



Cisco Video Surveillance Stream Manager Integrated Services Platform Software and
Hardware
Quick Start, Installation and Operations Guide

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Section

1

INTRODUCTION

ABOUT THIS GUIDE

Thank you for purchasing a Cisco Systems INTEGRATED SERVICES PLATFORM (AKA X-VCR) for video surveillance stream recording.

This guide is designed to provide you with the necessary information to install your module. It can be easily installed with minimal tools and will provide maintenance-free operations for years to come.

FEATURES

Traditional keyboard interface – access to digital video database using matrix switch keyboard provides access to digital recording functions with little or no training.

Instant replay – a single button is programmed to provide instant replay of the camera currently under review by operator.

Real-time earmarking of video segments from keyboard for subsequent review and/or archiving. Simply depress hotkey to highlight video of interest. Using Stream Manager Video Viewing PC Client, the selected video can be instantly recalled, reviewed and archived.

Ethernet 10/100/1000T network interface allows remote access for video review and system administration.

Date, Time, Camera, Event search enables users to quickly search and playback the image database.

Compatible with all Color and B/W cameras (NTSC/EIA and PAL/CCIR).

Universal control protocol enables connectivity to wide range of matrix switches.

Outstanding picture quality – (true D1 resolution available at 30 images per second)

Adjustable recording parameters per camera – enabling recoding and playback at any combination of resolution and frame rate, including D1 at 30 IPS. This flexibility enables users to tailor systems in order to maximize recording capacity.

On screen overlay displays, camera number, time, date and playback controls. Display may be hidden to provide unobstructed view of playback video.

RAID5 fault tolerant storage ensures uninterrupted recording, even in the event of drive failure.

Completely scalable – INTEGRATED SERVICES PLATFORM (AKA X-VCR) may be configured in 4, 8 or 12 camera configurations. Video stored on any INTEGRATED SERVICES PLATFORM (AKA X-VCR) is accessible by any keyboard operator.

PRODUCT AT A GLANCE

INTEGRATED SERVICES PLATFORM (AKA X-VCR) FRONT VIEW

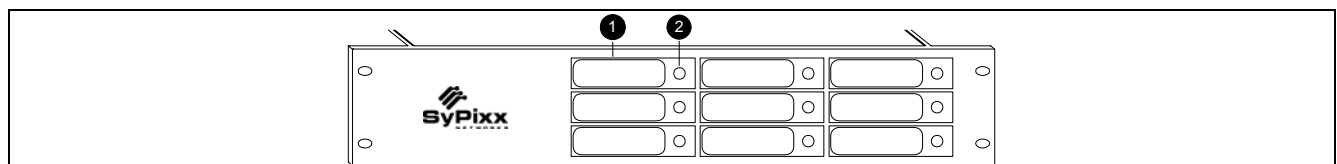


FIGURE 1
Front View

1. Drive Bay

The INTEGRATED SERVICES PLATFORM (AKA X-VCR) comes in a RAID5 configuration using three (3) to twelve (12) drives. Each drive is easily removable from the unit via slide trays.

2. Drive Bay Status Indicator

When this indicator is flashing green, there is activity on the drive. When this indicator is illuminated red, there is a problem with the drive.

