050x740 pixels in size. A portion of the colors used within the window are those defined by the settings of the computer on which the software is being run (generally available in the “desktop” settings for the computer). Multiple copies of **QTEnterprise** may be run on a single computer at a time. Certain Microsoft Windows™ localization settings may cause issues with interactions in **QTEnterprise**.

QTEnterprise supports date formatting specific to the PC’s region settings but will only allow the dot/period to be used as the decimal point when entering/viewing numeric settings and results.

If **QTEnterprise** is intended to be used by multiple users, then ensure that each user has accessibility rights to the necessary database and any printer(s) or interfaces needed. **QTEnterprise** requires Windows administrator rights for installation and use.

Because some of the colors and appearance of **QTEnterprise** are defined by the computer OS and settings, its’ overall appearance and the appearance of the controls contained within it may be different between computers.

When access to a file is needed (e.g., for saving), **QTEnterprise** uses various Windows “Open File” or “Save File” dialogs allowing the user to select any file accessible by the computer, including on a network if available. When access to a printer is needed (e.g., to print a user list, system configuration, test sequence or a test results report) the standard Windows dialog is used to allow the user to select any printer which the computer has available to it (including network printers).

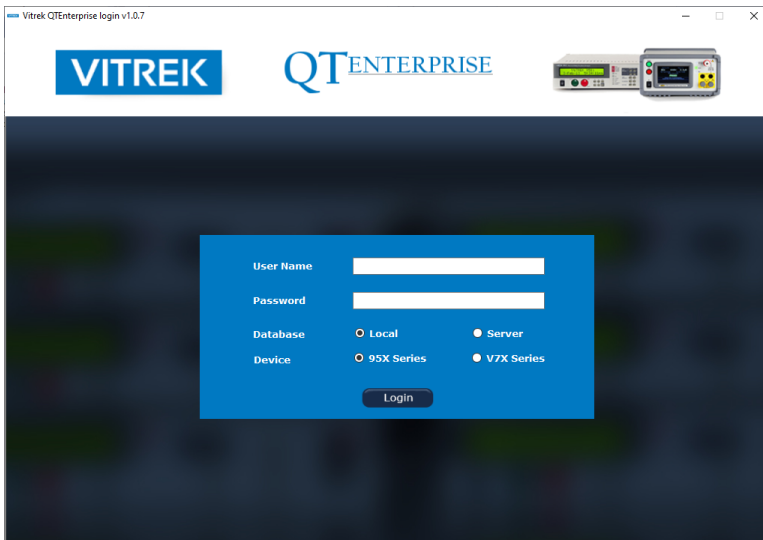
QTEnterprise only communicates with the tester and (optionally) the switch units when it is required to do so. This means that the user may use **QTEnterprise** on any computer installation to define users, system configurations and/or test sequences without needing the specific interface hardware or the units themselves.

Every control and information shown in the **QTEnterprise** window has a “ToolTip” which is displayed next to the control/information when the mouse hovers over it. This ToolTip contains a brief description on the use of the control or information. An experienced user may turn off these by checking the “Disable ToolTips” box in the upper right-hand corner of the **QTEnterprise** window. The window of **QTEnterprise** contains “tabs” allowing the user to perform the various tasks available. These tabs may be limited based on your user access rights.

CAUTION

If using the tester with **QTEnterprise** via an Ethernet network, it is possible to run a test sequence on a tester which is in a different location to the computer. The user **MUST** ensure that it is safe to run the test sequence prior to doing so.

The Login Screen



The initial screen shown after launching the [QTEnterprise](#) application is the Login screen. If this is a workstation install you must select the Server option and choose a database configuration. The user then enters their specified **User Name** and **Password** prior to pressing the Login button (alternately you can press Enter after entering the password). When first connecting to a newly created database, the user must use the following User Name and Password to connect:

User Name: VitrekFullUser

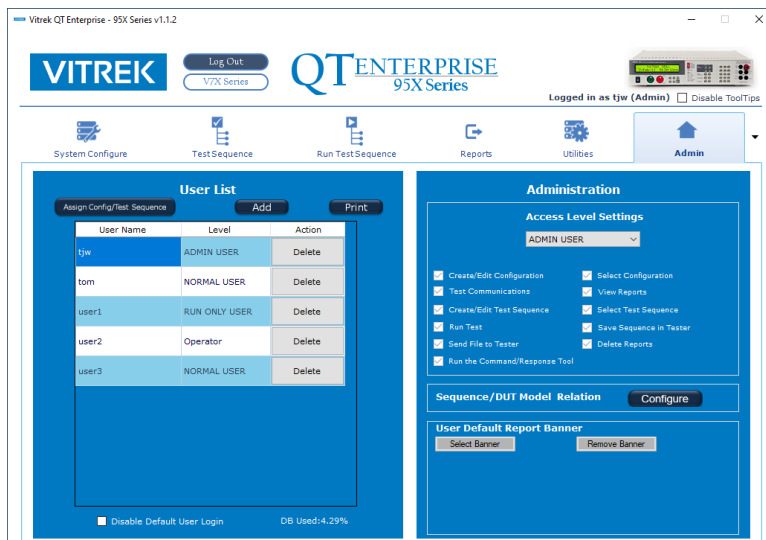
Password: Vitrek

The User Name and Password above are case sensitive. Once connected to the database the user may disable the default user account upon creation of a new Admin User. See more regarding these capabilities in the Admin Tab section of this manual.

The user has the following options to choose from on this screen:

- Database
 - Local: The user chooses to connect to the database located on their local machine.
 - Server: The user chooses to connect to the database located on a networked machine. When *Server* is selected a **Choose Database** button appears, use that button to select the ServerDatabase.xml file originally located in the other PC's [QTEnterprise](#) installation folder on the PC acting as the enterprise server.
- Device
 - 95X Series: Originally launches the program to be used with the 95X Series testers.
 - V7X Series: Originally launches the program to be used with the V7X Series testers.
 - The program may be changed between tester types at any time by clicking the respective button at the top of the standard interface after logging in.

The Admin Tab



After logging on to QTEnterprise as an ADMIN USER, the **Admin** tab provides facilities to administer user accounts and settings. The system design provides defaults for an installation deployed with access restrictions configures for an administrator responsible for the user accounts, a normal user who configures the test sequences, and a run-only user who executes the test steps. Other types of access levels can be created as necessary, for example a run tester who can only run a sequence configured by an admin level user.

On the bottom right of the left pane is a report of the amount of space used to store configuration and result data. As the figure reaches 100% consider archiving then deleting result data. If the report shows 'DB Full' additional data cannot be saved. See the FAQ page for instructions to delete result data.

Use caution when creating or editing a user list. It is strongly recommended that at least one user name and password combination have ADMIN USER access level.

The user list can be sorted by name or level by clicking on the heading labels.

Adding a New User

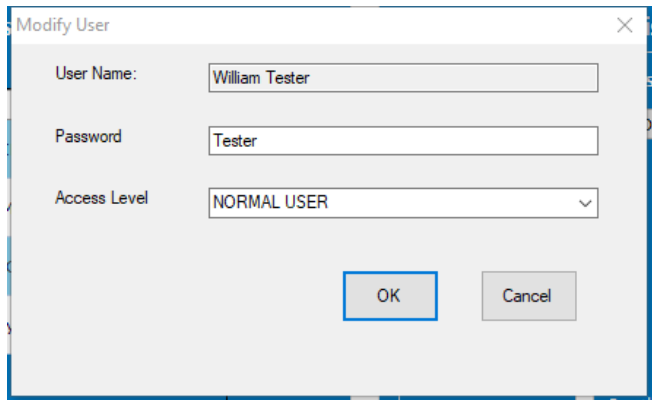
Click on the **Add** button, a dialog appears:

The 'Add User' dialog box is a small window with a title bar that says 'Add User'. It contains three input fields: 'User Name:', 'Password', and 'Access Level'. The 'Access Level' field is a dropdown menu currently showing 'ADMIN USER'. At the bottom of the dialog are two buttons: 'OK' and 'Cancel'.

allowing entry of the **User Name** and **Password**; and selection of the **Access Level**. The user name and password length must be at least two characters each.

Editing an Existing User

By clicking on the User Name a dialog appears to allow changing the password or access level:



A dialog box titled "Modify User" with a close button (X) in the top right corner. It contains three input fields: "User Name" with the text "William Tester", "Password" with the text "Tester", and "Access Level" with a dropdown menu showing "NORMAL USER". At the bottom are "OK" and "Cancel" buttons.

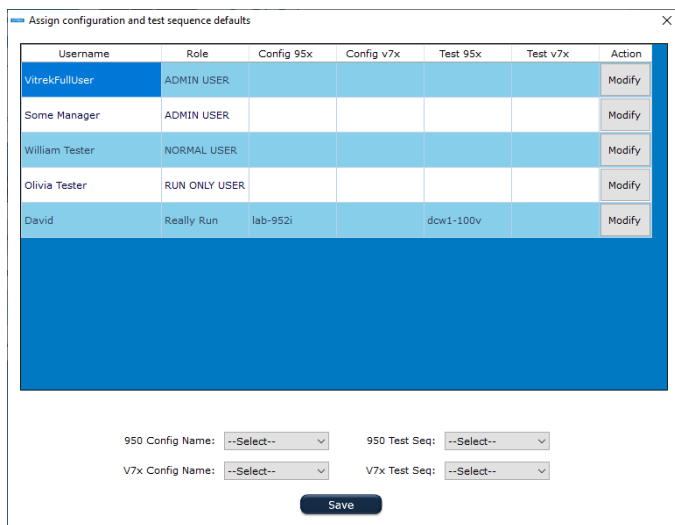
The user name cannot be changed.

