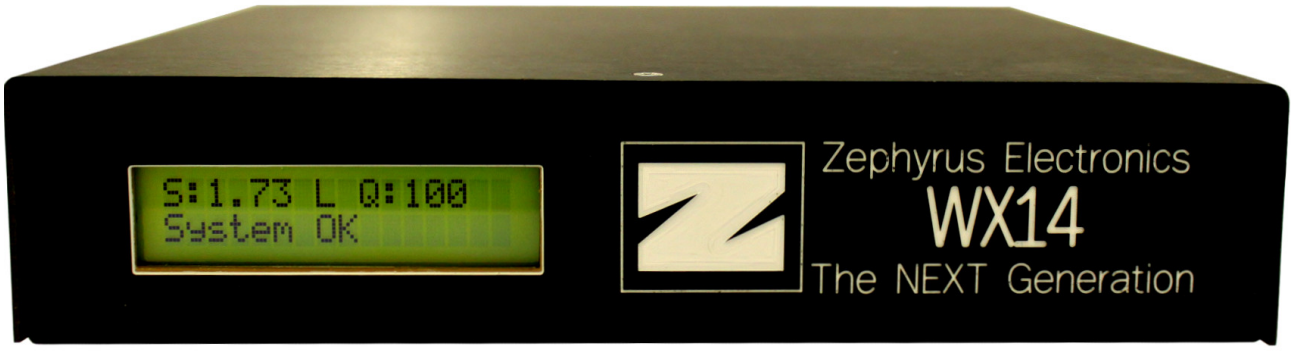
WX14 SOFTWARE USER MANUAL
for
WX14 SATELLITE RECEIVER



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Revision history			
Revision	**Description**	**Date**	**By**
R1	Initial Release, covers User Software release 1.0.0.25	02/29/12	TEW
R2	Changes to user GUI include removing the Data Redirect page, removing the data output selections from the WX14 Settings page, additional windows opened for firmware updates to work on both Wxp and Win7. Covers User Software release 1.0.0.26	03/21/12	TEW

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1 Introduction

The purpose of this document is to provide an overview of the usage of the WX-14 software and it's capabilities.

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2 Hardware Requirements

The minimum PC hardware:

- P4 Processor
- 512 MB Ram
- XVGA video
- 5 MB Hard disk space available

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3 Software Description

The software GUI contains 5 tabbed pages which are used to either control the WX14 receiver or collect status information concerning the performance of the satellite receiver. There is one informational tab which is used to display the current revision and data of the software. The tabbed pages consist of Status, Connections, Data Redirect, Firmware Update, WX14 Settings and the About tab. The following paragraphs describes the purpose and capabilities of each of the tabs.

3.1 Tabbed Pages

3.1.1 Status

The Status screen is shown in Figure 1 below.