INTEGRATED SERVICES PLATFORM (AKA X-VCR) REAR VIEW

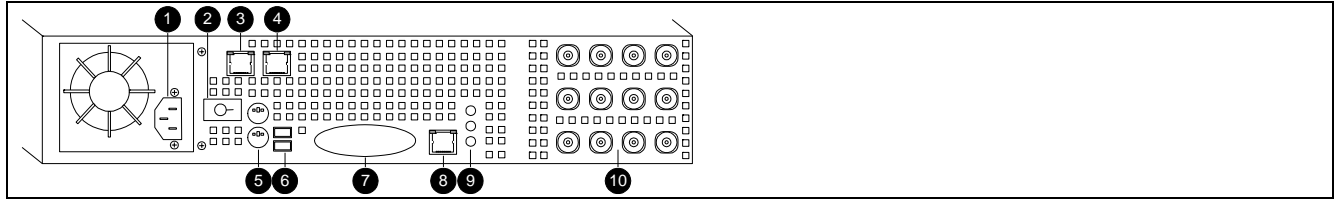


FIGURE 2
Rear View

- 1. Power Input**
This connector accepts any AC power cord with an IEC-320-C13 plug.
- 2. Power Switch**
- 3. Keyboard Connector**
This is an RJ-45 type connector used to interface the module with a CCTV keyboard. NOTE: Wiring pin outs may differ for switch and keyboard manufacturers.
- 4. Switch Connector**
This is an RJ-45 connector used to interface with a matrix switch. NOTE: Wiring pin outs may differ for switch and keyboard manufacturers.
- 5. Mouse and Keyboard Connector**
This is a PS/2 style connector used to connect an optional mouse and keyboard.
- 6. Camera Inputs**
These USB type connectors can be used for additional camera inputs via a USB interface module.
- 7. Monitor Connector**
This connection provides a signal to an optional (SVGA) monitor to display Linux OS command line.
- 8. Network I/O Connector**
This is an RJ-45 connector that serves as the video output port for the unit. All units in the system should be interconnected via a 100 BASE-TX network switch.
- 9. Audio Connectors**
Reserved for future use.
- 10. Camera Inputs**
These are female BNC connectors. Configurations include 4, 8, or 12 camera inputs.



Modules may look slightly different than the illustrations shown.

BEFORE YOU BEGIN

To ensure a quick, easy, and trouble-free installation, please read all instructions, notes and drawings completely before attempting to install the module.



CAUTION: Important safety, electromagnetic compatibility, and regulatory information are contained in this section. The installation and use of this product must be in accordance with the information contained within these sections of this manual.

UNPACKING THE MODULE

Inspect the outer shipping container for any damage that may have occurred in shipping and report any sign of damage to the appropriate shipping agency.

Remove the module and any additional components from the shipping container; save the shipping container, packing material, and any anti-static bags --- returning the module in any other container may void its warranty.

Inspect the module thoroughly. If any signs of damage are seen, notify the factory, your sales representative, and/or the shipping agency.

OPERATING CONDITIONS

As with any electronic device, to assure normal operation and avoid any unnecessary maintenance, avoid placing the equipment where it will be subjected to extreme temperatures, humidity, or electromagnetic interference. Specifically, the site selected should meet the following requirements:

The ambient operating temperature must be between 5°C and 40°C (41°F and 104°F)

The relative humidity must be between 0% and 90%, non-condensing.

Make sure the module(s) are kept away from heating sources.

Do not place any objects on top of the module(s).

Make sure no water or moisture enters the module(s). If necessary, use a dehumidifier to reduce humidity near the module(s).

The module(s) should not be exposed to excessive amounts of dust or other debris.

The mounting location(s) should be adequate enough to reduce interference of operation from Electromagnetic Interference (EMI) or Radio Frequency Interference (RFI) of nearby electrical equipment. Examples of these types of interferences are relays, motor starters, and large power transformers.

When a module is mounted within an enclosure, the enclosure should be in accordance with all local electrical codes.

Make sure that the equipment receives adequate ventilation. Never block any ventilation area on the equipment.

This equipment includes a battery to preserve the time/date settings when the equipment is disconnected from its power supply.

Replace only with the same or equivalent type. Dispose of used batteries according to the instructions provided by the battery manufacturer.



NOTE: Please visit us at www.cisco.com to register your product and become eligible for various support services and product information updates!

Section

2

INITIAL SET-UP

The initial set-up of the system involves three (3) steps:

1. Cable Connections –Connect the Video Server to the video source (USB inputs), network switch, and power source.
2. Keyboard Setup - Program the keyboard to communicate with the INTEGRATED SERVICES PLATFORM (AKA X-VCR)
3. INTEGRATED SERVICES PLATFORM (AKA X-VCR) Configuration - Power up each INTEGRATED SERVICES PLATFORM (AKA X-VCR) to establish connectivity to the IP network and configure parameters for cameras and keyboards attached to the system. This process is done using Stream Manager Configuration. (see SECTION 3).

