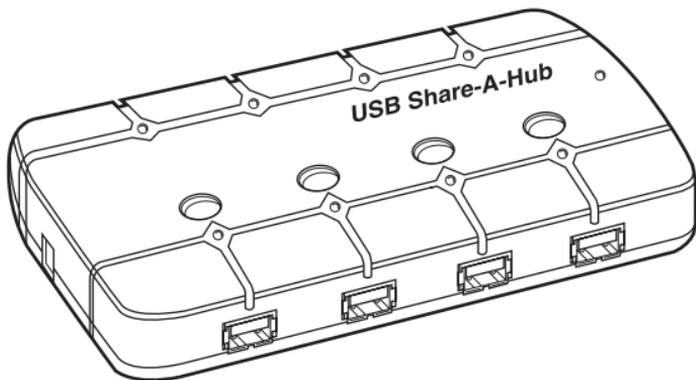




USB Share-A-Hub



CUSTOMER SUPPORT INFORMATION

Order **toll-free** in the U.S.: Call **877-877-BBOX** (outside U.S. call **724-746-5500**)

FREE technical support 24 hours a day, 7 days a week: Call **724-746-5500** or fax **724-746-0746**

Mailing address: **Black Box Corporation**, 1000 Park Drive, Lawrence, PA 15055-1018

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FEDERAL COMMUNICATIONS COMMISSION**and INDUSTRY CANADA****RADIO FREQUENCY INTERFERENCE STATEMENTS**

Class B Digital Device. This equipment has been tested and found to comply with the limits for a Class B computing device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. This equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. If this equipment does cause harmful interference to radio or telephone reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an experienced radio/TV technician for help.

CAUTION

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

To meet FCC requirements, shielded cables and power cords are required to connect this device to a personal computer or other Class B certified device.

This digital apparatus does not exceed the Class B limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe B prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

NORMAS OFICIALES MEXICANAS (NOM) ELECTRICAL SAFETY STATEMENT

INSTRUCCIONES DE SEGURIDAD

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc..
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.

10. El equipo eléctrico debe ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser conectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.
12. Precaución debe ser tomada de tal manera que la tierra física y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las líneas de energía.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objetos líquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
 - A: El cable de poder o el contacto ha sido dañado; u
 - B: Objetos han caído o líquido ha sido derramado dentro del aparato; o
 - C: El aparato ha sido expuesto a la lluvia; o
 - D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
 - E: El aparato ha sido tirado o su cubierta ha sido dañada.

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1. Specifications

Hardware Requirements: USB-enabled IBM® compatible PC

Operating Systems Supported: Windows® 98/2000/Me

Port Selection: Software or Pushbutton

Buttons: (4) Port Select Pushbuttons

Connectors: (4) USB Type A female, (4) USB Type B female

Temperature Tolerance: Operating: 41 to 104°F (5 to 40°C); Storage: -4 to +140°F (-20 to +60°C)

Power: 120-VAC, 60-Hz external power adapter

Size: 1.3"H x 3.8"W x 0.8"D (3.3 x 9.7 x 2 cm)

Weight: 0.5 lb. (0.2 kg)

2. Introduction

2.1 Description

The USB Share-A-Hub allows up to four USB devices to be accessed by up to four PCs. Multiple PCs can share USB peripherals (such as USB printers, scanners, cameras, keyboards, etc.) in various combinations. Select access to each USB device by using buttons on the front of the Share-A-Hub, or via a Windows application program that displays the status and type of each USB device attached. Any individual PC can control all connections.

Any PC can connect to any or all devices, provided that another PC is not currently using the device. Each PC sees the Share-A-Hub as a regular USB hub to the PC, ensuring USB compatibility and meeting all USB specifications.

2.2 What the Package Includes

Your package should contain the following items:

- (1) USB Share-A-Hub

- (1) CD containing the application program
- (1) power adapter
- (1) USB A-to-B cable
- This users' manual

If anything is missing or damaged, please call Black Box at 724-746-5500.

2.3 What You Need to Supply

- Windows® 98 (any version), Windows 2000, or Windows Me.
- A USB port on your PC.
- A separate USB A-to-B cable for each system.

2.4 Features

- Four PCs share four USB devices.
- Self-powered hub.
- Each PC sees an independent, four-port USB hub.