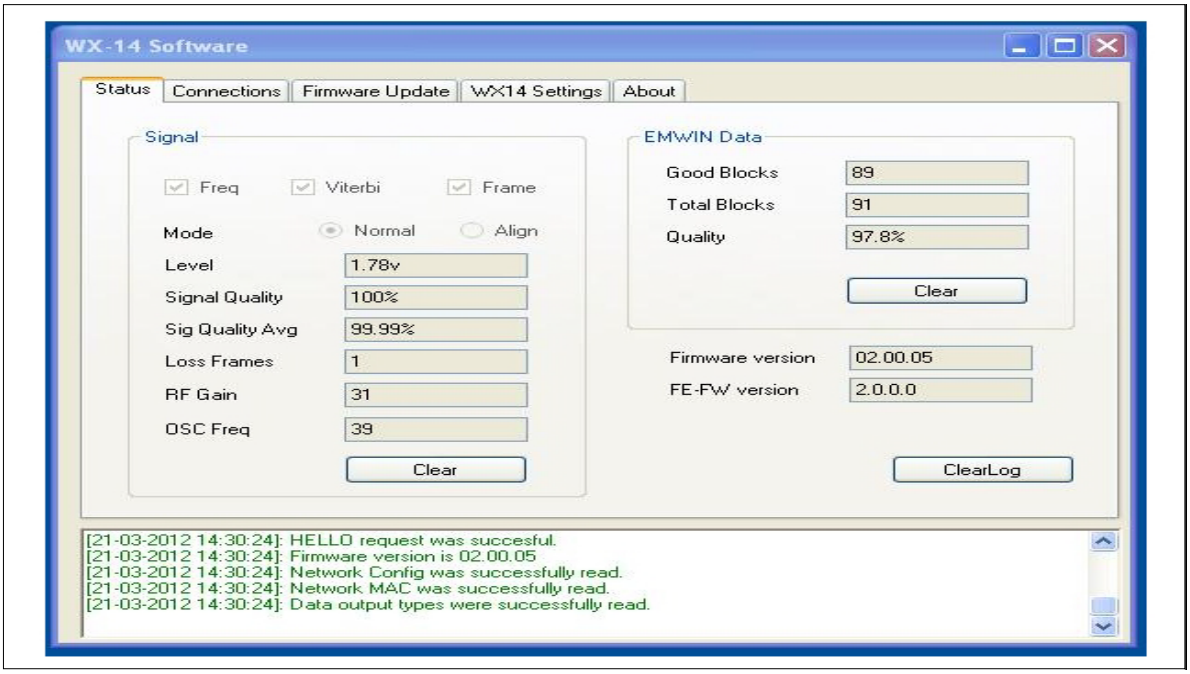

Figure 1: Status Screen

Signal section – This section displays information about the signal quality. The information is displayed only when the control port is connected on the Connections tab. Most of this information is used when it becomes necessary to call the factory for technical support.

1. Freq – Status indicating if there is a lock on the frequency receiving data.
2. Viterbi – Status indicating the decoding sequence is locked on the receiving data stream.
3. Frame – Status indicating the frame sync is locked on the receiving data stream.
4. Mode – Indicates whether the receiver is in Normal receiving mode or in Alignment mode. When in Normal mode data is being extracted from the locked on satellite signal. When in Alignment mode, the receivers front LCD panel can be used to align the Satellite dish for best reception.
5. Level – Indicates the internal voltage level applied to the gain circuits.

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6. Signal Quality – Indicates the current quality of the incoming signal.
7. Loss Frames – Number of frames that could not be decoded.
8. Gain – Internal RF gain factor.
9. Freq – Internal oscillator setting.

EMWIN Data Section – This section displays information about the data being received. It is only active when the Data port is connected on the Connections tab.

1. Good Blocks – Displays the number of good blocks received since the last time the display log was cleared using the Clear button located in the bottom of the Data Section.
2. Total Blocks – Displays the total number of blocks received since the last time the display log was cleared using the the Clear button located in the bottom of the Data Section.
3. Quality – Display the quality of the of the data received. This is based on the number of good blocks of data received versus the total number of data blocks received.

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3.1.2 Connections

The Connections screen is shown in Figure 2 below. Use this tab to enable connections to the satellite receiver for either control or receiving data. The Control is for monitoring the receiver status and setting certain parameters.

