

Sage Insteon Thermostat Plugin - User's Guide

Description

This plugin adds support for the Insteon 2441V Thermostat Adapter. It supports one to many thermostats in an installation. Following is a list of the features...

- Supports real-time updates of thermostat changes made at the physical thermostat. (Requires v2 of the 2441V or greater)
- Support polling the thermostat for changes. This can be used when a very old thermostat, (prior to status update v2), or just to make sure things are in sync.
- Can automatically create the proper Insteon links to the PLM. No need to manually press set buttons and run up and down stairways.
- It supports the standard HomeSeer thermostat API and should be compatible with any standard or add-on functionality that is designed to work with this API.
- Standard devices can be created to interact with the thermostat. These provide visibility to the status of the thermostat as well as allowing control of the thermostat through the devices. The devices are useful in many situations, but are optional.
- Special actions are added to the HomeSeer event interface to allow easy changes of thermostat values.
- Extended functionality not supported directly by the thermostat
 - Support for system-controlled program. Multiple programs can be configured. These programs can be controlled via standard event conditions such as time-of-day, day-of-week, etc. These can also be controlled via other non-scheduled type event conditions. These can also be controlled via the scripting interface. Control multiple thermostats like you would a lighting scene.
 - Support for hold/run mode. This allows for a temporary suspension of the program mode. The system will continue to track the desired program mode, but will not put it into effect until the system is put back into "Run" mode.
- In addition to the standard thermostat API support, there are many other scripting APIs that allow for extended functionality and easier interface.
- Supports web page control screen for concise control of all of your thermostats
- Integration into the updater and a standard plugin setup program that allows for easy installation and uninstallation.

System Requirements

- HS2 or HSPRO
- Insteon Plugin

Installation and Activation

(See *Requirements* for additional prerequisites.)

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The plugin is available through the HomeSeer Updater. It can also be installed by running the installer (.msi). If running the installer manually, shutdown HomeSeer, run the install, and then start HomeSeer.

NOTE: *If you notice that the installer is taking an usual amount of time (more than 20 seconds), it is likely that the dialog asking for activation is hidden behind the main dialog. Drag the main dialog to the side and you will see the other.*

If you did not select the option to activate the plugin during the installation process, you will need to do so before it can be configured and used. To do so...

1. Open the HomeSeer web interface.
2. Navigate to the setup section by clicking on the **Setup** button
3. Navigate the interface setup by clicking on the **Interfaces** tab
4. Scroll down, under the **Plug-in Interfaces** section until you see **Sage Insteon TStat**. If it has not been activated, there will be a button next to it labeled **Disabled**. Click on this and that will activate the plugin.

Once you have the plugin installed and activated, proceed on the section titled *Configuration*

Configuration

The plugins configuration page can be found under the interface setup. If you don't know how to get there, follow the steps in the *Installation and Activation* section of this document. Click on the **Config** button next to the Sage Insteon TStat plugin. You will see the following page appear...

There are four main sections to the configuration; HVAC Units, Thermostats, Programs, and Settings.

HVAC Units

HVAC Units are what tracks your furnace, boiler, heat pump or whatever type of heating/cooling system you have connected to your Insteon thermostat. The HVAC Unit devices can track things such as when the thermostat is actually calling for the heat, cooling, or fan to turn on. It also has come time accumulators to that you can see how long your HVAC Unit has been running. It is easiest to set these up before the thermostat because you need to link your thermostats to the HVAC Unit that they control. However, this can be done in either order.

NOTE: *In order to track when the thermostat is actually calling for heat, cooling, or fan, it is required that the thermostat be properly linked to the PLM. See the section titled, "Setting up the Thermostat Adapter", for more information. If you don't want to do this linking that is fine, but the functionality associated with the HVAC Units will not function.*

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General	Thermostats	Programs	HVAC Units	Info															
<table border="1"><thead><tr><th>Name</th><th>Location</th><th>Maint. Interval (Hours)</th><th colspan="2">Actions</th></tr></thead><tbody><tr><td>Furnace</td><td>Climate</td><td>1000</td><td>Save</td><td>Delete</td></tr><tr><td></td><td></td><td></td><td>Add</td><td></td></tr></tbody></table>					Name	Location	Maint. Interval (Hours)	Actions		Furnace	Climate	1000	Save	Delete				Add	
Name	Location	Maint. Interval (Hours)	Actions																
Furnace	Climate	1000	Save	Delete															
			Add																

Here is where you will tell the plugin what HVAC Units you have in your system. There will be a blank row with an **Add** button. This is where you will enter the information for HVAC that you wish to add.

1. Enter the name for the HVAC Unit under the Name column. This can be any name that you like such as "Main Furnace".
2. Enter the location for the HVAC Unit under the Location column. This again is something that you can determine. It could be something such as "Climate". This location, along with the name, is used when it is displayed in applications that support the thermostat API. It is also used as the default room in which any optional devices are created. However, once created, the room for these devices is independent of the location entered here.
3. Enter the maintenance interval (optional) for the HVAC Unit. This indicates the number of hours of running before maintenance is required. An example of the maintenance could be a furnace filter replacement. When the device is created, it will initialize a timer to this value and count down to zero as either the heat or cooling is called for.
4. Press the **Add** button.

