

IEEE 488

APPLICATION BULLETIN

GUIDELINES FOR CUSTOMIZING THE HTML CONFIGURATION PAGES IN ICS'S 80XX AND 90XX SERIES ETHERNET INTERFACES

INTRODUCTION

ICS's 80xx and 90xx series of Ethernet/LAN Interfaces include a WebServer that allows a user to configure its IP parameters and other settings with a standard web browser such as Firefox, Internet Explorer, Safari etc. This capability simplifies the configuration operation especially for users with Linux or UNIX systems since they do not need to use a separate Windows PC and ICS's VXI-11 Config Utility to change the IP configuration.

all ICS Ethernet interfaces have the seven basic pages listed in Table 1. Some interfaces have additional pages for controlling their output or for controlling the devices commonly connected to the interface.

ICS's standard HTML pages display ICS's logo and the Model Number. OEM customers who install the ICS's interfaces in their products may want to change the HTML pages to display their logo and product identification in a manner consistent with their company's other products and company image. Others may want to change the language on the HTML pages, change the pages' appearance or add additional HTML pages. This Application Note provides general directions for making those changes.

ICS's STANDARD HTML PAGES

ICS's Ethernet Interfaces include the 7 files listed in Table 1.

Table 1 Standard 80xx WebServer Files

Page	Title	Description
0	404.html	404 error page
1	501.html	501 error page
2	index.html	Welcome page
3	config.html	Configuration page
4	confirm.html	Confirmation page
5	reboot.html	Reboot Message page
6	ICS-Logo.gif	ICS Logo

The index, config, confirm and reboot pages have a header that displays ICS's logo and the interface Model Number. The header is the top gray bar shown in Figure 1. The error pages are just text and do not display any product or company identification. By just changing the header on the four html pages, the OEM can create a set of configuration pages that are unique to his company and product.

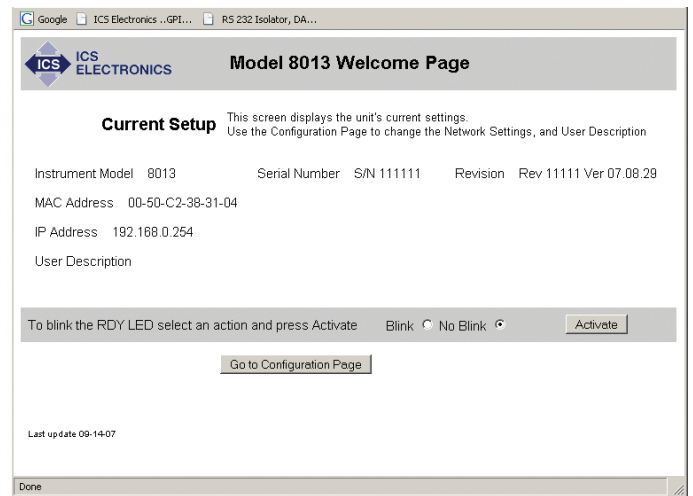


Figure 1 8013 Index Page

RESTRICTIONS

ICS's 80xx series Interfaces have a 63 kbyte block in their flash memory reserved for the HTML pages and their associated image files. 90xx series units have a 255 kbyte block of space. The standard 80xx series HTML pages and images only use 23 kbytes¹ of space so the typical OEM should not run out of space when modifying the standard HTML pages or adding a few HTML pages.

The WebServer handles up to 31 files. The current VXI11_html utility supports html, .gif, .jpg, .png, .hgl and .xml files. All other file types will be ignored. Maximum file size is 32 kbytes. 80xx file names are limited to 27 characters including the file extension. 90xx file names are limited to 25 characters. Spaces and non-printable characters are not allowed in a file name.

The error and index pages must be uploaded as the first three files in the order shown in Table 1. The remaining files can be in any order and have any names the OEM wishes to use.

