

Interactive Map (Layout Feature) Tutorial

This document will walk the user through the steps of creating an interactive map to a fictional hospital system. Every current bit of functionality in the interactive map will be touched on. Please offer feedback on existing functionality and any new functionality you think is needed.

The files for this document are

Buildings.gif

EastTower.gif

WestTower.gif

Logo.gif

They are included with the email, but if you didn't get a copy then ask and I'll email them to you.

This document provides instructions and explanations. Explanations are in normal text instructions the reader is supposed to perform are in **bold text**.

Overview

The Interactive Map, formerly called "Layout," is a feature which has been requested several times over the course of the VCS product life. There was a version originally developed by Dave Roth that broke sometime in version 4 and was phased out in version 6.

The strongest benefit of the Interactive Map feature is its ability to communicate the physical layout of a camera installation to someone unfamiliar with the system. This translates into a feature that demos very well to prospective sales and helps new users get comfortable with their system.

The general concept of what the Interactive Map does is that it shows the camera images in a format that displays not only the images from the camera, but the status and location of that camera in a graphical representation of the physical world. A flat view scheme cannot accomplish this. A secondary benefit is through the use of links the user can navigate between Interactive maps while in full screen mode, not requiring the UI to be present.

Getting Started

When I was designing the Interactive Map feature I quickly ran into a “chicken and the egg” dilemma. Using the View scheme model for saving, where an item can never be modified, I quickly discovered how difficult it was to link one map to another map if that map had not yet been created. It necessitated thinking out ahead of time what map would have no map links, starting with that and then working backwards. That approach was very bad.

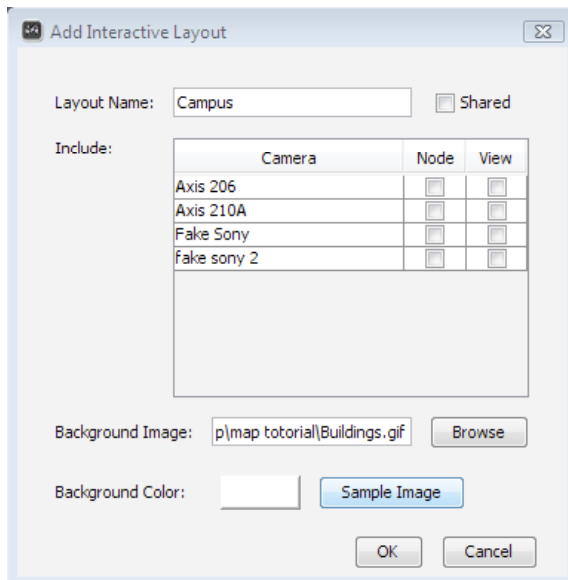
Consequently maps can be edited and as a result the process of creating a new group of Interactive maps can be started from the top down or the bottom up. Meaning you can do the campus map first, then the building maps then the floor maps, or you can start with the floors and work backwards. In this tutorial we will start with the top level map and work down, returning to edit in the links as the new items come to exist.

Create a fresh user on a NCS system and be sure to give that user View Editing rights and rights to some cameras.

Log in with that user.

From the View Scheme menu choose: “Add Layout”

You will be presented with the Add Interactive Layout Dialog.