CABLE CONNECTIONS

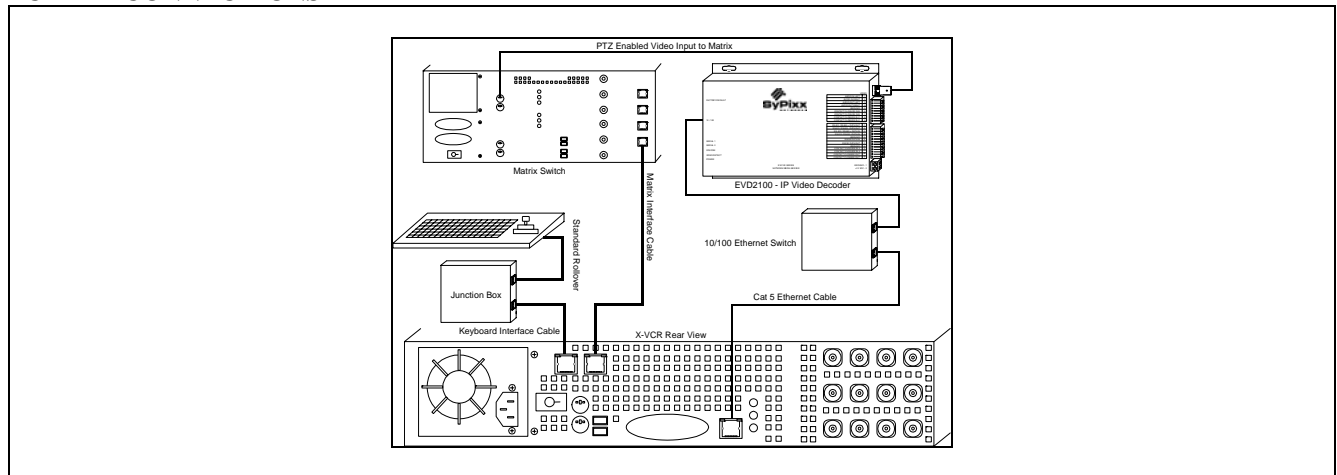


FIGURE 3
System Wiring Diagram



NOTE: Decoder and keyboard connections are not needed for each INTEGRATED SERVICES PLATFORM (AKA X-VCR) .

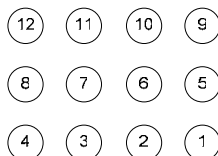
NECESSARY CABLE CONNECTIONS

The INTEGRATED SERVICES PLATFORM (AKA X-VCR) is a video surveillance management device running a Linux operating system.

1. Camera Inputs

Connect the output of each camera or other composite video source to its corresponding female BNC input connector on the rear panel.

The rear panel video ports are sequentially numbered as follows:



It is important to note the camera number connected to each port. This information will be used later to configure the port settings using Stream Manager Configuration.



CAUTION: Protect the unit against lightning. If a portion of a cable is installed outside a building, the entire cable is vulnerable to lightning. Install appropriate surge protection devices on all vulnerable cables.

2. Power Input

Using the supplied power cord, connect power to the unit.



CAUTION: Connect the unit only to a properly rated supply circuit. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet. Optional power line conditioning equipment is recommended to protect and safeguard the unit against severe power line fluctuations.

3. Network I/O Connector

Connect a Category 5 twisted-pair Ethernet cable (CAT5 TPE) cable from the network switch to the network port on the INTEGRATED SERVICES PLATFORM (AKA X-VCR) unit.

OPTIONAL CONNECTIONS

1. **CISCO IP GATEWAY DECODER** – At least one CISCO IP GATEWAY DECODER must be connected in-line between the Network Switch and the Matrix Switch to enable video playback. Connect the CISCO IP GATEWAY DECODER to the network switch and the matrix switch using Cat5 and RG59 coax cable, respectively.
2. **Keyboard Connector** - At least one INTEGRATED SERVICES PLATFORM (AKA X-VCR) must be connected in line between the matrix switch and keyboard. Detailed pin outs for the keyboard interface cable and the matrix switch interface cable depend on the brand of matrix switch.
3. **Other Connections** - Although monitor, mouse, and keyboard connections are included, these are optional and not required to install the INTEGRATED SERVICES PLATFORM (AKA X-VCR) .



NOTE: See detailed drawings of cable connections and wiring pin outs each brand of matrix switch in the Appendix of this Manual.

KEYBOARD SETUP

Certain keyboards utilize “softkeys” that can be programmed to interface with the INTEGRATED SERVICES PLATFORM (AKA X-VCR). Set-up instructions for several common keyboards follow:

American Dynamics (2088)

No specific keyboard programming is required. The following keys have been selected to interface with the INTEGRATED SERVICES PLATFORM (AKA X-VCR) .

