

## Chapter 25 Design Tools

There are several tools in HCA that can make managing your home design a bit easier.

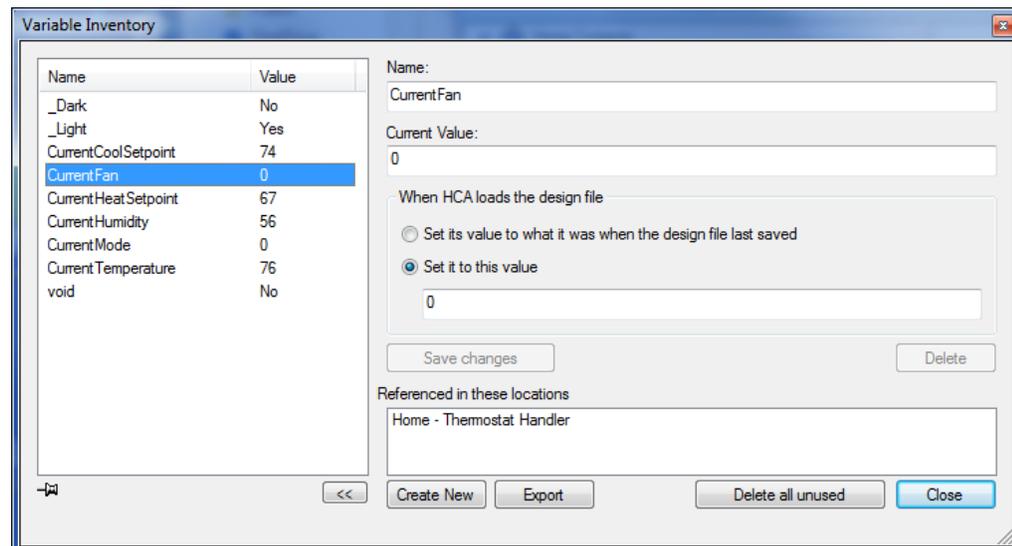
This chapter describes these tools and includes:

- Using the Program Variable Inventory
- HCA Status dialog
- Communications Monitor
- Interface Viewer
- File Inventory
- Daily Report Email

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### Variable Inventory

As explained in the chapter on programs, there are objects in HCA that you create that have both a name and a value. These objects are called variables. All the variables in an HCA design can be seen and managed in a dialog accessed by pressing the *Variables* button in the *Control* ribbon category.



This dialog can be left open while you perform other actions with HCA and the value of each variable updates as programs that reference them are executed. If you want to temporarily stop the display from updating, click on the push-pin icon in the lower left corner of the screen. When the dialog is pinned, no updates happen to the display. Click it again to resume having the dialog update.

This dialog contains these parts:

- A list of all global variables in your design with their name and current value.
- Information about the currently selected variable's value

- A list of all uses of the variable

When the program variable inventory dialog is open you can modify the value of any variable by selecting its name in the list then changing its value in the value edit box, and pressing the *Save Changes* button.

Since variables are untyped, the type of data you entered is determined by this procedure.

- If it can be converted to a number, then the value assigned is numeric.
- If it is “yes”, “no”, “true”, or “false”, then the value assigned is Boolean.
- If it is date-time quoted (the quote character is # in this case) and what is between the quotes can be converted to a date-time, then the value assigned is date-time.
- If it isn’t date-time quoted but what was entered can be converted to a date-time, then the value assigned is date-time.
- If it is string quoted (the quote character is “ in this case), then the value assigned is string. The start and end quotes are not saved as part of the string.

If none of the above, then the value assigned is a string

When you save your design file the current values of each variable is saved. When your design file is loaded you can have HCA set the variable to that saved value or assign it a new value. This is specified in the variable inventory dialog “When HCA loads the design file” box. If you are using the restart feature of HCA, the value of the variables come from the state file – see the chapter on Restart.

To remove a variable from your design, use the Delete button. You can't delete a variable unless it is no longer referenced any place in your design.