ICS's WebServer has minimal error checking and assumes that the end user will provide correct configuration values. If incorrect network values are inputted, they can be easily changed or reset back to the factory default values with the LANRESET button. If the OEM user wants to add additional error checking or input screening functions, they must be done on the client side with javascript or some other scripting language that the browsers will understand.

VXI11_html runs on any Windows PC with Win 2K, XP, Vista or Windows 7 operating systems. The VXI11_html utility requires that you have ICS's VXI-11.dll installed in the Windows System directory. If you have installed ICS's VXI-11 Support Utilities, then you have the VXI-11.dll installed. If not, you will need to install ICS's VXI-11 Support Utilities on your Windows PC.

GENERAL MODIFICATION PROCESS

The modification process starts by first obtaining a copy of the html and other files installed on your interface. Then make the desired changes to the HTML pages. The HTML files can be modified with any HTML editor. (ICS uses Dreamweaver.) Use Photoshop, Illustrator or a similar graphic program to prepare your company logo as a web-ready file. Depending upon your HTML editor, you should be able to view the files as they will look in a browser. If possible, check your pages on all the popular browsers such as Internet Explorer, FireFox² and Safari to be sure there are no problems. Try a couple of recent versions of Internet Explorer as some of the older versions have unique display issues. Each browser displays

things a bit differently and it is best if you can catch any problems before your customers do. When done, use the VXI11_html utility to upload and save the pages in your Interface. Reboot the Interface and test the pages with a browser.

The standard 80xx HTML and GIF files can be downloaded from the Application Note page on ICS's website. The download also includes a utility program, VXI11_html.exe, that lets the OEM upload and save modified files on his 80xx or 90xx Interface. HTML files for each product are also available on the Support CD that accompanied the product. If you cannot find them on the Support CD, contact ICS Electronics support.

VXI11_html UTILITY

Before running the VXI11_html utility, put all of the html files to be uploaded in the same folder with their image files. You can use the lower right Windows Explorer window in bottom of the VXI11_html utility (see Figure 2) to navigate to this folder. If you have a large number of files, it is easier to generate a list of the files and use it to upload the files as explained below.

The PC and the target 80xx or 90xx Interface should be connected on the same physical subnet or in a back-to-back configuration with a crossover cable. The PC running the utility and the target Interface must be set to the same IP address B or C range. That is the first two octets of the B range or first three octets of the C range IP address must be the same. Refer to Section 2 of the Interface manual for directions on changing your PC's network settings.

Start the VXI11_html utility. The utility prefills the FileList box with the names of the first three files required for ICS's WebServer and lists the other .html, .gif, .jpg and .png files that it finds in a list box on the bottom left of the form. It also sets the Current Load value to the bytes used by the first three files.

Press the Find Server button to find all of the VXI-11 servers on the network. Select the desired Interface and link to it. This enables the other controls on the VXI11_html utility form.

Use the small Windows Explorer window (lower right in Figure 2) to navigate to the folder with your html and image files. The files in the folder will appear in the lower left-hand files window. Highlight a file name in the list box and pressing the Add File button to add it to the list box. The file name is then added to the FileList box and the Current Load Size value is updated. Repeat until all of the files that you want to upload are displayed in the FileList box. You must include all of the files needed for the WebServer, even ones that are not being changed. The VXI11_html utility will warn you if your files exceed the 63 or 255 kbyte limit.

