



HCA Tech Note 126

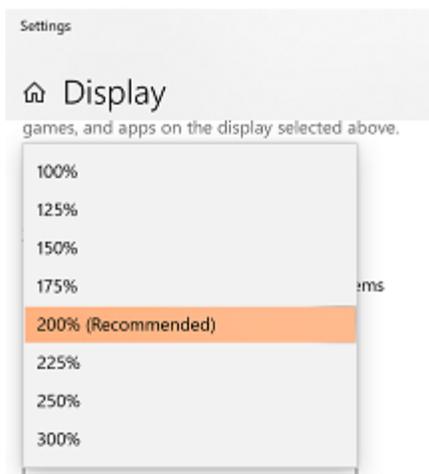
Client Display Scaling

This technical note is only important if you use HCA in client-server mode and have clients on different displays.

In addition to the display resolution of your screen (1024 x 768, 1600 x 1200, etc) some displays let you adjust the scaling factor called the DPI ("dots per inch"). When you change the DPI for your display, it changes the size of text, images, and other items to appear larger or smaller.

NOTE: This gets insanely complex and you can read the Wikipedia article on DPI if you want to learn more, but the bottom line is that HCA attempts to render the display you created the same on different clients, each could be using a different scaling factor.

In Windows 10, scaling is adjusted in the Display Settings, Scale and Layout section.



The scale factor can make life interesting if your design contains tiled displays. Suppose that while connected to your server from client machine "A", you created a tiled display making all the tiles and images look the way you want. Now connect to the server from client machine "B". If "A" and "B" have the same DPI, then the displays will look the same. But if they have different DPI's, the displays will not look the same. If client machine A has a higher DPI than client machine B, images and tiles appear smaller.

The key here is that you are viewing your design from a different machine than it was created on. If you use both the client and the server on the same machine, or all client machines have the same DPI, then none of this really matters. You created the displays and made them look correct and because all the clients use the same DPI – whatever it is - they appear the same on all clients.

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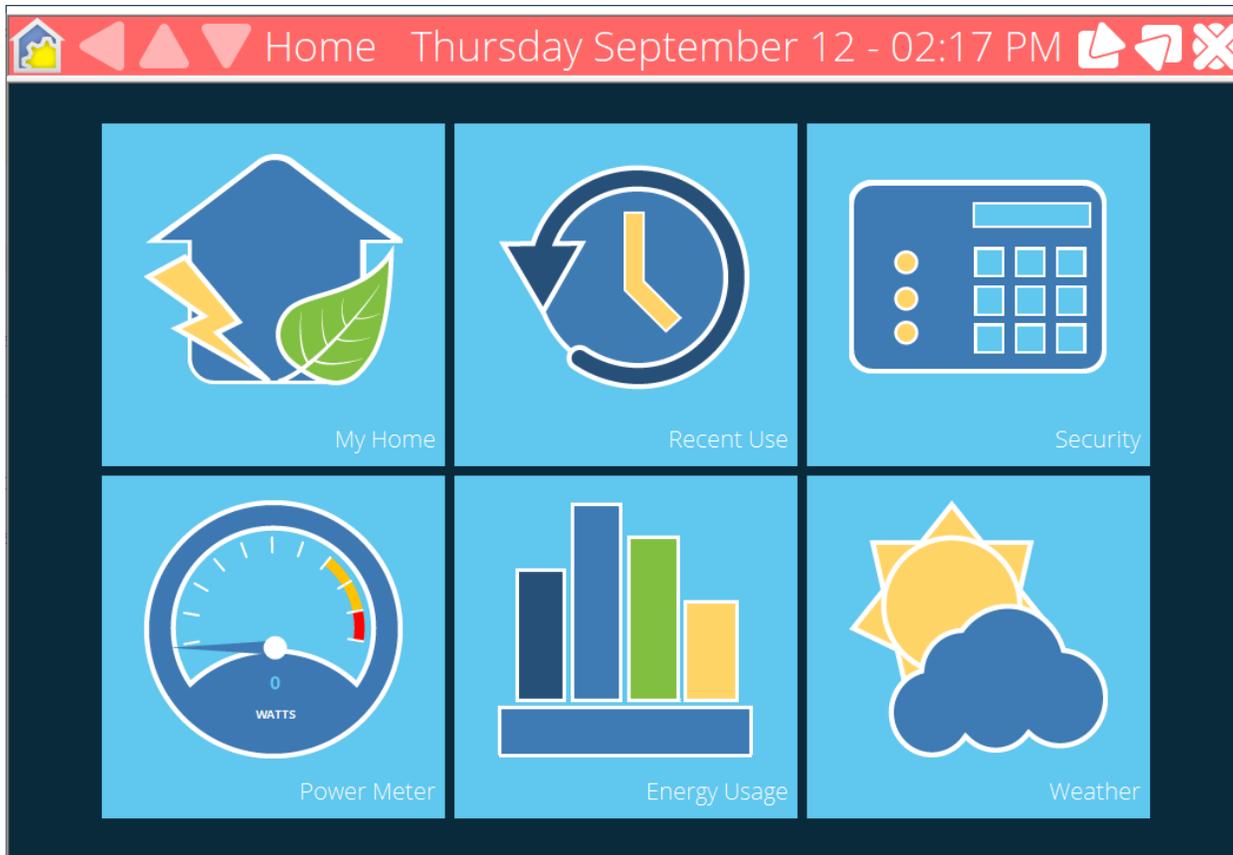
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HCA Tech Note 126

