NOTECONS01

Instruction Manual

KVM Console to USB Laptop Crash Cart

KVM Console to USB 2.0 Portable Laptop Crash Cart Adapter

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Introduction

Packaging Contents

- 1 x NOTECONS01 USB Crash Cart Adapter
- 1 x USB to PS/2 adapter
- 1 x USB A to Mini-B cable
- 1 x Driver and Software CD-ROM or USB flash drive

System Requirements

Notebook Requirements

- USB 2.0 enabled notebook computer
- 20MB available hard drive space
- 24-bit capable display
- Microsoft Windows® 2000/XP/Vista/7 (32/64-bit), or Mac OS® 10.5/10.6 (Intel)

Server Requirements

- VGA enabled video card (DVI supported via optional DVIVGAMF adapter)
- USB or PS/2 keyboard support
- USB mouse support

Installation

Driver Installation

Windows 2000/XP/ Vista

Before installing the software on Windows, please disconnect the USB Crash Cart Adapter and cancel any dialog windows regarding "Add new hardware". These windows can interfere with the installation process.

1. Insert the provided CD or USB flash drive and run the setup.exe installation program.
2. Proceed through the installation prompts, until complete.
3. Once complete, the software and drivers will have been installed on the system.
4. Connect the USB Crash Cart Adapter to a free USB port on the notebook using the supplied USB mini-B to A cable. The other connections to a server are not needed at this point.
5. A message should pop-up entitled Found New Hardware.
6. Windows should find the device driver files and install them automatically. This is a one-time step.
7. The product is ready to be used now, and the main application may be launched now. There is no need to reboot.

Mac OS X

1. Insert the provided CD or USB flash drive into the computer.
2. Double-click on the MacOSX-install.dmg file that you find on the media.
3. After a short delay to verify that disk image, a finder window will open showing the application and a link to /Applications. Drag the main application onto the Applications link.
4. The application is now installed and ready for use: Find it in / Applications and double click on it to start.

5. If you would like to add this application to the Dock, you can drag and drop it from /Applications onto the Dock.
6. Connect the USB Crash Cart Adapter to a free USB port on the notebook using the supplied USB mini-B to A cable.

Hardware Installation

Once the drivers and software for the USB Crash Cart Adapter are installed on the notebook computer, it can be plugged into the server.

Connect the attached DE-15 VGA cable and the USB type A cable into the desired server. For DVI-I (analog) computer systems, please use a DVI to VGA adapter (StarTech.com ID: DVIVGAMF). A USB to PS/2 adapter is included for systems that require a PS/2 connected keyboard (mouse will not be available).

LED Indicators

Server KB/Mouse: This lights up when the emulated USB keyboard/mouse is working. It will blink briefly whenever the emulated mouse moves, or emulated key is pressed. Constant flashing indicates some problem with the USB connection to the server. This can happen if disconnected, or if the host's operating system is not enumerating the USB device.

Server VGA: This indicates a valid VGA video signal is being received. It will be off if nothing is connected (and in some power saving modes) and may flash if an unsupported video mode or other trouble is seen with the video signal. This light will not turn on, regardless of the video input status, until the adapter is connected to the application software at least once.

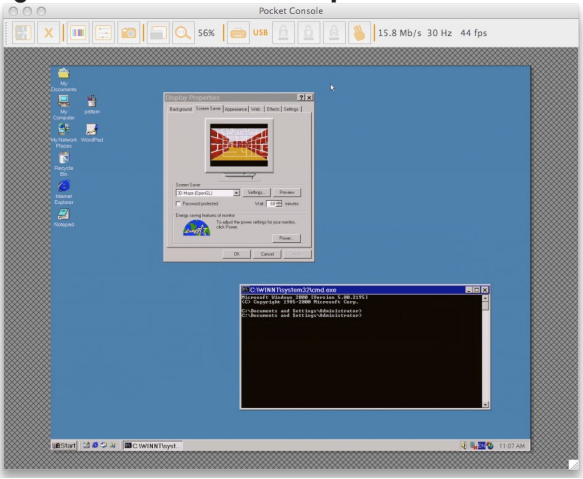
User Console Link/Activity: This lights up when a good connection to the laptop is established. If flashing, it indicates the USB to the laptop is not connected or being ignored. Blinks briefly when video data is sent to the laptop.

