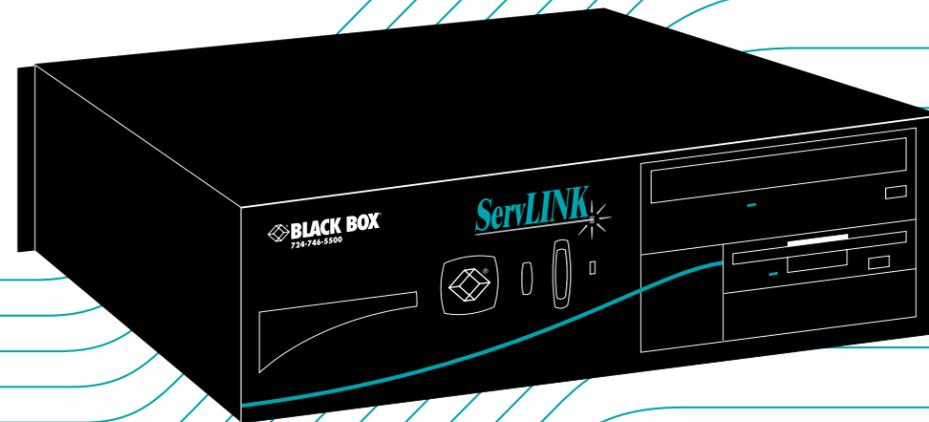


JUNE 2000



ServLINK



ACR3500A
ACR3600A

Doc. No. 590-124-001 Rev. B

Customer Support Information:

FREE tech 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 Dr., Lawrence, PA 15055-1018
World-Wide Web: www.blackbox.com • E-mail: info@blackbox.com
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Welcome to the ServSwitch™ Family!

Thank you for purchasing a remote-access unit for use with your BLACK BOX® ServSwitch™ Brand KVM-switching system! We appreciate your business, and we think you'll appreciate the many ways that your enhanced ServSwitch system will save you money, time, and effort.

That's because our ServSwitch family is all about breaking away from the traditional, expensive model of computer management. You know, the one-size-fits-all-even-if-it-doesn't model that says, "One computer gets one user station, no more, no less." Why not a single user station (monitor, keyboard, and mouse) for multiple computers—even computers of different platforms? Why not a pair of user stations, each of which can control multiple computers? Why not multiple user stations for the same computer?

With our ServSwitch products, there's no reason why not. We carry a broad line of robust solutions for all these applications. Do you have just two PCs, and need an economical alternative to keeping two monitors, keyboards, and mice on your desk? Or do you need to share dozens of computers, including a mix of IBM® PC, RS/6000®, Apple® Macintosh®, Sun Microsystems®, and SGI® compatibles among multiple users with different access levels? Does your switch have to sit solidly on a worktable and use regular everyday cables? Or does it have to be mounted in an equipment rack and use convenient many-to-one cables? No matter how large or small your setup is, no matter how simple or how complex, we're confident we have a ServSwitch system that's just right for you.

The ServSwitch™ family from Black Box—the one-stop answer for all your KVM-switching needs!

*

This manual will tell you all about your new ServLINK™ unit, including how to install, operate, and troubleshoot it. For an introduction to the ServLINK, see **Chapter 2**. The ServLINK product codes covered in this manual are:

ACR3500A
ACR3600A

This manual also includes information about the ServLINK's Power Management Module accessories, but they have their own manual as well. Their product code is:

ACRPWR

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This equipment generates, uses, and can radiate radio-frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

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

This digital apparatus does not exceed the Class A 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 la classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

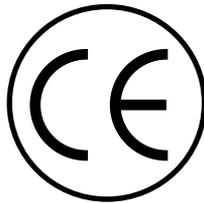
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EUROPEAN UNION DECLARATION OF CONFORMITY

This equipment has been tested and found to comply with the limits for a class A computing device in accordance with the specifications in the European standard EN55022. These limits are designed to provide reasonable protection against harmful interference. This equipment generates, uses and can radiate radio-frequency energy, and if not installed and used in accordance with the instructions, might cause harmful interference to radio or television reception. However, there is no guarantee that harmful interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment on and off, you can correct the interference with one or more of the following measures:

- (a) Reorient or relocate the receiving antenna.
- (b) Increase the separation between the equipment and the receiver.
- (c) Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- (d) Consult the supplier or an experienced radio/TV technician for help.

This equipment has also been tested and found to comply with European standard EN50082-1:1992.



FCC REQUIREMENTS FOR TELEPHONE-LINE EQUIPMENT

1. The Federal Communications Commission (FCC) has established rules which permit this device to be directly connected to the telephone network with standardized jacks. This equipment should not be used on party lines or coin lines.
2. If this device is malfunctioning, it may also be causing harm to the telephone network; this device should be disconnected until the source of the problem can be determined and until the repair has been made. If this is not done, the telephone company may temporarily disconnect service.
3. If you have problems with your telephone equipment after installing this device, disconnect this device from the line to see if it is causing the problem. If it is, contact Black Box.
4. The telephone company may make changes in its technical operations and procedures. If any such changes affect the compatibility or use of this device, the telephone company is required to give adequate notice of the changes. You'll also be advised of your right to file an FCC complaint.
5. If the telephone company requests information on what equipment is connected to their lines, inform them of:
 - a. The telephone number that this unit is connected to.
 - b. The ringer equivalence number.
 - c. The USOC jack required: RJ-11C.
 - d. The FCC registration number.Items (b) and (d) can be found on the unit's FCC label. The ringer equivalence number (REN) is used to determine how many devices can be connected to your telephone line. In most areas, the sum of the RENs of all devices on any one line should not exceed five (5). If too many devices are attached, they may not ring properly.
6. In the event of an equipment malfunction, all repairs should be performed by Black Box. It is your responsibility to tell us that your equipment needs to be serviced.

CERTIFICATION NOTICE FOR TELEPHONE-LINE EQUIPMENT USED IN CANADA

The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications-network protective, operational, and safety requirements. Industry Canada does not guarantee the equipment will operate to your satisfaction.

Before installing this equipment, you should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single-line individual service may be extended by means of a certified connector assembly (extension cord). Be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized maintenance facility—in this case, Black Box. Any equipment malfunctions, or any repairs or alterations you make to this equipment, may give the telecommunications company cause to ask you to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water-pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CAUTION!

Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

The LOAD NUMBER (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices, subject only to the requirement that the total of the load numbers of all the devices does not exceed 100.

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 deber 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

- Compliance** — EMI/RFI: CE (EN55022 Class A, EN50082); FCC Part 15 Subpart J Class A, IC Class/classe A;
Telephone-network regulations: FCC Part 68, IC;
Electrical safety: UL® 1950, CSA C22.2 No. 950, EN60950
- Modem Type** — ACR3500A: North America compatible V.90 (56K);
ACR3600A: Europe compatible V.90 (56K)
- Standards** — Video: VGA, SVGA, or XGA video;
LAN: IEEE 802.3 Ethernet v2
- Interfaces** — To monitor: VGA;
To keyboard and mouse: IBM PS/2 compatible (including PS/2 type IntelliMouse™); with appropriate adapters, also supports IBM PC/AT keyboard and EIA/TIA RS-232 serial mouse on these PS/2 ports;
To CPU: Proprietary composite of video, keyboard, and mouse interfaces listed above;
To telephone network and to phone: Modular telco;
To LAN: 10/100BASE-T;
To microphone and speakers, and from stereo input: 3.5-mm stereo;
Serial: COM ports are EIA/TIA RS-232, DTE, pinned according to TIA-574; DATA port on Access Card is also RS-232, but is proprietarily pinned on RJ-45;
Also has IEEE 1284-A parallel (IBM PC parallel compatible bidirectional) and USB Type A interfaces, but we don't recommended using these
- Resolution and Refresh Rate** — Up to 1280 x 1024 noninterlaced at up to 60 Hz;
Interlaced video is *not* supported
- Storage** — Standard 3.5" diskette drive;
Will always have a standard hard drive and an optical drive that can read CD-ROMs, but the type, capacity, and speed of these drives may vary depending on drive availability
- User Controls** — (4) Front-mounted pushbuttons: Main power, main reset, CD-ROM eject, and 3.5"-diskette eject;
All other functions are software-controlled

Indicators —	(3) Front-mounted LEDs: Main power/activity, power/activity of CD-ROM drive, power/activity of 3.5" diskette drive; All other indications are software-based
Connectors —	All rear-mounted; (1) DB25 female to CPU or KVM switch; (2) HD15 female: (1) to primary monitor, (1) to secondary monitor; (2) 6-pin mini-DIN female: (1) to keyboard, (1) to mouse; (5) RJ-11 jacks: (1) to telephone line, (1) to telephone, (2) between ServLINK cards, (1) to Power Management Modules (1) RJ-45 jack to LAN; (3) 3.5-mm stereo jacks: (1) to microphone, (1) for stereo audio output (speakers/headphones), (1) for stereo audio input; (2) DB9 male to serial devices; (1) IEC 320 male power inlet; Also has (1) DB25 female parallel port and (1) Type A USB port, but these are not used or supported by the standard ServLINK software
Power —	120 or 240 VAC (switchable) at 50 to 60 Hz from utility-power (mains) outlet, through detachable power cord and IEC 320 inlet, to internal transformer; Consumption: Typically 8 watts
Maximum Altitude —	10,000 ft. (3048 m)
Temperature Tolerance —	Operating: 41 to 104°F (5 to 40°C); Storage: -4 to +122°F (-20 to +50°C)
Humidity Tolerance —	10 to 90% noncondensing
Enclosure —	Steel and high-impact plastic
Size —	4.8"H x 15"W x 17.3"D (12.1 x 38.1 x 43.8 cm)
Weight —	Net: 20 lb. (9.1 kg) for chassis only; Shipping: 33 lb. (15 kg)

2. Introduction

NOTE

This manual is intended to be a basic hardcopy reference. For some features of the ServLINK—especially for certain obscure and/or complex software functions—the ServLINK’s on-line help system will provide more details.

2.1 Overview

With the ServLINK™ you can access a PC—or, with one or more ServSwitch™ family KVM switches, all of your PCs—from a remote location. You can literally be anywhere in the world and still control your computers as if you were in front of them. You won’t need to install any remote-access hardware or software in your PCs, and all PC-compatible operating systems and applications are supported. The only thing your computers will need to have is a standard VGA/SVGA video card. ServLINK supports 2, 4, 16, or 256 colors in 640 x 480, 800 x 600, and 1024 x 768 graphics modes.

By connecting the ServLINK to a KVM-switching system, you can control every PC attached to the system remotely through the ServLINK. Extend your switching control from across the building to across the world! By using your switches and the ServLINK together, you reduce the cost of remote access per PC dramatically, making it a much more attractive option than more volatile software-only remote-access solutions.

ServLINK supports remote access through an internal modem, LAN, or TCP/IP Internet connection, as well as direct serial-port access. No matter where you are, access to your PCs is always possible. And ServLINK operates completely independently of your PCs’ hardware, operating systems, or applications. So if your network is down or even if an attached PC is completely locked up, you can still receive the PC’s video and send it keyboard and mouse data just as if you were sitting in front of it. Should your ServLINK system itself ever become locked, you can remotely reset the ServLINK and resume activity with minimal interruption. No on-site assistance is required.

With ServLINK, your repair technicians can remain centralized and efficient. If a site calls in with a problem, the technicians can simply log in to the site and troubleshoot from their own location. Often a PC can be restored remotely without any travel to the site. In the event that a service call is necessary, the technician might be able to report to management what steps need to be taken and parts ordered before an on-site visit ever takes place.

In many ways, the ServLINK functions like a PC itself. It runs the Microsoft® Windows NT® operating system and ships with the proprietary ServLINK application and the pcANYWHERE® software package by Symantec preinstalled. Each ServLINK is completely configured at the factory for quick startup and operation. Just connect the cables and you're "remote-access ready."

In addition to the extensive security features of pcANYWHERE, the ServLINK supports a second level of security for the safest possible system. Encrypted password protection, multiple levels of user authority, and an event-tracking log enable you to stay in control of your valuable information.

A typical ServLINK configuration is shown in Figure 2-1.

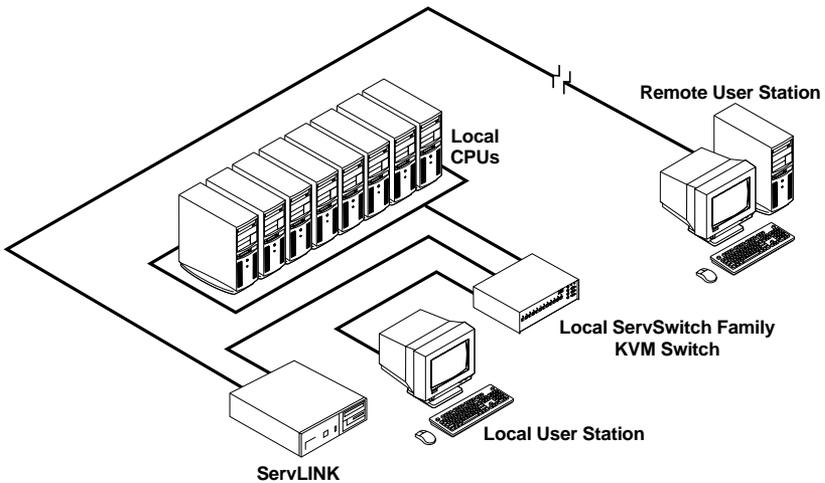


Figure 2-1. A basic ServLINK system.

2.2 The Complete ServLINK Package

Your ServLINK package should include the following:

- The ServLINK itself.
- Its keyboard and mouse.
- Software kits (in case you should ever have to reinstall the native software on the ServLINK) for:
 - Windows NT (one CD-ROM, three diskettes, and a manual);
 - pcANYWHERE (one CD-ROM); and
 - Proprietary ServLINK software (one CD-ROM).
- One three-to-one CPU-extension cable for attaching a PC or KVM switch.
- One RJ-11 cable for attaching the modem to a wall outlet.
- One power cord.
- This manual.

If anything is missing or damaged, please call Black Box right away.

2.3 Safety Concerns

As you prepare to install the ServLINK, please keep these things in mind:

- Unplug the ServLINK from AC power and from all other devices and telephone-jack connections before removing the unit's cover. Don't plug the ServLINK back into anything until its cover has been put back on.
- **Warning:** If the battery of the ServLINK ever needs replacing, carefully replace it with the same type of battery or with an electrically identical battery *only*. If you install some other type of battery in the ServLINK, or install a battery in the ServLINK the wrong way, the battery could explode.
 - Dispose of used batteries according to the battery manufacturer's instructions. At the time of this writing, the ServLINK contains a lithium-type battery; according to its manufacturer's guidelines, it is safe to dispose of this type of battery in a municipal solid-waste system.
- For your own protection, you should make sure that the electrical ground connections of your site's power utility, telephone lines, and/or internal metallic water-pipe system are connected together. This precaution might be particularly important in rural areas. Don't attempt to make such connections yourself; contact an electrician or the appropriate electric-inspection authority.

3. Installation

NOTE

The illustrations in this chapter were made from a prototype unit. The arrangement of the connectors on the back of your unit might be slightly different.

3.1 At the Local Site: Making Device and Power Connections

3.1.1 ATTACHING PRIMARY EQUIPMENT

To install the ServLINK™ at your local site (the site where the computers you want to access are), first power down all of the computers and KVM switches that you will be attaching, directly or indirectly, to your ServLINK system. Then connect your peripherals to the ServLINK, as shown in Figure 3-1:

1. Plug the VGA monitor you wish to use with your ServLINK into the port highlighted dark blue and labeled  on the back of your ServLINK unit.
2. Plug the included PS/2® type keyboard into the ServLINK port highlighted lavender and labeled . Plug the included PS/2 type mouse into the ServLINK port highlighted light green and labeled .

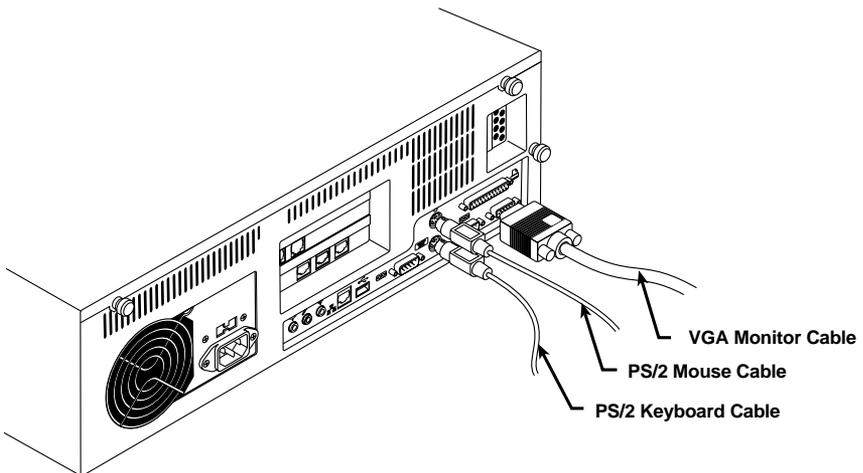


Figure 3-1. Attaching the peripherals to the ServLINK.

Then connect your computers and/or KVM switches to the ServLINK:

1. Plug the DB25 female connector of the included three-to-one CPU-extension cable into the DB25 male port on the topmost daughtercard on the rear of the ServLINK unit, as shown in Figure 3-2.

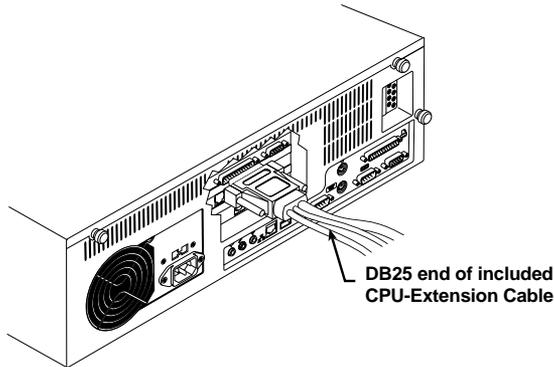


Figure 3-2. Attaching the CPU-extension cable to the ServLINK.

2. The other end of the CPU-extension cable has five connectors on three different cable strands. On one strand, it has an HD15 male video connector. On the second strand, it has two different keyboard connectors: a 5-pin DIN male suitable for older IBM® PC/AT® type keyboard ports and a 6-pin mini-DIN male suitable for newer PS/2 type keyboard ports. On the third strand, it has two different mouse connectors: a DB9 female suitable for serial-mouse ports and a 6-pin mini-DIN male suitable for PS/2 type mouse ports. The PS/2 mouse connector has a yellow band around it to distinguish it from the PS/2 keyboard connector.

If you are attaching the ServLINK directly to a host PC: Plug these cable connectors into the corresponding video, keyboard, and mouse ports on your host PC as shown in Figure 3-3 on the next page. (Use only the keyboard and mouse connectors appropriate for your PC, and leave the others unconnected.)

If you're attaching the ServLINK to a ServSwitch family KVM switch whose user ports are separate monitor, keyboard, and mouse ports (ServSwitch™ Wizard Pro, etc.): Plug these cable connectors into the corresponding monitor, keyboard, and mouse user ports on the switch. (Use only the keyboard and mouse connectors appropriate for your switch, and leave the others unconnected.)

If you are attaching the ServLINK to a ServSwitch family KVM switch with composite user ports (monitor, keyboard, mouse, and other ports in a single connector—regular ServSwitch, ServSwitch™ Multi, etc.): Plug these cable connectors into the corresponding monitor, keyboard, and mouse connectors on the switch's User Cable—as if you were attaching a monitor, keyboard, and mouse—as

shown in Figure 3-4. (Use only the keyboard and mouse connectors that are appropriate for your switch, and leave the others unconnected. Make sure that your host PCs are properly attached to the switch. See your switch's manual for more details about attaching equipment to it.)

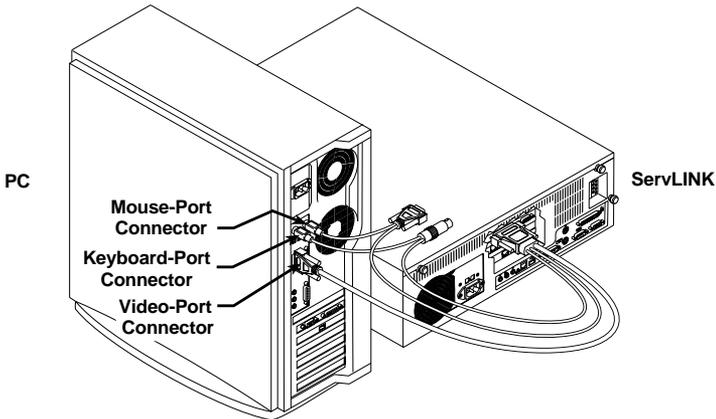


Figure 3-3. Attaching the CPU-extension cable to a CPU (a PS/2 type CPU is shown).

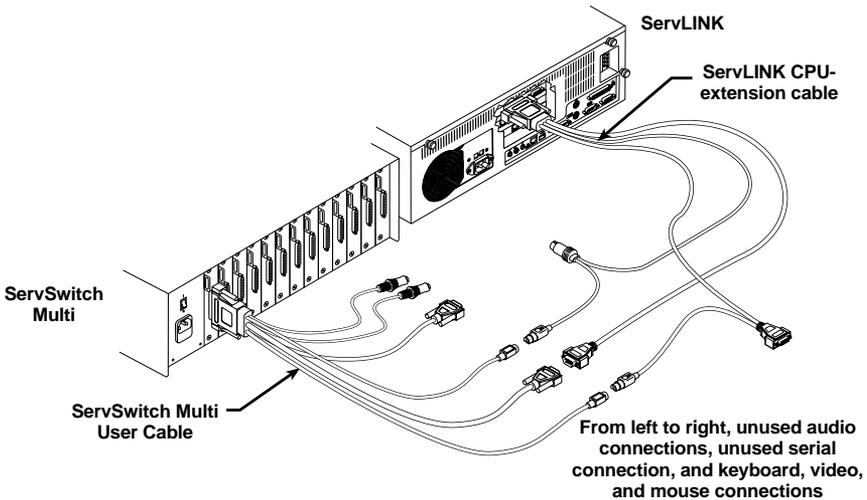


Figure 3-4. Attaching the CPU-extension cable to a KVM switch with composite user ports (the ServSwitch Multi is shown).