Deleting a User

To delete an existing user, click on the Delete button, you will be prompted to confirm action.

Assigning a Default Configuration/Test Sequence to a User

For those users with limited access a system configuration and test sequence can initially selected when the specified user logs in to [QTEnterprise](#). The settings are performed by pressing the **Assign Config/Test Sequence** button to launch a dialog to make the selections.



A dialog box titled "Assign configuration and test sequence defaults" with a close button (X) in the top right corner. It features a table with columns: Username, Role, Config 95x, Config v7x, Test 95x, Test v7x, and Action. Below the table are four dropdown menus for "950 Config Name", "950 Test Seq", "V7x Config Name", and "V7x Test Seq", and a "Save" button at the bottom.

Username	Role	Config 95x	Config v7x	Test 95x	Test v7x	Action
VitreKFullUser	ADMIN USER					Modify
Some Manager	ADMIN USER					Modify
William Tester	NORMAL USER					Modify
Olivia Tester	RUN ONLY USER					Modify
David	Really Run	lab-952i		dow1-100v		Modify

Click on the **Modify** button to configure the corresponding user. The **Save** button must then be pressed to confirm the selections.

Printing the User List

To print the entire user list on a printer available to the computer press the **Print** button. The user should then select the printer to which the list is to be printed. NOTE – the printout contains all of the valid user names and passwords, the user should keep this in a secure location.

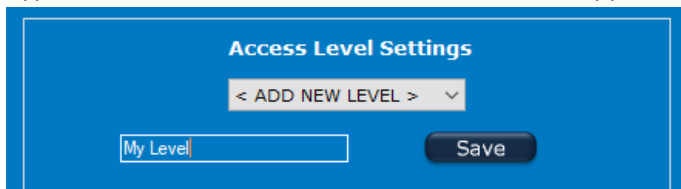
Disabling the Default User Login

To disable the default user login (see The Login Screen portion of this manual) the user must check the associated text box within the administrative options. This option will only enable if the user list contains at least one ADMIN USER and will automatically disable if the last ADMIN USER is removed.

Creating a New User Access Level

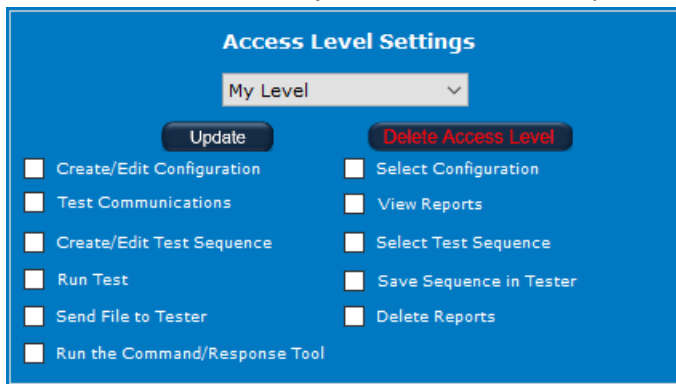
Use the following steps to create a custom access level:

- 1) In The **Access Level Settings** area select **< ADD NEW LEVEL >** from the drop-down list.
- 2) Type a name for the access level in the box that appears and click on **Save** to the right:



The screenshot shows a blue box titled "Access Level Settings". At the top, there is a dropdown menu with the text "< ADD NEW LEVEL >". Below the dropdown is a text input field containing the text "My Level". To the right of the input field is a dark blue button with the text "Save".

- 3) Use the check boxes to adjust the desired access permissions:



The screenshot shows the "Access Level Settings" form with the dropdown menu set to "My Level". Below the dropdown are two buttons: "Update" and "Delete Access Level". Below these buttons is a list of permissions, each with a checkbox:

☐ Create/Edit Configuration	☐ Select Configuration
☐ Test Communications	☐ View Reports
☐ Create/Edit Test Sequence	☐ Select Test Sequence
☐ Run Test	☐ Save Sequence in Tester
☐ Send File to Tester	☐ Delete Reports
☐ Run the Command/Response Tool	

- 4) Click on **Update** to save the permission settings.

Editing a Custom User Access Level

The default access levels are not editable. However, all user-generated access levels are fully customizable and are easily changed. The user should select the custom user access level which is to be edited, and then the user may use the various check boxes to determine the access and capabilities of the selected access level, then click on the **Update** button.

Deleting a Custom User Access Level

The default access levels may not be deleted. However, all user-generated access levels may be deleted. The user should select the custom user access level which is to be deleted, and then the user may select the **Delete Access Level** button to delete it. Any users assigned to the level being deleted will be set to the **Normal** access level.

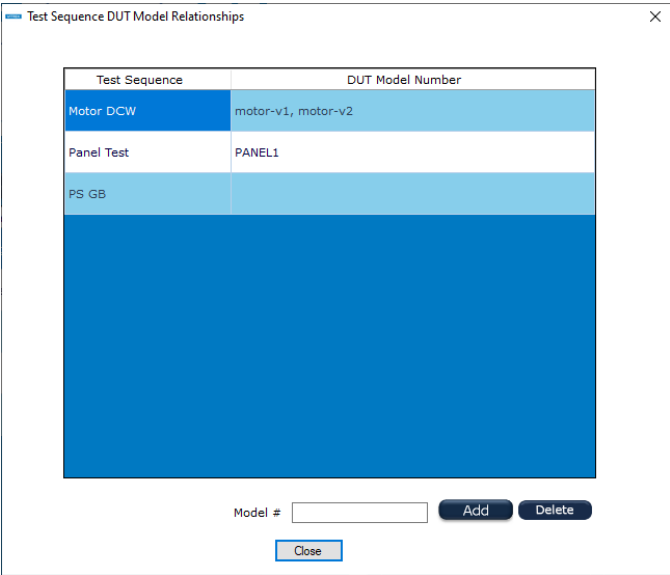
Sequence DUT Model Relation

QTEnterprise allows the user to relate DUT models with specified test sequences in the database. To create this relation, while logged in as an ADMIN USER, the user can press the **Configure** button in the *Test Sequence DUT Model Relation* section:



The screenshot shows a blue box with the text "Sequence/DUT Model Relation" on the left and a dark blue button with the text "Configure" on the right.

This will open a new window with a listing of all Test Sequences within the database along with any associated DUT Model Numbers, for example:



Note that the model number strings are not case sensitive. In the example above if the entered serial number is either of ‘motor-v1’ or ‘motor-v2’ the ‘Motor DCW’ test is loaded; if ‘panel1’ is entered ‘Panel Test’ is loaded.

To associate a model string with a test first click on the test name, QTE will identify the ‘Test Selected in the lower left area of the dialog. Then type the model string in the box labelled ‘Model #’ and click on **Add**. A model association is removed by selecting the test, typing the model number in the box, then clicking on the **Delete** button.

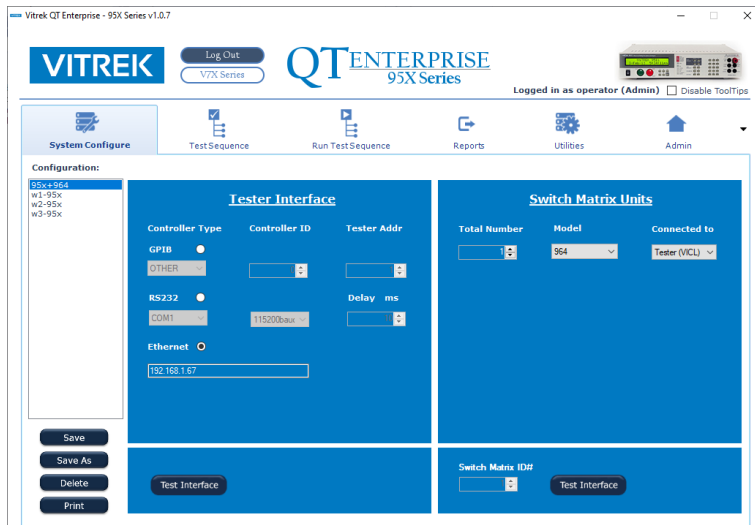
User Default Report Banner

QTEnterprise allows the user to specify a banner image placed on the top left corner of the sequence result reports. See the **Report Banner Images** section below on creating a proper image. The software provides two methods that select the banner – a user default banner applied to all reports unless a sequence specific banner is chosen. To select a default banner image, click on the Select Banner button in the Administration area:



And browse to your image. The image is loaded and saved in the database.

Setting Up the System Configuration



All System Configuration settings for **QTEnterprise** are stored in the database. The system configuration names are displayed in a listing on the left side of the interface sorted alphabetically. Configurations may be loaded by selecting the desired configuration name from the listing. It is recommended that the names be workstation specific when the instrument is attached via RS232 or GPIB.

After any changes have been made to the system configuration, the user must save the changes by using the **Save** or **Save As** buttons. If the user does not save any changes made prior to closing **QTEnterprise** or changing tabs, then they will be lost. The **Save** button will automatically overwrite the selected configuration with the presently shown configuration using the same name. The **Save As** button will allow the user to designate a new name for the configuration, preserving the previous. The **Delete** button will delete the presently selected configuration.

Tester Interface

This interface between the computer and the tester is defined by the controls in this section.

