

# PicoMite W network course

## Chapter 4

### Activating the webpage with PicoMiteWeb

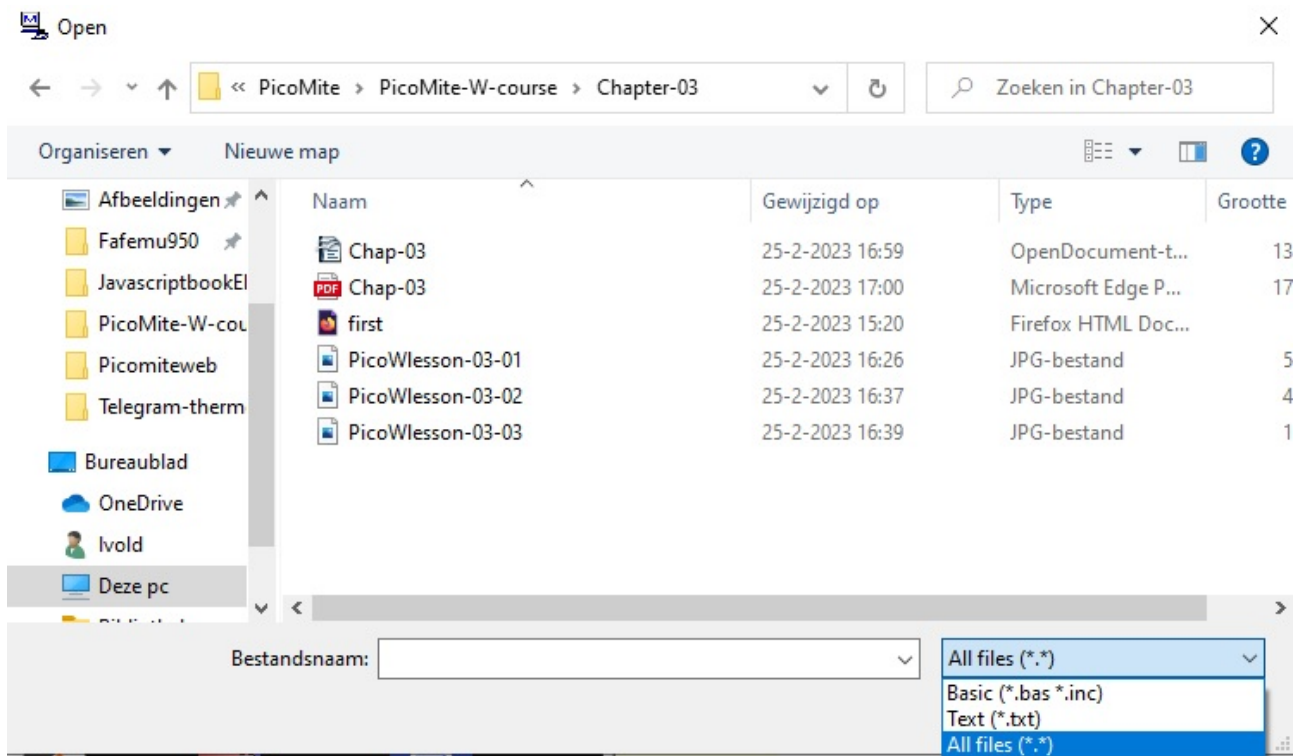
In the previous chapters you saw how to find PicoMiteWeb's IP address and made your first webpage.

What we did was open the webpage with our browser by clicking on the page. But that is not what we want. We want to 'host' the page on our Pico and have the Pico send the page to our browser.

The first step to achieve that is to transmit the webpage to the Pico. It is easy to do so with MM Edit.