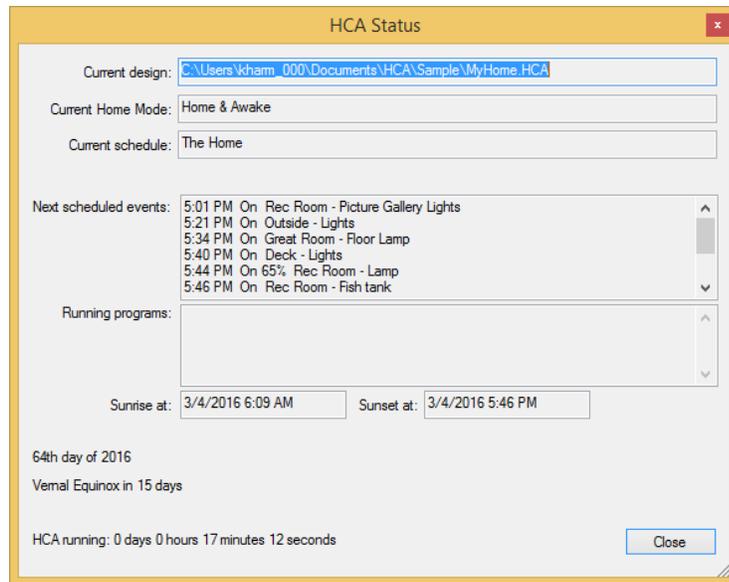
**Hint:** For more information on variables see the chapter on programs and the chapter on expressions.

**Hint:** When keeping the variable inventory on the screen you can use the button labeled “<<” to shrink and expand the dialog to use less screen space.

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## HCA Status dialog

The HCA status dialog is a quick place to go to check on the state of your design. Open the status dialog by pressing the *HCA Status* button in the *Control* ribbon category.



Shown in the dialog is the current schedule, the next few scheduled events and any programs currently running and what they are doing.

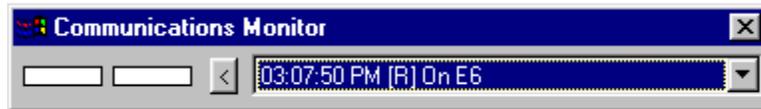
This dialog can be left open while you perform other tasks and HCA keeps it updated as things change.

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## Communications Monitor

The Communications monitor is a small window that shows when commands are sent or received from any of the interfaces connected to your computer's communications ports used by HCA to send and receive commands.

The Communications monitor is opened by pressing the *Comm Monitor* button in the ribbon *Control* category. This Window appears as:



The parts of this window are:

- A rectangle that lights up when data is received from the interface
- A rectangle that lights up when data is sent to the interface
- A button that can reduce the window to just the send and receive lights or expand it to show all the information
- A drop down list that shows the last few commands with the date and time, if the command was a receive [R] or send [S], the name of the command, and the house and unit code of the command.

The communications monitor can be very useful if the interface in use doesn't have any status lights as part of its hardware.

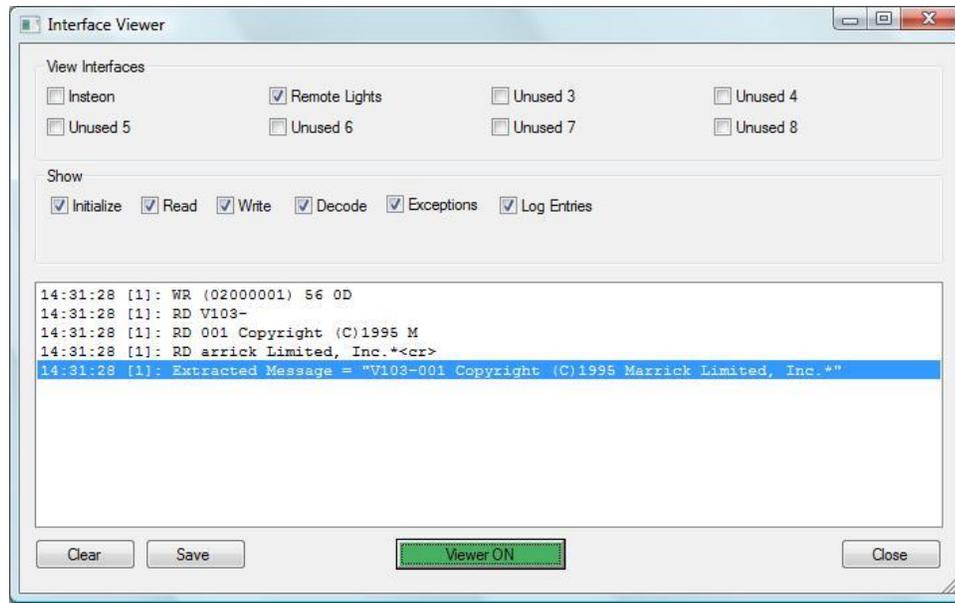
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## Interface Viewer

