

ViTREK QT Enterprise Installation and User Guide v1.0.0

Requirements

- **Supported Operating Systems:**
 - Windows XP SP3
 - Windows Vista SP1 or later
 - Windows 7
 - Windows 8 (Desktop Application)
 - Windows 10
- **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.

Installation

1. Run QTEnterprise Installer.exe and follow the onscreen prompts.
 - a. The installation may prompt you to install dependencies required by QTEnterprise. These prerequisites must be installed in order to properly install the application.
 - b. The application requires you to specify the SQL Server that the applications database will be installed on. This will be a local instance of the database. For networked applications, the program must be installed on each PC being used, including the 'Server' PC that will host the database.
2. After completion of installation, you will be prompted to restart your PC. For full functionality of QTEnterprise, ensure your PC is restarted prior to running the application.
3. QTEnterprise is installed to: <Program Files>\Vitrete\QTEnterprise

Nomenclature

User List

This is a list of all the user names, passwords and allowed access levels for QTEnterprise.

User Name

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.

Password

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.

Access Level

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 of QTEnterprise a user may have access to.

Tester

This is the 95X or V7X series unit being controlled by QTEnterprise.

Switch Units

These are the 948 or 964 Switch Matrix units controlled by either the tester or directly by QTEnterprise.

System Configuration

This is the interface configuration between tester and the computer, and the (optional) configuration of the interfacing to any Switch Units.

Device under Test (DUT)

This is the device being tested by QTEnterprise.

Test Sequence

This is a series of test steps used to completely test a DUT.

Test Step

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

QTEnterprise runs in various “windows” in Microsoft Windows™. The primary application window is not resizable and is always 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.

If QTEnterprise is 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.

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.

QTEnterprise utilizes an SQL database for storage of configurations, test sequences, results, users, and various settings. Each PC with QTEnterprise installed will have a SQL Database for the application created, however the user may utilize a networked connection to a common database for a better integrated experience.

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.

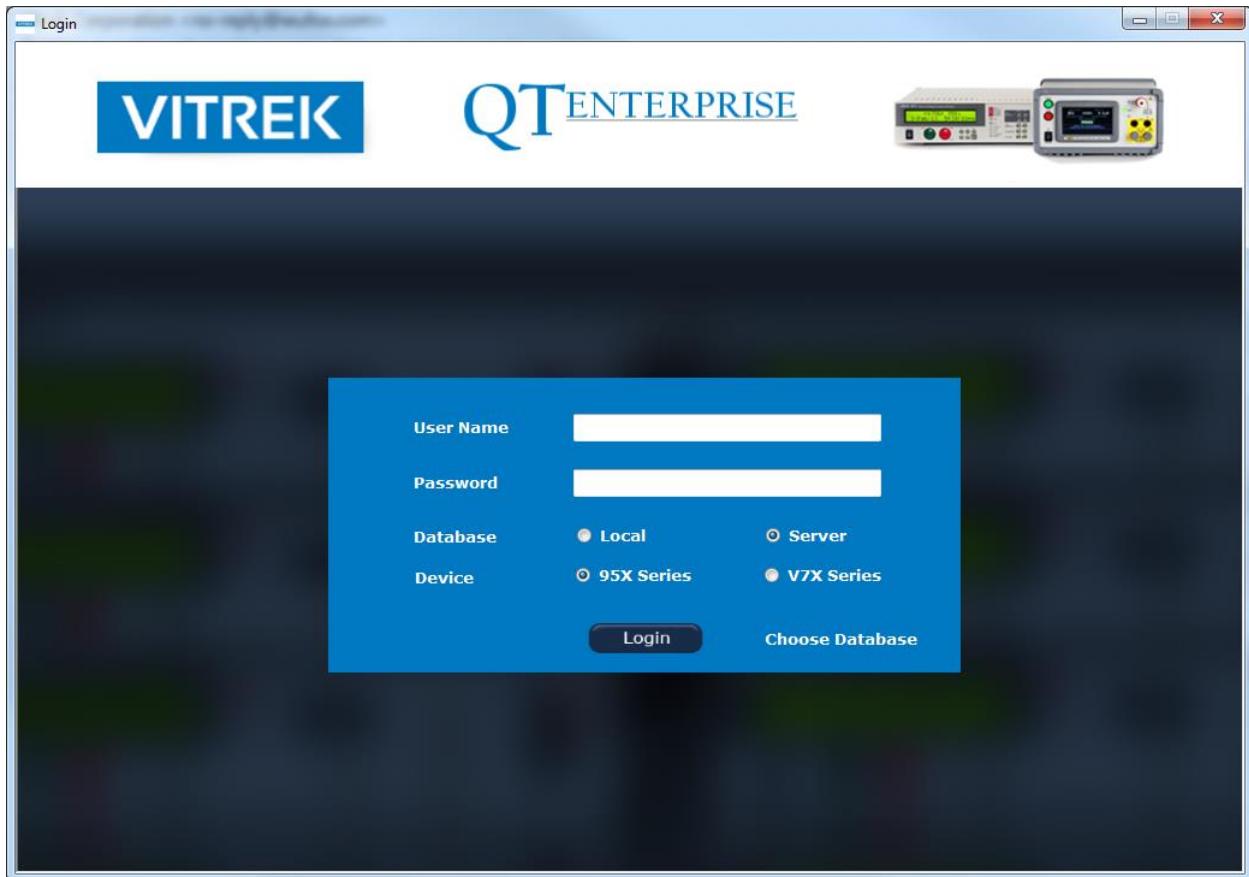
Every control and information shown in the QTEnterprise window has a “ToolTip” which is displayed next to the control/information when the mouse hovers over it. This ToolTip contains a brief description on the use of the control or information. An experienced user may turn off these by checking the “Disable 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. The user should enter their specified User Name and Password prior to pressing the Login button. 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