3.1.2 ATTACHING A SECONDARY MONITOR (OPTIONAL)

The primary monitor connected to the ServLINK displays the video on the host PC as seen through the ServLINK. There is a small time delay for the ServLINK to process the video. To see the host PC's video in real time, without waiting for it to pass through the ServLINK, you can connect a secondary monitor: Simply plug the VGA monitor you want to use for this purpose into the HD15 female connector on the topmost daughtercard in the back of your ServLINK unit, as shown in Figure 3-5.

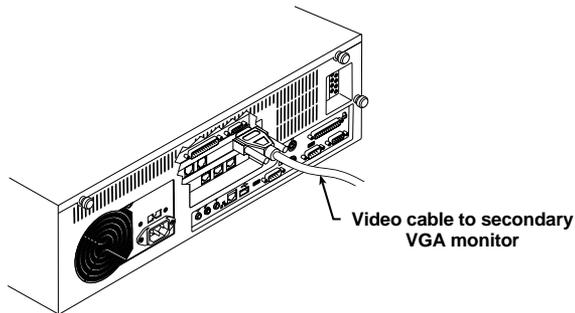


Figure 3-5. Attaching a secondary monitor to the ServLINK for a direct video feed.

3.1.3 ATTACHING THE SERVLINK TO TELEPHONE AND/OR LOCAL AREA NETWORKS

If you want the ServLINK to communicate with the remote site through the public telephone network, attach its internal modem (the middle daughtercard on the rear of the ServLINK) to the phone network this way (see Figure 3-6 on the next page): First run the included RJ-11 phone cable between the modem card's "LINE" jack and the "MODEM" jack on the adjacent Access Control card (the bottommost daughtercard). Then run another standard RJ-11 phone/modem cable (not included) between the "LINE" jack on the Access Control card and a standard telephone wall jack.

If you want the ServLINK to communicate with the remote site through your 10BASE-T or 100BASE-T Ethernet LAN, run a straight-through-pinned unshielded 10BASE-T or 100BASE-T cable from the RJ-45 jack labeled  on the rear of the ServLINK to any available network jack. (Be aware that you'll have to change the network settings of the ServLINK to comply with those of your network, which must be done through the operating system; refer to your Windows NT manual. Also, of course, your network must be configured to support the ServLINK as a new node—refer to your network's documentation.)

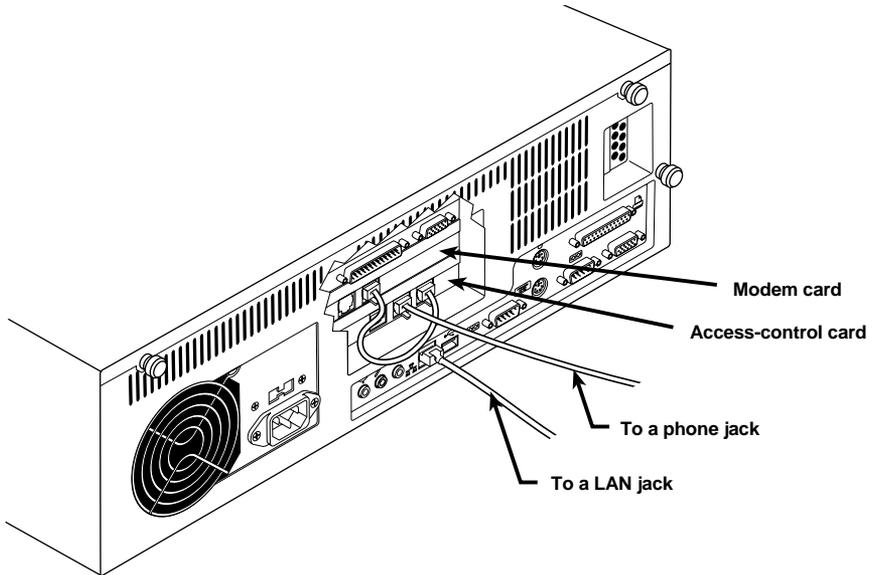


Figure 3-6. Attaching the ServLINK to the public phone network or a LAN.

3.1.4 ATTACHING THE SERVLINK DIRECTLY TO A CONTROLLING PC'S SERIAL PORT

If you want the ServLINK to communicate with a local controlling PC as if it were communicating with the remote site—primarily in order to transfer files—you can establish a direct serial connection between the ServLINK and the local PC. First get a standard DB9 female to DB9 female null-modem cable such as our product code EYN257H. Attach one end of this cable to either of the ServLINK's two DB9 male serial ports: These are highlighted in dark green and are labeled “ A” and “ B”. Attach the other end of the cable to one of the PC's DB9 male serial ports.

In order for this connection to work, you will need to configure the two interconnected serial ports to matching data rates, data formats, etc. This can be done through HyperTerminal™ or some other terminal-emulation program; see the terminal program's documentation for instructions.

If you are using Power Management Modules in your system, you can attach the first Module in your daisychain to one of the Switch's serial ports. See **Section 3.1.6**.

You could theoretically attach other serial devices to the ServLINK's serial ports, although this is not necessary or recommended. If you want to do so, please call Black Box Tech Support to discuss your application first.

3.1.5 ATTACHING SPEAKERS/HEADPHONES OR A MICROPHONE (OPTIONAL)

You can attach speakers or headphones and a microphone to the ServLINK if you want to, although this would only allow the ServLINK to transmit or receive sound itself—the ServLINK *cannot* send or receive audio signals to/from the remote site or to/from the attached PCs.

If you are using speakers or headphones with the ServLINK, plug them into the jack highlighted yellow and labeled  on the back of the ServLINK. If you're using a microphone, plug it into the adjacent jack highlighted pink and labeled . Figure 3-7 shows how this works:

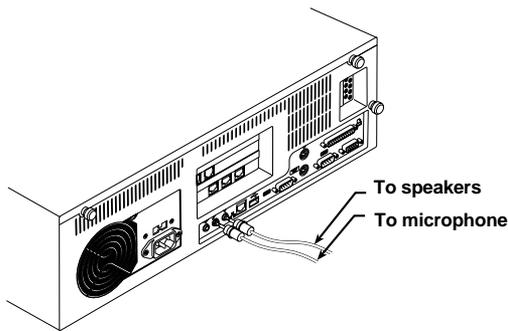


Figure 3-7. Attaching speakers and a microphone to the ServLINK.

3.1.6 ATTACHING DEVICES TO OTHER PORTS (OPTIONAL, NOT RECOMMENDED)

It is theoretically possible to connect other types of devices to other ports on the rear of the ServLINK, although we don't recommend doing so because such connections are unnecessary for the ServLINK's operation:

- You could plug a USB device into the USB Type A port labeled " USB".
- You could attach a parallel printer or a Zip® drive to the DB25 female parallel port highlighted maroon and labeled .
- You could attach an auxiliary stereo audio source to the 3.5-mm stereo audio jack highlighted light blue and labeled .

Before you make any of these connections, please call Black Box Tech Support to discuss your application.

3.1.7 ATTACHING POWER MANAGEMENT MODULES (POWER AND SERIAL DATA, OPTIONAL)

How you attach a ServLINK Power Management Module (our product code ACRPWR) to a main ServLINK unit depends on whether the Module will be controlling power to the ServLINK itself (see **Section 3.1.7.A**) or to an attached computer, router, etc. (see **Section 3.1.7.B**). **Important:** Any non-included power cords used with the Management Modules *must* be rated for 15 amps minimum. For more complete information about these Modules, consult their own manual.

3.1.7.A Installing the Module Controlling Power to the ServLINK

Take these steps to install any Module you'll be using to control power to the ServLINK itself:

1. If the ServLINK is powered, power it down.
2. Plug one of the RJ-45 cables included with the Management Module into the "DATA IN" port on the Module, as shown in Figure 3-8.

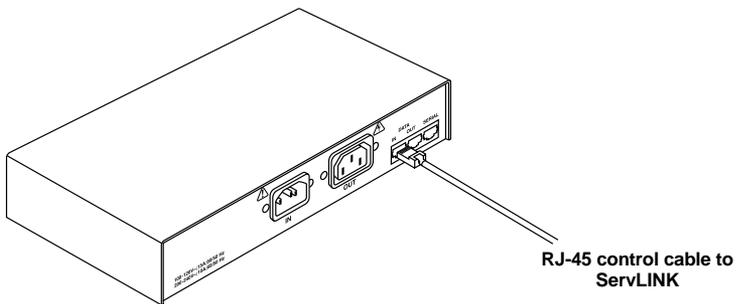


Figure 3-8. Attaching an RJ-45 cable to the Power Management Module.

3. Plug the other end of this cable into the port marked "DATA" on your ServLINK's Access Card, as shown in Figure 3-9.

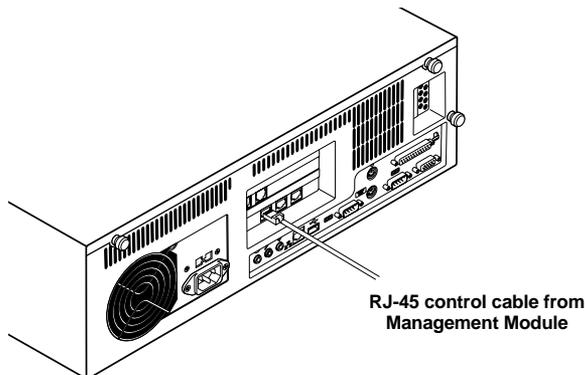


Figure 3-9. Attaching the same cable to the ServLINK.

4. Find the power patch cord that came with your Management Module. It will have an IEC 320 female connector on one end and an IEC 320 male connector on the other. Plug the male end of this cord into the power port marked “OUT” on the Module. Plug the other end of this cord into the power inlet on the ServLINK unit.
5. Finally, run the ServLINK’s own power cord from its own inlet to a properly rated wall outlet. The ServLINK, the Module, and the wall outlet should now be interconnected, power-wise, as shown in Figure 3-10.

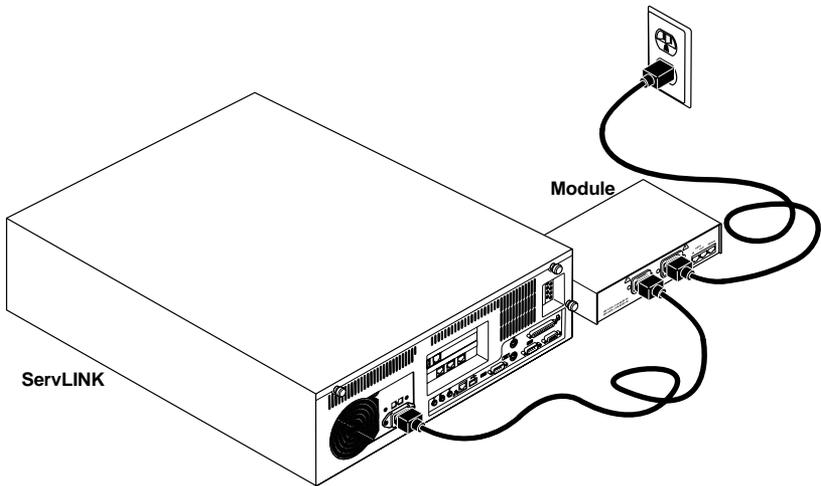


Figure 3-10. Attaching the power cords.

6. *Optional:* To ensure that you have constant dial-in reboot access to your ServLINK unit, you can connect a separate modem and phone line to the Management Module, so that you have a secondary way to reboot the ServLINK in case the primary phone line is tied up or goes down.

To do this, attach the RJ-45F-to-DB9M adapter included with the Management Module to the DB9F-to-DB25M adapter that’s also included. Plug the DB25 male end of this assembly into the DB25 female “DTE” or “RS-232” port on the modem you’ll be using. Run the other RJ-45 cable included with the Module from the Module’s “DATA OUT” port to the RJ-45 jack on the adapter assembly, then run a standard RJ-11 phone cable (not included) from the modem’s “Line” or “Telco” port to the second phone line’s wall jack.

For details about performing a reboot using this hardware, see **Section 6.6.2**.

3.1.7.B Installing the Modules Controlling Power to the Attached Devices

Take these steps to install each of the Power Management Modules you'll be using to control power to the ServLINK's attached PC CPUs, routers, and other devices:

1. Power down the device that the Module will be power-controlling.
2. Plug one of the included RJ-45 cables into the "DATA IN" port on the Management Module.
- 3a. *If this is the first Management Module in the daisychain:* Use RJ-45F-to-DB9F adapter included with the Module to connect the other end of this cable to one of the ServLINK's serial ports, as shown in Figure 3-11.

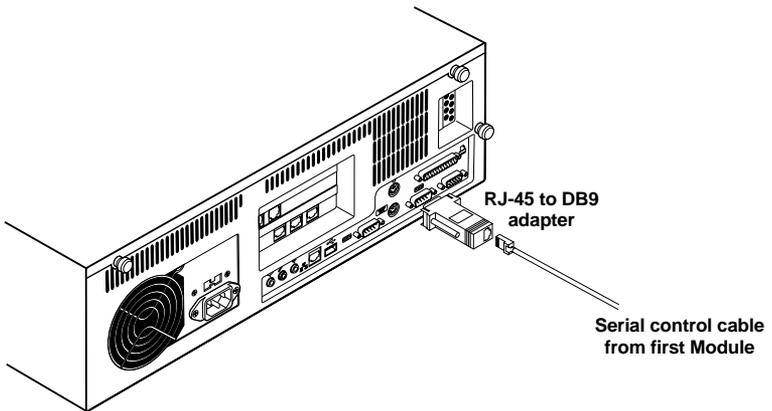


Figure 3-11. Attaching the cable from the first PC's Module to the ServLINK.

- 3b. *If this is not the first Management Module in the chain:* Connect the other end of the RJ-45 cable to the "DATA OUT" port on the previous Module in the chain.

NOTE

Make careful notes of which devices you attach to which Modules, so that you can associate the two in the ServLINK's software later, and have accurate remote control. (The ServLINK's software will refer to the first Module in the daisychain as "001," the second as "002," and so forth.) See Section 6.1.2.

4. (Optional) Plug one end of the other RJ-45 cable included with the Module into the port marked “SERIAL” on the Module you’re installing. Take the other end of this cable and attach one or more of the Module’s included adapters (or identical ones if you’ve already used any of them—call Black Box Tech Support for extras) to connect to a serial device or a device’s serial port in any of these ways:
 - *To connect to the serial port of the Module’s attached PC, router, network switch, etc. (the standard application) or to the serial port of another such device:* Attach the included RJ-45F-to-DB9F adapter to the cable and plug the adapter into the device’s DB9M serial port. (If the device has a DB25M serial port instead, you’ll also need a non-included DB9M-to-DB25F adapter.)
 - *To connect to a modem, multiplexor, or other RS-232 DCE with a DB25F connector:* Attach the included RJ-45F-to-DB9M adapter to the cable, then add the included DB9F-to-DB25M adapter. Plug the DB25M end of the adapter assembly into the device.
 - *To connect to any other RS-232 device that can be connected to a PC’s serial port:* Attach the included RJ-45F-to-DB9M adapter to the cable, then (if necessary) add the included DB9F-to-DB25M adapter. Get any cable, adapters, etc., that you’d run from a PC’s DB9M or DB25M serial port to the device. Plug these into the DB9M or DB25M end of the Module’s adapter assembly and run them to the device. (Keep in mind that the normal distance limit for RS-232 communication is 50 ft. [15.2 m].)
5. (Optional) *If this is the last Management Module in the daisychain:* Plug one end of an RJ-45 cable (the other included one if you didn’t already use it in step 4, one just like it otherwise) into the “DATA OUT” port of this Module. Take the other end of this cable and attach one or more of the Module’s included adapters (or identical ones if you’ve already used any of them—call Black Box Tech Support for extras) to connect to a “pass-through” serial device that you can communicate with when none of the Power Management Modules are active. Refer to the “bullet points” in step 4 above for how to do this.
6. Connect the male (inlet) end of the Module’s included power patch cord to the port marked “POWER OUT” on the back of the Management Module.
7. Connect the female (outlet) end of this cord to the power inlet on the device that the Module will be controlling.
8. Finally, run the device’s power cord from its own inlet to a properly rated wall outlet.

3.1.7.C After Installing the Modules

Once you've installed all your Modules, cables, power cords, etc., your power-managed ServLINK system should be ready to be powered up. When you do so (see the next section), the ServLINK's control software will automatically sense that you've added the Power Management Modules. Refer to **Section 5.1.3** for instructions on configuring the Modules.

Figure 3-12 shows the logical layout of a ServLINK system that includes Power Management Modules, and Figure 3-13 (on the following page) shows the physical layout of such a system.

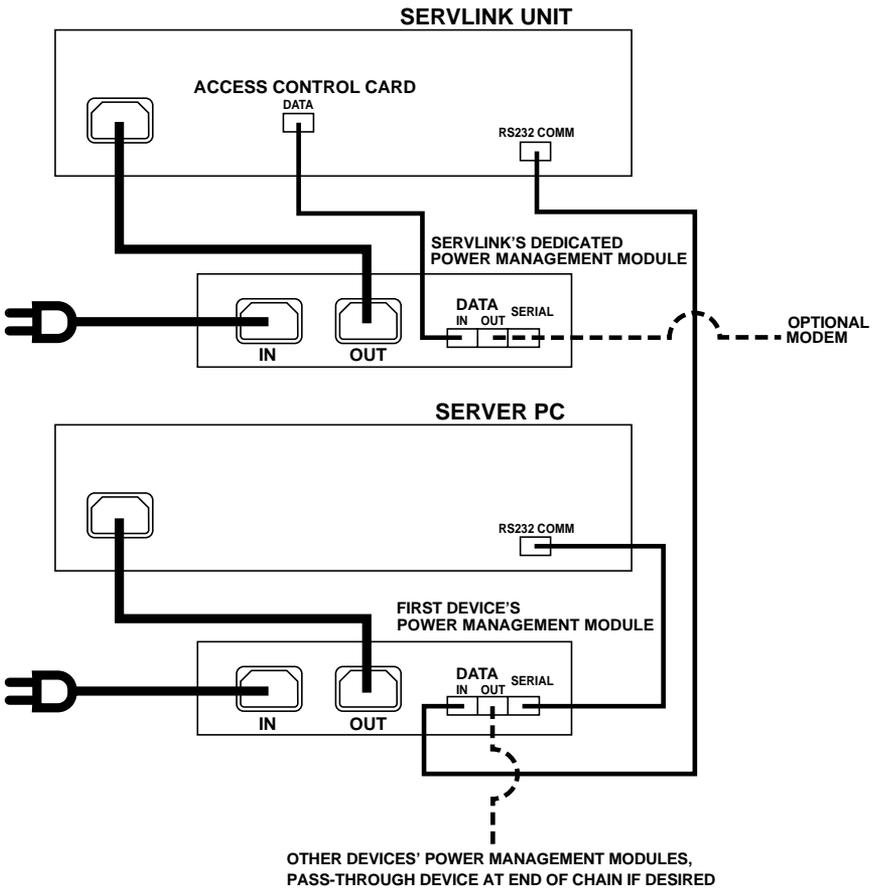


Figure 3-12. Management-Module connection logic.

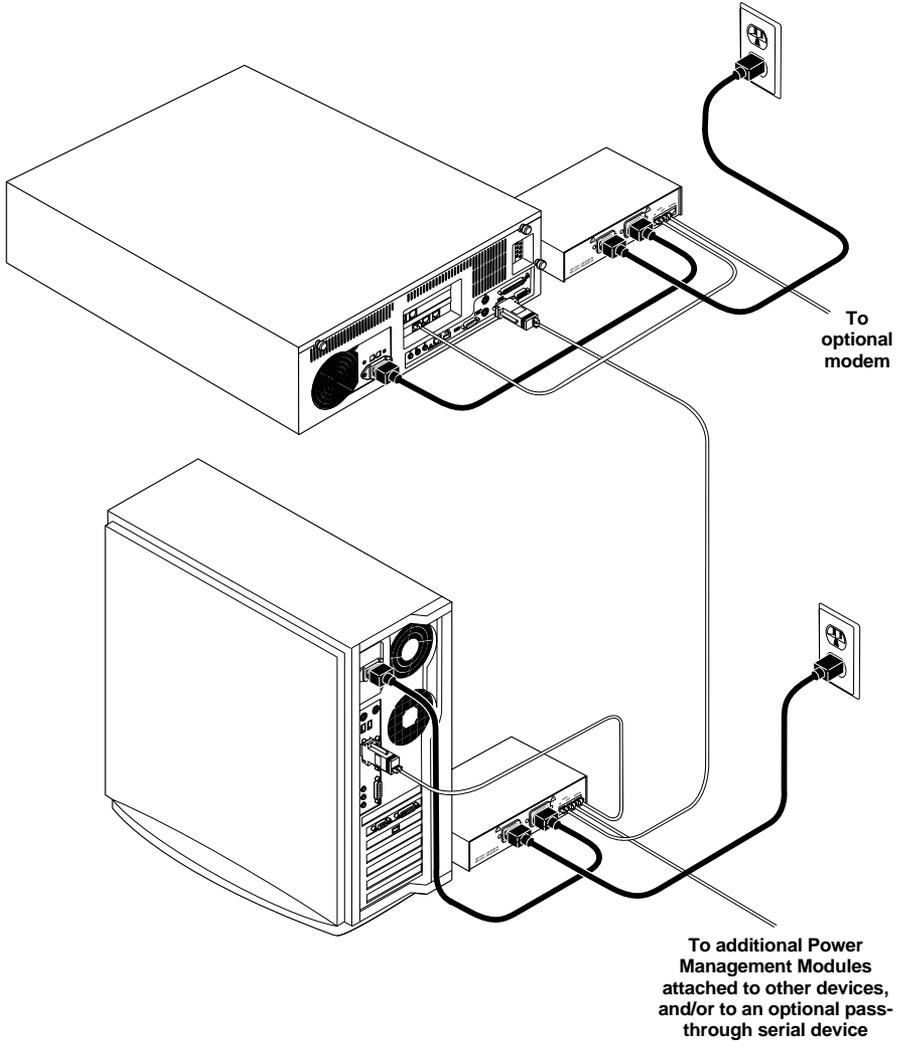


Figure 3-13. A ServLINK system with Management Modules installed.