In general, HCA takes care of all the details of interacting with the interfaces and sending, receiving, and decoding their protocols. There usually isn't a reason for you to want to see the lowest level communications between HCA and the interface but if you do, the Interface Viewer does that.

One place where you may really need to see all the data between HCA and an interface is when working with the Generic Serial and IP interfaces – detailed in the *Generic Interfaces* appendix. It can be complex working with these interfaces since all the encoding of messages you send and decoding of messages received is implemented in programs you create.

Open the *Interface Viewer* from the *Interfaces* ribbon category. This viewer shows the messages sent to and received from one or more interfaces. This gives you a window into the communications at the lowest level.



The names of the eight interfaces that can be configured are the first set of checkboxes. Tick the ones that you want to see data from. Interfaces not configured are listed as *Unused*.

The *Show* box determines what sort of information you want to view. Tick or clear the boxes for the type of data you want to see.

You can turn the viewer on or off with the button at the bottom of the dialog. When green the viewer is enabled and when red it isn't.

In the list reads from the interface are prefixed with RD, writes with WR, and if the message is decoded – some interfaces are but as explained above the receptions from the Generic Interfaces are not – they are prefixed with DC. Enclosed in []'s is the number of the interface the list entry is for. The first interface is interface 0 and the last is 7.

This interface is at a very low level so you may see, because of the nature of network and serial reads, a single reception in multiple RD lines.

You can clear the list with the *Clear* button and save the list into a text file with the *Save* button.

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## File Inventory

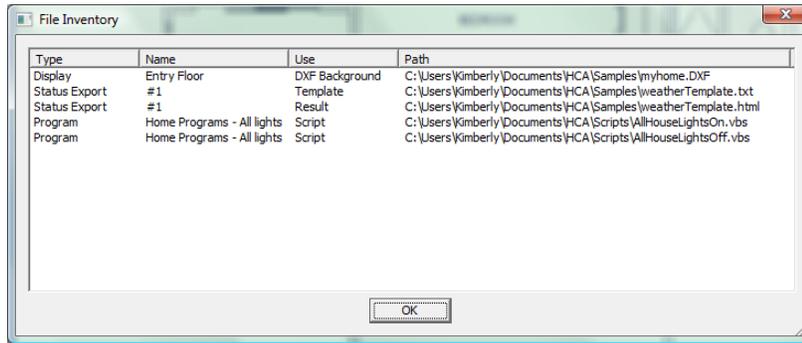
In addition to your design file - the .HCA file – there may be several other files that are referenced by your design. These files are:

- Display background DXF files.
- Display background image files
- HTML displays template and result files.
- IR key definition files for Global Cache IR interfaces
- Sound files referenced in "Play Sound" Visual Program elements.
- Data files referenced in "Read Data" Visual program elements.
- Files referenced in "Status Export" Visual Program elements
- Script files referenced in "Script" visual program elements

- Windows programs referenced in Visual Program "Run" elements
- The path of files used by the Weather system - import file paths, database folder paths
- Files referenced in periodic status exports

With so many files referenced from so many places it may be complex to try and keep track of them all. HCA helpfully provides one place where you can find all these files and where they are referenced.