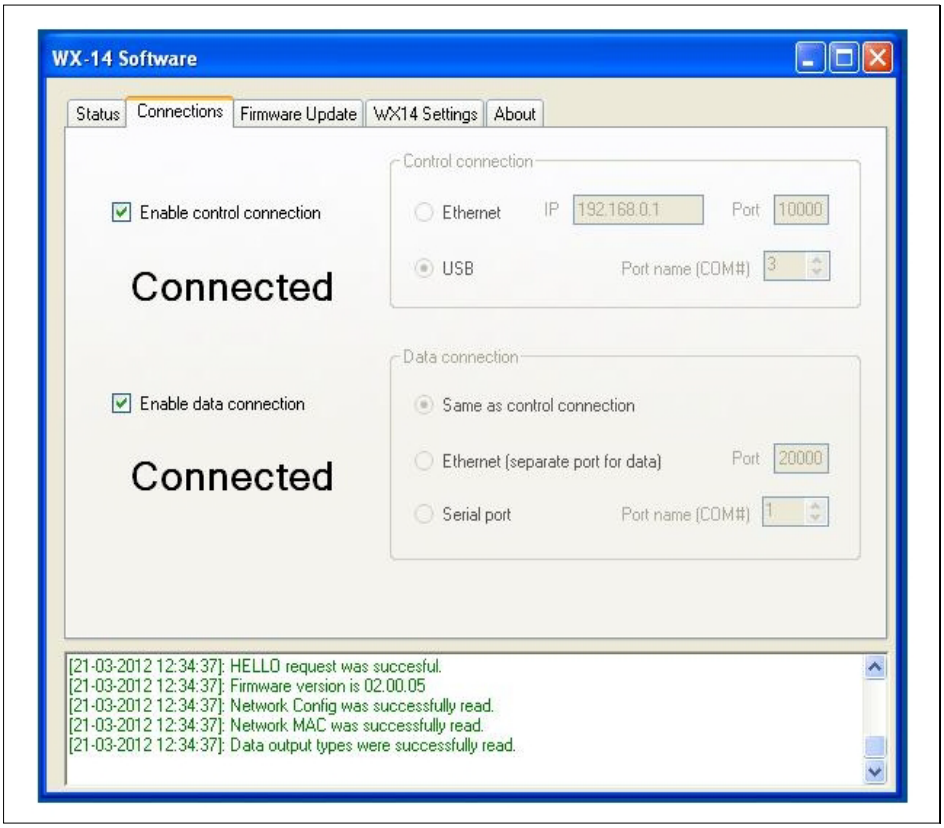

Figure 2: Connections

Control connection – This section allows the user to select either an IP address and port number or a USB port number to access control of the receiver. Using the IP address and port number allows the user to gain control of the receiver from a remote location. The USB is used typically for local control of the receiver. The USB currently implements a Windows USB to Serial driver and will appear in the Device Manager as a serial port. Once the correct parameters are entered in the appropriate fields, the user can enable the control connection by selecting the check box to the left labeled “Enable control connection”.

Data connection – This section allows the user to select several options for obtaining data from the receiver.
If the radio button labeled “Same as control connection” is selected, then the data will be received on which ever port the control port is configured for.
If the radio button labeled “Ethernet(separate port for data)” is selected, the data will be received using the same IP address as the control port but on a different port number specified in the Port field.
If the radio button labeled “Serial port” is selected, the data will be received on the serial port specified in the Com Port field to the left.
The user can enable the data port selected in the Data connection group by selecting the check box labeled “Enable data connection”.

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3.1.3 Firmware Update

The Firmware Update screen is shown in Figure 3 below.

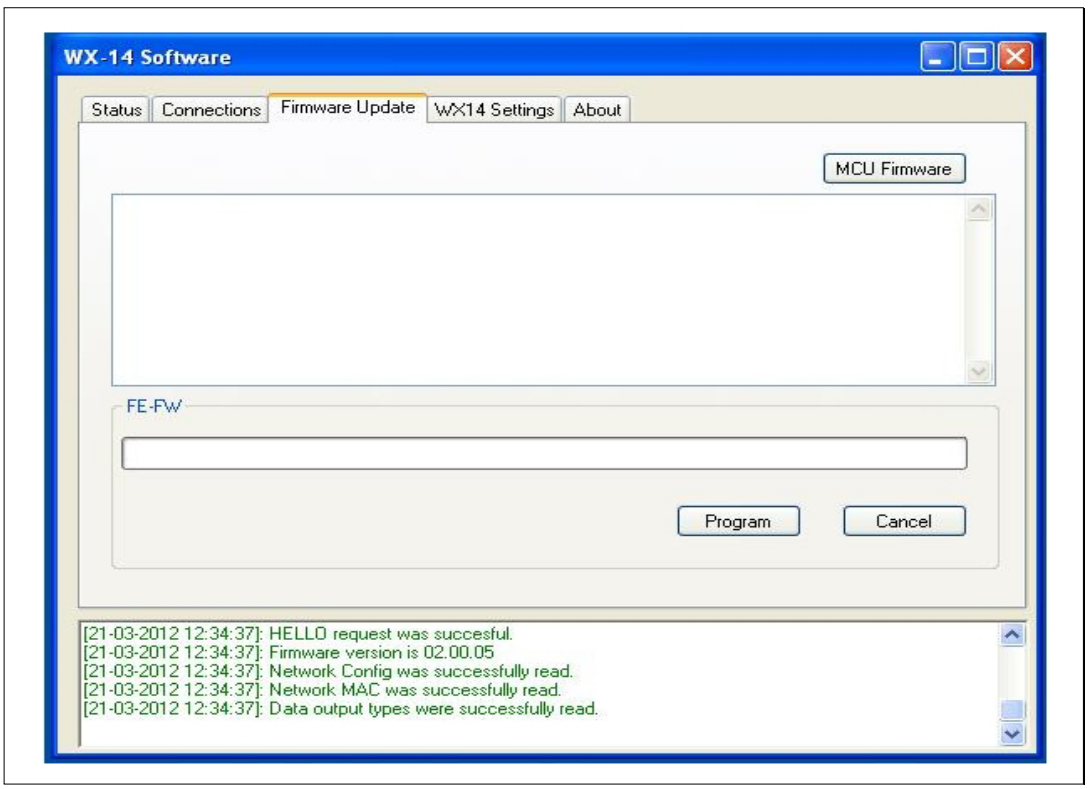

Figure 3: Firmware Update

The Firmware Update tab can be used to update the microprocessor firmware as well as to update the FPGA firmware.