- Graphical application program and manual device connections.
- Fully compliant with the USB Specification 1.1.
- Over-current detection and prevention.
- LED indicators for active ports.

2.5 USB Overview

The Universal Serial Bus (USB) simplifies communication between computers and their peripheral devices (mice, keyboards, joysticks, printers, audio components, etc.). The computer is the USB host; it connects to the USB devices via standard USB cables. A USB hub acts as a bridge between the USB host and multiple USB peripherals. Bus-powered hubs draw electrical current for their operation directly from the USB. High-powered devices will not work with bus-powered hubs. A high-powered device is one that can draw up to 500 mA from the upstream connection. The Share-A-Hub contains four self-powered hubs (one for each system). Therefore, any USB device, high- or low-powered, can be attached to the USB Share-A-Hub.

3. Installation

1. Place the CD into the CD-ROM drive.
2. If the installation does not begin automatically, run SETUP.EXE from the CD.
3. Follow the installation procedures.
4. Plug in the power adapter and insert its plug into the power jack on the USB Share-A-Hub.
5. Connect the USB-A plug from the USB device to any Share-A-Hub downstream port.
6. Connect the USB-B plug from the USB cable to any Share-A-Hub upstream port.
7. Connect the USB-A plug from the USB cable to any PC.
8. Each PC sees two USB functions in the Share-A-Hub: a hub and a device. Both are installed.
9. To install the drivers for the Share-A-Hub, insert your Windows CD.

10. If the Windows installation box appears, select **Next**.
11. Select **Browse**. Select the directory that the Share-A-Hub was loaded into during installation (default=C:\ProgramFiles\USBsharer). Select **Next** and complete the installation.

4. Operation

4.1 Hardware Functions

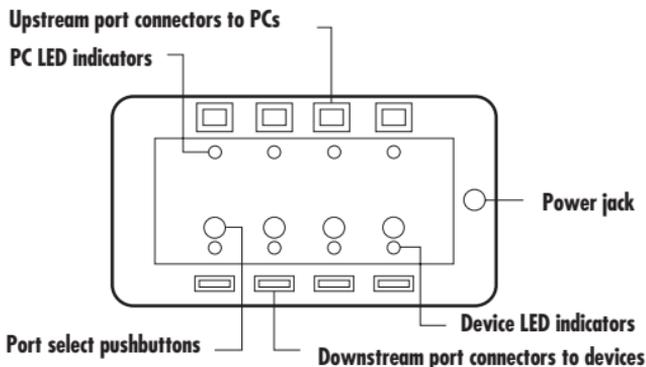


Figure 4-1. Connectors, indicators, and switches.

Function	Number	Description
Upstream ports (USB Type B connector)	4	Use USB cable with A-B plug to connect to the PCs.
Downstream ports (USB Type A connector)	4	Connect to USB devices.
Power jack	1	Connect to power adapter.

USB SHARE-A-HUB

Function	Number	Description
Device LED indicators	4	The LEDs near the downstream port connectors indicate that a device is attached to that port. It also blinks when that device is busy. Devices like mice, keyboards, and hubs are always “busy,” even when they are not in use, since they constantly communicate with the PC.
Port Select pushbuttons	4	These buttons are used to manually switch PC control of the corresponding USB device. Press once to determine which PC has control (indicated by the Controlling PC LED). Press the button again (while the LED is still on) to select which PC is to be given control. When the LED turns off, the change will occur. This is a manual override. The switch will occur even if a device is busy.
PC LED indicators	4	The LED indicators near the PC connectors indicate which PC is connected to a device in question. When the pushbutton near the device’s connector is pressed, the PC LED indicators above will show which PC is connected to the device. To move the connection to the next PC, press the button again, each time connecting to the next PC.

CHANGING THE CONNECTIONS MANUALLY

The Device LED indicators by each port light when the device attached to that port is active. These LEDs will also blink when the device is communicating with the PC.

To determine which PC is connected to a particular device, press the button near the device port. The PC LED indicator of the PC that is connected to that device will light.

