



ZFind ZTEC Resource Manager

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Contact

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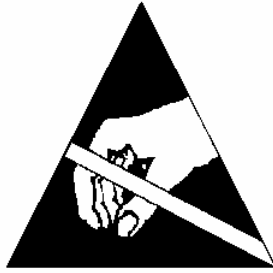
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Handling Precautions for Electronic Devices Subject to Damage by Static Electricity

This instrument is susceptible to Electronic Static Discharge (ESD) damage. When transporting, place the instrument or module in conductive (anti-static) envelopes or carriers. Open only at an ESD-approved work surface. An ESD safe work surface is defined as follows:

- The work surface must be conductive and reliably connected to an earth ground with a safety resistance of approximately 250 kilohms.
- The surface must NOT be metal. A resistance of 30–300 kilohms per square inch is suggested.

Ground the frame of any line-powered equipment, chassis, test instruments, lamps, soldering irons, etc., directly to the earth ground. To avoid shorting out the safety resistance, ensure that the grounded equipment has rubber feet or other means of insulation from the work surface.

Avoid placing tools or electrical parts on insulators. Do NOT use any hand tool that can generate a static charge, such as a non-conductive plunger-type solder sucker. Use a conductive strap or cable with a wrist cuff to reliably ground to the work surface. The cuff must make electrical contact directly with the skin; do NOT wear it over clothing.

Note: Resistance between the skin and the work surface is typically 250 kilohms to 1 megohm using a commercially-available personnel grounding device.

Avoid circumstances that are likely to produce static charges, such as wearing clothes of synthetic material, sitting on a plastic-covered stool (especially when wearing woolen material), combing the hair, or making extensive pencil erasures. These circumstances are most significant when the air is dry.

When testing static sensitive devices, ensure DC power is ON before, during, and after application of test signals. Ensure all pertinent voltages are switched OFF while circuit boards or components are removed or inserted.

Revision History

Rev	Date	Section	Description
1	1-4-08	All	Initial Release
1a	4-10-08	All	EPICS changes, instrument sharing
2	9-15-08	All	Abort, LAN and EPICS changes
2a	6-9-09	All	Updated

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Introduction



The ZFind™ Resource Manager is designed for use with all ZTEC® M-Class and C-Class Instruments. ZFind™ automatically detects any instruments that are available on the local system for display and communication. It is also possible to add LXI or shared instruments through ZFind™ for use in this and other applications.

ZFind™'s primary function is to provide an easy-to-read list of all available instruments including their resource name and id information. ZFind™ also allows basic command line communication to the instruments for testing and debugging. LAN or EPICS settings may also be set up using ZFind™. Local instruments may also be shared as remote instruments using the sharing functionality

ZFind™ is currently available as an application for both Windows and Linux environments; see the ZTEC® website for currently supported Linux kernels.

The soft front panel (SFP) consists of three main areas:

1. Toolbar
 - a. Quick access to most advanced functionality
2. Menubar
 - a. Menu access to advanced functionality.
3. Tree Display
 - a. A tree-style list of available instruments.