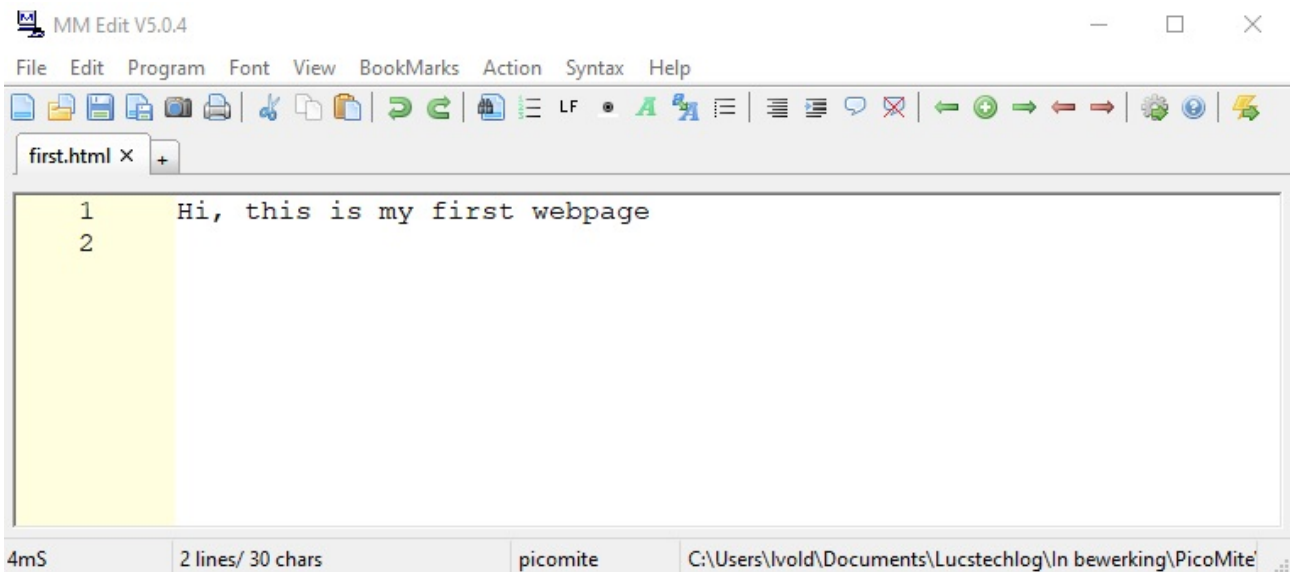
The webpage we made was very small. It was just one line of text. So you could easily type it into MM Edit's editor. You could even type it in in PicoMiteWeb's build in editor. However when the HTML code gets bigger and bigger you really want to load it and not type it over.