To change which PC is connected to a device, press the button a second time within one second. The LED of the next available PC will light. When the LED turns off, that PC will be connected to the device. If you want a different PC to be connected to the device, repeat the same procedure until the LED associated with the PC you desire is lit. Or, you can quickly press several times before the LED turns off to reach the desired PC. When no buttons are pressed within one second, the Share-A-Hub times out, and the PC you selected is now attached to the device.

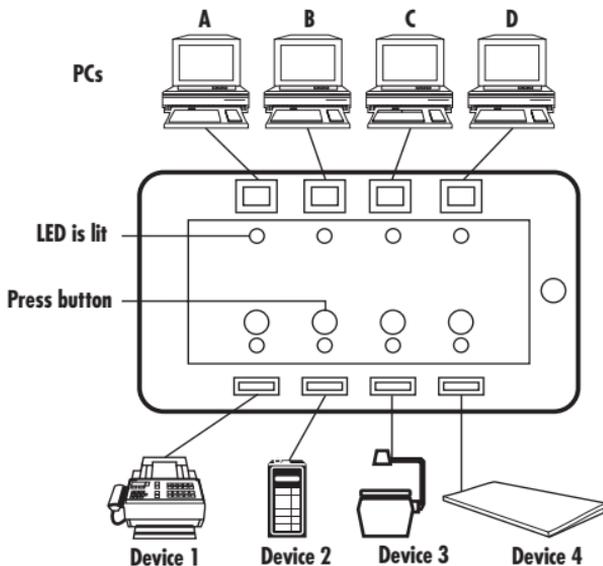


Figure 4-2. Connecting the device on port 2 to PC “C.”

- Press the button next to Port 2 (the desired device).
- The LED for PC “A” lights, indicating that PC “A” is connected to Port 2.
- Press the button again within one second.
- The LED for PC “A” will turn off and the LED for the next available PC (in this case, PC “B”), will turn on.

- If left like this, the Share-A-Hub will time out and the device on Port 2 will be connected to PC “B.”

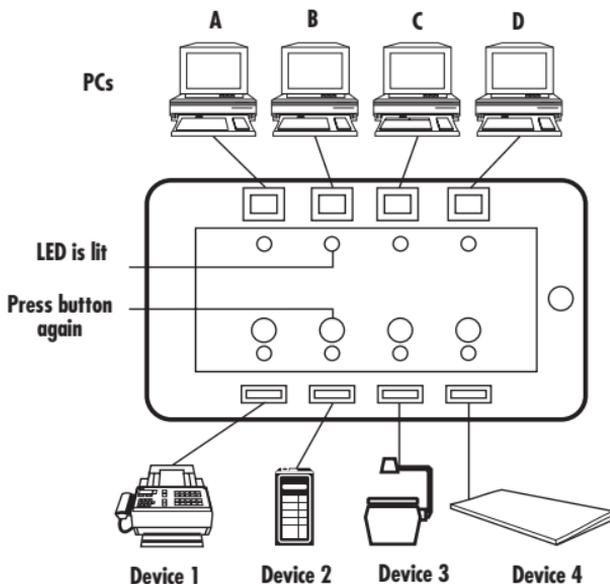


Figure 4-3. Connecting the device on port 2 to PC “B.”

- Press the button again within another second.
- The LED for PC “B” will turn off and the LED for the next available PC (in this case, PC “C”) will turn on.

- Now let the Share-A-Hub time out and the device on Port 2 will be connected to PC “C.”

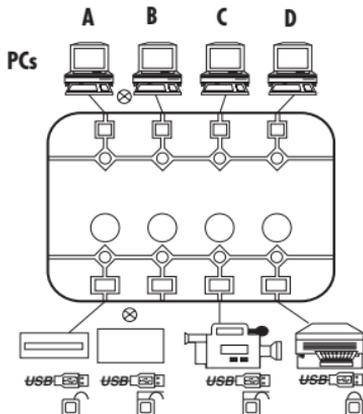


Figure 4-4. Connecting the device on port 2 to PC “C.”

4.2 Software Functions

Function	Description
Connection Request	The device connect request will be honored if no other PC has used that device within the last 6 seconds, and no other PC has “locked” the device to itself. To connect to a device, click the button corresponding to the device until the indicators of the LED associated with your PC is lit.
Lock/Unlock Connection	If a device is “locked” by a PC, then another PC’s request to connect to that device will not be honored. To “lock” or “unlock” a device, toggle click the lock icon when the device is connected to your PC.