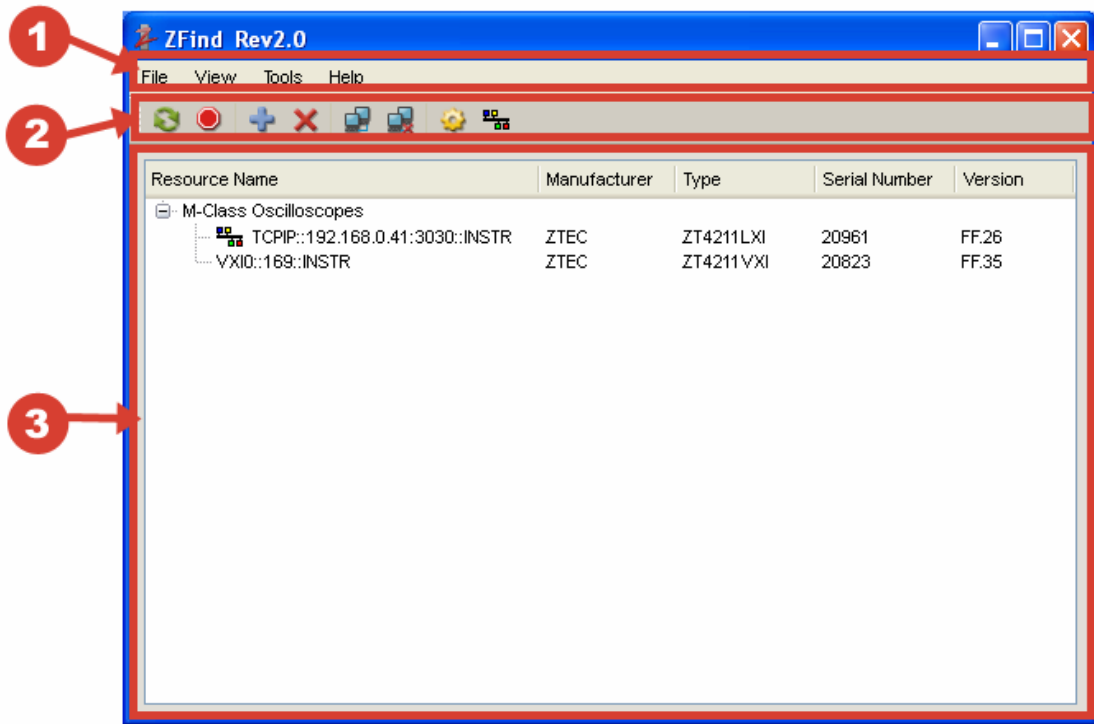


Figure 1.1: SFP Layout

Finding Cards



Menubar and Toolbar

The menubar and toolbar provide access to application functionality. The menubar is fixed at the top of the application, while the toolbar may be undocked, moved or hidden entirely. Some ZFind™ menubar and toolbar options require specific instruments and are grayed out unless an appropriate instrument is selected. Select an instrument by clicking on the resource in the Tree Display.

All functionality that is available in the menubar or toolbar has associated keyboard shortcut commands, as shown in the menus.

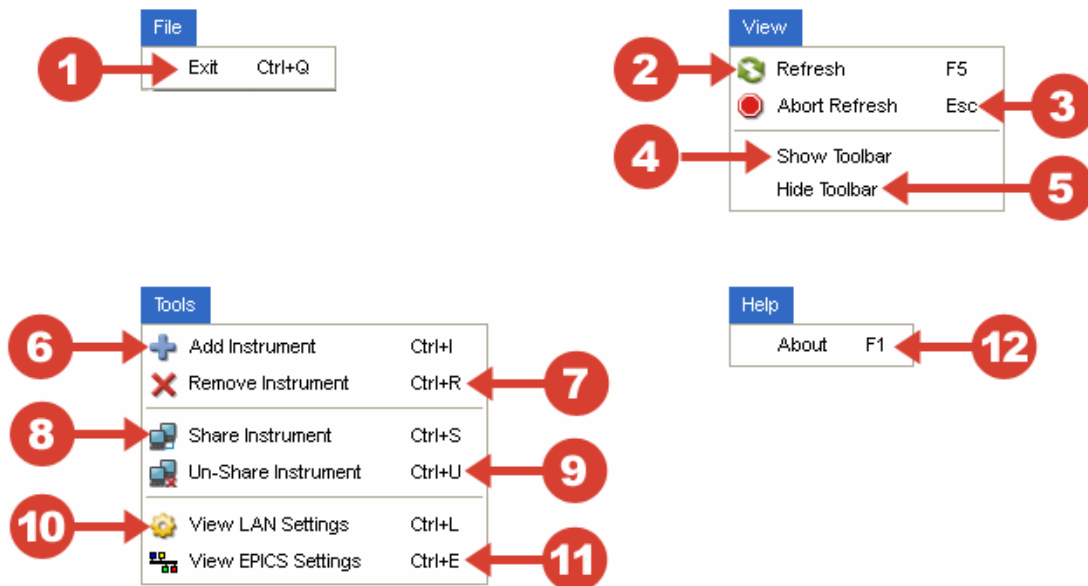


Figure 2.1: Menubar Controls

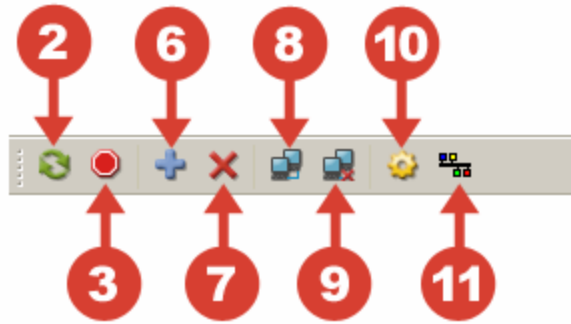


Figure 2.2: Toolbar Controls

- 1 Exit**
Exit the program.
- 2 Refresh**
Search the system for available instruments.
- 3 Abort Refresh**
Cease any current attempt to gather instrument information. There are some circumstances where an instrument may be unable to respond the information query.
- 4 Show Toolbar**
Display the Toolbar.
- 5 Hide Toolbar**
Hide the Toolbar.
- 6 Add Instrument**
Manually add an instrument that is not automatically found by ZFind. See *Adding an Instrument* below.