Depending on the type of tester, the option content of the tester, and the physical interface capabilities of the computer there are four possible methods for interfacing the tester to the computer, the method being selected by the respective “radio buttons” –

- Using a GPIB Interface (95X Series). When using a GPIB interface between the computer and the tester, the user must configure –
 - The type of GPIB adaptor present in the computer. Select NI if the adaptor was manufactured by National Instruments. Select OTHER if the GPIB adaptor was manufactured by another vendor. If the user is unsure, then select each in turn until selecting the **Test Interface** button reports **Pass**.
 - The specific GPIB adaptor ID number in the computer. This can be obtained from the configuration of the specific adaptor in the computer (see the specific vendors’ documentation for details regarding this), typically the first adaptor installed in a system is ID #0, the second is #1 and so on.. NOTE – this is not the adaptors’ GPIB address.
 - The address of the tester on the GPIB bus. This should correspond to the address set in the testers’ CNFG – INTERFACE menu.
- Using a RS232 interface (All Testers). When using a RS232 interface between the computer and the tester, the user must configure –

- The specific computer RS232 port to be used. This is a “drop-down” box control allowing the user to select any available RS232 port within the computer (if this box has no selections available then no RS232 ports are fitted in the computer). Note that if at a later time you add or remove a COM port you should check the selected port for accuracy.
- The baud rate at which to communicate with the tester. This must correspond to the baud rate setting: the CNFG – INTERFACE menu of the 95x, the CONFIG MENU on the V7x.
- Using the Ethernet interface (95X Series). When using an Ethernet interface between the computer and the tester, the user must configure the IP address of the tester unit. This must correspond to the IP address set in the CNFG – INTERFACE – ETHERNET menu of the tester.
- Using a USB interface (V7X Series). The user does not need to make any configurations. Only one V7x should be attached to the PC.

Switch Matrix Units

In many configurations the user will require the use of Switch Units to perform multiplexing of the connections to and from the tester to the DUT. The configuration of Switch Units is performed by the controls in the *Switch Matrix Units* section of the **System Configure** tab of [QTEnterprise](#).

The user must define –

- If the tester is a Vitrek model V75 or V76 (V7X Series). (if true, no further settings are necessary)
- The total number of Switch Units in the system. This may be between 0 (i.e., none) and 16 and includes switch units interfaced to the tester itself.
- The type of switch unit being used. All switch units must be of the same model number (either Vitrek 948 or 964).
- If the switch units are interfaced to the computer or the tester. All units must be interfaced in the same manner from this regard.

Defining the interface between the computer and each switch unit

This is defined by the controls in the **Interface for each Switch Matrix Unit** sub-section of the *Switch Matrix Units* section of the **System Configure** tab of [QTEnterprise](#). If this sub-section is not available then no switch units need to be configured for interfacing to the computer.

Note that each switch unit is separately configured; the user does not have to use the same interfacing method between each switch unit and the computer.

Depending on the option content of the switch unit, and the physical interface capabilities of the computer there are two possible methods for interfacing each switch unit to the computer, the method being selected by the respective “radio buttons” –

- Using a GPIB Interface. When using a GPIB interface between the computer and the switch unit, the user must configure –
 - The type of GPIB adaptor present in the computer. Select NI if the adaptor was manufactured by National Instruments. Select OTHER if the GPIB adaptor was manufactured by another vendor. If the user is unsure, then select each in turn until selecting the RUN TEST SEQUENCE tab does not create an error message from [QTEnterprise](#).

- The specific GPIB adaptor ID number in the computer. This can be obtained from the configuration of the specific adaptor in the computer (see the specific vendors' documentation for details regarding this), typically the first adaptor installed in a system is ID #0, the second is #1 and so on.. NOTE – this is not the adaptors' GPIB address.
 - The address of the specific switch unit on the GPIB bus.
- Using a RS232 interface. When using a RS232 interface between the computer and the switch unit, the user must configure –
 - The specific computer RS232 port to be used. This is a “drop-down” box control allowing the user to select any available RS232 port within the computer (if this box has no selections available then no RS232 ports are fitted in the computer).
 - The baud rate at which to communicate with the switch unit (this is only available for model 964 switch units).

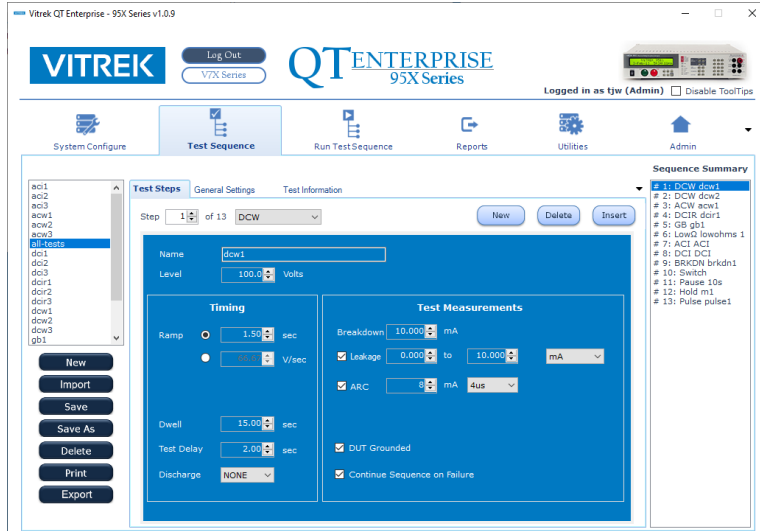
Testing Connections

The system configuration connections may be tested using the **Test Interface** buttons respectively for the tester or PC connected switches. For testing a switch controlled by the tester it is recommended to create a *Switch Matrix* type step test sequence and run this directly for results.

Printing the System Configuration

The system configuration can be printed on a printer available to the computer by pressing the **Print** button on the **System Configure** tab screen.

Test Sequences



The **Test Sequence** tab is grouped into three sections:

- The left side of the display shows existing test sequence names, single click a name to load the associated settings. Below the test names are buttons to act on the present sequence, discussed below.
- The central area is used to view and modify the sequence settings.
- The right side summarizes the test steps, clicking on a step makes it active in the **Test Steps** tab.

After any changes have been made to the test sequence, the user must save the changes by using the **Save** or **Save As** buttons. If the user does not save any changes made prior to closing **QTEnterprise** or changing tabs, the changes will be discarded.

New	Clears the present test settings.
Import	Use this to import QTProll950 or QTPProV7x test sequences directly into QTEnterprise .
Save	Overwrite the selected sequence with the present settings.
Save As	Saves the present test sequence to a new test name, preserving the previous settings.
Delete	Deletes the presently selected test sequence, the first test sequence is loaded in its place.
Print	Prints the presently selected test sequence.
Export	Exports the present test sequence in a CSV formatted file.

To clear an already loaded test sequence from **QTEnterprise** prior to defining a new one the user should press the **New** button in the left portion of the **Test Sequence** tab window.

A test sequence is created by defining a series of test steps which **QTEnterprise** is to perform and also by selecting tester options in the **General Settings** tab. The test steps are defined by the user in the **Test Steps** tab portion of the **Test Sequence** tab window, and the general activities are defined by the user in the **General Settings** tab portion. Additional test information may be displayed prior to the run of a test by defining it in the **Test Information** tab portion.

Defining the Test Steps in a Sequence

The user may define between 1 and 999 steps to be performed in a sequence. These are always consecutively numbered starting with step #1 and are always executed in ascending order from step #1. Each step can be one of the activities selected by the drop-down menu selected for that specific step #.

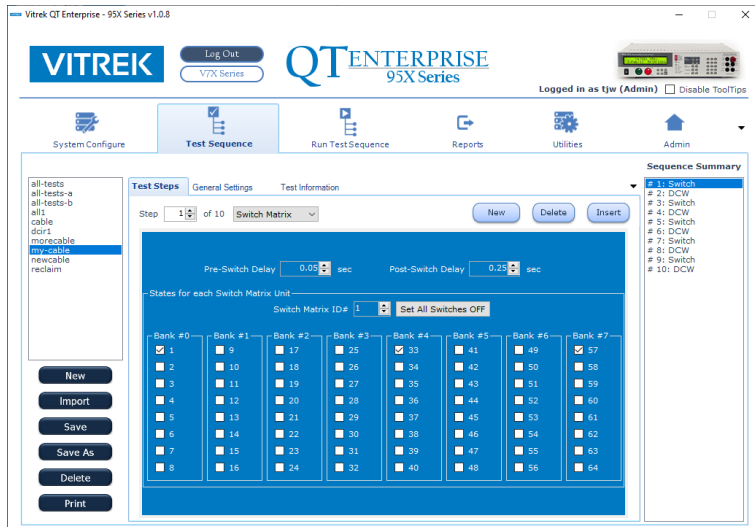
The user can navigate through created steps by entering the required step # into the associated control, using the up and down arrows connected to the step # control, or selecting a step within the sequence summary.

The user can delete a step within an existing sequence by pressing the **Delete** button in the **Test Steps** pane.

The user can insert a step into a sequence by pressing the **Insert** button when the step # at which the new step is to be inserted has been selected by the Step # control.