To update the microprocessor firmware use the following step:

1. Select the button labeled “MCU Firmware”. This button should be grayed out if the client code is not connected to the receiver using the USB port. This should open a file selection dialog box. Navigate to the folder containing the new firmware file that is to be downloaded to the receiver. The file name should have the extension “.hex”. Once the file has been selected, a user dialog box will appear as shown below(Windows XP) that will ask for permission to run the program batchisp.exe. A separate DOS window will open and the status

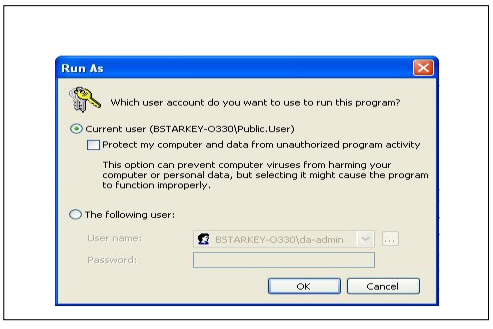

Figure - 4, Wxp User Dialog

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of the boot loading process will be displayed for each step in the process. NOTE: MAKE SURE THE RADIO BUTTON “Protect my computer and data from unauthorized program activity” IS NOT SELECTED OR THE DOWNLOAD WILL FAIL. Windows 7 has a slightly different user dialog box as shown below and selecting the OK button is all that is required. Once the download is completed, a reset command is sent to the microprocessor and once the receiver has re-initialized, any previous connections should re-connect.

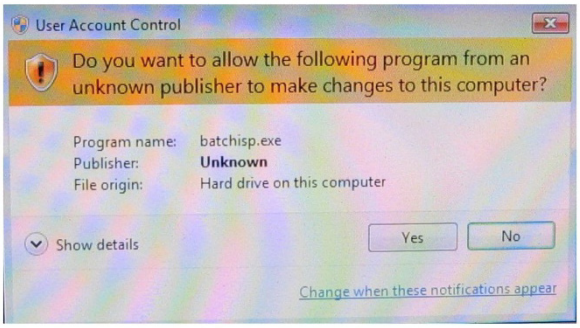

Figure 5: Firmware Update

The FE-FW section is for updating the FPGA firmware. To update the FPGA firmware, use the following steps:

1. Make sure the client code is connected to the receiver via the USB port. Select the button labeled “Program” located in the center FE-FW section. A file selection dialog box will appear. Locate and select the FPGA firmware file with the extension “.POF” to be programmed into the FPGA. The status bar will show the progress of the download. After the the program is downloaded, a manual reset of the receiver will be needed. This can be done using the Reset button located on the WX14 Settings page.

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3.1.4 WX14 Settings

The WX14 Settings screen is shown in Figure 6 below.