You will see this new HVAC Unit now show up with a Save and Delete button next to it.

To update values for the HVAC Unit, make your changes and press the corresponding **Save** button on that row.

To delete a HVAC Unit select the corresponding **Delete** button.

Thermostats

Note: Do not configure your insteon thermostat in the Insteon plugin itself. This plug will register with the Insteon plug to indicate that it is controlling the thermostat.

General	Thermostats	Programs	HVAC Units	Info																														
<table border="1"><thead><tr><th>Name</th><th>Location</th><th colspan="2">Insteon Address</th><th>Has Humidistat</th><th>HVAC Unit</th><th colspan="2">Actions</th></tr></thead><tbody><tr><td>Thermostat</td><td>Climate</td><td>11</td><td>.BF</td><td>.27</td><td><input checked="" type="checkbox"/></td><td>Furnace</td><td>Save</td><td>Delete</td><td>Read Links</td><td>Update Links</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td><input checked="" type="checkbox"/></td><td>None</td><td>Add</td><td></td><td></td><td></td></tr></tbody></table> <p>Note: HomeSeer must be restarted after changing the thermostat for it to get registered correctly</p>					Name	Location	Insteon Address		Has Humidistat	HVAC Unit	Actions		Thermostat	Climate	11	.BF	.27	<input checked="" type="checkbox"/>	Furnace	Save	Delete	Read Links	Update Links						<input checked="" type="checkbox"/>	None	Add			
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					<input checked="" type="checkbox"/>	None	Add																											

Here is where you will tell the plugin what insteon thermostats you have in your system. There will be a blank row with an **Add** button. This is where you will enter the information for thermostat that you wish to add.

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5. Enter the name for the thermostat under the Name column. This can be any name that you like such as "Main Floor Thermostat".
6. Enter the location for the thermostat under the Location column. This again is something that you can determine. It could be something such as "Thermostats". This location, along with the name, is used when it is displayed in applications that support the thermostat API. It is also used as the default room in which any optional devices are created. However, once created, the room for these devices is independent of the location entered here.
7. Enter the address for the location under the Address column. This is the insteon address for your 2441V thermostat interface. It can be found on the back side of the interface module that plugs into the thermostat. If you already have it plugged in, you are going to need to remove it get this information. This address will be in the form of nn.nn.nn. Type that address in that form into this field.
8. Check the Has Humidistat option if the thermostat has the humidity sensor. This is an optional add-on to the thermostat that can be added at any time. It is supported by the interface and this plugin.
9. Press the **Add** button.

The new thermostat will be registered with the Insteon plugin. It is best to restart HomeSeer after adding or changing thermostats to make certain this registration is working. You will see this new thermostat now show up with a Save and Delete button next to it.

To update values for the thermostat, make your changes and press the corresponding **Save** button on that row.

To delete a thermostat select the corresponding **Delete** button.

Be aware that if you have events setup for this thermostat, they will not be automatically updated to reflect the deletion of a thermostat. You will have to make these adjustments manually.

Link Management

The plugin can automatically create the necessary links on the thermostat and the PLM. Once a thermostat is added there are two buttons provided for this functionality; Read Links and Update Links. The Read Links button will read the links present in the thermostat and output them to the log. The Update Links button will write the links to the thermostat. The links that will be written are controlled by two flags on the General configuration tab; Create Thermostat Links and Create HVAC Links. See that section for more information.

NOTE: *In order for link management options to work, there are certain version requirements for the Insteon Plugin as well as HomeSeer. If the correct minimum versions are not present link management options will not be available – You will not see the buttons. There are also messages in the log that display the version check information during startup. The minimum versions needed for link management are HomeSeer (or variant) 2.5.0.20 and Insteon Plugin 1.5.4.5.*

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Programs

The program functionality is used to store predefined settings that you want to take effect at certain times during the day or based on other events that take place such as arriving home or departing home. These are just the settings along with the given name. The events that will put those settings into effect are done with other parts of the HomeSeer system. These could be events entered into the standard event user interface, some other custom user interface, or another plugin or script.

NOTE: *The program functionality provided by the plugin is not the same as the program mode that is available on the Venstar thermostat. The plugin does allow for setting the thermostat into one of the available program modes, but this is not necessary to use the plugin's program functionality. Most users will not set the program mode on the thermostat.*

General	Thermostats	Programs	HVAC Units	Info			
Thermostat	Name	Heat	Cool	Mode	Fan	Actions	
Default ▼	Night	69	74	Auto ▼	Don't Set ▼	Save	Delete
Default ▼	Normal	70	74	Auto ▼	Don't Set ▼	Save	Delete
Default ▼	Vacation	64	76	Auto ▼	Don't Set ▼	Save	Delete
Default ▼	Weekday	69	75	Auto ▼	Don't Set ▼	Save	Delete
Default ▼				Don't Set ▼	Don't Set ▼	Add	

To create a new program, you will need to enter information into the row with the corresponding **Add** button. Here are the steps...