An alternate way to add the files to the list box is to edit the example userlist.txt file so that it contains a list of all of your files. Use Notepad to change the userlist.txt file and save

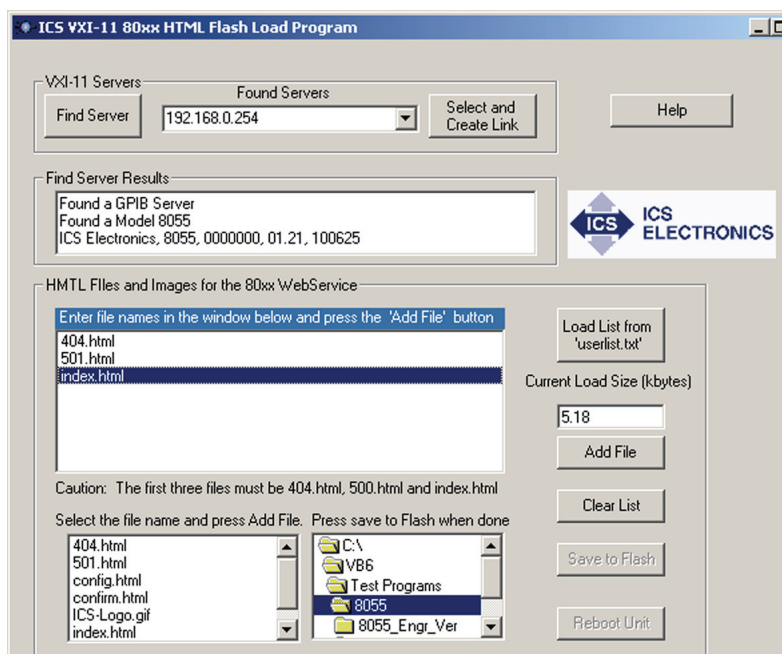


Figure 2 VXI11_html Utility Program

```

<table width="100%" border="0" cellspacing="0" cellpadding="4">
<!--Start User Logo and Header Area -->
<tr bgcolor="#EEEEEE">
  <th width="31%" scope="col"><div align="left"></div>
</th>
  <th width="69%" scope="col"><div align="left" class="title">Model 8013 Welcome Page </div></th>
</tr>
<!--End User Logo and Header Area -->
</table>

```

Figure 3 8013 Index Page Header Code

it in the directory with the VXI11_html utility. Press the Load List button to populate the list box from the userlist file.

Press the Save to Flash button to upload the files to the Interface. When the upload is complete, press Reboot to restart the Interface and you are ready to test the uploaded HTML pages with different web browsers. Repeat the editing, uploading and testing cycle until you are satisfied with the results.

MODIFYING THE HTML HEADERS

Figure 3 shows the HTML table code that makes up the header on the 8013's index page. The same code is replicated on the confirm and reboot pages with a different text in the title area.

The 80xx html header is a simple table design and has two parts: a .gif with the ICS logo and a text field with the Model Number and Welcome Page title. The OEM can keep this format by simply changing the logo.gif file and the title text. When you replace the ICS logo with your company's logo, the width and height fields will change. There is no restriction on the header height in these files. If the logo width exceeds 31%, lengthen the logo cell and adjust the two widths so their total equals 100%. Any logo image file must be in the same directory with the .html files for the WebServer and not in a separate image file.

Change the title text to something appropriate for your product. Note that the LXI Specification refers to the index page as the Welcome Page so you might want to keep the word 'Welcome' in your title. If you want to change the header's background color, replace the #EEEEEE value (light gray) with any web safe color,

You can substitute a single .gif file for the header by replacing both entries with one .gif file. Delete the second <th> line. Adjust the width of the remaining <th> line to 100%. Save the changes and test the revised page appearance with your browsers.

Repeat the changes for the confirm and reboot pages.

Figure 4 shows the HTML code for the header on the config page. The config page uses layers and the header area has three layers. Layer 23 is the background layer and Layers 24 and 27 are nested in it. The background color is set by the css style definition for Layer 23. Layer 24 contains the ICS-Logo gif. Replace the ICS logo with your company's logo as you did for the index and confirm pages. Change the title text so it references your product.

If you are using a single .gif file for the header, you can place it in Layer 23 and eliminate Layers 24 and 27. Again save the changes and test the revised page appearance with your browsers.