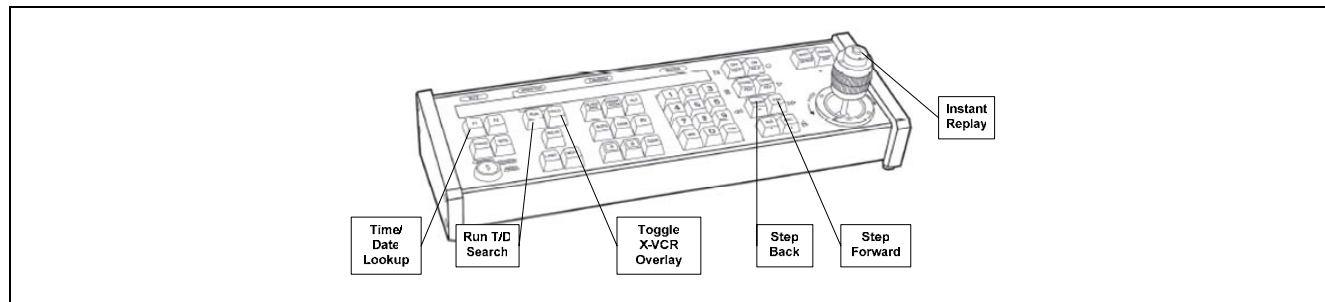


Figure 4
AD Keyboard Setup

Pelco (CM9760-KBD)

The CM9760-KBD has several “user definable control keys” which can be programmed as described in section 3.2.11 of the Keyboard Users manual. The manual may be downloaded from Pelco at the following FTP site:

<ftp://www.pelco.com/ProductManuals/C540MB.pdf>

Alternatively, an overview of the programming steps is included in the Appendix of the manual.

All INTEGRATED SERVICES PLATFORM (AKA X-VCR) functions can be accessed with six programmable keys. The keys selected must be programmed with the following ASCII codes.

PLAYBACK FUNCTION	ASCII DATA
Instant Replay	99
Time / Date Search	98
Play / Pause	95
Single Frame Forward	93
Single Frame Reverse	92
Toggle GUI	94

A recommended layout for the user definable control keys follows:

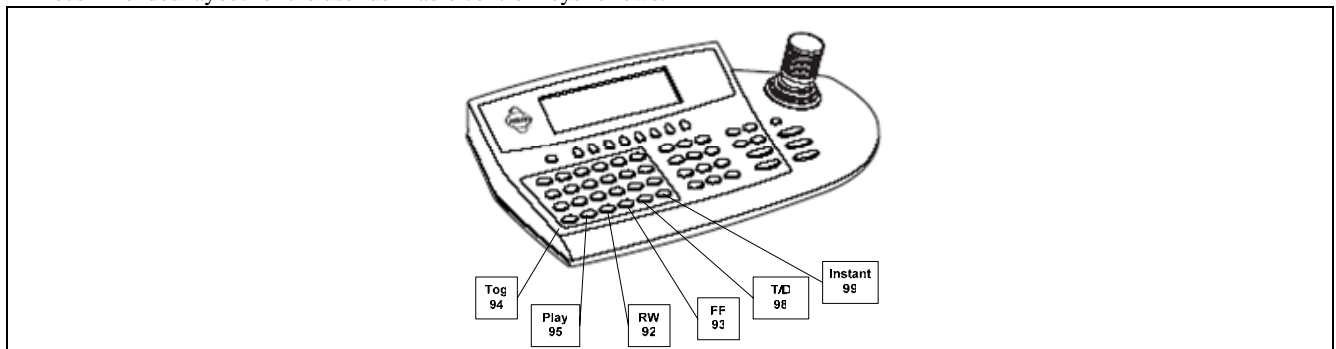


Figure 5
Pelco Keyboard Setup

Bosch (IntuiKey)

An IntuiKey Configuration (.int) file must be uploaded into the keyboard to enable its “softkeys” to interact with the INTEGRATED SERVICES PLATFORM (AKA X-VCR). A copy of Bosch’s Software Configuration utility, KBD-SFTCFG is needed to upload the .int file. Detailed instructions and software utilities are available directly from Bosch.

<http://www.boschsecurity.us/MCSintuikey.cfm>

Alternatively, an overview of the programming steps is included in the Appendix of the manual.