1. Enter which thermostat(s) you want the program to be applicable to. If set to Default, it will apply to all thermostats. If set to a specific thermostat it will only apply to that thermostat. More on how to use this functionality below.
2. Enter the name for the program. This name can be anything you wish. One suggestion is to name them based on when they are likely to be used; People Active, Sleeping, Vacation, etc. Create as many of these as you have combinations of settings.
3. Enter the heat setpoint under the Heat column. If this is left blank, the heat setpoint will not be changed.
4. Enter the cool setpoint under the Cool column. If this is left blank, the cool setpoint will not be changed.
5. Enter the mode under the Mode column. If this is left blank, the mode will not be changed. The available settings are; Don't Set, Heat, Cool, Auto, Program, Program-Heat and Program-Cool.
6. Enter the fan under the Fan column. If this is left blank, the fan setting will not be changed. The available settings are; Don't Set, Auto and On.
7. Press the **Add** button.

You will see this new thermostat now show up with a Save and Delete button next to it.

To update values for the program, make your changes and press the corresponding **Save** button on that row.

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To delete a program select the corresponding **Delete** button.

Be aware that if you have events setup for this program, they will not be automatically updated with new changes to program names or deletion of programs. You will have to make these adjustments manually.

More on Programs

When you set the thermostat for a program to Default, it will be used if there is no thermostat-specific setting for that same program name. I am going to provide a few examples here to illustrate how this can be used. Firstly let's assume that there are three thermostats named Basement, Main and Upper. I am also going only to focus on the cool setpoint part of the program for simplicity. There are other combinations with other program settings.

Scenario #1

Thermostat	Program	Heat Setpoint
Default	Night	65
Upper	Night	68

In this scenario, when the program Night is put into effect, all three thermostats will be adjusted. The Basement and Main thermostat will be set to 65 and the Upper will be set to 68.

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Scenario #2

Thermostat	Program	Heat Setpoint
Main	Night	65
Upper	Night	68

In this scenario, when the program Night is put into effect, only two of the three thermostats will be changed. The Main will be set to 65 and the Upper will be set to 68. The Basement thermostat will not be set at all – It will be left as-is. The basement is not changed because there is no thermostat-specific setting for it and there is no default.

Settings

There are two sub-sections to this; General and Error Checking. The options in this grouping are ones that will affect the plugin as a whole – Not a specific thermostat.

General | **Thermostats** | **Programs** | **HVAC Units** | **Info**

General

Create Thermostat Links:

Create HVAC Links:

Create Devices:

Debug Level: ▼

Insteon Flags: (Hexidecimal)

Bounds

	Low	High
Temperature:	<input type="text" value="25"/>	<input type="text" value="125"/>
Heat Setpoint:	<input type="text" value="50"/>	<input type="text" value="80"/>
Cool Setpoint:	<input type="text" value="65"/>	<input type="text" value="125"/>
Humidity:	<input type="text" value="10"/>	<input type="text" value="100"/>

Control Page

Auto-Refresh Every Seconds

[Save Settings](#)

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Create Devices	If checked, virtual devices will be created for each thermostat. If not checked, no devices will be created. If the Has Humidistat option is not checked for a particular thermostat, the humidity device will not be created even if this option is checked.	
Create Thermostat Links	If this option is checked when the Update Links button is pressed, (on thermostat configuration page), the links required to be notified of settings changes made at the thermostat will be added.	
Create HVAC Links	If this option is checked when the Update Links button is pressed, (on thermostat configuration page), the links required to be notified of Heat, Cool and Fan call will be added.	
Debug Level	This controls the level of logging that the plugin will produce. The available settings are...	
	No Logging	Absolutely no logging will be output by the plugin directly.
	Minimal	Typically only errors and warning will be logged at this level. This is the recommended level for normal operation.
	Debug	This provides some information that will be useful if there are problems with the interface. It is less voluminous than the last option.
	Detailed Debug	This is a more voluminous debug logging for issues. It is not recommended to have this option turned on for an extended period of time.

Change to the logging level take place after the Save button is pressed. There is no need to restart HomeSeer.

Insteon Flags	This is passed along to the insteon plugin. It can control how many hops are allowed in the insteon network. This number is presented in hexadecimal since this is how it is often referred to in the interface. The range is from 1-F. A=10 decimal up to F=15 decimal.
Auto-Refresh	Auto-refresh of the control page can be turned on/off via this checkbox. The number of seconds between refreshes can be controlled by editing the value on this line.

Some users have reported that they occasionally get strange values sent back from the thermostat. This is not something that I have experienced, but I have put in a little bit of functionality to check for reasonable values. If a value is received from the thermostat fall outside of these bounds, it will be ignored by the plugin.