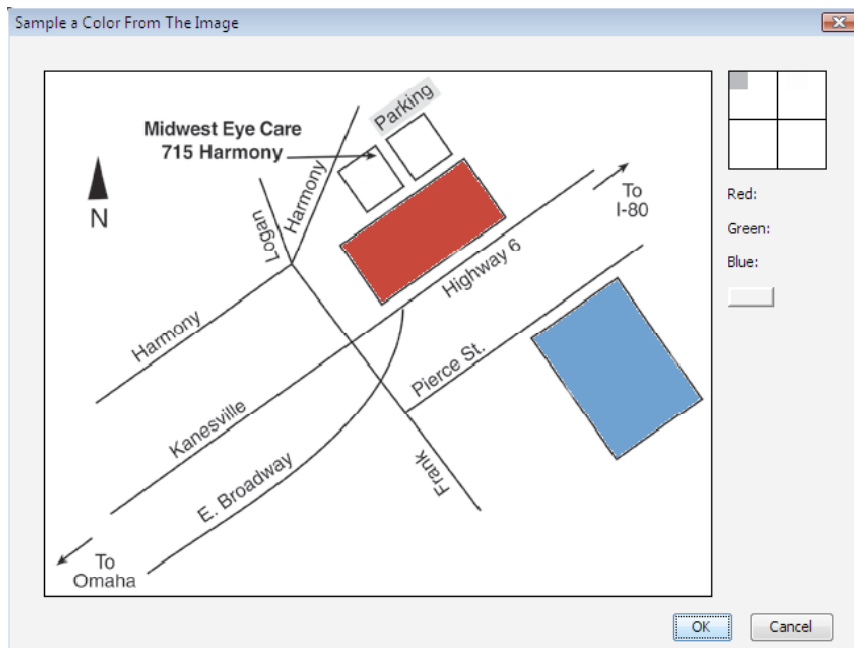


Name the layout “Campus”

Press the “Browse” button and select the file “Buildings.gif”

Press the “Sample Image” Button to choose a background color

The sample image dialog allows you to choose an exact color from the image to act as the background. This can be handy if the background color is not white (the default.)



Since this image looks good with a white background, **Click on the white background of the image and then click OK.**

The background color is used to fill in empty areas around the image when it's displayed in the view panel.



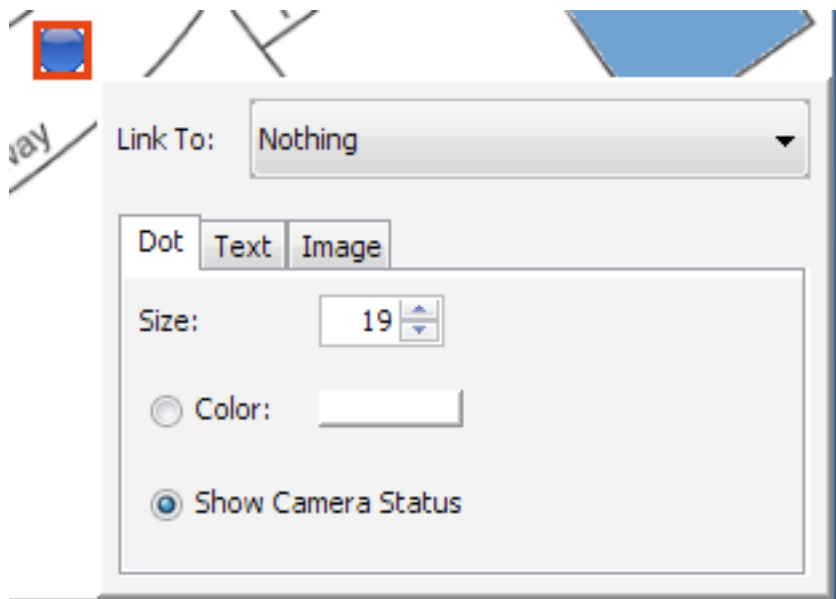
- A) Add Node Button – this button adds a node to the layout
- B) Delete Node Button – this button deletes the selected node from the layout
- C) Change Background Color Button – this button allows you to modify the background color

- D) Change Background Button – this button lets you change the background image
- E) Save Changes Button – saves any changes to the layout.
- F) Cancel Changes Button – discards changes and reloads the last saved version of the layout.