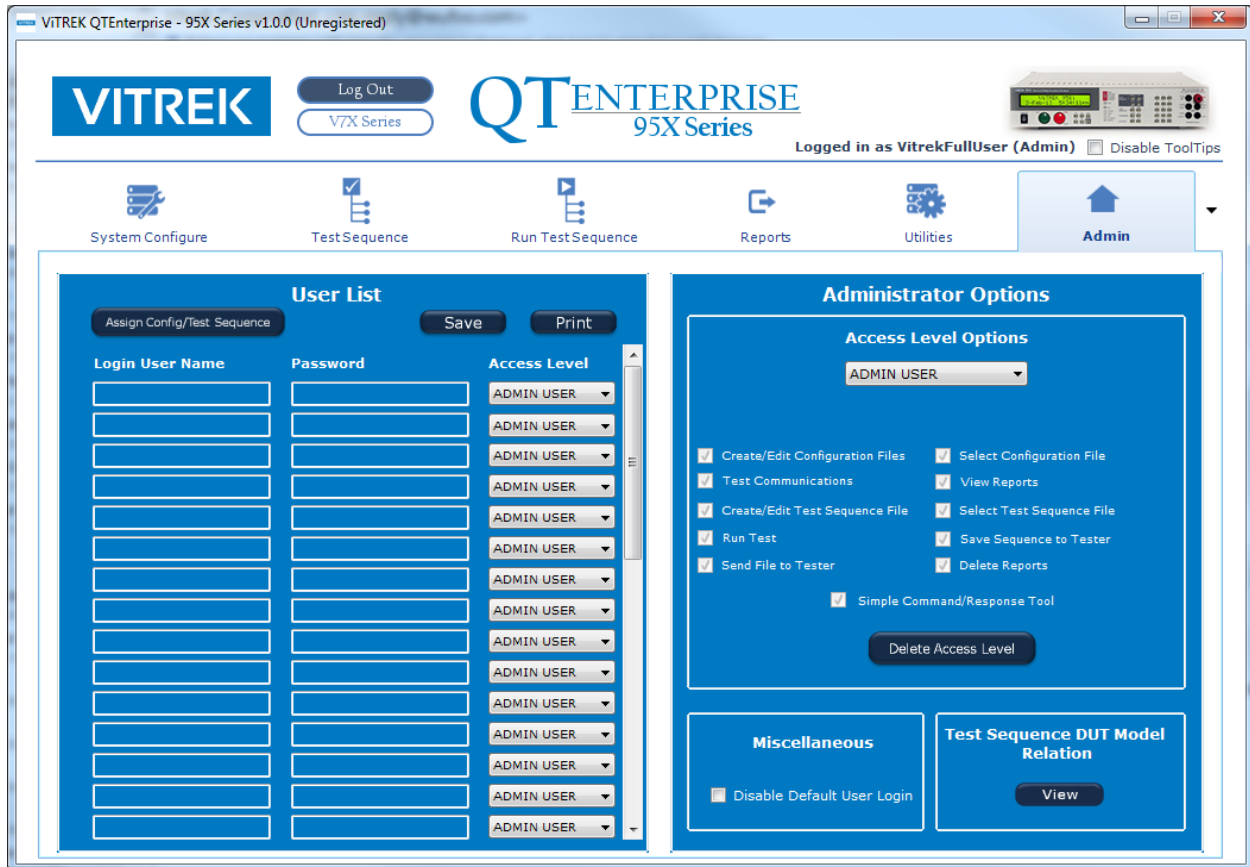
The User Name and Password above are case sensitive. Once connected to the database the user may disable the default user account upon creation of a new Admin User. See more regarding these capabilities in the Admin Tab section of this manual.

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. The user may then utilize the Choose Database button to select the ServerDatabase.xml file originally located in the other PC's QTEnterprise installation folder.

- 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 pressing 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 screen includes a scrollable list of user names, passwords and access levels. The user can edit, create or delete entries as needed using this listing. This section also contains a section for Administrator Options, which includes the ability to create new user access levels.

After any changes have been made to the user list, the SAVE button must be used to finalize the changes. If the user does not save any changes made prior to closing QTEnterprise then they will be lost.

QTEnterprise uses the user list file from the database chosen each time that it is connected to. Generally, the user will only need to create the user list once and then it will be automatically used from that database until changes to it are needed by the user. If the user is using multiple QTEnterprise installations throughout a company then it is possible to create a single user list file in a network database and have all installations access the same database.

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.

Editing an Existing User

This is achieved by editing the fields as needed within the listing. The vertical scroll bar to the left of the listing allows the user to scroll up and down the listing as needed.

Creating a New User

This is achieved by entering the desired user name, password and access level in any line having a “blank” user name entry in the user listing. There is a limit of 36 users which may be defined.

Deleting a User

To delete an existing user, the user should delete the user name entry in the user list. QTEnterprise removes the associated password and access level entries automatically.

Assigning a Default Configuration/Test Sequence to a User

The user can assign a configuration and test sequence to be initially selected when the specified user logs in to QTEnterprise. This can be performed by pressing the Assign Config/Test Sequence button, launching a new window to make selections. The user may press the Select button on the user they wish to assign defaults to prior to selecting the default configurations and test sequences. 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.

Creating a New User Access Level

To add a new User Access Level, the user should select the user access level list and select < ADD NEW LEVEL >. Upon doing so, the user will be prompted to name the new access level prior to saving it.

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.

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.