- 7 Remove Instrument**
Remove an instrument from the list. This function is only available for manually added instruments.

- 8 Share Instrument**
Share a local instrument over the local area network. This instrument can be accessed from other computers by using the IP address of the computer that is sharing the card in the resource name. This functionality is available for M-Class PCI, PXI and VXI Instruments only. Once an instrument is shared, it may be used over the network in the same fashion as an LXI instrument, using the sharing computer's IP address in the Resource Name. Sharing is limited to one instrument at a time, and only one remote user may connect to a shared instrument at a time.


- 9 Un-Share Instrument**
Remove a shared instrument from the local area network.

- 10 LAN Settings**
View the LAN configuration panel for the selected instrument. This function is only available for LAN instruments.

- 11 EPICS Settings**
View the EPICS configuration panel for the selected instrument. This function is only available for EPICS instruments.

- 12 About**
View the ZFind about information

Adding an Instrument

After selecting Add Instrument from the toolbar, selecting the  icon in the menu, or entering Ctrl+A through the keyboard, the Add Instrument Dialogue will appear.

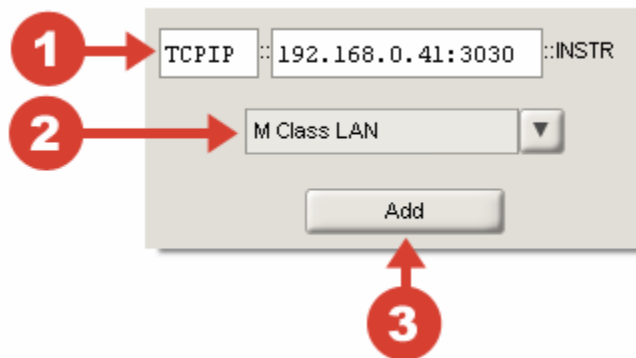


Figure 2.3: Add Instrument Dialogue

1 Resource Name

Enter the resource name of the instrument to be added. LAN resource names should always be in the format “TCPIP::ipaddress:port::INSTR”. Pressing Enter while this control is active is the same as clicking the Add button.

2 Communication Bus Type

Select the type of instrument that is being added: M-Class, M-Class PCI/PXI using VISA, C-Class, or C-Class PCI/PXI using VISA. M-Class LAN may be used for shared instruments as the sharing computer controls the final communication bus type.



Note: Be sure to select the correct bus type. Incorrect bus type may result in undesirable system behavior.


3 Add

Click to add the defined instrument to the list. To abort addition, simply click outside of the dialogue box or press escape.

Added network instrument resource names are saved to file so that they will be available anytime ZFind is opened or refreshed. Added resource names will also be available to all ZTEC applications and drivers through the save file. The save file may reside in a few different locations, based on operating system and current environment variables. On Linux systems, there will be a *.zcard* in the */home/<username>* directory. On Windows systems, the file, *zcard.txt*, will

reside in the same directory as the ZFind executable when no *ZTEC_DATA* environment variable is defined. When the *ZTEC_DATA* environment variable is defined, the *zcard.txt* file will be found at this variable's first value. The default value for *ZTEC_DATA* is *%APPDATA%\ZTEC Instruments*, which when expanded is *C:\Documents and Settings\<username>\Application Data\ZTEC Instruments*. With all environment variables expanded, a value for *ZTEC_DATA* must be less than 496 characters.

Configuring LAN Settings

When an LXI instrument is selected, *View LAN Settings* becomes available. After selecting *View LAN Settings* from the toolbar, selecting the  icon in the menu, or entering Ctrl+L through the keyboard, the webLXI interface will open. This dialogue allows for viewing and changing the instrument's network device settings. The webLXI interface is served on port 8080.

WebLXI Welcome Page

The main page of the webLXI interface is the *Welcome Page*. This page displays all LAN configuration information as well as instrument information. The *Welcome Page* is found at the [http://\[IP address\]](http://[IP address]), where 'IP address' is the IP address assigned to the instrument.