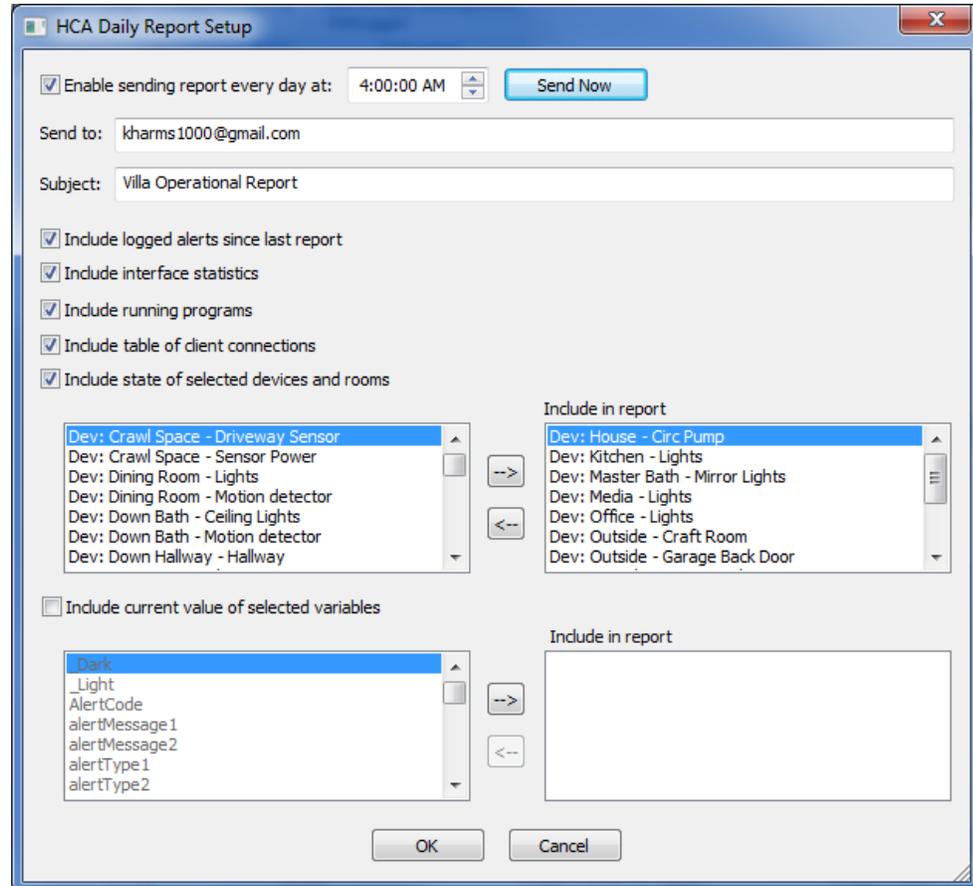
To display this dialog, press the *File Inventory* button in the ribbon *Design Tools* category.



This dialog shows in one place all your external files that are part of your design.

## Daily Report

This tool configures the sending of an email to one or more destinations every day supplying the status of your HCA installation. To configure this tool, press the *Daily Report Setup* button in the *Tools* ribbon category.



The elements of the configuration are:

**Enable and time:** Tick the enable box to enable sending the daily report and chose a time to send it.

**Send to:** The email address to send to. If more than one, separate them with a comma.

**Subject:** The subject of the email. Enter anything you would like.

The next configuration settings enables or disables report sections. These are:

- Any alerts that are in the alert log since the last report was sent
- Statistics about the connected interfaces
- A list of any programs running when the daily report is generated
- A table showing the time of connection and disconnection of any clients

The next section enables the inclusion of a table showing the state of selected devices and rooms. Once the enable box has been ticked, you can select those devices and rooms you want included in the report. The maximum number that can be selected is 64.

The final section enables the inclusion of a table showing the value of selected global variables. Once the enable box has been ticked, you can select the variables you want to be included in the report. The maximum number that can be selected is 64.

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### Adding to the report using a program

In addition to these sections of the email that HCA generates itself, you can add your own information to the report by having a program use the `_ReportAdd` function in a Compute element. This function adds the text provided to a list saved for the next time the daily report is sent. After the report is generated, the list is cleared so it isn't sent the next day.

The function is:

```
Void = _ReportAdd ("text")
```

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### Email must be configured

For the report to be generated and sent to you, HCA must be configured to send email. This is done from the *Tools* ribbon category, *Visual Programmer* panel, *Messaging* button. It can be a bit of a challenge to get the settings correct for your ISP, and some ISPs simply don't allow non-email programs to send email. In that case, the best approach is to create a GMail account for this. See the technical note on Gmail with HCA.

When in the daily report configuration dialog, use the "Send Now" button to verify that you have configured the report in the way you want it.