BLACK BOX®
ServSwitch
Summit™

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Summit

User Station

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BLACK BOX®
ServSwitch™
Summit
PWR ●

User ● ●
Channel 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42

KV1500A
KV1501A
KV1502A
KV1503A

BLACK BOX®
NETWORK SERVICES

Welcome to the ServSwitch™ Family!

Thank you for purchasing a BLACK BOX® ServSwitch™ Brand KVM switch! We appreciate your business, and we think you'll appreciate the many ways that this product will save you money, time, and effort.

Our ServSwitch family is all about breaking away from the traditional, expensive model of computer management and display. You know, the one-size-fits-all-even-if-it-doesn't model that says, "One computer gets one dedicated monitor or 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 many monitors or user stations for the same computer? Why not access or display any of your computers, anywhere in the world, with any of your user stations or monitors?

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 mice, keyboards, and monitors on your desk? Or do you need to share many computers, including a mix of IBM® PC, RS/6000®, Apple® Macintosh®, Sun Microsystems®, and SGI™ types among multiple worldwide users with different access levels?

- Do you have to send video from one computer to two different local monitors? Or do you need to send video from multiple computers to dozens of remote monitors?

- 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, use convenient many-to-one cables, and have a rackmounted user station that folds and slides into 1U of space?

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 video and KVM switching and extension needs!

This manual will tell you all about your new ServSwitch Summit™, including how to install, operate, and troubleshoot it. For an introduction to the Summit, see **Chapter 3**. The Summit product codes covered in this manual are:

KV1500A   KV1501A   KV1502A   KV1503A

This manual also includes information about the ServSwitch™ Summit's User-Station and Computer-Interface Modules, some of which have their own manuals or installation guides:

KV1510A-R2   KV1515A   KV1517A

FEDERAL COMMUNICATIONS COMMISSION AND INDUSTRY CANADA

RADIO-FREQUENCY INTERFERENCE STATEMENTS

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 B 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.

Shielded cables must be used to connect other compliant devices to this equipment in order to maintain compliance with radio-frequency-energy emission regulations and ensure a suitably high level of immunity to electromagnetic disturbances.

$$C\,E$$
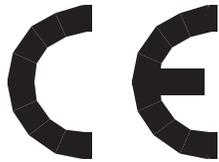
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NORMAS OFICIALES MEXICANAS (NOM)
ELECTRICAL SAFETY STATEMENT

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 connectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.
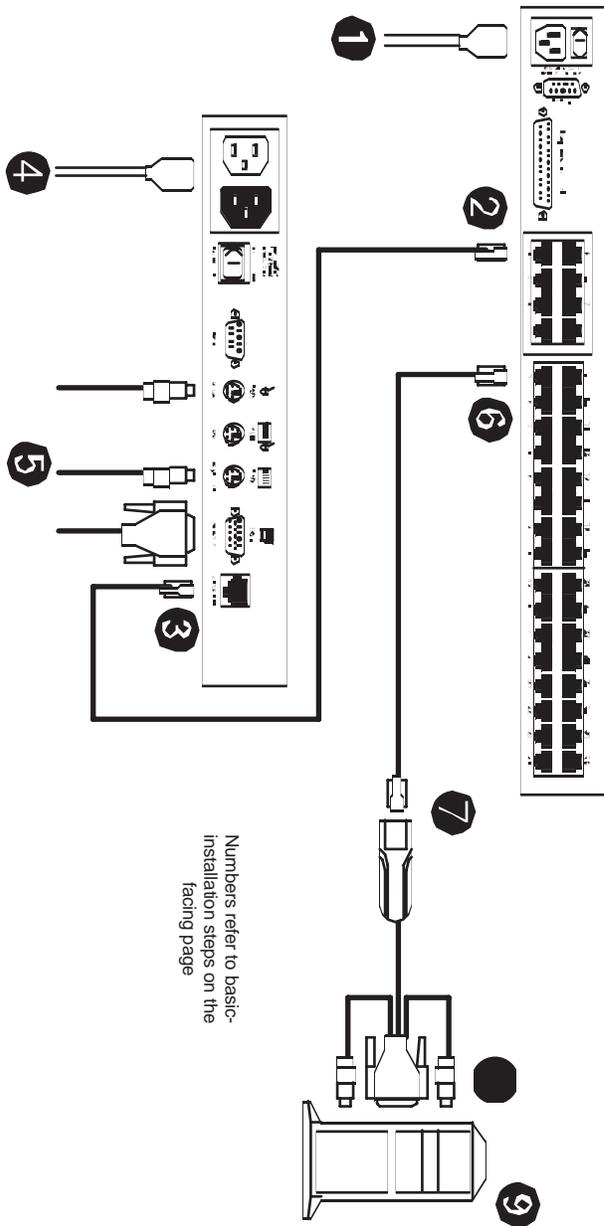
12. Precaución debe ser tomada de tal manera que la tierra fisica y la polarización del equipo no sea eliminada.

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 lineas de energia.

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 liquidos 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: Objectos 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. Quick Install Guide

Figure 1-1. The elements of a ServSwitch Summit system.

Numbers refer to basic-installation steps on the facing page

1.1 Basic Installation

CAUTION!

The Summit and all devices you want to attach to it must be unplugged and powered OFF prior to installation.

To install a ServSwitch Summit system with a single Base Unit, take the following steps, referring to Figure 1-1 on the facing page. (For cascaded systems with two or more Base Units, see **Chapter 4**. For rackmounting instructions, see **Appendix D**.)

1. Plug the Base Unit's included power cord into the power inlet on the rear of the Base Unit.

2. Connect one end of a Category 5 UTP cable to RJ-45 user port # 1 on the rear of the Base Unit. You can use one of the Summit's included CAT5 cables for this purpose if you want to.

3. Connect the other end of the cable to the RJ-45 CAT5 port on the rear of a User Station Module ("USM").

4. Plug the USM's included power cord into the power inlet on the rear of the USM. Power ON the USM.

5. Connect an IBM® PS/2® type keyboard, PS/2 type mouse, and VGA monitor to the USM. Plug in and power ON the monitor.

Repeat steps 2 through 5 for all other keyboard/monitor/mouse user stations you want to attach.

6. Connect one end of a Category 5 UTP cable to RJ-45 channel port # 1 on the rear of the Base Unit. Again, you can use one of the Summit's CAT5 cables.

7. Connect the other end of the cable to the RJ-45 port on a Computer Interface Module ("CIM").

8. Plug the CIM's keyboard, video, and mouse cords into a computer CPU's keyboard, video, and mouse ports.

9. Power ON the CPU.

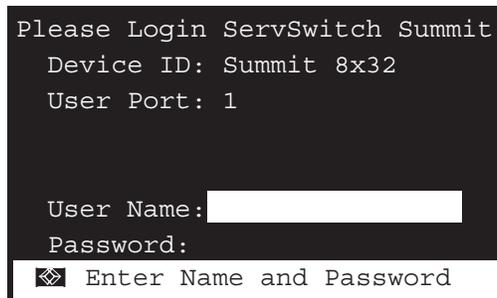Repeat steps 6 through 9 for all other CPUs you want to attach.

1.2 Initial Administrative Testing

To verify that an attached computer can be viewed and controlled through the ServSwitch Summit system, take these steps:

1. When you first power ON the ServSwitch Summit Base Unit, an attached USM, and the USM's attached monitor, a Login Menu will be displayed on the monitor, as shown in Figure 1-2. Type `admin` (all lowercase) in the User Name field and press [Enter]. Type `blackbox` (all lowercase) in the Password field and press [Enter].

NOTE

The factory-default user names are `user01` through up to `user16` (depending on the model of the Base Unit) for regular users and `admin` for the admin user. User names are not case-sensitive. By default, a password is required only for the admin user, and that password is `blackbox`. Passwords are case-sensitive.

```
Please Login ServSwitch Summit
   Device ID: Summit 8x32
   User Port: 1


   User Name:
   Password:
   ◈  Enter Name and Password
```

Figure 1-2. The Login Menu for a KV1502A.

2. The monitor will display an On-Screen User Interface (OSUI) Selection Menu (shown in Figure 1-3) with the channel of the connected CPU displayed in green. (It will have no default name—the Name field will be blank.)

3. Use the up- and down-arrow keys on the user station's keyboard to move the highlight to the green computer channel and press [Enter].

4. Normal computer access and operation indicates a successful connection.

A video-gain adjustment is available to focus the video image, which can be especially useful if you're using an LCD flat-panel monitor. To make this adjustment, activate the OSUI (if you haven't done so already) by rapidly pressing the keyboard's [Scroll Lock] key twice. Use the "+" and "-" (plus- and minus-sign) keys on the keyboard's numeric keypad to adjust the video image until it appears to be in focus.

For more information about installing, configuring, operating, and troubleshooting a Summit system, read the rest of this manual.

```
           Selection Menu
 Summit 8x32          Page    1/8
 No Ch.ID      Name           Scn
 -- -------- ------------ ---
  1 01                          03
  3 03            Wins95_Bob    03
  3 03          ➡ Wins95_Bob    03
  4 04            Wins98_Jack   03
  5 05            Wins98_Jana   03
  6 06            NT40-Fax      03
  7 07            Wins95_Paul   03
 ◈ |↕| Page FKey Ent Esc
 -- -------- ------------ ---
 ScrlLock | Scan | Skip    NCSL
```

Figure 1-3. The Selection Menu for a KV1502A (shown after a hypothetical basic system configuration is finished).

2. Specifications

Cable Required: Between Base Units, USMs, and CIMs: Four-pair (eight-wire) Category 5 solid-core unshielded twisted-pair (UTP) pinned and paired according to TIA-568B

Compliance: EMI/RFI radiation: CE; FCC Part 15 Subpart B Class A, IC Class/classe A;
EMI/RFI immunity: CE;
Electrical safety: UL®, cUL

Standards: VGA, SVGA, XGA, or XGA-2 video;

Interfaces: On all units: Proprietary composite of supported keyboard, video, and mouse
On the Base Unit:
  Serial: EIA/TIA RS-232 pinned to TIA-574, DCE (for firmware updates only);
  Expansion: Wide SCSI-2 (nonfunctional);
On the USM:
  Video: VGA;
  Keyboard and mouse: IBM PS/2 or Sun compatible;
  Serial: EIA/TIA RS-232 pinned to TIA-574, DCE (for firmware updates only);
On all CIMs: To computers' keyboard and mouse ports:
  KV1515A: IBM PS/2 compatible;
  KV1517A: USB;

Resolution and Refresh Rate: With premium CAT5 cable: Up to 1280 x 1024 at up to 75 Hz

Serial Characteristics: Base Units and USMs: Proprietary (communicate with firmware-upgrade program only);

Maximum Distance: End to end, from CPUs to user stations: 500 ft. (152 m)

User Controls: On-Screen User Interface (OSUI);
Keyboard commands;
Rear-mounted ON/OFF rocker switch on each Base Unit and USM

Indicators: On Base Units: All front-mounted: (1) Unit-power LED,
                        (1) port-power LED for each user and channel port;
                     On USMs: (1) Front-mounted unit-power LED
                     On CIMs: (1) Power/activity LED; near RJ-45 connector

Connectors: On Base Units: All rear-mounted:
                        RJ-45 female to USMs:
                           KV1500A: (2);
                           KV1501A: (4);
                           KV1502A: (8);
                           KV1503A: (16);
                        RJ-45 female to CIMs:
                           KV1500A and KV1501A: (42);
                           KV1502A: (32);
                           KV1503A: (64);
                        (2) Internal-style micro D68 expansion ports (reserved
                           for future use);
                        (1) DB9 female RS-232 serial admin port for firmware
                           upgrades;
                        (1) IEC 320 male power inlet;
                     On USM (KV1510A-R2): All-rear-mounted:
                        (1) RJ-45 female to Base Unit;
                        (1) HD15 female to monitor;
                        (2) 6-pin mini-DIN female: (1) to PS/2 keyboard, (1) to
                           PS/2 mouse;
                        (1) 8-pin mini-DIN female to Sun keyboard and mouse;
                        (1) DB9 female RS-232 serial admin port for firmware
                           upgrades;
                        (1) IEC 320 male power inlet;
                     On all CIMs:
                        (1) HD15 male to CPU's video port;
                        (1) RJ-45 female to Base Unit;
                     On KV1515A:
                        (2) 6-pin mini-DIN male: (1) to CPU's PS/2 keyboard
                           port, (1) to CPU's PS/2 mouse port;