When done, use the VXI11_html utility to upload and save the pages in your Interface. Reboot the Interface and test the pages with a

browser. Repeat the above process as necessary to fine tune the appearance of your HTML pages.

```

#Layer23 {
  position:absolute;
  left:10px;
  top:20px;
  width:800px;
  height:65px;
  z-index:23;
  background-color: #CCCCCC;
}

<!--Start User Logo and Header Area -->
<div id="Layer23">
  <div id="Layer24"></div>
  <div id="Layer27"><span class="title">Model 8013 Configuration Page </span></div>
</div>
<!--End User Logo and Header Area -->

```

Figure 4 8013 Configure Page Header Code

CHANGING THE PAGE APPEARANCE AND FEEL

The minimal change to modify the page appearance is done by changing the logo and page title as discussed above. The page background color and layout can also be altered as long as care is taken to not change the substitution variable names (%var%), page references and layer identification that would affect the javascript operation. Layers are only used on the config page at this time but there is no restriction on the user converting other pages to layers. Type style and size is easily altered by changing the .css style definitions.

Additional javascripts can be added to the pages to modify the client side operation. This can include error checking, hiding/showing fields or adding additional prompts or help information.

The user should be aware that the WebServer has limited server capability and does minimal error checking. The only method supported is 'get'. Do not use 'post'. Image pages must have .gif, .jpg, .png, or .hgl extensions to be uploaded by the VXI11_html utility. No single page can exceed 32 kbytes and the total page-image count cannot exceed 63 kbytes (255 kbytes for 90xx Interfaces).

The Radio Button code includes a special variable type, %varon% or %varoff% that is incorporated into the <input statement>. The WebServer replaces the %varon% or %varoff% variable with a blank or with a 'checked' value when the page is served depending upon the state of the variable (var). An example is the Blink Off button on the index page.

```
<input type="radio" name="blink" value="Off" %blinkoff% />
```

When making changes, make your changes in small increments and test as you go to be sure nothing is broken.

MODBUS SLAVE DEVICE VARIABLES

ICS's 80x9 and 90x9 Interfaces have html pages that control Modbus RTU devices by accessing registers in the Modbus slave device. The html variable name and the corresponding Modbus device register are listed in the interface manual. The user must use these variables to control and read from the Modbus device.

CHANGING LANGUAGES

Changing languages will involve revising the text on all six pages. The error pages are just text so they are easily changed and saved. The other pages have coding instructions, variable names (%var%) and page references that should not be changed. The OEM can change the text fields and add new text fields but variable names and button values should be left unchanged. The Radio Button code includes a variable, %varon% or %varoff% that the WebServer replaces with a blank or with a 'checked' value when the page is served depending upon the state of the variable (var). Make backup copies before you start. Again, save as you go and test each page carefully with the Interface to make sure you did not alter a command line.

ADDING PAGES AND CHANGING PAGE NAMES

ICS's WebServer provides three ways for the user's client to request a page. First the client can request the page as is done with the javascript on the index page when the Update Configuration button is pressed. The javascript sends the page name as a URL to the webserver. A second method is to imbed a hidden chain instruction in the code with the value set to the next page to be served. The third is setting submit equal to the page name as is done on the confirm page.

If you change the name of a standard html page, you need to change its name in all of the places it is referenced. You cannot change the names of any of the standard error pages or of the index page.

SUMMARY

This application note has described how an OEM can modify the HTML and image files in ICS's 80xx or 90xx series Ethernet Interfaces to customize the HTML pages for his product. The OEM can also add his own pages to ICS's WebServer. This application note also described how to use ICS's VXI11_html Utility Program to upload and save the modified HTML pages and image files in the 80xx and 90xx Interfaces.

Notes:

1. Measure file size with Windows Explorer on a PC. MAC OS X shows minimum 4 kbyte file sizes which is misleading.
2. Older versions of Firefox do not always generate the correct cgi instructions when you press Activate or Update. Test your html pages with IE and other browsers.