If all the lights are off, then this means the USB Crash Cart Adapter has no power from either USB connection. Under normal operation,

either USB port can provide enough power to operate the unit. The USB keyboard/mouse emulation is always active, even if the laptop USB is disconnected.

When used in PS/2 mode, the topmost light indicates correct PS/2 keyboard operation. Power is received from the PS/2 port as it would be from USB port.

Using the USB Crash Cart Adapter



Once connected, the real-time video from the attached host computer is shown centered in the main window.

Zooming

By design, this program will never show scroll bars. The entire video picture is always completely visible. It is generally scaled down to fit into the available space inside the program window. You can make it larger by resizing the main window. Similarly, if you maximize the main

window, the size of the video image will be maximized.

In the Zoom menu, there are a number of buttons which set the zoom factor and resize the window to achieve that zoom factor. For example, if the attached server is running at XGA resolution (1024 x 768), and you select 50% zoom, the main window will be set to a size of approximately 512 x 384. Please keep in mind that not all zoom factors will be possible; your notebook's screen may be too small for the larger percentages. If so, the software will make it as big as it can.

Since many notebooks have smaller screens, you may wish to run this program maximized. Full-screen mode is supported, where the window decorations are removed and other applications are hidden.

Click on the full-screen/window icon ( ) on the toolbar or select it from the Zoom menu.

To get out of full screen mode, click the icon again. If the toolbar is disabled when you enter full-screen mode, a smaller toolbar is provided with only the Fullscreen and Quit options. This toolbar floats and may be moved out of your way, but cannot be removed.

Also in the Zoom menu is an option to center the window on the screen. This can be handy when it is off the edge of the screen. There is also a shortcut for maximize (toggle). This is the same as clicking the maximize button in the title bar of the main window.

More Tips

• If the laptop is widescreen (16:10 aspect, or 1280x800, etc), it may be helpful to locate the toolbar along the left or right vertical edge. This provides more usable screen height, and if the server's screen is square (4:3 aspect) the left and right vertical edges would not be used.

• This program does not enlarge video, only shrink it. Therefore, text mode (720x480 or similar) will not be enlarged to fill your screen.

• The toolbar is automatically disabled when you select a Zoom factor below 50%. You need to enable it manually when you return to a larger size.

• Unusable parts of the window are shown in grey. This happens because the video is scaled by an integer factor of 1/16 and due to other rounding issues.

Toolbar

There is an optional toolbar along the top edge of the window. This toolbar may be hidden, detached or dragged onto the other three edges of the window. It provides a number of shortcuts and some status information. All functions are duplicated in the pull down menu, so it is optional.

You can move and/or detach the toolbar by dragging the handle ( ) on the left/top edge. Once detached, the red X or circle in the upper corners can be used to close it. When dragging or moving the toolbar, you can stick it (dock) to the top/bottom edge, if in horizontal mode, or left/right edges if vertical. Some of these features are available in the Toolbar menu as well.

The right most status area of the toolbar reports some statistics while the system is running. The first number is the USB bandwidth, in bits per second. When no motion is detected by our hardware video compression, no bits are sent. Noisy video cards and ongoing video animations, will cause a constant stream of USB traffic.

The next two numbers (ex. 30Hz and 44fps) report the achieved frame rates for the hardware and software components respectively. The hardware number (Hz) will range from 1 to 85Hz, but is typically 30Hz or 60Hz. The software number is limited to 60 fps (frames per second) maximum and varies depending what other software on your laptop is doing.

From left to right:

1. ( ) Change orientation of tool bar between horizontal (shown) and vertical.

2. ( ) Quit the Pocket Console application immediately.

3. ( ) Fine-tune video picture.

4. ( ) Open Video-related settings window.

5. ( ) Take a snapshot of screen, save as PNG, JPG, BMP file.

6. ( ) Toggle full-screen vs. windowed mode.

