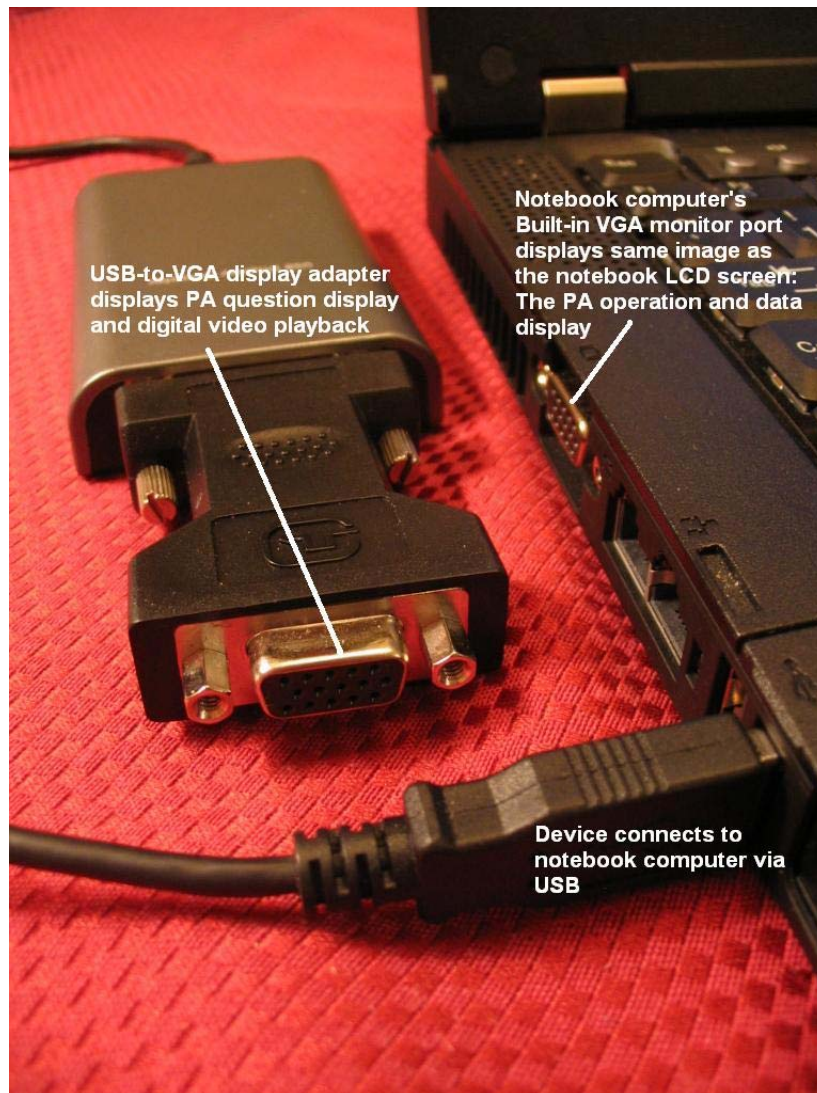


## Installation of PA participant display using the USB to VGA display adapter (Windows2000, WindowsXP or Windows Vista)

An auxiliary display adapter (monitor port) may be connected to the notebook computer operating the Perception Analyzer system for the purpose of automatically displaying questions to respondents as they are selected in the questionnaire. The display adapter shows an extension of the Windows desktop activated from the Windows Display Properties. While PC-card display adapters (Margi Display-to-Go and VillageTronic VTBook) have been used in the past, a new method uses a USB to VGA (DVI) display adapter as pictured:



### **Verify the installation of the USB to VGA (DVI) display adapter:**

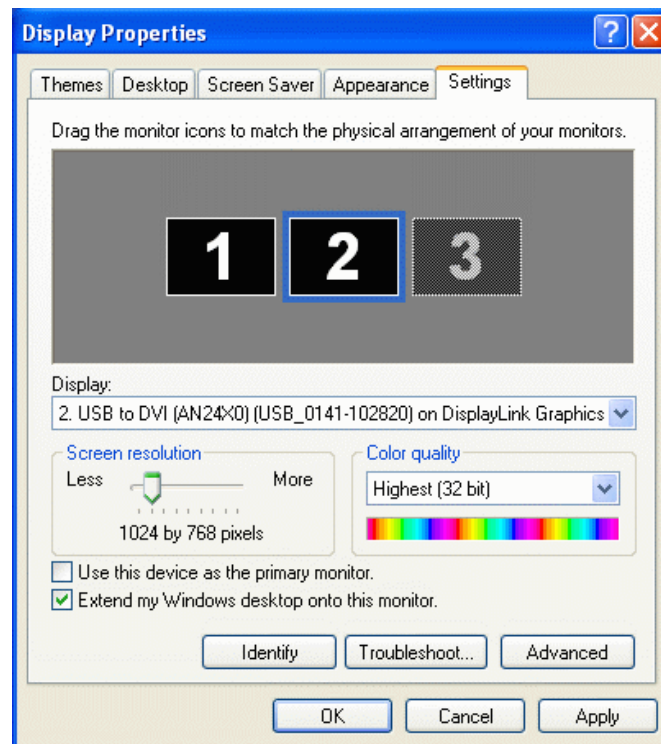
The USB to VGA (DVI) display adapter should be installed according the instructions provided by the manufacturer (Sewell Direct). Generally, this means running the Setup.exe file BEFORE connecting the USB to VGA (DVI) display adapter to a USB jack on the computer.

To verify the installation, open the Windows Device Manager: In the Windows **Start** menu, right-click on **My Computer** and select **Properties** in the pop-up menu. The System Properties dialog will open. Select the **Hardware** tabbed window, and then click the **Device Manager** button. The Device Manager dialog will open.

Locate the Display Adapters listing and double-click to view the installed display adapters. If the USB to VGA (DVI) display adapter is not listed, proceed with installing the card using the instructions. If the adapter is listed, double click on its entry to open its Properties and verify that its status reads “This device is working properly”. If the device is not working properly, it may be necessary to uninstall and then reinstall the device, carefully following the manufacturers instructions. One common installation error is connecting the USB to VGA (DVI) display adapter to the computer before the installation software has been run. Sometimes this requires locating an “unknown device” in the Device Manager and uninstalling it, then rebooting and repeating the USB to VGA (DVI) display adapter installation again.

## **Configure the Windows Desktop:**

After confirming that the USB to VGA (DVI) display adapter is working properly, open the Windows Display Properties: Move your mouse to an open location on your Windows desktop where you can right-click on the desktop background image. Select **Properties** in the pop-up menu. The Display Properties dialog will open. Select the **Settings** tabbed window to see the configuration of your Windows desktop and monitors:



The primary section of the desktop (which displays on the laptop's LCD panel and contains program icons and the Windows taskbar) is represented by the monitor #1 rectangle in the diagram. Your built-in VGA monitor port is represented in the diagram by either the monitor #2 or the monitor #3 rectangle. The USB to VGA display adapter monitor port is represented in the diagram by either the monitor #2 or the monitor #3 rectangle: whichever is not the rear monitor port. You may identify which rectangle represents the USB to VGA display adapter by using the Display drop down list below the diagram to select the USB to DVI (VGA) display adapter in the list. When the adapter is selected, the rectangle representing it will be highlighted in the diagram. If you select it, you may be prompted to "activate the monitor" or "extend your Windows desktop onto this display". Select OK in the dialog prompt to do so.

The other monitor in the diagram that represents the rear monitor port (and labeled either #2 or #3) should not be activated if you are prompted. That monitor output will be used to display a duplicate of the primary desktop that is displayed on monitor #1. If it has been activated, deactivate it by unchecking the box in the lower-left of the dialog labeled "Extend my Windows desktop onto this monitor". When deactivated, the rectangle

representing that monitor in the diagram will be shunted off to the right of the line of rectangles representing the monitors, even if this causes the number sequence of the monitors to be out of order.

Set both active monitors to have the same display resolution. To set a monitor's resolution, select a monitor by clicking the rectangle in the diagram representing the monitor, then use the slider bar in the Screen Resolution section of the dialog to adjust the resolution.