This is only an issue if you run clients on machines different from where you created your design and if those machines have different scaling factors. Some examples may make this clearer.

Here is machine A (DPI 96) where the display was created:



Looks good! Take note of the size of the image compared to the tile label.

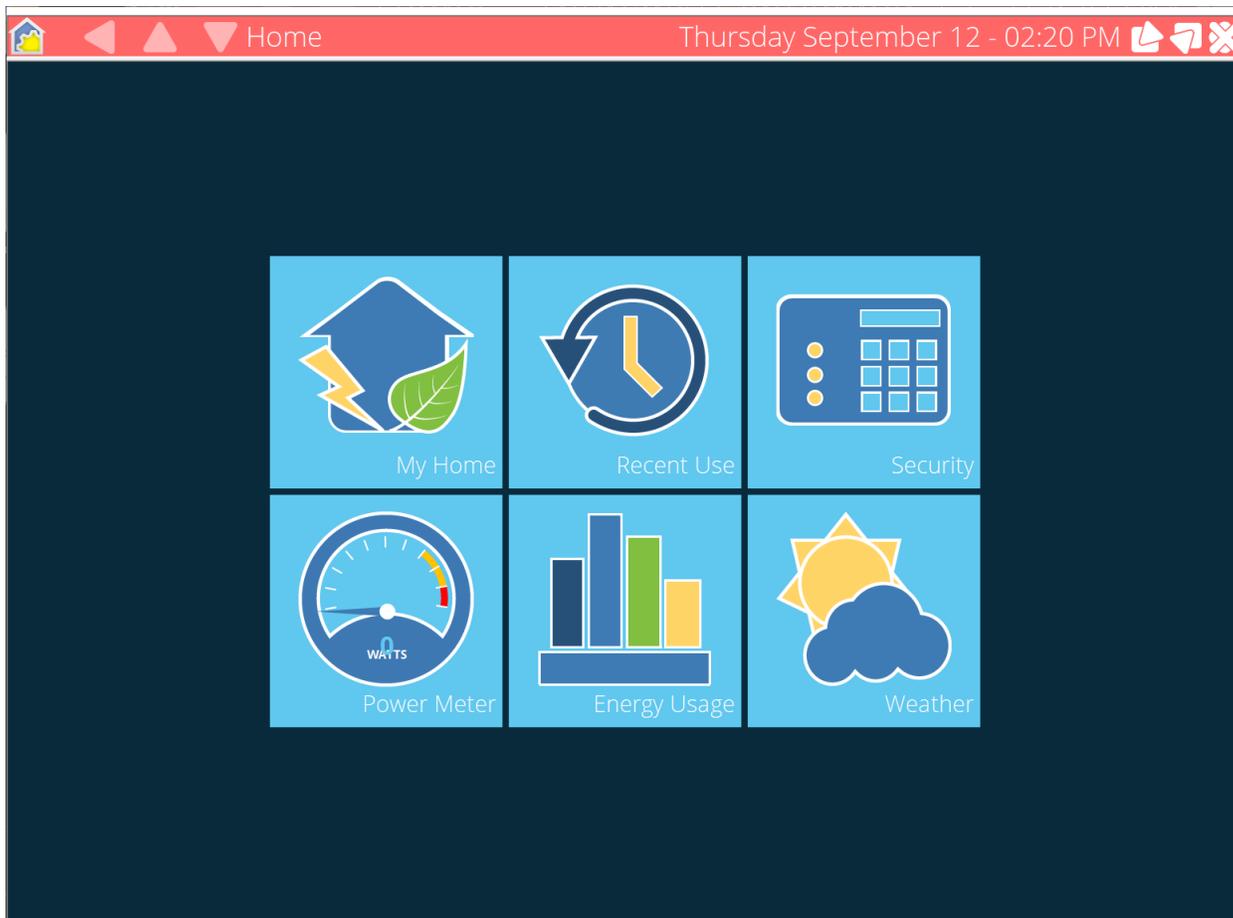
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HCA Tech Note 126

Here is machine B (DPI 144) with HCA not compensating with the different scale factor.