Function	Description
PC Connections	The schematic connection shows your PC with the words “You Are Here” above it. It also shows connecting lines indicating how each PC is connected to a device. The lines from the devices are color-coded: green when in normal use, red when the device is locked, and gray when there is no connection.
PC LED Indicators	The LED indicators near the PC connectors indicate which PC is connected to a device in question. When the pushbutton near the device’s connector is pressed, the PC LED indicators above will show which PC is connected to the device. To move the connection to the next PC, press the button again, each time connecting to the next PC.
Device LED Indicators	The LEDs near the device connectors indicate which device is attached and blinks when that device is busy. Devices like mice, keyboards, and hubs are always “busy,” even when they are not in use, since they constantly communicate with the PC.

4.2.1 LEGENDS



The bold letter in the bright color background indicates that you are this PC (called “B” in this case).



The normal letter in the dimmer background indicates that the PC connected is not you.



The dim letter in the dimmest background indicates that this PC is not connected.



The blue lines represent the connection from the Share-A-Hub to the PC.



The gray lines indicate no connection to that port.



The green lines show the connections from the USB device to the downstream port of the Share-A-Hub, through to the upstream port of the Share-A-Hub.



The red lines replace the green lines when the device's connection is locked to a particular PC.



This represents the upstream port of the Share-A-Hub that connects to the PC.



This represents the downstream port of the Share-A-Hub that connects to the USB device.



This indicates an LED that is not lit (shaded gray).



This indicates an LED that is lit.



This is the button that is used to change device connectors.



This symbol shows that a device is locked to your PC. Its connection cannot be changed by someone else, without a warning, even if the device is not busy. Click on this icon to disable the lock.



The lock function is disabled to you when the device is not connected to your PC.



This shows that the device is not locked to a PC. Click on this icon to lock the device to your PC.



You cannot lock a device when it is not connected to your PC.

4.2.2 APPLICATION PROGRAM

The Application Program mimics the Share-A-Hub manual functions.

Examples

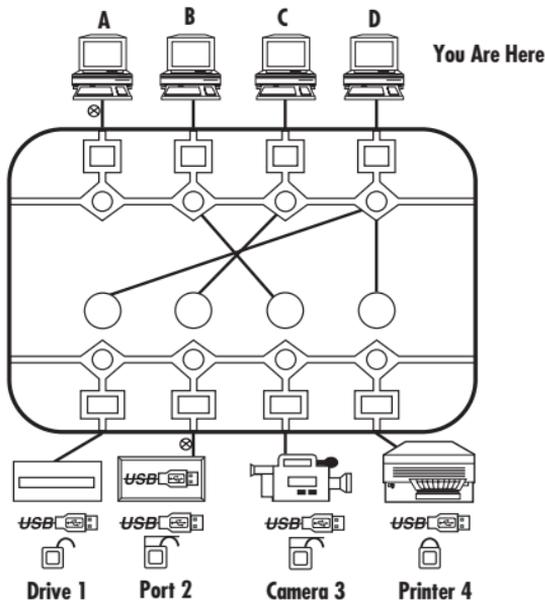


Figure 4-5. USB Share-A-Hub screen.

The “X” on the connection to PC “A” indicates that there is no PC connected to that upstream port.

The lines connecting PC “B,” PC “C,” and PC “D” to the Share-A-Hub indicate that these PCs are connected.

The yellow highlighted “You Are Here” text shows that you are PC “D.”

Port 1 of the Share-A-Hub has a disk drive connected to it.

There is nothing connected to Port 2 (as indicated by the “X”.)

Port 3 of the Share-A-Hub has a camera connected to it.

Port 4 of the Share-A-Hub has a printer connected to it.

Following the line connected to Port 1 shows that Port 1 is connected to PC “D,” which is your PC.

Following the line connected to Port 3 shows that Port 3 is connected to PC “B.”

Following the line connected to Port 4 shows that Port 4 is connected to PC “D,” which is your PC.

The LEDs by Ports 1, 3, and 4 are lit because those devices are connected.