The user can add a new step to the end of a sequence (or the first step of a new sequence) by pressing the **New** button next to the step # control. A new step is automatically generated at the end of the sequence, and that step is

automatically selected. The following figure illustrates a typical sequence that might be executed to verify a five-conductor cable:



Each test step can be one of the following actions for the 95X Series—

- DCW. This performs a DC voltage withstand, and (optionally) leakage current, and (optionally) arcing test on the DUT.
- ACW. This performs an AC voltage withstand, and (optionally) leakage current, and (optionally) arcing test on the DUT.
- DCIR. This performs a DC voltage withstand, and insulation resistance, and (optionally) arcing test on the DUT.
- GB. This performs an AC voltage drop or resistance test (typically on a DUT chassis) at high current.
- Low Ohms. This performs a DC resistance test at low current (up to 50mA).
- Ground Leakage. This performs a DC or AC ground leakage current (and optionally arc detection) test.
- BRKDN. This performs a DC voltage breakdown test, checking that the DUT breaks down within a specified range of voltages at a specific current.
- Switch Matrix. This allows the user to change the state of each switch within each switch unit. Note that Switch Matrix steps are only needed when changes are required, each switch unit remains in its last programmed state during other test step types. If the user requires that the initial state be known then the user should set Step #1 of the sequence to a Switch Matrix type of step defining the required states.
- Pause. This allows the user to program timed pauses in between other steps in the sequence.
- User Hold. This allows the user to prompt the operator (at run time) to perform some action before allowing the test sequence to continue running.
- Pulse. This performs a voltage withstand and (optionally) arcing test using a single pulse (of either polarity) or a pair of pulses (one of each polarity). NOTE – the 950 series tester must have option PMT-1 installed to use this type of test step.

The specific details for each step type are as defined for the 95X model being used; please refer to the 95x Operating Manual for details.

Each test step can be one of the following actions for the V7X series –

- DCW. This performs a DC voltage withstand and leakage current test on the DUT.

- ACW. This performs an AC voltage withstand and leakage current test on the DUT.
- IR. This performs a DC insulation resistance test on the DUT.
- GB. This performs an AC resistance test (typically on a DUT chassis) at high current.
- CONT. This performs a DC resistance test at low current (<10.5mA).
- Switch Matrix. This allows the user to change the state of each switch within each switch unit. Note that Switch Matrix steps are only needed when changes are required, each switch unit remains in its last programmed state during other test step types. If the user requires that the initial state be known then the user should set Step #1 of the sequence to a Switch Matrix type of step defining the required states.
- Pause. This allows the user to program timed pauses in between other steps in the sequence.
- User Hold. This allows the user to prompt the operator (at run time) to perform some action before allowing the test sequence to continue running.

The specific details for each step type are as defined for the V7X model being used; please refer to the V7X Operating Manual for details.

The Name field allows the user to label the heading for each test step in the test report. The user should include enough information to make the specific test step unique. This text cannot include a comma character.

The user should note that there are no limits imposed on the entered data for each test step by **QTEnterprise**. If the entered data is outside of the capabilities of the specific tester then the operator is notified as such when the sequence is run. Similarly, **QTEnterprise** does not limit to the capabilities of the tester, if the test step requires capabilities which are not present in the tester, then it will fail when it is attempted to be run with a compatibility fault.

Printing a Defined Test Sequence

The user can print the defined test sequence on a printer available to the computer by pressing the **Print** button on the **Test Sequence** tab screen.

Test Sequence General Settings

The options in this tab control sequence execution and how the reports are handled. There are three areas to configure discussed below.

Tester Settings

The user can configure tester settings specifically for this test sequence. As illustrated below the tester settings differ depending on the type of instrument, the remaining settings apply in all cases.

The image displays two side-by-side screenshots of the 'General Settings' tab in the software interface, showing settings for different tester models.

Left Screenshot (95x Tester Settings):

- Tester Settings:**
 - ☐ Allow User Start at the Tester
 - ☐ Arc Detect Only
 - ☐ Enable Min Load in DCW and DCIR
 - ☐ Check Chassis Continuity
 - ☐ Enable HV Safety Trip
 - Max DCW/DCIR Discharge: 200,000 mA
- DUT Information:**
 - Model #: Your Model
 - ☒ Require Serial # When Run
 - # of Characters: 0
- Report Options:**
 - Report Detail: Full
 - ☒ Auto-Print if Fail
 - ☒ Auto-Print if Pass
 - ☒ Auto-Print to default printer
 - # of Copies: 1
 - ☒ Auto-Save if Fail
 - ☒ Auto-Save if Pass
 - Include model in the CSV File Name
 - Include serial # in the CSV File Name
 - CSV File: D:\my_reports\results.csv
 - PDF File: D:\my_reports\results

Right Screenshot (V7x Tester Settings):

- Tester Settings:**
 - AC Frequency: 60Hz
 - Ramp Down: FAST
 - ☐ ARC Detect
 - On Fail: STOP
 - IR End On: FAIL
- DUT Information:**
 - Model #: OnTheV7x
 - ☒ Require Serial # When Run
 - # of Characters: 0
- Report Options:**
 - Report Detail: Full+Charts
 - ☒ Auto-Print if Fail
 - ☒ Auto-Print if Pass
 - ☒ Auto-Print to default printer
 - # of Copies: 1
 - ☒ Auto-Save if Fail
 - ☒ Auto-Save if Pass
 - Include model in the CSV File Name
 - Include serial # in the CSV File Name
 - CSV File: D:\my_reports\results.csv
 - PDF File: D:\my_reports\results.pdf

The tester settings for the 95X Series are -

- **Enable Tester START.** If checked, the tester START button is enabled and can be used to start running the sequence if [QTEnterprise Run Test Sequence](#) tab is selected. Similarly, if configured in the Tester, the DIO START digital input can also cause the sequence to be started.
- **Check Chassis Continuity.** If checked, this enables the tester to perform the “Chassis Continuity” check for every high voltage test step. See the Tester documentation for details regarding this activity.
- **Arc Detect Only.** If checked then all test steps which have arc detection enabled will not fail the step if arcing is detected beyond the set limits but will still detect and report arcing.
- **Enable HV Safety Trip.** If checked then the testers’ HV Safety Trip mechanism is enabled. See the Tester documentation for details regarding this.
- **Enable Min Load in DCW and DCIR.** If checked then each DCW and DCIR step will include the ability to set a minimum load capacitance setting. This should only be enabled if the tester has firmware revision 2.02 or later, if prior to this revision then these setting (if any) will be ignored.
- **Max DCW/DCIR Discharge.** This allows the user to set a maximum limit on the discharge current when terminating a DCW or DCIR type step. This setting will be ignored if the tester has a firmware revision prior to 2.02.

The tester settings for the V7X Series are –

- **AC Frequency.** Sets the global configuration for ACW/GB test steps to perform at 50Hz or 60Hz.
- **ARC Detect.** If checked then DCW/ACW test steps will have arc detection enabled and will fail the step if arcing is detected beyond the set limits. The limit is variable from 1-30mA.
- **IR End On.** Sets the global configuration for when to end the dwell stage for an IR step.
 - FAIL. Dwell is terminated as soon as a FAIL status occurs (if the time expires it is a PASS).
 - PASS. Dwell is terminated as soon as a PASS status occurs (if the time expires it is a FAIL).
 - TIME. Dwell is terminated when time expires (PASS/FAIL is checked using the last measurement taken).
 - STEADY. Dwell is terminated as soon as a PASS status occurs and the load is steady or improving (if the time expires then it is a FAIL).
- **Ramp Down.** Sets the global configuration for DCW/ACW test steps for the discharge rate.
 - FAST. The DUT is discharged as fast as possible.
 - AS RAMP. The DUT is discharged using the same time/rate as defined for the ramp period.
- **On Fail.** Sets the global configuration for handling a failure in a sequence.

DUT Information

The user can specify a character string which will be the default model included in the test results file and in any printed test results report generated by **QTEnterprise** for this sequence. If left blank then this information is not included in the test results report unless provided in the Run Test Sequence tab. Checking the **Require Serial # When Run** control specifies to **QTEnterprise** that this test sequence cannot be run unless the user has entered a DUT serial number separately for each run; otherwise, the user can leave the serial # blank and still run a test sequence. If checked, the user must enter the specified number of characters, unless the # is 0 in which case any length greater than zero is allowed.

Report Options

This section configures the format of the reports, when and where reports are sent, and the optional sequence specific banner image.

The user selects the **Report Detail** level included in the test sequence results report –

- **Brief.** A single line is used for each test step, indicating the step #, type, level, frequency, and the pass/fail status. A brief failure description is also included if needed.
- **Normal.** For each step at least two lines are printed. The first line is a summary of the step and the pass/fail status. Subsequent lines will show the measurement results specific to the step.
- **Full.** This builds on the **Normal** format and adds all test settings.
- **Full+Charts.** This builds on the **Full** format and includes charts of the step specific measurements.
- The user can select if **QTEnterprise** will automatically print a *test results* report for Pass and/or Fail after the sequence completes. When an auto-print option is checked the user can also disable the generation of a dialog enabling the user to select a printer (if checked then **QTEnterprise** will use the last selected printer, or the Windows default printer in case none was previously used). When using test automation and entering both the model and serial numbers are being entered it is recommended to use the default printer. The ‘# of Copies’ setting specifies how many copies to print.

Note that Switch Matrix, Pause and User Hold steps are not included in any of the test results report formats excepting if a failure occurred during the step. The detail level selected affects the format of any PDF formatted results files from this test sequence as well.

The user can select if **QTEnterprise** will automatically print a *test results* report for Pass and/or Fail after the sequence completes. When an auto-print option is checked the user can also disable the printer selection dialog, when checked **QTEnterprise** will use the last selected printer, or the Windows default printer in case none was previously used. When using test automation and entering both the model and serial numbers are being entered it is recommended to use the default printer. The ‘# of Copies’ setting specifies how many copies to print.

The user can select if **QTEnterprise** will automatically accumulate test results in CSV formatted files when the test sequence passes and/or fails. If enabled to accumulate test results, the user must select the file path to use. The user can also define a template file name for PDF formatted results; the result file is formed by appending the serial number (if entered) with the test date and time to the template. For example, given the path c:\testdata\results.pdf after a sequence has completed the file name takes the form:

results_MYSN_yyyy-mm-dd_hh-mm-ss.pdf

where MYSN is the serial number, and the remaining fields are the test date and time.