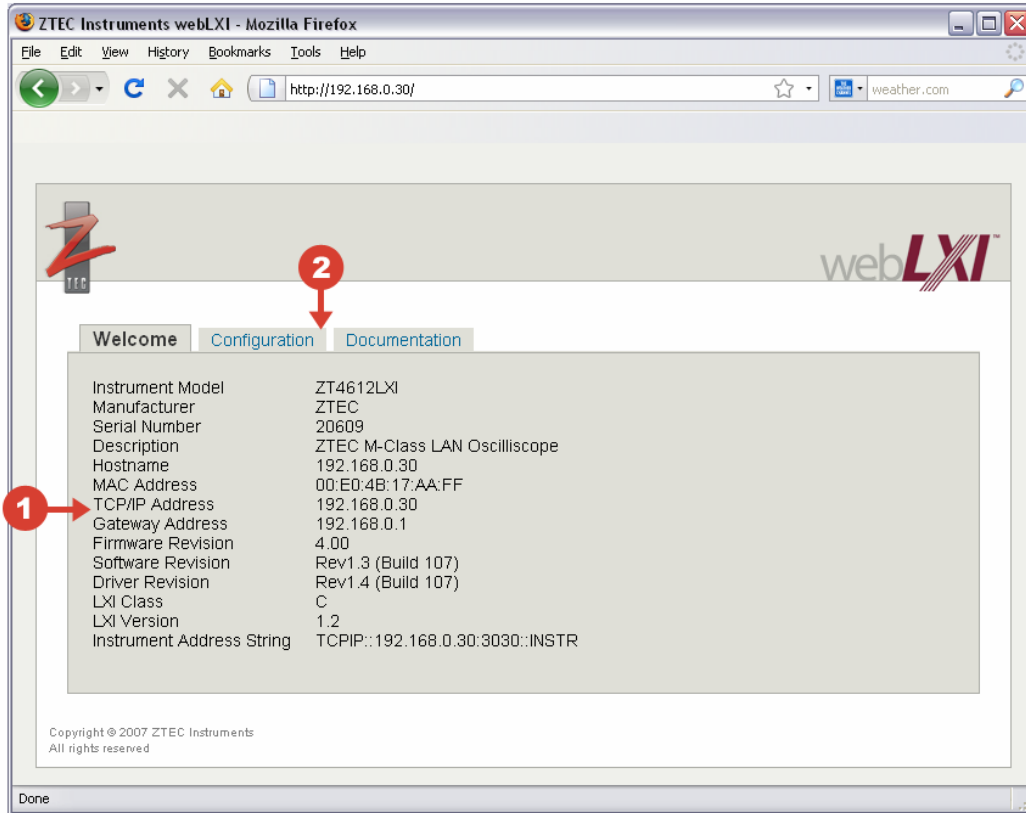


Figure 2.4: webLXI Welcome Page

1 Items

This is a read-only display of the current instrument configuration.

2 Tabs

Click the tabs to view other webLXI pages.

WebLXI System Configuration Page

The *System Configuration* page is where the user will change LAN settings on the instrument. This page, like all configuration pages, is password protected; see the *Change Password* page below for more details.