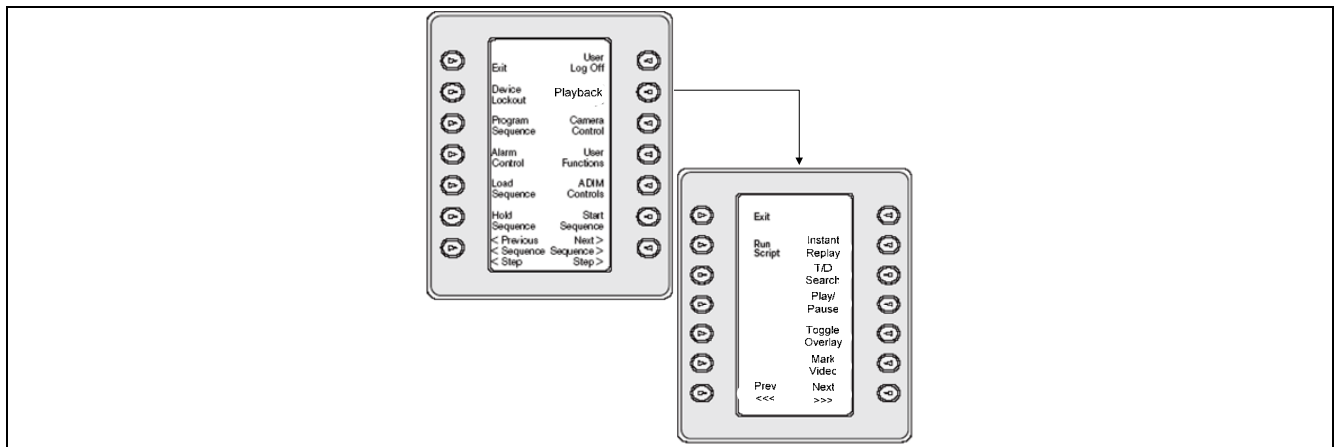


Figure 6
Bosch Keyboard Setup



NOTE: If your keyboard is not identified, please contact Cisco Systems Technical support at (203)753-1503 for additional keyboard configurations.

INTEGRATED SERVICES PLATFORM (AKA X-VCR) CONFIGURATION – Stream Manager Configuration

Stream Manager Configuration is an installation and administration application which runs under Windows XP. Stream Manager Configuration is used to perform the following tasks:

- Assign or edit IP addresses for each device on the Network
- Assign cameras to each port of the INTEGRATED SERVICES PLATFORM (AKA X-VCR)
- Configure desired frame rates and resolutions for each camera input

The following section details the initial setup of Stream Manager Configuration and its use to configure the INTEGRATED SERVICES PLATFORM (AKA X-VCR) .

Section

3

STREAM MANAGER CONFIGURATION

Following is a brief overview of the Stream Manager Configuration application, used to setup and administer your INTEGRATED SERVICES PLATFORM (AKA X-VCR) system. A detailed installation and users guide is included with the software.

START-UP SCREEN

Upon loading the application, Stream Manager Configuration will search for all Cisco Systems equipment and show the Start – up screen, consisting of two sections:

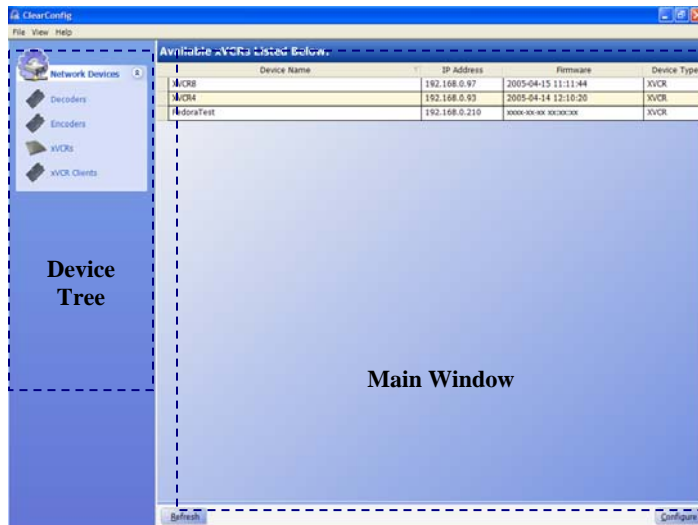


FIGURE 7
Main Screen

1. **Device Tree** – displays a listing of all device types that can be configured by Stream Manager Configuration™. Select a device type to query and display a list of all devices in the Main Window (see below).
2. **Main Window** – enables configuration of any of the devices shown. The display can be sorted by clicking the column header. Double click the device or highlight and select **Configure** at the bottom of the screen.



NOTE: To ensure that all devices are shown in the Main Window, refresh the screen by selecting **Refresh**

DEVICE CONFIGURATION SCREEN

The Device Configuration Screen includes two (2) sections.