Virtual Devices

If the option to create devices is enabled, the plugin will create several virtual devices. These allow for easier integration into some user interfaces. These will, obviously, show up on the HomeSeer web

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interface so that the thermostat(s) can display and be controlled from there. This has also come in handy for create a user interface within HSTouch. Some devices are status only and other can be controlled. By default, these devices are named by combining the name of the thermostat and the function. (I.e. Main Thermostat – Mode) Also, by default, they are assigned to a room based on the location field of the thermostat. The name, location, and location 2 can be changed without affecting their operation. So you can feel free to change these as you wish after they are created. One word of caution, if you delete these and then decide to recreate them, the new devices will be brand new with a new reference ID. This can be painful if there are things referencing the device by its reference. For instance, this will require HSTouch device status and command to be tweaked.

Device List: Sorted by Code, Ascending <small>Turn Off Sorting</small>								Control	
	Status	Floor	Room	Name	Code	Type	Last Change		
	Normal		Climate	Master Program	8.1	Master Program	Today 5:00:00 PM	Normal	
	Auto		Climate	Thermostat	8.2	Insteon Thermostat	Today 3:50:59 PM		
	Auto		Climate	Thermostat Mode	8.3	Mode	Today 3:50:59 PM	Off	Heat Cool Auto Prog Prog-Heat Prog-Cool Next Prev
	71		Climate	Thermostat Temp	8.4	Temp	Today 7:28:30 PM		
	71		Climate	Thermostat Heat	8.5	Heat	Today 6:48:48 PM	+ -	
	75		Climate	Thermostat Cool	8.6	Cool	Today 6:48:48 PM	+ -	
	Auto		Climate	Thermostat Fan	8.7	Fan	2/27/2011 11:43:39 PM	Auto On Toggle	
	30		Climate	Thermostat Hum	8.8	Hum	Today 7:31:47 PM		
	Normal		Climate	Thermostat Program	8.9	Program	Today 5:00:00 PM	Normal	
	Run		Climate	Thermostat Hold	8.10	Hold	3/1/2011 9:42:21 PM	Run Hold Toggle	
	Off		Climate	Furnace Mode	8.11	HVAC Mode	Today 7:28:20 PM		
	Off		Climate	Furnace Fan	8.12	HVAC Fan	Yesterday 8:11:05 AM		
	00:00		Climate	Furnace Cool	8.13	HVAC Cool	1/29/2011 8:21:34 PM	Reset	
	11.11:49		Climate	Furnace Heat	8.14	HVAC Heat	Today 7:28:20 PM	Reset	
	34.09:56		Climate	Filter Timer	8.16	HVAC Maint1	Today 7:28:20 PM	Reset	

The following devices are created. If the Control Buttons is checked there are buttons in the web interface to control the device and can be used in HSTouch actions. If the Control Value is checked, the device will respond to value changes. This allows them to be set/used in various ways including event trigger and actions, HSTouch control, and scripting.

Entity Type	Type	Display	Control Buttons	Control Value
Thermostat	Insteon Thermostat	X		
Thermostat	Mode	X	X	
Thermostat	Temperature	X		
Thermostat	Heat Setpoint	X	X	X
Thermostat	Cool Setpoint	X	X	X
Thermostat	Fan Mode	X	X	
Thermostat	Humidity	X		
Thermostat	Program	X		X
Thermostat	Hold Mode	X	X	
HVAC Unit	HVAC Mode	X		
HVAC Unit	HVAC Fan	X		
HVAC Unit	HVAC Cool	X	X	
HVAC Unit	HVAC Heat	X	X	
HVAC Unit	HVAC Maint1	X	X	

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Insteon Thermostat Device

This device is created to allow for integrating with HSTouch. In newer version of the standard projects that are distributed with the designer, there are screen that allow controlling thermostats without having to configure them in a custom project. In order to do that, it must be able to find this device and the device must be named the same as the thermostat. This is the one exception to naming devices as you wish.

Master Program

There is one device that is created that is not thermostat-specific. This is the Master Program device. When the program is set on this device is set it will set the program for all thermostats, not just the one specific thermostat.

Web Control Screen

There is a web control screen available that provides concise control over the thermostats. This screen can be setup to auto-refresh in the General tab of the configuration.

Master Program:

Thermostat							HVAC					
	Temp	Mode	Fan	Program	Heat SP	Cool SP	Status	Fan	Heat Time	Cool Time	Maint1 Time	
Thermostat	71 31%	Auto	Auto	Normal Mode: Run Run Hold	71	75	Furnace	Off	Off	11.11:49 Reset	00:00 Reset	34.09:56 Reset

Custom Actions

There are several custom actions that can be used to control the thermostat. These provide an easier and cleaner mechanism as opposed to calling the API for actions.