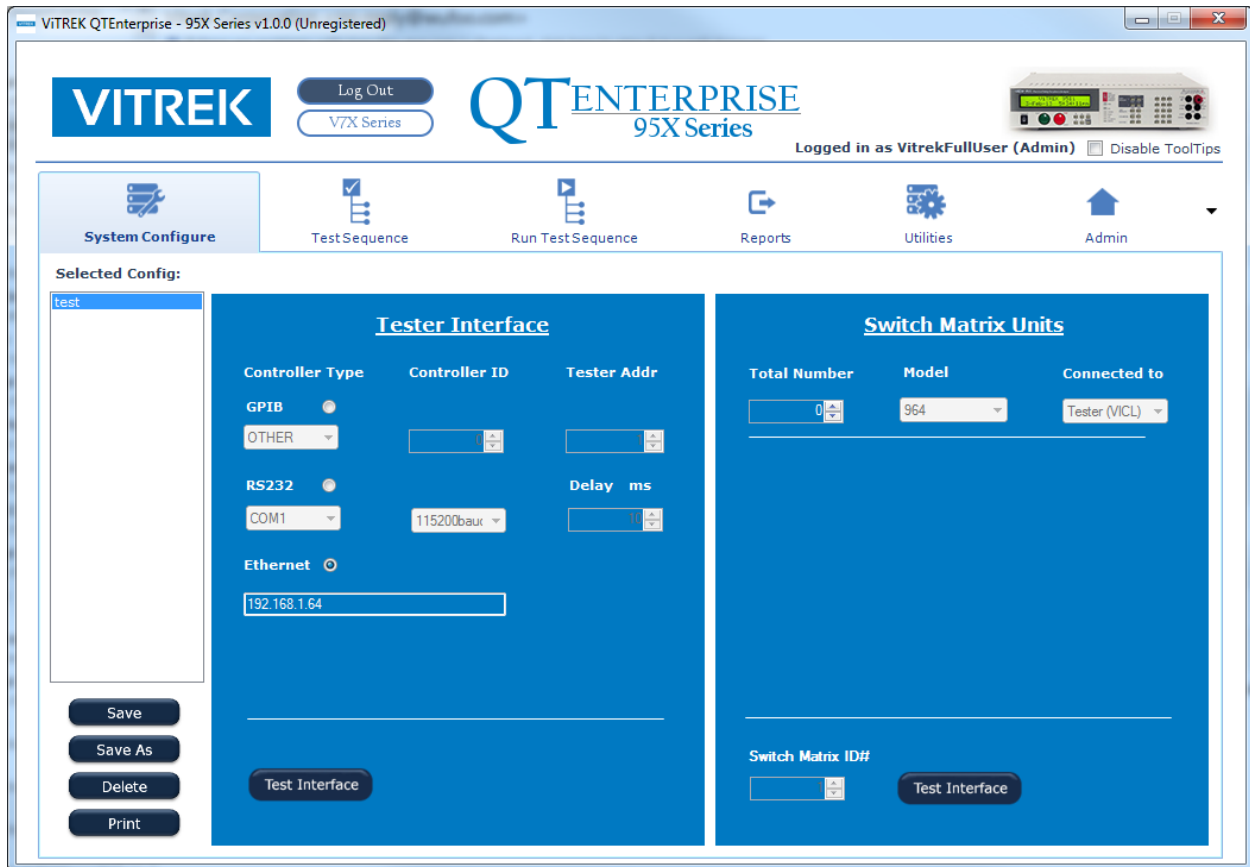
Disabling the Default User Login

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 Test Sequence – DUT Model Number Relations

QTEnterprise allows the user to relate DUT model numbers with specified test sequences in the database. To create this relation, while logged in as an ADMIN USER, the user can press the VIEW button in the Test Sequence DUT Model Relation section. This will open a new window with a listing of all Test Sequences within the database along with any associated DUT Model Numbers. To DUT Model number relationship, the user should press the SELECT button of the test sequence he wishes to associate a model number with. Once selected, a model number may be entered in the text box labelled Model # to add this model to the relation table by pressing the ADD button. To remove a relation, the user may use the process above, and use the DELETE button to remove the relation.

Setting Up the System Configuration



All System Configuration settings for QTEnterprise are stored in the database. System configurations are displayed in a listing on the left side of the interface. Configurations may be loaded by selecting the desired configuration from the listing.

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.

Defining the Interface between the Computer and the Tester

This is defined by the controls in the Tester Interface section of the SYSTEM CONFIGURE tab of QTEnterprise.

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 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 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).
 - The baud rate at which to communicate with the tester. This must correspond to the baud rate setting in the CNFG – INTERFACE menu of the tester.
- 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.

Defining Switch 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).