Connectors: On KV1517A:
                        (1) USB Type A male to USB keyboard/mouse port;

Maximum
Altitude: Operating: 10,000 ft. (3048 m);
Storage: 40,000 ft. (12,192 m)

Temperature
Tolerance: Operating: 32 to 104ÞF (0 to 40ÞC);
Storage: 32 to 122ÞF (0 to 50ÞC)

Humidity
Tolerance: Operating: 20 to 85% noncondensing;
Storage:
    All other Summit devices: 10 to 90% noncondensing

Vibration
Tolerance: Passes testing at 5-55-5 Hz, 0.38 mm, 1 minute per
    cycle; 30 minutes for each axis (X, Y, Z)

Enclosure: Base Units and USM: Steel and Lexan®;
CIMs: Injection-molded plastic

MTBF (calculated): KV1500A and KV1501A: 117,000 hours;
    KV1502A: 853,000 hours;
    KV1503A: 131,000 hours;
    KV1510A-R2: 813,000 hours;
    KV1515A: 8,844,000 hours;
    KV1517A: 2,308,000 hours

Power: All Base Units and USM: From utility-power (mains)
    outlet, through detachable power cord and IEC 320
    inlet, to internal transformer:
    Input: 100 to 240 VAC at 47 to 63 Hz, up to 600 mA;
    Average consumption at 110 VAC:
        KV1500A, KV1510A-R2: 17.6 watts;
        KV1501A: 19.8 watts;
        KV1502A: 25.3 watts;
        KV1503A: 34 watts;
    Input: 100 to 240 VAC at 47 to 63 Hz and up to
        500 mA;
    Output: 5 VDC at up to 300 mA;
    All other CIMs: 5 VDC from attached keyboard port:
Power: KV1515A: At ~120 mA;
    KV1517A: At ~150 mA;

Size: KV1500A and KV1501A: 1.75"H x 17.2"W x 10.4"D (4.4
             x 43.7 x 26.4 cm);
             KV1502A: 1.75"H x 16.7"W x 11.3"D (4.4 x 42.4 x
             28.7 cm);
             KV1503A: 3.5"H x 17.25"W x 10.75"D (8.9 x 43.8 x
             27.3 cm);
             KV1510A-R2: 1.75"H x 11.4"W x 10.1"D (4.4 x 29 x 25.7
             cm);
             KV1515A: 0.6"H x 1.3"W x 3"D (1.5 x 3.3 x 7.6 cm), plus
             a 4" (10.2-cm) cord from the CIM to its HD15
             connector (which is 1.9" [4.8 cm] long) and a 13"
             (33-cm) cord from its HD15 connector to its
             keyboard/mouse connector(s);
             KV1517A: 0.6"H x 1.3"W x 3"D (1.5 x 3.3 x 7.6 cm), plus
             a 4" (10.2-cm) cord from the CIM to its HD15
             connector (which is 1.9" [4.8 cm] long) and a 14"
             (35.6-cm) cord from its HD15 connector to the end of
             its USB Type A connector;

Weight: KV1500A: 8.4 lb. (3.8 kg);
             KV1501A: 8.5 lb. (3.9 kg);
             KV1502A: 7.4 lb. (3.4 kg);
             KV1503A: 12 lb. (5.4 kg);
             KV1510A-R2: 4.3 lb. (2 kg);
             KV1515A and KV1517A: 2.6 oz. (74 g);

3. Introduction

3.1 Overview

The ServSwitch™ Summit is designed to perform heavy-duty multiple-user-to-many-computer keyboard/video/mouse (KVM) matrix switching without burdening you with big, confusing hydra-headed cables. Instead, the Summit uses standard Category 5 unshielded twisted-pair (UTP) cabling, like the type that's already installed at many sites. It can connect users with computers across as much as 500 ft. (152 m) of such cabling.

ServSwitch Summit systems consist of three components: Base Units, which do the matrix switching; Computer-Interface Modules (CIMs) connected to each computer; and User-Station Modules (USMs) connected to each set of user-station equipment.

There are a number of Base Unit models that support different numbers of directly attached users and computer CPUs:

- Product code KV1500A supports 2 users and 42 CPUs;
- KV1501A supports 4 users and 42 CPUs;
- KV1502A supports 8 users and 32 CPUs;
- KV1503A supports 16 users and 64 CPUs.

There are also several different CIMs for different types of computers (all must output VGA video):

- KV1515A supports CPUs with IBM® PS/2® type keyboard and mouse ports.
- KV1517A supports CPUs with USB keyboard and mouse ports;

There is one universal USM (KV1510A-R2) that supports a PS/2 type keyboard and mouse. If you want to connect one user station to one CPU across a long stretch of CAT5 or higher cable, you can run such a cable between a "direct mode" USM and a CIM (see **Appendix B**).

3.2 Features and Benefits

Some useful features of the Summit:

- Base Unit available in models to which you can directly attach 2 users and 42 computers (KV1500A), 4 users and 42 computers (KV1501A), 8 users and 32 computers (KV1502A), or 16 users and 64 computers (KV1503A).

- Cascade Matrix Switching Units to expand to up to 2048 servers.

- Base Unit chassis can be mounted in 2U (KV1503A) or 1U (all other models) of vertical space in a 19" rack using the included brackets.

- Connect users and computers up to 500 feet (152 m) apart.

- Simple plug-and-play, auto-configure installation.

- Hot-swappable components have no impact on server operation.

- Platform-specific Computer-Interface Modules (CIMs) for computer CPUs with PS/2 (KV1515A regular for local PC), USB (KV1517A) keyboard and mouse ports.

- KV1510A-R2 User-Station Module (USM) supports PS/2 keyboards and mice.

- Supports high-resolution video, up to 1280 x 1024 at up to 75 Hz.

- Powerful, intuitive on-screen user interface for simple operation.

- Up to 127 customized user profiles.

- Flexible, multi-level security for authorized computer access.

- Three system-operation modes—private, public, and share.

- Flash-upgradable firmware.

3.3 Complete Packages

The ServSwitch Summit Base Units come with:

- (1) Base Unit;
- (2) 20-ft. (6.1-m) CAT5 test cables (replacement product code EYN737MS-0020);
- (1) Pair of rackmount brackets and associated screws (replacement product code RMKSM2 for KV1503A, RMKSM1 for all other models);
- (1) 10-ft. (3-m) DB9 male-to-female serial administration cable (replacement product code BC00230);
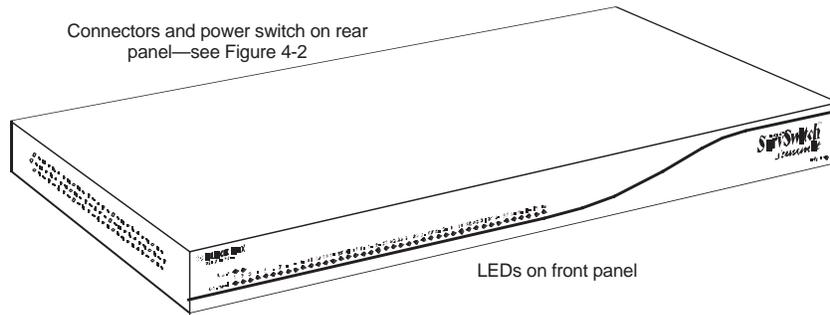- (1) 6-ft. (1.8-m) AC power cord; and
- This manual.

The ServSwitch Summit USM comes with:

- (1) User-Station Module;
- (1) 6-ft. (1.8-m) AC power cord;
- (1) 6-ft. (1.8-m) AC power-extension cord for the attached monitor;
- (1) 0u high rackmount plate; and
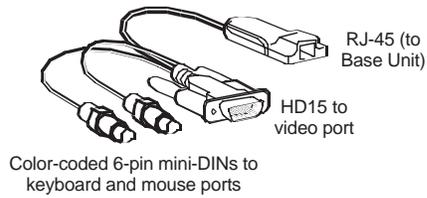- An installation and operation guide.

The other CIMs don't ship with anything besides the Computer-Interface Modules themselves and an installation guide.

If you didn't receive everything, or if anything arrived damaged, contact Black Box right away.

3.4 The Summit Illustrated

Connectors and power switch on rear panel—see Figure 4-2

LEDs on front panel

Figure 3-1. A ServSwitch Summit Base Unit (KV1500A shown).

RJ-45 (to Base Unit)

HD15 to video port

Color-coded 6-pin mini-DINs to keyboard and mouse ports

Figure 3-2. A ServSwitch Summit CIM (KV1515A shown).

Connectors and power switch on rear panel—see Figure 4-2

One power LED on front panel
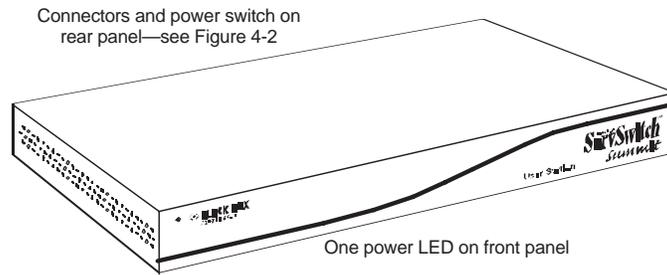
Figure 3-3. A ServSwitch Summit USM (KV1510A-R2).

4. Installation and Initial Configuration

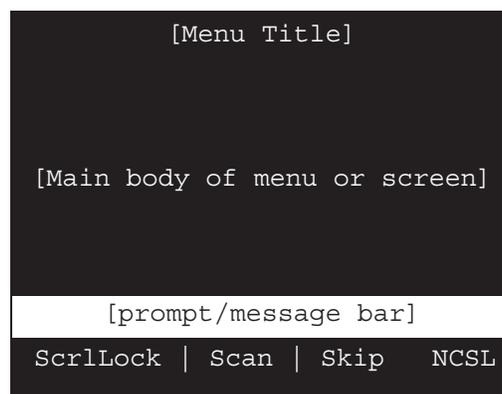## NOTE

This chapter includes full instructions for how to install single Base Units or cascades of multiple Base Units. If you want to install a simple Summit system with a single Base Unit, you might be able to do so by following the simplified procedure in Chapter 1. If you want to install a "direct mode" USM-to-CIM system with no Base Units, see Appendix B.

4.1 Using the OSUI for Initial Configuration

You'll be using the ServSwitch™ Summit's On-Screen User Interface (OSUI) at various points while you install the Summit system, so here are some basics of the OSUI that you can familiarize yourself with before starting your installation. Once your USM and user-station equipment are in place and powered on, you'll be able to activate the OSUI by rapidly pressing the default hotkey ([Scroll Lock]) twice on an attached keyboard. Each OSUI menu contains the following sections, as shown in Figure 4-1: a menu-title line, a menu/screen body (for text and fields), a prompt/message bar, and a status line that consists of:

- the current OSUI hotkey;
- Scan/Skip status;
- NCS ([Num Lock], [Caps Lock], and [Scroll Lock]) status indicator; and
- a communication-speed indicator ("L" for low or "H" for high, which will depend on your Summit components) showing the communication speed between the User Station and Base Station.

```
                [Menu Title]




    [Main body of menu or screen]




        [prompt/message bar]
  ScrlLock | Scan | Skip    NCSL
```

Figure 4-1. Format of OSUI screens.

You can use function keys [F1], [F2], [F4], and [F8] to switch between first-level menus. Pressing [F1] while the OSUI is active brings up the help screen, which lists all available options. While the OSUI is on screen, the user-station keyboard's [Scroll Lock] LED indicator blinks. See **Chapter 5** for more information.

4.2 Installing a Summit System with a Single Base Unit

If you'll be installing a single ServSwitch Summit Base Unit, keep in mind the maximum numbers of user stations and computer CPUs you can connect:

- 2 user stations and 42 CPUs to a KV1500A;
- 4 user stations and 42 CPUs to a KV1501A;
- 8 user stations and 32 CPUs to a KV1502A; or
- 16 user stations and 64 CPUs to a KV1503A.

Take the following steps, referring to Figure 4-2 on the next page. (All Summit components, CPUs, and monitors must be turned OFF and unplugged.)

1. **Initialize the Base Unit.**

   a. Run the Base Unit's included power cord from the IEC 320 inlet on its rear panel to a working AC outlet.

   b. Turn ON the Base Unit's power switch. The Base Unit will begin its self-tests. It will light all of its LEDs briefly, then light them one at a time in quick sequence, then blink them all twice, then light the LEDs of all of its active ports. After this process is complete, proceed to the next step.