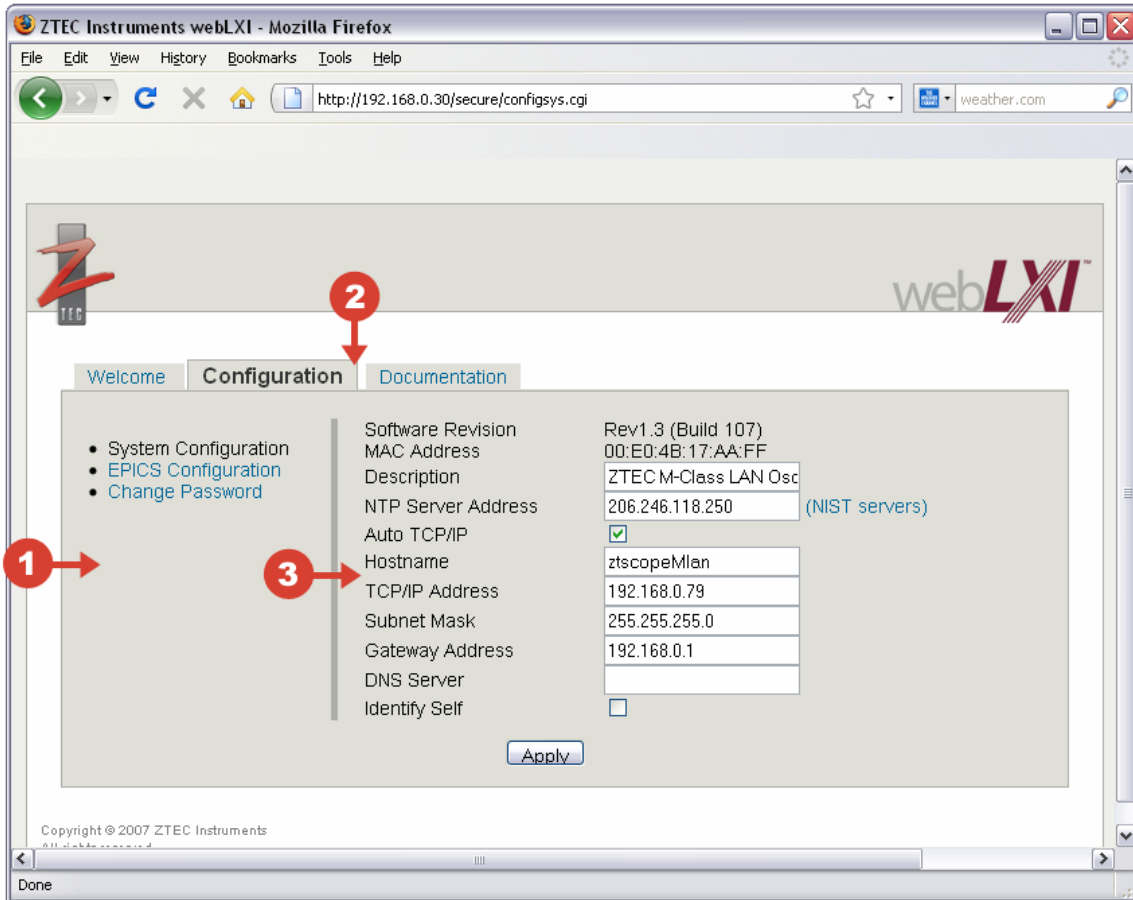


Figure 2.5: webLXI System Configuration Page

1 Configuration Pages

Click to view other configuration pages.

2 Tabs

Click the tabs to view other webLXI pages.

3 Items

Set the instrument configuration information. Press “Apply” to set the instrument to these settings. Note that the IP information on this page may not appear to match the Welcome Page. If the instrument is currently using Auto TCP/IP, the welcome page displays the currently used IP information. This page shows the configured IP information which is used when Auto TCP/IP is not enabled.

This page is used to change the instrument’s network configuration. Note that the page does not automatically forward to the new webLXI location when the IP address is changed. Do not configure the instrument to statically use 169.254.0.100 as this may interfere with initialization of other instruments on the same network.

WebLXI Change Password Page

The configuration password can be changed or set in the *Change Password* page. The default password on the instrument is no password. Default password and LAN settings can be restored using the hard button on the rear of the instrument. If a password has been set on the instrument, the web browser will prompt for password entry on all configuration pages. The user name to log into these pages is “webLXI”.