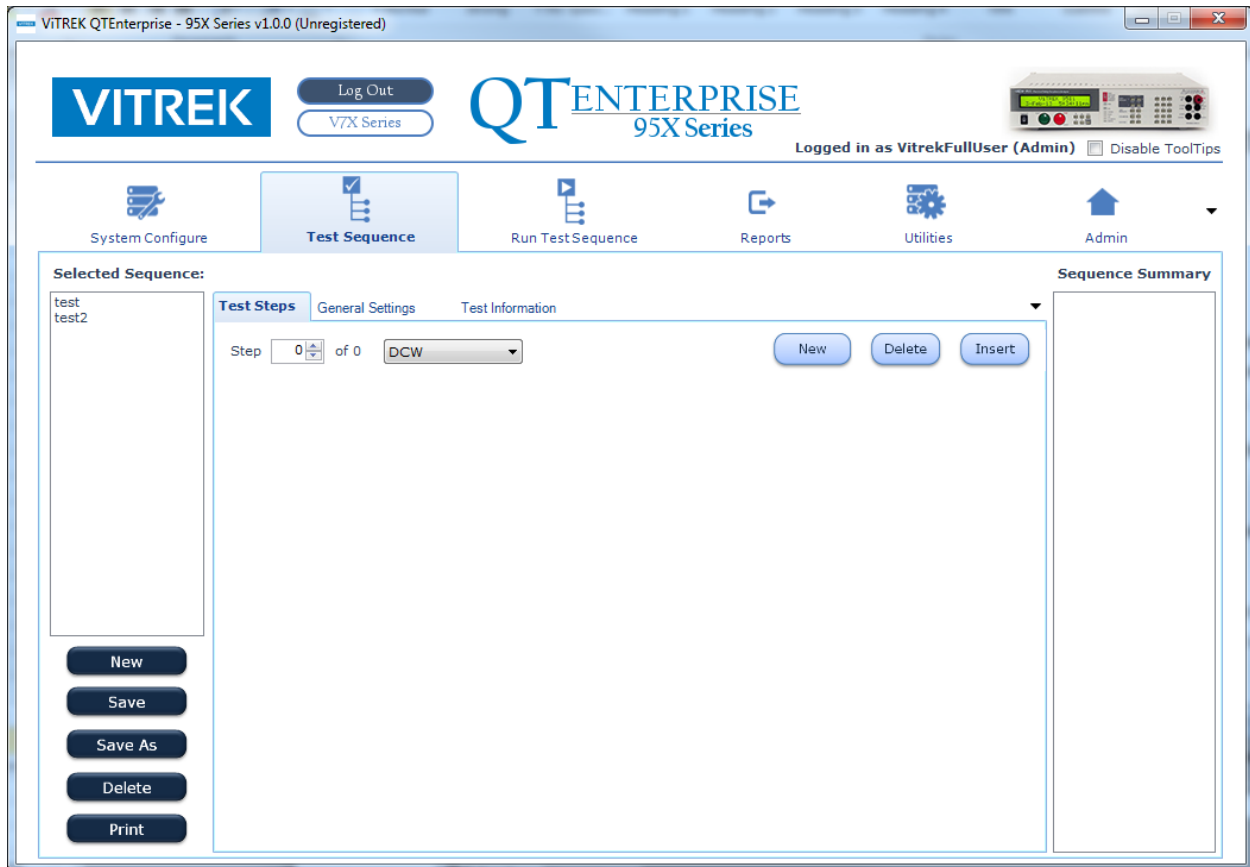
Testing Connections

The system configuration connections may be tested using the TEST TESTER INTERFACE or TEST SWITCH INTERFACE buttons. The TEST SWITCH INTERFACE function is only capable of testing a switch matrix connected to the PC via RS232 or GPIB. For testing VICL or direct RS232 control from a tester, it is recommended to create a SWITCH 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.

Creating a Test Sequence



All Test Sequences for QTEnterprise are stored in the database. Test sequences are displayed in a listing on the left side of the interface. Test sequences may be loaded by selecting the desired sequence name from the listing.

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, then they will be lost. The SAVE button will automatically overwrite the selected sequence with the presently shown sequence using the same name. The SAVE AS button will allow the user to designate a new name for the test sequence, preserving the previous. The DELETE button will delete the presently selected test sequence.

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 built by the user defining a series of test steps which QTEnterprise is to perform, and also by the user defining certain general activities associated with the test sequence. 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 several 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 when the step # to be deleted has been selected by the Step # control.

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 screenshot displays the VITREK QTEnterprise v1.0.0 (Unregistered) software interface. The main window is titled "VITREK QTEnterprise - 95X Series v1.0.0 (Unregistered)". The interface includes a navigation bar with icons for System Configure, Test Sequence (selected), Run Test Sequence, Reports, Utilities, and Admin. The user is logged in as VitrekFullUser (Admin). The "Test Sequence" section is active, showing a "Selected Sequence:" list with "test" and "test2". The "Test Steps" tab is selected, displaying configuration for Step 6 of 10, which is set to "DCW". The configuration includes a "Name" field, a "Level" of 1000.0 Volts, and two main sections: "Timing" and "Test Measurements". The "Timing" section has "Ramp" set to 1.00 sec and "Dwell" set to 1.00 sec. The "Test Measurements" section has "Breakdown" set to 10.000 mA, "Leakage" set to 0.000 to 10.000 mA, and "ARC" set to 1.00 mA and 4us. There are buttons for "New", "Delete", and "Insert" at the top right of the configuration area. A "Sequence Summary" panel on the right lists steps 1 through 10: Step 1: Switch, Step 2: DCW, Step 3: Switch, Step 4: DCW, Step 5: Switch, Step 6: DCW (highlighted), Step 7: Switch, Step 8: DCW, Step 9: Switch, Step 10: DCW. A vertical toolbar on the left contains buttons for "New", "Save", "Save As", "Delete", and "Print".

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 a 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 a 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 setting allows the user to replace the default heading for each test step in the test report with the text entered here. 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.

Defining the General Activities Associated with a Test Sequence

The screenshot displays the VITREK QTEnterprise v1.0.0 (Unregistered) software interface. The user is logged in as VitrekFullUser (Admin). The main menu includes System Configure, Test Sequence (selected), Run Test Sequence, Reports, Utilities, and Admin. The 'Test Sequence' section shows a list of sequences with 'test2' selected. The configuration panel for 'test2' is open, showing the following settings:

- Tester Settings:**
 - Allow User Start at the Tester
 - Don't FAIL if Detect Arcing
 - Enable Min Load in DCW and DCIR
 - Check Chassis Continuity
 - Enable HV Safety Trip
 - Max DCW/DCIR Discharge: 200,000 mA
- Auto-Save Results:**
 - Auto-Save if Fail
 - Auto-Save if Pass
- DUT Information:**
 - Model #:
 - Require Serial # When Run
- Printed Report:**
 - Auto-Print if Fail
 - Auto-Print if Pass
 - Report Detail: NORMAL

On the left side of the configuration panel, there are buttons for New, Save, Save As, Delete, and Print.

Tester Settings

The user can configure certain portions of the tester specifically for this test sequence.

The tester settings for the 95X Series are -

- Allow User Start at the Tester. 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.
- Don’t FAIL if Detect Arcing. 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.

Auto-Save Results

The user can select if QTEnterprise will automatically accumulate test results in an auto-save csv format results file if the test sequence fails, passes, or both, or neither. If enabled to accumulate test results, the user must select the file to use. The user can also define a PDF formatted results format.

DUT Information

The user can define a textual DUT Model # which will be 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 edited on 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 will also be prompted to enter the required number of characters to be entered for the serial #. Setting this number to 0 will allow for any number of characters.

Printed Reports

The user can select if QTEnterprise will automatically print a test results report on a failure, pass, or both, or neither. 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 none was previously used).

The user can also select the detail level included in the test 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. A few lines are included for each test step. A summary of the measurement results, and the limits associated with them are included in the report.
- FULL. This selection causes QTEnterprise to provide all measurement results and a complete definition of each test step in the results report.

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.


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.

Defining the 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.

VITREK QTEnterprise - 95X Series v1.0.0 (Unregistered)

VITREK Log Out V7X Series **QT ENTERPRISE** 95X Series  Logged in as VitrekFullUser (Admin) Disable ToolTips

System Configure **Test Sequence** Run Test Sequence Reports Utilities Admin

Selected Sequence: test test2

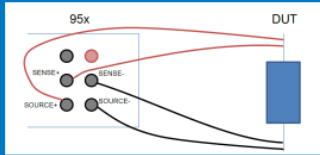
Test Steps General Settings **Test Information**

Test Info

Upload Image *Image in JPEG,PNG,BMP format only and size should be less than 1MB.

