

Using The HomeVision Web Server

INTRODUCTION

HomeVision version 3.0 includes a web server in the PC software. This provides several capabilities:

- Turns your computer into a web server that serves files to web browsers.
- Can be accessed by any web browser. The browser can be on the same PC as HomeVision, on another PC on a network within your home, or anywhere in the world (if you have an Internet connection to your home PC).
- Can automatically create pre-defined web pages showing HomeVision status.
- Can insert HomeVision status and control objects into custom web pages you create.

This article provides a variety of tips for enhancing and customizing the web server. Many of these techniques require some knowledge of HTML, the “language” used to create web pages. Because of space limitations, the reader is assumed to be at least partially familiar with HTML. If you're not, you can learn about it from many different web sites (just do a web search for “HTML tutorial”). Also note that the HomeVision web server is described in the version 3.0 owner's manual and “New Info” files. Refer to those for more details on using the server.

GENERAL TIPS

Selecting the server port number

You can configure the web server to use any “port number”. Port 80 is traditionally used for web servers. However, there are two possible problems if you use port 80 for the HomeVision server:

1. Conflicts. It could conflict with another web server on your computer (such as Microsoft's Personal Web Server). If you find that the HomeVision server won't work as port 80, you should choose a different number.
2. Security. Many computer hackers randomly try to access servers connected to the Internet. The software they use may try to connect only to port 80, since this is by far the most commonly used port. By configuring HomeVision to use a different port number, your chances of being attacked by a hacker are reduced.

HomeVision defaults to using port 1033. Of course, any hacker reading this now knows to try port 1033 if they want to break into a HomeVision server! Although the HomeVision server is password-protected, we suggest you use a port number other than 80 and 1033 to improve security further.

Accessing the web server

You would normally access the HomeVision server by entering its URL in your web browser. The URL typically must contain the IP address, port number, and desired web page, like this:

```
HTTP://127.0.0.1:1033/HVWebPage.htm
```

The IP address “127.0.0.1” has special meaning, and causes the browser to use the server on the local computer instead of accessing the Internet. You can use this even if you're not connected to the Internet. When you're accessing the server from another PC, you will need to know the PC's IP address. If you omit the page name (“HVWebPage.htm”, in this case), the HomeVision server will return the default page, which is “HVWebPage.htm”. This saves you from having to enter the name when first connecting.

The above example uses port number 1033. If you use port 80 instead (although we recommend against this), you can usually omit it from the URL. That's because most browsers default to using port 80 unless you specify one directly. Therefore, you can usually access a HomeVision server on port 80 like this:

HTTP://127.0.0.1/HVWebPage.htm

Renaming pages

As noted above, the default web page is "HVWebPage.htm". You can change the name to something else if you like. To do this, simply rename the file "HVWebPage.htm" (located in the "HTML" directory) to whatever you like. For example, you could rename it "MyHouse.htm". Note that the file extension must be either ".htm", ".html", or ".hv" to work properly.

If you wish to rename or edit a page, we suggest you instead make a copy and use the copy. For example, copy "HVWebPage.htm" and rename it "MyHouse.htm". You can then edit it as much as you want, and you still have the original page to use if necessary.

MODIFYING THE BUILT-IN WEB PAGES

The HomeVision web server can automatically create approximately 20 different pages when requested. There are pages for X10, macros, thermostats, security systems, infrared signals, and so on. Although these pages are built-into the server, you can customize them in a variety of ways, as described below.

Changing the browser window title

The browser window automatically displays "*HomeVision Home Control*" at the top of the window. You can easily change this. Open the text file "HVTop.htm" located in the "HTML" directory and look for the text "*HomeVision Home Control*". Change this to anything you like, such as "*John's Home Page*". You can also change the font type, size, or color and the background. You could even put a picture of your home in it!

Changing the browser window layout

The browser window is preset to display an index along the left-hand side and the main information page to the right. You can easily change this by editing the text file "HVWebPage.htm". This page uses "frames" to separate the information. Using standard HTML techniques you can change the frame's locations and sizes. You could even add frames displaying different information in each (for example, use one frame for X10, another for macros, and so on).

Changing the main frame appearance

The format for the main display frame is based on the file named "HVMainFormat.htm". You can edit this file to change the overall format of the page. For example, you can change the background color, add a background image, add text and graphics before or after the status table, add buttons to perform actions, and so on. Any standard HTML technique can be used in this file.

Creating a fancy menu

The left-hand frame is predefined to display a list of links to the various status pages (which are displayed in the right-hand frame). This is a simple HTML list with a rather plain appearance. You can customize it to create fancy menus. You've probably seen web pages with a menu (or group of buttons) with colorful text that changes as you move the mouse over them. These "menus" are usually created with JavaScript or Java Applets. You could use one of these techniques to create custom menus for your HomeVision server. The details are beyond the scope of this article. In brief, you will simply need to add the appropriate JavaScript code to the file "HVIndex.htm". You can download free code and applets for this purpose from many web sites, such as javascripts.earthweb.com and javaboutique.internet.com.

MAKING CUSTOM WEB PAGES

In addition to enhancing the built-in web pages, you can create completely custom pages to show your home's status and control it. Following are several tips.

