HomeVision 3.45a

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This document describes the changes from Version 3.0. For a summary of changes in previous versions, refer to the "History" file.

SUMMARY OF CHANGES – 3.45a

New PC software that corrects a bug in the web server that could prevent it from reading thermostat and security system status reports from the controller.

SUMMARY OF CHANGES – 3.45

This is a new version of the PC software and PROM. It makes several changes:

- The automatic daylight savings time feature uses the new start and stop dates that begin in 2007 for the United States. It now starts the second Sunday in March and ends the first Sunday in November. The dates for European users are unchanged.

- Added a web browser to the software. It is accessed under the "Control" menu. It defaults to showing the built-in web pages (if you have this option enabled using the Web Server screen under the "Configure" menu). This is a simple browser mainly intended to provide quick access to the HomeVision web pages (although it can display other web pages as well).

- Modified the web pages to use "Cascading Style Sheets" to make it easier to modify the look of all the web pages at once. This new version of the software requires a new set of web page files installed in the HTML directory.

- Modified the "Run Program" command that can be transmitted to a PC serial port. The software will no longer convert the command to uppercase letters. This change allows parameters to be passed to the program without being converted to uppercase (as previous software versions did).

- The "Export" function under the file menu now includes custom lights in the ".HVX" file that it generates.

- Made software change to correct a bug with the data log that can occur if the controller's memory usage is very high.

SUMMARY OF CHANGES – 3.43a

New PC software that corrects a bug in the Thermostat Configuration Screen that could cause it to crash.

SUMMARY OF CHANGES – 3.43

This is a new version of the PC software and PROM. It makes several changes:

- A few text fields in the software were widened to show more characters when the user has the Windows font size set to the "large" or "extra large".
- Made slight improvement to X-10 transmission collision avoidance. With the new design, if another device transmits an X-10 signal very shortly before HomeVision is ready to transmit a signal, there is less chance of a collision.
- Modified the digital temperature sensor reading to work with the new, slower DS18S20 sensors. Previously, there could be occasional errors reading these sensors if the HomeVision schedule file ran extremely fast.
- "X-10 sequences" can now use "wildcards" to match a received X-10 signal. When entering X-10 sequences, there are three ways to use the wildcards:

  1. To match any unit or function code with a particular house code: Select "House / Unit Code", select the desired house code in the House Code list box, then select the "?" character in the Unit Code list box.

2. To match any house code with a particular unit code: Select "House / Unit Code", select the "?" character in the House Code list box, then select the desired unit code in the Unit Code list box.
3. To match any house code with a particular function code: Select "House / Function Code", select the "?" character in the House Code list box, then select the desired function code in the Function Code list box.

SUMMARY OF CHANGES – 3.42c

This is a new version of the PC software. It corrects one bug in the previous software related to how it exports data to an "HVConfiguration.txt" file. This file is only used with the Macromedia Flash movie that can be used to control HomeVision.

SUMMARY OF CHANGES – 3.42

NOTE: The PROM required for this version can only be used with newer HomeVision boards, part number 1203C (the part number can be found on the bottom of the enclosure). The older 1203A boards, made in 1998 and earlier, cannot be upgraded to version 3.42.

NOTE: Schedule files saved with the version 3.42 software cannot be opened by older versions. Attempts to do so may cause the older software to lock up.

This is a new version of the PC software and PROM. It adds several new features:

- Support for "custom lighting" commands. Some users would like to use HomeVision to control lighting systems that don't use the X-10 protocol. To facilitate this, HomeVision now supports what we call "custom lighting" commands. The HomeVision controller does not include built-in control of other lighting systems; i.e., there are not specific commands for lighting systems such as Lutron, C-Bus, CentraLite, etc. Instead, the user (or someone else) must either write a HomeVision macro or external PC software that can control the lighting system. Once this is done, HomeVision will provide the following capabilities:

  - Define and name up to 255 lights.
  - Track light levels in an internal state table.
  - Enter commands in the schedule for these lights, such as "Light 3 (Porch light) On", "Light 7 (Kitchen light) to level 50", and "Light 45 (Master bath) select scene 6".
  - Use the HomeVision software, web browser, or other PC software to control the lights and read status.
  - View a TV screen to control the lights and show their status.
  - Check the current status in If-Then conditions.

  Refer to the file "Custom Lighting" installed with the HomeVision software for details on how this works.

- The software now supports a serial port baud rate of 57,600. The 3.3 PROMs (and most earlier PROMs) already supported this baud rate on the main serial, but the PC software didn't. We've seen that on some slower PCs, communications could be erratic at 57,600 baud. We recommend you test it by downloading your schedule several times to make sure your PC is fast enough.

- The standard HomeVision serial communications protocol (as described in the "Serial Protocol" file) can now be used over the add-on serial ports. Previously, only the main HomeVision serial port supported this.

- Added more commands for reading data received from a serial port. The new commands can read hex characters, and can read character locations specified by a variable value.

- Added commands to allow calculating a checksum value on data transmitted out a serial port. These may be useful if you need HomeVision to communicate with external devices that require a checksum.

- Added ability to detect and take action when *any* "standard" infrared signal is received. Normally, the controller is limited to 255 IR signals for which you can assign actions. This new feature allows you to create a periodic event that can detect when any of the 65,536 possible standard IR signals is received. You can then check the signal's device and key code to decide what action to take.

- Added infrared commands to allow transmission of signals loaded into a "test" area. This allows PC software to load a signal into the controller and transmit it, thereby overcoming the controller limit of 255 learned IR signals. Refer to the file "Using Extra IR Signals" installed with the HomeVision software for details on how this works.

- Allow both RCS X-10 and serial thermostats to be used at the same time.

- Added option for HomeVision add-on serial ports 3 and 4 to receive any binary data. When disabled (the default setting), the ports will ignore binary zeros (the NULL character) and binary tens (line feeds). This works fine for most uses where ASCII data is received. However, if the data is in binary format and contains zeros or tens, this option must be enabled.

CHANGE DETAILS – VERSION 3.42

ALL SERIAL PORTS SUPPORT STANDARD COMMUNICATIONS PROTOCOL

The standard HomeVision serial communications protocol (as described in the "Serial Protocol" file) can now be used over the add-on serial ports. Previously, only the main HomeVision serial port supported this.

Previously, most PC software had to use the PC serial port that was connected to the controller's main serial port. In some cases, users may want to run more than one program. For example, one might want the HomeVision software running (perhaps to use its web server), and also a voice recognition program. Each program expects to open a PC serial port connected to HomeVision, and will use the standard HomeVision serial protocol to communicate with it. If only one HomeVision serial port supported this protocol, users couldn't run both programs simultaneously. Now, the add-on serial ports also support most of this standard serial communications protocol. This allows software programs to connect to other HomeVision serial ports. In general, we recommend that the HomeVision software use the main serial port, and other programs use the add-on ports.

Before an add-on port will use this standard protocol, you must enable it. This is done using the "Serial" tab on the Controller Settings Screen. When enabled, you can still transmit serial messages out the port (by using the appropriate commands in your schedule), and you can still process received messages (using the Serial Data Input Event).

Note that you only need to enable this feature if the port will connect to a PC running software that uses the HomeVision standard serial protocol. If instead you're connecting to external devices like thermostats, security systems, LCD screens, I/O boards, etc., you should leave this option disabled.

Following are the things the add-on ports *cannot* do:

- Load schedules into the controller.
- Learn infrared signals.
- Transmit "event reporting" messages. These are the messages that you can configure using the "Event Reporting" tab on the Controller Settings Screen in the PC software. These messages can only be reported out serial port 1. Examples of these messages are shown below:

```
90 X-10 House/Unit : P 1
85 Time: 23:05:47  Date: 09/15/03

91 X-10 House/Func : P Off
85 Time: 23:05:47  Date: 09/15/03

98 Input Port Changed: #09 Low
85 Time: 23:05:53  Date: 09/15/03
```

Note that the "PC Communications" reporting messages *can be* reported over the add-on ports. These are the messages that you can configure using the "PC Communications" tab on the Controller Settings Screen in the PC software, and are described in the "Auto reporting" file. Most PC software that relies on report messages from the controller use this method instead of the "event reporting" messages mentioned above. Thus, these programs should work OK when connected to an add-on serial port.

NEW SERIAL RECEPTION COMMANDS

Seven commands have been added for reading data received from a serial port. They are described below.


```
Put Value Of Received Hex Character # Into Result Value
Put Value Of 2 Received Hex Characters ## Into Result Value
```

These two commands look for a hex value at the specified location(s) in the serial data string, convert it to a number, and put it into the system variable "Result Value". After the value is put in "Result Value", you can use variable commands to move it to a variable and perform other operations on it.

If the specified locations are not valid numbers, Result Value will be set equal to 255 to indicate an error. The difference between these commands is how many characters are used to determine the value:

- The first command looks at a single character that must be a number between 0 and 9, a letter between a and f, or a letter between A and F. The result will be a value between 0 and 15.

- The second command looks at two consecutive characters, both of which must be a number between 0 and 9, a letter between a and f, or a letter between A and F. The result will be a value between 0 and 255.

```
Put Value Of Received Hex Character At Variable # Into Result Value
Put Value Of 2 Received Hex Characters At Variable # Into Result Value
```

These two commands are similar to the two commands above. The difference is that instead of specifying a fixed character location in the serial message, you specify a variable. When the command runs, it will use the variable's value as the character location to start reading from.

```
Put Value Of Received Character At Variable # Into Result Value
Put Value Of 2 Received Characters At Variable # Into Result Value
Put Value Of 3 Received Characters At Variable # Into Result Value
```

These three commands are similar to three existing commands that read in decimal values. The difference is that instead of specifying a fixed character location in the serial message, you specify a variable. When the command runs, it will use the variable's value as the character location to start reading from.

SERIAL TRANSMISSION CHECKSUM COMMANDS

There are two commands to allow calculating a checksum value on data transmitted out a serial port:

```
Clear Transmit Checksum Value
Put Transmit Checksum Value Into Result Value
```

These may be useful if you need HomeVision to communicate with external devices that require a checksum. HomeVision automatically calculates a running checksum on all data you send out a serial port using one of the serial port commands. If you need to calculate a checksum on the data you transmit, you would first use the "Clear Transmit Checksum Value" prior to starting the transmission. This resets the checksum value to zero. You would then transmit the data that must be checksummed. The controller will automatically calculate a running checksum on the data. After you've finished transmitting the data, use the "Put Transmit Checksum Value Into Result Value" command. As the name implies, this will put the value of the checksum into the system variable "Result Value". You can then use a variable command to put Result Value into one of your own variables, at which point you can do anything you like with it. Most commonly, you would transmit this value either as a single binary character or two hex characters.

Note several things about the checksum process:

- The controller maintains a single checksum value – there is _not_ one for each serial port. Therefore, you must send all the data for a port and obtain its checksum before you transmit out another port. You don't have to worry about HomeVision automatically transmitting data out a serial port, as they won't be added to the checksum.

- The checksum is an 8-bit value, and is therefore limited to the range of 0 to 255. If the sum exceeds 255, only the lower 8 bits are kept. In effect, the total sum is divided by 256, and the remainder is the checksum.
- The checksum is calculated by summing the raw binary values of the transmitted data. For example, the capital letter "A" has a value of 65, and the number "1" has a value of 49. See Appendix B of the HomeVision manual for a table of the values of the standard ASCII characters.