Display devices like VGA monitors, projectors, and the Corio scan converters attached to your laptop may not be compatible with high-resolution (greater than 1024x768) and/or wide-screen resolution display outputs. For troubleshooting purposes, it may be necessary to reduce the resolution of your primary display to no greater than 1024x768. If you have a widescreen LCD panel on your laptop, this may cause the image on the panel to appear stretched horizontally, or it may cause black bars to appear on the left and right side of the image. The appearance may often be adjusted using settings available by selecting the #1 monitor in the diagram and then clicking the "Advanced" button. When the Advanced properties open, select the tab with the name of your display adapter and adjust the settings where available.

Next, make certain that all of the monitors diagrammed are aligned horizontally with their top edges in line with each other. The rectangles representing the monitors may be clicked and dragged to reposition them if necessary.

Click the Apply button when the changes have been made and confirm the changes when prompted. Verify the changes are satisfactory and note the resolutions of all the monitors before exiting the Display Properties dialog.

### **Attach display devices and turn on the laptop's rear VGA port:**

Next, attach the display device to be used for results data display to the built-in monitor port of the laptop. This allows PA to display results data on an external display via the built-in monitor port of the computer while simultaneously showing questions to participants via the USB to VGA display adapter card. Turn on the rear port. This is typically done by holding down the **Fn** key at the lower-left of the keyboard while simultaneously tapping a key in the function key row. Which function key is tapped depends on the manufacturer of the laptop. Each time the function key is tapped the monitor setting is toggled between one of three positions: 1) only laptop LCD panel on, 2) only rear monitor port on (laptop panel off), and 3) both laptop panel and rear monitor port on. In that case a display monitor device attached to the rear monitor port will show the same content as the laptop LCD panel. Note that depending on the laptop, it may take several seconds after tapping the function key for the laptops displays to reset to the next position: do not rush through toggling the positions.

When the rear monitor port is activated on some laptops the extension of the desktop onto the USB to VGA display adapter is deactivated. In that case, it is necessary to return to

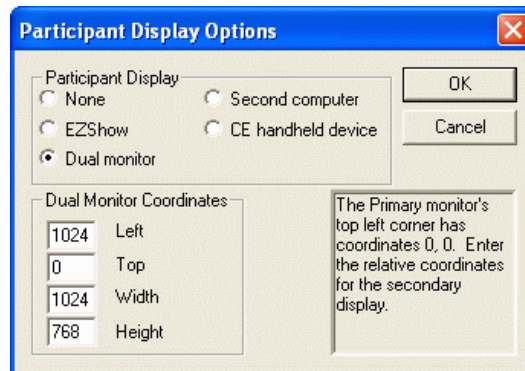
the Windows Display Properties to reactivate the USB to VGA display adapter using the “Extend my Windows desktop onto this monitor” checkbox while the USB to VGA display adapter is selected.

Attach a display device to the USB to VGA display adapter for participant question display. A scan converter may be used to convert the VGA output signal to video to display on an ordinary composite video monitor. Make certain that the display device is set to the correct input source setting to display the incoming signal. When PA is not running, this display should show a duplicate of the laptop’s desktop background image. However, there will be no application icons or Windows taskbar.

### **Configure the Perception Analyzer software:**

Next it is necessary to set PA to draw a question display window in the location of the Windows desktop displayed by the USB to VGA display adapter.

1. Start **PA Edit** and open a project. If you haven’t opened a project before, use the **Browse** button to locate one of the demo projects loaded with the software. When Edit opens, select **View**, then **Preview** to view the project in preview mode. Reopen the **View** menu and select **Participant Display**. The Participant Display Options dialog window will open:



2. In the Participant Display section, click on the **Dual Monitor** button. In the Dual Monitor Coordinates section enter the following information:

#### **For laptops with XGA screens (1024x768)**

1024 Left  
0 Top  
1024 Width  
768 Height

Note: The width and height entered must match the screen size to which the USB to VGA display adapter is set in the Windows Display Properties Settings. Left coordinate equals the width of the primary (#1) monitor. Top is usually zero.

3. Click OK when finished. To test, select a new question in the question list of PAPreview.