3.1.8 ATTACHING POWER DIRECTLY (NO POWER MANAGEMENT MODULES)

If your system *doesn't* include Power Management Modules, take these steps to hook it up to AC power: First make sure that the ServLINK's power switch is OFF, then run the included power cord (shown in Figure 3-14) between the IEC 320 power connector on the ServLINK and an appropriate AC wall outlet. (This outlet must be near the equipment and must be easily accessible so that the ServLINK can be easily unplugged if it ever needs servicing.) Plug in the rest of the attached devices.

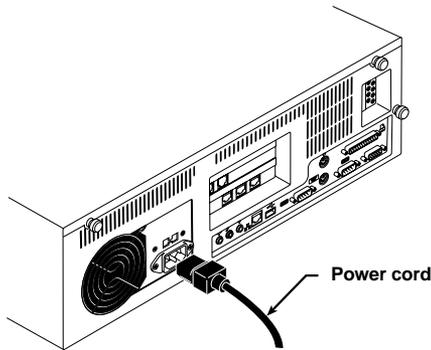


Figure 3-14. Attaching the power cord to the ServLINK.

3.2 At the Local Site: Initial Power-Up

When all of your equipment is in place, take these steps to power up the devices at your local site (you can power up the remote PC and monitor at any time):

1. *If you've installed Power Management Modules:* Turn the Modules ON.
2. Turn ON the ServLINK by pressing the large button marked  on the ServLINK's front panel. The ServLINK will begin booting (it runs Microsoft Windows NT).
3. Turn ON the attached monitor and any other powered attached devices and peripherals.
4. If you're connected to a network, follow your normal operating procedures to log into your network as usual. You should be able to start working with the ServLINK right away: It ships with the default Windows NT user name "Administrator" and no password, so until you change these settings, you can simply press [Enter] to log in.
Once you've logged in, pcANYWHERE loads, followed by the ServLINK application. Once the system has completely booted, you should see the line "ServLINK Remote Control System - Main Menu" at the top of your screen.
(Please note that ServLINK ships with only the TCP/IP network protocol installed and is configured with a static IP address. Consult with your network administrator about how to configure the network to support the ServLINK.)
5. Turn ON any attached KVM switches.
6. Turn ON your CPUs.

Your system should now be ready for initial configuration.

NOTE

Before having the ServLINK serviced—if you ever need to—power it down by turning it OFF and unplugging it, or by shutting OFF power to it through its Power Management Module. (Also power down all of the attached computers if possible.)

3.3 At the Remote Site

To access the ServLINK and your host PCs remotely, your remote location must be equipped with a PC running pcANYWHERE software and with either a modem (if you'll be dialing into the ServLINK) or a network card and an IP address on the same network as the ServLINK (if you'll be controlling it across a LAN). Once you have these things in place, you can establish a connection to your ServLINK and begin remote operation. If you're doing this over the phone, make sure that you know the phone number that you'll need to dial to reach your ServLINK.

For additional information about remote access, see your pcANYWHERE documentation.

4. Configuration

4.1 Configuring the ServLINK to Switch Between Your PCs (KVM-Switched Systems Only)

The ServLINK is designed to handle switching between the PCs in your system through an on-screen menu (see **Section 6.1.1**). When you select a PC from the menu, the ServLINK sends the appropriate keystroke commands to an attached ServSwitch family KVM switch. However, different ServSwitch models recognize different switching commands. For this reason, if you've connected your ServLINK to a ServSwitch system, you might need to configure the ServLINK so that it can perform switching properly.

If you've only connected a single PC to your ServLINK, the ServLINK won't need to do any switching, but you need to tell the ServLINK that. In **Section 4.1.2**, take step 1, then skip ahead and take steps 9 through 16—refer to those steps for details about what you need to enter.

4.1.1 THE STANDARD CONFIGURATION

The ServLINK comes preconfigured with a switching menu (and a corresponding set of keystroke commands) that will work for a basic system. If your system meets *all* of the following requirements, you won't need to configure the ServLINK's switching menu, so you can skip ahead to **Section 4.2**:

1. You have 14 or fewer PCs connected to the ServLINK.
2. All of the PCs are connected to the ServLINK through any version (original, -R2, -R3, etc.) of one of these ServSwitch models: ServSelect™ (our product codes KV104A or KV108A), ServSwitch Multi (KV150A or KV160A), ServSwitch™ Multi MX (KV155A), or ServSwitch™ Multi Z8 (KV158A). Any ServSwitch Multi must be assigned a chassis address from 0 to 10.
3. The system has only one user.

If your configuration varies from this one, follow the steps in **Section 4.1.2** to add computers to your ServLINK system's switching menu.

4.1.2 ENTERING THE CHANNEL ADDRESSES OF YOUR PCs

The first thing you'll need to do to enable the ServLINK to switch between your PCs is to tell it what each PC's assigned KVM-switch channel address is. (If you're only attaching a single PC to the ServLINK, you need to tell the ServLINK that the PC *doesn't have* a channel address instead.) The "channel address" or "port address" of a PC CPU in a KVM-switched system is the name or number—usually associated with a particular switch channel or CPU port—that you give to the KVM switch in a keystroke command in order to get the KVM switch to switch to that PC. Take these steps to enter a PC's address into the ServLINK's memory:

1. Turn ON the ServLINK if you haven't done so already. It should automatically run pcANYWHERE and the ServLINK application, so that the main menu of the ServLINK is displayed (see Figure 6-2 at the start of **Chapter 6** for a picture of the menu).

If you only have a single PC attached to the ServLINK, skip ahead to step 9.

2. Pull down the Keyboard menu and select "Create Keyboard Macros."
3. Click the "Add" button.
4. In the "Macro Description" field, type in the address of the channel (port) on the KVM switch that the PC is attached to. Note that *this entry* is just a description—you'll be creating the actual keyboard-command macro that the ServLINK will use in the next few steps—so you can include words such as "Enter" that describe other keystrokes in the switching command or what have you. Here are a few sample addresses for various ServSwitch models (see your switch manuals for more details about how addressing works):

- **Regular ServSwitch, ServSwitch™ Ultra, ServSwitch™ Affinity, Matrix ServSwitch™, and compatible models:** No matter how many switches and PC CPUs are in your system, the master switch(es) simply number all of the ports and CPUs sequentially, just as if they were all attached to the same switch. So the address of CPU 35 would be just "35".

- **ServSwitch™ Multi, ServSelect, and compatible models:** Addresses consist of the switch's "chassis address" plus a port letter. So the address of the PC CPU on port "J" of chassis "14", for example, would be "14J".

- **ServSwitch™ Duo, ServSwitch™ Wizard, ServSwitch Wizard Pro, and compatible models:** If there's only one switch in your system, the addresses of the attached PC CPUs are a simple two-digit port number, such as "05" or "12" (leading zeros are required for CPUs 1 through 9). If there are several cascaded switches in your system, the address consists of the complete "port path": The address of the CPU on port 3 of a switch attached to port 2 of the master switch would be "0203".

- **ServSwitch™ Elite models:** The attached PC CPUs can be addressed with names if you've assigned names to them in the Elite menu ("webserver3", for instance); they can always be addressed with numbers. If there's only one switch in your system, the numeric addresses are a simple two-digit port number, such as "05" or "12" (leading zeros are required for CPUs 1 through 9). If there are several cascaded switches in your system, the address consists of the complete "port path," with port numbers separated by dashes: The address of the CPU on port 3 of a switch attached to port 2 of the master switch would be "02-03".

In the next few steps, you'll enter the actual series of keystrokes that the ServLINK will have to use to switch to the PC.

Normally, when you would send a switching command to a KVM switch from your keyboard, you would press and release or press and hold one or more special "hotkeys" that alert the switch to expect a command, then press and release the keys that make up the address of the desired PC in sequence. (Most switches then require you to finish the command by either releasing the hotkeys or pressing and releasing [Enter].)

For example, if a PC CPU attached to a ServSwitch Multi had the address "25A", to switch to that CPU you would press and release the ServSwitch Multi's hotkeys (normally [Num Lock] and keypad minus [-]), then press and release [2], then press and release [5], then press and release [A], then press and release [Enter].

Because the switch's hotkeys will be used for other keyboard commands, those are set separately on the ServLINK (see **Section 6.4**) and you don't have to enter them here. You do have to select all of the other characters in the command, however:

5. In the left-hand column labeled "Double Click for Key Press," double-click the first letter, number, or other character of the PC's channel address. For our example CPU with the address "25A", that first character would be a "2".)
6. Double-click the same number or letter in the "Double Click for Key Release" column. This tells the ServLINK to release the key once it has been pressed. This keystroke should appear in the "Macro Created" box located on the far right. (Key names enclosed in brackets represent keypresses; key names enclosed in greater than and less than signs represent key releases.)
7. Repeat steps 5 and 6 for the remaining characters that make up your complete channel address, including any end-of-command characters. (Unless your KVM switch explicitly requires uppercase letters, use *lowercase letters only* for channel addresses.) For our example CPU with the address "25A", the Macro Created box should read "Press [2], Release <2>, Press [5], Release <5>, Press [a], Release <a>, Press [Enter], Release <Enter>" when you're finished.

8. Click the “OK” button to save the address macro to the ServLINK’s memory.

Repeat steps 3 through 8 for each PC whose address you want to add to the ServLINK’s memory. Click the “Exit” button in the “Create Keyboard Macro” box to go back to the Main Menu when you’re done. Now take one last set of steps:

9. Pull down the Switch menu and choose the “Switch PCs” option. This will bring up the “Switch PCs” dialog box (a list of PCs connected to the ServLINK).
10. To add a new computer, click the “Add” button.
11. The “PC Settings” dialog box will appear. In the “PC Description” field, enter a description for this computer. In KVM-switched systems, it’s generally best to use the same description for each PC as the one (if any) assigned to that PC in the menu system of the KVM switch.
12. In the “Switch Box Command” field, make sure that you have selected the hotkey combination that initiates command mode for your switch. The default is set for [Num Lock] and keypad minus [-].
If you have a single PC attached to the ServLINK, select “Switch Box Not Applicable.”
13. In the “Switch Box Select PC” field, select your channel address out of the drop-down menu. Channels that you configured in the previous section should appear in this menu.
If you have a single PC attached to the ServLINK, select “Switch Box Not Applicable.”
14. The remaining settings in this menu are automatically generated and should not under normal circumstances be changed. Select “OK” to take you back to the main Switch PCs box (“List of PCs”).
15. *If you have multiple KVM-switched computers attached to the ServLINK, repeat steps 10 through 14 for every computer you want to add to the list.*
16. When you’re finished, click “Exit” to return to the Main Menu.

4.2 Configuring PCs

Follow the steps below to set up each PC attached to the ServLINK system. These instructions assume that you're connected to the PCs through a KVM switch.

1. At the Main Menu, pull down the Switch Menu to the "Switch PCs" option. This will give you a list of PCs connected to the ServLINK. There will be 14 PCs set up as the default menu selections, labeled "Black Box Switch Box - Channel A" through "Black Box Switch Box - Channel N" (suitable for PCs connected to a ServSwitch Multi or ServSelect). Any channels that you added in the previous section will also appear.
2. Highlight the first PC you want to set up. If you are configuring a PC using the default settings for Channels A through M, click the "Settings" button. Here, in the PC Description field, you can rename the channel to whatever description you will recognize your computer by. Generally, it is best to use the same description that you use for your switch.

Also, while in this menu, check the "Switch Box Command" setting and make sure that it reflects the keyboard sequence your switch uses to enter command mode. Click "OK" when you're finished.
3. Choose the "Select Host PC" option from the Switch menu and click "OK." The ServLINK will go into "Host Mode" and switch to that computer immediately. Read the notice that appears on your screen and click "OK" to clear it.
4. Tap the right Shift key three times to bring up the Host Mode Properties dialog box.
- 5a. *If the screen looks acceptable (level of brightness, contrast, etc.),* go to the next PC by clicking the "Menu Mode" button in the Host Mode Properties dialog box, then repeat steps 1 through 4.
- 5b. *To make changes in the appearance of your video,* select the "Video Advanced" tab in the Host Mode Properties dialog box. Click the "AutoDetect All" button. When the "Apply" button becomes active, click it. If the screen looks acceptable *now*, go to the next PC by clicking the "Menu Mode" button in the Host Mode Properties dialog box, then repeat steps 1 through 5. Otherwise, continue with steps 6 through 10.
6. Select the "Video Settings" option from the Host Mode Properties dialog box.
7. Use the slider bars in this window to adjust the brightness and contrast settings until you are satisfied with them, then click the "Apply" button.

8. Click the window's left-, right-, up-, and down-buttons to adjust the position of the ServLINK window. When you're satisfied that it's in the right spot, click the "Apply" button.
9. Exit Host Mode by clicking the "Menu Mode" button.
10. Repeat steps 1 through 10 for each additional PC in your system.

4.3 Host PC Settings

In this manual, we refer to the PC you're controlling remotely through the ServLINK as the "Host PC." If your ServLINK is connected to a KVM switch, you will have multiple Host PCs, because every PC attached to the switch is a host. The ServLINK is designed to allow complete on-site and remote control of a Host PC without requiring you to change the configuration of, or install any software on, the Host PC. However, changing several minor settings on the Host PC will greatly enhance ServLINK's performance. Follow the steps below to maximize the ServLINK's capabilities.

1. Set your color scheme on the Host PC to contain only black, bright white, red, and green.
2. Set the Host PC's video resolution to the lowest possible setting that's acceptable for your applications, and set its refresh rate to the lowest possible acceptable setting between 56 and 70 Hz. (The 640 x 480 resolution setting will yield the fastest frame rate.) Do *not* select any interlaced resolution/refresh rate.
3. Set your Host PC's mouse pointer speed to "slow" through your Windows® application. (Once the ServLINK's mouse speed is set to "fast," this should ensure that the mouse handling on the two machines is properly aligned. See **Section 4.4** for more information.)
4. Disable any screen savers or settings that put the Host PC in a sleep mode. Access through the ServLINK will be faster without them.
5. Replace animated icons that cause constant screen changes on the Host PC. This reduces the amount of screen data transmitted through the ServLINK, speeding up redraw and enhancing performance.

4.4 ServLINK and Remote-Site Settings

To configure your ServLINK and remote-site settings for optimal operation, follow the steps below. Begin by placing your ServLINK in Host Mode. From the Main Menu bar, pull down the “Host Mode” menu and select “Switch to Host Mode.” The desktop of the currently selected PC will appear, along with a crosshair mouse cursor. Tap the right Shift key on your keyboard three times to bring up the Host Mode Properties dialog box.

1. In the Host Mode Properties box, choose the “Keyboard/Mouse” option. Set your ServLINK mouse speed to “fast.” This setting, along with the Host PC’s mouse speed being set to “slow,” creates fairly close mouse alignment—that is, the position of the crosshair cursor on your remote screen (the spot that *the ServLINK* thinks the mouse is pointing to) will usually match the position of the selected PC’s mouse pointer (the spot that *the PC* thinks the mouse is pointing to).

If you are at the *local user station* attached to the ServLINK and your mouse alignment is not the greatest—if, for example, you try to click one window button and the PC’s mouse pointer lands and clicks on the neighboring button—tap the left Shift key four times. This will align the mouse by moving both the crosshair cursor and the PC’s mouse pointer to the upper left-hand corner of your screen.

If you are at a *remote user station* and your mouse alignment is poor, move the cursor to the upper left corner and the mouse will align there within a second or two.

2. If you are at the *local user station* attached to the ServLINK, check in the Host Mode Properties dialog box to make sure that you are using the ServLINK’s default setting of 256 colors.

If you are at a *remote user station*, configure pcANYWHERE for 16-color operation as described in the pcANYWHERE manual.

5. Basic Switching and Host-Mode Options

5.1 Switching to a Remote PC: Host Mode

Once your ServLINK system has been connected and configured, you will be able to connect to it through any computer that has the pcANYWHERE software installed. Information on connecting to a remote PC can be found in your pcANYWHERE software.

The first time you connect to the ServLINK, the ServLINK's Main Menu will appear, as shown in Figure 5-1.



Figure 5-1. The Main Menu.

To switch to a computer connected to your ServLINK, pull down the Switch menu from the bar at the top of the screen and select the “Switch PCs” option. A list of available computers will appear, as shown in Figure 5-2.

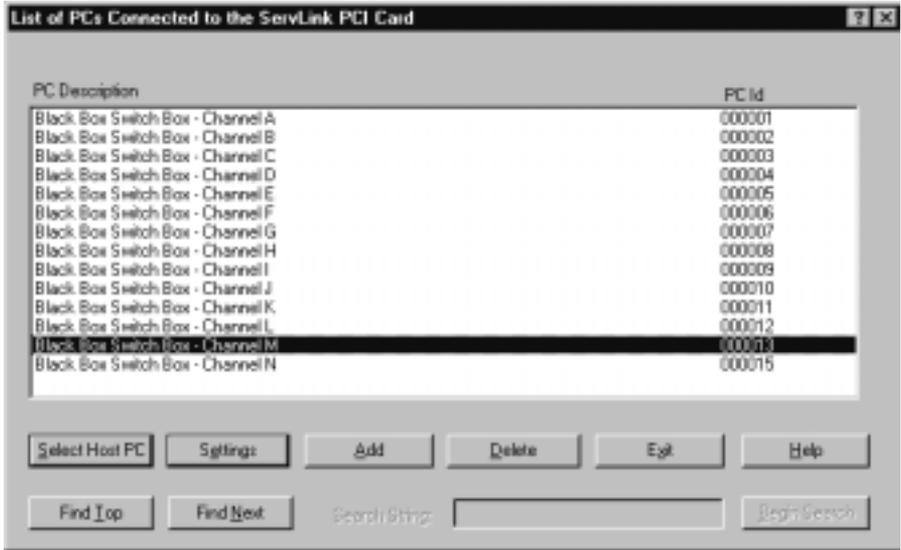


Figure 5-2. The Switch PCs dialog box.

Select the computer you want to switch to in either of two ways: Either double-click it, or use the arrow keys to highlight it and click Enter. (While a computer is selected, the status display at the bottom of the Main Menu will verify that it’s the active Host PC.) This command causes the ServLINK to go into “Host Mode” and switch to the chosen PC. The first time you do this, you’ll see the notice shown in Figure 5-3 on the next page.

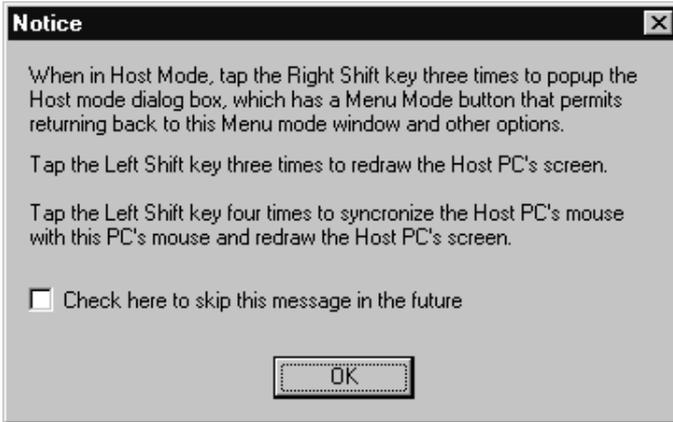


Figure 5-3. The Host Mode notice.

When you click “OK”, the selected PC’s desktop will appear on your monitor and you can use it just as if your keyboard, monitor, and mouse were connected directly to it. The Host Mode display will differ from a regular desktop in one way: In addition to the regular mouse pointer, which reflects where *the selected PC* thinks the mouse is, a crosshair pointer will show you where *the ServLINK* thinks the mouse is.

CAUTION!

We suggest that you use different wallpaper for the ServLINK’s desktop than you do for any attached Windows NT PCs. Otherwise it can be very easy to mistakenly change the settings of the ServLINK itself when you think you’re in Host Mode changing the settings of an attached PC.

While you’re in Host Mode, the function keys at the top of your keyboard can be very useful. Click [F1] to get on-line help. Click [F2] through [F11] to send macros for certain Windows related key sequences to the Host PC (see **Section 5.2.3** for details). Click [F12] to bring up a list of *all* available keyboard macros, any of which you can send to the attached Host PC or KVM switch (see **Section 6.4.1**).

Most other settings you can change and options you can select in Host Mode, including switching between Host PCs and exiting back to Menu Mode, are available through the Host Mode Properties dialog box, which you can bring up on your screen by clicking your keyboard’s right [Shift] key three times. See **Section 5.2**.

5.2 Host Mode Properties

While you're working with a Host PC in Host Mode, you can click the right [Shift] key three times to bring up the Host Mode Properties dialog box. This box has four main buttons: Click "OK" to save any Host Mode settings you change, "Cancel" to abort any changes you made, "Apply" to observe the effect of the changes without saving them, or "Menu Mode" to simply quit Host Mode and return to the ServLINK's Main Menu.

This dialog box is used to control six groups of Host Mode settings, organized under six tabs. These tabs and their settings are described in the six subsections that follow.