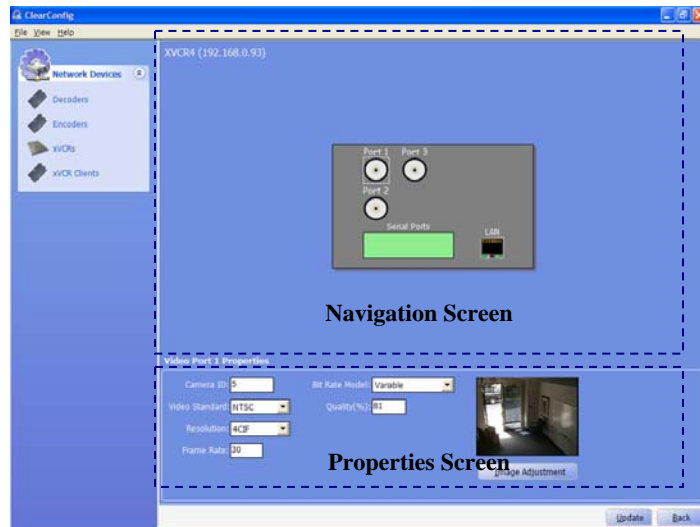


FIGURE 8
Device Configuration Screen

1. **Navigation Screen** - provides a graphical representation of the selected device. To configure a video, serial, or LAN port, click on the desired port. Once the desired element is chosen, the Properties Screen (see FIGURE 3) will reflect the current settings of the selected element and accept settings changes.
2. **Properties Screen** - shows a dynamic display of the configurable parameters of the element selected in the Navigation Screen.

A summary of the parameters for each element of the INTEGRATED SERVICES PLATFORM (AKA X-VCR) is noted below.

ELEMENT	PARAMETERS	OPTIONS
Entire Device	Device Name	User input necessary
	Device Type	Provided by device; no user input necessary
Video Port	Camera ID	Camera number used by matrix switch
	Video Standard	NTSC PAL
	Resolution	D1 4CIF 2CIF CIF
	Frame Rate	User input 1 to 30 images per second
	Bit Rate Model	Fixed Variable
	Quality	User input 0 to 100% (80% recommended)
Serial Port	Video Matrix	Sensormatic / AD Pelco Philips / Bosch None
	Playback Timeout	User input of the playback duration (in seconds) before the device switches back to live view (default = 300).

ELEMENT	PARAMETERS	OPTIONS
	Instant Replay	User input to select the number of seconds back from the current time the instant replay will start from (default = 10).
LAN Port	IP Address	User input necessary based on LAN configuration
	Subnet Mask	
	Default Gateway	
	Use DHCP (check box)	Enables IP setup from DHCP server

IMPORT / EXPORT CONFIGURATION FILES

For large installations it is often more efficient to import device names, camera numbers, and other configuration data from existing databases maintained by the system administrator. Often this information is contained in Comma Separated Value (CSV™) or MS Excel file format.

The specific data transfer procedures for the customer system will differ, but the process will be as follows:

1. Connect all Cisco Systems video surveillance devices (INTEGRATED SERVICES PLATFORM (AKA X-VCR), IP Gateway encoders, IP Gateway decoders) to the network and assign IP addresses using either DHCP or Stream Manager Configuration™.
2. Select File / Export Configuration to download an inventory of all the edge devices. The listing will be an MS Excel file (.xls) with the following field format:
 - a. Camera number
 - b. Camera name
 - c. INTEGRATED SERVICES PLATFORM (AKA X-VCR) number
 - d. INTEGRATED SERVICES PLATFORM (AKA X-VCR) port
 - e. Frame rate
 - f. Bit Rate
 - g. Bit rate model
 - h. Compression quality
2. The export function will download any information currently stored in the equipment. Empty or outdated fields can be updated from information contained in the CSV file using cut and paste commands in the Excel application.



NOTE: Save a backup of this data before editing the file.

When completed, import the new file back into Stream Manager Configuration™ and update the related devices using the Finish – Up procedure.

FINISH - UP

When all parameters are updated, select **Update**.

Section

4

OPERATION

The INTEGRATED SERVICES PLATFORM (AKA X-VCR) is designed to provide easy access to digital video recordings using a standard keyboard. This Operation Guide outlines the basic INTEGRATED SERVICES PLATFORM (AKA X-VCR) functions to achieve full access to the power of the INTEGRATED SERVICES PLATFORM (AKA X-VCR) .

THEORY OF OPERATION

The INTEGRATED SERVICES PLATFORM (AKA X-VCR) evaluates communications between the keyboard and switch. When certain keys are pressed, the keyboard input is directed to the INTEGRATED SERVICES PLATFORM (AKA X-VCR) and acted upon. All other keyboard functions are passed onto the traditional matrix switch for normal operation.