As an example, assume you transmit "ABC123", followed by a carriage return and line feed. Here are the values that will be summed up:

```
A = 65 decimal (41 hex)
B = 66 decimal (42 hex)
C = 67 decimal (43 hex)
1 = 49 decimal (31 hex)
2 = 50 decimal (32 hex)
3 = 51 decimal (33 hex)
CR = 13 decimal (0D hex)
LF = 10 decimal (0A hex)
```

The total sum is 371 decimal (173 hex). The checksum value is 115 decimal (73 hex). Thus, the "Put Transmit Checksum Value Into Result Value" command will put the value of 115 into Result Value.

RECEIVING ANY STANDARD INFRARED SIGNAL

Normally, the controller is limited to 255 IR signals for which you can assign actions (using the IR Signal Summary Screen under the Objects/Events menu). This new feature allows you to create a periodic event that can detect when any of the 65,536 possible standard IR signals is received. You can then check the signal's device and key code to decide what action to take. This is intended for advanced users, as it requires using special "memory access commands" that are normally hidden from users. Here's how this process works:

- Whenever the controller receives an IR signal, it will store up to three bytes of information about the signal in RAM.
- You create a periodic event that runs every loop. The periodic event uses the memory access commands to read the signal information into three of your own variables. You can then check these variables in If-Then statements and take action.
- After all periodic events have run, the controller will reset the signal information. This enables you to detect when a new signal is received.

Following is an example of the code that goes in the periodic event:

```
Memory access: Read data from address EF59h into variable #28 (IRRX signal type)
Memory access: Read data from address EF5Ah into variable #29 (IRRX device code)
Memory access: Read data from address EF5Bh into variable #30 (IRRX key code)
If
    Var #28 (IRRX signal type)  = 1
Then
    Serial port 1 transmit: "IRRX: "
    Serial port 1 transmit: Variable #28 (IRRX signal type) value as 2 hex bytes
    Serial port 1 transmit: " "
    Serial port 1 transmit: Variable #29 (IRRX device code) value as 2 hex bytes
    Serial port 1 transmit: " "
    Serial port 1 transmit: Variable #30 (IRRX key code) value as 2 hex bytes
    Serial port 1 transmit: Carriage return and line feed
End If
```

The first three commands are the memory access commands that read the three bytes containing the IR signal information into your variables (numbers 28, 29, and 30 in this example). If a standard IR signal was received, the "EF59" variable will contain the value of one, so check for this value. You can then take whatever actions

you want. In this example, we simply transmit the device and key codes out the serial port. Typically, users would check the device and key code in additional If-Then statements and take appropriate actions.

The "EF59" variable will contain one of four possible values:

0: Means no new IR signal was received.
1: Means a standard IR signal was received. The next two bytes will contain the device and key code.
2: Means a learned IR signal was received. The next byte will contain the ID # of the IR signal it matches.
3: Means an unknown IR signal was received. This will also happen if IR noise is received.

In order to enter the "memory access commands" in your schedule, this capability must be enabled. To do this, you must edit the Windows registry on your PC. This can be done using RegEdit. Open the registry and then open this path:

HKEY_CURRENT_USER / Software / VB and VBA Program Settings / HomeVision

Under the "Miscellaneous" section, look for an entry with the name "MemoryAcess" and change its data value to "True". If it's not there, add an entry (using Edit/New/String Value) with the name "MemoryAcess" and set its data value to "True". The next time to start the HomeVision software, memory access commands will be enabled. You access them from the Actions Entry Screen via the "Other" button. Note that when entering the address to read or write, you enter two bytes in decimal format, but the command will display the address in hexadecimal format. For example, the hex address "EF59" shown in the example is entered as "239" for the Most Significant Byte and "89" for the Least Significant Byte.

SUMMARY OF CHANGES – 3.3a

This is a new version of the PC software that corrects a bug in version 3.3 in the variable command entry screen. For commands that used two variables, the screen would sometimes display the wrong variable.

SUMMARY OF CHANGES – 3.3

This is a new version of the PC software and PROM. It adds several new features (note that some of these will work with older version 3.1 PROMs, except where noted otherwise):

- The software can now automatically synchronize the controller's clock with the PC clock. You can enable this option from the Preferences screen. When enabled, the software (assuming it is running) will synchronize the controller's clock at shortly after 4:00AM each day.

- The Load Schedule screen now has options to leave the weather variables and text storage buffer memory intact when downloading a schedule. Previously, these would always be cleared by a schedule download.

- The Status Screen (under the "Other" menu) has a new Test button. When performed, the HomeVision controller will test communications with each of the possible HomeVision add-on boards (Multifunction Expansion Board, HomeVision-Serial, and HomeVision-Phone) and report the results. This provides a quick way to verify these boards (if you have any) are connected and functioning properly.

- If you have a Multifunction Expansion Board, the Infrared Test Screen (under the "Other" menu) now allows you to select which zone(s) you want to transmit out of.

- Added X10 commands that can put X10 devices into "scenes". Previously, you could only put devices into scenes by using the X10 Control Screen to send the necessary signals to the X10 device(s). Now, you can also put these commands in your schedule. This is useful with devices that lose their scene settings during a power failure. Your Power Failure Recovery Event (or any other event) can now send the signals to reset these devices.

- Added a schedule command to exit from all actions. When the controller reaches this action in your schedule, it will immediately exit the event (scheduled event, macro, timer event, etc.), *__as well as any event that called it__*. This command is located under the "Controller Command" button on the Actions Entry Screen toolbar. *__This feature requires a 3.3 PROM.__* Here are some examples of how it works. Assume the following code is placed in a scheduled event:

      X-10: A1 (Hall light) Force On
      Do macro #1 (Bedroom light) once
      X-10: A3 (Kitchen light) Force On
      Controller command: Exit from all actions now
      X-10: A4 (Porch light) Force On

  Assume macro 1 contains the following code:

      X-10: A2 (Bedroom light) Force On

  When the scheduled event runs, it will transmit X-10 signals A1 ON, A2 ON, and A3 ON. It will then exit and not transmit A4 ON. But now lets assume macro 1 also contains an "Exit from all actions now" command, like this:

      X-10: A2 (Bedroom light) Force On
      Controller command: Exit from all actions now

  Now when the scheduled event runs, it will transmit X-10 signals A1 ON and A2 ON, but nothing else. That's because the "Exit from all actions now" command in macro 1 aborts all the actions (even those in the scheduled event), and just those in the macro that contained it. Ideally, there should be a command

to exit the macro but return to the event that called it keep running from there, but such a command it not available.

- If-Then conditions for X-10 devices can now specify the X-10 address in a variable. The X-10 Condition Entry Screen has a checkbox labeled "Use variable for X-10 address". If you check this, you will be able to select a variable. When HomeVision executes this condition, it will obtain the variable value (which ranges from 0 to 255) and use it as the X-10 ID number. ***This feature requires a 3.3 PROM.***

- If you have a HomeVision add-on serial port, HomeVision can automatically take data received from one serial port and transmit it out one or more of the other ports. ***This feature requires a 3.3 PROM.*** To enable this "port forwarding", open the Controller Settings screen under the Configure menu and select the "Serial" tab. You can then select which port(s) should be forwarded to which other port(s). Note that you can select either or both directions for forwarding. For example, you can forward data received from port 2 out port 1, but you don't have to forward data received from port 1 out port 2 (although you can). There are several important things to note about how this feature works:

  - Data is forwarded to the destination port(s) after the received message is "terminated" (not as each character is received). This normally is when a carriage return is received, although it can occur after a designated timeout.
  - "Line feeds" received from a port will normally ***not*** be forwarded to another port ("carriage returns" will be forwarded).
  - The built-in HomeVision serial port supports a serial command protocol for sending serial commands to HomeVision (detailed in separate documentation). This protocol uses commands that start with a comma character (i.e. ","). Messages received on this serial port that start with a comma will ***not*** be forwarded to another port.
  - Serial messages received while the controller is halted will ***not*** be forwarded to another port. Since the controller is halted during a schedule download, no forwarding will occur during a schedule download (so the messages won't affect any devices attached to a serial port).

- Added commands that can read and write an I2C bus address. This is intended for users developing their own hardware device that communicates via an I2C bus. This capability is normally disabled – please contact us if you want to use it. If you don't know what an I2C bus is, then you have no need for this feature! ***This feature requires a 3.3 PROM.***

- A small new software program has been created that provides another way to control your home. This program allows icons on your computer desktop to send a command to HomeVision. For example, one icon might turn on a light, another might lower your thermostat setpoint by one degree, another might trigger a macro, etc. This new program is called "HV Desktop". Here's how it works.

  In order for this to function, the regular HomeVision application must be running on the PC and be connected to the HomeVision controller. You can then create "shortcuts" on your desktop that run the "HV Desktop" program. Each shortcut must contain a "command line" parameter that specifies an ASCII serial message to send to HomeVision. When this shortcut is run, the "HV Desktop" program will run (but will be invisible), will send a Windows message to the HomeVision application, and will then shut down. The message tells the HomeVision application to send the serial message to the HomeVision controller, which it does (after adding a carriage return to the end). The controller then executes the command. The HomeVision application will display a message at the bottom of the main screen indicating that it transmitted the serial data. The message will say "Received command: TO HV:XXXX", where XXXX is the transmitted data. If the HomeVision application is not running, an error message will be displayed.

  Here's how to create a shortcut that can send a command:

  - Use the Windows Explorer to create a shortcut to the HV Desktop application.
  - Give the shortcut a meaningful name ("Porch light on", "TV Off", etc.).
  - Place the shortcut on your desktop (or anywhere else, such as the "Start" menu).
  - Right-click the shortcut icon and select "Properties" from the pop-up menu.

- The shortcut "target" field will show the path to the HV Desktop application. At the end of this (*after* any quotation marks that may be present), enter:

  `\S?????`   *{note: there should be a space before this}*

  Replace "`?????`" by the serial message to send to HomeVision. For example, to send the X-10 command A-1 FORCE ON, enter this:

  `\S,X0001`

  The "\S" tells HV Desktop that this is a command line parameter containing a serial message, and the ",X0001" is the serial data (the serial format is discussed below).

- Click OK.