5.2.1 TEST PCI CARD

When you select the "Test PCI Card" tab, you'll see the dialog box shown in Figure 5-4. If you ever have to contact Black Box regarding problems with your ServLINK, our technicians might ask you for the list of PCI Card characteristics shown here, which can be useful for troubleshooting purposes.

If you are having severe video problems, click the "Enable Video Capture" checkbox OFF. When video capture is disabled, the ServLINK doesn't try to display video from the Host PC, so that you can work with the ServLINK's screens and menus without the PC's video making them unwatchable or unusable.

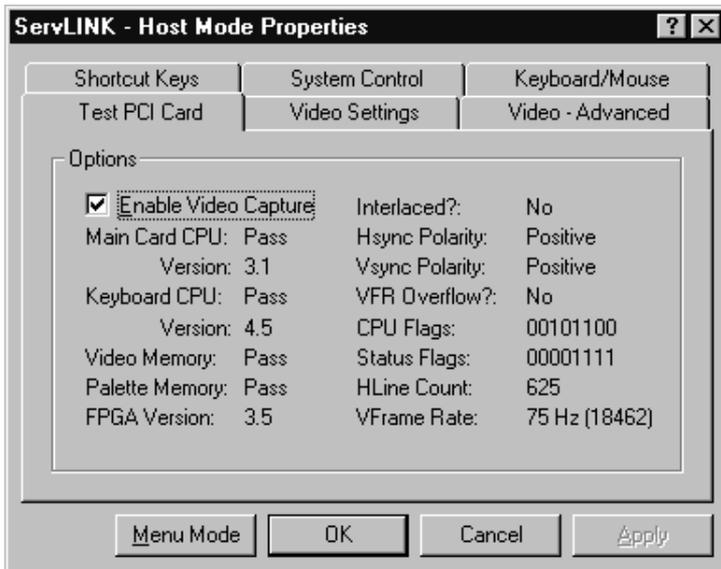


Figure 5-4. Host Mode Properties: Test PCI Card.

5.2.2 KEYBOARD/MOUSE

When you select the “Keyboard/Mouse” tab, you’ll see the dialog box shown in Figure 5-5.

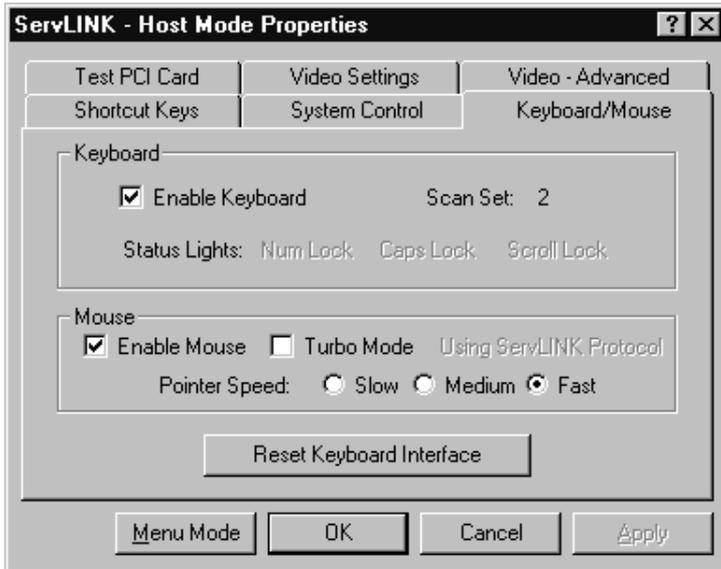


Figure 5-5. Host Mode Properties: Keyboard/Mouse.

- Click the “Enable Keyboard” checkbox to enable or disable your keyboard.
- Click the “Enable Mouse“ checkbox to enable or disable your mouse.
- The “Turbo Mode” feature is not enabled on current versions of the ServLINK. Leave this checkbox empty (OFF).
- Click “Slow,” “Medium,” or “Fast” to set the “Pointer Speed” (the speed of the ServLINK’s crosshair mouse cursor). For best mouse control, set this to “Fast” and set the speed of the Host PC’s mouse to “slow.”
- Click the “Reset Keyboard Interface” button to send a keyboard-reset command to the attached Host PC or KVM switch. This is equivalent to “hot-plugging” the keyboard. This command will not reset the mouse; however, the ServLINK does have predefined keyboard macros that will send a mouse reset to the ServSwitch Multi (“Reset Mouse - ServSwitch”) or ServSelect (“Reset Mouse - ServSelect”); see **Section 5.2.3**.

5.2.3 SHORTCUT KEYS

When you select the “Shortcut Keys” tab, you’ll see the dialog box shown in Figure 5-6.



Figure 5-6. Host Mode Properties: Shortcut Keys.

Under Shortcut Keys you will find a listing of special function-key shortcuts for common sequences of Windows related keystrokes. If you press these keystrokes directly on your keyboard, they’ll be intercepted by the ServLINK itself and won’t reach the PC. So in Host Mode (and *only* in Host Mode), you can press a shortcut function key to have the ServLINK send the function key’s assigned keystrokes to the Host PC.

- Press function key [F12] at any time while you’re in Host Mode to bring up a list of all of the keyboard macros that are programmed into your ServLINK. This is equivalent to the main Keyboard Macro dialog box discussed in **Section 6.4.1**, except that the “Send to PC” button is active, which you can click to send any defined macro (whether or not a shortcut key is assigned to it) to the Host PC or intermediate KVM switch.
- Click “Switch PCs” in this box to bring up a list of available PCs/channels. This is equivalent to the main Switch PCs dialog box discussed in **Section 6.1.1**.

5.2.4 VIDEO SETTINGS

When you select the “Video Settings” tab, you’ll see the dialog box shown in Figure 5-7.

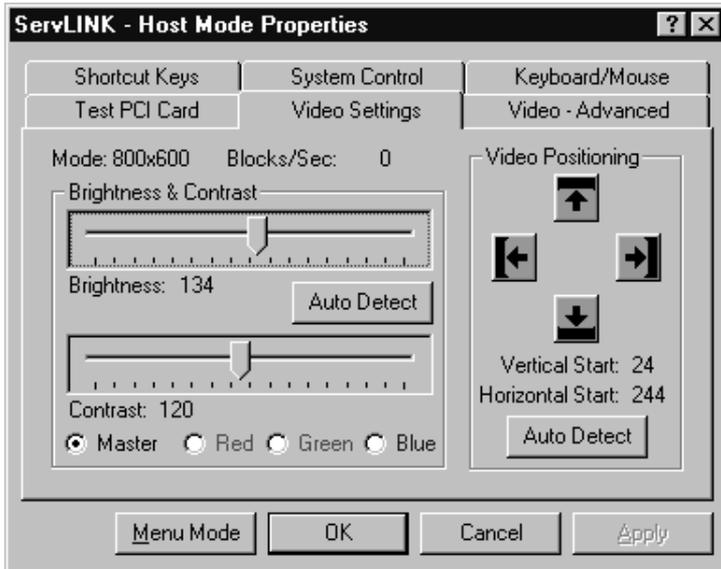


Figure 5-7. Host Mode Properties: Video Settings.

- Click the “Master” button to adjust the brightness and contrast of the total video image from the Host PC, from 0 to 255. Or click “Red,” “Green,” or “Blue” to adjust just those portions of it, from 0 to 127. Then drag the Brightness and Contrast bars and click “Apply” to check how the video looks; click “OK” when you’re satisfied. (In most cases, clicking “Auto Detect” will cause the ServLINK to arrive at the correct settings for your system.)
- Click the “Video Positioning” arrows to move the Host PC’s video display on your monitor if it’s positioned poorly. After every few presses of the arrow keys, click “Apply” to check how the video looks; click “OK” when you’re satisfied. (Again, clicking “Auto Detect” will usually cause the ServLINK to move the display to the right spot for your system.)
- Be aware that clicking the “Auto Detect All Settings” button under the “Video - Advanced” tab (see **Section 5.2.5**) will autodetect and automatically adjust not only the Advanced settings, but the Brightness, Contrast, and Video Positioning *here* as well.

5.2.5 VIDEO - ADVANCED

When you select the “Video - Advanced” tab, you’ll see the dialog box shown in Figure 5-8.

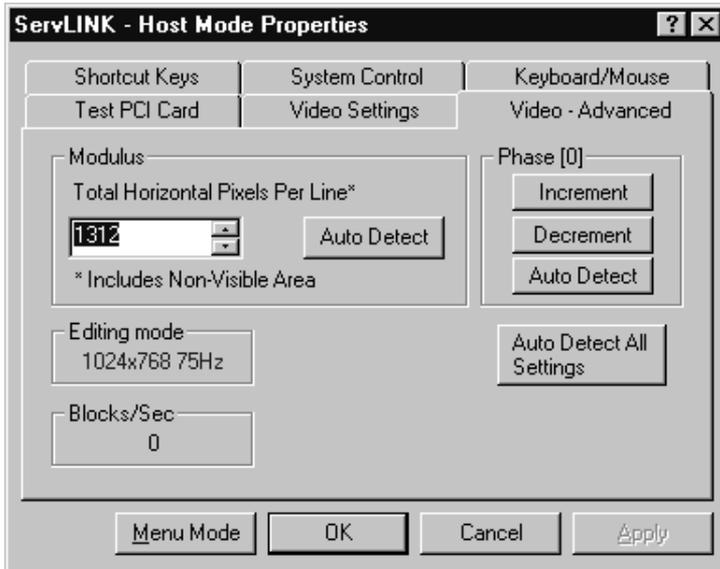


Figure 5-8. Host Mode Properties: Video - Advanced.

Under normal circumstances, the ServLINK should be able to autodetect all of these settings; click “Auto Detect All Settings” to see if any video problems go away. (When you do so, the ServLINK will also autodetect Brightness, Contrast, and Video Positioning under the “Video Settings” tab; see **Section 5.2.4.**) However, if you’re still getting snow or flickering in the Host PC’s video display, you might want to try to customize some of these video settings, because if snow or flickering is not eliminated, a remote user’s screen performance may be reduced by as much as one-tenth of normal. Take these steps:

*If the Host PC’s screen has vertical bands of flickering or jumps from left to right, the **Modulus** setting needs to be changed first. Depending on the colors being displayed on the Host PC’s screen, this problem may not be immediately obvious. This problem is clearly visible on screens containing a lot of gray, particularly the Windows 50% gray screen that appears whenever the Windows Shut Down option is selected from the Windows Start-button menu. To correct this problem and generally any problem affecting vertical stability, increase or decrease the Modulus setting by 8 until the problem disappears. Generally it should not be necessary to increase or decrease the modulus setting by more than 16. The Modulus setting should always be a multiple of eight; so, for example, 792, 800, and 808 are proper*

modulus settings, but 801 through 807 are not. Click the Auto Detect button in the Modulus area to autodetect *the Modulus only*

If the Host PC's screen shows a large amount of snow or appears grainy, then the **Phase** adjustment needs to be changed. Click the Increment or Decrement buttons to determine the setting that results in the best screen. No more than 16 clicks on these button should be necessary to determine the best position. After the Modulus and Phase have been adjusted, you might need to readjust the Master Brightness and Contrast slider bars under the Video Settings tab (see **Section 5.2.4**) to correct any color flickering appearing on portions of the screen, such as in multi-colored icons. (In some cases it may not be possible to eliminate flickering entirely, especially in small icons that use slight variations of color.) Click the Auto Detect button in the Phase area to autodetect *the Phase only*

Editing Mode and **Blocks/Sec** aren't user-settable; they're fields that provide information about the Host PC's video:

- Editing Mode is the resolution and refresh rate of this video.
- Blocks/Sec is the number of 64-pixel chunks of the video image that the ServLINK is forwarding to your user station each second.

5.2.6 SYSTEM CONTROL

When you select the “System Control” tab, you’ll see the dialog box shown in Figure 5-9.

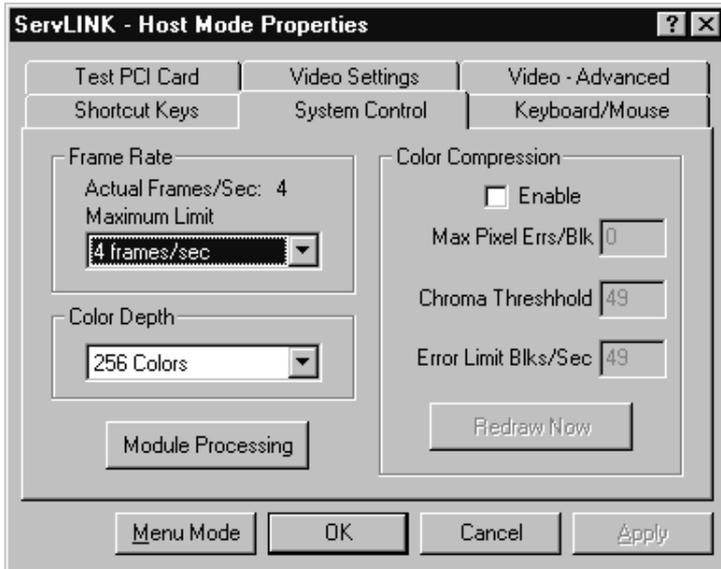


Figure 5-9. Host Mode Properties: System Control.

5.2.6.A Frame Rate, Color Depth, and Module Processing

- Adjust the Frame Rate’s Maximum Limit upward if the ServLINK is not updating its display of the Host PC’s video quickly enough (video changes and mouse movement are very jerky). Adjust the limit downward if the ServLINK is trying to update this display too quickly for your modem to handle (you get “bandwidth exceeded” messages, mouse movement freezes, or—in extreme cases—pcANYWHERE crashes). The default setting is 4 frames per second; other available settings include 1, 2, 8, or 16 frames per second, or 2, 4, 8, or 16 seconds per frame. If you need a higher frame rate than your modem is capable of, consider reducing the color depth (see the next paragraph).
- If you’re at the *local user station*, you’ll want to adjust the color depth to 256 colors to take advantage of the good color fidelity that the ServLINK can achieve locally. But if you’re at a *remote user station*, you’ll want to set this to 16 colors, and set pcANYWHERE to use 16 colors as well (consult its manual for instructions). The default setting is 256 colors; other available settings include black & white, 4-level grayscale, and 16 colors. As mentioned above, reducing the color depth—particularly from 256 to 16 colors—can greatly increase your frame rate, and there is often no discernible difference in video quality.

- If you need to interact with any Power Management Modules attached to the system while you're in Host Mode, click the Module Processing button to bring up the Control Module Processing dialog box (see **Section 6.1.2**).

5.2.6.B Color Compression

Color compression should always be enabled when you're connected to the ServLINK remotely, because this will dramatically increase remote access speeds by reducing the amount of screen data that needs to be transmitted by a remote PC. The Enable box is checked automatically when a remote user connects and it is cleared automatically when they disconnect.

- **Max Pixel Errs/Blk**

This adjusts the amount of screen changes that are transmitted over the remote connection. When this parameter is set to zero, ServLINK repaints any block of 64 pixels that has even a single pixel change. A setting of 3 indicates that if 3 or more pixels in the block change, ServLINK should post the block to the screen; otherwise the block will not be transmitted or redrawn.

The MaxPixel setting should be set to the lowest nonzero value that still results in an acceptable refresh rate for the remote user.

- **Chroma Threshold**

Increasing the value of this setting reduces ServLINK's sensitivity to variations in color. Minor noise or variations in the Host PC's video-output signal can cause slight variations in color causing pixels to "twinkle" between color settings. This effect is treated as a change on the screen which may cause unnecessary screen blocks to be transmitted.

The normal range of settings for the Chroma threshold are 8 to 30 for 256 colors and 20 to 60 for 16 colors.

- **Error Limit Blks/Sec**

When you're connected remotely, a Host PC's video output may be so far out of adjustment that the display on your screen is completely unstable. When this occurs, pcANYWHERE (or whatever remote-access software you're using) will virtually lock you out while attempting to transmit massive amounts of screen updates to you. To prevent this from occurring, a threshold may be set that represents the maximum number of screen-block updates that may occur per second. If this maximum is exceeded for five continuous seconds, ServLINK automatically freezes the Host PC's screen to prevent any further updates from being transmitted, so that corrective action can be taken.

6. The Menu System

When you power up the ServLINK, its Windows NT Workstation operating system will initialize. You will be asked to choose between straight NT and NT [VGA]; choose straight NT. Then the main ServLINK application will run automatically. A “splash screen” will appear, and then if password security is enabled an NT window will pop up in the middle of it prompting you to “Press Ctrl + Alt + Del to log on.” When you press the [Ctrl], [Alt], and [Del] keys, the login box shown in Figure 6-1 will appear, prompting you for your user ID and password.

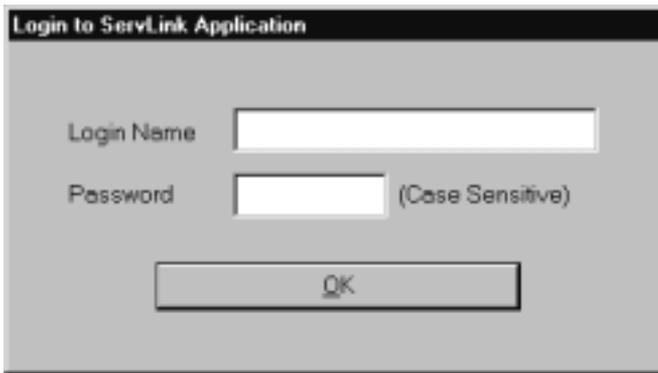


Figure 6-1. The Login box.

If passwords are disabled, or once you enter a valid user ID and password, the ServLINK's Main Menu will appear, as shown in Figure 6-2.



Figure 6-2. The Main Menu.

As you can see, you have seven primary menus to choose from; these are described in **Sections 6.1** through **6.7**.

6.1 The Switch Menu

The first primary option available under the Main Menu is “Switch.” When you pull down the Switch Menu, you’ll see three selections, as shown in Figure 6-3.



Figure 6-3. The Switch menu.

- **Switch PCs**

This menu option is used to add or delete Host PC definitions, or to switch between Host PCs in a ServLINK configuration with multiple PCs. See **Section 6.1.1**. (This option will be grayed out if a non-supervisor user is remotely accessing the ServLINK and the “Check to activate Host PC switching...” box has been checked in the Switch Control menu—see **Section 6.2.8**.)

- **Control Module Processing**

This option is used to activate optional Power Management Modules (our product code ACRPWR) that can be daisy-chained to the ServLINK. Management Modules allow a remote user to cycle the power to the ServLINK itself or to any attached PC, or to access an attached serial device. See **Section 6.1.2**.

- **Control Module Configuration**

Select this option to configure any Power Management Modules attached to the ServLINK. You can force the Modules to require justification for power-related actions; specify the number of seconds that a computer will be off when the power is cycled; or specify the COM port where the first Management Module is attached to the ServLINK. See **Section 6.1.3**.

6.1.1 SWITCH PCs

6.1.1.A The Main Dialog Box

When you select “Switch PCs” from the Switch menu, the dialog box shown in Figure 6-4 appears. (This box is also available when you’re in Host Mode, by selecting the Shortcut Keys tab in Host Mode Properties and clicking the “Switch PCs” button. See **Section 5.2.3**.)

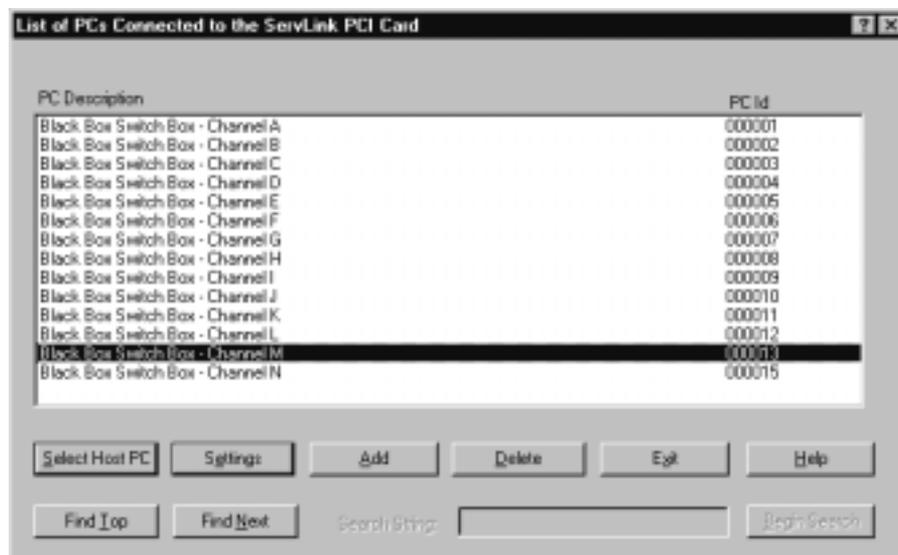


Figure 6-4. The Switch PCs dialog box.

In its factory-default condition, this window will contain fourteen PC descriptions, which can be used to switch between as many as fourteen PCs connected to the corresponding channels (CPU ports) of an attached ServSwitch Multi, ServSelect, etc. If your system fits this description, you can use these descriptions as they are, although you might want to rename them. If you only have a single PC connected to the ServLINK, you’ll probably want to create a new description for it and delete the 14 presets. If you have multiple PCs but they’re connected to some other kind of ServSwitch (regular ServSwitch, ServSwitch Ultra, Matrix ServSwitch, ServSwitch Wizard Pro, etc.), you’ll need to change these descriptions to match your setup, or create new PC descriptions for them.

Here's what the components of this main box are for:

- **PC Description**

This column contains the name or description assigned to each computer connected to the ServLINK system. The default descriptions are “Black Box Switch Box - Channel [letter]”, where [letter] is a ServSwitch Multi or ServSelect CPU-port designation from A through N.

To change the name of a given computer, highlight the existing name here, then click the Settings button; to add a new computer description, click the Add button. See **Section 6.1.1.B** for the full procedure.

- **PC ID**

This column contains the ID numbers that the ServLINK assigns to the attached computers in order to keep track of them; these are used in the ServLINK's Event Log (see **Section 6.2.9**) and can't be changed.