In MMEdit load the page. It was called first.html

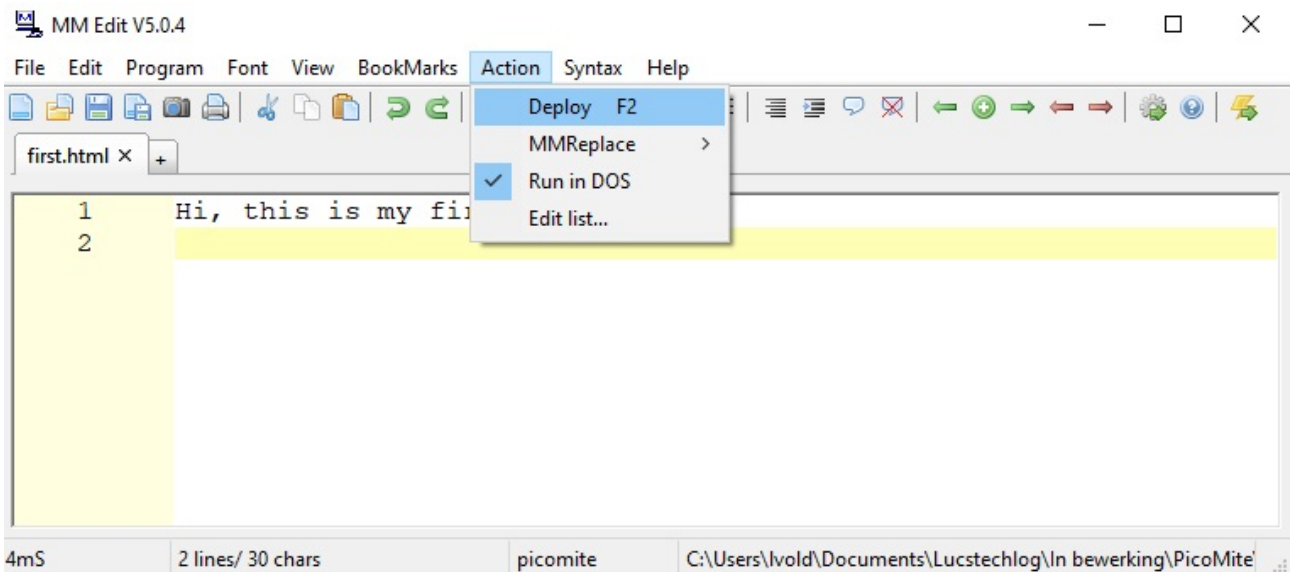


Choose "open" to load the file. Point to the directory where you have saved the file and at the bottom click on All Files (\*.\*). There you should see the file with the

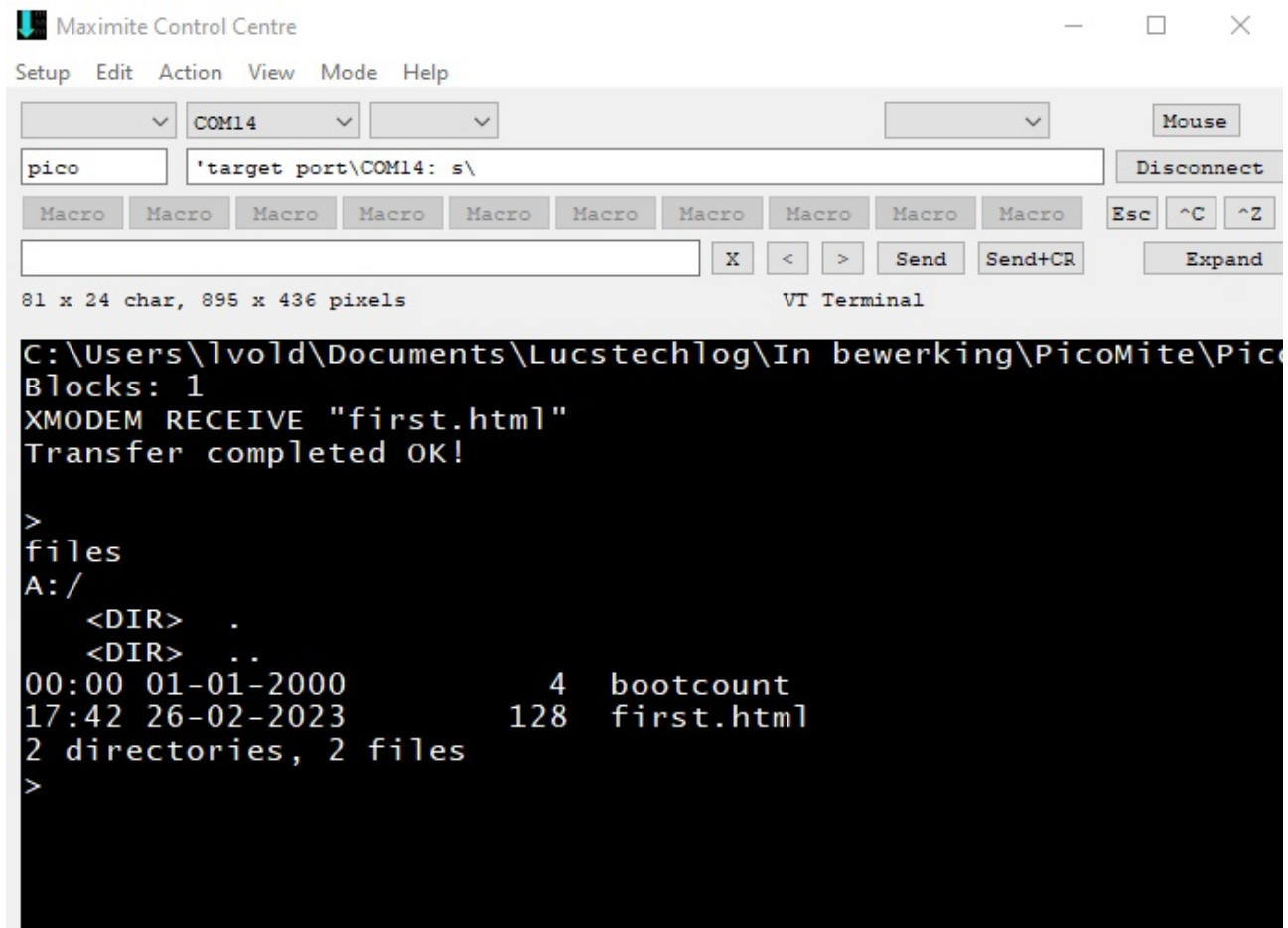
browser icon with the name first. That's the one we need. So choose open.