All about Nodes

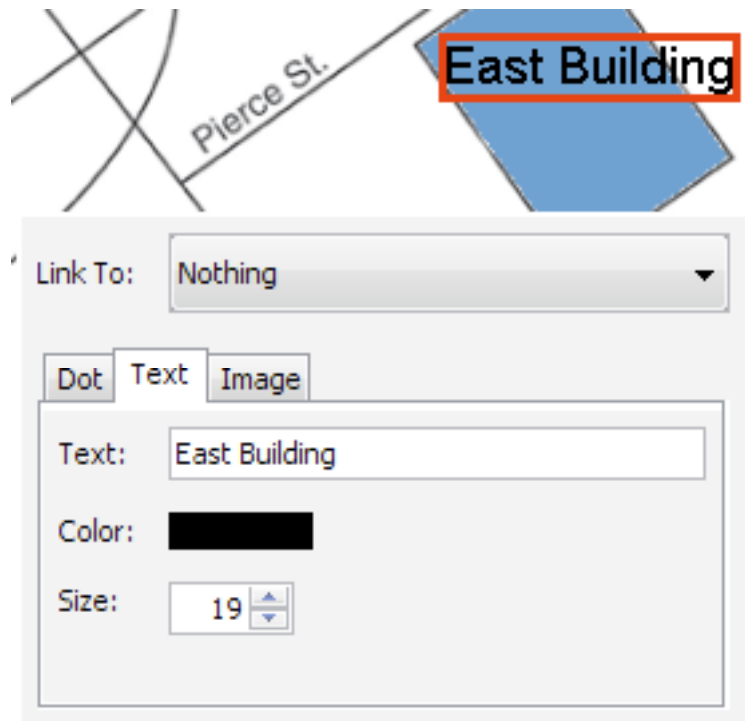
Nodes are what makes layouts do anything but display an image. A node is an object, displayed on the layout, that can appear as a dot, a string of text, or an image. Once on screen a node can be linked to a camera or a view scheme or nothing at all. We are going to add two nodes to our campus layout.

Click the add node button (A).



A Blue dot will be added to the interface. It has a red border just like a view would be when selected. When a node is selected the node editor panel will appear inside the view panel. The default value for a new node is for a dot representation we're going to change it to text.

Click the Text Tab to change representation to text.



Enter the text “East Building”.

Change the color to Black by clicking on it and choosing black from the color picker.

Leave the size as 19

Move the node from where it was initially drawn to be on top of the blue building in the background picture

Repeat the Process for West Building (red Building) starting with adding a new node and then changing it to be text called “West Building”

Your layout should look like this when you’re finished. When it does click the **save changes button (E)**

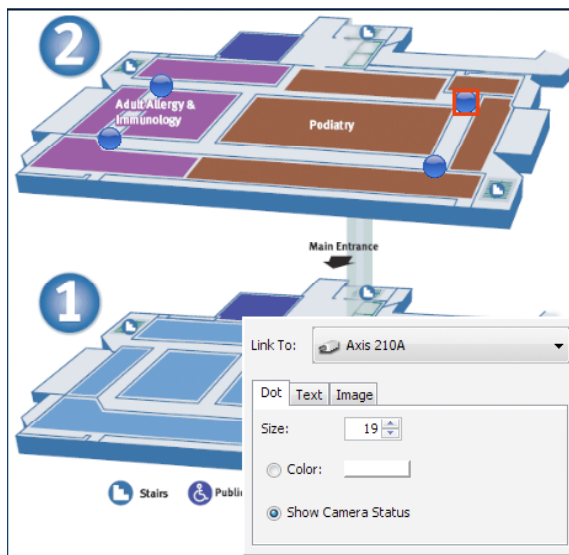


You will now be able to see this view in your layouts list as “Campus”

Go to Add Layout and create a layout with the name WestBuilding using the image “WestTower.gif”

Add 4 nodes to this layout associating each with a camera (Duplicate cameras are fine if your system has less than 4 cameras) Place each node at the corner of the hallways in the 2nd floor to simulate hallway cameras.

It should look something like this.



Save this layout by clicking the save button.

Viewing & Editing a layout

We’ve now created two layouts. One called Campus, and one called WestBuilding. For reasons you’ll see shortly both layouts need additional editing before they’re done. Editing in a layout works differently than in a View Scheme. Even though the view panel allows a user with view editing rights to move views around and delete

them it does not actually change the view scheme; the changes will only persist if you resave the view scheme with the same name. This has caused some confusion in the past.