2. **Connect a USM and its attached devices.**

   a. Connect one end of a CAT5 UTP cable to user port # 1 on the back of the Base Unit. Connect the other end of the cable to the RJ-45 CAT5 port on the back of the USM. (The rear panels of a Base Unit and USM are shown in Figure 4-2.)

   b. Run the USM's included power cord from the IEC 320 inlet on its rear panel to a working AC outlet.

   c. Turn ON the USM's power switch. It will power up and establish communication with the Base Unit.

   d. Connect a PS/2 keyboard, PS/2 mouse, and VGA monitor to the USM.
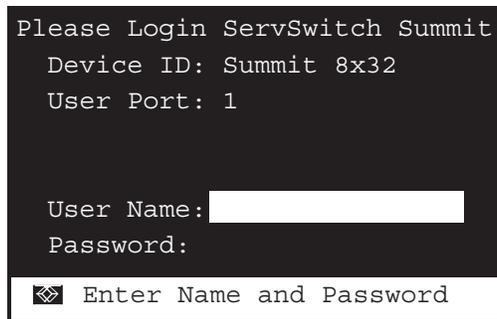
   e. Plug in and turn ON the monitor.
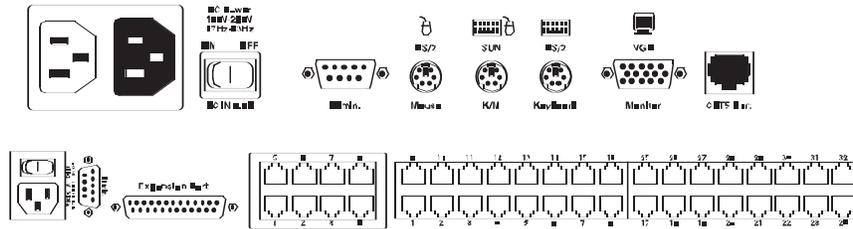
*Figure 4-2. Rear panels of a ServSwitch Summit USM (KV1510A-R2, top) and
8 x 32 Base Unit (KV1502A, bottom) (not shown at the same scale).*

3. **Initially configure the USM.**

a. The Login Menu (shown in Figure 4-3) should be displayed on the USM's
attached monitor. If the [Scroll Lock] LED on the USM's attached keyboard is
blinking, the Summit is ready to accept hotkey commands, which can be used
with the OSUI to login, select computers, or administer the system.

If the monitor instead displays a ".....No connection to Summit....." message,
the USM isn't properly connected to the Base Unit. Check for loose
connections and make sure you're using good, intact CAT5 cables. (See
Appendix E for UTP-cabling information.)

```
Please Login ServSwitch Summit
  Device ID: Summit 8x32
  User Port: 1



  User Name:
  Password:
   Enter Name and Password
```

Figure 4-3. The Login Menu for a KV1502A.

b. Type `admin` in the User Name field and press [Enter]. In the Password field,
type the default password `blackbox` (all lowercase) and press [Enter].

c. The monitor should display the OSUI's Selection Menu as shown in Figure 4-
4, indicating that the USM is correctly installed.

```
          Selection Menu
Summit 8x32         Page    1/8
No Ch.ID      Name           Scn
-- -------- ------------ ---
  1 01                        03
  2 02          NT40-Mail     03
  3 03          Wins95_Bob    03
  4 04        ➡Wins98_Jack    03
  5 05          Wins98_Jana   03
  6 06          NT40-Fax      03
  7 07          Wins95_Paul   03
  8 08          Wins98_Sher   03
 ◈ |↕| Page FKey Ent Esc
 ScrlLock | Scan | Skip   NCSL
```

*Figure 4-4. The Selection Menu for a KV1502A (shown after
a hypothetical basic system configuration is finished).*

4. **Repeat steps 2 and 3 for each USM you want to connect to the
   Base Unit.**

5. **Connect a CIM and its computer CPU.**

   a. Connect the cable strands of an appropriate CIM to the desired ports on a
      computer CPU:

      • KV1515A (IBM PS/2 compatible CPUs): Plug the HD15 strand into the
        CPU's HD15 VGA video port. Plug the purple 6-pin mini-DIN keyboard
        strand into the CPU's 6-pin mini-DIN keyboard port. Plug the light green
        6-pin mini-DIN strand into the CPU's 6-pin mini-DIN mouse port.

      • KV1517A (USB CPUs of any platform): Plug the HD15 strand into the
        CPU's HD15 VGA video port. Plug the USB Type A strand into one of the
        CPU's USB Type A ports.

   b. Plug in and turn ON the CPU. If the CIM is installed and operating properly,
      the CIM's green LED will start blinking: once per second while the CIM is idle,
      more quickly while it's passing data in either direction.

   c. Connect one end of a CAT5 UTP cable to RJ-45 channel port #1 on the back
      of the Base Unit. Connect the other end of cable to the RJ-45 port on the CIM.

6. **Configure the CIM and the attached CPU.**

   a. The monitor attached to the USM should still be displaying the OSUI's Selection Menu, with the CPU you just connected displayed in green. Use the up- and down-arrow keys to move the highlight to that entry and press [Enter]. If you can access and operate the CPU normally, you've connected the CIM successfully. We recommend you give the computer a meaningful system name at this time, as described in the following paragraphs.

   # NOTE

   If your video image is fuzzy (especially if you're using an LCD flat-panel monitor), you can adjust the video gain to focus the video image. If the OSUI isn't already on screen, activate it by pressing the [Scroll Lock] key twice rapidly, then use the numeric keypad's "+" and "–" (plus and minus) keys to adjust the video image until it appears to be in focus.

   b. Press [F5] to bring up the Administration Menu, shown in Figure 4-5. Use the up- and down-arrow keys to move the highlight to the Channel Configuration entry and press [Enter] to select it.

   c. The Channel Configuration menu should appear, as shown in Figure 4-6. Use the up- and down-arrow keys to move the yellow highlight to the Name field for the channel number where you installed the CPU and press [Enter]. The highlight should turn light blue.

   d. Edit the name (it should turn green when you start typing). Press [Enter] when you're finished, then press "S" to save the new name.

   e. Press [Enter] to return to the Selection Menu. Verify that new name appears in the Selection Menu in green.

7. **Repeat steps 5 and 6 for each CIM and CPU you want to connect to the Base Unit's channel ports.**

```
         Administration Menu


       Choose Admin Function
- ---------------------------
1 System Configuration
2 User Configuration
3 Channel Configuration
4 User Station Profile
5 Refresh Configurations


- ----------------------------
◈  Edit FKey Esc
ScrlLock | Scan | Skip   NCSL
```

Figure 4-5. The Administration Menu.

```
      Channel Configuration
Summit 8x32        Page:  1/8 ➡
ChID Name          Scn Device
---- ------------ -- -------
 1                 03 CPU
 2    NT40-Mail    03 CPU
 3    Wins95_Bob   03 CPU
 4    Wins98_Jack  03 CPU
 5    Wins98_Jana  03 CPU
 6    NT40-Fax     03 CPU
 7    Wins95_Paul  03 CPU
 8    Wins98_Sher  03 CPU
---- ------------ -- -------
◈  Edit G FKey S Esc
ScrlLock | Scan | Skip   NCSL
```

Figure 4-6. The Channel Configuration Menu of a KV1502A (shown after a hypothetical basic system configuration is finished).

4.3 Installing a Cascaded Summit System

The ServSwitch Summit's channel capacity can be easily expanded by installing a cascade of Base Units as shown in Figure 4-7.

In a "two-tiered" cascaded system, one or more subsidiary Base Units are connected to the channel ports of a master Base Unit. If you fully populate a second tier, you can add a third tier by connecting additional subsidiary Base Units to the channel ports of Base Units in the second tier. Three tiers is the maximum depth of a cascaded system; only CIMs may be attached to the channel ports of Base Units in the third tier. A three-tier system can accommodate up to 2048 CPUs.

NOTE

In cascaded configurations, the subsidiary Base Units in the third tier (if there is one) must be powered ON first, then the subsidiary Base Units in the second tier, then the master Base Unit. USMs can be powered ON and OFF at any time as needed.
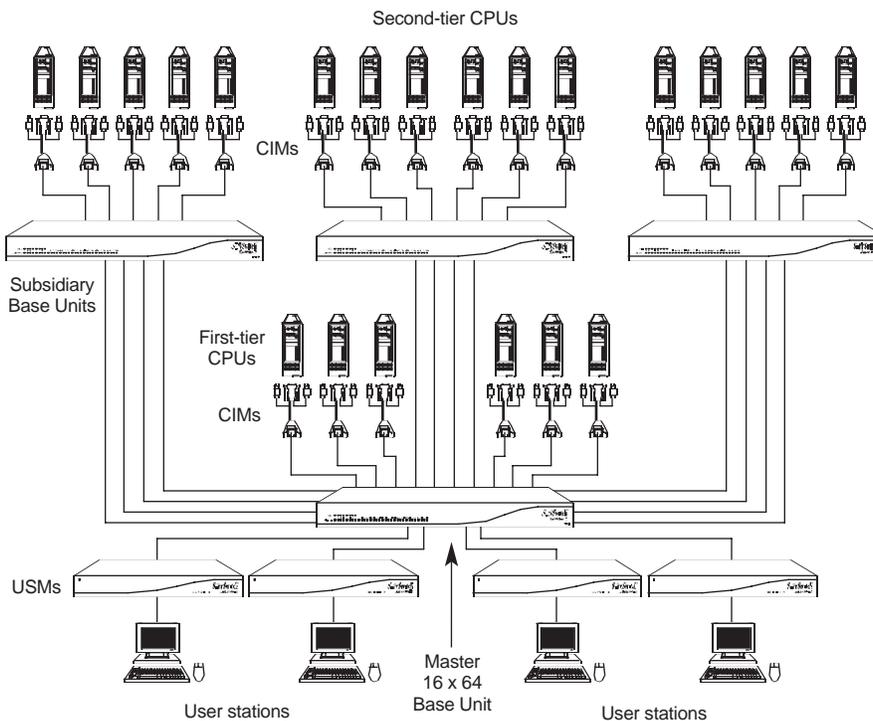
Figure 4-7. A sample cascaded system.

Take these steps to install a cascaded system with multiple Base Units:

1. Connect one end of a CAT5 UTP cable to user port # 1 on the back of the master Base Unit. Connect the other end of the cable to the RJ-45 CAT5 port on the back of the USM. Connect a PS/2 keyboard, PS/2 mouse, and VGA monitor to the USM. Don't plug in or turn on the USMs or monitors yet. (Don't attach anything to the Base Unit's channel ports, and don't plug it in or turn it on yet either.)

2. For each subsidiary Base Unit you want to attach directly to the master, run CAT5 UTP cables from consecutive channel ports on the master Base Unit to the subsidiary Base Unit's user ports.

3. If you're installing a third tier: Run CAT5 UTP cables from consecutive channel ports on a second-tier Base Unit to the user ports on a third-tier Base Unit. Repeat for all other subsidiary Base Units in the third tier.

4. Follow step 5 in the single-Base-Unit installation (see **Section 4.2**) to attach CIMs and CPUs to the channel ports of any third-tier Base Units, any free channel ports on your second-tier Base Units, and any free channel ports on your master Base Unit.

5. Following step 1 of the single-Base-Unit installation (see **Section 4.2**), plug in and turn on any third-tier Base Units, then plug in and turn on your second-tier Base Units, then plug in and turn on your master Base Unit. Following steps 2b, 2c, and 2e of the single-Base-Unit installation, plug in and turn on your USMs and monitors.

    The master Base Unit should automatically recognize the connected subsidiary Base Units and update its configuration automatically. All monitors should display the Login Menu (see Figure 4-3 in **Section 4.2**). If any monitors instead display a ".....No connection to Summit....." message, the USM they're attached to isn't properly connected to the master Base Unit. Check for loose connections and make sure you're using good, intact CAT5 cables. (See **Appendix E** for UTP-cabling information.)

NOTE

If your video image is fuzzy (especially if you're using an LCD flat-panel monitor), you can adjust the video gain to focus the video image. If the OSUI isn't already on screen at a given monitor, activate it by pressing the [Scroll Lock] key twice rapidly, then use the numeric keypad's "+" and "–" (plus and minus) keys to adjust the video image until it appears to be in focus.