- **Select Host PC**

You can use this button to start access/control sessions with the attached PCs. Use the arrow keys on your keyboard to move the highlight bar in the PC Description window to a particular computer, then click “Select Host PC” to access that computer. (Alternatively, you can just double-click the mouse on the PC Description.) This will bring up the notice shown in Figure 6-5:

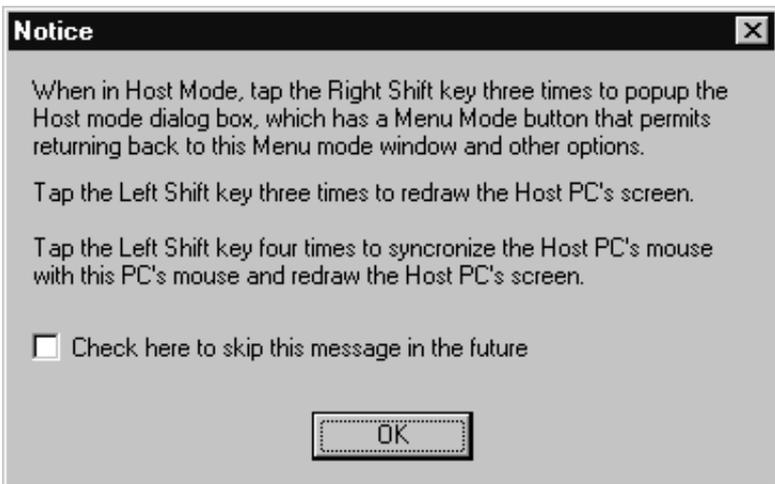


Figure 6-5. The Host Mode notice.

When you click OK, the ServLINK will go into “Host Mode”: The desktop of the chosen computer will appear, with a crosshair cursor that shows your local mouse movement as well as the regular mouse pointer that shows mouse movement at the remote PC. (If no PC is actually attached to that port, the screen will go dark and a “ServLINK NO VIDEO SIGNAL” message will appear.)

- **Settings**

Use the arrow keys on your keyboard to move the highlight bar in the PC Description window to a particular computer, then click this button if you want to view or change any of the ServLINK’s internal settings for that computer. See **Section 6.1.1.B**.

- **Add**

Click this button if you want to add a new computer to the list in the PC Description window. See **Section 6.1.1.B**.

- **Delete**

Use the arrow keys on your keyboard to move the highlight bar in the PC Description window to a particular computer, then click this button if you want to delete that computer from the list. An “Are you sure?” message will appear; if you confirm the action, the computer will be deleted.

- **Exit**

Click this button to exit this box and return to the Main Menu.

- **Help**

Click this button to get on-line help for this box.

- **Find Top**

Click this button to initiate a ServLINK search for the first occurrence of a Search String that you’ll specify in the list of PC Descriptions. The search proceeds from the currently highlighted PC to the bottom of the list. This can be very useful for finding PCs in large installations.

- **Find Next**

After a “Find Top” search has been successful once, click this button to have the ServLINK search for additional occurrences of the original Search String or for a different string.

- **Search String**

When you click “Find Top” or “Find Next,” this field becomes active. Type in a string up to 45 characters long that you want the ServLINK to search the PC Descriptions for. These searches are not case-sensitive.

- **Begin Search**

Click this button to start the search when you finish typing in the Search String.

6.1.1.B The Settings Dialog Box

When you click the Settings button or the Add button in the Switch PCs box, the Settings dialog box shown in Figure 6-6 appears.

The screenshot shows a dialog box titled "ServLink PCI Card - PC Settings for PC# 000001". It contains the following fields and controls:

- PC Description:** A text box containing "Black Box Switch Box - Channel A".
- Switch Box Command:** A dropdown menu showing "Num Lock + ''''".
- Switch Box Select PC:** A dropdown menu showing "a - Enter".
- Video Driver File Name:** A text box containing "VA000001.VGA".
- ServLink PC ID#:** A text box containing "000001".
- Buttons:** Three buttons at the bottom: "OK", "Cancel", and "Help".

Figure 6-6. The Switch PCs: Settings dialog box.

Here's what the components of the Settings box are for:

- **PC Description**

Type in a unique name/description for this computer that will identify it for all ServLINK users. We recommend that you use the same name or description, if any, assigned to this computer in the KVM switch. Once you assign this description, it will appear in the "PC Description" column described above.

If you got to this box by clicking "Add," this field will be blank, waiting for you to type in a name or description. If you got here by moving to an existing name/description and clicking Settings, this field will contain that name/description, highlighted and ready to be changed if necessary. You can enter descriptions up to 40 characters long. Note that once a PC is defined, its entry can be changed but not entirely blanked out; if you try to save these Settings with a blank PC Description, you will receive an error message instead.

- **Switch Box Command**

This is the hotkey sequence (if any) that starts all KVM-switch commands or puts the attached KVM switch in command mode. You need to make sure this is designated correctly here so that the ServLINK can send the necessary “switch to this PC” command to the KVM switch.

The factory-default setting is “Switch Box Not Applicable,” an empty “dummy” macro suitable for systems with no KVM switch attached, or for KVM switches that don’t use a hotkey sequence. When you pull down this menu, you can choose any of the listed already-defined hotkey keystroke macros by double-clicking on the macro; this sequence you choose will become the new default sequence. (Be careful as you do this; if you accidentally choose the wrong hotkey sequence here, PC switching through the ServLINK simply won’t work until you correct the mistake.)

Most of the hotkey sequences used by ServSwitch family KVM switches are listed here, including “Left Ctrl” for the switches compatible with the regular ServSwitch, “NumLock + ‘-’” for the switches compatible with the ServSwitch Multi, and so on. If the necessary sequence necessary for your KVM switch isn’t in the menu, you’ll need to define it with the Create Keyboard Macro option (see **Section 6.4**).

Note that if you disable switching through the KVM switch’s keyboard commands or on-screen display (see **Section 6.2.8**), so that PC switching has to be handled directly through the ServLINK, this entry will be grayed out and will say “ServLINK Ctrl’s XPLU [user-card] Switching.”

- **Switch Box Select PC**

This is the body of the switching command that the ServLINK must send to the attached KVM switch, following the “Switch Box Command” above, in order to select this computer. You need to make sure this is designated correctly here so that the ServLINK can send the necessary “switch to this PC” command to the KVM switch.

The factory-default setting is “Switch Box Not Applicable,” suitable for systems with no KVM switch attached. When you pull down this menu, you can choose any of the listed already-defined keystroke macros by double-clicking on the macro; this sequence you choose will become the new default sequence. (Be careful as you do this; if you accidentally choose the wrong hotkey sequence here, the ServLINK will switch to the wrong PC, or not switch at all, until you correct the mistake.)

For example, if you are giving the ServLINK the settings for the CPU attached to port G of a solitary ServSwitch Multi, scroll down to “g - Enter.” Here’s why: If you were typing in the command to switch to port G directly into the ServSwitch Multi, you would first enter the command’s hotkey sequence by pressing and holding [Num Lock], pressing and releasing the minus [-] key, and releasing [Num Lock]—the “NumLock + ‘-’” Switch Box

Command previously discussed. Then you would press and release [g] to select the port, and finally press and release [Enter] to finish the command—which is the “g - Enter” sequence you should select here.

Similarly, if you are setting up the CPU on port 15 in a regular ServSwitch or compatible system, you should have selected “Left Ctrl” as the Switch Box Command above; now choose the “15 - Enter” Select PC sequence here.

If the sequence needed for the PC you’re setting up isn’t in this list, you’ll need to define it with the Create Keyboard Macro option (see **Section 6.4**).

- **Video Driver File Name**

This is the name of the “video driver”—actually a preferences file—that the ServLINK will use to interpret this PC’s video output. The first time you access this PC, the ServLINK will autodetect a group of default video settings for it, and generate this file. These settings will probably need finer manual adjustment; as you make and save such adjustments, the ServLINK will store them in this driver for future use.

Under normal circumstances, you will not need to specify a different driver for a PC. See **Section 6.3** and your on-line help for more details.

- **ServLINK PC ID#**

This is the unique number that the ServLINK will use to keep track of this PC. This field will be grayed out because the ID number is automatically generated and maintained by the ServLINK and cannot be changed. (About the only time you will need to refer to this number is when you are examining the ServLINK’s Event Logs, in which all of the system’s computers are referred to by their number. See **Section 6.2.9**.)

- **OK**

Click this button to save any changes you’ve made and return to the Switch PCs box.

- **Cancel**

Click this button to abort any changes you’ve made and return to the Switch PCs box.

- **Help**

Click this button to get on-line help for this box.

6.1.2 CONTROL MODULE PROCESSING (SERVLINK SYSTEM WITH POWER MANAGEMENT MODULES ONLY)

NOTE

Before activating Control Module Processing for the first time, select Control Module Configuration (see Section 6.1.3) and specify which of the ServLINK's COM ports that the daisychain of Power Management Modules is attached to. The default COM port will be COM1 if you don't specify a COM port; obviously, if that isn't the correct port, the ServLINK won't detect the Modules at all.

For more details about the Power Management Modules, refer to their own manual.

6.1.2.A The Main Dialog Box

When you select "Control Module Processing" from the Switch menu, the dialog box shown in Figure 6-7 appears.

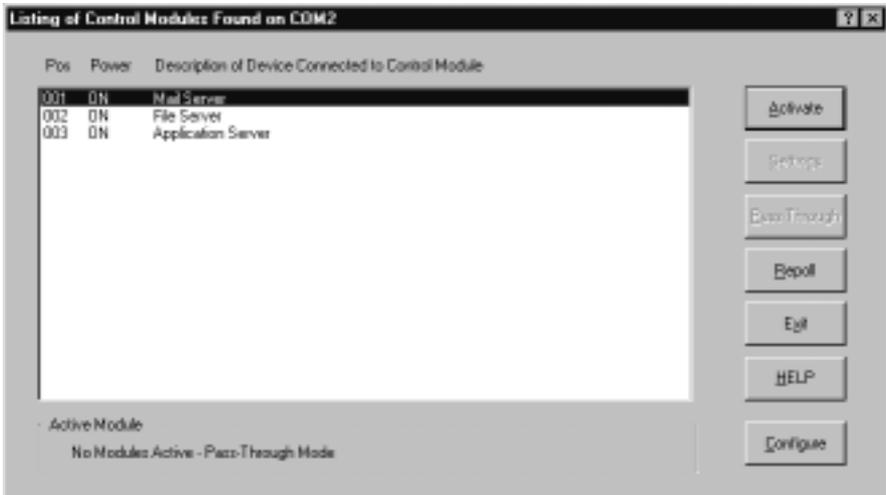


Figure 6-7. The Control Module Processing main dialog box.

This box and the affiliated Settings box (see Section 6.1.2.B) are for administering attached Power Management Modules. (If you don't have Power Management Modules installed, they're irrelevant.) As soon as it displays the box, the ServLINK immediately polls the COM port specified in Control Module Configuration (see Section 6.1.3) for an attached daisychain of Power Management Modules. (If you've installed a Management Module that controls power to the ServLINK itself, it's attached differently and can't be accessed from here. It only responds to dial-in reboot requests—see Section 6.6.2.) The polling process takes about one second per Module. During the polling process, the ServLINK determines if (1) new Power Management Modules have been added to the chain, (2) Modules have

been deleted from the chain, or (3) the physical positions of any Modules have changed, since the last time the daisychain was polled. If any of these events have occurred, applicable messages are displayed on the screen at the end of the polling process and the changes are recorded in the ServLINK event log. Also, any active Power Management Modules are cleared (deactivated) during the polling process, which puts the daisy-chain into “pass-through mode.”

If no Power Management Modules are detected during the polling process, an appropriate message is displayed, and the Activate, Settings, and Pass Through buttons on the right of the window are grayed out. When this occurs, it is likely the wrong COM port has been specified, another device in the ServLINK (often the mouse) is interfering with access to the COM port, or the daisychain is not properly installed.

Note that when ServLINK user security is enabled and the current user doesn't have access rights to all of the Power Management Modules in a daisychain, then only those Modules for which the user has access rights appear here in the Module list. For information about setting users' access rights to the Power Management Modules, see **Section 6.2.1**.

Here's what the components of the main Control Module Processing box are for:

- **Pos**

This column lists the “position numbers” of the Power Management Modules in your Module daisychain. The “first” Module—the one controlling power to the first computer, and attached directly to the serial port of the ServLINK itself—is number 001. The second one, attached to the first's IN port, is number 002, and so on.

- **Power**

This column indicates whether the Module is supplying power to the device it's attached to (ON) or not (OFF).

- **Description of Device...**

This column lists any description entered for the device attached to this Module in the matching field in the “Control Module Processing: Settings” window (see **Section 6.1.2.B**).

- **Activate**

Highlighting an entry and selecting this option will allow you to activate the selected Power Management Module, so that it's ready to receive commands or data from the ServLINK. Only one Module can be active at a time.

- **Settings**
Highlighting an entry and selecting this option will bring up the “Control Module Processing: Settings” window (see **Section 6.1.2.B**), at which you can cause this Power Management Module to turn its device ON or OFF or reboot it, or set up conditions under which this will happen automatically.
- **Pass-Through**
Selecting this option will clear any active Power Management Module and allow serial data to pass through to and from any “pass-through device” you’ve installed at the end of the Power Management Module daisychain (see step 5 in **Section 3.1.7.B**).
- **Repoll**
Selecting this option will cause the ServLINK to recheck the currently specified COM port for attached Power Management Modules.
- **Exit**
Click this button to return to the Main Menu.
- **Help**
Click this button to get on-line help for this box.
- **Configure**
Selecting this option will bring up the Control Module Configuration dialog box (see **Section 6.1.3**), at which you can change some of the ServLINK’s configuration options that apply to Power Management Modules.

6.1.2.B The Settings Dialog Box

When you click “Settings” at the Control Module Processing box, the dialog box shown in Figure 6-8 appears.

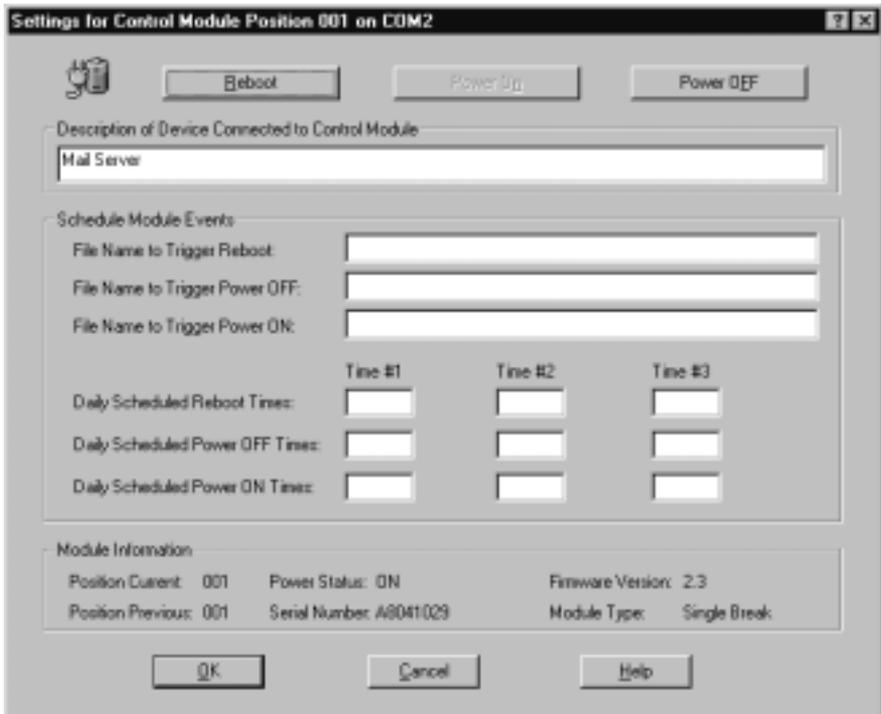


Figure 6-8. The Control Module Processing: Settings dialog box.

Here’s what the components of the “Control Module Processing: Settings” box are for:

- **Reboot**

Click this button to reboot the PC or other device attached to this Power Management Module. If “Require Reasons for Power OFF actions” is checked in the Control Module Configuration window (see **Section 6.1.3**), you will be required to give a reason for doing this.

- **Power ON**

Click this button to turn ON power to the PC or other device attached to this Power Management Module. (If the power is already ON, this option will be grayed out.) If “Require Reasons for Power ON actions” is checked in the Control Module Configuration window (see **Section 6.1.3**), you will be required to give a reason for doing this.

- **Power OFF**

Click this button to turn OFF power to the PC or other device attached to this Power Management Module. (If the power is already OFF, this option will be grayed out.) If “Require Reasons for Power OFF actions” is checked in the Control Module Configuration window (see **Section 6.1.3**), you will be required to give a reason for doing this.

- **Description of Device...**

You can enter a description in this field up to 40 characters long for the PC or other device attached to the Power Management Module. (Unfortunately, there is not currently any way to pull down entries from the ServLINK’s main PC Description field into this field.)

- **Schedule Module Events**

In these fields, you can specify two things that can cause the ServLINK to signal the Power Management Module to reboot, power OFF, or power ON the attached PC or other device:

- In the “Daily Scheduled...” fields, you can enter as many as three separate clock times (in military-time format) at which events will occur daily. For example, you can set the Module to power ON a PC at 0600 (6 a.m.) at the start of each day, reboot it at 1730 (5:30 p.m.), and power it OFF every night at 0200 (2 a.m.).
- In the “Files to Trigger...” fields, you can enter the full pathnames of “trigger files” that the ServLINK will watch for. When the files appear, the ServLINK will delete them, then tell the associated Module to perform the specified action (power ON, power OFF, or reboot the attached device). For examples and more details, see the Module’s own manual.

- **Module Information**

Tells you at a glance which position in the daisychain this Module holds, which other position (if any) it was in most recently, whether it is currently providing power (ON) or not (OFF), and its serial number, firmware version, and type.

- **OK**

Click this button to save any changes you’ve made and return to the main Control Module Processing box.

- **Cancel**

Click this button to abort any changes you’ve made and return to the main Control Module Processing box.

- **Help**

Click this button to get on-line help for this box.

6.1.3 CONTROL MODULE CONFIGURATION (SERVLINK SYSTEM WITH POWER MANAGEMENT MODULES ONLY)

NOTE

For more details about the Power Management Modules, refer to their own manual.

When you select “Control Module Configuration” from the Switch menu, or when you click “Configuration” at the Control Module Processing box, the dialog box shown in Figure 6-9 appears.

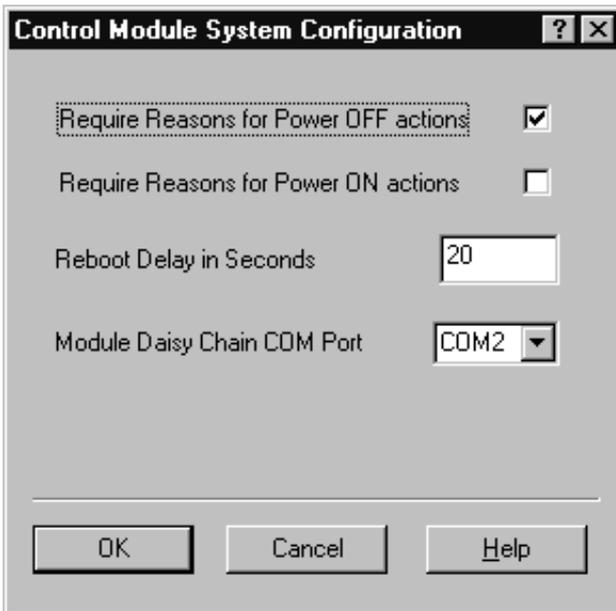


Figure 6-9. The Control Module Configuration dialog box.

This box is for configuring some of the ServLINK’s systemwide Power Management Module settings. (If you don’t have Power Management Modules installed, it’s irrelevant.) Here’s what the components of this box are for:

- **Require Reasons for Power OFF Actions**

When this box is checked, users are required to provide a reason whenever they reboot or power down any device connected to a Power Management Module from the “Control Module Processing: Settings” window (see **Section 6.1.2.B**). The justification may contain up to two lines of 50 characters per line, and is saved in the ServLINK’s event log.

- **Require Reasons for Power ON Actions**

When this box is checked, users are required to provide a reason whenever they power on any device connected to a Power Management Module from the “Control Module Processing: Settings” window (see **Section 6.1.2.B**). The reason entered may contain up to two lines of 50 characters per line, and is saved in the ServLINK event log.

- **Reboot Delay in Seconds**

Use this option to configure the number of seconds that power is temporarily shut off to the device connected to a Power Management Module when the Reboot option is selected at the “Control Module Processing: Settings” window (see **Section 6.1.2.B**). The default setting is 20 seconds; possible settings range from 10 to 999 seconds (over 16 minutes).

- **Module Daisy Chain COM Port**

This option is used to designate which of the ServLINK’s COM ports the Power Management Modules are attached to. If there’s only one Module attached to the ServLINK, this option only needs to be set once. Management Modules must be installed on COM1 or COM2 (or, if you install extra ports, COM3 or COM4), and they cannot share an IRQ with any other device. You may select the “AUTO” option if you want the ServLINK to automatically scan COM1 through COM4 to locate the Module daisychain. Once you make this selection, the chosen COM port will appear in the header bar of the Control Module Processing windows.

CAUTION!

In some cases, automatically scanning the COM ports with the AUTO setting could possibly interfere with other devices and/or lock up the ServLINK—some mice in particular don’t react well to being queried.

- **OK**

Click this button to save any changes you’ve made and return to the Main Menu.

- **Cancel**

Click this button to abort any changes you’ve made and return to the Main Menu.

- **Help**

Click this button to get on-line help for this box.

6.2.1 USERS

ServLINK offers multiple ways to protect your system from unwanted access. Before you enable any other security, you must first define users. To do this, take these steps:

1. Pull down the Security menu and select Users. The dialog box shown in Figure 6-11 will appear.



Figure 6-11. The Users dialog box.