Layouts function differently, partly because they have to in order to be useful, partly because I wanted to prototype a new means of dealing with editing changes in the implementation of them. In a layout you can return to the editor for any layout if you have view editing rights. Before we get there though, lets load the WestBuilding Layout and take a look at some things in it.

Click on the WestBuilding button in the Layouts list.



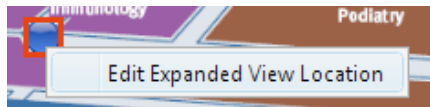
- G) The Normal View toggle button places the viewing mode of the layout in “normal” mode. In normal mode nodes appear as they are configured to be represented (dots, text, or images). When a user mouses over a node the image for that camera will appear if there is a camera linked to it (as in L)
- H) The Expanded View toggle button places the viewing mode of the layout in “expanded” view mode. In expanded mode all nodes that have a camera linked to them will display their camera as if the user were mousing over them.
- I) View Scheme toggle button takes all cameras linked to in the layout and automatically arranges them in a view scheme.
- J) Edit Layout Button. Press this to edit a layout.
- K) This is a node, it's dot representation is set to show camera status. The statuses it can show are: blue = online, red = motion alarm, gray+x = camera disconnected.
- L) This is the camera view of a node that's been moused over by the user.

Mouse over the leftmost nodes. Notice how the images are very near each other when they appear.

Click the Expanded View button(H) notice how the images for the cameras overlap.

Click the Edit Layout Button(J)

We're going to fix the issue with the overlapping views that we saw in the expanded view. While in the editor, right click on a node. You will get a popup menu with the single option: "Edit Expanded View Location."



When you select this the camera view linked to that node will appear. It is possible to drag that view around on the screen, but it is tethered to the location of the node. You can not disconnect it from where the node is placed.

Drag the view for the node you edited away from the view next to it so that when moused over it will not overlap.

When you are satisfied with the location of the view location you can stop editing by:

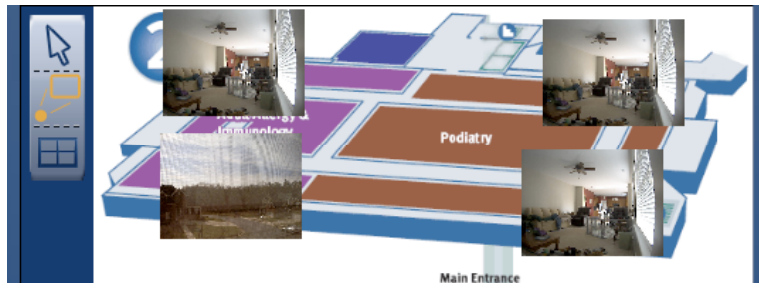
- 1) Right clicking and choosing "Finish Editing"
- 2) Left clicking on any background area that is not within the view you're editing and is not another node.

Should you want to edit multiple expanded view locations at once, as we do, you can expedite this process by not ending the editing in that manner, but instead by selecting a new node when you're finished with the current one by clicking directly on the next node.

Use this method to move each of the 4 expanded views into a position that will not conflict with other nearby views. When you have edited the last of the views, click on the background to stop the editing.

Click the Save button (E) to save your changes.

Click the Expanded View button (H) Notice how the views are now not overlapping.

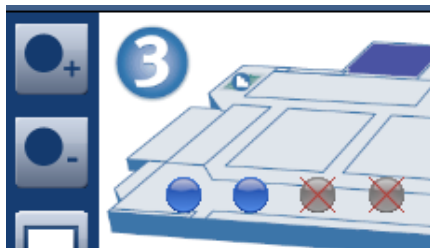


Now that you've seen some of the ways you can view a layout and some ways you can customize that view by editing it we're going to cover a few more details and then link everything together.

Create a new layout by going to Add Layout in the View Schemes menu and call it "East Building" Click on the node checkboxes for any cameras you wish to have in the layout. Set the background image to EastTower.gif Click okay to create the Layout.

Camera	Node	View
Axis 206	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Axis 210A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fake Sony	<input checked="" type="checkbox"/>	<input type="checkbox"/>
fake sony 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>

By selecting nodes or views in the Add Layout Dialog, nodes will be placed in the layout automatically and you can just move them to reposition. This eliminates some tedium of creating nodes.