6. Configure the channels in your system. (Check the [Scroll Lock] LED on one of your user-station keyboards. If it's blinking, the Summit is ready to accept hotkey commands from that user station. Hotkey commands can be used with the OSUI to login, select computers, or administer the system.)

a. At the Login Menu, type `admin` in the User Name field and press [Enter]. In the Password field, type the default password `blackbox` (all lowercase) and press [Enter].

b. The monitor should display the OSUI's Selection Menu, indicating that the USM is correctly installed. After you've finished installing and configuring your cascaded system, this menu might resemble Figure 4-8.

```
            Selection Menu
  Main_16x64          Page    1/8
  No Ch.ID       Name         Scn
  -- --------  ------------   ---
   1 01                       03
   2 02          NT40-Mail    03
   3 03          Wins95_Bob   03
   4 04         ➥Wins98_Jack  03
   5 05          Matrls_8x32  --
   6 06          NT40-Fax     03
   7 07          Mrktng_8x32  --
   8 08          PubSrv_8x32  --
  ◈ |↕| Page  FKey Ent Esc
  ScrlLock | Scan | Skip   NCSL
```

Figure 4-8. A Selection Menu (shown after a hypothetical cascaded system configuration is finished).

c. Press [F5] to bring up the Administration Menu, shown in Figure 4-5 in **Section 4.2**. Use the up- and down-arrow keys to move the highlight to the Channel Configuration entry and press [Enter] to select it.

d. The Channel Configuration menu should appear. Use the up- and down-arrow keys and [PageUp] and [PageDown] keys to approach channels that subsidiary Base Units are connected to. These will be shown in white with their default device names in the Name column and their types in the Device column: "S242" for a 2 x 42 Base Unit (KV1500A), "S442" for a 4 x 42 Base Unit (KV1501A), "S832" for an 8 x 32 Base Unit (KV1502A), or "S1664" for a

16 x 64 Base Unit (KV1503A). After you've finished installing and configuring your cascaded system, this menu might resemble Figure 4-9.

```
        Channel Configuration
Summit 16x64        Page:  1/8 ➡
ChID Name           Scn Device
---- ------------ -- -------
 1                  03 CPU
 2   NT40-Mail      03 CPU
 3   Wins95_Bob     03 CPU
 4   Wins98_Jack    03 CPU
 5   Matrls_8x32    -- S832
 6   NT40-Fax       03 CPU
 7   Mrktng_8x32    -- S832
 8   PubSrv_8x32    -- S832
---- ------------ -- -------
◈  Edit G FKey S Esc

ScrlLock | Scan | Skip   NCSL
```

Figure 4-9. The Channel Configuration Menu for a KV1502A (shown after a hypothetical cascaded system configuration is finished).

e. Continue using the up- and down-arrow keys and [PageUp] and [PageDown] keys to move the yellow highlight to the Name field for the channel number where a subsidiary Base Unit is installed and press [Enter]. The highlight should turn light blue.

f. Type in the name that you want to assign to the subsidiary Base Unit on this channel (the highlight should turn green when you start typing). Press [Enter] when you're finished, then press "S" to save the new name. All other paths (channels) by which that subsidiary Base Unit is attached to the Base Unit above it will be given the same name automatically.

g. Press [F2] to reopen the Selection Menu; make sure that the channel(s) of the second-tier Base Unit are properly established. All paths to that Base Unit should be displayed in purple.

h. Press [F5] to go back to the Administration Menu. Select Channel Configuration again. Select a channel that has been configured for the subsidiary Base Unit you just set up. Press [G] to bring up a dedicated Channel Configuration menu for the subsidiary Base Unit.

i.   Edit the names of all computer CPUs attached to this subsidiary Base Unit. Each highlight should turn green as you start typing. Press [Enter] when you're finished with each name. Press "S" to save all of the new names.

j.   Press [Enter] to access the dedicated Selection Menu for that subsidiary Base Unit. Verify that new names appear in the Selection Menu in green.

k.   If you are configuring a second-tier subsidiary Base Unit, and there are any third-tier Base Units attached to it, repeat steps c through j for a third-tier path. Press "S" to save the configuration. Press [F2] to bring up the third-tier Selection menu and verify that the third-tier Base Unit is properly configured: Select a channel for the second-tier path and press [Enter], then a channel for the third-tier path and press [Enter], then a channel for a CPU attached to the third-tier Base Unit and press [Enter]. If you can properly access and operate the chosen CPU, the third-tier Base Unit is properly installed. *Repeat the first paragraph of this step for all remaining third-tier Base Units (if any) attached to this second-tier Base Unit.*

l.   Press "S" to save the configuration. Press [F2] to bring up the Selection menu and verify that the second-tier Base Unit is properly configured: Select a channel for the second-tier path and press [Enter], then a channel for a CPU attached to the second-tier Base Unit and press [Enter]. If you can properly access and operate the chosen CPU, the second-tier Base Unit is properly installed.

m. Repeat steps c through l for all remaining (if any) second-tier Base Units attached to the master Base Unit.

n.   Edit the names of any computer CPUs directly attached to the master Base Unit and verify the master Base Unit's configuration as described in steps 6b through 6e of **Section 4.2**.

CAUTION!

If you rearrange a cascaded system or dismantle one and rebuild it differently later, you must perform a soft reset on each Base Unit in the new cascade. A soft reset allows each Base Unit to retain all user and system profiles, but also auto-detect the current status of its channel and user ports. Follow the installation steps in this section to install the new cascade, but when you power on each Base Unit (which must be done in proper tier order), use the pinhole reset button on the back of each unit to reset them individually. So, starting with a subsidiary Base Unit in the third tier (if there is one), power on the unit, press and hold the pinhole reset button until the LED panel flashes, release the button, and wait until the LEDs cycle through and return to their original state. Repeat for any other third-tier units, then all second-tier units, and finally the master.

5. User Functions

This chapter discusses how to use the On-Screen User Interface (OSUI) to configure and operate your ServSwitch™ Summit system.

5.1 Login

You need to login in order to access computers and other devices connected to the Summit system. The Login Menu (shown in Figure 5-1) is automatically displayed on every user station monitor after the single or master Summit Base Unit is powered on after being powered off; to bring up the Login Menu on a user-station monitor at any other time, press the system's hotkey (the factory default is [Scroll Lock]) twice in quick succession to bring up the OSUI, then press function key [F9].

NOTE

If a user-station monitor displays the message "…No Connection to Summit…" instead of the Login Menu, either the USM isn't connected properly to the Base Unit, the Base Unit is powered off, or the Base Unit is malfunctioning. Make sure that the cabling between the USM and the Base Unit is intact and is securely connected at both ends. Also make sure that when you turn the Base Unit off and back on, the LEDs run through the sequence described in step 1b of Section 4.2.

The Device ID field in the login menu will initially contain the single or master Base Unit's default device name: "Summit" followed by "2x42" for a KV1500A, "4x42" for a KV1501A, "8x32" for a KV1502A, or "16x64" for a KV1503A. (The administrator can assign it a different name.) The User Port is the number of the user port on the Base Unit—from 1 to 16 depending on the model—that this USM and user station are attached to.

```
Please Login ServSwitch Summit
  Device ID: Summit 8x32
  User Port: 1


  User Name: [                    ]
  Password:
  ◈  Enter Name and Password
```

Figure 5-1. The Login Menu for a KV1502A.

To login at the Login Menu and start operating the system, take these steps:

1. Type in the user name that you've been assigned by the system administrator. (If user names haven't been assigned yet, the defaults are `user01` through `user16`—depending on the model—for regular users and `admin` for the administrator. User names are not case-sensitive.) When you finish, press [Enter].

2. If a password is necessary, you'll be prompted to enter a password as well. Type your password and press [Enter]. The default password for the admin user is `blackbox` (all lowercase). (You'll want to change this password right away; see the end of **Section 5.3**. Passwords are case-sensitive.)

3. The Selection Menu will be displayed, as shown in Figures 5-2 and 5-3 on the next page. To go to other menus, use the function keys as described in **Section 5.4**.

A user can log out of the Summit system by pressing function key [F9] while the OSUI is displayed.

5.2 Selecting a Computer

Immediately following user login, the Summit's OSUI displays the Selection Menu. Users who are already logged in will need to bring up the Selection Menu by pressing the hotkey (the factory default is [Scroll Lock]) twice in quick succession, then pressing function key [F2].

The Selection Menu lists devices sorted either by channel-ID number ("Ch. ID"), as shown in Figure 5-2 on the next page, or alphabetically by the name of the computer or other device on that channel ("Name"), as shown in Figure 5-3. Toggle between these two views by pressing [F12]. Default sorting is by channel-ID number, but unless the system is re-initialized, the last selected sort order will be shown the next time that the Selection Menu is activated. As for the other columns in the channel-ID view, "No" is the channel's "key number" (internally assigned by the Summit and not changeable by the user) and "Scn" is its currently selected individual scan-delay time in seconds (see **Section 6.4**) unless the channel has a subsidiary Base Unit attached to it, in which case the Scn column will show "- -".

The Selection Menu can display eight channels per page; it will show you how many total pages there are, and which of them you're viewing, in its upper right-hand corner ("Page 2/5" for the second of five pages, for example). Use the [PageUp] and [PageDown] keys on your keyboard to move between the pages. Once you've selected a CPU as described on the following pages, the Summit system will switch to that channel; if you've enabled it (see **Section 5.3**), an "ID Display" (shown in Figure 5-4) will pop up on screen to identify the chosen channel for the number of seconds you've set.

```
          Selection Menu
Main_16x64          Page    1/8
No  Ch.ID      Name         Scn
--  --------  -----------  ---
  1  01                     03
  2  02         NT40-Mail   03
  3  03         Wins95_Bob  03
  4  04       ➡ Wins98_Jack  03
  5  05         Matrls_8x32  --
  6  06         NT40-Fax    03
  7  07         Mrktng_8x32  --
  8  08         PubSrv_8x32  --
--  --------  -----------  ---
 ◈ |↕| Page FKey Ent Esc
ScrlLock | Scan | Skip   NCSL
```

Figure 5-2. The Selection Menu ordered by channel number.

```
      Selection Menu by Name

Main_16x64         Page     1/8
     Name        Ch.ID
------------  ---------------
Mrktng_8x32   07
Matrls_8x32   05
NT40-Fax      06
NT40-Fax      06
PubSrv_8x32 ➡ 08
Wins95_Bob    03
Wins98_Jack   04
              01
-----------  --------------
 ◈ |↕| Page PCName FKey Ent Esc
```

Figure 5-3. The Selection Menu ordered by name.

```
Purchas_16x64.02 NT40-Mail
```

Figure 5-4. The ID Display that appears on screen after a selection.

To choose a computer from the Selection Menu, take these steps:

1. Press [F12] to toggle the menu to your desired sort-order view (by channel-ID number or alphabetically by device name). The entry for the channel you currently have selected (if any) will be highlighted and will have a small red arrow to the left of its channel name.

NOTE

In the channel-ID view only, the Selection Menu can display either all channels or only those channels that the user is allowed to select. The latter is the default, but if the system administrator has set the "Display All Computers" option in the System Configuration menu (see Section 6.2) to "Yes," you can press [F10] to toggle between the restricted and unrestricted views. In the unrestricted "all channels" view, the Summit displays a red "S" next to the scan rate of any channel that the user isn't allowed to access.

2. Use the up- and down-arrow keys (and, in large systems, the PageUp and PageDown keys) to move the highlight bar to the channel you want to select, then press [Enter]. Note that although the highlight will move, the small red arrow to the left of the channel name will remain where it was and continue to indicate the user's currently selected channel until a new selection is made.

   In the channel-ID (sorted by ID view, once your desired channel's page is on screen, you can also press the desired channel's key number ([1] through [8]) to move the highlight to that channel instantly.

   In the name view, you can also type the first few characters of the desired channel's name to move the highlight to the first channel whose name begins with that character sequence. If you type enough characters, the highlight should eventually move to the precise channel you want.

3. When you press [Enter] to select a channel, and there's a computer CPU attached to that channel that you are allowed to access, the Summit automatically switches you to that channel for normal computer operation and the OSUI disappears. If there's a cascaded Base Unit attached to that channel, an additional dedicated OSUI Selection Menu will appear for that device; keep moving through the Selection Menu layers until you reach the CPU you want. (To return to the main Selection Menu from any second- or third-tier device-specific Selection Menu, press the [Home] key on your keyboard once, or press [Esc] once or twice depending which tier you're on.)

