

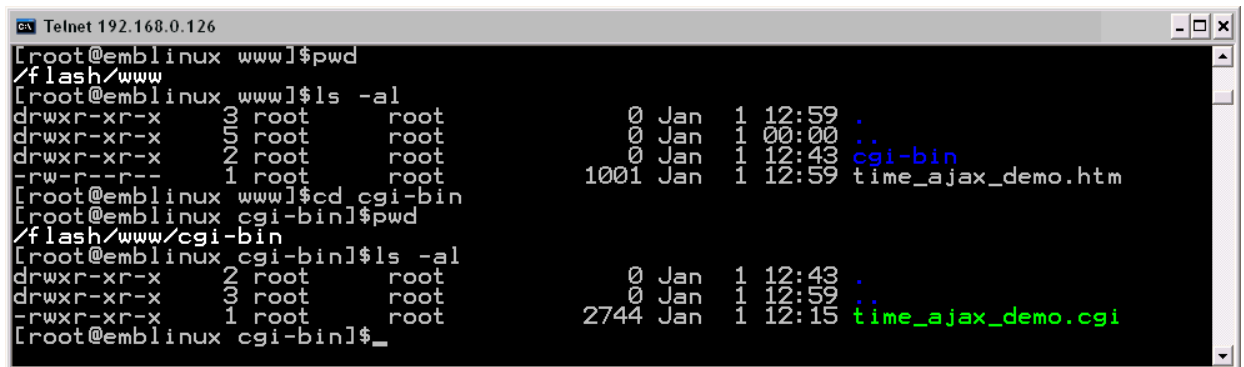
How to use AJAX technology with the DNP/9200 embedded web server

The elements of web-based user interfaces are static. The update of a value needs a complete page reload. The alternative is the use of AJAX (Asynchronous JavaScript and XML) technology. This document describes a sample for the DIL/NetPC DNP/9200.

The following steps need two sample files *time_ajax_demo.htm* and *time_ajax_demo.cgi*. These files are available over the download section of www.dilnetpc.com.

- **1. Step:** Create the two new directory */flash/www* and */flash/www/cgi-bin* within the flash file system of your DNP/9200.
- **2. Step:** Copy the file *time_ajax_demo.htm* to the directory */flash/www*.
- **3. Step:** Copy the file *time_ajax_demo.cgi* to the directory */flash/www/cgi-bin*. Then set the executable attribute for this file:

```
chmod +x time_ajax_demo.cgi
```