7. ( ) Go to 100% zoom, or largest possible.

8. (56%) Shows current zoom factor as a percentage.

9. ( ) Keyboard status (red X shown if trouble). Click to open special keys window.

10. (USB) USB or PS/2 mode for keyboard.

11. ( ) Caps lock indicator (green if active, shown inactive). Click to simulate pressing caps lock.

12. ( ) Num lock indicator/button.

13. ( ) Scroll lock indicator/button.

14. ( ) Send Ctrl-Alt-Del to the server.

15. (15.8 Mbps...) Status area. Shows USB bandwidth, hardware and software frame rates.

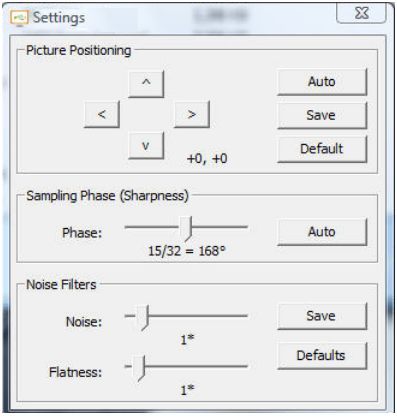
Video Menu

There are three functions available under the Video menu: Auto fine-tune picture, Video Settings and Save PNG snapshot.

Auto fine-tune picture

Use to automatically adjust the sampling phase of the video. This makes the picture sharper and reduces USB traffic. This is generally not required since this operation is automatically performed when video is applied. The picture will freeze for about one second while the calibration is performed.

Settings



Picture Positioning

These four arrows may be used to fine-tune the position of the video image. These are the same as the centering controls found on video monitors. Save your changes with the Save button. The adjusted values will be used automatically whenever this same video mode is seen again. The Auto button will attempt to automatically center the video image within the program window.

Sampling Phase (Sharpness)

This slider allows you to override the automatic phase adjustment. Press Auto to perform auto phase again. The numbers shown under the slider are the phase (angle) of the control.

Noise Filters

The hardware implements two filters to reduce USB traffic and improve picture quality. By default they are both enabled and set to one. You may override and save customized settings (which will apply to all video modes).

The first 'Noise' filter helps to remove speckle noise. There is usually no visual effect to this filter, except that at high values, moving the mouse may leave some pixels behind.

The second 'Flatness' filter converts regions that are nearly all the same colour into exactly the same colour to aid compression. At higher values, color banding will be much more visible.

Save PNG snapshot

Use this function to record a copy of the window contents and save it into a PNG, JPG or BMP file. The snapshot happens as soon as the menu item (or toolbar) is clicked. You are then given a chance to choose where the image file should be stored. A default filename is provided based on the current time.

Snapshots are always stored at full resolution and contain the whole screen.

Capture Video Mode Details

Displays then saves the current video mode settings used on the server, to a text file.

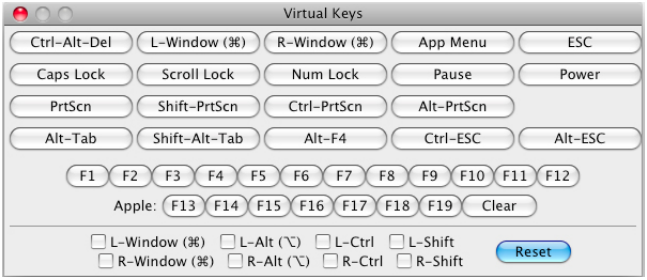
DDC

Sets the default maximum video resolution on the USB Crash Cart Adapter. 1280x1024 is the factory set default.

Keys Menu Item

Most keystrokes are forwarded directly to the sever. However, some special key combinations, such as Ctrl-Alt-Del, are blocked by the notebook's operating system. Therefore, a dialog screen with common keystrokes can be used to send these sequences manually.

Click on the keyboard icon of the toolbar ( ), or use the menu item **More special keys**.



This window allows you to send special key sequences to the attached server, without actually typing them. Many of them are useful combinations, such as Alt-F4, which closes the current window in a Windows operating system.