And there it is.



From the action menu choose Deploy and the file is transferred to the PicoMiteWeb.



The screenshot shows the Maximite Control Centre interface. At the top, there is a menu bar with 'Setup', 'Edit', 'Action', 'View', 'Mode', and 'Help'. Below the menu, there are several dropdown menus, including one for 'COM14'. A 'Mouse' button is visible on the right. The main area contains a text input field with 'pico' and a path field with 'target port\COM14: s\'. Below these are several 'Macro' buttons and a 'Disconnect' button. A 'Send' button and a 'Send+CR' button are also present. The terminal window displays the following text:

```
C:\Users\lvold\Documents\Lucstechlog\In bewerking\PicoMite\Pico
Blocks: 1
XMODEM RECEIVE "first.html"
Transfer completed OK!

>
files
A:/
  <DIR>  .
  <DIR>  ..
00:00 01-01-2000          4  bootcount
17:42 26-02-2023       128  first.html
2 directories, 2 files
>
```

As you can see the file is transferred. The files command now shows that there is one file with the name first.html

What we now need is a program that will send the webpage to our browser on our computer, tablet or phone.

Here is that program:

```
DIM buff%(512)
WEB ntp 1
DO
  poll
LOOP

SUB poll
LOCAL p%, t%
FOR a%=1 TO MM.INFO(MAX connections)
  LONGSTRING CLEAR buff%()
  WEB tcp READ a%,buff%()
  p%=LINSTR(buff%(),"GET")
  t%=LINSTR(buff%(),"HTTP")
  s$=""
  IF (p%<>0) AND (t%<>0) AND (t%>p%) THEN
    s$=LGETSTR$(buff%(),p%,t%-p%+4)
    PRINT "String is ",s$
  ENDIF
  IF INSTR(s$,"HTTP") THEN
    PRINT "sending page"
    WEB transmit PAGE a%,"first.html"
  endif
NEXT a%
END SUB
```

I shamesly stole this from Peters first postings on the PicoMiteWeb. This is the frame we are going to use often. So save this also on your computer when you are working (like me) with multiple Pico's.

You can type this program into MMEdit or you can copy it from this file by selecting it and pasting it into MMEdit.

Save this file using the name server01.bas on your computer. Then click on Deploy in the Action menu to transfer the program to the PicoMiteWeb.

When the program has been send to the PicoMiteWeb it will run immediately. That is ok. But let us first have a look at how it functions.

```
DIM buff%(512)
WEB ntp 1
```

The program starts with building an integer buffer array of 512 elements. Then it calls the ntp server.