2. Click “Enable Security.” (If you also click “Use Windows User Authentication,” users will log in to the ServLINK system by logging into Windows NT.)
3. Click the “Add User” button. The dialog box shown in Figure 6-12 on the next page will appear. (At any time later, you can change this user’s settings by highlighting their entry and clicking “Change User” here, or simply delete them from the system by highlighting their entry and clicking “Delete User.”)
4. Enter a User Name of up to 25 characters. User names are not case sensitive. ServLINK does not allow duplicate names. If you have “Use Windows User Authentication” checked in the main Users box, make *very sure* that the name you type in here is *identical* to the username entered for Windows NT.
5. Enter a password for this user. (Passwords are required and may be up to 15 characters long.) Re-enter the password to confirm it.

Figure 6-12. The Add Users dialog box.

6. You will then need to decide on certain rights for the new user. They may be selected by clicking the check box beside each item:

Supervisor Rights

When this box is checked, the user has full access to all ServLINK system settings, including the ability to enable and disable security, add and delete users, and change passwords. If this box is not checked, the user is considered to be a “standard” user.

Force Password Change

This option forces the user to change their password the next time that they log in. This box is normally only selected when a new user is added or a current user forgets their password. In these cases, the Administrator assigns the user a temporary password and they are forced to change it when they log in.

User Locked Out

When this box is checked, the user in question cannot log in to the ServLINK system. It is checked automatically whenever a user exceeds a specified number of Login attempts without entering a valid password.

7. Add Non-Supervisor Access rights. (If the user has Supervisor access, these boxes will be grayed out.) To set Host PC access rights, click the “View/Modify...” button; the dialog box shown in Figure 6-13 appears. Simply create a list of the PCs that this user will be allowed to access. (By default, access is “approved” [YES] for all computers; “deny” [change to NO] any computers this user should not access.)

When you finish this process, click “OK” to save your changes and return to the Add Users box.

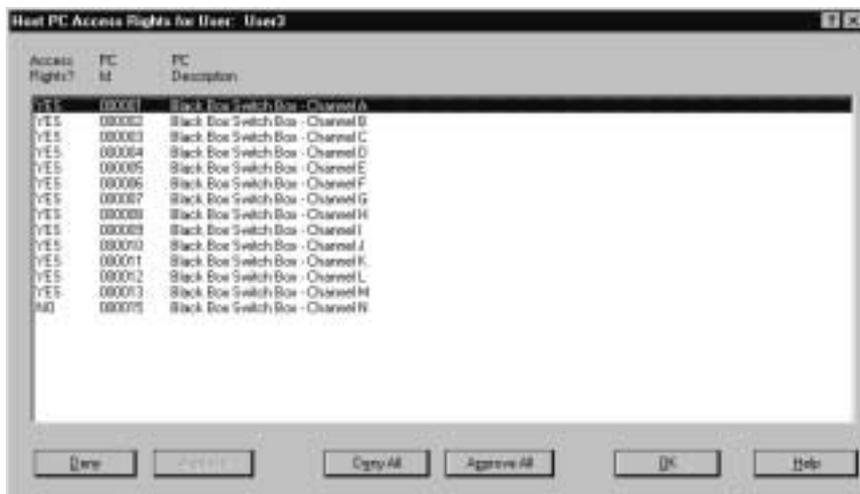


Figure 6-13. The Host PC Access Rights dialog box.

8. *If your system includes Power Management Modules:* If necessary, restrict this user’s access to any Module(s) by clicking the Add button in the Control Module Access Rights area. Type in the three-digit number of any Module you want to make off-limits to this user in the box that pops up, and that number will appear in the Pos column of the “Deny access” area to the right. Keep typing in numbers until the “Deny” list for this user is complete. (Remember that position “001” is the first Module in the chain—the Module attached to the ServLINK’s serial port that controls power to the first PC, *not* the Module that controls power to the ServLINK itself—and “002” is the second Module in the chain, etc.)
- To restore a user’s access to a Module later, highlight the Module’s entry in the “Deny” list and click the Delete button. (Both the Add and Delete buttons will always be grayed out for supervisors, who always have access to all Modules.)
9. Click OK to return to the Users box; there should now be an entry for this user in the users list.
10. Repeat steps 3 through 9 for all the users in your system. When you’re finished, click OK to return to the Main Menu.

6.2.2 SYSTEM

When you pull down the Security menu and select System, the dialog box shown in Figure 6-14 appears.

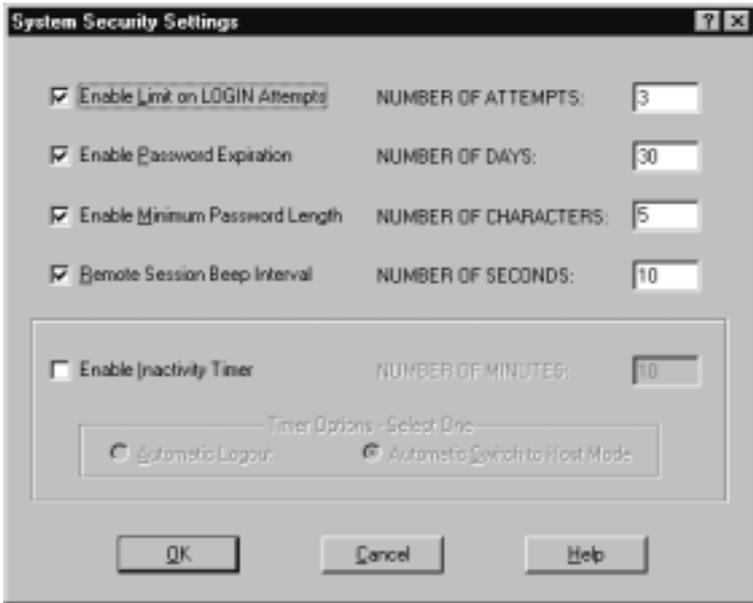


Figure 6-14. The System Security dialog box.

At this box, you can configure the ServLINK with system-security options for all users. These options include:

- **Enable Limit on LOGIN Attempts**

This sets the number of failed login attempts that a user may make before being locked out of the system. Once a user is locked out, only a supervisor may re-enable their account. The system default is 3 attempts. You can specify any number from 0 to 99 attempts (a setting of zero will deactivate the option).

- **Enable Password Expiration**

When checked, this option specifies how many days can pass before a user is forced to change their password. The system default is every 30 days. You can specify any number from 0 to 999 days (a setting of zero will deactivate the option).

- **Enable Minimum Password Length**

This option sets the minimum length for passwords to the specified number of characters. (Even if this setting is disabled or set to zero, passwords must be at least one character long—no “null-string passwords” are allowed under any circumstances.) Passwords may be as long as 15 characters; the default length is 5 characters.

- **Remote Session Beep Interval**

This feature is used to alert the host site when someone remotely accesses the ServLINK. When this feature is enabled, the ServLINK will beep or play a .WAV file at a specified interval between 0 and 99 seconds. The default value is 10 seconds; setting this option to zero disables this option. (No matter how this option is set, the ServLINK will always sound three beeps when it is powered on.)

- **Enable Inactivity Timer**

The Inactivity Timer, when enabled, monitors user activity through keyboard input and mouse-click menu selections (but *not* simple mouse movement). If no activity is detected within the time specified here (default is 10 minutes), you can set the ServLINK to either automatically log the user out or switch the user to Host Mode.

6.2.3 PASSWORD OPTIONS

When you pull down the Security menu and select Password Options, the dialog box shown in Figure 6-15 appears.

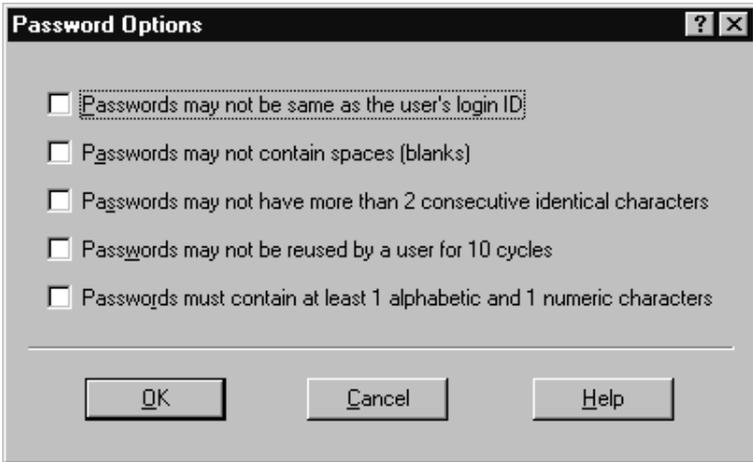


Figure 6-15. The System Security dialog box.

- **Password may not be the same as the user's login ID**

When this box is checked, the User ID may not be used as a password. Note that passwords are case sensitive, so a case variation on a User ID will be accepted.

- **Password may not contain spaces (blanks)**

When this option is selected, users may not include any spaces in their password.

- **Password may not have more than 2 consecutive identical characters**

When this box is checked, users may not enter passwords with more than two consecutive characters. For example, the password “aaa” would not be accepted.

- **Passwords may not be reused by a user for 10 cycles**

When this box is checked, once a password expires or is changed, passwords must be changed at least 10 times before that password may be reused.

- **Passwords must contain at least 1 alphanumeric and 1 numeric character**

When this option is selected, a user's password must contain at least one number and one letter.

When you're finished, click “OK” to save your changes or “Cancel” to abort them.

6.2.4 SITE ID

When you pull down the Security menu and select Site ID, the dialog box shown in Figure 6-16 appears.

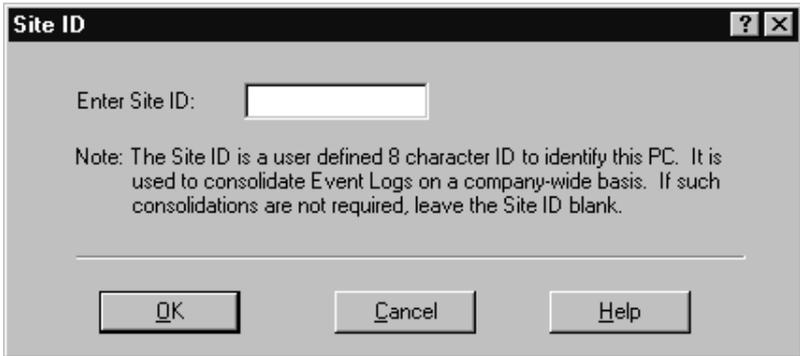


Figure 6-16. The Site ID dialog box.

The Site ID menu option allows you to assign your ServLINK a site name up to 8 characters long. This name must be unique, and cannot be used by any other PC in the system.

The Site ID permits each event log stored within the remote PCs in a ServLINK system to be consolidated into a central system-wide event log file. The Site ID identifies each individual PC in the system.

6.2.5 CALLER ID

When you pull down the Security menu and select Caller ID, the dialog box shown in Figure 6-17 appears.

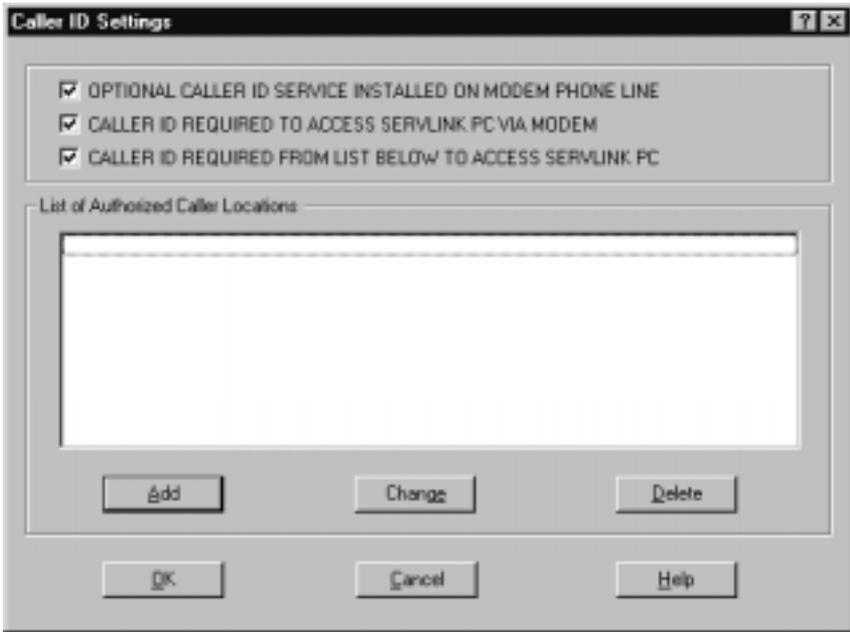


Figure 6-17. The Caller ID dialog box.

- **Optional Caller ID Service Installed on Modem Phone Line**

If you have Caller ID service on the phone line that the ServLINK's modem is on, and you want to implement Caller-ID-based security, make sure this box is checked.

- **Caller ID Required to Access ServLINK PC Via Modem**

If this box is checked, the ServLINK's modem won't answer any calls from phone lines with Caller ID blocked.

- **Caller ID Required from List Below to Access ServLINK PC**

When selected, this option restricts ServLINK access to numbers that are specified in an administrator-maintained list. When this option is activated, only users specified in the list can call in. There are some instances where Caller ID may not properly transmit the number; it's important to place test calls from each number when it is entered into this list.

When you select this, the List of Authorized Caller Locations becomes active, as well as the three buttons below it:

- **Add**

Click this button to bring up the Add Caller ID dialog box shown in Figure 6-18: Enter “Location of Phone Number” (a brief description of where the caller will be calling from) and the “Phone Number” itself. The phone number must include an area code; enter it exactly as it appears on the Caller ID unit's display, or exactly as shown in the ServLINK's Event Log after a test call has been placed to the ServLINK from that phone.

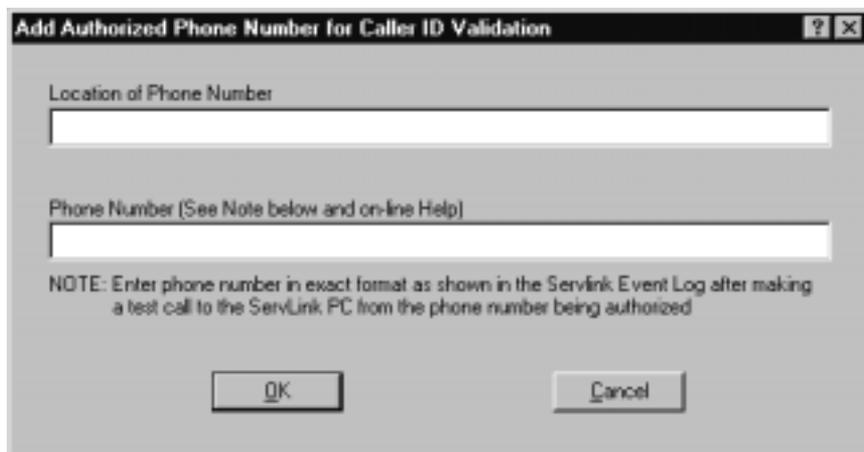


Figure 6-18. The Add Caller ID dialog box.

- **Change**

Highlight an Authorized Caller Location and click this button to change the Location of Phone Number or the Phone Number itself.

- **Delete**

Highlight an Authorized Caller Location and click this button to delete it from the list.

When you're finished, click “OK” to save your changes or “Cancel” to abort them.

6.2.6 PAGER ALERT

When you pull down the Security menu and select Pager Alert, the dialog box shown in Figure 6-19 appears.

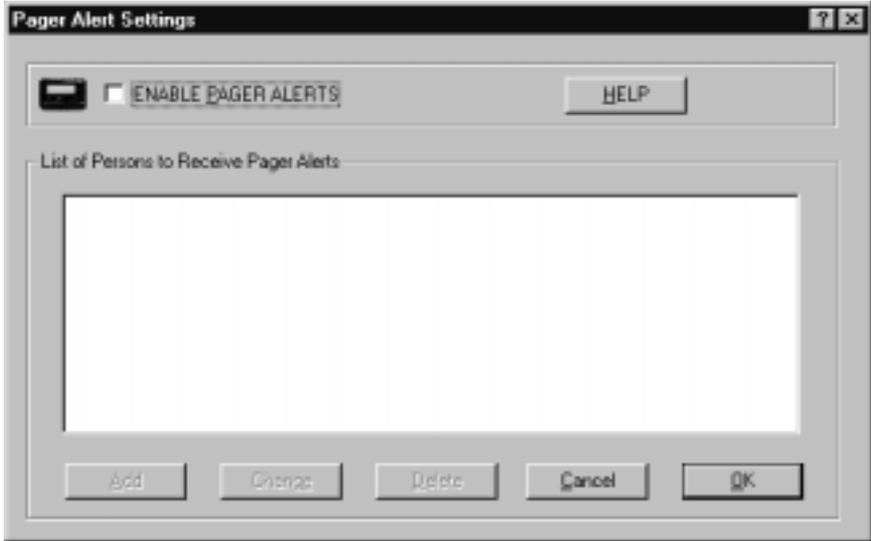


Figure 6-19. The Pager Alert dialog box.

ServLINK may be configured to issue pager alerts to one or more pagers when ServLINK User Security is enabled and a user fails to successfully login with the allowed number of password attempts.

The Pager Alert window allows enabling or disabling the Pager Alert feature and adding, changing, or deleting pagers from the alert list.

To enable Pager Alerts, you must first have an external modem connected to the data port of the Access Control card. Next, click the box “Enable Pager Alerts” box. You will then be able to Add, Change, or Delete persons who are to receive pager alerts.

- **Add**

When you click this button, the dialog box shown in Figure 6-20 will appear. Enter a brief description of the “Person or Location to be Alerted,” then the “Pager Phone Number and Alert Code.” This number should be preceded by the modem command ATDT.

If you wish, you can enter an alert code after the number that is to be paged. To do this, enter several commas after the pager number—each one will cause a two-second delay, to give time for the paging system to pick up—and then a numeric alert code that is meaningful to the person receiving the page.

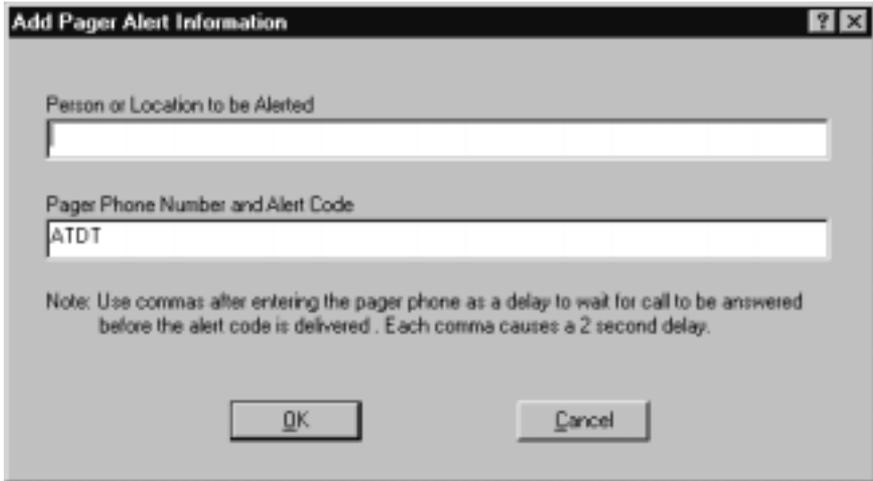


Figure 6-20. The Add Pager Alert dialog box.

- **Change**

To change a user’s Location or Pager settings, just highlight their entry and select this option.

- **Delete**

To delete a user from the list, just highlight their entry and select this option.

- **Cancel**

Click this button to abort your changes and return to the Main Menu.

- **OK**

Click this button to save your changes and return to the Main Menu.

6.2.7 SYSTEM BACKUP

When you pull down the Security menu and select System Backup, the dialog box shown in Figure 6-21 appears.

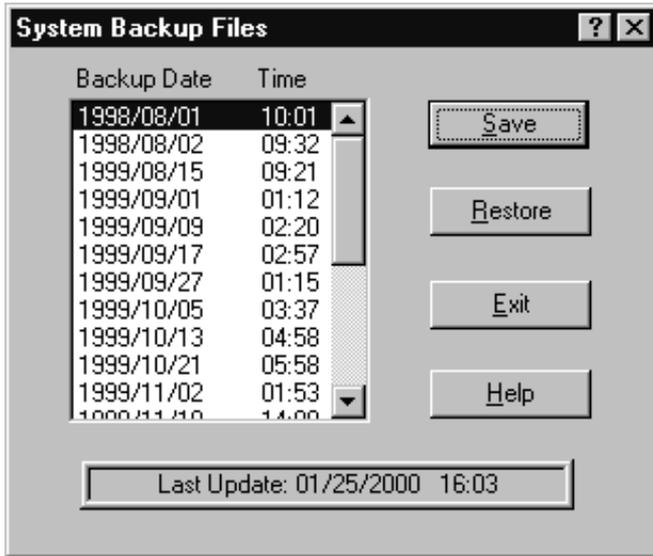


Figure 6-21. The System Backup dialog box.

This option allows a user to encrypt and save the current status of a ServLINK configuration or restore a previously saved configuration. When changes to the ServLINK configuration are made, they are not saved until the Save button in this menu is clicked or the ServLINK application's processing ends normally (when you select Quit from the Other menu—see **Section 6.6.7**).

Here's what the components of this box are for:

- **Backup Date/Time**

This list box records all backup files saved by ServLINK during the last year. Each time a ServLINK menu option is selected, ServLINK checks the current date against this list and automatically backs up the configuration if more than seven days have elapsed since the last backup.

- **Save**

Click this button to save the current ServLINK configuration.

- **Restore**
Highlight a backup file in the list and click this button to restore the ServLINK's configuration from that file.
- **Exit**
Click this button to return to the Main Menu.
- **Help**
Click this button to get on-line help about the System Backup function.
- **Last Update**
The date and time of the most recent save.