Look at the size of the tile labels compared to the tile images. It clearly isn't the same as when you created it. Also note that the back, down, and up buttons in the header are not spaced the same.

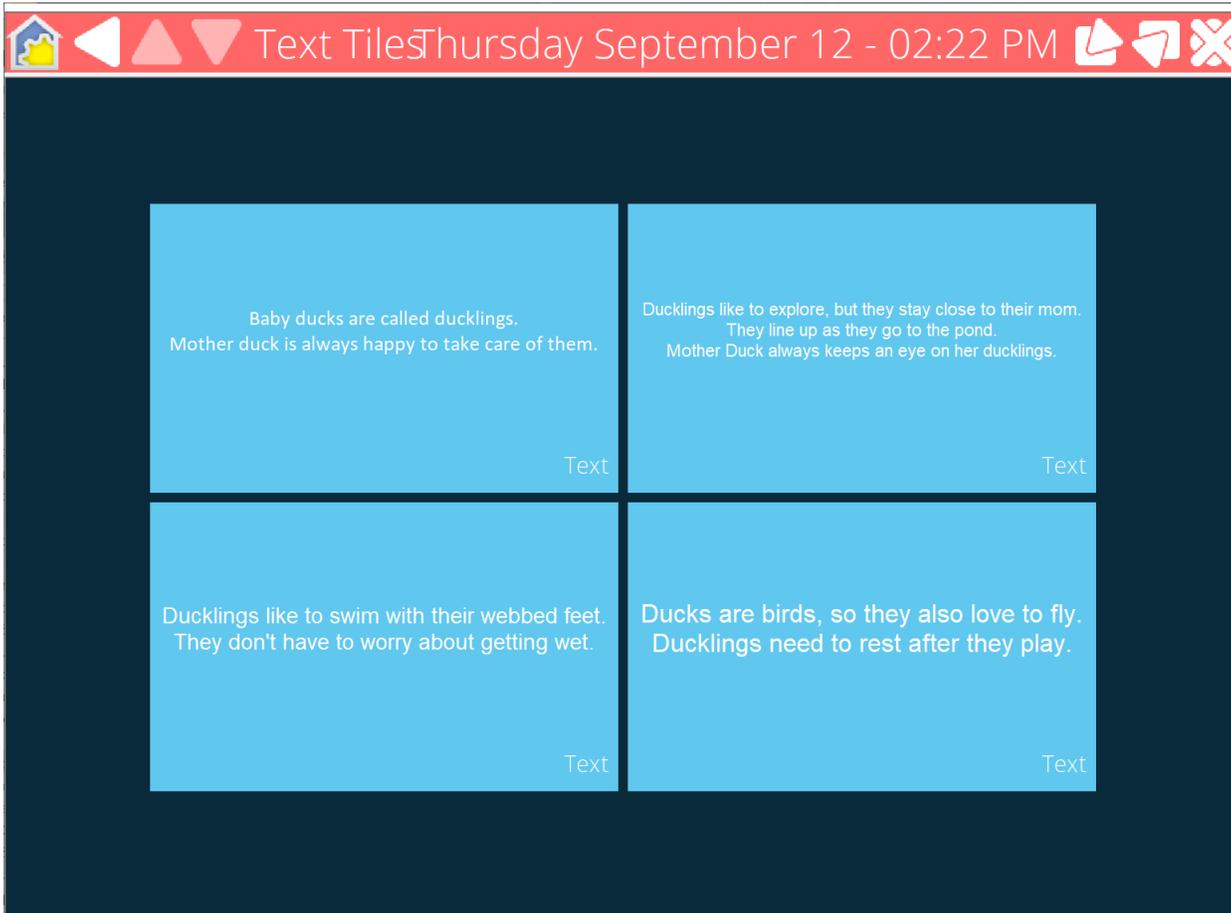
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HCA Tech Note 126

As a second example, here is a page on machine A (DPI 96) as it was intended to appear:



Note that the text correctly fits in the tiles.