In order to use this program, you will need to determine what serial message to send to perform your command. Refer to the "Serial" file installed in the HomeVision directory for full details on the serial protocol. Following are examples of commonly-used commands:

Macro Commands:

    `,O0300`   (Run macro 3)
    `,O1000`   (Run macro 16d (10h))

Output Port Commands:

    `,30001`   (Set output port 0 high)
    `,30100`   (Set output port 1 low)
    `,30700`   (Set output port 7 low)

Infrared Commands:

    `,;0500`   (Transmit IR signal 5)
    `,;1400`   (Transmit IR signal 20 (14h))
    `,<1407`   (Transmit IR signal 20 (14h) 7 times)

X-10 Commands:

X-10 commands use two characters to indicate the module address (device and house code). The following table shows these characters for each address:

HOUSE CODE

UNIT CODE		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
	1	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
	2	01	11	21	31	41	51	61	71	81	91	A1	B1	C1	D1	E1	F1
	3	02	12	22	32	42	52	62	72	82	92	A2	B2	C2	D2	E2	F2
	4	03	13	23	33	43	53	63	73	83	93	A3	B3	C3	D3	E3	F3
	5	04	14	24	34	44	54	64	74	84	94	A4	B4	C4	D4	E4	F4
	6	05	15	25	35	45	55	65	75	85	95	A5	B5	C5	D5	E5	F5
	7	06	16	26	36	46	56	66	76	86	96	A6	B6	C6	D6	E6	F6
	8	07	17	27	37	47	57	67	77	87	97	A7	B7	C7	D7	E7	F7
	9	08	18	28	38	48	58	68	78	88	98	A8	B8	C8	D8	E8	F8
	10	09	19	29	39	49	59	69	79	89	99	A9	B9	C9	D9	E9	F9
	11	0A	1A	2A	3A	4A	5A	6A	7A	8A	9A	AA	BA	CA	DA	EA	FA
	12	0B	1B	2B	3B	4B	5B	6B	7B	8B	9B	AB	BB	CB	DB	EB	FB
	13	0C	1C	2C	3C	4C	5C	6C	7C	8C	9C	AC	BC	CC	DC	EC	FC
	14	0D	1D	2D	3D	4D	5D	6D	7D	8D	9D	AD	BD	CD	DD	ED	FD
	15	0E	1E	2E	3E	4E	5E	6E	7E	8E	9E	AE	BE	CE	DE	EE	FE

16	0F	1F	2F	3F	4F	5F	6F	7F	8F	9F	AF	BF	CF	DF	EF	FF

X-10 commands follow one of these two general formats:

```
,Xaabb          or
,Paabbcc
```

Where aa is the address, bb is the command, cc is the data (for some commands)

Here are some examples:

```
,X0001          (A1 - Force On)
,X0003          (A1 - Force Off)
,X0106          (A2 - Force Dim)
,X0F0C          (A16 - Force Brighten)
,P301109        (D1 - Set To Level 9)
,P001604        (A - All Lights On)
,PF01606        (P - Brighten)
,P521D20        (F3 - Preset Dim To Level 32 (20 hex))
,P532112        (F4 - Set PCS Light To Level 18 (12 hex))
```

SUMMARY OF CHANGES – 3.2

This is a new version of the PC software and PROM. It makes the following changes:

- Corrected some software bugs that sometimes caused incorrect display screens (incorrect background colors or buttons being cut off bottom of screen).

- *{Note: This requires 3.11 PROM}*. Added commands for writing a variable value to the "text storage buffer" and reading a character from it into a variable. The "text storage buffer" can be used to store serial data coming into HomeVision, and can also be displayed on the TV. These new commands also allow you to move variables into the buffer and retrieve them back. The two new commands are located with the other variable commands, and are named as shown below. Note that each command uses a single byte in the buffer. For example, if the variable value is 65 and you use the second command to put this into a byte in the buffer, the one byte will then contain the value of 65. If you display this byte on the TV screen, it will appear as "A", as 65 is the ASCII value for a capital "A".

```
Variable XX = Byte ## from Text Storage Buffer

Byte ## in Text Storage Buffer = Variable XX
```

- *{Note: This requires 3.11 PROM}*. Added a command to write the caller ID information to the "text storage buffer" (assuming you have the HomeVision CID option). This caller ID command always writes 48 bytes into the buffer. The 48 bytes correspond to the two lines of text that HomeVision displays on the caller ID TV screen. The first 24 bytes are the caller's name, and the last 24 bytes are the caller's number. However, the TV screen "indents" the lines by placing 2 blank spaces at the start of each line. Therefore, bytes 1, 2, 25, and 26 should be ignored. The actual caller's name will start at byte 3, and the phone number will start at byte 27. This command is intended to be used with the above command that can read a byte from the text storage buffer into a variable. Used together, these commands allow you to move the caller ID information into your own variables, at which point you can do anything you like with them.

- Added more options for the "CID_Name.txt" file that you can use if you use caller ID with HomeVision. You can now use the following wildcard symbols in the phone number field:

```
?          (Any single character)
*          (Zero or more characters)
```

For example, to match any call from a number starting with 321-555, use 321-555-???? or 321-555*. To match any call from area code 321, use 321*. Note that you should put these general numbers at the end of the file, so they don't take precedence over more specific numbers. The software looks through the file for the first matching number, so the more general numbers need to go last. For example, the "CID_Name.txt" file could look like this:

> 321-555-1234 = John's parents play wav file JohnsParents.wav
> 321-555-5678 = Amy's parents play wav file AmysParents.wav
> 321-555-???? = Local call   play wav file LocalCall.wav
> 321* = Area code 321   play wav file 321.wav

If you reversed the order an put the last line first, all these calls would show up as "Area code 321" and play the wav file "321.wav".

- *{Note: This requires 3.11 PROM}*. Added commands to set or clear the Daylight Savings Time Mode. These should only be used by expert users who want to customize their Daylight Savings Time operation. These commands are located under the Controller Commands button.

- *{Note: This requires 3.11 PROM}*. Added commands to enable or disable automatic polling of serial thermostats. These should only be used by expert users who want to communicate with the thermostats themselves and need to temporarily stop HomeVision's polling to prevent interference. These commands are located under the Controller Commands button.

SUMMARY OF CHANGES – 3.12

This is a new version of the PC software. It adds one new feature:

- With the "Remote Internet Access" capability, the client program can now:

    1. Retrieve a HomeVision schedule file from the server.
    2. Send a HomeVision schedule file to the server.
    3. Tell the server to open a schedule file that is on the server.

    The commands to perform these functions will appear in the "File" menu of the client program when the client is connected to the server.

SUMMARY OF CHANGES – 3.11

This is a new version of the PC software. It adds two new features:

- When using the "Remote Internet Access" capability in the client mode, the software will no longer try to open a serial port on the local PC. This simplifies using the HomeVision client mode on a PC with no free serial ports.

- The web server can now allow access from an IP address without requiring a password. Previously, if you selected the "Require password" option, all users would be required to enter a password, regardless of whether the user was inside or outside the home. Now, if you select the "Require password" option, you can enter one IP address into the "Password-free address" field. Web server requests coming from this address will not require a password, but requests from all other addresses will. The intended use is to enter the address of your local PC so that it can access the server without a password. For example, if your local IP address is 192.168.0.1, enter this in the "Password-free address" field. If you have multiple computers, it is possible to give them all password-free access. The computers will usually have a similar starting IP address, with different ending values. If you enter only the start of the IP address in the "Password-free address" field, any addresses starting with those values will be password-

free. For example, if you enter 192.168.0, then all addresses between 192.168.0.0 and 192.168.0.255 can access the server without a password.

SUMMARY OF CHANGES – 3.1

This is a new version of the PC software. It adds three new features:

- The web server will now process multiple items sent to it in a form. This means that if you create your own web page to control HomeVision, you can have a button that sends multiple commands to the controller. For example, one button could command three macros to run, set two variables to different values, and send four different X-10 signals.

- Added a "Remote Internet Access" capability. This allows a copy of the HomeVision software running on one PC (the "client" PC) to control a HomeVision unit connected to another PC (the "server" PC). Basically, the client PC can control the remotely-located HomeVision unit as if it was directly connected to the client PC.

- Added support for European Daylight Savings Time clock adjustments. To select this option, use the User Location screen under the Configure menu. Check the Automatic Daylight Savings Time Adjustment option, then check the European Daylight Savings Time option. IMPORTANT NOTE: THIS FEATURE REQUIRES A VERSION 2.9x OR 3.1x PROM.

SUMMARY OF CHANGES – 3.0, 3.01 and 3.02

This version consists of both new PC software and new PROMs for the HomeVision unit. The new software is intended to be used with the new PROMs, although you can use some features of the 3.0 software even if you have a version 2.7 PROM.

Note that two different HomeVision circuit board versions have been produced. You can find your board type by reading the part number on the bottom of the HomeVision enclosure. Different PROMs are required for the two different board versions:

- The first HomeVision board design, part number 1203A, was produced until early 1998. This board requires the version 2.82 PROM. This PROM supports all the features described herein, except for the CADDX NetworX line of serial communicating security systems.

- The newer HomeVision board design, part number 1203C, uses PROM version 3.0. If you've recently purchased a HomeVision unit, this is the version you have. This 3.0 PROM supports all the features described herein.

The primary changes from version 2.7 are as follows. Note that these require both a 2.8 or higher PROM and 3.0 PC software.

- Supports RCS serial (RS-232 or RS-485) thermostats.

- Supports the CADDX serial (RS-232) NetworX line of security systems. This requires version 3.0 or higher of both the PROM and the PC software. *Note that the 3.0 PROM can only be used with HomeVision part number 1203C*. The earlier HomeVision hardware design, part number 1203A, will not run the 3.0 PROM nor support the CADDX thermostats.

- Adds ability to learn infrared signals that do not have a carrier.

- Adds ability to receive learned infrared signals.

- Adds the ability to work with the new Sylva Control Systems IO-8O8I/485 boards. These boards provide 8 relays outputs and 8 opto-isolated inputs and connect to HomeVision through an RS-485 serial port.

In addition to these features, starting with version 3.0, the PC software is available only as a 32-bit program. This 32-bit version adds capabilities that didn't exist in the previous 16-bit version. You can use these features with a version 2.7 PROM if you don't have a newer PROM. The new features are:

- The PC software contains a web server that allows HomeVision to be controlled from a web page.

- Adds an "Export to Excel" button to the "Print" screen. This exports your schedule's object information (X-10 devices, flags, scheduled events, etc.) to an Excel spreadsheet.

- Adds ability to read a comma-delimited text file and load the contents into HomeVision variables.

- Adds ability to send X-10 "extended code" and "extended data" commands from within your schedule. These commands are used to control some of the newer X-10 devices.

- Supports long file names

- Makes minor improvements to the "Dial Remote Modem" screen.

CHANGE DETAILS – VERSION 3.11, 3.12 and 3.2

Changes are described in the "Summary of Changes" sections above. No further details are necessary.