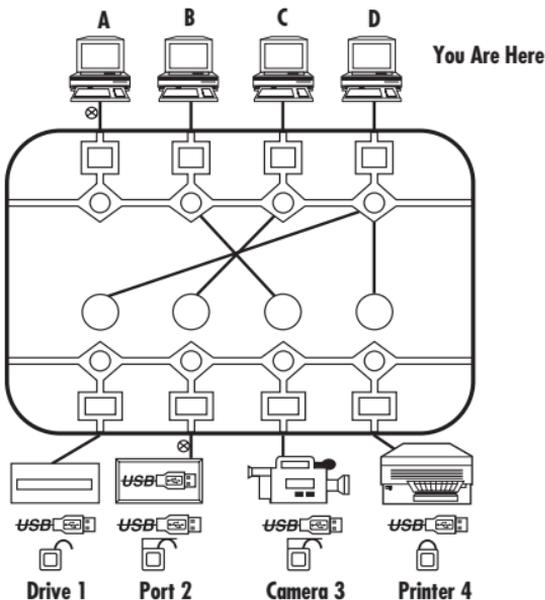


Figure 4-6. Devices connected.

When a device is sending information to the PC, the LED associated with the Port it is connected to will blink. And the “Busy” text will appear next to it. (See Device 3 in the illustration above.) The exception to this is for mice, keyboards, hubs, and any other device that is in constant communication with the PC even when the device is not being used. For these devices, the LED will blink but the “Busy” text will not appear.

When a device is “locked” to a particular PC, or if a device is busy, a warning will appear to the user requesting connection to that device.

Port 4 is locked to PC “D,” indicating to other users that PC “D” wants to have that device even though it is not presently being used. The lock icon and the red color of the connecting lines indicate this.

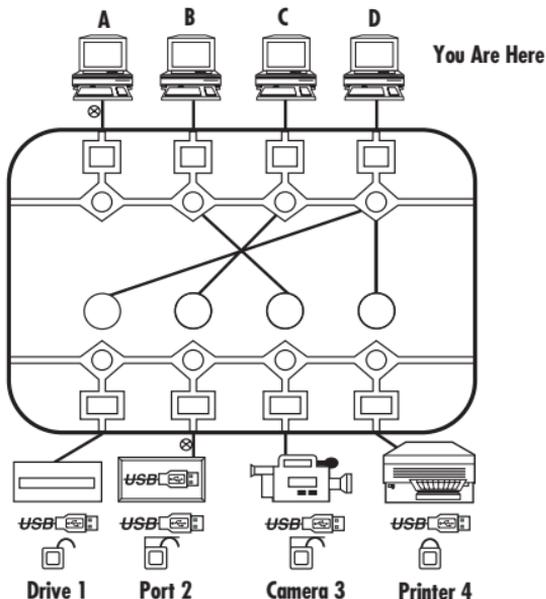


Figure 4-7. Locked and unlocked ports.

The unlock icon for Ports 2 and 3 are disabled because the Application Program, running on PC “D,” is not connected to it.

Example: Connect Your PC to Port 3

Presently, Computer B is connected to the camera on Port 3. Double-click on the Port 3 button to connect your PC to Port 3.

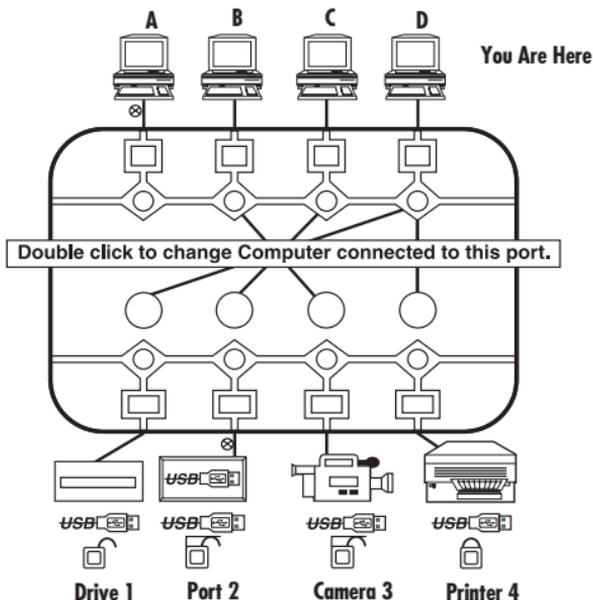


Figure 4-8. Changing the PC connected to a port.