KEYBOARD FUNCTIONS

BUTTON DESCRIPTION	INTEGRATED SERVICES PLATFORM (AKA X-VCR) RESPONSE		
	LIVE MODE	PLAYBACK MODE	TIME / DATE SELECTION
Instant Replay	Instant replay of live camera	Returns to live mode	Returns to live mode
Time / Date Search	Displays Time / Date Selection Screen	Returns to live mode	Returns to live mode
Next >>	NA	Advance one (1) field	Move to next input field
Previous <<	NA	Rewind one (1) second	Move to previous input field
Play / Pause	NA	Toggle between play and pause mode	Execute the video search
Overlay Display	NA	Show / hide navigation overlay	NA

Section 5

APPENDIX

WIRING CONFIGURATIONS

Each keyboard needs a Cabling Harness to interconnect the Keyboard, INTEGRATED SERVICES PLATFORM (AKA X-VCR) and Matrix Switch. In addition, certain switches need a data converter box (485/232) which is included with the wiring harness. See general cabling diagram below.

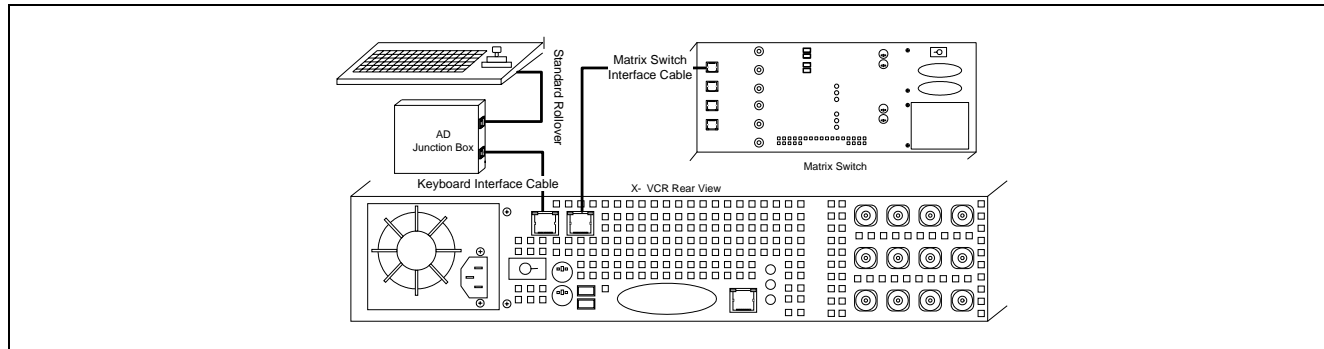


FIGURE 9
General Cabling Diagram

NOTE - Cable harnesses are uniquely configured based on the type of Matrix switch used. If additional cable length is needed simply extend the harness with straight through CAT5 cable using the coupler supplied. Alternatively, Pin-out diagrams are provided for each Matrix Switch to create a custom cable.

Manufacturer Specific Information

Each brand of matrix switch uses a unique combination of command protocol, physical wiring and communication protocol to interface between a keyboard and switch. Following are unique characteristics of each brand.

AMERICAN DYNAMICS (2088):

Keyboard configuration

None needed

Communication Protocol Conversion

None needed

Cable Connections

Each cable used to interconnect the INTEGRATED SERVICES PLATFORM (AKA X-VCR) with the Matrix and Keyboard is color coded. Match the color of the Terminal to the corresponding color of the INTEGRATED SERVICES PLATFORM (AKA X-VCR) and/or Cisco keyboard adapter (Sypixx Junction Box). Detailed pin-out diagrams are included in Appendix 2.