Once you've switched to a different channel, you can continue switching by pressing the hotkey (factory default is [Scroll Lock]) twice in quick succession to bring the Selection Menu back on screen. If instead you want to go back to your previously selected channel without seeing any OSUI menus, you can press the "previous channel" command key (factory default is [Num Lock]) twice in quick succession.

In the Selection Menu, each channel's availability is visually indicated by the following text colors. (For more information about Private Mode, Public View Mode, and PC Share Mode, see "Operation Mode" in **Section 6.2**.)

- Black = No device is connected or the connected device is powered down.

- Green = Computer CPU is connected and the channel is active and available. However, if the Summit system is in PC Share Mode, another user may currently be accessing the computer.

- Red = Channel is unavailable, currently being accessed by another user. (This only happens when the Summit system is in Private Mode.)

- Yellow = Channel is unavailable for control (being controlled by another user), but video can be viewed. (This only happens when the Summit system is in Public View Mode. Also refer to the paragraphs below for information about other OSUI displays that appear when the system is in Public View Mode.)

- Purple = A second- or third-tier cascaded Base Unit is connected to this channel (see **Section 4.3**).

- White = Channel's current status is unknown. This should not happen if the Summit is operating normally.

When the Summit system is set to Public View Mode (see **Section 6.2**), if one user has already selected a computer, another user can also select it, but the second user will only be able to view its video output; they won't be able to control it or input any data with the keyboard and mouse. In this mode, other OSUI graphic elements will appear on screen when you select various CPUs:

- When you select a computer that someone else is already controlling, the message below (showing the name of the computer being viewed) will be displayed on your monitor; it cannot be removed, although it will disappear after three seconds. Press [Esc] to return to the main Selection Menu.

```
P-View  Win95.Bob
```

- If another user chooses to view the video of a computer you have already selected, you will see the messages shown below bearing that user's name, for three seconds each, when the second user begins viewing (top) and when they stop viewing (bottom) because they've switched to another channel or logged out.

```
P-View     Active - Jason
```

```
P-View     Off - Jason
```

5.3 User Customization

When the OSUI is active, you can bring up the User Profile Menu, shown in Figure 5-5, by pressing function key [F4]. This menu is for displaying the Summit's configuration and for setting preferred operating parameters for individual user accounts.

```
              User Profile
Connected: Main_16x64
User: ADMIN      User Port: 1
Admin: Yes
Group: 00
Scan Mode: Global
Global Scan Rate: 03 Seconds
ID Display: On     03 Seconds
Green Mode: Off    05 Minutes
Hotkey:      Scroll Lock
Display Position: Menu    ID
Previous Channel Key: NumLck
Help : Single LineLocalPC:On
    Edit P S Fkey Esc
ScrlLock | Scan | Skip   NCSL
```

Figure 5-5. The User Profile Menu.

To view or change your user profile, take these steps:

1. If the OSUI isn't already active, activate it by pressing the hotkey (factory default is [Scroll Lock]) twice in quick succession.

2. Press [F4] to access the User Profile screen. The topmost fields are identifiers that can't be changed by the user:

   • The Connected field displays the name and channel ID of the currently selected device or computer, if you're currently connected to a channel.

   • The User field displays the user name you entered at login.

- The User Port field shows which user port on the Base Unit your USM and user station are attached to.

- The Admin field shows whether or not you have administrator privileges.

- The Group field displays the user's group ID(s) (see **Appendix A**).

3. If you want to change the value of any of the other fields, use your keyboard keys to select the field you want to edit: Press [Tab] to move forward through the editable fields, [Shift]+[Tab] to move backward, the up- and down-arrow keys to move up and down, and the left- and right-arrow keys to move left and right.

   Press [Enter] to begin editing; the highlighted area will turn green, and the prompt in the prompt/message bar will change to "-Change Ent-Done ESC-Cancel". Follow the instructions below for interpreting and editing each specific User Profile parameter.

   When you're finished, either press [Enter] to retain the changes (the highlighted area will turn yellow) or press [Esc] (or any function key that would cause you to leave this screen) to cancel the changes. The prompt in the prompt/message bar will change to "Save the changes (Y/N/ESC)". (It will do this before you leave the screen if you pressed a function key.) Press "S" to save the changes to long-term memory, "N" to discard your changes, or [Esc] to discard your changes and exit the menu.

Here's what the User Profile parameters mean and how you can change their settings:

NOTE

When you type in new numeric values, always use the number keys at the top of your keyboard rather than the number keys on your keypad. The Summit doesn't support the keypad number keys.

- **Scan Mode:** The method the system uses to determine how long to pause at each channel during autoscanning (see **Section 6.7**). The two possible settings are "Global" (the default), in which the system pauses at each channel for the same length of time (which you choose—see the next paragraph), and "Individual," in which the system pauses at each channel for the length of time that the administrator has set for that individual channel (as displayed in the Selection Menu). Use any of the arrow keys to toggle between these values.

- **Global Scan Rate:** If Scan Mode is set to "Global" (see the previous paragraph), this parameter determines the length of time that the system pauses at each channel while scanning. Using leading zeroes if necessary, type in a two-digit number of seconds from 01 to 24, or use the up- and down-arrow keys to increment and decrement the current value by 1 respectively. The default setting is 03.

- **ID Display:** The ID Display is a small window that can pop up on screen to show you the name and ID of each channel as you switch between them or scan them. You can edit the two fields of this parameter to determine how the system will show you this window:

  – Possible values in the first field are "On" (ID Display is shown, the default value) and "Off" (ID Display isn't shown). Use any of the arrow keys to toggle between these values.

  – If the ID Display is set to "On," the number in the second field is how many seconds it will stay on screen. Using leading zeroes if necessary, type in a two-digit number of seconds from 01 to 24, or use the up- and down-arrow keys to increment and decrement the current value by 1 respectively. If you type in a number greater than 24, the second field will be filled with a "- -", indicating that the ID Display will be shown at all times. The default setting is 03. If the ID Display is set to "Off," the number in this field will have no effect.

- **Green Mode:** A "power-saving mode" that blanks the monitor screen if the user station is idle (no keyboard or mouse activity) for the specified amount of time. You can edit the two fields of this parameter to determine how the system handles this feature:

  – Possible values in the first field are "On" (Green Mode is enabled and the screen is blanked after a period of inactivity) and "Off" (Green Mode is disabled and the screen displays normal video indefinitely). Use any of the arrow keys to toggle between these values.

  – If Green Mode is set to "On," the number in the second field is how many minutes of inactivity must elapse before it's triggered and the screen is blanked. Using leading zeroes if necessary, type in a two-digit number of minutes from 01 to 99, or use the up- and down-arrow keys to increment and decrement the current value by 1 respectively. The default setting is 05. If Green Mode is set to "Off," the number in this field will have no effect.

- **Hotkey:** The keyboard key that, when quickly pressed twice, activates the OSUI. The four alternatives are [Scroll Lock] (the default), [Caps Lock], [Num Lock], and left [Shift]; use any of the arrow keys to switch between them. You can't select the key that's currently being used as the Previous Channel Key (see the **Previous Channel Key** entry on the next page).

- **Display Position:** Use this parameter to move the OSUI menus and ID Display to the desired position on your monitor screen. First move the highlight to "Menu"

(for the OSUI) or "ID" (for the ID Display, which will pop up if it's not already on screen while the OSUI temporarily disappears) and press [Enter] to highlight it, then use the arrow keys to move the chosen window as desired: the left-arrow key to move the whole window to the left, for example. When you're finished, press [Enter] to save the change.

- **Previous Channel Key:** The keyboard key that, when quickly pressed twice, causes the Summit to switch back to the previously selected channel without going through the OSUI, provided that that channel is still available. The four alternatives are [Scroll Lock], [Caps Lock], [Num Lock] (the default), and "None" (no Previous Channel Key—disables this function); use any of the arrow keys to switch between them. You can't select the key that's currently being used as the hotkey (see the earlier **Hotkey** entry).

- **Help:** This parameter determines the format of the help message at the bottom of each OSUI menu. It's always set to "Single Line"; it can't be selected or altered.

- **Local PC:** Use any of the arrow keys to toggle Local PC Mode on or off (the default) for the attached USM.

You can also change your password (or delete or reinstate it if "Allow Blank Password" is set to "yes"—see **Section 6.2**) while the User Profile Menu is on screen by pressing "P" to bring up a prompt window. Type your old password at the first prompt. At the next prompt, type a new password up to eight characters long and press [Enter] (or just press [Enter] without typing anything in the field to delete your password). Confirm the new password by typing it in again at the third prompt; either press [Enter] to save the new password or [Esc] to abort the change and continue using the old password.

NOTES

Be careful when you change your password! If you forget or lose it, administrators have no way of recovering or erasing it for you— your account will have to be deleted and recreated.

5.4 Keyboard-Controlled OSUI Functions

Use the following function keys to access the Summit's OSUI functions:

Press... **When you want to...**

[F1] View the Help Menu (shown in Figure 5-6).

[F2] Access the Selection Menu (see **Section 5.2**) in order to view or
      select channels or view group IDs or scan rates.

[F4] Access the User Profile Menu (see **Section 5.3**) in order to view
      and change user-specific operating parameters.

[F5] Administrator only: View the Administration Menu (see **Section 6.1**).

[F6] Administrator only: Toggle autoscan on or off (see **Section 6.7**).

[F7] Administrator only: Toggle autoskip on or off (see **Section 6.7**).

[F8] View the Information Menu (see **Section 5.5**) in order to see the
      version numbers of the Summit's firmware and hardware, the
      number of accessible Base Units, the total number of accessible
      computers, etc.

[F9] Log out of the Summit system (logs user out and causes the login
      screen to be displayed).

[Shift] + [F9] If any OSUI screen is displayed: Disconnect yourself from the active
      channel without logging out.

[F10] If the administrator has set "Display All Computers" to "Yes" (see
       Section 6.3) and the Selection Menu is sorted by channel ID:
       Toggle the display of all channels (including inaccessible ones) on
       or off.

[F12] If you are at the Selection Menu: Toggle the Selection Menu between
       sorting the channel entries by name or by channel ID.

[Esc] Exit the OSUI (returns user to the Selection Menu, or to the login
       screen when no channel is selected).

NOTES

**If a user does not have administrator privileges, then they will see
functions [F5], [F6], and [F7] displayed in red in the Help Menu,
indicating that these functions aren't available to them.**

**If a system administrator has set Display All Computers to "No,"
then [F10] will be displayed in red in the Help Menu for all users,
indicating that this function is not available (even for
administrators).**

```
                 Help
 F1 Help    / ESC Exit
 F2 Channel Selection
  -F12 Sort by Channel/Name
 F4 User Profile
 F5 Administrative Functions
 F6 Toggle Scan On/Off
 F7 Toggle Skip On/Off
 F8 Information Screen
 F9 Logout
  -Shift+F9 Release Channel
F10 Toggle Disp All Ch. On/Off

   ◈  FKey Esc
```

Figure 5-6. The Help Menu.

5.5 The Information Menu

When the OSUI is active, you can bring up the Information Menu, shown in Figure 5-7, by pressing function key [F8]. This menu displays the "vital statistics" of the USM that your user station is attached to, including its firmware and hardware revisions, its serial number, which console port (user port) on the Base Unit it's attached to, and the number of KVM switches and PC CPUs that can be accessed through it.

```
          Information Menu

 Firmware Ver:       4L3
 Hardware Ver:       0B
 FPGA Ver:           0C
 Serial Number:      D3C80002
 Console Port:       1
 Accessible KVM Sws:2
 Accessible PCs:     105


   ◈  Edit P S FKey Esc
```

Figure 5-7. The Information Menu.

6. Administrator Functions

This chapter discusses the special On-Screen User Interface (OSUI) functions with which an administrator can configure and operate the ServSwitch™ Summit system, including assigning access rights (discussed in more detail in **Appendix A**).
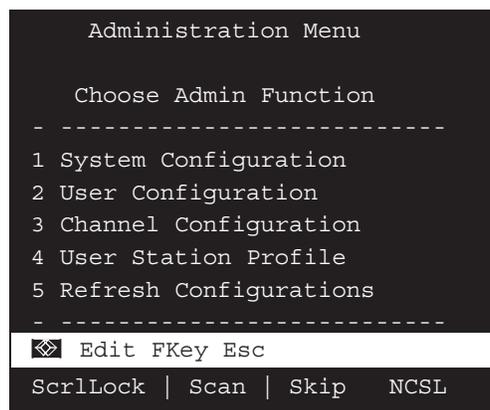
6.1 The Administration Menu

Administrators can use the Administration Menu to set security classes, maintain user names and privileges, and manage the system configuration, including controlling user access to the Summit system and all connected devices. To reach any of the Administration Menu's submenus, take the following steps.