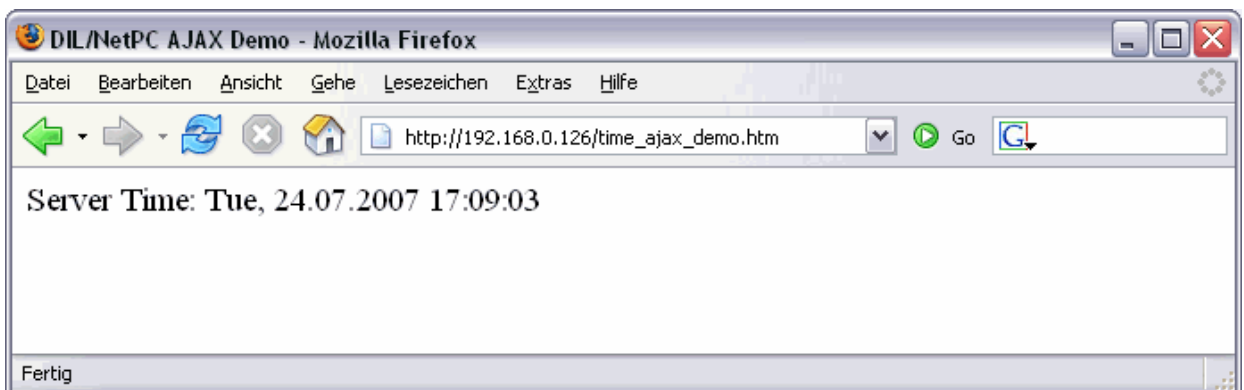


```

Telnet 192.168.0.126
[emblinux root@www] $ pwd
/flash/www
[emblinux root@www] $ ls -al
drwxr-xr-x  0 root  root   0 Jan  1 12:59 .
drwxr-xr-x  0 root  root   0 Jan  1 00:00 ..
drwxr-xr-x  2 root  root   0 Jan  1 12:43 cgi-bin
-rw-r--r--  1 root  root 1001 Jan  1 12:59 time_ajax_demo.htm
[emblinux root@www] $ cd cgi-bin
[emblinux root@cgi-bin] $ pwd
/flash/www/cgi-bin
[emblinux root@cgi-bin] $ ls -al
drwxr-xr-x  2 root  root   0 Jan  1 12:43 .
drwxr-xr-x  3 root  root   0 Jan  1 12:59 ..
-rwxr-xr-x  1 root  root 2744 Jan  1 12:15 time_ajax_demo.cgi
[emblinux root@cgi-bin] $

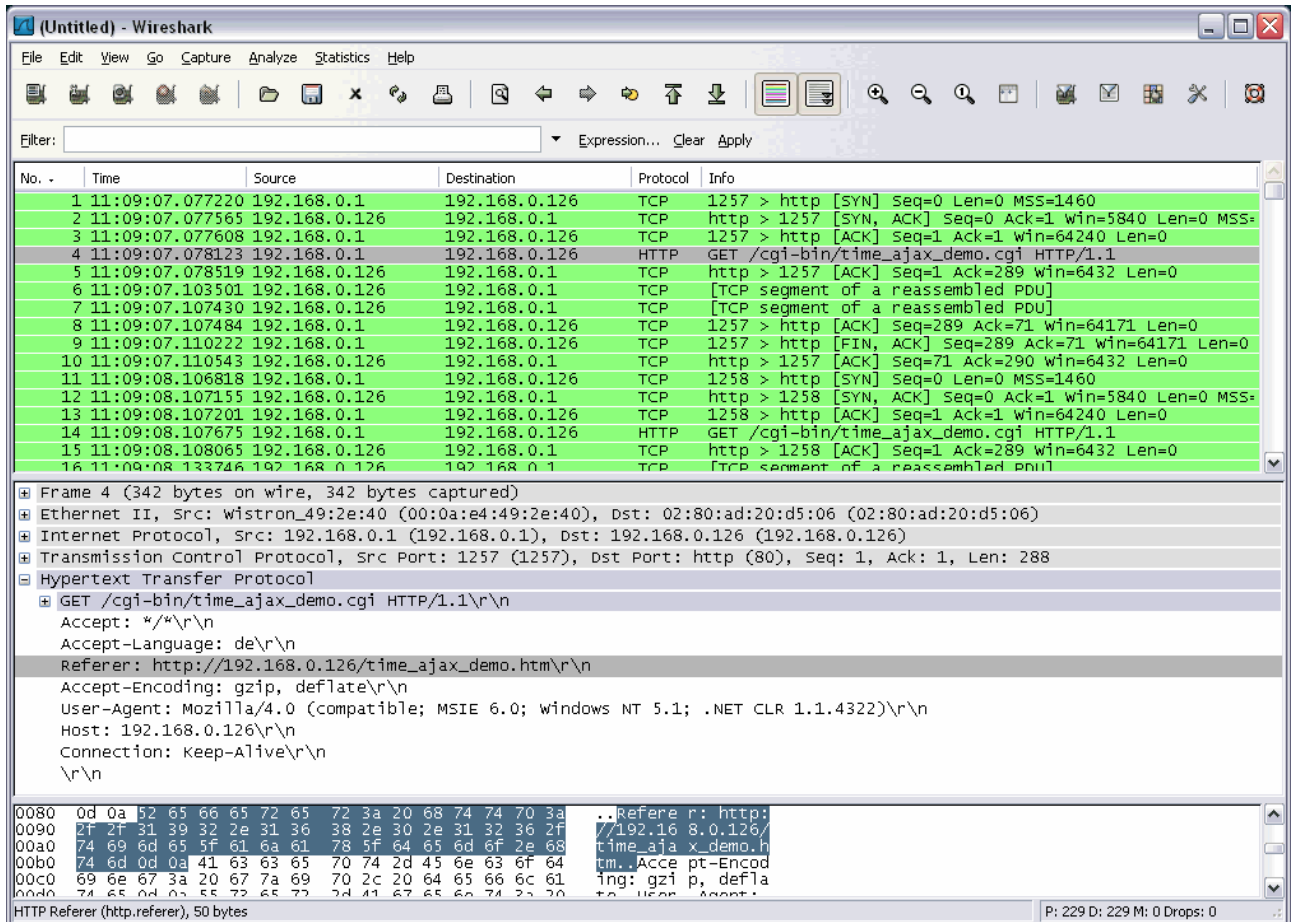
```

- **4. Step:** Please reboot your DIL/NetPC DNP/9200. This reboot restarts the web server with the new directory */flash/www*.
- **5. Step:** Run your PC web browser and access the HTML file *time_ajax_demo.htm*. Just enter: `http://192.168.0.126/time_ajax_demo.htm` within the URL field of your web browser.



Please note: AJAX technology works with each newer PC Web browser. AJAX uses JavaScript and the XMLHttpRequest API within your browser. Please make sure that the JavaScript engine of your browser is enabled.

The file *time_ajax_demo.htm* generates each second a new HTTP GET request to the DNP/9200 web server. The web server response data – generated by the CGI program *time_ajax_demo.cgi* – updates the time within the browser windows. Thanks to the AJAX technology and the XMLHttpRequest object, the browser updates only the time string and not the complete browser window.



The screenshot shows the Wireshark interface with a list of captured packets. The selected packet (No. 4) is an HTTP GET request. The details pane shows the following information:

- Frame 4 (342 bytes on wire, 342 bytes captured)
- Ethernet II, Src: Wistron_49:2e:40 (00:0a:e4:49:2e:40), Dst: 02:80:ad:20:d5:06 (02:80:ad:20:d5:06)
- Internet Protocol, Src: 192.168.0.1 (192.168.0.1), Dst: 192.168.0.126 (192.168.0.126)
- Transmission Control Protocol, Src Port: 1257 (1257), Dst Port: http (80), Seq: 1, Ack: 1, Len: 288
- Hypertext Transfer Protocol
 - GET /cgi-bin/time_ajax_demo.cgi HTTP/1.1\r\n
 - Accept: */*\r\n
 - Accept-Language: de\r\n
 - Referer: http://192.168.0.126/time_ajax_demo.htm\r\n
 - Accept-Encoding: gzip, deflate\r\n
 - User-Agent: Mozilla/4.0 (compatible; MSIE 6.0; windows NT 5.1; .NET CLR 1.1.4322)\r\n
 - Host: 192.168.0.126\r\n
 - Connection: Keep-Alive\r\n
 - \r\n

The packet bytes pane shows the raw data of the request, including the referer and headers.

The picture shows the HTTP traffic between the web browser and the DNP/9200 embedded web server. The selected frame is the HTTP GET request issued by the XMLHttpRequest object.

That's all.