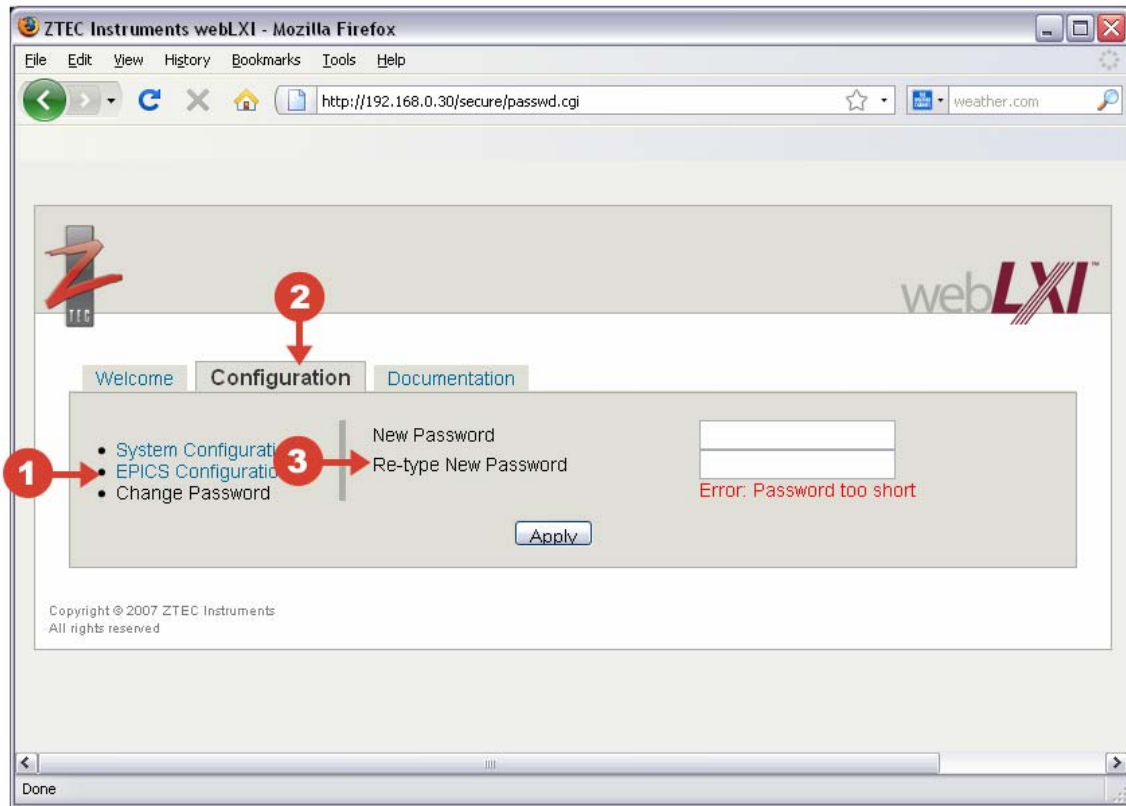


Figure 2.6: webLXI Change Password Page



Figure 2.7: Prompt for Password Protected Page

1 Configuration Pages

Click to view other configuration pages


2 Tabs

Click the tabs to view other webLXI pages.

3 New Password

Enter the new password here, both text fields must match and passwords must be 8 or more characters for successful application. If the password commit fails a message will appear.

Configuring EPICS Settings

When an EPICS enabled instrument is selected, *View EPICS Settings* becomes available. After selecting *View EPICS Settings* from the toolbar, selecting the  icon in the menu, or entering Ctrl+E through the keyboard, the EPICS Settings Dialogue will appear. This dialogue allows for changing EPICS PVs. For more information on changing PVs, review the EPICS Interface manual.

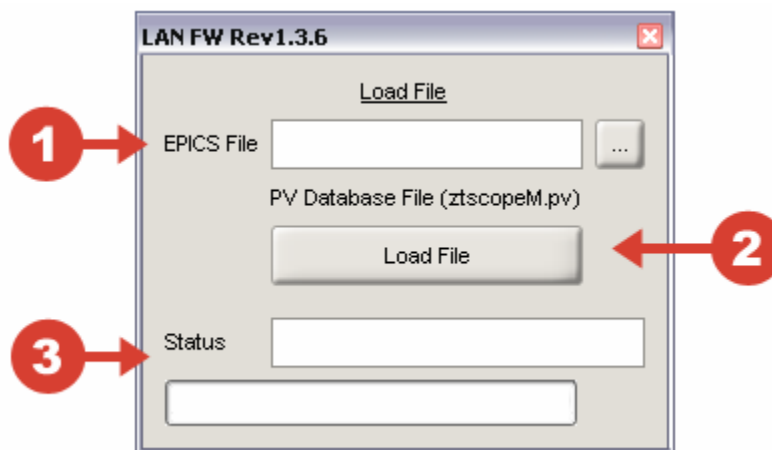


Figure 2.8: EPICS Settings Dialogue

1 EPICS File

Select the location of a PV database file to upload to the instrument.

2 Load File

Load the file from the EPICS File.

3 Status

The Status box displays a text string describing the status of the current file upload. The lower bar tracks percent-complete.

WebLXI EPICS Configuration Page

Channel Access settings can also be changed using the webLXI interface in the EPICS Configuration page. This page is password protected; see the *Change Password* page above.