NOTE

Administrative user IDs assigned to group 00 (see Appendix A) have complete access to all of the Administration Menu's submenus. Other administrative users have limited access and can't select the System Configuration and User Configuration submenus.

1. Log into the system using the `admin` user name or your own user name if you have administrator privileges. (The default password for the admin user is `blackbox`, all lowercase, but this password should be changed as soon as the Summit is initially installed.) The Selection Menu will be displayed.

2. Press [F5]. The Administration Menu should appear, as shown in Figure 6-1.

3. Press the corresponding number from 1 through 5, or use the up- and down-arrow keys to move the highlight to your desired option, then press [Enter]. The rest of this chapter describes the submenus that appear.

```
        Administration Menu


     Choose Admin Function
- -------------------------
1 System Configuration
2 User Configuration
3 Channel Configuration
4 User Station Profile
5 Refresh Configurations
- -------------------------
◈  Edit FKey Esc

ScrlLock | Scan | Skip   NCSL
```

Figure 6-1. The Administration Menu.

6.2 System Configuration

Administrators can use the System Configuration Menu, shown in Figure 6-2, for setting certain global parameters.

1. From the Administration Menu (see **Section 6.1**), press "1" or use the up- and down-arrow keys to move the highlight to "System Configuration," then press [Enter]. The System Configuration Menu will appear, displaying the current settings of its parameters (described below and on the following pages).

2. Press the down-arrow or [Tab] to move the highlight forward, or the up-arrow or [Shift] + [Tab] to move the highlight backward, to a desired field. Press [Enter] to edit the field. The highlighted area will turn green. (Some fields have character or numeric values you can type in; others have values you can toggle between with the arrow keys.) When editing is complete, either press [Enter] followed by [S] to save your changes, or press [Esc] to abort the changes and continue using the previous settings.

```
        System Configuration
Device ID: Summit 16x64


Display All Computers: No
Logoff Timeout: Off 05 Min


Operation Mode: Private
P-View Admin Silent: No
PC Share Timeout: 01 Sec


Login Blank: Off 05 Minutes
Allow Blank Password: No
Default Login Name Blank:Yes
     Edit FKey S Esc
ScrlLock | Scan | Skip   NCSL
```

Figure 6-2. The System Configuration Menu.

- **Device ID:** Type in your desired name for the single or master Summit Base Unit. It's important for the Base Units in a cascaded system with multiple Base Units to have distinctive names, so users can tell them apart. (The system will assign each Base Unit the default name "Summit [users]x[channels]": each KV1500A will be named "Summit 2x42, each KV1501A "Summit 4x42," etc.)

- **Display All Computers:** You can set this option to "Yes" or "No" to respectively allow or disallow users from viewing channel listings for all connected devices through the OSUI, even if the user doesn't have the security privileges to access them. The factory-default setting is "No."

- **Logoff Time Out:** If enabled, the amount of time in minutes that a user station can remain inactive (no keyboard or mouse activity) before the logged-in user at that station is logged out of the Summit system.

  – Possible values in the first field are "On" (logoff timeout is enabled) and "Off" (logoff timeout is disabled, the default value). Use the up- and down-arrow keys to toggle between these values.

  – If the logoff timeout is set to "On," the number in the second field is how many minutes of inactivity must elapse before the timeout is triggered and the user is logged out. Using leading zeroes if necessary, type in a two-digit number of minutes from 01 to 99, or use the up- and down-arrow keys to increment and decrement the current value by 1 respectively. The default setting is 05. If the logoff timeout is set to "Off," the number in this field will have no effect.

- **Operation Mode:** Any of the three ways in which the Summit system handles requests from multiple users for access to the same channel (use the up- and down-arrow keys to switch between them):

  – Private: A computer or other device on a specific channel can be accessed exclusively by only one user at a time. No other users can see or control that device until its controlling user selects a different channel.

  – Public View: While one user is accessing a computer or other device on a specific channel, other users can select that channel and view the video output from that device, but only the first user will have keyboard and mouse control until they select another channel. When the first user selects another channel, the first other user to type at their keyboard or move their mouse will be given keyboard and mouse control. Status messages showing users' identities appear on video-sharing users' monitors when Public View mode is in effect.

  – PC Share: A computer or other device on a specific channel can be selected and accessed by more than one user, but only one user has keyboard and mouse control at any one time. If the PC share timeout is enabled (see the next page) and the user in control is idle (no keyboard or mouse activity) for the duration of the timeout, the first other user to type at their keyboard or move their mouse will be given keyboard and mouse control of the PC.

- **P-View Admin Silent:** When the Operation Mode is set to "Public View" (see the previous page), the user in control of a computer is normally notified when other users start and stop viewing their channel's video. However, when P-View Admin Silent is set to "Yes," administrators can view other users' video without causing a viewing-notification message to appear. Use the up- and down-arrows to toggle between "Yes" and "No" (the default).

P-View	Active - Jason

P-View	Off - Jason

- **PC Share Timeout:** If the Operation Mode is set to "PC Share" (see the previous page) and more than one user has selected a computer, the first user to operate their keyboard or mouse will have control of the computer. However, another user can gain control of the computer if the first user's keyboard and mouse remain idle for the length of this timeout. Using leading zeroes if necessary, type in a two-digit number of seconds from 01 to 99, or use the up- and down-arrow keys to increment and decrement the current value by 1 respectively. The default setting is 01.

- **Login Blank:** If enabled, the amount of time in minutes that a user station can remain inactive (no keyboard or mouse activity) at the Login Menu before the system blanks the monitor screen. (Press any of the keys on the keyboard to restore normal video.)

  – Possible values in the first field are "On" (login blank is enabled) and "Off" (login blank is disabled, the default value). Use the up- and down-arrow keys to toggle between these values.

  – If the login blank is set to "On," the number in the second field is how many minutes of inactivity must elapse before the timeout is triggered and the screen is blanked. Using leading zeroes if necessary, type in a two-digit number of minutes from 01 to 99, or use the up- and down-arrow keys to increment and decrement the current value by 1 respectively. The default setting is 05. If the logoff timeout is set to "Off," the number in this field will have no effect.

- **Allow Blank Password:** Determines whether a user can specify a blank password (that is, delete any existing password and have no password at all). (Newly created users will always start with no password, regardless.) Use the up- and down-arrow keys to toggle between "Yes" (users may delete their existing passwords) and "No" (the default setting; starting with the first time they change their password, users must always have a non-blank password).

- **Default Login Name Blank:** Determines whether the User Name field in the Login Menu (see **Section 5.1**) will be blank when the menu appears or will contain the default user name (the first available "userxy" name, where "xy" is a two-digit number with leading zeroes—"user01," "user02," and so on). Use the up- and down-arrow keys to toggle between "Yes" (the field is blank, the default) and "No" (field contains the user name).

6.3 User Configuration

Administrators can use the User Configuration Menu (shown in Figures 6-3 and 6-4) to add, delete, and edit user names and security rights, and to display the current connection status for each user.

Use the arrow keys, [Tab], [Shift] + [Tab], [PgUp] (page up), [PgDn] (page down), [Home], and [End] to move within this menu and its submenus. Press [Enter] to edit a highlighted field; it will turn green. When you finish editing a field, either press [Enter] to save the changes or press [Esc] to abort them.

This menu displays one user's information in each row. Here's what the fields and columns in the "left end" of this menu (see Figure 6-3) mean:

- **User:** Your user name. This field can't be edited.
- **Name:** The user names assigned to all user accounts. Except for the special user name "admin," these user names can be edited: You can type in new names up to eight alphanumeric characters long (not case-sensitive).
- **Group:** The ID numbers of the security groups that users are assigned to (see **Appendix A**).
- **Adm:** Indicates whether any given user has administrator privileges. You can use the up- and down-arrow keys to toggle between "Yes" and "No" (the default setting).

You can press [Tab] or the right-arrow key to move to the "right end" of this menu (see Figure 6-4) and display users' connection information: The **Connection** column displays which channel (if any) each active user is currently connected to.

You can also perform three other functions at this menu:

- You can **add a new user** by pressing the [Insert] key. A new default user name will be added to the existing list (for example, if users "user01" through "user25" already exist and you add a new one, its default name will be "user26"); you can then edit the name as desired. The maximum number of users is 127; the default names of users added after user99" will contain three digits.
- You can **delete a user** by moving the highlight to a user name and pressing [Delete]. You'll be asked for confirmation; if you respond "Y", that user account

will be deleted from the system.

• You can **login as a different user** by highlighting a user name and pressing "L". The user name will appear in a Login Menu, prompting you to login.
Caution: If you define a new user but login as that user before pressing "S" or doing something else to permanently save that account, the account will exist only as long as you are logged in; it will be lost as soon as you log out.

```
         User Configuration
User: ADMIN      Page     1/3    ➡
Name      Adm Group
-------- --- -- -- -- -- --
 ADMIN    Yes 00 -- -- -- --
 User01   No  00 -- -- -- --
 User02   No  00 -- -- -- --
 User03   No  00 -- -- -- --
 User04   No  00 -- -- -- --
 User05   No  00 -- -- -- --
 User06   No  00 -- -- -- --
 User07   No  00 -- -- -- --

 ◈ Edit Ins Del FKey S Esc
ScrlLock | Scan | Skip   NCSL
```

Figure 6-3. The "left end" of the User Configuration Menu (default state).

```
         User Configuration
User: ADMIN      Page     1/3    ⬅
Name      Connection
-------- ------------------
 ADMIN    None
 Kane     Wins95_Bob
 HHH      NT40-Mail
 Austin   NT40-Mail
 Rock     None
 King     None
 JR       None
 Vince M  Wins98_Jack
-------- ------------------
 ◈ Edit Ins Del FKey S Esc
ScrlLock | Scan | Skip   NCSL
```

Figure 6-4. The "right end" of the User Configuration Menu
(after users have been configured).

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6.4 Channel Configuration

Administrators can use the Channel Configuration Menu, shown in Figures 6-5 and 6-6, to edit or initialize a CIM. You can change the device name, individual scan rate, device type, and group IDs associated with each computer or device. When you save Channel Configuration changes, the Summit system will update each affected CIM as necessary.

Use the arrow keys, [Tab], [Shift] + [Tab], [PgUp] (page up), [PgDn] (page down), [Home], and [End] to move within this menu and its submenus. Press [Enter] to edit a highlighted field; it will turn green. When you finish editing a field, either press [Enter] followed by [S] to save the changes, or press [Esc] to abort them.

This menu displays one channel's information in each row. If the Summit system detects a powered device on that channel, it will display the text in that row in green; otherwise, it will display it in black. Here's what the fields and columns in the "left end" of this menu (see Figure 6-5) mean:

- **ChID:** The channel's channel-ID number.

- **Name:** The name of the device attached to that channel. Device names are case-sensitive and may be up to twelve alphanumeric characters long. As shown with channel #1 in Figure 6-5 and elsewhere, you can leave a device name blank if you want to, although we don't recommend this.

- **Scn:** Displays the device's individual scan rate (the length of time that the system pauses while scanning that channel for any user with Scan Mode set to "Individual" rather than "Global"—see **Section 5.3**). Using leading zeroes if necessary, type in a two-digit number of seconds from 01 to 24, or use the up- and down-arrow keys to increment and decrement the current value by 1 respectively. The default setting is 03.

- **Device:** Displays the type of device connected to the channel. Use the up- and down-arrow keys to toggle the device type between "CPU" (computer), "S242" (2 x 42 Base Unit), "S442" (4 x 42 Base Unit), "S832" (8 x 32 Base Unit), or "S1664" (16 x 64 Base Unit).
  If you select a non-CPU device type, the system assumes that you've connected a cascaded subsidiary Summit Base Unit to that channel as described in **Section 4.3**. The system creates a default device name for that Base Unit, such as "Summit 16 x 64" for a 16 x 64 Base Unit. We strongly recommend that you change the name to something that will be meaningful to you and your coworkers, because this device name will be programmed into the CIM attached to the Base Unit, and so will "follow" the Base Unit if you have to relocate it in the system.