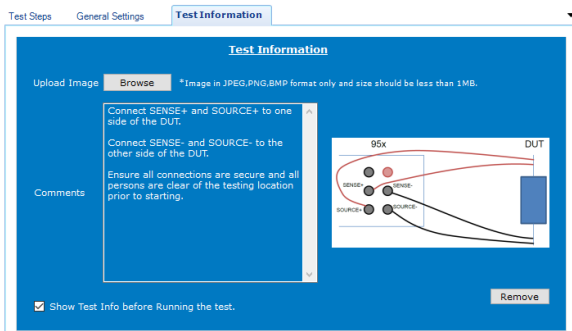
The CSV file path file can optionally be modified to carry the model and serial numbers. If both ‘Include’ options are enabled and the CSV file path is c:\testdata\mycsv.csv the name takes the form:

mycsv_MYMODEL_MYSN.csv

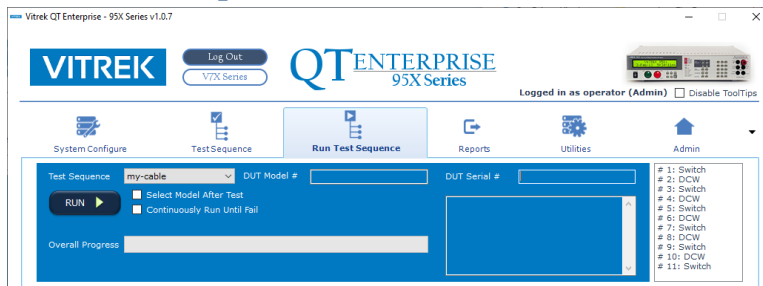
where MYMODEL is the entered model text and MYSN is the serial number. If the destination CSV file exists it will be appended to.

Test Information

The user can define information regarding the test using the **Test Information** tab as shown. Text information may be entered into the text box provide. An image may be uploaded to allow the user to display connections or other labelling that may be necessary to be shown. The user may select to have this information shown prior to the running of the test by checking the box labelled **Show Test Info before Running the test**, for example:



Run Test Sequence



The last viewed test sequence from the **Test Sequence** tab will be automatically selected in the **Run Test Sequence** drop down box. Any other sequence can be selected by name by changing this selection if the user permissions allow. A brief summary of the sequence is shown on the right side of the interface in a listing format.

If the user wishes to include a DUT Model # in the test results file or wishes to call a related sequence based on the product model number, the DUT Model # field should be filled in as needed. If there is a related test sequence, it will be selected by pressing the ENTER key after text entry. This then shifts the cursor to the DUT Serial # entry.

If the user wishes to include a DUT serial # in the test results file and the test results report printout, then the DUT Serial # data control must be filled in as needed by the user prior to pressing the RUN button. If the test sequence is set to require a serial number, the test will not start unless this entry is filled. If the test sequence is set to require a specific number of characters in the serial number, the test will not start unless this entry has the appropriate number of characters entered in the DUT Serial # field. Sequential test runs with the same serial number is not allowed unless the user confirms the action. The test can be started by pressing the ENTER key after text entry in this field.

The **RUN** button is a dual-purpose button; when not running a test sequence it is denoted as **RUN** and pressing it causes the test sequence to be run; while running a test sequence it is denoted as **ABORT** and pressing it causes the test sequence to be aborted (this is flagged as a failure).

Once the RUN button has been pressed an information message is displayed on the screen just below the RUN button, showing the model, serial number, and firmware revision of the tester.

If the selected sequence has test information set to be shown, this will occur prior to the test starting.

NOTE – navigating away from the **Run Test Sequence** tab screen causes the last taken results to be discarded from this view. If it is wished to manually save and/or print the results then that action should be performed PRIOR to selecting a different tab. Test results can always be found in the Reports tab after a test is performed.

Repeatedly Running a Test Sequence in a Loop

Beside the RUN button is a check box enabling the user to repeatedly run the selected test sequence until a failure occurs, or the test is stopped manually. When the **Run Test Sequence** tab is first selected this is always unchecked. This can be checked or unchecked at any time, including while a test sequence is being run. To terminate a test sequence being run continuously the user should either–

- Uncheck the “Continuously Run until Fail” check box. The sequence will stop after it has completed the loop being executed. If there were no failures then the test will have a PASS status.
- Press the ABORT button. The sequence will immediately stop with an ABORTED failure status.

If the user selected to automatically print a test report then this will only be performed if the “Continuously Run until Fail” is unchecked when the test is completed. If the user selected to automatically save the results then this will be performed for each loop of the test sequence.

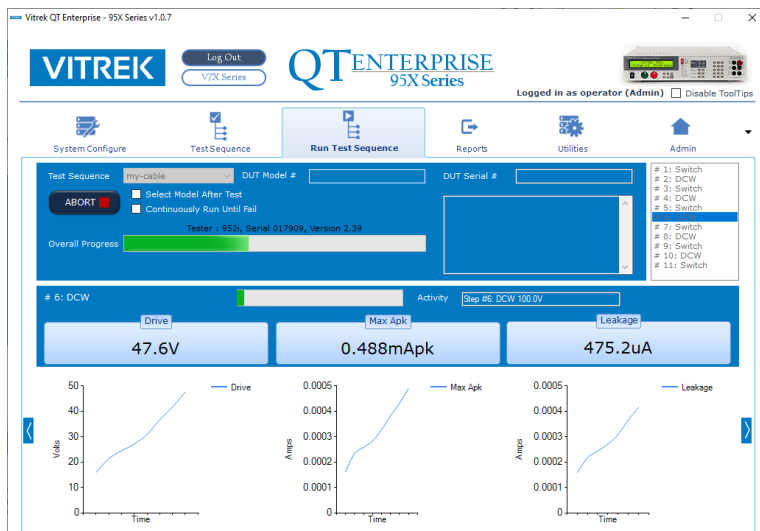
Using a Barcode Scanner

QTEnterprise is developed to utilize barcode scanners that interface using either a keyboard wedge or as a HID Keyboard Device (typically USB barcode scanners will default to this setting). The barcode scanner should be set to append a suffix ENTER key press to the end of each scan for proper automation. The *Model #* field is automatically selected upon selecting the **Run Test Sequence**; the user can scan the model number barcode of the product to be tested. The user may then scan the serial number barcode of the product to be tested. Depending on the selected test sequence’s general settings, this may be set to be required or to have a specified number of characters. The **Select Model After Test** checkbox can be used to move the cursor to the *Model #* field after entering the serial number.

This process may be further automated by utilizing the **Test Sequence – DUT Model Relation** function in the **Admin** tab described in the **Admin** tab section of this manual.

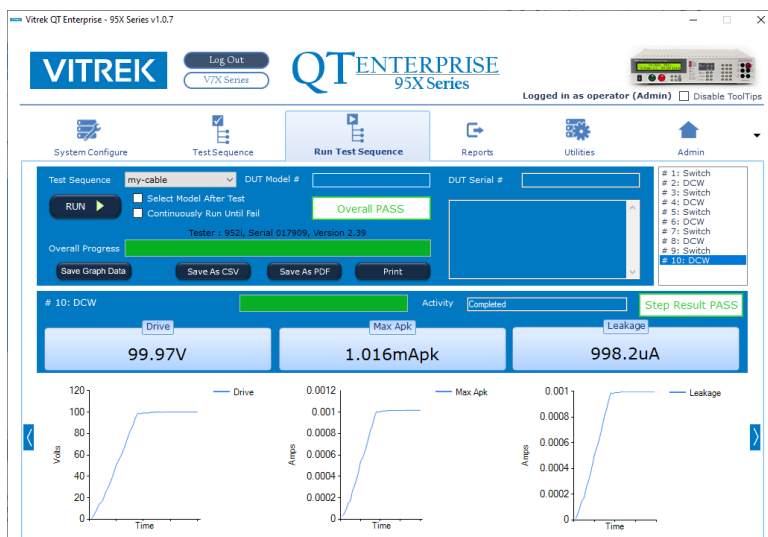
Execution Status and Results

Once a test is started various parts of the **Run Test Sequence** fill in with execution information: the various elements show the progress and certain measurement results, drive levels, and charts during each step of the sequence. During a *Hold* type of step a **Continue** button is available allowing the user to continue the execution of the sequence, pressing the **Enter** key on the computer keyboard (or barcode scan entry) will also continue the test sequence.



Final Results

Once a sequence has completed the Overall PASS/FAIL indicator shows the overall status of the test sequence just completed. The Step Result PASS/FAIL indicator shows the status of the presently viewed step.



Individual step results may be navigated by utilizing the arrows to the left or right of the chart area, or by selecting a specific step in the summary at the top right of the tab interface. The individual step's failure condition is located in the Activity text area after a step is complete.

The **Save Graph Data** button allows the user to save the present step's chart data to a csv formatted file; the file is selected by the user in a dialog generated when this button is pressed.

The **Save As CSV** button allows the user to save the test results to a csv formatted file; the file is selected by the user in a dialog generated when this button is pressed.

The **Save As PDF** button allows the user to save the test results to a PDF formatted file; the file is selected by the user in a dialog generated when this button is pressed.

The **Print** button allows the user to print a test results report (of the test sequence selected detail level).

These save and print buttons are independent of the auto-save and auto-print actions configured for the sequence.

All test sequences performed are logged into the database and are accessible through the Reports Tab.

Results File Format

Test results files are saved in a text format using comma separated variable format for the fields, commonly referred to as CSV (comma-separated values).