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Thermostat			
<input type="button" value="Time"/> <input type="button" value="Manual"/> <input type="button" value="Recurring"/>			
Time Triggered			
Control	Name	Trigger	Action
<input type="checkbox"/> Run	HVAC Weekday Sleeping	12:00 AM Su,Mo,Tu,We,Th WHEN	<input type="button" value="Add Action"/> Sage Insteon TStat: Program Thermostat to Night
<input type="checkbox"/> Run	HVAC Weekend Sleeping	2:00 AM Fr,Sa WHEN	<input type="button" value="Add Action"/> Sage Insteon TStat: Program Thermostat to Night
<input type="checkbox"/> Run	HVAC Weekday Morning	6:00 AM Mo,Tu,We,Th,Fr WHEN	<input type="button" value="Add Action"/> Sage Insteon TStat: Program Thermostat to Normal
<input type="checkbox"/> Run	HVAC Weekend Daytime	7:00 AM Su,Sa WHEN	<input type="button" value="Add Action"/> Sage Insteon TStat: Program Thermostat to Normal
<input type="checkbox"/> Run	HVAC Weekday Go To Work	8:00 AM Mo,Tu,We,Th,Fr WHEN	<input type="button" value="Add Action"/> Sage Insteon TStat: Program Thermostat to Weekday
<input type="checkbox"/> Run	HVAC Weekday Get Back From Work	5:00 PM Mo,Tu,We,Th,Fr WHEN	<input type="button" value="Add Action"/> Device Command: Virtual - Thermostat Thermostat Program Value Set set to Normal
Recurring			
Control	Name	Trigger	Action
<input type="checkbox"/> Run	Poll Thermostats	Recurring every 60 minute(s) and 12 second(s) WHEN	<input type="button" value="Add Action"/> Sage Insteon TStat: Poll All Thermostats

There is a new action available in the drop-down called **Insteon Thermostat Actions**. Selecting this will bring up a form where the action type and any required options can be entered.

Sage Insteon TStat-*Insteon Thermostat Actions*

Select Action: <input type="text" value="Set Program"/>	
Thermostat: <input type="text" value="All Thermostats"/>	Program: <input type="text" value="Night"/>

The types of action that can be performed are contained in the following list. Note that all of these required additional options to be set. After selecting the Action, press the Check Changes button and those additional options will be displayed. It is also a good idea to press this button one all of the options are entered as it will validate that the values are appropriate and sufficient. Options that are required are also noted in the table below.

Poll Thermostat(s) This will set out a poll request for either all thermostats or a specific one. Selecting the thermostat from the drop-down list is required. Which settings to be polled are can also be indicated. Choose to poll mode, temperature, Setpoints or Humidity. At least one of these options must be selected.

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- Set Program** This will change the program for the selected thermostat(s). It is required to select both the thermostat and the desired program.
- Change Setpoints** This will change the heat and cool setpoints as well as the mode and fan setting for the thermostat(s). It is required to select the thermostat(s). At least one of the heat/cool/mode/fan settings must be set, but it is not required to have them all set. To not affect the heat and cool setpoints, just leave them blank. You can also set these options via a named program, but this offers an alternative.
- Change Hold/Run Status** This can either set or release the hold status. It is required to enter the thermostat and hold status for this action type.

Custom Trigger

There is currently one custom trigger distributed. For the most part, standard device based triggers can be used. However, this can be a little tricky when working with programs as their value can change as programs are added and removed. In order to allow the trigger from the name of the program rather than the value, a custom trigger is distributed. It has only two parameters; 1) Indication of whether the master program or a thermostat-specific program should trigger the event and 2) the name of the program that will trigger the event.

Edit Plug-In Specific Trigger

Thermostat:

Program:

Working with HSTouch

Since this plugin is compatible with the standard thermostat plugin API, there are some shortcuts to adding a thermostat interface to your HSTouch screens. You can drag a thermostat from the **Thermostat** tab in the **Elements** window. Before working with your thermostat in HSTouch there are two prerequisites.

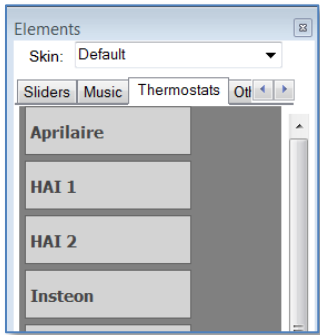
- Have the thermostat configured in the config page for the Sage Insteon Thermostat Plugin.
- Install the HSTouch template and accompanying files from the zip file located at the Sage Software web site.

The steps to add a thermostat to your HSTouch screen are...

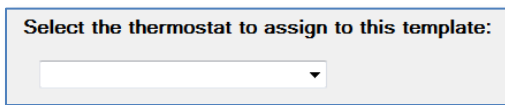
1. Open your project and go to the screen in which you want to add the thermostat.