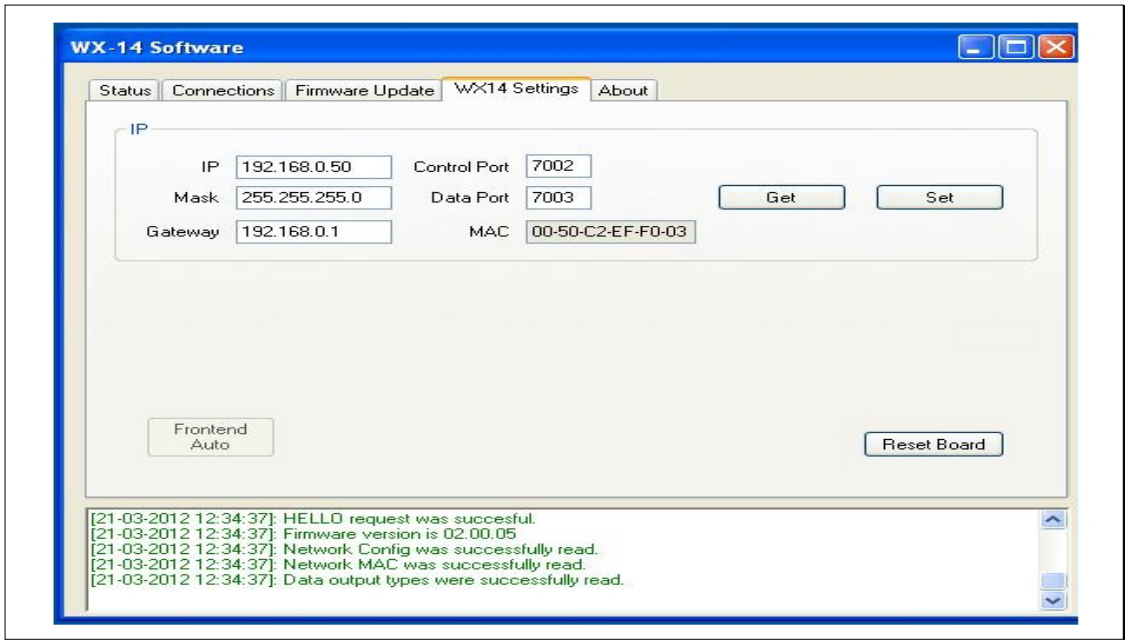

Figure 5: WX14 Settings

The IP section sets the IP address that the receiver will use for it's Ethernet communications. The IP address will be used for both control and data TCP connections. Different port numbers should be selected for the control and data ports. The standard Mask and Gateway information needs to match the network on which the receiver is connected via Ethernet. Use the button labeled “GET” to retrieve the current IP configuration. Use the button labeled “Set” to save the new IP configuration to the receiver. When the “SET” button is selected to set the IP/Port settings, a reset command is sent to the receiver so the new settings will take affect.

The button labeled “ Reset Board” is used to send a reset command to the receiver.

The button labeled “Frontend Auto” is used to force the receiver to store it's current configurations to the user EEPROM – NOTE: THIS FUNCTION IS RESERVED FOR FUTURE RELEASES.

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3.1.5 About

The About screen is shown in Figure 7 below.

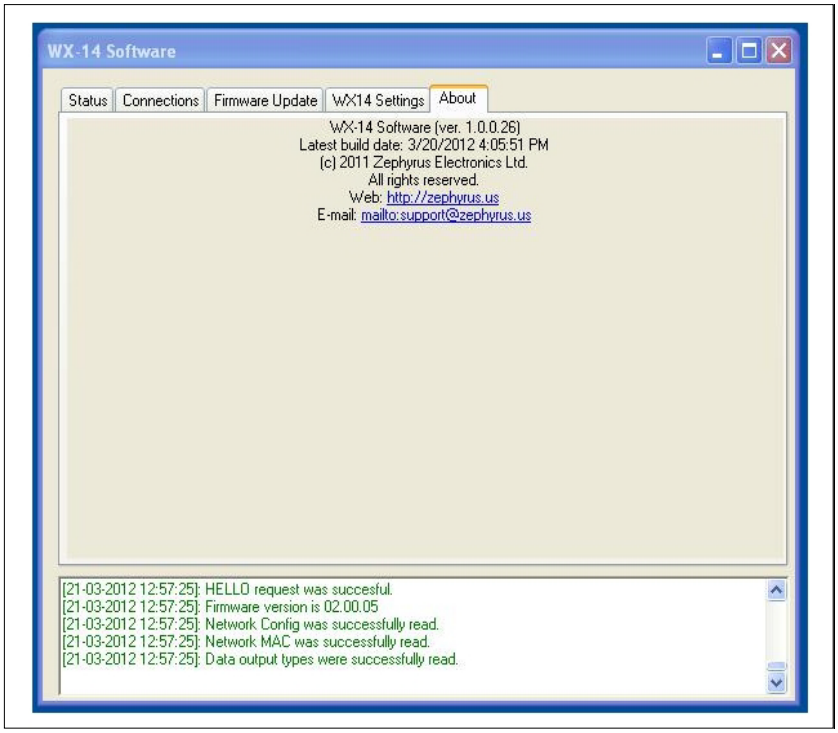

Figure 6: About

The About tab displays information about the WX14 software.

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4 Software File Folder Layout

When the software is installed, the following file folder is created:
C:\Program Files\Zephyrus\WX-14 Software

All firmware files are to be stored in a sub-directory called “isp” under the main installation directory.

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5 Others documents

#	Reference	Rev.	Date	Source	Description

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