If there is no internet connection or something else is wrong you will get an error here. If we get the time returned we know we have a good connection to the internet.

```
DO
  poll
LOOP
```

A DO-LOOP is created that does nothing else as repeatedly calling the poll subroutine.

```
SUB poll
LOCAL p%, t%
```

Nothing special here. The start of the subroutine and two integer variables are created.

```
FOR a%=1 TO MM.INFO(MAX connections)
```

The PicoMiteWeb can have **MM.INFO(MAX connections)** at the same time. If you print this command in the console you get a number that is the maximum connections the PicoMiteWeb can handle at the same time. At the time I am writing this the number is 8.

This means that you can connect with 8 devices at the same time to the PicoMiteWeb. Eight devices ??? Yes you can contact the PicoMiteWeb with your computer, a laptop, a phone, a tablet etc at the same time.

For this simple webpage that is an excess capacity. But for real life purposes it might be needed. What if you want to check the temperature in your house and at the same time your partner wants to do the same. And then there is another PicoMiteWeb that might check the temperature to set a fan on or off etc. etc. Then you need multiple connections.

```
LONGSTRING CLEAR buff%()
```

First the buffer is cleared.

```
WEB tcp READ a%,buff%()
```

This command looks at the connection a% (successive number from the FOR loop) and reads the information it receives into the buffer.

```
p%=LINSTR(buff%(),"GET")
t%=LINSTR(buff%(),"HTTP")
s$=""
```

Two variables p% and t% are used to test if the words "GET" and "HTTP" are received.

When a device connects to the PicoMiteWeb it wants to get the webpage. And that is the GET command the Pico receives. This is a so called insecure connection. Therefore the connection is of the HTTP kind.

```
IF (p%<>0) AND (t%<>0) AND (t%>p%) THEN
  s$=LGETSTR$(buff%(),p%,t%-p%+4)
  PRINT "String is ",s$
```

If both commands are received (HTTP and GET) they are printed in the console.

```
IF INSTR(s$,"HTTP") THEN
  PRINT "sending page"
  WEB transmit PAGE a%,"first.html"
endif
```

Again there is a test if "HTTP" is received. When that is the case PicoMiteWeb prints "sending page" in the console.

Then the webpage is send (WEB transmit PAGE) to the current connection a%. The name of the send page is "first.html"

That's it.

If you make more webpages you just have to alter "first.html" for the name of an other webpage you made.

## **What happens here.**

Maybe you already guessed.

It is not that the PicoMiteWeb is constantly sending webpages. No it sits patiently till someone connects to it, looks for the GET command and then sends the page. This is how all webservers work.

And yes, this is called a webserver and so you build your first webserver.

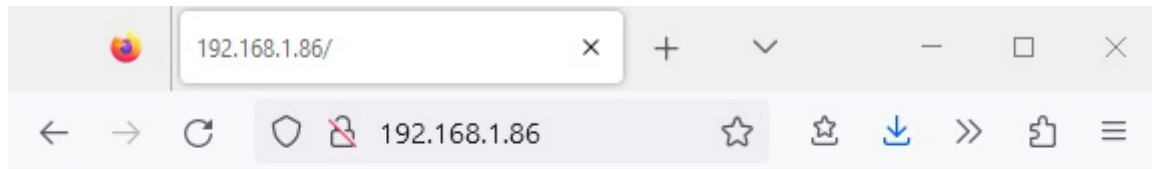
## **How to use this.**

To start your webserver just load the file (server01.bas) and run it. The file will look for the html file "first.html" when a connection is made and sends that file to the requesting device.

So how do you connect to this webserver.

Start your webbrowser on your PC, Tablet or Phone and point the URL bar to the IP number of the PicoMiteWeb. I told you the IP number is important..... See chapter 1 and 2 on how to get the IP number.

In your browsers URL bar just type the number. No HHTTP:// or HTTPS:// in front of it, no just the number like the next picture shows.



Hi, this is my first webpage

And there it is !!!

Just try it and make some other text's for testing purposes.