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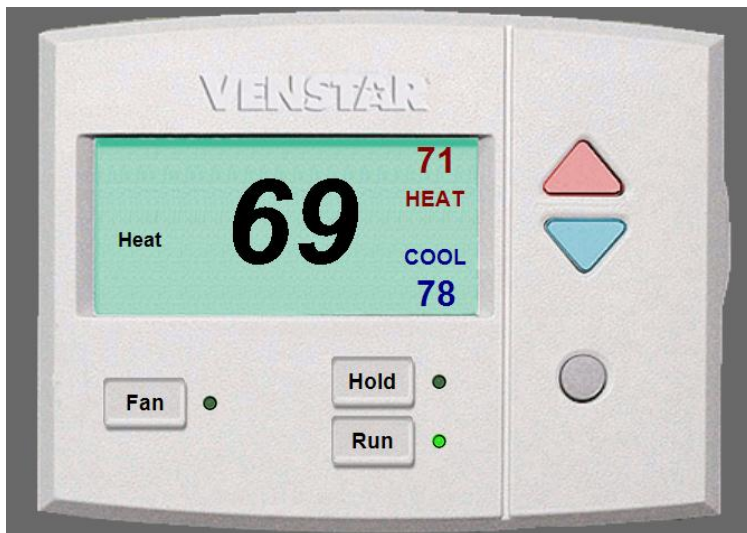
2. If not already open, open the *Elements* window.



3. Select the Thermostats tab. Here you will see a list of the available thermostat templates.
4. Drag the Insteon template over to your project.
5. A widow will be displayed asking which thermostat this should be linked to. Select your thermostat from this drop-down box.



That is it. You should see you thermostat show up as below...



There are certainly ways that you can change this. There is a mode selector that rotates through the modes. You could change to have buttons for the discrete modes. There are other variations that you may want.

You should understand that the standard thermostat API doesn't support all of the functionality of the insteon thermostat plugin. Most notably, these are the humidity display and the display/selection of programs. You will want to add these to you thermostat screen after you have added as above.

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Humidity

There are two ways this can be added. The first and easiest way is to just display the text from the humidity device if you have chosen to create devices. The other way is to put a script call into your text field. This would look like...

```
[${SCRIPT=hs.Plugin("Sage Insteon Tstat").GetHumidity("{thermostat-name}")}
```

Replace the {thermostat-name} above with the name of your thermostat. The advantage of doing it this way is that it is not reliant on a stored device reference so it will not get out of whack if the devices are deleted and re-added.

Programs

The best way to add selection of a program is to add a list box to your screen. This will display a scrollable list of the programs, show the selected program, and allow the program to be changed by touching it in the list. You could do this either for an individual thermostat or the master program.

Other Techniques

One last note; HSTouch offers the functionality to substitute other element values into scripting call in both displaying values as well as actions. For displaying values this is done in the text property. For action, it is done with the script action. This allows for the possibility of controlling multiple thermostats using a single set of widgets on your screen. Here is an example from a script action...

```
&hs.plugin("Sage Insteon TStat").TempUp("${ELEMENT=TStat-L->statName}")
```

One other note worth considering; If you would like to be able to set the temperature directly instead of using the up/down buttons, you could add the set points as list boxes tied to the set point devices.

Working with HST Distributed Projects

The new projects that are distributed are meant to be able to control most of the devices in your house without having to design a project. One aspect of these projects is the climate section. When you navigate to this option, you will be presented with a list of thermostats. After selecting the thermostat, a screen to display and control the thermostat is presented. In order for this functionality to work make sure the "Insteon Thermostat" device type was created for your thermostat. It must be named the same as your thermostat. New distributions of these projects will come with the "Insteon Thermostat" device type pre-configured. However, if you are using a version that didn't come with this, you will have to add this type to the **Device Types** property of the **Thermostat** screen.

Additional Information

There are some idiosyncrasies with this 2441V interface that should be noted. There is nothing the plugin can do about these...

- Heat and cool setpoint can only be reported in certain circumstances. When in Auto mode, both will be reported. When in Heat or Cool mode, only the corresponding setpoint will be reported.
- There is no way to poll the fan status unless the mode is set to Off.

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Because of some of these issues, you may notice that not all of your settings or devices are in sync and just report that they have never been set. To correct these put the thermostat in Auto mode and do a poll. This should take care of both setpoints. For the fan, just press the On button and then the Auto. This should get it into a known state.

Setting Up the Thermostat Adapter

The thermostat can operate without enabling the reporting below, but you will only be able to poll to get thermostat settings. Since there is no polling for Heat/Cool/Fan call, the plugin will not know if these modes are currently operating. If you want any of this reporting in the HVAC devices, these will need to be enabled. Below are some quick instructions on configuring the thermostat adapter, but more information can be found on the [Smarthome wiki](#).