The results for each test sequence are saved as a series of lines, the first line is always a HDR format line and the last is always an END format line. Between the two lines is one line for each defined step of the sequence containing the results for that step.

95X Results Format

Every line contains 34 fields as follows (if a field is not defined for the specific line type then it is blank) –

1. The type of line (HDR or END) or the type of test step (DCW, ACW, DCIR, GB, LOWOHMS, GNDLEAKAGE, BRKDN, PAUSE, HOLD, PULSE or SWITCH). For an END type of line all other fields are always blank.
2. An integer number defining the overall status of the sequence (in a HDR line) or the status of the specific step (other types of line). Consult the 95x Operating Manual - Test Step Status Flags for information regarding this data.
3. This field is only used in the HDR type line and contains the DUT Model # (as specified in the test sequence).
4. This field is only used in the HDR type line and contains the DUT Serial # (as specified by the user when the sequence was run).
5. This field is only used in the HDR type line and contains the user name logged on at the time that the sequence was run.
6. This field is only used in the HDR type line and contains the date specifying when the sequence was run.
7. This field is only used in the HDR type line and contains the time specifying when the sequence was run.
8. This field contains the tester model # which was used to perform the test in the HDR type line, otherwise it contains either Y if the step was attempted or N if it was not. If the step was not attempted then all measurement result fields are blank.
9. This field contains the tester serial # which was used to perform the test in the HDR type line, otherwise it contains the configured test dwell time for this step (in seconds).
10. This field contains the tester firmware version which was used to perform the test in the HDR type line, otherwise it contains the configured test drive level in Volts or Amps as applicable.
11. This field is not used in a HDR type line, otherwise it contains the actual final test drive level for this step in Volts or Amps as applicable.
12. This field is not used in a HDR type line, otherwise it contains the configured test drive frequency for this step in Hz.

13. This field is not used in a HDR type line, otherwise it contains the configured breakdown current limit (in Amps).
14. This field is not used in a HDR type line, otherwise it contains the actual highest recorded breakdown current limit (in Amps).
15. This field is not used in a HDR type line, otherwise it contains the selection for the primary leakage/loading test measurement (either blank, DC, RMS, INPHS, QUAD, DCO, RMSV, INPHASEV, QUADV, RMSO, INPHASEO, QUADO or NONE)
16. This field is not used in a HDR type line, otherwise it contains the configured maximum limit for the primary leakage/loading test measurement in Amps, Volts or Ohms as applicable.
17. This field is not used in a HDR type line, otherwise it contains the configured minimum limit for the primary leakage/loading test measurement in Amps, Volts or Ohms as applicable.
18. This field is not used in a HDR type line, otherwise it contains the highest measured primary leakage/loading test measurement in Amps, Volts or Ohms as applicable.
19. This field is not used in a HDR type line, otherwise it contains the lowest measured primary leakage/loading test measurement in Amps, Volts or Ohms as applicable.
20. This field is not used in a HDR type line, otherwise it contains the average measured primary leakage/loading test measurement in Amps, Volts or Ohms as applicable.
21. This field is not used in a HDR type line, otherwise it contains the last measured primary leakage/loading test measurement in Amps, Volts or Ohms as applicable.
22. This field is not used in a HDR type line, otherwise it contains the selection for the secondary leakage/loading test measurement (either blank, DC, RMS, INPHS, QUAD, DCO, RMSV, INPHASEV, QUADV, RMSO, INPHASEO, QUADO or NONE)
23. This field is not used in a HDR type line, otherwise it contains the configured maximum limit for the secondary leakage/loading test measurement in Amps, Volts or Ohms as applicable.
24. This field is not used in a HDR type line, otherwise it contains the configured minimum limit for the secondary leakage/loading test measurement in Amps, Volts or Ohms as applicable.
25. This field is not used in a HDR type line, otherwise it contains the highest measured secondary leakage/loading test measurement in Amps, Volts or Ohms as applicable.
26. This field is not used in a HDR type line, otherwise it contains the lowest measured secondary leakage/loading test measurement in Amps, Volts or Ohms as applicable.
27. This field is not used in a HDR type line, otherwise it contains the average measured secondary leakage/loading test measurement in Amps, Volts or Ohms as applicable.
28. This field is not used in a HDR type line, otherwise it contains the last measured secondary leakage/loading test measurement in Amps, Volts or Ohms as applicable.
29. This field is not used in a HDR type line, otherwise it contains the configured arc detection current limit (in Amps). This field is blank if either the specific test step type does not allow for arc detection, or the user disabled it.
30. This field is not used in a HDR type line, otherwise it contains the configured arc detection time limit (in microseconds). This field is blank if either the specific test step type does not allow for arc detection, or the user disabled it.
31. This field is not used in a HDR type line, otherwise it contains the highest measured arc test measurement. This field is blank if either the specific test step type does not allow for arc detection, or the user disabled it.
32. This field is not used in a HDR type line, otherwise it contains the lowest measured arc test measurement. This field is blank if either the specific test step type does not allow for arc detection, or the user disabled it.
33. This field is not used in a HDR type line, otherwise it contains the average measured arc test measurement. This field is blank if either the specific test step type does not allow for arc detection, or the user disabled it.

34. This field is not used in a HDR type line, otherwise it contains the last measured arc test measurement. This field is blank if either the specific test step type does not allow for arc detection, or the user disabled it.

V7X Results Format

Every line contains 13 fields as follows –

HDR Format (First Line)

1. The type of line (HDR).
2. An integer number defining the overall status of the sequence. Consult the V7X Operating Manual - Test Step Status Flags for information regarding this data.
3. This field contains the DUT Model # (as specified in the test sequence).
4. This field contains the DUT Serial # (as specified by the user when the sequence was run).
5. This field contains the user name logged on at the time that the sequence was run.
6. This field contains the date specifying when the sequence was run.
7. This field contains the time specifying when the sequence was run.
8. This field is blank and not used in a HDR type line.
9. This field is blank and not used in a HDR type line.
10. This field is blank and not used in a HDR type line.
11. This field is blank and not used in a HDR type line.
12. This field is blank and not used in a HDR type line.
13. This field is blank and not used in a HDR type line.

Column Headers (Second Line)

1. The header for Test Type
2. The header for Status Flag
3. The header for Attempted?
4. The header for Dwell Time (s)
5. The header for Test Drive Level (V/A)
6. The header for Actual Drive Level (V/A)
7. The header for Test Frequency (Hz)
8. The header for Min Limit (A/ Ω)
9. The header for Max Limit (A/ Ω)
10. The header for Final Measurement (A/ Ω)
11. The header for Highest BKDN (A)
12. The header for ARC Limit (A)
13. The header for Highest ARC (A)

Defined Steps (Between Column Headers and END)

If a field does not apply to a given test type, a blank is placed.

1. The type of test step (DCW, ACW, IR, GB, CONT, PAUSE, HOLD, or SWITCH).
2. An integer number defining the status of the specific step. Consult the V7X Operating Manual - Test Step Status Flags for information regarding this data.
3. Contains a Y if the step was attempted or N if it was not. If the step was not attempted then all measurement result fields are blank.
4. Contains the configured test dwell time for this step (in seconds).

5. Contains the configured test drive level for this step (in Volts or Amps as applicable).
6. Contains the actual final test drive level for this step (in Volts or Amps as applicable).
7. Contains the configured test drive frequency for this step (in Hz).
8. Contains the configured Min Limit for this step (in Amps or Ohms as applicable).
9. Contains the configured Max Limit for this step (in Amps or Ohms as applicable).
10. Contains the final measurement taken for this step (in Amps or Ohms as applicable).
11. Contains the highest breakdown measured for this step (in Amps).
12. Contains the ARC Limit for this step (in Amps).
13. Contains the highest ARC measured for this step (in Amps).

END Format (Final Line)

1. The type of line (END). For an END type of line all other fields are always blank.

Reports

Vitretek QT Enterprise - 95X Series v1.0.8

VITREK QT ENTERPRISE 95X Series

Log Out

Logged in as tjw (Admin) Disable ToolTips

System Configure Test Sequence Run Test Sequence Reports Utilities Admin

Test Name: [Select] From Date: 4/12/2022 To Date: 4/12/2022 Run By: [Select] GO

DUT Model: [Select] Starting DUT Serial #: [Text] Ending DUT Serial #: [Text] Tester Model: [Select] Tester #: [Text]

of Passed tests: 25
of Failed tests: 0

Test Name	Run Date	Run Time	Tester	Tester #	DUT Model	DUT #	Run By	Status	View	Delete
my-test	4/12/2022	16:07	952i	017909	MyDUT	0003	tjw	PASS	View	Delete
my-test	4/12/2022	16:07	952i	017909	MyDUT	0004	tjw	PASS	View	Delete
my-test	4/12/2022	16:08	952i	017909	MyDUT	0005	tjw	PASS	View	Delete
my-test	4/12/2022	16:08	952i	017909	MyDUT	0006	tjw	PASS	View	Delete
my-test	4/12/2022	16:08	952i	017909	MyDUT	7	tjw	PASS	View	Delete
my-test	4/12/2022	16:08	952i	017909	MyDUT	8	tjw	PASS	View	Delete
my-test	4/12/2022	16:08	952i	017909	MyDUT	9	tjw	PASS	View	Delete
my-test	4/12/2022	16:08	952i	017909	MyDUT	10	tjw	PASS	View	Delete