Comments

Connect Sense+ and Source+ to one side of DUT.
Connect Sense- and Source- to other side of DUT.
Ensure all connections are secure and all persons are clear of testing location prior to starting.



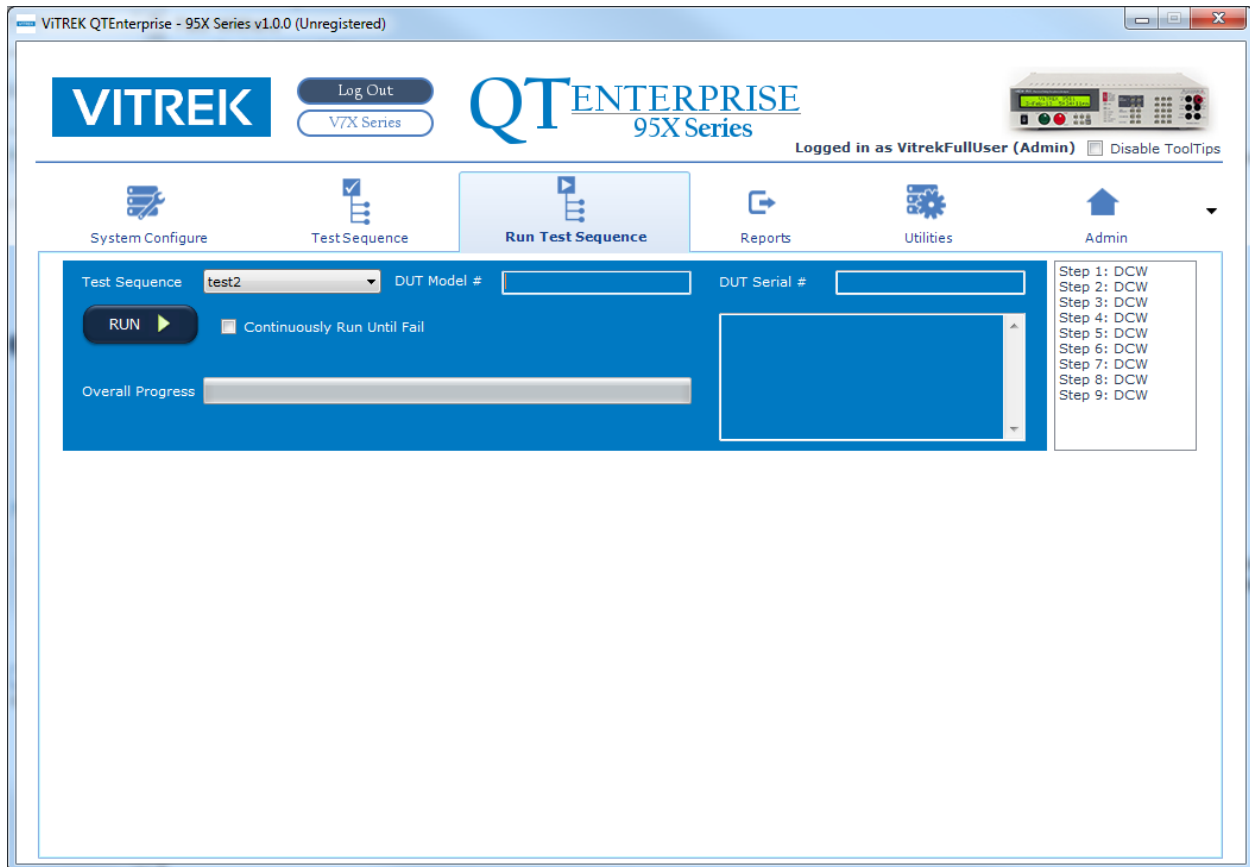
Show Test Info before Running the test.

Sequence Summary

- Step 1: DCW
- Step 2: DCW
- Step 3: DCW
- Step 4: DCW
- Step 5: DCW
- Step 6: DCW
- Step 7: DCW
- Step 8: DCW
- Step 9: DCW

New Save Save As Delete Print

Running a Test Sequence



The last viewed test sequence from the Test Sequence tab will be automatically selected in the Test Sequence drop down box. Any other sequence can be selected by name by changing this selection. 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. 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.

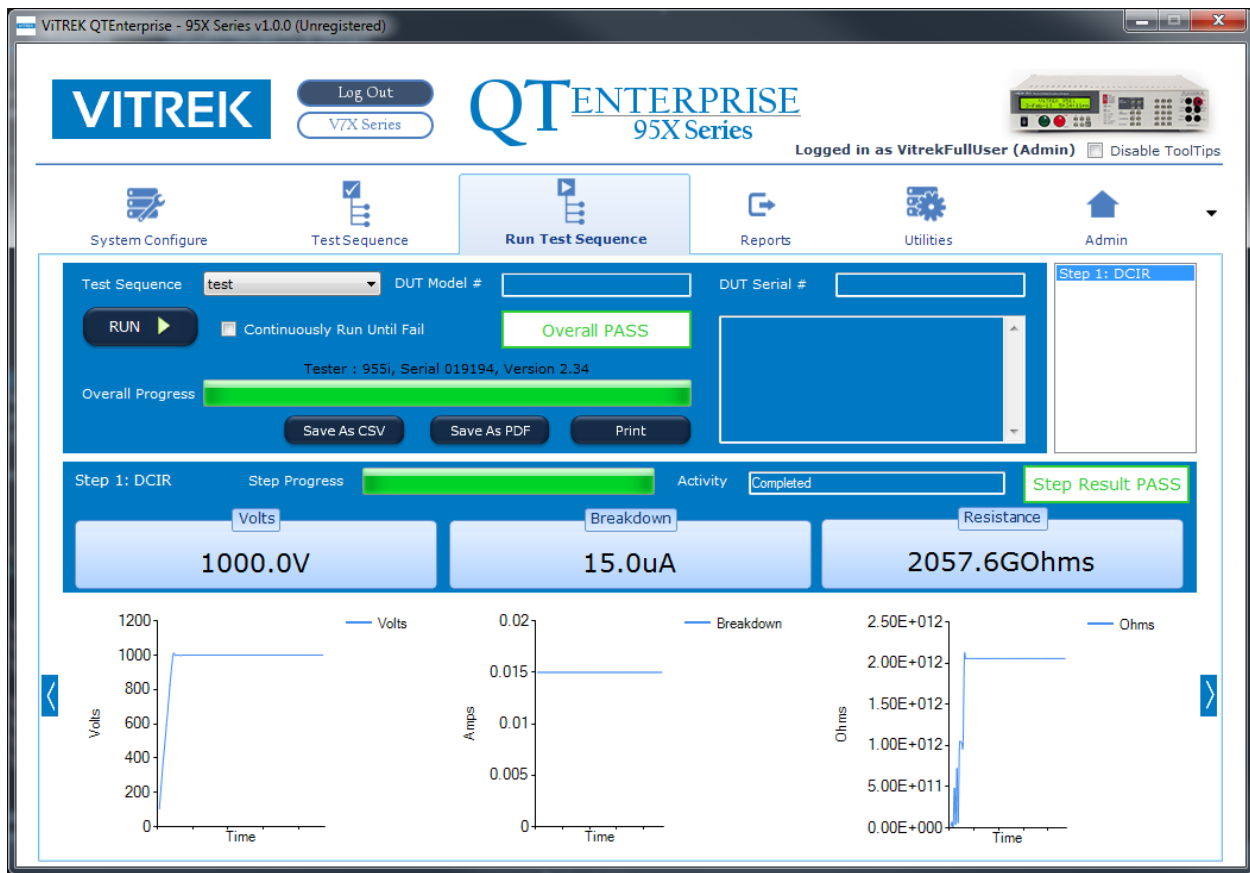
If the user selected to automatically print a test report then this will only be performed if the “Continuously Run until Fail” is unchecked when the test is completed. If the user selected to automatically save the results then this will be performed for each loop of the test sequence.