While the cursor is in the Device column, you can press [Tab] or the right-arrow key to move to the "right end" of this menu (see Figure 6-6) and display devices' group information: The **Group** columns display which groups (if any) the device has been assigned to; see **Appendix A**.

```
        Channel Configuration
Summit 16x64       Page:  1/8 ➡
ChID Name          Scn Device
---- ------------ -- -------
 1                 03 CPU
 2   NT40-Mail     03 CPU
 3   Wins95_Bob    03 CPU
 4   Wins98_Jack   03 CPU
 5   Matrls_8x32   -- S832
 6   NT40-Fax      03 CPU
 7   Mrktng_8x32   -- S832
 8   PubSrv_8x32   -- S832
  ◈  Edit G FKey S Esc
 ScrlLock │ Scan │ Skip   NCSL
```

Figure 6-5. The "left end" of the Channel Configuration Menu (after devices have been configured).

```
        Channel Configuration
Summit 16x64       Page:  1/8 ⬅
ChID Group
---- -- -- -- -- -- -- -- --
 1   00 -- -- -- -- -- -- --
 2   01 00 -- -- -- -- -- --
 3   11 -- -- -- -- -- -- --
 4   00 12 -- -- -- -- -- --
 5   -- -- -- -- -- -- -- --
 6   00 15 20 -- -- -- -- --
 7   -- -- -- -- -- -- -- --
 8   -- -- -- -- -- -- -- --
  ◈  Edit G FKey S Esc
 ScrlLock │ Scan │ Skip   NCSL
```

Figure 6-6. The "right end" of the the Channel Configuration Menu (after devices have been configured).
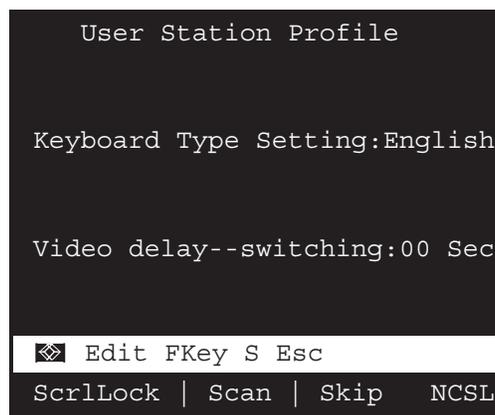
6.5 User Station Profile

Administrators can select option 4 at the Administration Menu to bring up the User Station Profile, shown in Figure 6-7. They can use this menu to set the global keyboard type and video delay.

The Summit's OSUI supports three types of keyboard mappings: You can select either "English" (U.S. English, the default), "French," or "German". If you want to use a non-English keyboard at your user station, temporarily attach an English-language keyboard; use any of its arrow keys to move the highlight to the "Keyboard Type" field, press [Enter] to turn the highlight green, use any of the arrow keys to toggle the field to the correct keyboard type, and press [Enter] again to select it. You can now swap in the type of keyboard you want to use.

If your monitor is doing too much switching between resolutions (or is taking too long to sync up, if it's an LCD monitor) when you scan or switch channels on the Summit, you can set a video delay for channel switching at your user station: If you set the video delay to any number of seconds greater than zero, the Summit will wait until a video signal is constant for that number of seconds before passing it through to the monitor. To do this, use any of the arrow keys to move the highlight to the "Video delay--switching" field, press [Enter] to turn the highlight green, type in the desired two-digit delay from 00 to 30 seconds (or use the up- and down-arrow keys to increment or decrement the field by 1 until you reach your desired value), and press [Enter] again to select it.

When you finish making any changes to either of these values, press "S" to save the changes to nonvolatile memory, or press [Esc] to abort them. The changes are applied only to your user station (the one from which the change was made).

```
          User Station Profile



   Keyboard Type Setting:English



   Video delay--switching:00 Sec



      Edit FKey S Esc
   ScrlLock | Scan | Skip    NCSL
```

Figure 6-7. The User Station Profile.

6.6 Refresh Configurations

If the system is slow to recognize new devices, administrators can select item 5, "Refresh Configurations," from the Administration Menu in order to have the single or master Base Unit they're attached to repoll its attached devices.

6.7 Autoscanning and Autoskipping

While they're logged in to the Summit, administrators can press [F6] to turn autoscanning on and off. When autoscanning is turned on, the Summit switches sequentially and automatically from one channel port to the next, displaying each channel's video for the duration of the user's global scan rate or the channel's individual scan rate (see **Section 5.3**), starting over at port 1 when it reaches the last channel port. (In a cascaded system, when the scan reaches a channel to which a subsidiary Base Unit is attached, it "drops down" to the subsidiary's channels and scans them before resuming with the higher-level channels.) To take keyboard and mouse control of the CPU on a given channel port, autoscanning must be turned off. The word "Scan" at the bottom of the OSUI menus will appear in white when autoscan is off or yellow when autoscan is on.

In the Summit system's default setting, autoscanning will display all of the Summit system's channel ports (including vacant ones), except those occupied by CPUs that the user has not been granted the keyboard- and mouse-control rights for (that is, the CPUs that aren't in one of the user's permitted groups—see **Appendix A**). To allow a user to see CPUs that he or she can't otherwise access, an administrator must set "Display All Computers" to "Yes" (see **Section 6.2**). To force the system to skip over vacant channel ports, an administrator must turn on autoskipping.

While they're logged in to the Summit, administrators can press [F7] to turn autoskipping on and off. When autoskipping is turned on, the Summit will automatically skip vacant ports while autoscanning or when a user tries to switch to such a port manually. The word "Skip" at the bottom of the OSUI menus will appear in white when autoskip is off or yellow when autoskip is on.

6.8 Resetting a Base Unit to Its Factory Defaults

If you ever need to return a Base Unit's user or channel configuration to its factory defaults, you can reset the Base Unit by pressing and holding the recessed reset button on its rear panel while the Base Unit is on. Wait until all of the LEDs on its front panel blink once, then release the reset button. The Base Unit will self-test, then resume operating normally in its factory-default configuration, except that any previously set password for the user name `admin` and any previously changed System Configuration settings will remain in effect. Proceed to reconfigure the Base Unit as necessary. If you lose the admin password, call Black Box Tech Support.

7. Troubleshooting

7.1 Calling Black Box

If you determine that any of your ServSwitch™ Summit Base Units, USMs, or CIMs 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;

- any particular application that, when used, appears to create the problem or make it worse; and

- the results of any testing you've already done.

7.2 Shipping and Packaging

If you need to transport or ship a Summit device:

- Package it carefully. We recommend that you use the original container.

- If you are returning the unit, make sure you include everything you received with it. Before you ship for return or repair, contact Black Box to get a Return Authorization (RA) number.

Appendix A: Group Settings (Access Rights)

If you'd like to assign access rights to users and security levels to computer CPUs in a ServSwitch™ Summit system, you can assign users to user groups with defined rights and CPUs to channel groups with defined accessibility. Each group can have multiple users or CPUs assigned to it. (Cascade channels can't be assigned to groups.) By default, all users start out assigned to user group 00 and all CPUs start out assigned to channel group 00. You can create groups numbered from 00 to 99 for both users and CPUs; each user can belong to a maximum of five user groups and each CPU can belong to a maximum of eight channel groups.

These user groups...	...can access these channel groups:
00	00 through 99 (all CPUs)

0x (01 through 09)
For example:
  01 can access 00, 01, and 10 through 19;
  02 can access 00, 02, and 20 through 29; etc.
	00, 0x, and x0 through x9

xy (10 through 99)
For example:
  10 can access 00, 01, and 10;
  23 can access 00, 02, and 23;
  97 can access 00, 09, and 97; etc.
	00, 0x, and xy

These channel groups...	...can be accessed by these user groups:
00	00 through 99 (all users)

0x (01 through 09)
For example:
  01 can be accessed by 00, 01, and 10 through 19;
  02 can be accessed by 00, 02, and 20 through 29; etc.
	00, 0x, and x0 through x9

xy (10 through 99)
For example:
  10 can be accessed by 00, 01, and 10;
  45 can be accessed by 00, 04, and 45;
  86 can be accessed by 00, 08, and 86; etc.
	00, 0x, and xy

We recommend that your main system administrators be assigned to the user group 00, which can access all CPUs, and that your assistant administrators be assigned to user groups between 01 and 09. Correspondingly, we recommend that CPUs which all users will need to access, such as application or document servers, be assigned to channel group 00, and that computers which need the most security protection be assigned to channel groups from 10 to 99.

Appendix B: USM Direct Mode

A ServSwitch™ Summit USM set to Direct Mode can be directly connected to a CIM, either temporarily for emergency "crash cart" access or permanently for non-switched extension purposes, without having to go through a Base Unit. To make this kind of "Direct Mode" connection, take these steps:

1. If you haven't already done so, follow the instructions in steps 5a and 5b of **Section 4.2** to attach the CIM to the CPU.

2. If you haven't already done so, plug in and turn on the CPU.

3. Power off the USM.

4. Run CAT5 cabling directly between the USM and the CIM.

5. At the user station attached to the USM, simultaneously press and hold down the keyboard's [Ctrl] and [Alt] keys.

6. Continue holding down these keys while you power on the USM. The USM should beep twice; after the second beep, it should display a "DIRECT Mode: CIM connected" message on the monitor.

7. Release [Ctrl] and [Alt]. The "DIRECT Mode" message will continue to be displayed for ten seconds, then disappear.

While the USM is in Direct Mode, if the CAT5 cabling between the USM and the CIM becomes disconnected at any point for more than three to four seconds, the USM will exit Direct Mode. To re-establish Direct Mode, repeat the above steps.

To return a USM that's in Direct Mode to normal operation, take these steps:

1. Power off the USM.

2. Disconnect the opposite end of the CAT5 cabling from the CIM.

3. Connect the opposite end of the CAT5 cabling to a user port of a Base Unit.

4. Run other CAT5 cabling from the channel port of a Base Unit to the CIM.

5. Power on the USM.

Appendix C: Updating the Summit's Firmware

The ServSwitch™ Summit Update Utility is a 32-bit Windows® based program that handles the transfer of new firmware to Summit Base Units and USMs. If you need new firmware for your system, Black Box Technical Support will tell you where to get the firmware-distribution file and the Update Utility (both in .zip archives). Download these, copy them to a PC (not one of the switched CPUs attached to the Summit system!) that can be placed close enough to your USMs and Base Units to reach them with the Summit's included 10-ft. (3-m) serial cable, unzip the archives, read the firmware distribution's release notes (very important—these might describe new or changed procedures!), and you should be ready to proceed with the firmware update.

NOTES

All Summit components and attached CPUs can remain powered on during a firmware upgrade. The Summit's modular, redundant design assures that devices can continue to operate unaffected during the update process.

It might be possible to use a high-quality DB9 extension cable to extend the total cabling distance between a USM or Base Unit and the PC running the Update Utility up to 50 ft. (15.2 m), but we can't guarantee that this will work in any given situation.

First, to use the downloaded files and Update Utility to upgrade the firmware of your USMs, take these steps unless the current release notes specify otherwise:

1. Run one of the serial administration cables included with each Base Unit (or, if that has been lost, an equivalent DB9 male-to-female straight-through-pinned [not null-modem!] serial cable), between the DB9 female administration port of an active USM and a DB9 male serial port on the PC with the firmware files and Update Utility installed on it.

2. If you haven't already done so, log into the Summit system at the user station attached to that USM that the OSUI's Selection Menu is on screen at its monitor. Press [F12] to switch the display to "Selection Menu by Name" rather than the standard channel-ID ordering.

3. At the PC with the Update Utility installed on it, launch the Utility by double-clicking on its icon. The main window shown in Figure D-1 should appear.
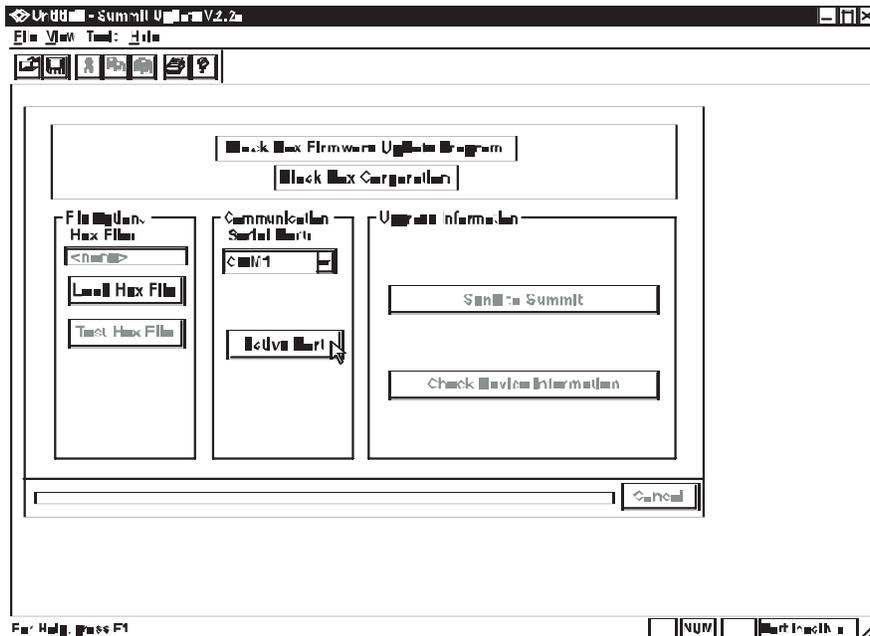
Figure D-1. The main window of the Update Utility.