Enable Settings Reporting

1. Set the thermostat to the OFF mode
2. Press and hold the set button on the adapter module for 3 seconds
The light on the adapter will blink continuously and the thermostat display will flicker once.
3. Press and hold the set button on the PLM for 3 seconds

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Enable Cool Call Reporting

1. Set the thermostat to the COOL mode
2. Press and hold the set button on the adapter module for 3 seconds
The light on the adapter will blink continuously and the thermostat display will flicker once.
3. Press and hold the set button on the PLM for 3 seconds

Enable Heat Call Reporting

1. Set the thermostat to the HEAT mode
2. Press and hold the set button on the adapter module for 3 seconds
The light on the adapter will blink continuously and the thermostat display will flicker once.
3. Press and hold the set button on the PLM for 3 seconds

Enable Fan Call Reporting

1. Turn furnace to the OFF mode and turn the fan on
2. Press and hold the set button on the adapter module for 3 seconds
The light on the adapter will blink continuously and the thermostat display will flicker once.
3. Press and hold the set button on the PLM for 3 seconds

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Scripting API

This plugin supports the default thermostat API. I will not be documenting that here as it would be redundant. If you wish to use this API, you can see the SDK help for more information. It should be noted that not all thermostat features are available on the insteon thermostat and therefore they will return that fact in the supported section of the API. There are also other parts of that API that are supported only because of extended software (not physical thermostat) support for the functionality. (I.e. Hold)

What will be documented here are some extended APIs that are unique to this plugin. Some of these are there to provide an API similar to what was available on the old script thermostat support and some are new. If you had scripts that worked against the script, there are still some minimal changes that are needed to refer to the plugin instead of the script. Any of the following calls must be prefaced with the plugin object. For example...

```
hs.Plugin("Sage Insteon TStat").SetProgram("TStat1", "Weekday")
```

GetHumidity(statName)

Description: This is used poll an individual thermostat

Return: (short integer) Humidity from passed thermostat.

Arguments:

Name	Data Type	Notes
statName	String	This is the thermostat name to retrieve the value from. This is case-sensitive.

GetLastHeatCoolReset(hvacName)

Description: This is used to retrieve the date of last reset. This can be useful in cases where your script need to determine the period of time over which the data was collected.

Return: Date (Date type) of the last reset time

Arguments:

Name	Data Type	Notes
hvacName	String	This is the name of the HVAC Unit to retrieve

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GetProgram(statName)

Description: Retrieve the current program for the thermostat

Return: (string) Current program in thermostat. This may not be active is the thermostat is set to hold.

Arguments:

Name	Data Type	Notes
statName	String	This is the thermostat name to retrieve the value from. This is case-sensitive.

PollAllStats()

Description: This will poll all thermostats

Return: None

Arguments: None

PollAllStats(pollMode, pollTemp, pollSet, pollHum)

Description: This is used poll an individual thermostat

Return: None

Arguments:

Name	Data Type	Notes
pollMode	Boolean	Poll the thermostat mode
pollTemp	Boolean	Poll the temperature
pollSet	Boolean	Poll the setpoint(s). One or both of the setpoints will be polled depending on the current mode of the thermostat.
pollHum	Boolean	Poll the humidity

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PollStat(statName)

Description: This is used poll an individual thermostat

Return: None

Arguments:

Name	Data Type	Notes
statName	String	This is the thermostat name to poll. This is case-sensitive.

PollStat(statName, pollMode, pollTemp, pollSet, pollHum)

Description: This is used poll an individual thermostat

Return: None

Arguments:

Name	Data Type	Notes
statName	String	This is the thermostat name to poll. This is case-sensitive.
pollMode	Boolean	Poll the thermostat mode
pollTemp	Boolean	Poll the temperature
pollSet	Boolean	Poll the setpoint(s). One or both of the setpoints will be polled depending on the current mode of the thermostat.
pollHum	Boolean	Poll the humidity

PollStat(statNum)

Description: This is used to set either the heat or cool setpoint for an individual thermostat

Return: None

Arguments:

Name	Data Type	Notes
statNum	Integer	This is the index number of the thermostat to poll.

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ResetHeatCoolTime(hvacName)

Description: Reset the time accumulators for the heat and cool time.

Return: None

Arguments:

Name	Data Type	Notes
hvacName	String	This is the name of the HVAC Unit to reset

ResetMaint1(hvacName)

Description: This is used to reset the maintenance count-down timer back to the full maintenance interval.

Return: None

Arguments:

Name	Data Type	Notes
hvacName	String	This is the name of the HVAC Unit to reset.

SetCoolSetpoint(statName, setPoint)

Description: Set the cool setpoint

Return: None

Arguments:

Name	Data Type	Notes
statName	String	This is the thermostat to change. This is case-sensitive.
setPoint	Short	The temperature to set the setpoint to

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SetFanOn(statName)

Description: Sets the fan to always on.

Return: None

Arguments:

Name	Data Type	Notes
statName	String	This is the thermostat to change. This is case-sensitive.

SetFanAuto(statName)

Description: Sets the fan to auto so that it comes on as determined by the thermostat

Return: None

Arguments:

Name	Data Type	Notes
statName	String	This is the thermostat to change. This is case-sensitive.

SetFanToggle(statName)

Description: Toggles the fan between on and auto. This is useful when using a single button on the user interface.

Return: None

Arguments:

Name	Data Type	Notes
statName	String	This is the thermostat to change. This is case-sensitive.