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 user will need to select the DUT Model # textbox, which is automatically selected upon selecting the RUN TEST SEQUENCE tab or completing a test, and 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. 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.

Status and Results

This section of the RUN TEST SEQUENCE tab window is only available during and after the test sequence is run. The controls show the user the progress and certain measurement results, drive levels, and charts during each step of the sequence. During a User Hold type of test 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

This section is only available after the test sequence has been run. 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 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 MANUAL PRINT button allows the user to print a test results report (of the test sequence selected detail level).

The MANUAL SAVE and PRINT button activities are totally 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.

.csv Results File Format

Test Results .csv files are saved in a text format using comma separated variable format for the fields.

The results for each test sequence are saved as a series of lines, the first line is always a HDG 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)

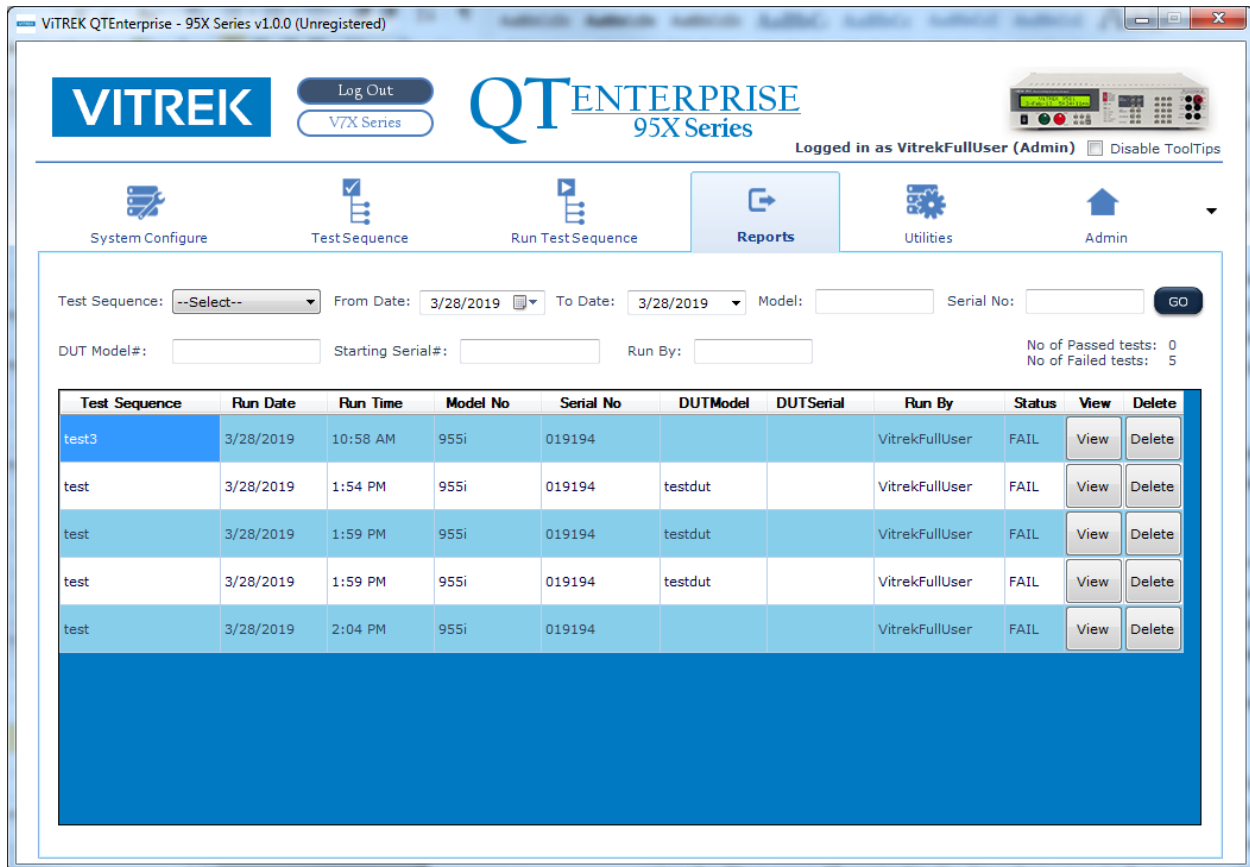
If a field does not apply to a given test type, a blank is placed.

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.