CHANGE DETAILS – VERSION 3.1

WEB SERVER CHANGE

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>
```

With HomeVision version 3.1, 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.

REMOTE INTERNET ACCESS

The "Remote Internet Access" feature provides an internet access capability that differs from the web server. The following table summarizes how the two methods work:

	Web Server	Remote Internet Access
Server PC setup	• HomeVision unit is connected to server PC serial port • HomeVision software is running and web server function is enabled	• HomeVision unit is connected to server PC serial port • HomeVision software is running and remote internet access server function is enabled
Client PC software	Any web browser	HomeVision software
Client PC capabilities: • Web pages to control HomeVision	Yes	No
• Download schedule into HomeVision	No	Yes
• View all serial data from HomeVision	No	Yes
Intended use	For easily monitoring and controlling your home from a remote location	For loading new schedules into the controller and/or debugging problems from a remote location

SERVER CONFIGURATION

To use the remote internet access capability, you must first configure the HomeVision software on the PC the HomeVision controller is connected to (the "server" PC). Use the Remote Internet Access Screen under the Configure menu to do this. In the "Select Connection Mode" field, select the "Server" option. In the "Local Server" field, set the following items:

IP Address

Enter the computer's IP address.

Port Number

You must tell the software what port number you want it to use on your computer. It defaults to using port 1043, which will work in most situations. You will normally never need to change this. However, you may need to if the server fails to start when using the chosen port. You can set it to any number between 0 and 32,000, although numbers above 1024 are recommended. If you're also running the HomeVision web server, use a different port number for it.

Password

If you want to require the client to enter a password when accessing the server, enter the password here. If you don't want to require a password, leave this field blank. If your PC is always connected to the Internet, we strongly recommend you use a password to minimize the chance of unauthorized users accessing your system. Without a password, users have complete access to the server (and HomeVision). You might disable this if you're using the server on a local area network within your home, where you're not worried about unauthorized use.

Next, check the "Automatically start; reconnect if connection is lost" box if you want the server to automatically start whenever the HomeVision software starts, and to automatically restart if the connection doesn't properly start or is lost. If you want the server always running, you should check this. When you first check it, the server will also try to start immediately.

Click the "Start" button to start the server (if it didn't start automatically). If the server doesn't start, the IP address is probably incorrect (although it's also possible that the port number is already in use) "Starting" the server means telling it to start "listening" on the selected port for connection requests from clients. The "Status" field will indicate whether the server is currently listening (running) or not. When a client connects to the server, the "Remote Client Connection" field will show the connection status. While the server is listening, you can use the HomeVision software in it's normal fashion. The Remote Internet Access Screen may be closed or left open.

CLIENT CONFIGURATION

To access your HomeVision controller from a remote PC (the "client" PC), you must first install the HomeVision software on it. You must also start the server "listening", as described above. When you are ready to connect the client PC to the HomeVision server PC, open the Remote Internet Access Screen under the Configure menus. In the "Select Connection Mode" field, select the "Client" option. In the "Remote Server" field, set the following items:

IP Address

Enter the IP address of the server PC you wish to connect to.

Port Number

Enter the port number of the server PC you wish to connect to.

Next, check the "Automatically start; reconnect if connection is lost" box if you want the client to automatically start whenever the HomeVision software starts, and to reconnect if the connection doesn't properly open or is

lost.   If you want the client always running, you should check this. When you first check it, the client will also try to immediately connect to the server.

Click the "Open Connection" button to connect to the server (if it didn't connect automatically). "Connecting" the client means establishing a communications link with a "listening" server. The "Connection Status" field will indicate whether a connection with the server is open or not.   Once a connection is opened, the "HomeVision Serial Port" field will indicate whether the server's serial port (which should be connected to the HomeVision controller) is open. If it is not open, the client will not be able to access the HomeVision controller. Once the connection is opened, you can use the HomeVision software as if it was directly connected to the HomeVision controller. The Remote Internet Access Screen may be closed or left open.

USING REMOTE INTERNET ACCESS

Once a connection is opened, you can use the client HomeVision software as if it was directly connected to the HomeVision controller (with a few limitations discussed below). Using software on one PC to control a HomeVision unit connected to another PC may be confusing at first. It's important to understand which PC software screens are accessing the remote HomeVision unit and which are using data from the local PC.

Anytime the client software needs to communicate with the HomeVision controller, it will send an internet message to the server PC. The server PC will then send it out its serial port to HomeVision. Any serial messages received from HomeVision by the server will be sent to the client software. The client software will operate as if the HomeVision controller were directly connected to the local serial port, while it will actually be communicating via the internet. Therefore, any software screen that communicates with the controller will be using the internet to access the remote unit. This includes the following screens:

- Load screen (under the File menu)
- Controller Time/Date screen (under the Configure menu)
- Video Remote Control Configuration screen (under the Configure menu) when it displays received IR messages
- Digital Temperature Sensor Configuration screen (under the Configure menu) when it reads the sensors
- All of the control screens under the Control menu
- All of the screens under the Other menu, except for the View Schedule and Serial Command Test screens

All of the _other_ screens will be accessing the _local_ (client) PC. That is, any schedule you open, edit, or save will be on the local PC.

REMOTE INTERNET ACCESS NOTES

- The settings on the configuration screen are automatically saved in the Windows System Registry. If you select either "Client" or "Server" in the "Select Connection Mode" field, whenever the HomeVision software starts up, it will automatically try to start the client or server. If you do not want it to automatically start, select the "None" option.

- From the client software, you cannot open, close, or change the server PC's serial port. Therefore, the serial port must already be opened on the server PC.

- Any schedule you open or save in the client program will be read from or written to the client PC. You cannot retrieve a file from the server PC (although the HomeVision web server can do this).

- Communications with the HomeVision controller will be slower than normal because the data must pass through the internet. The delay is usually not significant when sending or receiving one or two messages (such as when issuing an X10 command). However, communications intensive operations such as downloading a schedule into HomeVision or reading the event log will usually take several times longer than normal.

- Any serial data sent from the HomeVision controller will be received by both the client and server PC software. If this data commands the software to do something, both programs will try to do it. For example, if the controller sends a serial command telling the software to play a WAV file, both the client and server software will attempt to play it.

CHANGE DETAILS – VERSION 3.01/3.02

WEB SERVER

HomeVision provides two different means of Internet access:

1. ***HomeVision Internet Control Group***. This is a group of software programs and components that allows you to access HomeVision over the Internet. This was our first approach to Internet access. It was never officially released, but is available in a beta version for your use. Most users, however, will prefer the HomeVision web server described below. No further development work is planned for the Internet Control Group software. For more details on it, see out web page at http://www.csi3.com/HV_web.htm.

2. ***HomeVision Web Server***. HomeVision software version 3.0 and higher contains a built in web server. This allows web browsers to control HomeVision. Note that you can use the web server software with PROM versions 2.7 if you wish.

The HomeVision Web Server 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 web pages showing HomeVision status.
- Can insert HomeVision status and control objects into custom web pages you create.

OVERVIEW

The HomeVision installation program will create a directory named "HTML" in the HomeVision application directory and will place several HTML files in it. These files can be used for displaying a wide variety of HomeVision status and control web pages. They contain standard HTML codes, plus some HomeVision-unique "tags". You don't have to do anything special to use these web pages. However, if you want to, you can modify them to change the web pages' appearance. You can also create as many new pages as you like. You do this by changing the HTML and/or embedding HomeVision-unique tags in the pages. You must be familiar with HTML before attempting this.

After installation, you need to configure the HomeVision web server built into the HomeVision software. This is done with the Web Server Configuration Screen under the Configure menu. After this, you can open any web browser and enter the web address (URL) for your PC. The web address will contain the IP address of the PC, the web server port number, and the file name to display. Depending on the file name, the web server will send a file back to the browser for display. There are several types of files you can access. Some files will be sent to the browser exactly as is. Other files will be read by the web server, which will replace custom tags with HomeVision status information and send the resulting file to the browser. You can then use control buttons on the web page to send commands back to the HomeVision web server. These commands can control the software (for example, tell it to open a HomeVision schedule file) or the HomeVision controller (for example, tell it to transmit an X-10 signal).

CONFIGURATION

After installing the HomeVision software, configure the web server. Use the Web Server Configuration Screen under the Configure menu. Under the "Configure" tab, set the following items:

Port Number

You must tell the software what port number you want it to use on your computer. It defaults to using port 1033, which will work in most situations. You will normally never need to change this. However, you may need to if the server fails to start when using the chosen port. You can set it to any number between 0 and 32,000, although numbers above 1024 are recommended.

Automatically run server at startup

Check this if you want the web server to start running each time the HomeVision software starts. Regardless of whether you enable this, you can start and stop the server manually from the Web Server Configuration Screen.

Report results of server commands

When checked, the web server will report back to the browser the results of the command received from the browser. The result message will appear in the main browser frame. You will then have to click "Back" to get back to the previous page (unless you use the approach described below to automatically return). When unchecked, no message will be sent back to the browser, and the browser will continue to display the last page (this saves you from having to press the "Back" button, but it might not be clear whether the command was performed properly or not).

If you enable this option, there is a way to automatically return to the page which issued the command without having to click. To do this, edit the file "HVCommandStatusFormat.htm" uisng a text editor. Between the <HTML> and <BODY> tags in the file, insert the following text:

```
<HEAD>
<META HTTP-EQUIV="Refresh" CONTENT="5;URL=AUTORETURN">
</HEAD>
```

The start of the file will then look like this:

```
<HTML>
<HEAD>
<META HTTP-EQUIV="Refresh" CONTENT="5;URL=AUTORETURN">
</HEAD>
<BODY BGCOLOR="#F8FBFF" text="#000000" link="#004080" vlink="#004080">
```

The number 5 after "CONTENT" specifies that the browser should automatically return to the previous page after 5 seconds. You can change this to any number you like. If you do not wish to automatically return to the previous page, you can either delete the text between the <HEAD> and </HEAD> tags, or delete the text "AUTORETURN".

Create Log File

Check this if you want the web server to create a log file of its activity. This will be a text file in the HTML directory named in the format "WebLogXX.txt". "XX" represents the date of the month.

Require password

Check this box if you want to require a user name and password when accessing the server. If your PC is connected to the Internet, we recommend you enable this to minimize the chance of unauthorized users accessing your system. If this option isn't enabled, users have complete access to the server (and HomeVision) without entering a user name or password. You might disable this if you're using the server on a local area network within your home, or only on the same PC as the server, where you're not worried about unauthorized use. When the password option is enabled and you first access a web page, you will be requested to enter your user name and password. After that, you don't have to reenter it unless you wait more than five minutes between accesses (in which case you will have to reenter it).

User name and password

If you require a password, you will need to enter the user name and password.

USING THE WEB PAGES WITH A BROWSER

In order to access the web pages, the HomeVision software must be running and the web server started. If the server is not running, you will not be able to access it remotely. The schedule file loaded in the controller should also be opened in the PC software. If not, the server will not properly display the object names and status.

Once the server is running, you can access the main HomeVision web page by opening this URL in your browser:

> HTTP://IPAddress:PortNumber/HVWebPage.htm

Replace "IPAddress" with the IP address of the computer that HomeVision is running on. If you're running the browser on the same PC as HomeVision (which you'll probably do when first testing it), use the IP address "127.0.0.1". "127.0.0.1" has special meaning, and tells the browser to use the local PC. If the browser is on a different PC, you'll need to determine the HomeVision PC's IP address. Replace "PortNumber" with the port number you assigned to the server (using the Web Server Configuration Screen). 1033 is the default web server port number. Here's an example:

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

After the web address is the file name to open. "HVWebPage.htm" is a file installed in the HomeVision HTML directory, and is the starting point to access the HomeVision web page. This page defines the framework of the main HomeVision Internet web page. It makes extensive use of HTML "frames" to display the information. It displays the HTML page "HVTop.htm" in the top frame (named "top-frame") and the HTML page "HVIndex.htm" in the left frame (named "index-frame"). Both "HVTop.htm" and "HVIndex.htm" are files installed in the HomeVision HTML directory.   "HVTop.htm" displays a small title bar across the top of the window. "HVIndex.htm" displays a menu that you can select from, which determines what is displayed in the main frame. You can edit any of these three pages to change the appearance or functionality of the web page. If you do, make backup copies of each file in case you run into problems and need to return to the original versions.

The "HVWebPage.htm" page also contains a frame named "main-frame". This is the largest frame and is where all the HomeVision status information and control buttons are located.   "HVIndex.htm" contains links that determine what information to display in the main frame. For example, if you study the "HVIndex.htm" file, you'll see links such as:

> <A REF HVTableFlag.htm target="main-frame">Flags</A>

These HTML tags tell the browser to display the specified file (HVTableFlag.htm, for example) in the frame named "main-frame". The HTML files, such as HVTableFlag.htm and HVTableVar.htm, _do not_ exist in the HomeVision HTML directory. Instead, the HomeVision software will create them on the fly. The software will use the information in the currently-opened schedule to display the specified information. The information is generally presented in a table with one line used for each object. For example, if you have 20 flags defined, the table will list the 20 flags by name. It will also contain fields to display the flag status and control buttons to change them. The basic format for these pages is specified in the HTML file named "HVMainFormat.htm". If you read this file, you'll see the text "InsertStatusHere" in the middle of some standard HTML code. The HomeVision software will replace this with the table containing the desired data. You can edit this file to change how the page is displayed (for example, you can change the background color, add text and graphics, etc.).

Note: If you want the password option enabled to restrict outside access, but also want to access the server from within your home without entering your name and password, you can. You do this by enabling the password option, then from within your home you include your password in the URL to access the page. In the browser window, include at the end of the URL the following:

> ?ACCESS=password

Replace "password" with your password. For example, if your password is "abcde" and you want to access the web page named "HVTableStatus.htm", the complete URL would look like this:

HTTP://127.0.0.1:1033/HVTableStatus.htm?access=abcde

Note that URLs contained in web page links must also have this text added (otherwise, when you click on a link, you will have to manually enter your name and password when requested). For example, the default web page "HVWebPage.htm" includes a frame whose source file is "HVTableStatus.htm". You should change it to "HVTableStatus.htm?access=abcde". That way, when you open "HVWebPage.htm" and the server requests the file "HVTableStatus.htm" to fill in the main frame, the password will be sent to the server and you won't have to enter it manually.

You should add the text "?access=abcde" at the end of all links within your web pages. If you're using the default web pages installed in your HomeVision HTML directory, the two files you need to edit are "HVWebPage.htm" and "HVIndex.htm". It would be best if you created two new pages, perhaps named "HVWebPageNoPassword.htm" and "HVIndexNoPassword.htm". Those pages would have the "?access=abcde" embedded in all the links. You could then access these pages from within your home without having to enter your password. From outside your home, you would access the regular web pages. The only risk with this is that is someone happened to access one of the pages with the "?access=abcde" embedded in it, they could read it and find your password. However, they won't be able to access the page in the first place unless they know your password, so this isn't a real issue.

Object Status Information

Most of the web pages can display status (such as flag states, variable values, etc.). In most cases, you will need to click the "Read status now" button to tell the server to read the status. The next time you display the web page, the new status will be shown. There is one exception to the need to click the "Read status now" button: If you have the "auto-report" feature enabled, some objects will report their status to the PC automatically. See the next section for details.

Auto-Report Feature

HomeVision version 2.7 added a feature called "Auto Report". It allows the controller to automatically report state changes to the PC. It can automatically report changes of X-10 addresses, input ports, output ports, flags, variables, analog inputs, and digital temperature sensors. To use the auto report feature, you must first enable it. This is done with the Controller Settings screen under the Configure menu, using the PC Communications tab. You can individually enable or disable reporting of each object type. You must download the schedule for any changes to take affect.

You should note several things about how this auto report mode works:

- The controller will report whenever an object changes state, regardless of what caused the change. For example, changes in any of the following ways will be reported:

  - The controller receives an X-10 signal such as A-1 ON or B-All Lights Off
  - A command in the schedule causes the controller to send an X-10 signal
  - The user transmits an X-10 signal using the PC software's X-10 control screen or the TV screen
  - The user changes a flag or variable using the PC software's flag and variable control screen or the TV screen
  - An input port changes

- When an object changes state, the new states of all objects of the same type are reported in a single message. For example, if you have 20 flags in your schedule, and one of the flags changes state, the serial message will show the new state of all 20 flags.

- The controller will sometimes send a report even if no object changed state. This can occur when a command in your schedule is performed, but the object is already in the commanded state. For

example, if a flag is currently SET, and your schedule performs a command to SET it, the flag doesn't change state. However, the controller will still send an auto report. In general, the controller sends a report if a command to change an object's state is performed, regardless of whether the object actually changes state. This normally doesn't pose any problem, but just means some unnecessary messages may be sent. However, this will be a problem if your schedule performs such commands repeatedly, such as in a periodic event running every loop (discussed next).

- Your schedule should not perform certain commands repeatedly, or else serial messages will be transmitted continuously (which could slow down both the controller and the PC software). This problem mainly occurs in a periodic event running every loop. For example, if a periodic event has a command to SET a flag, and it does so every loop, you'll get a new message every loop. The same thing will happen if you have a variable that increments every loop. This situation is easy to observe, as you simply have to open the terminal emulator screen and you'll serial messages filling the screen. It's OK to use periodic events running every loop, but the actions should be inside an If-Then statement. Assuming the If-Then statement is only true occasionally (and not continually), you won't get repeated messages.

If you decide to enable this feature, after doing so, we recommend you open the Terminal Emulator screen. You can then view any messages coming from the controller. The auto-report messages will look something like this:

    FLAGUPDATE:009001110100
    X10HCUPDATE:C0a~000000@000100

If you see messages repeatedly, you probably have a periodic event repeatedly performing the same action. You may want to modify the event or disable reporting of that object type to prevent the continuous messages from slowing down performance.

CUSTOMIZING THE WEB PAGES

HomeVision is preconfigured to display a variety of web pages for HomeVision status and control. However, you can also customize them if you like. There are several ways to do this, listed below in order of increasing difficulty (and flexibility).

1. Edit the files "HVWebPage.htm", "HVIndex.htm", "HVTop.htm", "HVFiles.htm", "HVComm.htm", "HVMainFormat.htm", or "HVBlank.htm". You can change the page layout, color schemes, displayed text, link titles. You can add graphics or fancier menus using JavaScript or VBScript.

2. Create your own status pages for objects (flags, variables, X-10, etc.) using the built-in object tables. You can then display these pages in the main frame instead of displaying the automatically-generated pages. This would allow you to change the table color, display multiple tables on a page, etc. You don't have to create the table that displays the information, but can instead include a tag in your page that tells HomeVision to generate the table and insert it. For example, the tag:

    <HV:Table Flag #0099FF|#FFFFDD|#FFFFCC>

   tells the software to generate the flag status table. It will use a heading background color of #0099FF (medium blue) and alternating table row colors of #FFFFDD (light yellow) and #FFFFCC (a slightly darker yellow).

3. Create your own status pages for objects (flags, variables, X-10, etc.) *without* using the built-in object tables. This gives you the same capabilities as the previous option, but allows you to display the object information in any way you like. For example, you could:

   - Create a table containing only the flags you want to display (omitting unwanted flags).
   - Use images to display the status of each flag.
   - Use the flag status in JavaScript or VBScript functions.

- Create an "image map" (which could show the floorplan of your home) that you can click on to send X-10 commands.

To display status information, you will include tags such as this in your HTML file:

```
<HV:X10 A1 state level%>
<HV:Var 23>
<HV:Flag 4 Home|Away|Unknown>
```

To send a command from the web page, you will include "forms" in your HTML page and "post" them to the HomeVision server. Here's an example that displays a button that, when clicked, will send the X-10 signal A1 Off:

```
<form method="POST">
        <input type="submit" name="X10 A1 Off" value="Turn light off">
</form>
```

These methods are detailed in the following sections.

Displaying Complete Web Pages

There are a variety of web pages that you can view simply by opening them. You access them just as you would a regular web page. There are two ways to do this:

1. By typing the complete address and page name in the browser URL line, like this:

    HTTP://127.0.0.1:1033/HVTableX10.htm

2. By putting the file name in a web page using an "address" tag, like this:

    <A HREF="HVTableX10.htm">Display Variable Table</A>

    You can then click on this link to open the desired page.

The table below describes the standard pages, giving their name and the file used to format the page:

PAGE DESCRIPTION	PAGE NAME	FORMAT BASED ON
General status (clock time, schedule name, etc.)	HVTableStatus.htm	HVMainFormat.htm *
X10 addresses (will only display X10 addresses for which you checked the "Load Name" field in the HomeVision software)	HVTableX10.htm	HVMainFormat.htm *
HVAC (thermostats)	HVTableHVAC.htm	HVMainFormat.htm *
Security system	HVTableSecurity.htm	HVMainFormat.htm *
Macros	HVTableMacro.htm	HVMainFormat.htm *
Input ports	HVTableInput.htm	HVMainFormat.htm *
Output ports	HVTableOutput.htm	HVMainFormat.htm *
Analog inputs	HVTableAnalog.htm	HVMainFormat.htm *
Digital temperature sensors	HVTableDTS.htm	HVMainFormat.htm *
Flags	HVTableFlag.htm	HVMainFormat.htm *
Variables	HVTableVar.htm	HVMainFormat.htm *
Timers	HVTableTimer.htm	HVMainFormat.htm *
Scheduled events	HVTableSE.htm	HVMainFormat.htm *
Periodic events	HVTablePE.htm	HVMainFormat.htm *
Infrared signals	HVTableIR.htm	HVMainFormat.htm *
Event log	HVTableEventLog.htm	HVMainFormat.htm *
Caller ID log (Note 1)	HVTableCID.htm	HVMainFormat.htm *

Schedule file access	HVFiles.htm	HVFiles.htm file **
Serial communications	HVComm.htm	HVComm.htm file **
Main HomeVision web page (framework for displaying other pages)	HVWebPage.htm	HVWebPage.htm **
Heading displayed at top of main HomeVision page	HVTop.htm	HVTop.htm **
Index (table of contents) displayed along left side of main HomeVision page	HVIndex.htm	HVIndex.htm **
Blank page used by HVWebPage.htm to display blank areas	HVBlank.htm	HVBlank.htm **
Page used to report status of commands sent to the server from the browser	HVCommandStatusFormat.htm	HVCommandStatusFormat.htm ***

Notes:

* The format for these pages is based on the file named "HVMainFormat.htm". The web server will read this file and replace the text "InsertStatusHere" with a table containing the desired information. You can edit this file to change the overall format (if you do this, be sure to include the text "InsertStatusHere" somewhere in it so the server knows where to insert the status table).

** The format for these pages is based on the indicated file. The web server will read these files and send them to the browser exactly as-is. You can edit these files in any way you like.

*** The format for this page is based on the file named "HVCommandStatusFormat.htm". The web server will read this file and replace the text "InsertStatusHere" with the status (result) of the command sent to the server. You can edit this file to change the overall format (if you do this, be sure to include the text "InsertStatusHere" somewhere in it so the server knows where to insert the status).

1) The caller ID page requires the HomeVision caller ID capability to be enabled. This creates a caller ID log file named "cid_log.txt" in the HomeVision directory. When you request the "HVTableCID.htm" page, the server will read the "cid_log.txt" file and return it to the browser for display. To limit the number of lines displayed, include the desired number of lines in the file name prior to the period. For example, to display a maximum of 25 lines, request the page "HVTableCID25.htm".

Using Tags That Return Values

You can also embed custom tags in your HTML page. When you request a page from the HomeVision server, the server will scan the page looking for any custom tags. The server will then replace the tag with the data specified by the tag. When the entire page has been scanned and converted, the resulting page will be sent to the browser for display. Thus, the custom tags won't appear in the page that's sent to the browser; the browser only sees the final page that results.

The tags can be divided into two groups:

1. Tags that return individual values, such as the value of a variable or the name of the schedule file currently running in the HomeVision controller.

2. Tags that return an entire HTML table, such as a table displaying all the HomeVision macros or scheduled events.

These tags are described in the following sections.

Tags That Return Individual Values

You can place these tags in your web page to display status information from HomeVision. For example, you can display such things as:

- The value of a variable
- The state of an X-10 device
- The state of an input port
- The HomeVision controller's clock time and date

The web server scans the HTML file for these custom tags and replaces them with the appropriate text. The allowable tags are shown in the following table, along with examples. The commands are not case-sensitive.

RETURNED TEXT	TAG FORMAT	EXAMPLES	
		TAG	DISPLAYED AS

X-10 device state	<HV:X10 # *STATE LEVEL LEVEL%*> where:
	    # is X-10 address (house code and unit code).
	    STATE means to display state as "On" or "Off".
	    LEVEL means to display level as a number (0 to 100).
	    LEVEL% means to display level as a % (0% to 100%).
		<HV:X10 A1 STATE>
		<HV:X10 D16 level>
		<HV:x-10 P10 state level%>
			On
			50
			On 75%

Variable value	<HV:Var #> where: # is variable ID # in decimal format (0-255).	<HV:Var 0> <HV:VAR 23>	16 154

Flag state	<HV:Flag # *SET|CLEAR|NEUTRAL*> where:
	    # is flag ID # in decimal format (0-255).
	    SET is the text to display if flag is set.
	    CLEAR is the text to display if flag is clear.
	    NEUTRAL is the text to display if flag is neutral.
		<HV:Flag 4 Home|Away|Error>
		<HV:flag 12 Door open|Door closed>
		<HV:Flag 6 Home|Away|Error>
			Home
			Door closed
			Error

Timer value	<HV:Timer # *STATEHMSC*>
	    # is timer ID # in decimal format (0-255).
	    STATEHMSC indicates which values to display:
	        STATE = either 'Running', 'Halted', or 'Ringing'
	        H = hour value
	        M = minute value
	        S = second value
	        C = centisecond (hundredths) value
		<HV:Timer 0 STATEHMSC>
		<HV:TIMER 3 MSC>
		<HV:Timer 23 HM>
		<HV:timer 223 STATE>
			Running 1:12:55.98
			4:32.65
			3:17
			Ringing

Input port state	<HV:Input # *HIGH|LOW*> where:
	    # is input port ID # in decimal format (0-255).
	    HIGH is the text to display if input is high.
	    LOW is the text to display if input is low.
		<HV:INPUT 12 ARMED|Disarmed>
		<HV:input 1 Door open|Door closed>
			ARMED
			Door closed

Output port state	<HV:Output # *HIGH|LOW*> where:
	    # is output port ID # in decimal format (0-255).
	    HIGH is the text to display if output is high.
	    LOW is the text to display if output is low.
		<HV:Output 16 On|Off>
		<HV:Output 1 Open|Closed>
			On
			Closed

Analog input value	<HV:Analog #> where: # is analog input ID # in decimal format (0-15).	<HV:Analog 0> <HV:Analog 7>	219 50
Digital temp sensor	<HV:DigitalSensor #> where: # is digital temp sensor ID # in decimal format (0-63). NOTES: • 50 will be subtracted from the value so the actual temperature is displayed. • If the value is 255, "ERROR" will be displayed.	<HV:DigitalSensor 0> <HV:DigitalSensor 1>	75 "ERROR"
Scheduled	<HV:SE #> where:	<HV:SE 12>	6:45 PM

event time	# is scheduled event ID # in decimal format (0-255).		
Periodic event rate	<HV:PE #> where: # is periodic event ID # in decimal format (0-255).	<HV:PE 12>	5 minutes

HVAC settings	<HV:HVAC # *DATA*> where:
	    # is the HVAC zone # in decimal format (1-16).
	
	Allowable values for *DATA* :
	    ControlMode
	    SystemMode
	    FanMode
	    Setpoint
	    Temperature
		<HV:HVAC 1 ControlMode>
		<HV:HVAC 1 SystemMode>
		<HV:HVAC 1 FANMODE>
		<HV:HVAC 3 setpoint>
		<HV:HVAC 12 Temperature>
			Run
			Heat
			Auto
			75
			76

Security system zone	<HV:SecZone # status> where: # is the security system zone # in decimal format (1-64).	<HV:SecZone 1 status> <HV:SecZone 6 STATUS>	OK ALARM MEMORY, FAULTED
Security system partition	<HV:SecPartition # status> where: # is the security system partition # in decimal format (1-8).	<HV:SECPARTITION 1 status> <HV:SecPartition 2 Status>	Armed, Chime off
HomeVision clock date and time	<HV:HVDateTime>	<HV:HVDateTime>	5 Jul 2000 at 1:11:21 PM
Name of file loaded in controller	<HV:LoadedFileName>	<HV:LoadedFileName>	
Date and time of file loaded in controller	<HV:LoadedFileDateTime>	<HV:LoadedFileDateTime>	5 Jul 2000 at 1:11:00 PM
HomeVision status	<HV:RunningHalted> NOTES: Indicates whether the controller is running or halted.	<HV:RunningHalted>	Running
Selftest results	<HV:SelftestResults> NOTES: Indicates the results of the self-test that runs when power is applied to controller.	<HV:SelftestResults>	Passed
X-10 interface status	<HV:X10Status> NOTES: Indicates whether the X-10 interface device (TW-523 or PSC-05) is connected and running OK.	<HV:X10Status>	Error
HomeVision error number	<HV:ErrorNumber> NOTES: Indicates the number of the latest error (if any) that has occurred in the controller.	<HV:ErrorNumber>	No error
PROM version	<HV:PromVersion>	<HV:PromVersion>	2.70

PROM checksum	<HV:PromChecksum>	<HV:PromChecksum>	A5h
PC clock date and time	<HV:PCDateTime>	<HV:PCDateTime>	5 Jul 2000 at 1:11:21 PM
File name open in HomeVision software	<HV:OpenedFileName>	<HV:OpenedFileName>	Example.haf
PC serial port #	<HV:ComPort>	<HV:ComPort>	1
PC serial port baud rate	<HV:ComBaud>	<HV:ComBaud>	19200
PC serial port status	<HV:ComStatus>	<HV:ComStatus>	Opened

Tags That Return Complete HTML Tables

The HomeVision web pages that are automatically generated use tables to display information for the HomeVision object types. There are tables for flags, variables, timers, input ports, infrared signals, and so forth. The tables have a heading row followed by one row for each object. The tables are generated with embedded tags for displaying the status of the objects. Before the web page is sent to the browser, the server replaces these tags with the current status of the object. In addition, most tables contain buttons to control the object (for example, the macro table has buttons to run each macro, and the X-10 table has buttons to send on and off commands to each X-10 address). The resulting table displays the object status information and gives the user a way to control them from the web page.

You can include these tables in your custom web page using a single HTML tag. All the tags follow a similar format:

    <HV:TABLE TableName HeadColor|EvenRowColor|OddRowColor>

Where:
- TableName is the name of the table to display.
- HeadColor is the background color of the heading row (for example, #0099FF is medium blue).
- EvenRowColor is the background color for the even numbered table rows (for example, #FFFFDD is light yellow).
- OddRowColor is the background color for the odd numbered table rows (for example, #FFFFCC is a slightly darker yellow).

Here's an example:

    <HV:Table Flag #0099FF|#FFFFDD|#FFFFCC>

The allowable tags are shown in the following table. The commands are not case-sensitive.

TABLE DESCRIPTION	TAG FORMAT
General status (clock time, schedule name, etc.)	<HV:TABLE Status HeadColor|EvenRowColor|OddRowColor>
X10 addresses	<HV:TABLE X10 HeadColor|EvenRowColor|OddRowColor>
HVAC (thermostats)	<HV:TABLE HVAC HeadColor|EvenRowColor|OddRowColor>
Security system	<HV:TABLE Security HeadColor|EvenRowColor|OddRowColor>
Macros	<HV:TABLE Macro HeadColor|EvenRowColor|OddRowColor>
Input ports	<HV:TABLE Input HeadColor|EvenRowColor|OddRowColor>
Output ports	<HV:TABLE Output HeadColor|EvenRowColor|OddRowColor>
Analog inputs	<HV:TABLE Analog HeadColor|EvenRowColor|OddRowColor>
Digital temperature sensors	<HV:TABLE DigitalSensor HeadColor|EvenRowColor|OddRowColor>
Flags	<HV:TABLE Flag HeadColor|EvenRowColor|OddRowColor>
Variables	<HV:TABLE Var HeadColor|EvenRowColor|OddRowColor>
Timers	<HV:TABLE Timer HeadColor|EvenRowColor|OddRowColor>
Scheduled events	<HV:TABLE SE HeadColor|EvenRowColor|OddRowColor>
Periodic events	<HV:TABLE PE HeadColor|EvenRowColor|OddRowColor>
Infrared signals	<HV:TABLE IR HeadColor|EvenRowColor|OddRowColor>
TV event log	<HV:TABLE EventLog HeadColor|EvenRowColor|OddRowColor>

Using Tags That Perform Actions

You can also use your web page to control HomeVision. Your web page sends commands to the HomeVision server, which then sends them to the HomeVision controller via the PC's serial port. To do this, you add an HTML "form" to your web page and "post" it to the HomeVision server. The form element "name" usually

defines the action to perform (although the "value" field can be used in some cases). You can have as many forms as you want on a page.

As an example, here's the HTML code to display a button that, when clicked, will command HomeVision to send the X-10 signal A1 Off:

```
<form method="POST">
        <input type="submit" name="X10 A1 Off" value="Bedroom light off">
</form>
```

The "name" field indicates this is an X-10 command for address A1, and that an OFF signal should be sent. The "type" field, named "submit", tells the browser to display a button. The "value" field indicates the button label (text) that is displayed (this can be anything you want).

You can also use a text box to enter a value. Here's the HTML code to display a text box for changing the value of a HomeVision variable:

```
<form method="POST">
        <input type="text" name="Var 12 ="  value="0">
</form>
```

In this case, the "name' field specifies the variable and also contains an equal sign indicating to set the variable equal to the "value" field. The "value" field will contain the desired variable value. The "0" tells the text box to initially display the number zero. The user can then type in a new number and press "Enter". The new value will be placed in the "value" filed and sent to the web server. The server will set the variable to this value.

One way to learn the command formats is to study the web pages automatically created by the web server. To do this, view one of the pages (like the X-10 page or macro page) in your web browser. Then select "view source" to see the HTML code generated by HomeVision. Most of the pages contain buttons that perform actions, and you can study how they are written.

The following table identifies the allowable commands and describes what to put in the "name" and "value" fields. The commands are not case-sensitive.

| COMMAND | "NAME" FIELD | | "VALUE" FIELD | EXAMPLE |
	FORMAT	NOTES	FORMAT / NOTES	FORMAT

X-10	X10 # COMMAND	# is X-10 address (house code and unit code)
		
		Allowable values for COMMAND:
		    On
		    Off
		    Bright ##
		    Dim ##
		    Level ##
		    PresetDim ##
		    HouseUnit
		    FunctionOn
		    FunctionOff
		    FunctionBright
		    FunctionDim
		    FunctionAllLightsOn
		    FunctionAllLightsOff
		    FunctionAllUnitsOff
		    PCSLevel ##
		    DirectToLevel ##
		    X10Scene ##
		    LevitonScene ##
			## values can be contained in the value field if desired (Server will look for the ## values in the name field. If not found, the server will look in the value field.)	name="X10 A1 On"
				name="X10 P11 Off"
				name="X10 A1 Level 10"
				name="X10 A1 Level" value="10"
				name="X10 A1 Bright" value="4"
				name="X10 A1 PCSLevel 5"
				name="X10 A1 PCSLevel" value="5"

Macro	Macro #	# is macro ID # in decimal format (0-255)	Not used. You may enter anything you like.	name="Macro 4"
Infrared	IR # XX times	# is infrared signal ID # in decimal format (0-255) XX is the number of times to transmit it	Not used. You may enter anything you like.	name="IR 9 1 time" name="IR 12 10 times"

Output Port	Output # COMMAND	# is output ID # in decimal format (0-255)
		
		Allowable values for COMMAND:
		    High
		    Low
		    Toggle
			Not used. You may enter anything you like.	name="Output 0 HIGH"
				name="Output 12 low"
				name="Output 15 toggle"

Flag	Flag # COMMAND	# is flag ID # in decimal format (0-255)
		
		Allowable values for COMMAND:
		    Set
		    Clear
		    Neutral
		    Toggle
			Not used. You may enter anything you like.	name="Flag 127 LOW"
				name="flag 43 High"
				name="FLAG 22 neutral"
				name="FLAG 2 Toggle"

Variable	Var # COMMAND	# is variable ID # in decimal format (0-255)
		
		Allowable values for COMMAND:
		    Increment
		    Decrement
		    : ## (where ## is the value to set the variable equal to, in decimal format (0-255). Note spaces before and after :)
		    = (where the value to set the variable equal to is in the value field)
			For the "=" command, the desired value (in decimal format 0-255) must be in value field. This is how you would do it if you want the user to enter the desired value into a text box.	name="Var 13 Increment"
				name="Var 63 decrement"
				name="Var 12 : 255"
				name="Var 12 =" value="255"

Timer	Timer # COMMAND	# is timer ID # in decimal format (0-255)
		
		Allowable values for COMMAND:
		    Start
		    Stop
		    Load With HH:MM:SS.CC
		    Load With HH:MM:SS.CC And Start
		
		Note: The last two commands (to load the timer with a value) are not yet implemented).
			Not used. You may enter anything you like.	name="Timer 0 Start"
				name="Timer 12 STOP"
				name="Timer 4 load with 0:30:00.00"
				name="Timer 5 load with 0:30:00.00 and start"

Scheduled Event	SE # COMMAND	# is scheduled event ID # in decimal format (0-255)
		
		Allowable values for COMMAND:
		    DoNow
		    Enable
		    Disable
			Not used. You may enter anything you like.	name="SE 1 DoNow"
				name="SE 1 Enable"
				name="SE 1 Disable"

Periodic Event	PE # COMMAND	# is periodic event ID # in decimal format (0-255)
		
		Allowable values for COMMAND:
		    DoNow
		    Enable
		    Disable
		    Rate=EveryLoop
		    Rate=1Minute
		    Rate=5Minutes
		    Rate=15Minutes
		    Rate=1Hour
		    Rate=2Hours
		    Rate=4Hours
			Not used. You may enter anything you like.	name="PE 4 DoNow"
				name="PE 5 Enable"
				name="PE 6 Disable"
				name="PE 12 Rate=5Minutes"
				name="PE 12 Rate=1Hour"

		Rate=8Hours Note there are no spaces.		

Thermostat	HVAC # COMMAND	# is the zone # in decimal format (1-16)
		
		Allowable values for COMMAND:
		    Run
		    Hold
		    Heat
		    Cool
		    Auto
		    Off
		    FanOn
		    FanAuto
		    Raise1Degree
		    Lower1Degree
		    : ## (where ## is the value to set the temperature to, in decimal format (0-255). Note spaces before and after :)
		    = (where the value to set the temperature to is in the value field)
			For the "=" command, the desired temperature setpoint (in decimal format 0-255) must be in value field. This is how you would do it if you want the user to enter the desired temperature setpoint into a text box.	name="HVAC 1 Run"
				name="HVAC 1 Cool"
				name="HVAC 2 FanOn"
				name="HVAC 2 Raise1Degree"
				name="HVAC 1 : 75"
				name="HVAC 1 =" value="75"

Security system zone	SecZone # COMMAND	# is the zone # in decimal format (1-64) Allowable values for COMMAND: ToggleBypass		

Security system partition	SecPartition # COMMAND	# indicates the partition(s) #. There are two different formats, depending on the command:
		
		For commands listed below with an *, enter the partition number in decimal format (1-8).
		
		For commands listed below with ########, you can identify multiple partitions by setting the appropriate bits:
		    Bit 0 set for partition 1
		    Bit 1 set for partition 2
		    Bit 2 set for partition 3
		    Bit 3 set for partition 4		

		Bit 4 set for partition 5
		Bit 5 set for partition 6
		Bit 6 set for partition 7
		Bit 7 set for partition 8
		
		Allowable values for COMMAND:
		    ArmHome allzones
		    ArmAway allzones
		    Disarm allzones
		    ToggleInstant 1 zone
		    ToggleChime 1 zone
		    ChimeOn allzones
		    ChimeOff allzones
		    SoundFire allzones
		    SoundMedical allzones
		    SoundPolice allzones		

Serial transmission	Method 1: SerialTX XXXX	XXXX is the serial string to transmit to HomeVision. A carriage return will be added to the end of the serial message to the controller	Not used. You may enter anything you like.	name="Serial TX Arm alarm"
	Method 2: SerialTX		The value field holds the serial string to transmit to HomeVision. A carriage return will be added to the end of the serial message to the controller	name="Serial TX" value="Arm alarm"
Sync clock (sets the controller's clock to the PC's time)	SyncClock		Not used. You may enter anything you like.	name="Sync clock"
Open schedule file (opens the specified file in the PC software)	Method 1: OpenFile filename.haf		Not used. You may enter anything you like.	name="OpenFile example.haf"
	Method 2: OpenFile		Filename.haf	name="OpenFile" value="example.haf"
Load schedule file (downloads the currently-opened file into the controller)	LoadFile		Not used. You may enter anything you like.	name="LoadFile"

Close serial port	ClosePort		Not used. You may enter anything you like.	name="ClosePort"

Open serial port	OpenPort # *BAUD*	# is the desired serial port.
		
		BAUD is the desired serial port baud rate. Allowable values:
		    2400
		    4800
		    9600
		    19200
		
		This command can be used to change the baud rate without closing the port first.
			Not used. You may enter anything you like.	name="OpenPort 2 19200"

Using Tags To Request Object Status

You can also use buttons on your web page to request the PC software to read object status from the controller. The software needs to know the object states in order to send them to your browser. To tell the PC to read the status, you add an HTML "form" to your web page and "post" it to the HomeVision server. The form element "name" defines the object type to read.

As an example, here's the HTML code to display a button that, when clicked, will command the PC software to read the status of all flags from the controller:

```
<FORM method="POST">
        <input type="submit" name="UpdateFlag" value="Read flag status now"
</FORM>
```

The "name" field indicates this is request to read the flag status. The "type" field, named "submit", tells the browser to display a button. The "value" field indicates the button label (text) that is displayed (this can be anything you want).

The allowable tags are shown in the following table (the commands are not case-sensitive):

OBJECTS TO READ	"NAME" FIELD TO USE IN FORM
General status (clock time, schedule name, etc.)	UpdateStatus
X10 addresses	UpdateX10
HVAC (thermostats)	UpdateHVAC
Security system	UpdateSecurity
Input ports	UpdateInput
Output ports	UpdateOutput
Analog inputs	UpdateAnalog
Digital temperature sensors	UpdateDTS
Flags	UpdateFlag
Variables	UpdateVar
Timers	UpdateTimer
Scheduled events	UpdateSE
Periodic events	UpdatePE
TV event log	UpdateEventLog

CADDX SERIAL SECURITY SYSTEM

INTRODUCTION

HomeVision can be used with the CADDX NetworX line of security systems. When used with a such a system, HomeVision provides the following capabilities:

- HomeVision can arm or disarm the system, switch between Home and Away modes, bypass zones, turn the keypad chime mode on and off, and more.
- HomeVision can track the status of the security system, detect alarm conditions, detect zone trouble conditions, and more.
- The Security System video screen can display system and zone status, and also allow users to control the system with an infrared remote.

Note that this capability requires HomeVision PROM and PC software versions 3.0 or later.

INSTALLATION AND SETUP

Follow the steps described below to install the system and configure it for use.

1) Install Security System

You must first install the security system; refer to the CADDX documentation for details. You must also install an NX-584 device into the security system. This provides the RS-232 serial interface that HomeVision connects to. We strongly recommend you get the security system up and running before connecting it to HomeVision. This will reduce the likelihood of problems and make troubleshooting much easier.

2) Configure Security System Communication Settings

The CADDX NX-584 provides a variety of configurable settings that control how it works. Several of these must be properly set up before it can be used with HomeVision. The table below shows the required settings and the NX-584 programming locations for each. Refer to the NX-584 Installation Manual for details on how to program these. NX-584 parameters not shown in the table can be set to any value.

REQUIRED SETTING	NX-584 PROGRAMMING LOCATIONS
Set to ASCII mode	Set Location 0, Segment 1, Bit 1 ON
Set to 19200 baud	Location 1, Bit 5 ON
Disable transition messages	Set Location 2, both segments, all bits OFF (to zero)
Enable zones snapshot request	Set Location 3, Segment 1, Bit 6 ON
Enable partitions snapshot request	Set Location 3, Segment 1, Bit 8 ON
Enable primary keypad function without PIN	Set Location 3, Segment 4, Bit 6 ON
Enable secondary keypad function	Set Location 3, Segment 4, Bit 7 ON
Enable zone bypass toggle	Set Location 3, Segment 4, Bit 8 ON

In addition to the above settings, you must assign HomeVision a user number for the security system. It can be the same user number as you or a family member, or it can be a separate user number for HomeVision. The only requirement is that this user number be assigned arm/disarm authority to all partitions. Refer to the security system installation manual (in the "Assigning Authority Level" section) for instructions on making these settings.

3) Connect Serial Port

The NX-584 can connect to the built-in HomeVision serial port, or to any of the optional add-on serial ports. The add-on ports are provided by external HomeVision-Serial and HomeVision-Phone/Serial boards. The built-on port is the one you use to download a schedule into HomeVision, and is normally connected to your computer. If

you want to use this built-in port for the security system, you will have to switch cables whenever you need to connect HomeVision back to the PC. In addition, the Master Serial Report Mode will be automatically disabled to prevent HomeVision event reporting messages from being sent to the security system. To avoid these issues, we recommend you instead use one of the add-on ports for the security system. This allows you to have HomeVision connected to the security system and the PC simultaneously.

Set up the serial port as follows:

1. If you're using one of the add-on serial ports, set it up as described in its documentation.
2. Configure the HomeVision port for 19200 baud operation (you may choose another baud rate, but the NX-584 must be set for the same rate, as described previously).
3. Connect the serial cable:
   - When using the built-in HomeVision port, use a standard serial cable (just like the one that comes with HomeVision). However, you shouldn't connect the security system until you've completed the other setup steps and downloaded your schedule into HomeVision.
   - When using an add-on port, use either a "null modem" cable, or a standard cable with a null modem adaptor. These are available from most electronics stores, such as Radio Shack.

   NOTE: The NX-584 has four jumpers that can switch the functions of the serial port pins. The cable types described in step 3 above are appropriate if you leave the NX-584 jumpers in their default positions.

4) Configure HomeVision Software

Next, you should configure the HomeVision software. First, tell HomeVision about the security system you're using:

1. Open the Security System Configuration screen under the Configure menu.
2. In the "Security system type" box, select "CADDX NetworX RS-232".
3. In the "Number of zones" box, select the number of security system zones you have. There can be a maximum of 64.
4. In the "Number of partitions" box, select the number of partitions in your security system. There can be a maximum of eight, although most users have only one.
5. In the "Controller serial port" box, select the HomeVision serial port number the thermostats are connected to.
6. In the "User number" box, enter the security system user number you've assigned to HomeVision (as described previously).
7. For each zone, you can enter a descriptive name. This name will be used in your schedule and displayed on the security system TV screen.
8. Click OK.
9. Open the Security TV Screen Configuration screen under the Advanced menu.
10. Check the "Enable video (TV) control screen" box if you want page 3 of the built-in video menu system to access the security system control screens.
11. Click OK.

At this point, you can download your schedule into HomeVision if you like. You will then be able to use the security system control screens on the TV menu system. Use these screens to verify HomeVision is communicating with the security system properly. If the screen reports a communications error, here are some things to try:

- Remove power from the security system then reapply it.
- Verify the serial cable is properly connected between HomeVision and the NX-584. Be sure you have the correct cable type. This is a common problem when using serial devices.
- Verify that the NX-584 parameters were set up properly. It's quite easy to make a mistake, and that may prevent HomeVision from communicating with it.
- If you're using a HomeVision add-on serial port, verify it is working properly. One way to do this is to disconnect the add-on port from the security system and connect it to another serial port on your PC (using a null modem cable). Use the HomeVision software to open that serial port, then view the

Terminal Emulator screen. The HomeVision serial device should be sending out messages like "0227042D58". These are HomeVision messages requesting data from the security system. If you don't see these messages, then either the add-on serial port isn't properly configured or connected, or the security system settings in the HomeVision software are incorrect.

You will most likely want to add commands to your schedule to fully use the security system capabililites. This is described in the following sections.

SECURITY SYSTEM COMMANDS

The following security system commands can be used anywhere in your schedule.