Lower down, there are check boxes (toggle buttons) for each of the meta keys (both left and right). When you check these boxes, the key-down event is sent. When the checkbox is unchecked, the key-up event is sent. This means you can use them to compose complex sequences not shown on this screen. Use the Reset button to uncheck all boxes. Clicking any of the keys above the line also resets the checkboxes.

To send Left and Right Window key + F8, for example, check L-Window then R-Window and then press the F8 button.

Similarly, you can press L-Window and then use your keyboard to press E to send Window+E (which might start Windows Explorer in some versions of Windows) and then click Reset.

Please note the L-Window button at the top will send both a down and up, whereas the checkbox labeled L-Window, will do the down when checked, and then the up only when cleared.

Simulate Hotplug (reset)

Clicking on this menu item will 'hotplug' the USB going to the host keyboard and mouse. Hot plugging simulates unplugging the USB cable and immediately reconnecting it. It will reset the USB keyboard and mouse emulation completely. This can be used if the host operating system is confused.

If using PS/2 mode, this also simulates a hotplug event with similar effects. Most modern operating systems can handle a PS/2 hotplug event, although this interface was never designed for hotplug.

When hot-plugging, the keyboard and mouse are not available until the host O/S device driver reinitializes the emulated keyboard and mouse. During this period, a red X is shown over the keyboard icon in the toolbar.

Mouse Menu

Mouse related toggles are present in the **Mouse** menu. They affect the emulated USB mouse in USB mode.

Disable mouse entirely

Although most scenarios may require the use of the notebook's pointing device (ie. touch pad), if you have a standard USB mouse with you, you might want connect it directly into the server instead to the notebook. The notebooks's screen and keyboard are still used in this configuration, but the mouse emulation is not.

This configuration is also recommended when using the USB Crash Cart Adapter with USB KVM switches. USB KVM products generally cannot understand the USB mouse emulation device because of it's advanced use of the HID standard (Human Interface Device).

This feature is helpful because touches to the notebooks's mouse pad will not interfere with your full-sized USB mouse. The emulation is completely removed, down to the USB descriptor level, so any possible confusion is removed and it appears as a standard USB keyboard.

In this mode, the mouse cursor is shown as a circle with a line ( ). This is to remind you that clicks won't be effective in that window.

Changes to this setting will cause a USB hotplug event, and this setting will be remembered in the USB Crash Cart Adapter unit itself.

Swap Buttons (for lefties)

This simple toggle mode is useful for those who use their left hand to control the mouse. All it does is swap the ordering of the buttons, so that the left and right buttons are swapped.

This setting is remembered on the laptop. Please keep in mind that the operating system may also be swapping buttons to suit your preferences. It's not always clear how many swaps are needed, and which layer is doing the swapping. Experimentation is suggested.

MacOS X Scaling

If you are controlling a Mac OS X computer with the USB Crash Cart Adapter, you should select this special mode.

Without it, you will see that the two mouse pointers are aligned correctly at the center of the screen, but drift apart as you move closer to the edges of the screen.

By enabling this mode, a special adaptive scaling factor is applied to reverse this effect and return the mouse pointers to perfect alignment.

This setting is remembered in the memory of the USB Crash Cart Adapter itself, so it will be in effect regardless of which notebook is used.

Relative vs. absolute motion

Conventional mice are very simple devices. When they are moved across a desk, they simply report to the computer how far they have been moved. If you move the mouse left an inch, a relative number (say X=-400, Y=0) is reported to the computer. The host O/S takes this number and applies some user preferences to it and moves the on-screen mouse pointer to the left. Of course if the mouse is already in the top left corner, then the on-screen mouse pointer doesn't move.

This is fine for real mice, however, we are emulating a mouse and it

is best if the controlled computer acts like a window on your laptop's screen. For that to happen, you want to direct the on-screen mouse pointer to a specific screen location, so we want to send absolute screen coordinates, not relative motion events to the controlled host.

The USB H.I.D (Human Interface Devices) standard allows us to define a special USB mouse that operates somewhat like a touch screen and simply tells the host where it wants the mouse pointer to be. This works perfectly for modern Windows and Mac OS X systems.