Since the camera on Port 3 is in use, a warning will be displayed.

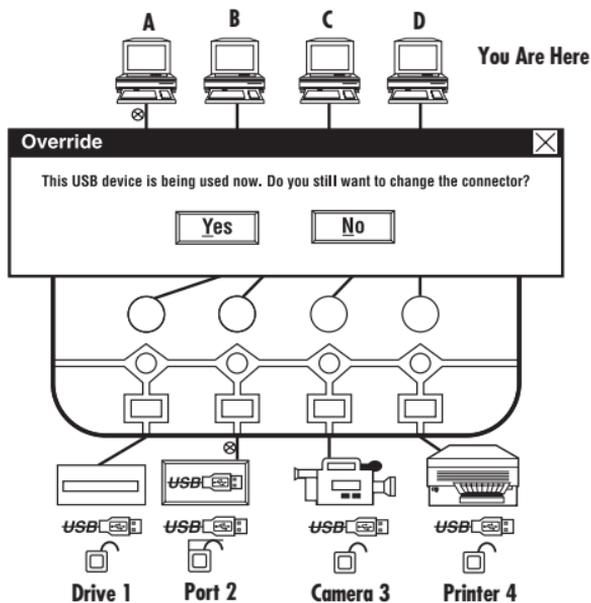


Figure 4-9. Override check warning screen.

USB SHARE-A-HUB

Once the camera on Port 3 is no longer busy, try again.

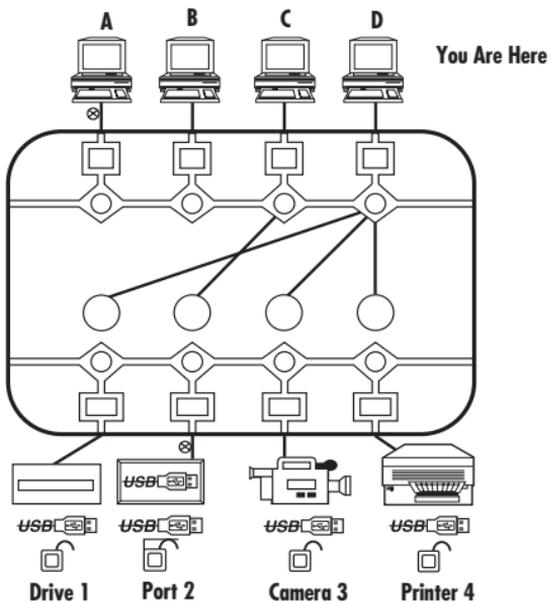


Figure 4-10. Port no longer busy.

To obtain a lock on Port 3, click on the lock icon.

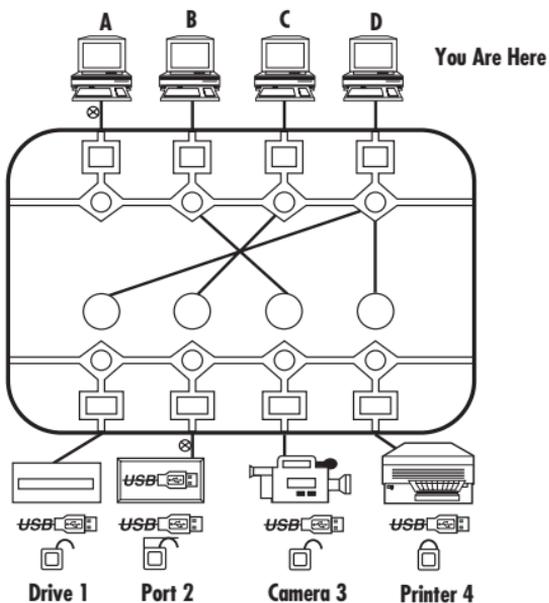


Figure 4-11. Locked port.

4.3 Cascading Share-A-Hubs

The USB Share-A-Hub can be cascaded up to five Share-A-Hubs. To share a keyboard, mouse, and printer among seven servers, make the following connection.