6.2.8 SWITCH CONTROL (SERVLINK ATTACHED TO SERVSWITCH MULTI ONLY)

When you pull down the Security menu and select Switch Control, the dialog box shown in Figure 6-22 appears.

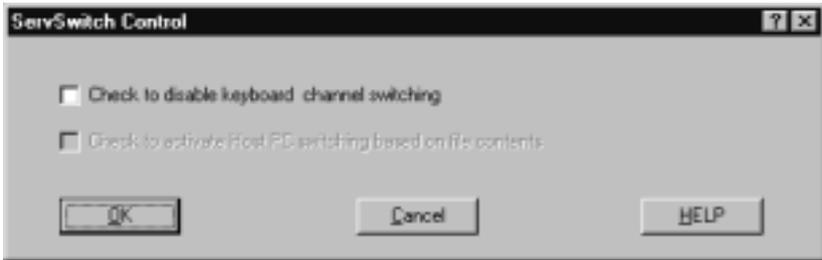


Figure 6-22. The Switch Control dialog box.

This box is only meaningful if the ServLINK is attached to a regular Universal User Interface Card (KV2500C) with a firmware revision more recent than 9/25/99 installed in a ServSwitch Multi. (This User Card is the type with no on-screen display, referred to internally by the ServLINK and the ServSwitch Multi as an “XPLU.”)

In this situation, for additional security, you can click the top checkbox to disable switching between PCs from the ServLINK’s keyboard. While keyboard switching is disabled, the normal keyboard macros that appear in the PC Settings: Switch Box Command list (see **Section 6.1.1.B**) disappear and are replaced by “SL Ctrls XPLU Switching”: The ServLINK uses a special protocol, rather than keyboard commands, to switch between PCs on the ServSwitch Multi system. This makes it virtually impossible for a non-supervisor user to access any computer they wouldn’t normally have access to.

You can now go a step further and click the bottom checkbox; this causes the ServLINK to look for a particular file in order to define PC switching for such users. This is intended for use at sites with sophisticated software-based security controls; for more information, please consult on-line help for this function.

6.2.9 EVENT LOG

When you pull down the Security menu and select Event Log, the dialog box shown in Figure 6-23 appears.

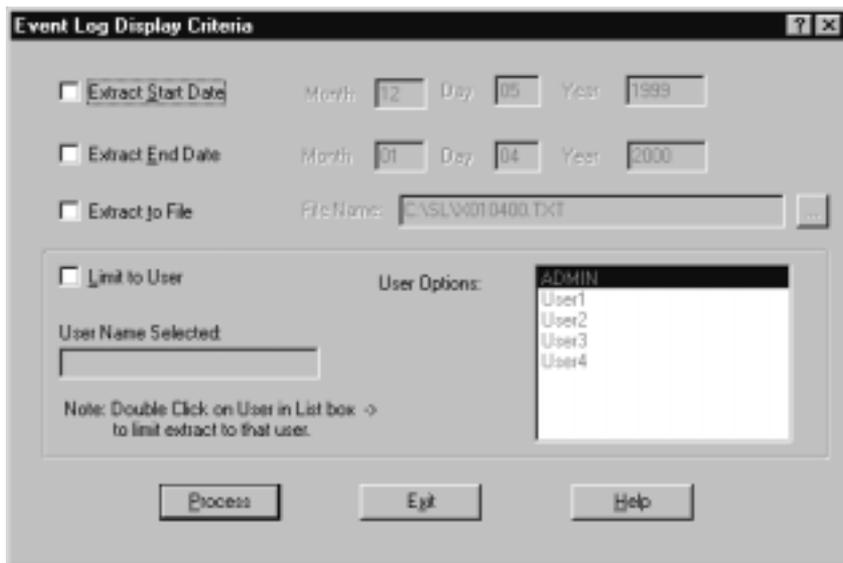


Figure 6-23. The Event Log dialog box.

This option permits viewing the ServLINK event log. This log contains date- and time-stamped entries that track all aspects of user access to ServLINK Host PCs as well as changes made by users to the system configuration.

This menu option is only accessible if security is disabled or the user has supervisor access rights.

Before extracting the event log, you might want to enter display criteria, in order to narrow the focus of the inquiry so you don't have to sift through immense numbers of records. (The event-log report can contain as many as 20,000 of them.) Do this by clicking any of the four checkboxes in this dialog box and specifying those criteria:

- **Extract Start Date**

This is the date that you would like the event-log report to start with. If this checkbox isn't checked, the report will start at the beginning of the log.

- **Extract End Date**

This is the date that you would like the event-log report to end with. If this checkbox isn't checked, the report will end with the last entry in the event log.

- **Extract to File**

This option saves the event-log report to a specified file. Click this checkbox and enter the pathname of the file.

- **Limit to User**

This option extracts the log information for a specific user. Only that user's access to the ServLINK unit will be reported. To use this option, choose the username from the User Options list to the right; that username will then appear in the User Name Selected field.

When you've finished selecting the constraints for your report, click the "Process" button to generate it. Unless you've directed the output to a file, the report will appear in a window as shown in Figure 6-24:

```

Event Request Criteria: Start Date: Not Specified, End Date: Not Specified, User Name: Not Specified

Date      Time      User Name      Event
-----
2009/01/04 18:51 ADMIN----- ** Polled Modules on CPU - 3 Modules Found
2009/01/04 18:51 ADMIN----- ** Activated Module 001-Baseband
2009/01/04 18:52 ADMIN----- ** Changed Module 001 Description
  Module: Mail Server
2009/01/04 18:52 ADMIN----- ** Activated Pass-Through Mode on CPU
2009/01/04 18:52 ADMIN----- ** Activated Module 002-Web
2009/01/04 18:52 ADMIN----- ** Changed Module 002 Description
  Module: File Server
2009/01/04 18:52 ADMIN----- ** Activated Pass-Through Mode on CPU
2009/01/04 18:52 ADMIN----- ** Activated Module 003-Application
2009/01/04 18:52 ADMIN----- ** Changed Module 003 Description
  Module: Application Server
2009/01/04 18:52 ADMIN----- ** End Module Processing - Module 003 Active
2009/01/04 18:52 ADMIN----- ** Failed Module on CPU - 3 Modules Found
2009/01/04 18:52 ADMIN----- ** Activated Module 001-Mail Server
2009/01/04 18:54 ADMIN----- ** End Module Processing - Module 003 Active
2009/01/04 18:40 ADMIN----- Deleted User -- skusball
2009/01/04 18:40 ADMIN----- Deleted User -- Administrator
2009/01/04 18:40 ADMIN----- Deleted User --
2009/01/04 18:40 ADMIN----- Disabled IMAGING access to CallerID list - no IDs on list
2009/01/04 18:47 ADMIN----- Disabled Pager Alarms - no pagers on list
2009/01/04 18:54 *****
2009/01/04 18:54 ***** ** WARNING: Last ServLink session improperly terminated! ***
2009/01/04 18:54 ***** All unmerged configuration changes since last *****
2009/01/04 18:54 ***** ServLink App Proc. INITIATED was discarded! *****
2009/01/04 18:54 *****
2009/01/04 18:54 ***** ** ServLink Application Processing Initiated
2009/01/04 18:55 ADMIN----- ** Logged into ServLink
2009/01/04 18:58 ADMIN----- Deleted User -- skusball
2009/01/04 18:59 ADMIN----- Deleted User -- Administrator
2009/01/04 18:59 ADMIN----- Deleted User --
  
```

Figure 6-24. The Event Log report.

Click the "X" close-box in the upper right to close the report and return to the Event Log box. Then click "Exit" to return to the Main Menu. At any time, you can click the Help button for on-line help about the Event Log.

6.2.10 CHANGE PASSWORD

When you pull down the Security menu and select Change Password, the dialog box shown in Figure 6-25 appears.

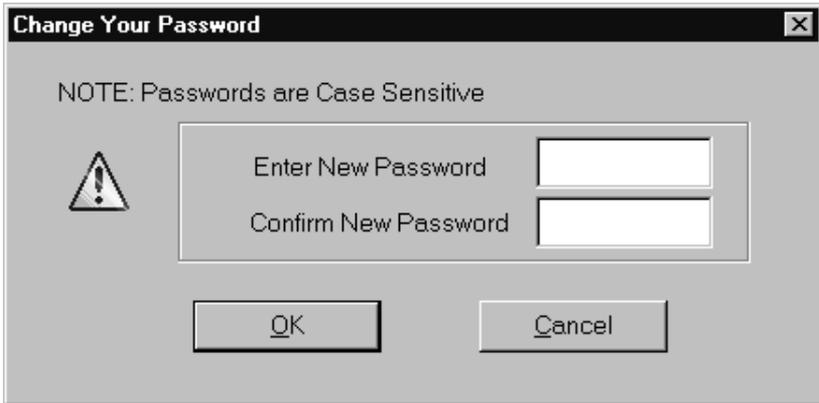


Figure 6-25. The Change Password dialog box.

Here, any user who has successfully logged in can change their password as desired.

6.2.11 LOGOUT

When you pull down the Security menu and select Logout, a dialog box will pop up asking if you're sure; click "OK" or "Cancel." If you click "OK," you are logged out of the ServLINK application. The screen will be obscured by the Black Box "splash screen" and the login window, and that's how things will stay until you or another user logs in.

6.3 The Video Menu: List Video Drivers

The third primary option available under the Main Menu is “Video.” When you pull down the Video Menu, you’ll see a single selection, as shown in Figure 6-26.



Figure 6-26. The Video menu.

When you select “List Video Drivers,” the dialog box shown in Figure 6-27 appears.

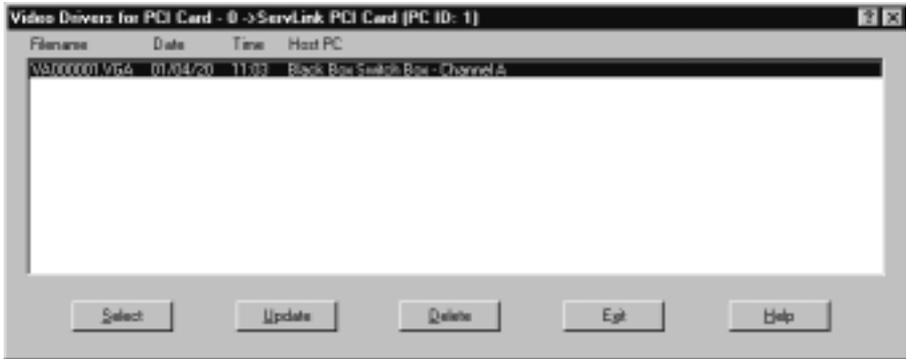


Figure 6-27. The List Video Drivers dialog box.

This is a list of the “video drivers” (preferences files) that the ServLINK has stored for the ServLINK’s active Host PC. The ServLINK uses these “drivers” to determine how best to display the video output from the attached PCs. Usually there will only be one video driver per PC. This list includes each driver’s filename, date and time of last change/save, and host PC.

You can highlight a driver and click the Select button to choose it for the active PC, or click Delete to delete the file. You can also click Update to have the ServLINK update the list of available drivers for this PC. Click Exit to return to the Main Menu, or click Help for on-line help on the Video Drivers List.

Under normal circumstances, almost the only situation in which you’ll need to choose a different driver for a PC is if (a) you run multiple software programs on the PC and (b) the programs radically differ from each other in their video output. You should almost never need to delete a driver. In general, these video-driver options are mostly intended for testing and for very specialized applications; we recommend that you avoid using them.

6.4 The Keyboard Menu: Create Keyboard Macros

The fourth primary option available under the Main Menu is “Keyboard.” When you pull down the Keyboard Menu, you’ll see a single selection, as shown in Figure 6-28.



Figure 6-28. The Keyboard menu.

Using the Create Keyboard Macros option, you can add, view, modify, and delete ServLINK keyboard macros. A macro is a sequence of keyboard keypresses and key releases that form a command; when you trigger such macros, the ServLINK sends the command sequences to the attached PC or KVM switch to cause it to do things.

Aside from the fact that it’s quicker to press one key or to click the mouse than it is to press several keys, sometimes macros are *necessary* for the ServLINK system. For example, if you’re in Host Mode and the software running on the selected Host PC has crashed, you might want to send [Ctrl][Alt][Del] to that PC to terminate the program. But if you simply press those keys on the ServLINK’s keyboard, the ServLINK itself will receive and process them. To get around this difficulty, you can open Create Keyboard Macros, select predefined macros such as “Ctrl+Alt+Del” (or create and then select new macros for your application), and have the ServLINK send the corresponding keystrokes to the attached PC or KVM switch without your having to worry about the ServLINK intercepting keystrokes that aren’t meant for it.

6.4.1 THE MAIN DIALOG BOX

When you select Create Keyboard Macros, the dialog box shown in Figure 6-29 appears. (You can also bring up this box in Host Mode by pressing function key [F12].)

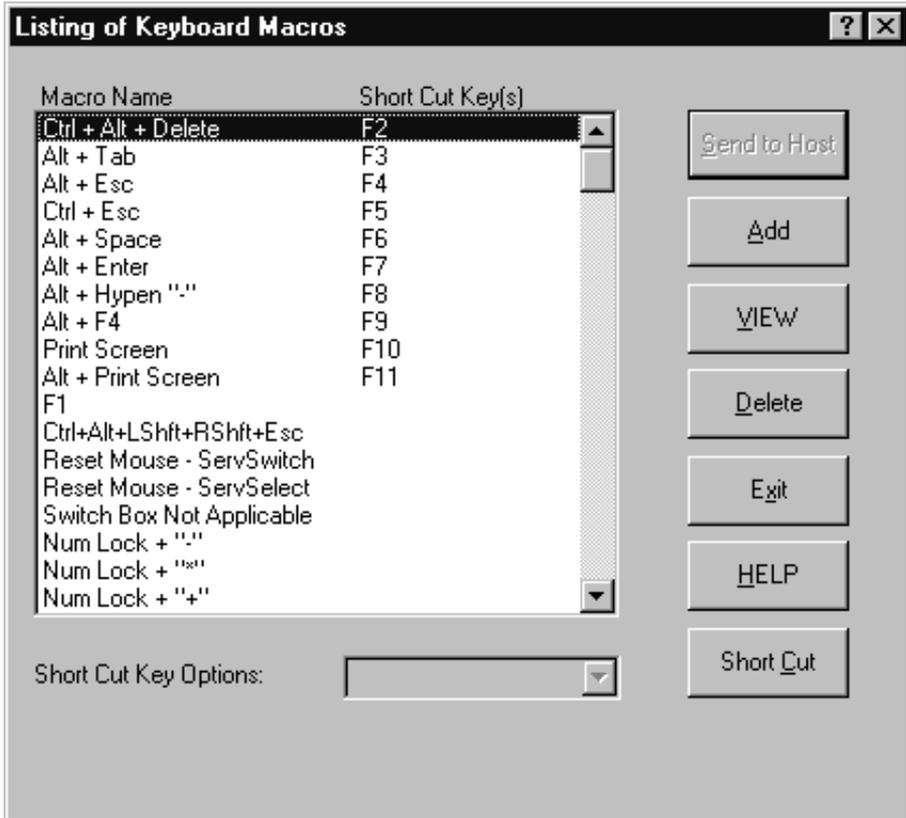


Figure 6-29. The main Keyboard Macro dialog box.

The components of this dialog box are described on the following two pages.

- **Macro Name**

This column of the main Keyboard Macro dialog box lists the currently available macros by name. For most of the predefined macros that the ServLINK ships with, the name consists of an “additive list” of the keys being pressed and released (“Ctrl+Alt+Del,” for example). Other macros that perform very specific functions are named after that function (“Reset Mouse - ServSelect,” for instance). Feel free to use whatever naming convention you find most useful as you create new macros.

There are two particular macros you should be aware of:

- “Switch Box Not Applicable” is an empty “dummy” macro that can be selected for the Switch Box Command in the PC Settings dialog box when the ServLINK isn’t attached to a KVM switch, or when the KVM switch doesn’t use a hotkey sequence—see **Section 6.1.1.B**.
- “Reset Mouse - ServSwitch” is misnamed; it contains the mouse-reset command for the *ServoSwitch Multi*, not the regular ServSwitch.

- **Short Cut Key(s) column**

This column lists any “shortcut keys” assigned to any of your macros. Some sequences of keystrokes, especially those that involve Windows operating-system functions, are liable to be used so often that you want to be able to send them with a single keypress instead of going through this menu option all the time. So the ServLINK software assigns shortcut keys—some of the function keys at the top of your keyboard—to several of these macros. Pressing a shortcut function key on your keyboard while you’re in Host Mode will cause the ServLINK to send the corresponding macro to the Host PC.

You can assign shortcut keys to macros, or clear shortcut-key assignments, by clicking the **Short Cut** button (see the next page).

- **Send to Host**

When you bring up this dialog box in Host Mode, clicking this button causes the ServLINK to send the selected macro to the currently active Host PC. When you access this box through Menu Mode, this button is grayed out.

- **Add**

If you want to add a new macro, click this button to open the Add Keyboard Macro dialog box; see **Section 6.4.2**.

- **View**

If you want to see exactly which keypresses and key releases make up a given macro, highlight that macro and click this button to open the View (List Keyboard Press/Release) dialog box; see **Section 6.4.3**.

- **Delete**

If you want to delete an existing macro from the list, highlight that macro and click this button to erase it.

- **Exit**

Click this button to close this box and return to the Main Menu.

- **Help**

Click this button to get on-line help for this box.

- **Short Cut button, Short Cut Key Options field**

If you want to assign a shortcut key to a macro—see **Short Cut Key(s)** on the previous page—or to clear a shortcut-key assignment, highlight that macro and click the **Short Cut** button. If the macro currently has any shortcut key(s) assigned to it, those will appear in the **Short Cut Key Options** field; otherwise, the word “None” will appear in that field. Clicking the down-arrow button to the right of the **Short Cut Key Options** field will cause a menu of all of the available shortcut keys to appear below the field; drag the highlight to the key(s) you want, or to “None” if you want to clear the shortcut assignment (so that there won’t be any shortcut keys for the macro).

The function keys [F2] through [F11] are the only keyboard keys that can be used as shortcut keys. ([F1] triggers the on-line help system, while [F12] brings up this dialog box in Host Mode.) When the ServLINK ships from the factory, these shortcuts are all already assigned to important Windows keystroke sequences that can’t be sent to an attached PC directly from your keyboard. If you find that there are certain other macros you use much more often than those with preassigned shortcuts, clear the preassigned shortcut keys and assign them to the macros that need them.

6.4.2 THE ADD DIALOG BOX

When you click the Add button in the main Keyboard Macros box, the dialog box shown in Figure 6-30 appears:



Figure 6-30. The Add Keyboard Macro dialog box.

Here’s what the components of this dialog box are for:

- **Macro Description**

Enter a name or description here for the macro you are adding: for example, “Ctrl+q” or “Quit” for a “quit program” sequence that consists of “press and hold [Ctrl], press [q], release [q], release [Ctrl].” (You can’t successfully add a macro unless you give it a description.) Once you add the macro, this description will appear in the **Macro Name** column in the main Keyboard Macro dialog box (see **Section 6.4.1**).

- **Double Click for Key Press**

Each keyboard-command sequence begins with a single keypress; even sequences in which multiple keys are to be pressed at the same time can actually start with the “modifier keys”—[Shift], [Ctrl], [Alt], etc.—being pressed first. (For example, the [Ctrl][Alt][Del] sequence works fine if you press and hold [Ctrl], then press and hold [Alt], then press [Del] and release all three keys one after the other.)

This being the case, highlight the keypress listed in this column that starts the macro you want to add: in our hypothetical [Ctrl][q] example, it would be “Left Ctrl” or “Right Ctrl”. Double-click the keypress to select it. The pressed key will appear as is in the **Double Click for Key Release** column (“Left Ctrl”,

“Right Ctrl”), and in brackets after “Press” in the **Macro Created** column (“Press [Left Ctrl]”, “Press [Right Ctrl]”).

If this key must be *released before* the next key in the command sequence can be pressed, double-click this key’s new entry in the **Double Click for Key Release** column as described below. If the key must be *held while* the next key in the sequence is pressed, double-click the entry for the next key in the **Double Click for Key Press** column.

NOTE

Many of our ServSwitches *do* distinguish between left and right [Ctrl]; for instance, all commands for a regular ServSwitch must begin with left [Ctrl], while all commands for a ServShare™ must begin with a right [Ctrl]. Similarly, many application programs distinguish between the left- and right-hand [Ctrl], [Alt], and/or [Shift] keys.

- **Double Click for Key Release**

Once you select a keypress for your macro from the **Double Click for Key Press** column, it appears here as is (“[Left Shift]”, “[Esc]”, etc.); it also appears in brackets (after the word “Press”) in the **Macro Created** column (as “Press [Left Shift]”, “Press [Esc]”, etc.). When you get to the part of the macro’s keystroke sequence in which a pressed key needs to be released, double-click its entry here. The key will disappear from this column and appear instead as a “released key” in the **Macro Created** column, after the word “Release” and enclosed in greater-than and less-than signs (as “Release <Left Shift>”, “Release <Esc>”, etc.).

- **Macro Created**

When all of the keys in the macro sequence have been pressed and released, so that the full macro entry appears in this column and no keys remain in the **Double Click for Key Release** column, you can save the macro (see **OK** below).

A full macro entry for our hypothetical [Ctrl][q] sequence could be:

```
Press [Left Ctrl]
Press [q]
Release [q]
Release [Left Ctrl]
```

- **OK**

Click this button to save any new macro you’ve created, or to exit this box without creating one. Make sure that (a) you’ve typed in a description for the macro and (b) you’ve released all keys you specified as being pressed (the **Double Click for Key Release** column is empty); you’ll get error messages until these problems are fixed.

- **Reset**

Click this button if you've changed your mind, made a mistake in the key order, etc. It clears the **Macro Description**, **Double Click for Key Release**, and **Macro Created** columns, so that you can start over.