You can see that 2 of the 4 nodes I placed are linked to cameras which are disconnected from the server.

Move the nodes placed in the East Building Layout where you'd like them and then save it by pressing the save button (E).

Wrapping up

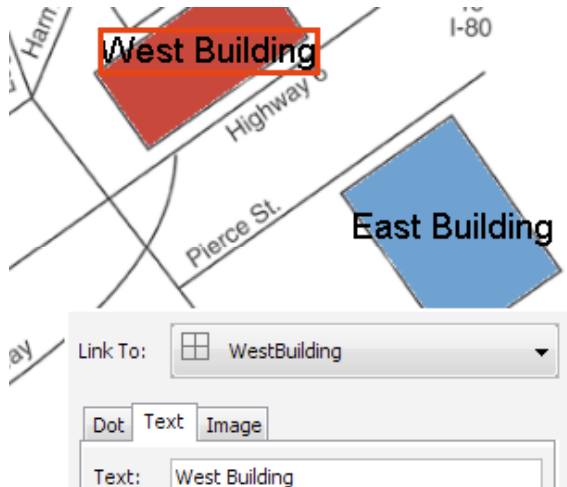
Now I'm just going to show you a last few bits of important concepts and functionality. First we'll link the layouts we've created for each building back to the initial campus layout.

Load the Campus Layout by clicking it in the Layouts list or going to the view scheme menu and loading it there.

Edit the campus layout by clicking the edit button (J)

Select the text node “East Building” and change it’s “Link to:” field from nothing to EastBuilding.

Repeat this procedure for the West Building.



Click on the east building node and drag it down to where the node editing panel is displayed, you’ll notice that the panel moves out of your way if you need to drag something to the space under it.

Drag the east building node back up and watch the panel move again.

Repeat this as many times as is necessary to become entertained.

Custom Images and Masking

When the user clicks or mouses over a layout the layout must determine which node, if any, the user hits. This is done with masking.

Dot: A dot representation is always a circle. If the mouse event is within the circle the node is hit.

Text: Text has many shapes that are thin and hard to click on individually. Consequently the software draws a “bounding box” around the text. If the mouse event is anywhere within the rectangle of the bounding box for the text the node is hit.

Image: An image can have transparent pixels in a gif or png format. If the user clicks on the image in a transparent area the node IS NOT HIT. Only clicks on opaque portions of the image are hits.

We’ll do a demonstration of that now.

Add a new layout called and name it ImageTest. Set the background to building.gif and have it automatically add one node.

Select the node and change the representation from dot to Image by clicking on the image tab.

Click the upload button in the image tab and select the file Logo.gif

Set the image size to be 100 pixels high and 100 pixels wide with 0 degrees rotation.

Drag the image around the screen and notice how the green cross has a transparent background.

Click the save button (E)

In the normal view mouse over the cross from various directions and notice how only mousing over the non transparent portions of the image result in the camera view appearing.

This can be useful to put irregular shaped logos or images into layouts. Should you not want this functionality, save the image with a solid background instead of a transparent one.

One other note about custom images. Image files uploaded to a layout are saved with that layout and loaded the first the layout is loaded.

Navigating a Layout as a User

When in Normal or Expanded mode nodes in a layout function just as views in a view scheme would. For example if your user has view editing rights a double click on a node or expanded view of that node would result in the camera being blown up in digital zoom mode. If the node were linked to a scheme instead of a camera it would result in that scheme being loaded.

If the user does not have view editing rights a single click on a node or expanded node will result in the loading of the scheme or the zooming of the image as appropriate.

Clicking on the edit button when logged in on a user that does not have view editing rights displays a dialog letting them know they don't have sufficient permissions.

Conclusion

That concludes most of the functionality in the layout editor. Hopefully it's enough that everyone can start playing with it and giving me some user feedback about how things are working or how they should work differently or if you've encountered any bugs. Be sure to use the latest version of the client in -n mode for adequate testing.