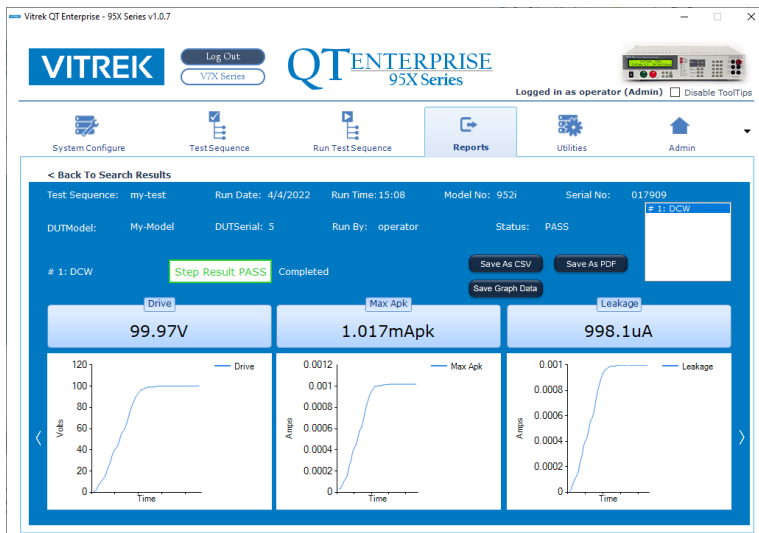
The **Reports** tab allows viewing past test history. This display can be filtered using the following selections –

- Test Sequence. The list is filtered to only include the selected test sequence. Leaving this selection on –Select– will display all test sequences.
- From/To Date. The list is filtered to only include the tests that were performed within the specified date range.
- Run By. The list is filtered to only include the tests run by the specified user.
- DUT Model. The list is filtered to only include the tests that were performed with the specified model of tester.
- Serial No. The list is filtered to only include the tests that were performed with the specified serial number of tester.
- DUT Model. The list is filtered to only include the tests that were performed on the specified DUT Model, entered by the user on the **Run Test Sequence** tab.
- Starting/Ending Serial #. The list is filtered to only include the tests run after, and including, the specified serial number in alphanumeric order. Note the serial numbers are alpha-numeric and case insensitive.
- Tester Model. The list is filtered to only include the tests run by the specified tester model number.
- Tester #. The list is filtered to only included the tests run by the tester with the specified tester serial number.

Pressing the **GO** button refreshes the list based on the entered filters. The **No of Passed tests** and **No of Failed tests** below the GO button display the total number of test sequences in the filtered list which had an OVERALL PASS or OVERALL FAIL status.

Viewing Past Sequence Results

The user may view the full results of a sequence in the list by pressing the View button on the row of the test sequence intended to be viewed.



The full test sequence information is displayed on screen. The user may navigate through individual steps by using the arrow buttons to the left or right of the chart area or selecting a specific step in the summary located at the top right of the tab interface area.

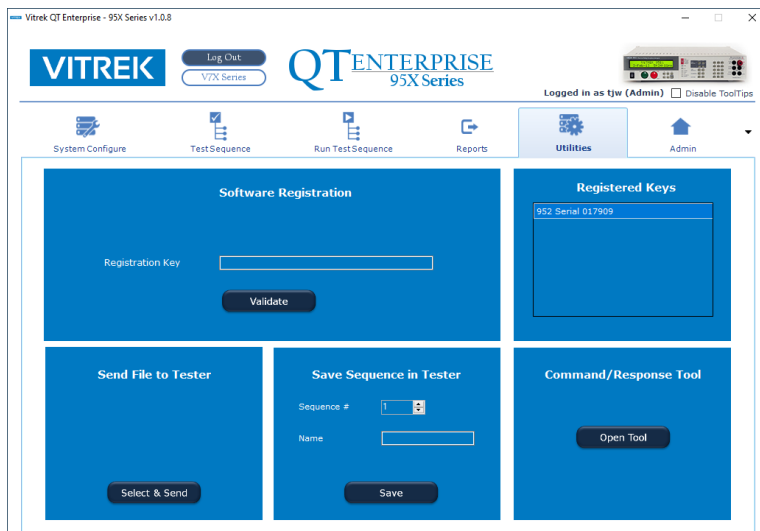
The **Save Graph Data** button allows the user to save the present step's chart data to a csv formatted file; the file is selected by the user in a dialog generated when this button is pressed.

The **Save As CSV** button allows the user to save the test results to a csv formatted file; the file is selected by the user in a dialog generated when this button is pressed.

The **Save As PDF** button allows the user to save the test results to a PDF formatted file; the file is selected by the user in a dialog generated when this button is pressed.

To return to the chart of reports, the user may press the **Back To Search Results** button in the top left of the tab interface.

Utilities



Software Registration

QTEnterprise can be fully used for the first 45 days after the first time it is run on a computer. After that time QTEnterprise can be used for generating test sequences or for the other Utility functions but cannot be used to actually run a sequence without being purchased and registered.

The user may operate as many copies of QTEnterprise as they wish, however the software may only be fully used with a specific 95X or V7X series tester when registered. When purchased with an applicable tester, the user will be given a registration key to enter into QTEnterprise in order to allow its' full use after the initial 45 days. If the user wishes to allow its' use with an additional tester, then please contact Vitrek for an additional registration key.

After receiving the registration key the user must enter it into the "Registration Key" entry area in the Utilities tab screen and then press the **Validate** button located next to the entry area. The text shown at the top of the Software Registration area shows the number of days of full use remaining if not registered. If registered, the models and serial numbers registered are displayed in the Registered Keys listing for the respective series being viewed.

Send File to Tester

This area enables the user to select a text file and send it to the tester. Note that QTEnterprise does NOT require registration to use this functionality.

As an example, this can be used to perform a firmware upgrade of the tester. NOTE – this can be performed even if the tester presently has an earlier revision of firmware to that specified for use with QTEnterprise.

To perform a firmware upgrade of the tester, perform the following steps –

- Obtain the latest firmware upgrade file from Vitrek and save it in a known location on the computer or network. NOTE – the same firmware is used in all 95X or V7X models respectively.
- Ensure the tester is turned on, is not performing any testing function, and is interfaced to the computer as configured in the SYSTEM CONFIGURE tab screen of QTEnterprise.

- Using the SELECT and SEND button in the Send File to Tester section of the UTILITIES tab screen of QTEnterprise, select the firmware upgrade file.
- During the upgrade, the progress bar next to the QTEnterprise SELECT and SEND button will show the file transfer progress, which will take between a few seconds and a few minutes (depending on the interface being used).
- After the file has been transferred and checked for integrity, the tester will upgrade its firmware automatically. DO NOT REMOVE POWER FROM THE TESTER WHILE THIS IS BEING PERFORMED. This can take a few minutes, but typically only takes a few seconds.
- When prompted on the tester front panel display or once fully completed, cycle the power to the tester to start using the firmware upgrade.

Save Sequence in Tester

This enables the user to define a test sequence in QTEnterprise and then download the sequence into the tester for future stand-alone use at the tester. Note that QTEnterprise does NOT require registration to use this functionality.

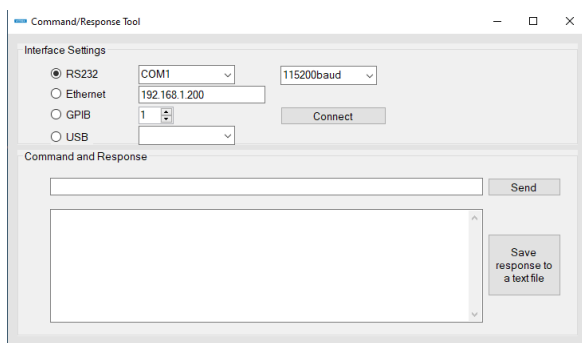
This is only available if either a) the system is configured for no switch units, or b) the system is configured to control the switch units via the tester, or c) the presently loaded test sequence in QTEnterprise does NOT contain any SWITCH type of test steps. Note that the message associated with any USER HOLD type of test steps is not saved in the 95X series tester and only the first two lines of the message are saved in the V7X series tester.

The user should follow the steps below to download a sequence from QTEnterprise into the tester –

- Ensure the tester is turned on, is not performing any testing function, and is interfaced to the computer as configured in the SYSTEM CONFIGURE tab screen of QTEnterprise.
- Select the sequence number into which the sequence is to be stored in the tester using the “Sequence #” control in the Save Sequence in Tester area of the UTILITIES tab screen of QTEnterprise.
- Optionally, enter a name for this sequence in the “Name” entry area next to the Sequence # control.
- Press the SAVE button in the Save Sequence in Tester area of the UTILITIES tab screen of QTEnterprise.

Command/Response Tool

Click on the **Open Tool** button in the *Simple Command/Response Tool* panel to open an interface test tool:



Using this tool, the user may select an interface, connect to the unit, and send single line commands, and view responses. Commands should be entered in the text box located next to the send button. Responses will be shown within the larger text box. Please refer to the tester’s manual for the full command list.

Report Banner Images

The sequence result printed reports and PDF files generated by QTEnterprise have a banner image in the upper left corner of each page. Your image format can be one of PNG, JPEG, and BMP. The image rendered into a 2.53" by 0.75" area. For best results the image should be at least 350 by 100 pixels and use the 3.5 to 1.0 aspect ratio. The selected image will be resized as necessary.