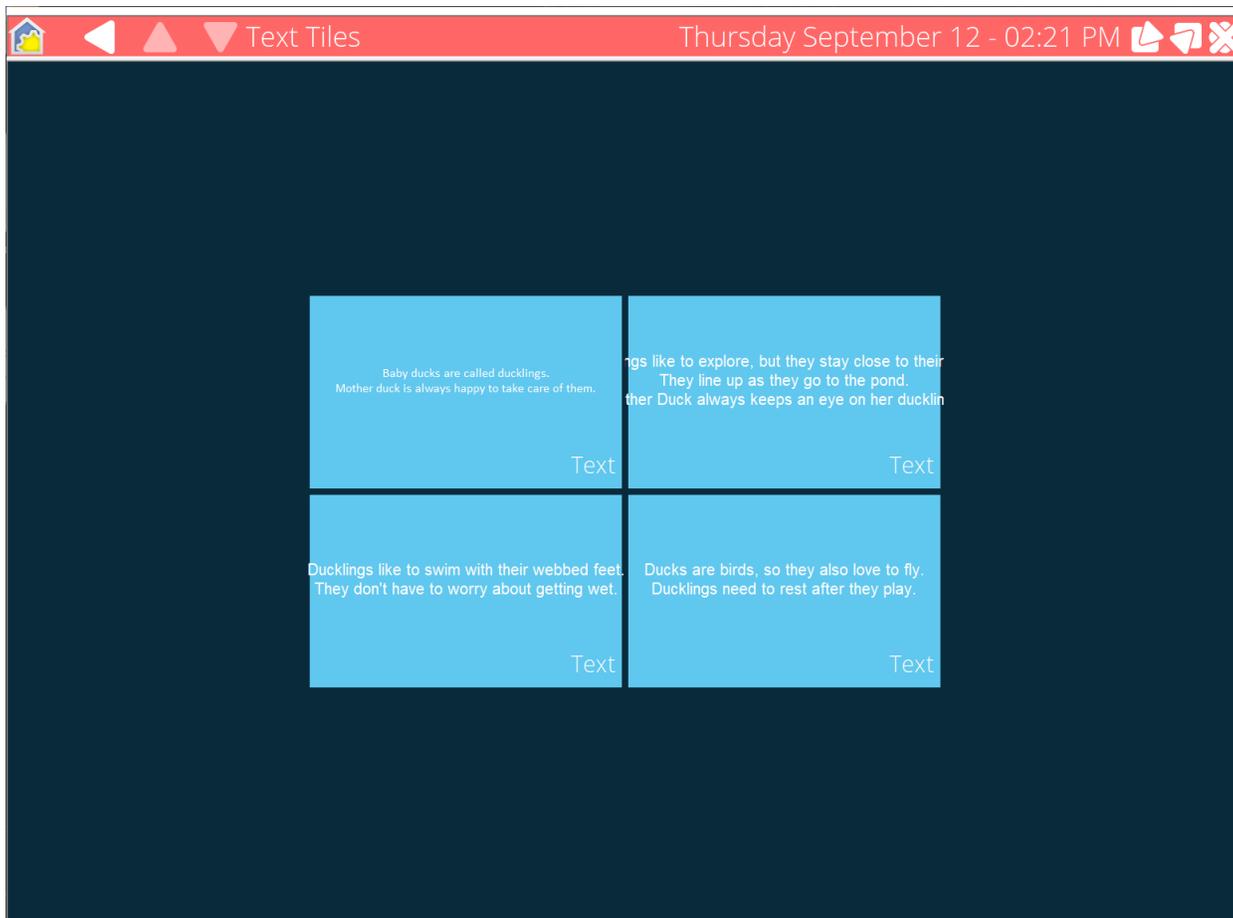
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HCA Tech Note 126

And on machine B (DPI 144) again if not correctly compensating for the different scaling.



Again, due to the inconsistent scaling effects – the text maybe correctly sized but the tile itself isn't - the display isn't correct at all.

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HCA Tech Note 126

HCA can scale your tiles and images, so they appear the same on both client machines. To do that it needs to know the "reference DPI" so it knows to scale up, down, or not at all. The "Reference DPI" is the DPI of the machine used when you created the tiled display. That is, the machine where you selected tile and image sizes, and where everything looked correct.

This is specified on a tab in Home Properties:

"HCA Automated Home" Properties

Name Location Light Dark Security Customer Installer Notes DPI

If using client-server and plan to have Tiled Displays....

In addition to the display resolution of your screen (1024 x 768, 1600 x 1200, etc) some displays let you adjust the DPI. When you change the DPI for your display, it changes the size of text, images, and other items to appear larger or smaller.

This can make life interesting if your design contains tiled displays. Suppose that while connected to your server from client machine "A", you create a tiled display making all the tiles and images look the way you want. Now connect to the server from client machine "B". If "A" and "B" have different DPI's, the displays don't look the same. If client machine A has a higher DPI then client machine B, images and tiles appear smaller.

HCA can scale your tiles and images so they appear the same on both client machines. To do that it needs to know the "reference DPI" so it knows to scale up, down, or not at all. The "Reference DPI" is the DPI of the machine used when you created the tiled display and you selected tile and image sizes so everything looked correct.

This display DPI:

Reference DPI:

OK Cancel

When a new design is created The DPI of the current display is saved as the "Reference DPI". If you have a design created by an older version of HCA, then you should check this value.

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HCA Tech Note 126

With HCA, what you see on machine A and B will look the same even though they are set for different DPI.

One final note: Because the images will be resized as needed, they may not look the same due to the effects of image scaling. Currently there is no way to provide different images for different clients.

##end##

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