But there are USB KVM systems, USB to PS/2 convertors, DOS programs, simpler operating systems and other situations where a simple USB relative mouse is needed. For this reason, we support operation in relative mode.

In relative mode, this program will `capture' your mouse into it's control window. This must be done to convert your laptop's mouse events back into relative events and send those to the controlled system. While the mouse is captured, you cannot do anything else with your system except control the attached computer.

Motion reporting mode

The current mouse motion reporting mode is indicated on this submenu. You also have the option of forcing the system into relative mode.

We expect any BIOS system that uses the USB mouse will probably not support absolute mode. Similarly, programs that run in DOS with the BIOS converting USB events into legacy PS/2 mouse events will not be able to understand absolute mouse events.

The USB Laptop Console will drop down to relative mode when the host operating system indicates that it does not support absolute mode (there is a way to do this over USB protocol). But you may force relative mode as well. This causes a USB hotplug event and is remembered internal to the USB Laptop Console itself. This might be needed if the computer doesn't correctly implement the USB HID specification.

To release captured mouse...

In absolute mouse mode, you may simply move the laptop mouse over the window and click as desired. In relative mode, the mouse doesn't

do anything until you click once on the desktop. This captures the mouse and subsequent clicks and motion are sent to the controlled host. A dialog is shown to remind you how to get back to your laptop desktop.

To release the captured mouse, we offer two methods: make a circle gesture with mouse or press “Alt+Ctrl+Shift” at the same time. The circle gesture is disabled by default.

The gesture method is helpful for systems that may not have a keyboard. Simply move the mouse in circle (with no mouse buttons pressed). It can be clockwise or counter-clockwise. If it doesn’t work at first, just keep circling.

One or both of these methods must be selected at all times.

Toolbar Menu

This menu provides a more direct way to control the toolbar. You can easily ‘dock’ or ‘float’ the toolbar, as well as hide or show it. The current status of the toolbar is shown as check marks beside these choices.

The detailed state of the toolbar (floating, docked, vertical, horizontal position if floating and so on) is remembered when this program is closed and then reopened. However, if you wish to return to the default layout, use the Restore default window layout option.

Troubleshooting

Symptom	Problem/Suggested Course of Action
No lights	Adapter has no power from either USB connection. Try other USB ports.
Black bar on left/top of image	Use the Picture Positioning arrows on the Video Settings dialog to shift the image leftwards /upwards until no black can be seen. Be sure to save your change.
User Console LED flashing or software says not connected	Verify the device drivers are correctly installed (Windows only): Unplug the adapter. Reboot. Plug in the adapter. No dialog from Windows about `found new hardware' should be seen.
Red X over keyboard in toolbar	The emulated USB keyboard and/or mouse is not being handled by the attached computer. It might be disconnected, powered down, or the O/S may be halted. When in this state, the keyboard and mouse will not do anything. Try using the (Simulate Hotplug (reset) command in the Keyboard menu,

Symptom	Problem/Suggested Course of Action
KVM switch doesn't work	When using a USB KVM switch, rather than a direct connection to a server, we recommend disabling the USB mouse emulation or forcing relative mouse motion mode. Disabling the USB mouse emulation simplies the USB prole we present to the KVM switch, and even the most basic USB implementation should be able to understand and support our keyboard and mouse in relative mode.
Toolbar is gone / Always fullscreen / Window stuck too big or small	Use the menu item: Toolbar > Restore default window layout to restore window positions and toolbar state.

Specifications

Connectors (Notebook)	USB mini-B female
Connectors (Server)	DE-15 VGA male (integrated cable) USB type A male (integrated cable)
LEDs	Server KB/Mouse Server VGA User Console Link/Activity
Maximum Video Resolution	1920x1200@60Hz
Dimensions	73.0mm x 135.0mm x 15.0mm
Weight	0.14kg
Compatible Operating Systems (Notebook)	Windows 2000/XP/Vista/7 (32/64-bit), Mac OS 10.5/10.6 (Intel)

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