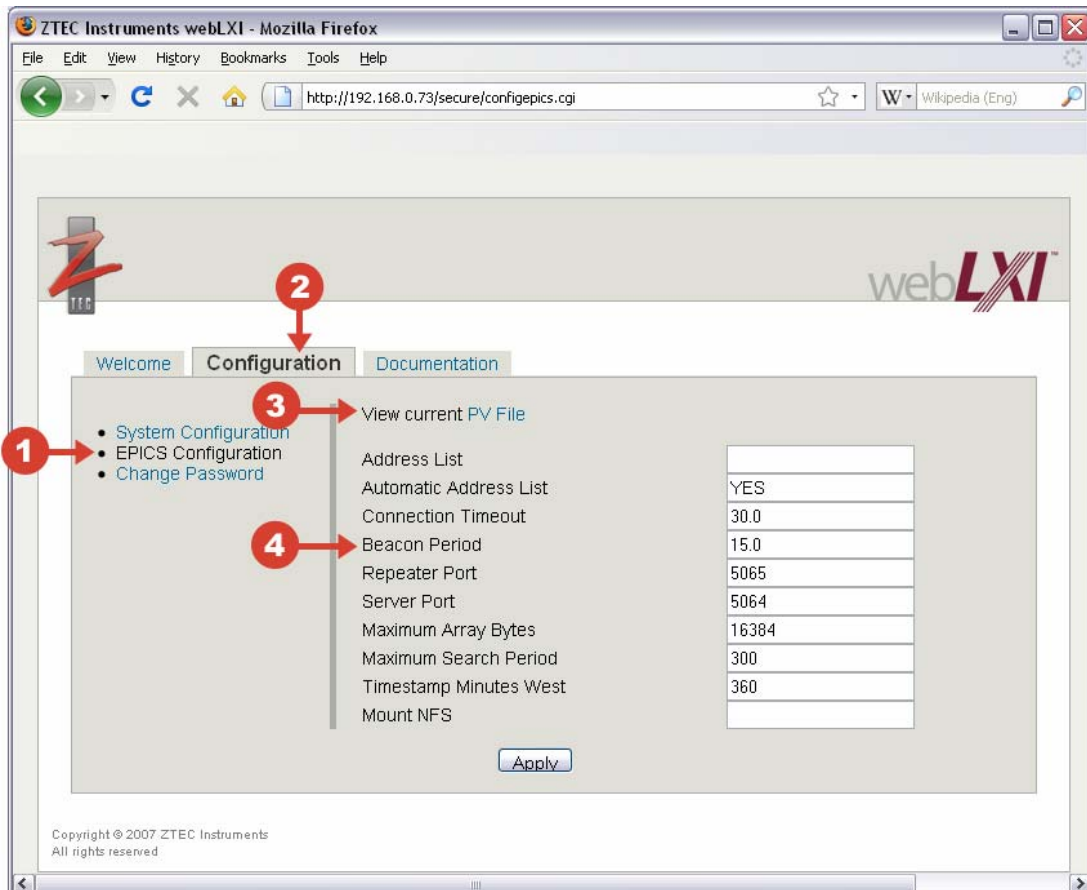


Figure 2.9: webLXI EPICS Configuration Page

1 Configuration Pages

Click to view other configuration pages

2 Tabs

Click the tabs to view other webLXI pages.

3 PV File

View the current loaded PV file on the instrument.

4 Channel Access Attributes

Change the Channel Access settings. To change the values, change the fields and press "Apply".

Instrument Calls



ZFind™ allows for low-level calls that enable advanced debugging and quick instrument communication. These calls require advanced knowledge of ZTEC® instrument communication and should be used in conjunction with the instrument manual. Sending an invalid low level command may cause instrument errors and can result in system errors on the controlling PC.

String Based Calls

All ZTEC® M-Class and VXI instruments use string based calls for low-level communication. To access the string based communication dialogue, double-click on any instrument of these types in the Tree Display. Multiple communication dialogues may be opened simultaneously.

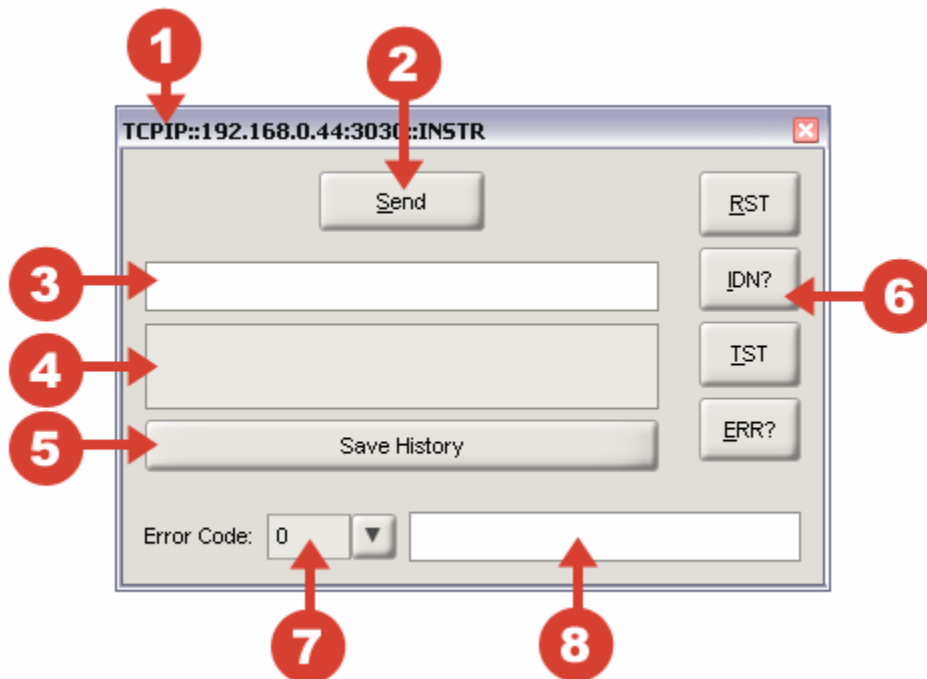


Figure 3.1: String Communication Dialogue

1 Resource Name

All dialogue windows display the resource name of the instrument that they are communicating with.