Accessing Reports and Previous Results



VITREK QTEnterprise - 95X Series v1.0.0 (Unregistered)

Log Out
V7X Series

QT ENTERPRISE
95X Series

Logged in as VitrekFullUser (Admin) Disable ToolTips

System Configure Test Sequence Run Test Sequence **Reports** Utilities Admin

Test Sequence: --Select-- From Date: 3/28/2019 To Date: 3/28/2019 Model: Serial No: GO

DUT Model#: Starting Serial#: Run By: No of Passed tests: 0
No of Failed tests: 5

Test Sequence	Run Date	Run Time	Model No	Serial No	DUTModel	DUTSerial	Run By	Status	View	Delete
test3	3/28/2019	10:58 AM	955i	019194			VitrekFullUser	FAIL	View	Delete
test	3/28/2019	1:54 PM	955i	019194	testdut		VitrekFullUser	FAIL	View	Delete
test	3/28/2019	1:59 PM	955i	019194	testdut		VitrekFullUser	FAIL	View	Delete
test	3/28/2019	1:59 PM	955i	019194	testdut		VitrekFullUser	FAIL	View	Delete
test	3/28/2019	2:04 PM	955i	019194			VitrekFullUser	FAIL	View	Delete

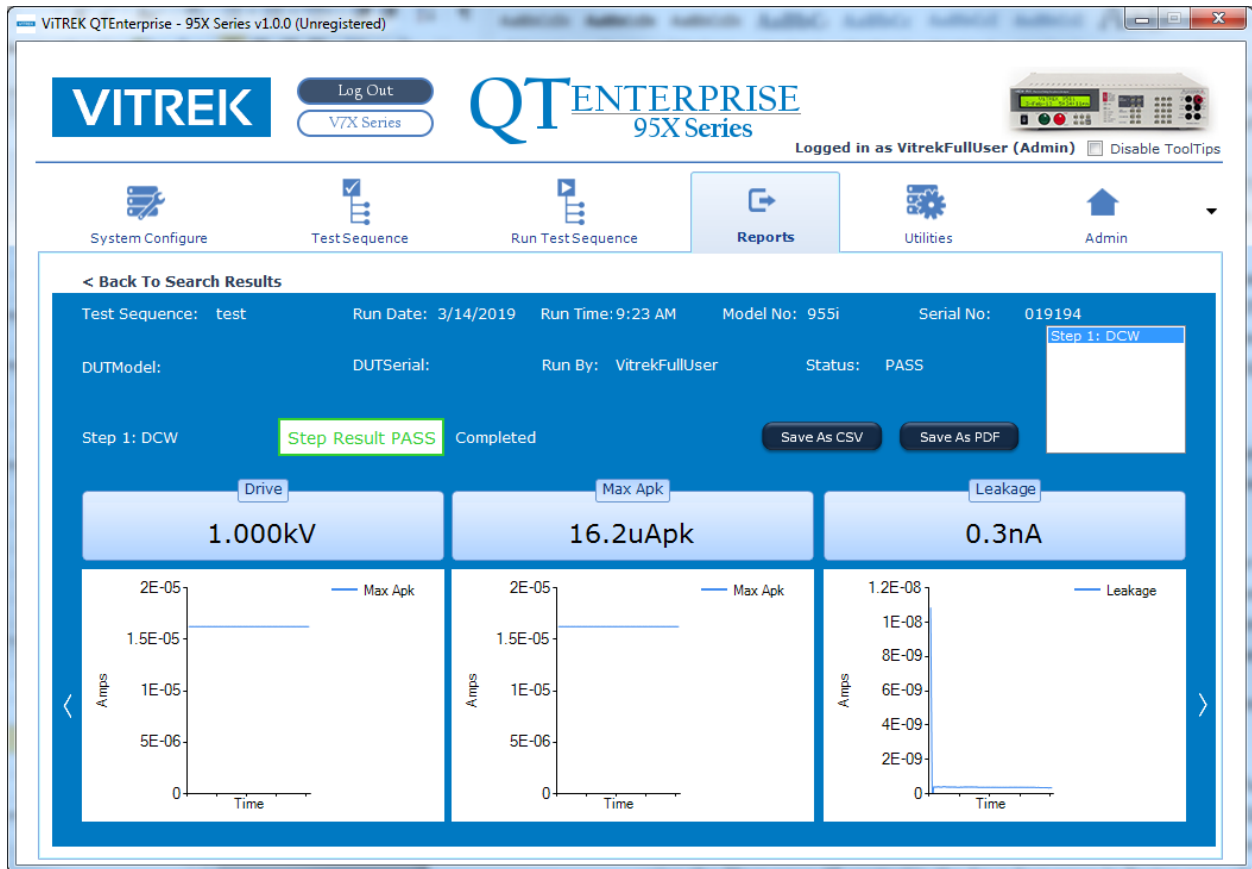
Using the Reports tab, the user is able to view past test history. This display can be filtered using the following selections –

- 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.
- 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 Serial#. The list is filtered to only include the tests run after, and including, the specified serial number in alphanumeric order.
- Run By. The list is filtered to only include the tests run by the specified user.

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 Previous 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.