4. Select the correct serial port (COM1, COM2, COM3, or COM4) and click on the Activate Port button to initiate communication with the USM.

5. Click on "Load Hex File" and select the USM firmware contained in the firmware-distribution file; these will be named "S10A-xxx," where xxx is a hexadecimal representation of the firmware's version number. The text on the first button in the "Upgrade Information" pane of the window should change to "Send to Summit."

6. Click on "Test Hex File." The Utility will verify the file's integrity.

7. Click on "Check Device Information" to confirm that the PC is successfully communicating with the USM, and that it would in fact be desirable to replace the USM's current firmware with the version you've downloaded.

8. Click on "Send to Summit" to begin uploading the new firmware to the USM. Both the PC and the USM need to remain powered on during the transfer, and you should be careful not to disconnect the cable between them. (If either device loses power or the cable comes loose, this will not cause the USM to run with incomplete firmware or any other serious problems, but you will have to restart the upload process from scratch.)

The upload typically takes about two minutes. Once the USM successfully finishes receiving the new firmware, it should beep and reset itself automatically. (If the automatic reset doesn't occur, you can manually reset the USM by cycling power to it—no data loss will occur. If you do so, check the firmware version that the USM reports when you click on "Check Device Information" again. [The USM will also report this in the OSUI's Information Menu—see **Section 5.5**.] If the USM is still reporting the version it was running previously, the upload wasn't successful and you'll have to start it again.)

9. When the upload is finished, click on "Disable Port" and exit the Update Utility. (Do this even if you're planning on upgrading more USMs later.)

10. Disconnect the serial cable from the USM's administration port.

11. Repeat steps 1 through 10 for each USM whose firmware you want to upgrade.

To proceed to use the downloaded files and Update Utility to upgrade the firmware of your Base Unit(s), take these steps unless the current release notes specify otherwise:

12. Run the DB9 cable you've been using to upgrade the USMs between the PC and the DB9 female administration port of an active Base Unit. You don't have to disconnect the Base Unit from any attached devices or existing cascade; cascaded Base Units don't have to be upgraded in any particular order.

13. At the PC with the Update Utility installed on it, launch the Utility by double-clicking on its icon.

14. Select the correct serial port and click on the "Activate Port" button to initiate communication with the Base Unit.

15. Click on "Load Hex File" and select the Base Unit firmware contained in the firmware-distribution file; these will be named "S03A--xxxx," where xxxx is a hexadecimal representation of the firmware's version number. The text on the first button in the "Upgrade Information" pane of the window should change to "Send to Summit."

16. Click on "Test Hex File."

17. Click on "Check Device Information."

18. Click on "Send to Summit" to begin uploading the new firmware to the Base Unit. Both the PC and the Base Unit need to remain powered on during the

transfer, and you should be careful not to disconnect the cable between them. (If either device loses power or the cable comes loose, this will not cause the Base Unit to run with incomplete firmware or any other serious problems, but you will have to restart the upload process from scratch.)

This upload typically takes about thirty seconds. Once the Base Unit successfully finishes receiving the new firmware, it should reset itself automatically; watch for the LEDs to cycle in the same way that they would when the Base Unit is powered off and back on again. (If the automatic reset doesn't occur, you can manually reset the Base Unit by cycling power to it— no data loss will occur. If you do so, check the firmware version that the Base Unit reports when you click on "Check Device Information" again. If the Base Unit is still reporting the version it was running previously, the upload wasn't successful and you'll have to start it again.)

19. When the upload is finished, click on "Disable Port" and exit the Update Utility. (Do this even if you're planning on upgrading more Base Units later.)

20. Disconnect the serial cable from the Base Unit's administration port.

21. Repeat steps 12 through 20 for each Base Unit whose firmware you want to upgrade.

Appendix D: Rackmounting

ServSwitch™ Summit USMs and most Base Units can be mounted in 1U (1.75", 4.4 cm) of vertical space in a standard 19" equipment rack; KV1503A Base Units can be mounted in 2U (3.5", 8.9 cm) of space. To rackmount a Base Unit, use the brackets and screws that came with it; for a USM, use the RMKSMU rackmount kit. (If you lose or damage a Base Unit's brackets, replace them with the RMKSM1 kit [for any 1U Base Unit] or RMKSM2 [for a KV1503A].) You can mount a Base Unit or USM either facing toward the front of the rack or facing toward the rear.

To mount a USM or Base Unit facing forward, as shown in Figures E-1 and E-2, take these steps (matching the step numbers to the numbers in the figures):

1. Secure the cable-support bar to the back end of the side brackets using two of the included screws.

2. Slide the USM or Base Unit between the side brackets, with its rear panel facing the cable-support bar, until its front panel is flush with the "ears" of the side brackets.

3. Secure the USM or Base Unit to the side brackets using the remaining included screws (three on each side).

4. Mount the entire assembly in your rack and secure the side brackets' ears to the rack's front rails with your own screws, bolts, cage nuts, etc.

5. When you attach cables to the connectors on the rear panel of the USM or Base Unit, drape them over the cable-support bar.
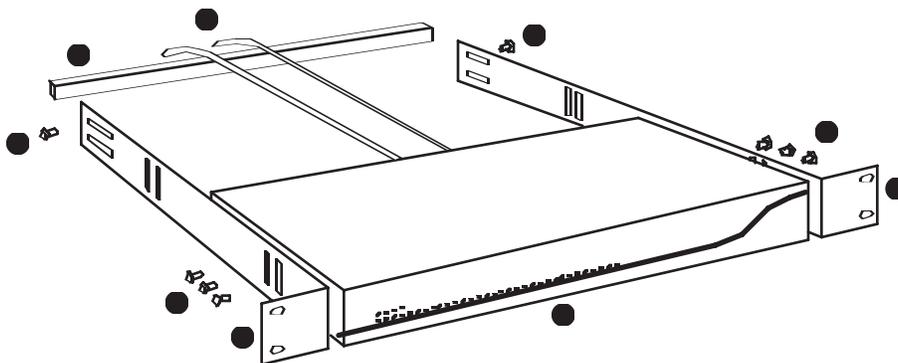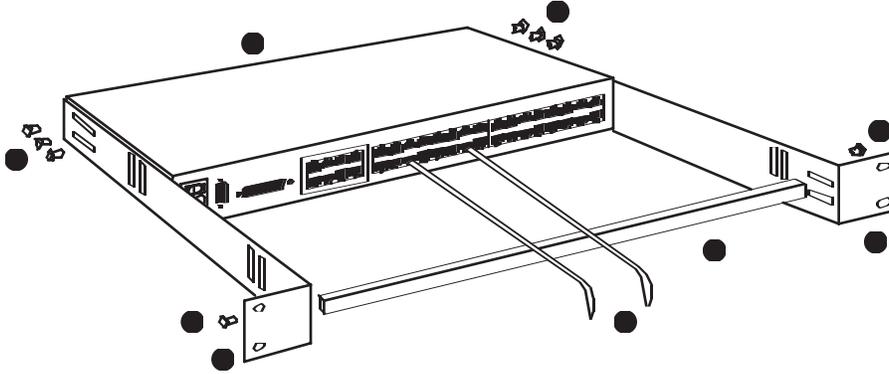

*Figure E-1. Frontward rackmounting of a Base Unit (1U model shown).*
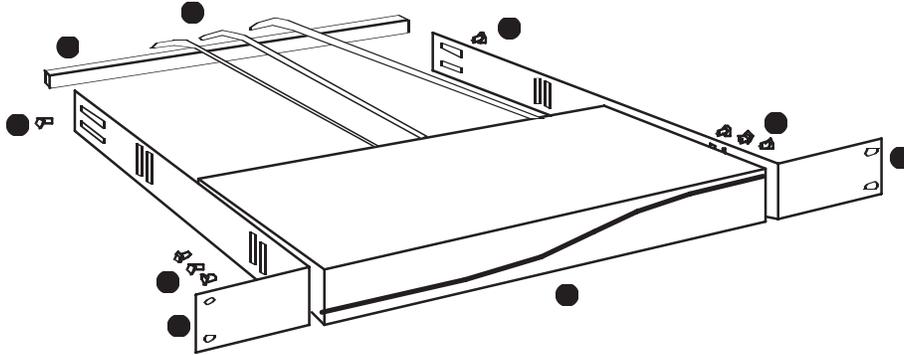
Figure E-2. Frontward rackmounting of the USM.

To mount a USM or Base Unit facing rearward, as shown in Figures E-3 and E-4, take these steps (matching the step numbers to the numbers in the figures):

1. Secure the cable-support bar to the front end of the side brackets, near the side brackets' "ears," using two of the included screws.

2. Slide the USM or Base Unit between the side brackets, with its rear panel facing the cable-support bar, until its front panel is flush with the back edges of the side brackets.

3. Secure the USM or Base Unit to the side brackets using the remaining included screws (three on each side).

4. Mount the entire assembly in your rack and secure the side brackets' ears to the rack's front rails with your own screws, bolts, cage nuts, etc.

5. When you attach cables to the connectors on the rear panel of the USM or Base Unit, drape them over the cable-support bar.

Figure E-3. Rearward rackmounting of the Base Unit (1U model shown).
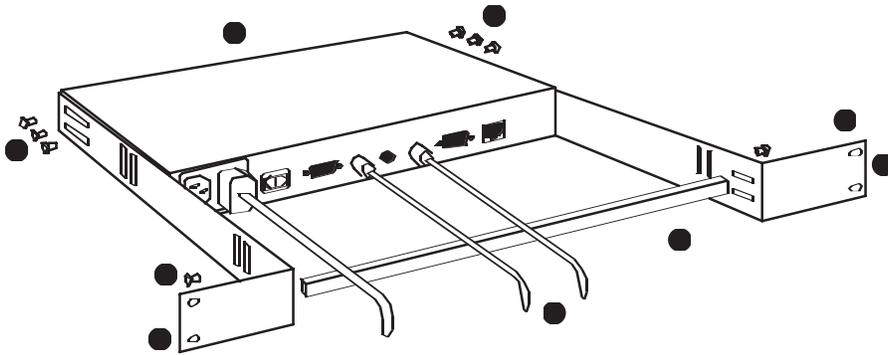
Figure E-4. Rearward rackmounting of the USM.

Appendix E: CAT5 Cable Guidelines

Use only straight-through-pinned four-pair (eight-wire) Category 5 unshielded twisted pair (UTP) cables, terminated with standard RJ-45 plugs, for the CAT5 cabling links in your ServSwitch™ Summit system. We recommend CAT5 patch cables such as product code EYN737MS and/or CAT5 bulk cable such as our EYN840A. The bulk cable should be terminated with high-quality RJ-45 plugs such as those included in our FM732 25-pack.

   If your existing CAT5 site-wiring system meets these requirements, feel free to send the signals through your site's patch panels, existing wiring, etc., but you should keep the number of patches and splices to a minimum to avoid degrading the video signals. Maximum end-to-end cabling distance from any CPU to any user station should not exceed 500 ft. (152 m).

   Looking into an RJ-45 socket on any Summit component, or looking at the cable plug from behind with the tab on the bottom, Pin 1 should be on the left and Pin 8 on the right, and the wires should be arranged this way, as per the TIA-568B standard:

Pin	Color	Function, Pair
1	White/Orange	TX, Pair 2
2	Orange/White	RX, Pair 2
3	White/Green	TX, Pair 3
4	Blue/White	RX, Pair 1
5	White/Blue	TX, Pair 1
6	Green/White	RX, Pair 3
7	White/Brown	TX, Pair 4
8	Brown/White	RX, Pair 4

NOTES

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