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SetHeatSetpoint(statName, setPoint)

Description: Set the heat setpoint

Return: None

Arguments:

Name	Data Type	Notes
statName	String	This is the thermostat to change. This is case-sensitive.
setPoint	Short	The temperature to set the setpoint to

SetHold(statName)

Description: This places a hold on the thermostat. Program changes will not take effect while in hold mode

Return: None

Arguments:

Name	Data Type	Notes
statName	String	This is the thermostat to change. This is case-sensitive.

SetHoldToggle(statName)

Description: This toggles the hold setting between Hold and Run. This is useful for user interfaces that use a single button for this purpose.

Return: None

Arguments:

Name	Data Type	Notes
statName	String	This is the thermostat to change. This is case-sensitive.

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SetMasterProgram(programName)

Description: This sets the program for all thermostats for which it is valid. If hold is set, this will not take effect until the hold is released. See the configuration section for more information on programs.

Return: None

Arguments:

Name	Data Type	Notes
programName	String	This is the program name to set. This is case-sensitive.

SetMode(statName, modeName)

Description: Sets the thermostat to a discrete mode.

Return: None

Arguments:

Name	Data Type	Notes
statName	String	This is the thermostat to change. This is case-sensitive.
modeName	String	This is the name of the mode to set. Allowable values are off, auto, heat, cool, prog, prog-heat, prog-cool. This is not case-sensitive.

SetModeNext(statName)

Description: Sets the next mode. The sequence is Off, Heat, Cool, Auto, Prog, Prog-Heat, Prog-Cool. This comes in handy if you want to have a single button to cycle through programs instead of discrete buttons.

Return: None

Arguments:

Name	Data Type	Notes
statName	String	This is the thermostat to change. This is case-sensitive.

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SetModePrev(statName)

Description: Sets the prev mode. The sequence is Off, Heat, Cool, Auto, Prog, Prog-Heat, Prog-Cool. This comes in handy if you want to have a single button to cycle through programs instead of discrete buttons.

Return: None

Arguments:

Name	Data Type	Notes
statName	String	This is the thermostat to change. This is case-sensitive.

SetProgram(parms)

Description: This sets the given thermostat to the program. If hold is set, this will not take effect until the hold is released.

Return: None

Arguments:

Name	Data Type	Notes
Parms	String	This is a space-separate list of arguments. Other than this, it is the same as the (string, string) variant.

SetProgram(statName, programName)

Description: This sets the given thermostat to the program. If hold is set, this will not take effect until the hold is released.

Return: None

Arguments:

Name	Data Type	Notes
statName	String	This is the thermostat on which to set the program. This is case-sensitive.
programName	String	This is the program name to set. This is case-sensitive.

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SetRun(statName)

Description: This releases the thermostat from hold mode. In other words puts it in Run mode.

Return: None

Arguments:

Name	Data Type	Notes
statName	String	This is the thermostat to change. This is case-sensitive.

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TStatCallback(parm)

Description: This is used to set either the heat or cool setpoint for an individual thermostat

Return: None

Arguments:

Name	Data Type	Notes
Parm	String	<p>This is a space-separated list of parameters. The first is the thermostat name. The second is the button to simulate. The available button strings are</p> <p>For Mode...</p> <ul style="list-style-type: none">• Off• Heat• Cool• Auto• Prog• Prog-Heat• Prog-Cool• Mode-Next• Mode-Prev <p>For Temperature...</p> <ul style="list-style-type: none">• TempUp• TempDn <p>For Fan...</p> <ul style="list-style-type: none">• Fan-Auto• Fan-On• Fan-Toggle <p>For Hold</p> <ul style="list-style-type: none">• Hold-Hold• Hold-Run• Hold-Toggle

The button names are not case-sensitive, but the thermostat name is.

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SetTempUp(statName)

Description: Sets both cool and heat set points up one degree. The thermostat will only increment the heat setpoint when in heat mode and cool setpoint when in cool mode. Both will be incremented while in auto mode.

Return: None

Arguments:

Name	Data Type	Notes
statName	String	This is the thermostat to change. This is case-sensitive.

SetTempDown(statName)

Description: Sets both cool and heat set points down one degree. The thermostat will only decrement the heat setpoint when in heat mode and cool setpoint when in cool mode. Both will be decremented while in auto mode.

Return: None

Arguments:

Name	Data Type	Notes
statName	String	This is the thermostat to change. This is case-sensitive.

SetTStatSetpoint(parm)

Description: This is used to set either the heat or cool setpoint for an individual thermostat

Return: None

Arguments:

Name	Data Type	Notes
Parm	String	This is a space-separated list of parameters. The first is the thermostat name. The second is the setpoint to change. The third is the new setpoint. (I.e. "tstat1 cool 75". The setpoint can be either heat or cool. This is not case-sensitive. However, the thermostat name is.

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Support/Contact Information

Support is available through multiple mechanisms. Feel free to post questions or issue on the HomeSeer forum or raise a help desk ticket. Also, there will be additional information on the Sage Software web site.

Tom Christian

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