A template can be downloaded from https://vitrek.com/downloads/qtenterprise/banner_template.png:



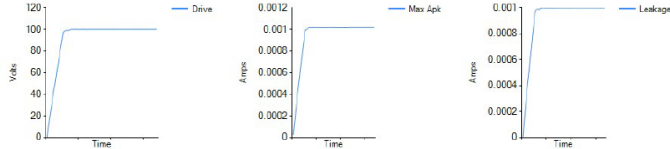
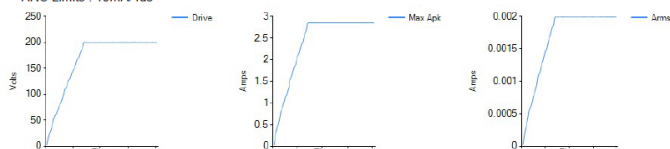
This is 910x260 pixels.

If you do not want a banner image on the reports download https://vitrek.com/downloads/qtenterprise/banner_blank.png and select that as the default report banner in the administration tab.

Report Formats

The figures below illustrate the formatting used for the sequence results.

Full sized samples can be downloaded from <https://vitrek.com/qt-enterprise-software/>.

Brief  VitreK QT Enterprise 95X Test Report Page 1 DUT Model Your Model DUT Serial Brief Format Tested By: operator on 4/4/2022 at 14:34 Using Model 952i S/N 017909 with F/W v2.39 PASSED ALL TESTS Step #1 DCW @ 100.00V for 2.00s PASSED Step #2 ACW @ 200.0V/60.00Hz for 2.00s PASSED Step #3 DCIR @ 200.0V for 2.00s PASSED Step #4 GB @ 10.00A/60.00Hz for 2.00s PASSED Step #5 Low Ohms PASSED Step #6 AC Gnd Leakage for 2.00s PASSED Step #7 DC Gnd Leakage for 2.00s PASSED Step #8 Breakdown at 10.00mA PASSED Step #9 Positive Pulse at 100V PASSED	Normal  VitreK QT Enterprise 95X Test Report Page 1 DUT Model Your Model DUT Serial Normal Format Tested By: operator on 4/4/2022 at 14:35 Using Model 952i S/N 017909 with F/W v2.39 PASSED ALL TESTS Step #1 DCW @ 100.00V for 2.00s PASSED Breakdown : 1.017mA @99.96V (10.00mA limit) Leakage : 984.8uA to 998.5uA (0.0nA to 10.00mA limits) Step #2 ACW @ 200.0V/60.00Hz for 2.00s PASSED Breakdown : 2.844mA @199.7V (10.00mA limit) RMS Leakage : 1.991mA to 1.999mA (0.0nA to 10.00mA limits) ARC : 0.86mA (10mA limit) Step #3 DCIR @ 200.0V for 2.00s PASSED Breakdown : 2.015mA @199.9V (10.00mA limit) Leakage : 100.2kOhms (20.00kOhms min limit) at 2.00sec Step #4 GB @ 10.00A/60.00Hz for 2.00s PASSED RMS Load : 1.515mV to 1.532mV (0.00uV to 100.0mV limits) Step #5 Low Ohms PASSED Load : -121.8mOhms to -116.0mOhms (0.00mOhms to 10.00kOhms limits) Step #6 AC Gnd Leakage for 2.00s PASSED Leakage : 88.4nA to 100.5nA (0.0nA to 500.0uA limits) Step #7 DC Gnd Leakage for 2.00s PASSED Leakage : -0.5nA to -0.3nA (0.0nA to 500.0uA limits) Step #8 Breakdown at 10.00mA PASSED Voltage : 995.6V @ 10.00mA (30.00V to 1000.0V limits) Step #9 Positive Pulse at 100V PASSED Breakdown : 0.0uA @0.00V (25.00mA limit)
Full  VitreK QT Enterprise 95X Test Report Page 1 DUT Model Your Model DUT Serial Full Format Tested By: operator on 4/4/2022 at 14:36 Using Model 952i S/N 017909 with F/W v2.39 PASSED ALL TESTS Step #1 DCW @ 100.00V for 2.00s PASSED Ramp for 0.50s, No Discharge Breakdown : 1.017mA @99.96V (10.00mA limit) Leakage : 984.9uA to 998.6uA (Avg: 997.8uA, Final: 998.1uA) Leakage Limits : 0.0nA to 10.00mA Step #2 ACW @ 200.0V/60.00Hz for 2.00s PASSED Ramp for 1.00s, No Discharge Breakdown : 2.845mA @200.1V (10.00mA limit) RMS Leakage : 1.992mA to 1.998mA (Avg: 1.995mA, Final: 1.997mA) RMS Leakage Limits : 0.0nA to 10.00mA ARC : 0.46mA to 0.87mA (Avg: 0.58mA, Final: 0.65mA) ARC Limits : 10mA/4us Step #3 DCIR @ 200.0V for 2.00s PASSED Ramp for 1.00s, Fast Discharge Breakdown : 2.017mA @199.9V (10.00mA limit) Leakage : 100.2kOhms to 100.2kOhms (Avg: 100.2kOhms, Final: 100.2kOhms) Leakage Limit : 20.00kOhms min Step #4 GB @ 10.00A/60.00Hz for 2.00s PASSED Ramp for 0.00s, Fast Discharge RMS Load : 1.513mV to 1.531mV (Avg: 1.522mV, Final: 1.519mV) RMS Load Limits : 0.00uV to 100.0mV Step #5 Low Ohms PASSED Using 2-wire method, 2s test time Load : -121.4mOhms to -116.4mOhms (Avg: -118.7mOhms, Final: -116.4mOhms) Load Limits : 0.00mOhms to 10.00kOhms after 0.10sec Step #6 AC Gnd Leakage for 2.00s PASSED Leakage : 89.2nA to 95.4nA (Avg: 92.6nA, Final: 91.8nA) Leakage Limits : 0.0nA to 500.0uA after 0.05sec Step #7 DC Gnd Leakage for 2.00s PASSED Leakage : -0.4nA to -0.2nA (Avg: -0.3nA, Final: -0.4nA) Leakage Limits : 0.0nA to 500.0uA after 0.05sec Step #8 Breakdown at 10.00mA PASSED Voltage : 997.5V @ 10.00mA (30.00V to 1000.0V limits) Step #9 Positive Pulse at 100V PASSED Ramp Time: 5.0ms, Dwell Time: 5.0 Breakdown : 0.0uA @0.00V (25.00mA limit)	Full+Charts  VitreK QT Enterprise 95X Test Report Page 1 DUT Model Your Model DUT Serial Full+Charts Format Tested By: operator on 4/4/2022 at 14:38 Using Model 952i S/N 017909 with F/W v2.39 PASSED ALL TESTS Step #1 DCW @ 100.00V for 2.00s PASSED Ramp for 0.50s, No Discharge Breakdown : 1.016mA @99.96V (10.00mA limit) Leakage : 982.4uA to 998.6uA (Avg: 997.7uA, Final: 998.1uA) Leakage Limits : 0.0nA to 10.00mA  Step #2 ACW @ 200.0V/60.00Hz for 2.00s PASSED Ramp for 1.00s, No Discharge Breakdown : 2.848mA @200.0V (10.00mA limit) RMS Leakage : 1.991mA to 1.999mA (Avg: 1.995mA, Final: 1.995mA) RMS Leakage Limits : 0.0nA to 10.00mA ARC : 0.40mA to 0.85mA (Avg: 0.59mA, Final: 0.75mA) ARC Limits : 10mA/4us 

FAQ

QTEnterprise uses Microsoft SQL Server Express to store and retrieve test configuration settings and test results. The database will not require maintenance execute for the creation of backups. Since most computer systems are subject to failure a backup of the database is recommended. The vast array of options that are available to perform these backups is beyond the scope of this document, but a manual backup can be created using sqlcmd in a command prompt window:

```
sqlcmd -E -S 127.0.0.1\SQLEXPRESS -Q "backup database [VitreK] to disk='path-to-somewhere\VitreK_db.bak'"
```

Of course, the .bak file should be stored off site or in secure cloud storage. The file could easily be 10s to 100s of megabytes. You should also store the matching QTE installer, the installer matches your database structure.

Now presume the worst case: your workstation has been crushed by a forklift accident and the system drive is unrecoverable. You reinstall **QTEnterprise** using the saved QTE installer, then type this:

```
sqlcmd -E -S 127.0.0.1\SQLEXPRESS -Q "restore database [VitreK] from disk='path-to-somewhere\VitreK_db.bak' with replace"
```

Note that 'path-to-somewhere' should be a valid drive and directory. For example, presume you have a second drive 'D:' used for backup and have a folder on that drive named 'qte_data', the command would be:

```
sqlcmd -E -S 127.0.0.1\SQLEXPRESS -Q "backup database [VitreK] to disk='d:\qte_data\VitreK_db.bak'"
```

In the event the database fills up you can delete past result data. For V7x users use these commands:

```
sqlcmd -d Vitrek -S 127.0.0.1\SQLEXPRESS -Q "delete FROM [VitreK].[dbo].[Result_v7x]"
sqlcmd -d Vitrek -S 127.0.0.1\SQLEXPRESS -Q "delete FROM [VitreK].[dbo].[Result_Steps_v7x]"
sqlcmd -d Vitrek -S 127.0.0.1\SQLEXPRESS -Q "delete FROM [VitreK].[dbo].[RunTestGraphResult_v7x]"
```

For 95x users type:

```
sqlcmd -d Vitrek -S 127.0.0.1\SQLEXPRESS -Q "delete FROM [VitreK].[dbo].[Result_950]"
sqlcmd -d Vitrek -S 127.0.0.1\SQLEXPRESS -Q "delete FROM [VitreK].[dbo].[Result_Steps_950]"
sqlcmd -d Vitrek -S 127.0.0.1\SQLEXPRESS -Q "delete FROM [VitreK].[dbo].[RunTestGraphResult_950]"
```