- **Cancel**

Click this button to exit back to the main Keyboard Macro dialog box without saving a new macro. Any unfinished macro will be discarded.

- **Help**

Click this button to get on-line help for this box.

6.4.3 THE VIEW DIALOG BOX

When you highlight an entry in the **Macro Name** column in the main Keyboard Macros box and click the View button, the dialog box shown in Figure 6-31 appears:

Macro Key Description	Scan Set #1 Codes	Scan Set #2 Codes	Scan Set #3 Codes
Press [Ctrl+Alt]	10	11	11
Press [Delete]	4022	4021	44
Release [Ctrl+Alt]	14	1014	1011
Release [Delete]	4022	40202	1044

Figure 6-31. The View (List Keyboard Press/Release) dialog box.

- The **Macro Key Description** column contains the sequence of keypresses and key releases that make up the macro; this is the same information that appears for macros in the Macro Created column of the Add Keyboard Macro dialog box (see **Section 6.4.2**).
- The **Scan Set Codes** columns show exactly which keyboard scan codes correspond to the keypresses and key releases for the three IBM scan sets (scan modes); these are the actual codes transmitted to the host PC or the KVM switch. Depending on which scan set the ServLINK autodetects for the Host PC, the ServLINK will send the macro in scan set 1 (early PS/2 models), scan set 2 (most PCs), or scan set 3 (RS/6000® and certain other UNIX® based servers).

Click the close box in the upper right-hand corner to exit back to the main Keyboard Macros dialog box.

6.5 The Host Mode Menu: Switch to Host Mode

The fifth primary option available under the Main Menu is “Host Mode.” When you pull down the Host Mode Menu, you’ll see a single selection, as shown in Figure 6-32. When you select “Switch to Host Mode,” the ServLINK switches away from the menu system and establishes a direct “Host Mode” connection with the active Host PC: It displays that PC’s video and passes through keyboard and mouse data to that PC. For more information on Host Mode, and on the Host Mode Properties dialog box you can use to configure it, see **Chapter 5**.



Figure 6-32. The Host Mode menu.

6.6 The Other Menu

The sixth primary option available under the Main Menu is “Other.” When you pull down the Other Menu, you’ll see seven selections, as shown in Figure 6-33. These selections are discussed in the corresponding subsections on the following pages.



Figure 6-33. The Other menu.

6.6.1 CARD ADDRESSES

When you pull down the Other menu and select Card Addresses, the dialog box shown in Figure 6-34 appears.

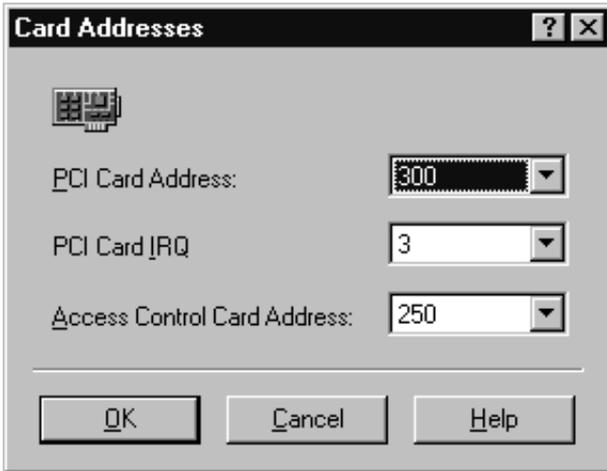


Figure 6-34. The Card Addresses dialog box.

We don't recommend that you install extra cards or other hardware in the ServLINK. But if you do, and the new hardware *must* use the address or the IRQ assigned to the ServLINK's PCI Card, or the address assigned to the ServLINK's Access Control Card, you can choose different settings for these Cards here. (This is intended a last-resort fix for compatibility problems; if at all possible, leave the PCI Card and Access Control Card in their default settings and change the new hardware's settings instead.)

- The default address for the PCI Card is 300 hex. Other available settings are 280, 2a0, 2c0, 340, and 360 hex.
- The default IRQ for the PCI Card is 3. Other available settings are 2, 4, 5, 7, 9, 10, and 11.
- The default address for the Access Control Card is 250 hex. Other available settings are 260, 280, 300, 340, and 360 hex. (The Access Control Card's IRQ is *not* user-selectable.)

6.6.2 RESET OPTIONS (SERVLINK POWER-CONTROLLED WITH POWER MANAGEMENT MODULE ONLY)

NOTE

For more details about Power Management Modules, refer to their own manual.

When you pull down the Other menu and select Reset Options, the dialog box shown in Figure 6-35 appears.

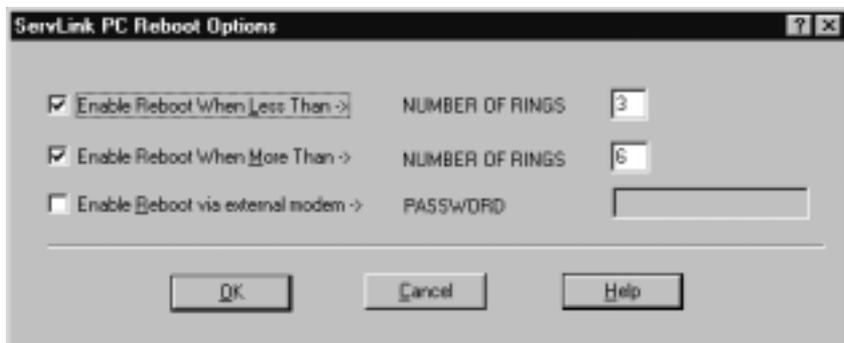


Figure 6-35. The Reset (Reboot) Options dialog box.

Use this option if you have a Power Management Module controlling power to the ServLINK itself. (If you don't, this box is irrelevant.) This Module should be attached to the ServLINK's modem through the ServLINK's Access Control Card, as described in **Section 3.1.7.A**. The one and only function of this Module is to reboot the ServLINK when it receives a call with the characteristics specified here.

Two of these characteristics are mutually interdependent—either they both have to be enabled or both disabled:

- Click the “Enable Reboot When Less Than” box to trigger a reboot on a call with just a few rings. The default value is fewer than 3 rings; available values are 3 to 9 rings. This is the preferred reboot method.
- Click the “Enable Reboot When More Than” box to trigger a reboot on a call that rings many times—the default value is more than 6 rings; available values are 5 to 14 rings. The ServLINK's modem is set to answer calls on the fourth ring; if the few-rings reboot doesn't work, and the modem fails to answer, letting the call ring for the number of times specified here will trigger a reboot anyway.

This brings up an interesting feature: Even though pcANYWHERE hangs up after the tenth ring, this option can be set to more than 10 rings. This allows

you to effectively disable the “reboot on many rings” option if you ever find that badly mistaken or malicious people are dialing up the ServLINK, crashing the modem, and then rebooting the ServLINK by calling back and letting it ring.

If the Module is also attached to a secondary external modem as described in step 6 in **Section 3.1.7.A**, you can call the secondary modem to trigger a reboot if the primary line is dead, busy, or not responding for whatever reason:

- To set up this option, click the “Enable Reboot via external modem” box to cue the Module to respond to calls on the secondary line, and set a password for this feature in the field to the right. This password must be exactly ten alphanumeric characters and cannot contain spaces. (You’ll also need to set the secondary modem to auto-answer.)

To trigger this kind of reboot, dial the secondary modem from a PC running terminal emulation; when the modem answers, type in “reset” and press [Enter]. The Module will prompt you for the reboot password; if you enter it correctly, the Module will hang up and cut power to the ServLINK for 20 seconds—or for whatever “Reboot Delay in Seconds” is set in the Control Module Configuration box (see **Section 6.1.3**)—then power the ServLINK back up.

At any time, you can click “Help” to get on-line help for this box. When you’re finished, you can click “OK” to save your changes or “Cancel” to abort them.

6.6.3 SOUND OPTIONS

When you pull down the Other menu and select Sound Options, the dialog box shown in Figure 6-36 appears.



Figure 6-36. The Sound Options dialog box.

If you install a SoundBlaster compatible sound card in the ServLINK, you can use this option to customize the sound alerts the ServLINK gives you when (a) it sends you a message or (b) when a remote user is accessing it. (If you enable the custom sounds without such a sound card installed, the ServLINK will be totally silent.)

This can be especially useful in crowded server-room environments, where it can be hard to tell which piece of equipment is making any given beeping noise. Available sounds include “Speaker Beep” (the default), “Ding,” “Chime,” “Chord,” “Gun Shot,” “Alert Voice,” “I’m Back,” and “Hello.” (These are .WAV files stored on the ServLINK’s hard drive. While there’s no software-based way to add sounds to this list, you can do a “Find File” on DING.WAV to locate the existing sound files, back them up to some other folder, and give their filenames to other sounds more appropriate for your application.)

To test what any of these selections sound like, pull the menu to that sound and click “Test” to hear it. Volume control must be handled through the operating system.

6.6.4 SWITCH RESOLUTIONS

When you pull down the Other menu to Switch Resolutions, the available options will appear, as shown in Figure 6-37.



Figure 6-37. The Switch Resolutions options.

To increase or decrease the size of the ServLINK menus on your screen, you can change the Menu Mode resolution of the ServLINK application here. (This has no effect on the Host Mode resolutions of the video coming from the attached PCs, which the ServLINK autodetects and switches between automatically.) Available options are 640 x 480, 800 x 600 (the default), and 1024 x 768. 1280 x 1024 is also in this menu, but it's grayed out at the time of this writing because the ServLINK can't yet support that resolution.

6.6.5 UPLOAD USER/CHANNEL INFO (SERVLINK ATTACHED TO SERVSWITCH MULTI ONLY)

When you pull down the Other menu and select Upload User/Channel Info, the alert box shown in Figure 6-38 appears.

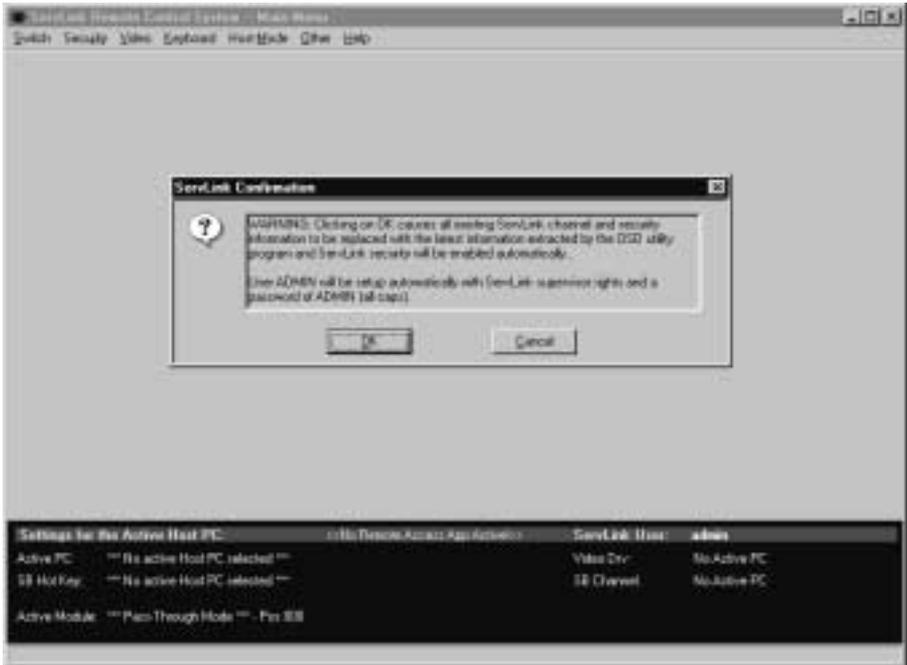


Figure 6-38. The Upload User/Channel Info alert box.

This option will work only if the ServLINK is connected to a Universal User Interface Card with On-Screen Display (our product code KV2550C-R2) installed in a ServSwitch Multi. If it is, you can select this option to upload the existing ServSwitch Multi system configuration (PC/channel names, user IDs, etc.) from the User Card's memory into the ServLINK. This can be a complicated process; please see your on-line help for details.

CAUTION!

As stated in the alert box shown above, if you select this option it will completely overwrite any previous system configuration in your ServLINK, and will also set the ServLINK's security to match the ServSwitch Multi's security. This means that if you do not have a user account with supervisor rights on the ServSwitch Multi, you will no longer have supervisor rights on the ServLINK when this procedure is over!

6.6.6 SWITCH DETECTION (SERVLINK ATTACHED TO SERVSWITCH MULTI ONLY)

When you pull down the Other menu and select Switch Detection, the dialog box shown in Figure 6-39 appears.

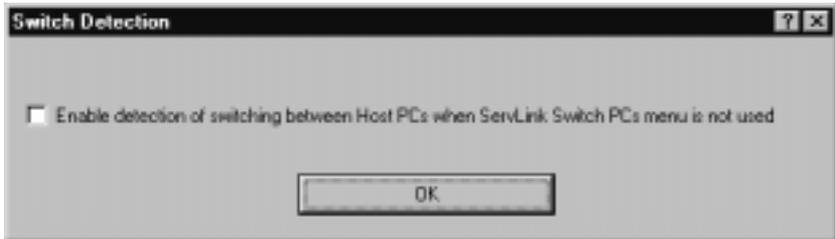


Figure 6-39. The Switch Detection dialog box.

We recommend that, under normal circumstances, you switch between the PCs attached to the ServLINK by selecting them from the ServLINK's Switch PC list. It is often possible, however, to switch between PCs by sending a keyboard command to an attached KVM switch, or by selecting the PC from the KVM switch's own on-screen menu.

In its default setting, the ServLINK will not be able to detect channel switching that's done through the KVM switch instead of through the ServLINK. This can be undesirable in a number of ways. For example, the ServLINK might record events in its event log as having involved the wrong computer; it might associate changed video settings with the wrong computers and trash its video drivers; and so on.

However, if the KVM switch is a ServSwitch Multi, the ServLINK *can* autodetect direct channel switching if you click the "Enable detection of switching..." checkbox here. When Switch Detection is enabled, the ServLINK will react to direct-through-ServSwitch-Multi switching the same way it does for switching through its own menus, except that it will display the warning notice shown in Figure 6-40 on your screen.



Figure 6-40. The Switch Detection message.

6.6.7 QUIT

When you pull down the Other menu and select Quit, the dialog box shown in Figure 6-41 appears.

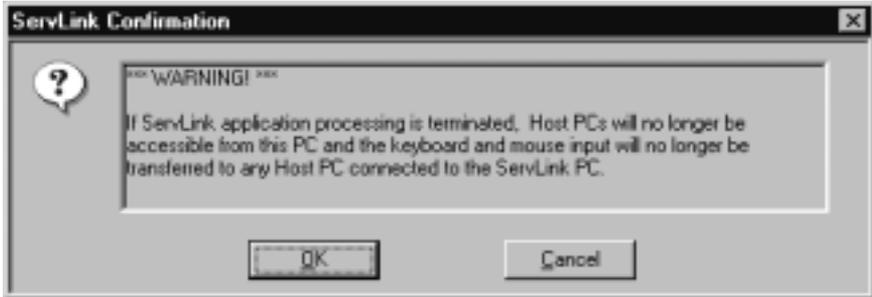


Figure 6-41. The Quit dialog box.

Under normal circumstances, the ServLINK should always be running its ServLINK application program. However, if you absolutely must get out of the ServLINK application in order to make changes to operating-system settings, to test hardware, etc., do *not* simply [Ctrl][Alt][Del] out of the program or shut the ServLINK off: For one thing, this type of abnormal shutdown will cause the program to lose any configuration changes made since the last System Backup save (see **Section 6.2.7**).

To close the ServLINK application normally, select this Quit option and click “OK”. When you do so, the ServLINK will save its configuration to a backup file (see **Section 6.2.7**), then will essentially disconnect from any attached PCs, KVM switches, Power Management Modules, etc. It will, in effect, become an isolated Windows NT machine until you restart the ServLINK application by double-clicking its icon on the ServLINK’s desktop. If security is enabled, when you restart the application it will display the login window (as shown in Figure 6-1 at the start of **Chapter 6**) and wait for someone to log into the system.

Click “Cancel” here if you don’t actually want to quit the ServLINK application. You will be returned to the Main Menu.

6.7 The Help Menu

The last primary option available under the Main Menu is “Help.” When you pull down the Help Menu, you’ll see three selections, as shown in Figure 6-42. These selections are described on the following pages.



Figure 6-42. The Help menu.

6.7.1 THE HELP: CONTENTS DIALOG BOX

Choose “Contents” to see the on-line help system’s table of contents, the top of which is shown in Figure 6-43. Each topic title in the contents contains a hypertext link to the entry for that topic; just click the title and the entry will appear in the window.



Figure 6-43. The Help: Contents dialog box.

Wherever you go from here in the help system, the “Contents” button at the top of the window will bring you back to the main table of contents page; “Index” will take you to the help system’s index; “Back” will take you to the previous page; and “Print” will print the current page. (The help system’s menus have all the standard Windows help-system functions.)

6.7.2 THE HELP: SEARCH DIALOG BOX

Choose “Search” to do a search of the text in the help system. Depending on which tab was most recently selected, you will either see the Index section of the Search dialog box shown in Figure 6-44, or the Find section shown in Figure 6-45 on the next page.



Figure 6-44. The Help: Search: Index dialog box.

The Index section contains an index of the ServLINK’s help system. If you don’t mind browsing through it all, you can simply scroll down through a list of all the help topics in field 2, and click “Display” when you reach a topic you’re interested in. Otherwise, you can type a specific word or set of words into field 1 for the ServLINK to look for; as you type, the help system will automatically display in field 2 the titles of any topics that match what you’ve typed in so far. Click the title of any topic you want to see and then click “Display.”

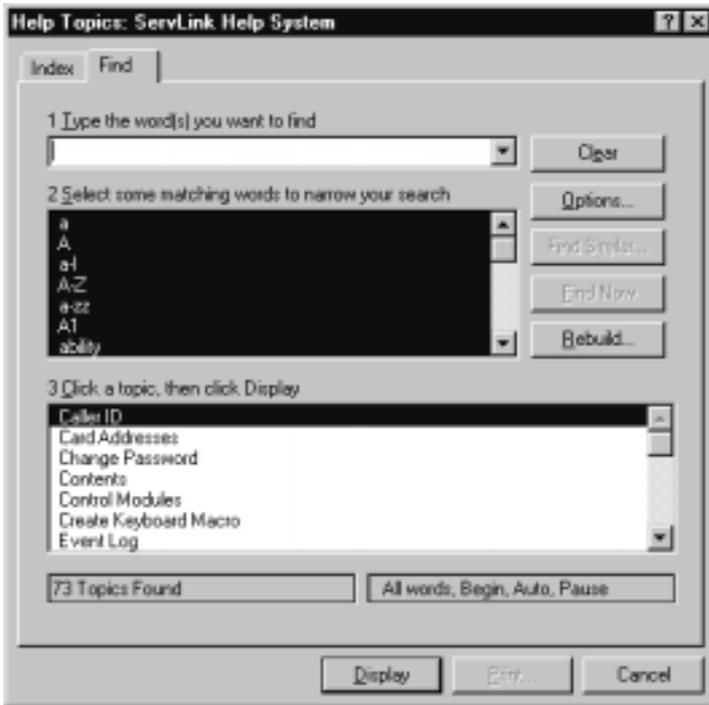


Figure 6-45. The Help: Search: Find dialog box.

When you use the Find section with its default Options settings, the Find Now and Find Similar buttons are grayed out. Instead, type in a specific word or set of words into field 1 for the ServLINK to look for; as you type, the help system will automatically display (a) a longer word or phrase that can narrow the search (in field 2), and (b) the titles of any topics that match what you've typed in so far (in field 3). Click the title of any topic in field 3 you want to see and then click "Display."

If you find this kind of on-the-fly searching disconcerting or annoying, and would rather the help system wait until you finish typing something in to suggest topics, click Options. A dialog box will appear that allows you to turn on Find Now and Find Similar (click to search *after* you finish your entry), as well as to set search sensitivity and other options.

The lists that appear in fields 2 and 3 are the result of database operations that can occasionally become corrupted. If you see nonsense or garbage characters in these fields, click Rebuild to reinitialize the process and regenerate the lists.

6.7.3 THE HELP: ABOUT DIALOG BOX

Choose “About” to see the dialog box shown in Figure 6-46. It lists the revision levels of the ServLINK’s firmware and software, as well as Black Box contact information.



Figure 6-46. The Help: About dialog box.

7. Troubleshooting

If you ever have a problem with the ServLINK, our first recommendation is to check the Frequently Asked Questions topic in the ServLINK's on-line help. It discusses what to do about many difficulties that people sometimes have with the ServLINK. If this doesn't help, call Black Box as directed in **Section 7.1**.

7.1 Calling Black Box

If you determine that your ServLINK is malfunctioning, *do not attempt to alter or repair the unit*. It contains no user-serviceable parts. Contact Black Box Technical Support at 724-746-5500.

Before you do, make a record of the history of the problem. We will be able to provide more efficient and accurate assistance if you have a complete description, including:

- the nature and duration of the problem;
- when the problem occurs;
- the components involved in the problem (PCs, KVM switches, cables, etc.);
- any particular application that, when used, appears to create the problem or make it worse;
- the settings the ServLINK reports in its Test PCI Card box (**Section 5.2.1**) and the revision dates and numbers it reports in its About box (**Section 6.7.3**); and
- the results of any testing you've already done.

7.2 Shipping and Packaging

If you need to transport or ship your ServLINK:

- Package it carefully. We recommend that you use the original container.
- If you are shipping the ServLINK for repair, make sure you include its power cord, keyboard and mouse, and any of the other things that come with it (cables, etc.) that are necessary to operate the ServLINK in your application.
- If you are returning the ServLINK, make sure you include everything you received with it. Before you ship, contact Black Box to get a Return Authorization (RA) number.

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