```
Arm partitions ### in Home mode
```

This command arms the partition(s) specified by ### in the Home (Stay) mode. There will be separate check boxes on the screen for each partition in your system. You can select any or all of the partitions to arm.

```
Arm partitions ### in Away mode
```

This command arms the partition(s) specified by ### in the Away mode. There will be separate check boxes on the screen for each partition in your system. You can select any or all of the partitions to arm.

```
Disarm (or silence) partitions ###
```

This command disarms the partition(s) specified by ###. There will be separate check boxes on the screen for each partition in your system. You can select any or all of the partitions to disarm. If an alarm is going off, this command will silence it.

```
Toggle zone ## bypass
```

This command toggles the bypassed state of zone number ##. If the zone is not currently bypassed, it will become bypassed. If it is currently bypassed, it will become unbypassed.

```
Turn partitions ### chime mode on
```

This command turns on the chime mode for the partition(s) specified by ###. There will be separate check boxes on the screen for each partition in your system. You can select any or all of the partitions to turn on.

```
Turn partitions ### chime mode off
```

This command turns off the chime mode for the partition(s) specified by ###. There will be separate check boxes on the screen for each partition in your system. You can select any or all of the partitions to turn off.

```
Toggle partitions ### "instant" mode
```

This command toggles the "instant" mode for the partition(s) specified by ###. There will be separate check boxes on the screen for each partition in your system. You can select any or all of the partitions to control. If the partition instant mode is currently off, it will turn on. If it is currently on, it will turn off.

```
Sound partitions ### fire panic
```

This command sounds the "fire panic" alarm for the partition(s) specified by ###. There will be separate check boxes on the screen for each partition in your system. You can select any or all of the partitions to sound.

```
Sound partitions ### medical panic
```

This command sounds the "medical panic" alarm for the partition(s) specified by ###. There will be separate check boxes on the screen for each partition in your system. You can select any or all of the partitions to sound.

```
Sound partitions ### police panic
```

This command sounds the "police panic" alarm for the partition(s) specified by ###. There will be separate check boxes on the screen for each partition in your system. You can select any or all of the partitions to sound.

```
Request all partitions status
```

This command causes HomeVision to request the status of all partitions from the security system. This command is normally not needed, as HomeVision will request status periodically. This command is provided mainly for possible future use with other security systems.

```
Request zones 1-16 status
```

This command causes HomeVision to request the status of zones 1 through 16 from the security system. This command is normally not needed, as HomeVision will request status periodically. This command is provided mainly for possible future use with other security systems.

```
Request zones 17-32 status
```

This command causes HomeVision to request the status of zones 17 through 32 from the security system. This command is normally not needed, as HomeVision will request status periodically. This command is provided mainly for possible future use with other security systems.

```
Request zones 33-48 status
```

This command causes HomeVision to request the status of zones 33 through 48 from the security system. This command is normally not needed, as HomeVision will request status periodically. This command is provided mainly for possible future use with other security systems.

```
Request zones 48-64 status
```

This command causes HomeVision to request the status of zones 49 through 64 from the security system. This command is normally not needed, as HomeVision will request status periodically. This command is provided mainly for possible future use with other security systems.

SECURITY SYSTEM EVENTS

Several types of "events" are associated with security systems. Your schedule can determine when one of these events occurs and take any action you desire. The events are:

- A partition is armed by a user
- A partition is disarmed by a user
- A partition alarm occurs

To detect when one of these events occurs and perform actions, use the Security System Event screen under the Objects/Events menu. This event will run whenever any of the security system events occur, performing the actions you've specified. To determine which event occurred, use an If-Then statement with the event as the condition. For example, to do something whenever a partition 1 alarm occurs, enter this in the Security System Event:

```
If
    EVENT: Partition 1 alarms occurs
Then
    DO WHATEVER YOU WANT
```

```
    End If
```

The events you can check for in an If-Then statement are described in detail below. These events can only be used inside the Security System Event.


```
EVENT: Partition ## becomes manually armed
```

This event occurs once, and only once, each time the specified partition is _manually_ armed. It does _not_ occur when HomeVision arms the system, but only when a _user_ arms it from a keypad. This event can be used in an If-Then condition, allowing you to perform actions whenever the partition gets armed manually. This If-Then condition can only be used in the "Security System Event" actions section (if you need to know elsewhere in your schedule whether the partition is currently armed, use the "Partition ## is armed" condition).

When the specified partition is manually armed, the Security System Event will run once, and this condition will be true. After the Security System Event is finished running, this condition will be false. This ensures that the condition is true only once for each arming.

```
EVENT: Partition ## becomes manually disarmed"
```

This event occurs once, and only once, each time the specified partition is _manually_ disarmed. It does _not_ occur when HomeVision disarms the system, but only when a _user_ disarms it from a keypad. This event can be used in an If-Then condition, allowing you to perform actions whenever the partition gets disarmed manually. This If-Then condition can only be used in the "Security System Event" actions section (if you need to know elsewhere in your schedule whether the partition is currently disarmed, use the "Partition ## is disarmed" condition).

When the specified partition is manually disarmed, the Security System Event will run once, and this condition will be true. After the Security System Event is finished running, this condition will be false. This ensures that the condition is true only once for each disarming.

```
EVENT: Partition ## alarms occurs
```

This event occurs once, and only once, each time an alarm occurs for the specified partition. This event can be used in an If-Then condition, allowing you to perform actions whenever an alarm occurs. This If-Then condition can only be used in the "Security System Event" actions section (if you need to know elsewhere in your schedule whether an alarm is currently occurring, use the "Partition ## has alarm condition" condition).

When a partition alarm occurs, the Security System Event will run once, and this condition will be true. After the Security System Event is finished running, this condition will be false. This ensures that the condition is true only once for each alarm.

SECURITY SYSTEM CONDITIONS

The following security system conditions can be checked in an If-Then statement anywhere in your schedule (they are not limited to use in the Security System Event, like the security system events are).


```
Partition ## is disarmed
```

This condition is true if the specified partition is currently disarmed.

```
Partition ## is armed in Home mode
```

This condition is true if the specified partition is currently armed in the Home (Stay) mode. It will be false if armed in the Away mode or disarmed.

```
Partition ## is armed in Away mode
```

This condition is true if the specified partition is currently armed in the Away mode. It will be false if armed in the Home (Stay) mode or disarmed.

`Partition ## is armed (in Home or Away mode)`

This condition is true if the specified partition is currently armed (regardless of whether it's in the Home (Stay) or Away mode). It will be false if disarmed.

`Partition ## is ready to arm`

This condition is true if the specified partition is currently ready to arm.

`Partition ## is not ready to arm`

This condition is true if the specified partition is currently not ready to arm.

`Partition ## has alarm condition`

This condition is true if the specified partition currently has an alarm condition.

`Partition ## has no alarm condition`

This condition is true if the specified partition currently does not have an alarm condition.

`Partition ## chime mode is on`

This condition is true if the specified partition's chime mode is currently on.

`Partition ## chime mode is off`

This condition is true if the specified partition's chime mode is currently off.

`Zone ## is faulted`

This condition is true if the specified zone is currently faulted.

`Zone ## is not faulted`

This condition is true if the specified zone is not currently faulted.

`Zone ## is bypassed`

This condition is true if the specified zone is currently bypassed.

`Zone ## is not bypassed`

This condition is true if the specified zone is not currently bypassed.

`Zone ## is in trouble condition`

This condition is true if the specified zone is currently in a "trouble" condition.

`Zone ## is not in trouble condition`

This condition is true if the specified zone is not currently in a "trouble" condition.

`Zone ## has alarm in memory`

This condition is true if the specified zone has an alarm stored in its memory (i.e., this zone is currently or was previously in an alarm condition).

`Zone ## does not have alarm in memory`

This condition is true if the specified zone does not have an alarm stored in its memory.

`Any zone is faulted`

This condition is true if _any_ of the system zones are currently faulted.

`Any zone is bypassed`

This condition is true if _any_ of the system zones are currently bypassed.

`Any zone is in trouble condition`

This condition is true if _any_ of the system zones are currently in a "trouble" condition.

`Any zone has an alarm in memory`

This condition is true if _any_ of the system zones currently have an alarm stored in memory.

`Security system communications is OK`

This condition is true if communications between HomeVision and the security system are OK.

`Security system communications error`

This condition is true if there is currently a communications problem between HomeVision and the security system.