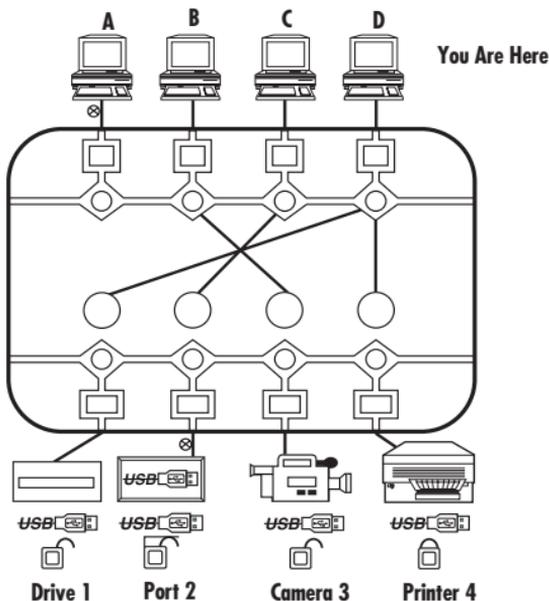


Figure 4-12. Cascading Share-A-Hubs.

Similarly, two Share-A-Hubs can be connected in an alternative cascade so that four PCs can share up to seven USB devices.

When a Share-A-Hub is connected to one of the downstream ports of another Share-A-Hub, the application program will display the following:

Your PC is “B” and is attached to the first Share-A-Hub. Share-A-Hub #2 is attached to the first Share-A-Hub. To view what is attached to Share-A-Hub number 2, click on its icon.

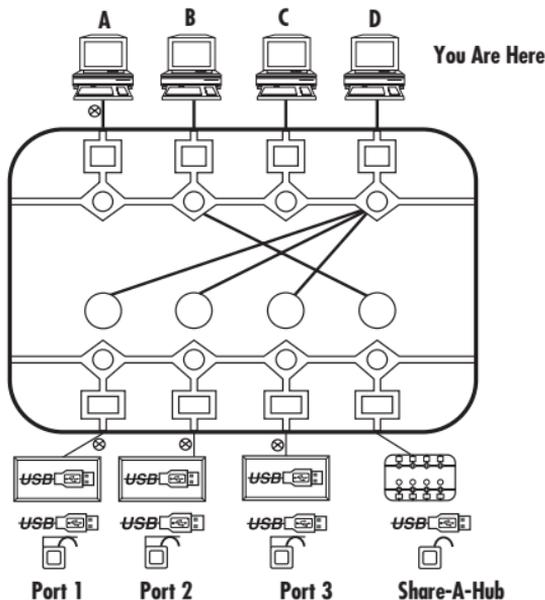


Figure 4-13. Viewing Share-A-Hub connections.

USB SHARE-A-HUB

This shows the connections for the second Share-A-Hub in the chain. It shows the PC attached to Share-A-Hub #1, this is Share-A-Hub #2, and a mouse and camera are attached to it.

Another Share-A-Hub can be attached to #2 and its connections can be viewed the same. (There's a maximum of 5 Share-A-Hubs in series.)

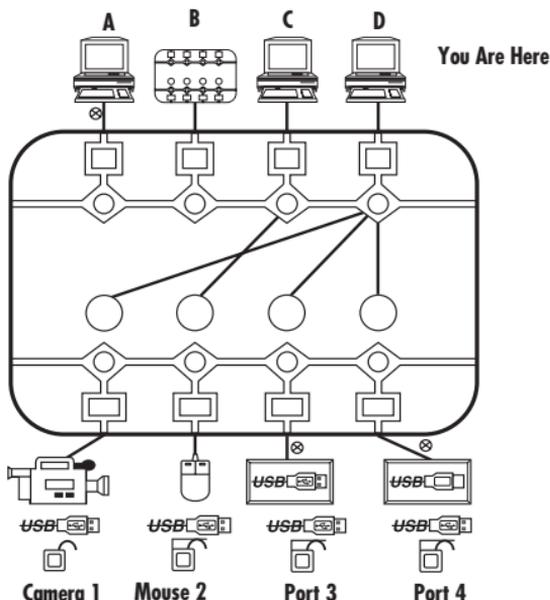


Figure 4-14. Viewing cascaded Share-A-Hubs screen.

4.4 Apple iMAC

The Share-A-Hub will function with the iMac® using the manual controls. However, the application program will only work with Windows.



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