Displaying object states as text

When you create your own web page, you will include HomeVision-unique HTML “tags” to tell the web server what information to display (see the HomeVision owner’s manual for details). As an example, to display the state of a HomeVision flag, use a tag like this:

```
<HV:Flag 4 armed|disarmed|error>
```

The words “armed”, “disarmed”, and “error” tell the web server what text to insert for the three possible flag states of SET, CLEAR, and NEUTRAL. For example, if flag number 4 is SET, the server will return the text “armed”. So if you include the following HTML code in your web page:

```
Alarm is <HV:Flag 4 armed|disarmed|error>
```

Your browser will display:

```
Alarm is armed
```

You can use similar HTML tags to display variable values, X10 device states, input and output port states, and so on.

Displaying object states as pictures

You can also use pictures to indicate the state of an object. For example, let’s say you want to use a picture to indicate whether X10 device A1 is on or off (by displaying the image “On.gif” or “Off.gif”, as appropriate). The HTML tag to insert the status of A1 is:

```
<HV:X10 A1 state>
```

However, this tag will return text (either “On” or “Off”), which isn’t exactly what we want (since we want an image). What we need to do is embed this tag inside the HTML image tag in order to create the desired image file name, like this:

```
<img SRC="<HV:X10 A1 state>.gif">
```

Here’s how this works: If A1 is on, when the HomeVision server encounters the text “<HV:X10 A1 state>”, it will replace it with “On”. Then, the text that remains gets sent to your browser, which sees this:

```
<img SRC="On.gif">
```

This tells the browser to display the image “On.gif”. You can use this same approach to display images for flags, input ports, thermostat modes, security zone status, and more.

JavaScript

You can use JavaScript or VBScript to perform operations on data returned by the web server. Here’s an example. Assume your HomeVision schedule records the time your security system gets armed. It might do this by storing the hour and minute in separate variables. If you want to display the time on your web page, the most obvious way to do it is as follows:

```
Last armed at <HV:Var 1>:<HV:Var 2>
```

If variable 1 contains the hour value (let’s say, 10), and variable 2 contains the minute value (let’s say, 35), the above HTML code will display this in your browser:

```
Last armed at 10:35
```

This might appear to work fine, but it may not be what you really want. That's because the hour value may be stored in "24-hour" time, where the hour ranges from 0 to 23. So 12:35 AM would be displayed as 0:35, not as 12:35 AM like you may want. One way to handle this is to use JavaScript to convert the time from 24-hour time to the more common AM/PM format. Following is JavaScript code that does this when inserted in your web page:

```
<script language="JavaScript">
<!--Begin
function WriteTime(Hours, Minutes) {
if (Hours >= 12) {
    Hours = Hours - 12
    AMPM = " PM" }
else
    AMPM = " AM"
if (Hours == 0)
    Hours = 12
document.write(Hours + ":" + Minutes + AMPM)
}
// End -->
</Script>
```

To access this code in your web page, you would include something like this:

Last armed at <script>WriteTime(0, 35)</script>

This example shows the hour (0) and minute (35) being hard-coded. You wouldn't actually do it this way, but this serves as a good example. When the browser encounters this, it runs the WriteTime script. The script returns the formatted time (12:35 AM), so the browser will display this:

Last armed at 12:35 AM

To make the web page use variable values for the time instead of the hard-coded numbers as in the above example, you would include the HomeVision tags to insert the variable values, like this:

Last armed at <script>WriteTime(<HV:Var 1>, <HV:Var 2>)</script>

If variable 1 contains the hour value (let's say, 0), and variable 2 contains the minute value (let's say, 35), the HTML code sent to your browser will be:

Last armed at <script>WriteTime(0, 35)</script>

And your browser will display this:

Last armed at 12:35 AM

You can use similar approaches to operate on any data returned from HomeVision. For example, you could:

- Convert a temperature from C to F or vice-versa.
- Convert a variable that indicates your house mode (1=HOME, 2=AWAY, 3=PARTY, etc.) into the corresponding word.
- Change the color of text (for example, if your HVAC system is in the HEAT mode, display red text, and if it's in the COOL mode, display green text).

Submitting Multiple Items in a Form

Your web page can send commands to the HomeVision controller. The user would typically initiate the command by clicking a button or entering data into a text box, then pressing the Enter key. The command is then "posted" to the web server in a "form". The built-in web pages use this approach to perform one command

for each form submitted to the server. You can do the same thing in your custom web pages. For example, the following HTML code displays a button labeled “Arm Alarm” that, when pressed, tells HomeVision to perform macro 12:

```
<FORM method="POST">
<input type="submit" name="Macro 12" value="Arm Alarm">
</FORM>
```

You can also make the button perform multiple actions. You do this by adding more input fields into the form. For example, the following HTML code performs both macros 13 and 14, and also sets variable 5 equal to 66:

```
<FORM method="POST">
<input type="submit" name="Macro 13" value="Set Away Mode">
<input type="hidden" name="Macro 14" value="All lights off">
<input type="hidden" size="4" name="Var 5 =" value="66">
</FORM>
```

Note that the input type for the second and third items is “hidden”. This prevents them from being displayed on the web page (but they are still sent to the web server). Only the button labeled “Set Away Mode” will be displayed, but all the actions will be performed.

CONCLUSION

This article barely scratches the surface of how you can tailor the HomeVision web server. You can also use image maps to display a floorplan of your home, embed live video from a video camera, make custom pages for each family member, and perform many other tricks. With a little knowledge of HTML, and perhaps some understanding of JavaScript, you too can create custom web pages to control your home!