2 Send

Send the command that has been entered in the output text box and receive a response for the input text box if applicable.

3 Output Text Box

Enter commands and queries here to send them to the instrument. Commands will be sent when the “Send” button is pressed or the “Enter” or “Return” key is hit. Command history can be accessed using the up and down arrow keys; up arrow will go back one command and the down arrow will go forward one command in history.

4 Input Text Box

The instrument response to queries is displayed here.

5 Save History

Save the current command history to a text file.

6 Quick Commands

Click for quick access to a selection of useful commands. Select one of these to automatically load the output text box with the appropriate command string and send it to the instrument.

7 Error Code

Select an error code to read its description.

8 Error Description

The Error Description box displays a text description of the selected error code.

Register Based Calls

All ZTEC® C-Class PCI and PXI instruments use register based calls for low-level communication. This interface is significantly more complicated than the M-Class and VXI string based calls. To access the register based communication dialogue, double-click on any C-Class PCI or PXI instrument in the tree-view. Multiple communication dialogue may be opened simultaneously.

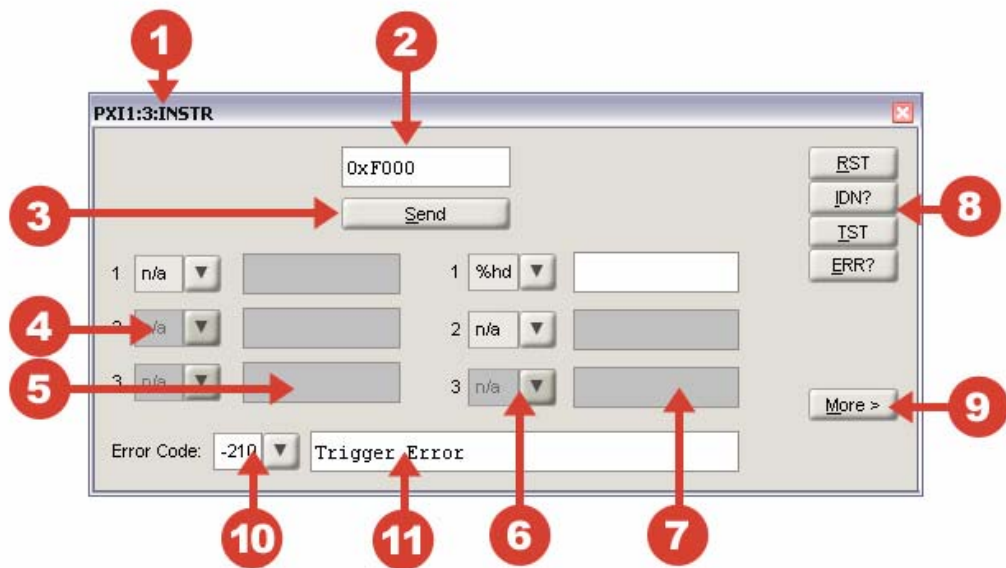


Figure 3.2: Register Communication Dialogue

- 1 Resource Name**

All dialogue windows display the resource name of the instrument that they are communicating with.
- 2 Command**

Enter the instrument command/query to perform
- 3 Send**

Initiate send and receive actions. Ensure that all send and receive parameters are entered appropriately prior to sending.
- 4 Send Parameter Types**

Select the type and number of parameters to send to the instrument. Parameters are enabled successively. Possible types are: unsigned short (%hu), unsigned integer (%u), and single (%f).

5 Send Parameters

Enter the values to be sent as parameters for a command.

6 Receive Parameter Types

Select the type and number of parameters to receive from the instrument. Parameters are enabled successively. Possible types are: unsigned short (%hu), unsigned integer (%u), single (%f), string (%s) and short (%hd).

7 Receive Parameters

The receive parameters display response values received from the instrument during queries.

8 Quick Commands

Click for quick access to a selection of useful commands. Selecting on of these will automatically load the command and input and output parameter type boxes with the appropriate values.

9 More

Click to display additional parameter fields. A few calls require more than three parameters on either send or receive.

10 Error Code

Select an error code to read its description.

11 Error Description

The Error Description box displays a text description of the selected error code.



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