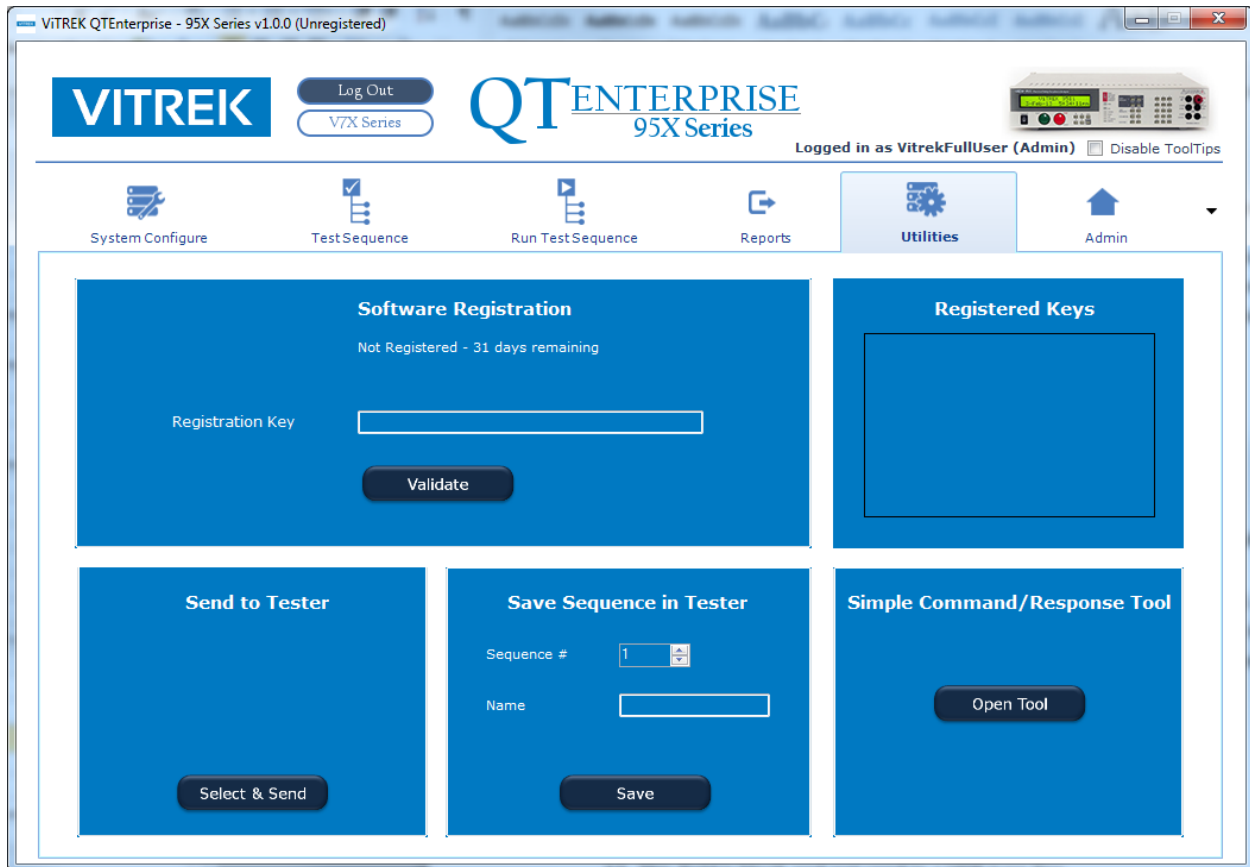


The full test sequence information is displayed on screen. The user may navigate through individual steps by using the arrow buttons to the left or right of the chart area, or selecting a specific step in the summary located at the top right of the tab interface area.

The full test results may be saved as either a CSV format or PDF format from this screen by pressing the respective button. A save file dialog will prompt the user to select a location and file name.

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 serials 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.

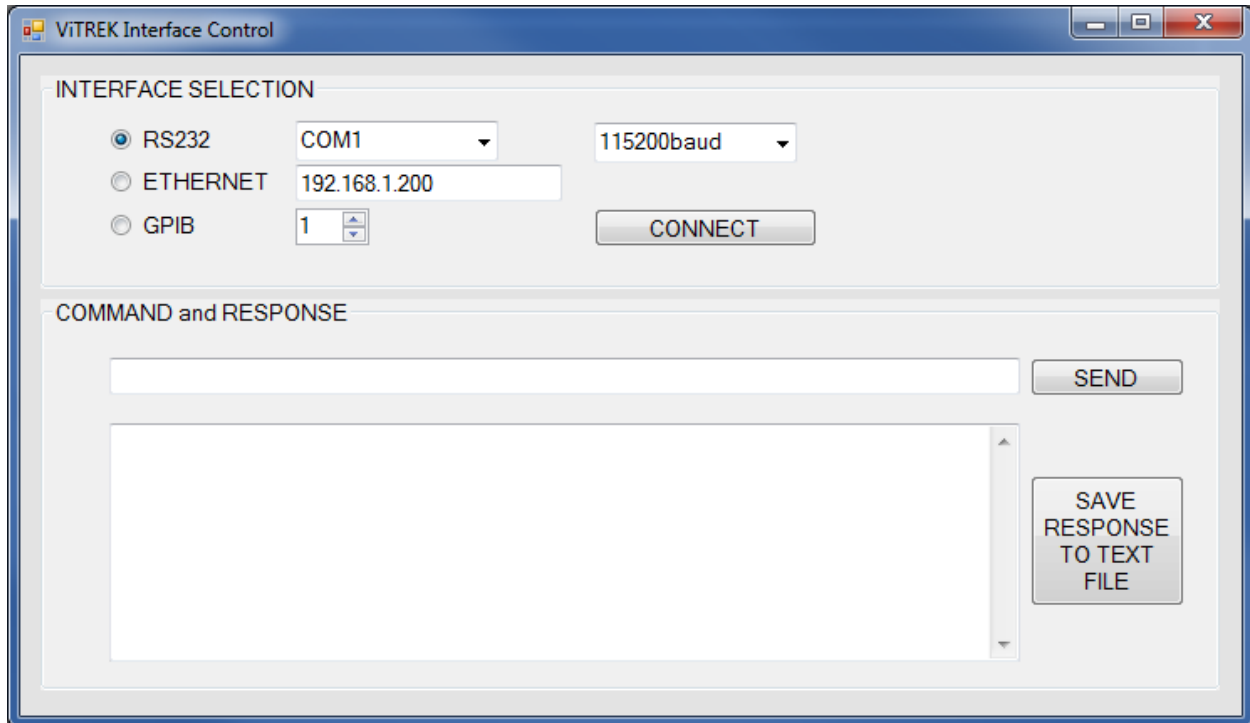
This is only available if either a) the system is configured for no switch units, or b) the system is configured to control the switch units via the tester, or c) the presently loaded test sequence in QTEnterprise does NOT contain any SWITCH type of test steps. Note that the message associated with any 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 UTILITES 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 UTILITES tab screen of QTEnterprise.

Simple Command/Response Tool



Pressing the OPEN SIMPLE COMMAND/RESPONSE TOOL button will open the above shown window. Using this tool, the user may select an interface, connect to the unit, and send single line commands. 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.