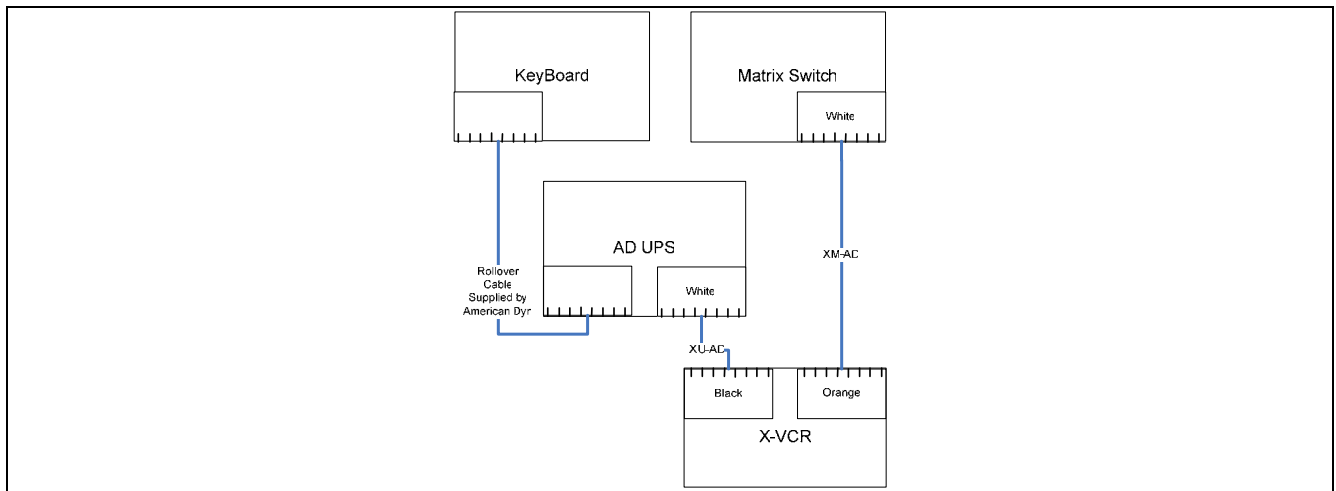


FIGURE 10
AD Cable Connections

PELCO (CM9760):

Keyboard configuration

Select keys need to be programmed to emit the following ASCII Data. See Appendix, for set-up instructions related to the Pelco Keyboard.

Communication Protocol Conversion

422 to 232

Cable Connections

Each cable used to interconnect the INTEGRATED SERVICES PLATFORM (AKA X-VCR) with the Matrix and Keyboard is color coded. Match the color of the Terminal to the corresponding color of the INTEGRATED SERVICES PLATFORM (AKA X-VCR) and/or Junction Box. Detailed pin-out diagrams are included in Appendix 2.

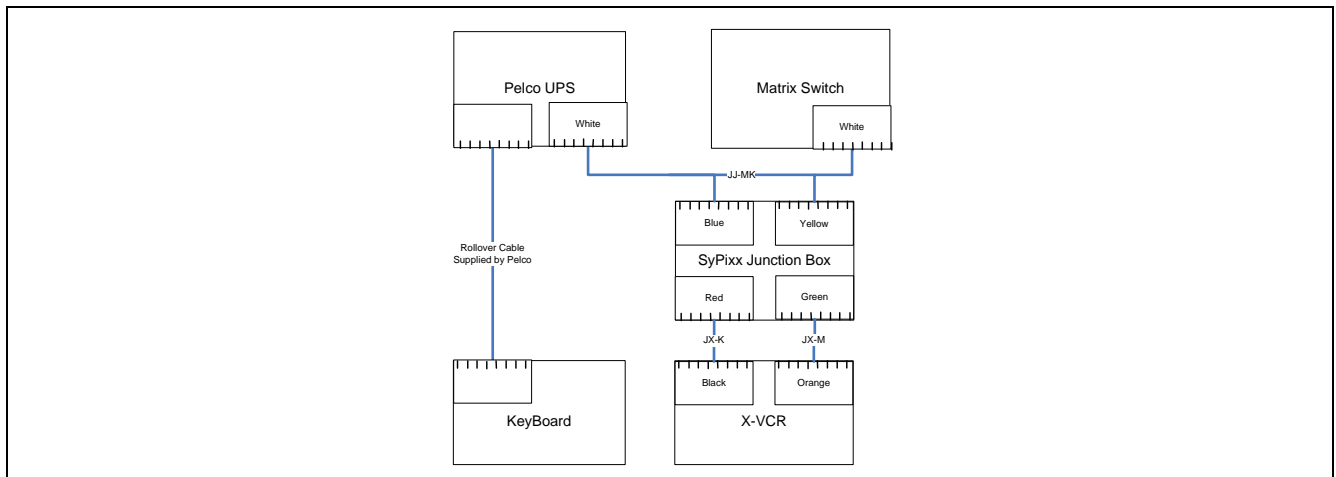


FIGURE 11
Pelco Cable Connections

BOSCH (INTUIKEY):

Keyboard Configuration

An IntuiKey Configuration (.int) file must be uploaded into the keyboard to enable its “Softkeys” to interact with the INTEGRATED SERVICES PLATFORM (AKA X-VCR). See Section 2, above for set-up instructions for the Bosch Keyboard.

Communication Protocol Conversion

485 to 232 via Cisco SystemsJunction Box

Cable Connections

Each cable used to interconnect the INTEGRATED SERVICES PLATFORM (AKA X-VCR) with the Matrix and Keyboard is color coded. Match the color of the Terminal to the corresponding color of the receptacle.

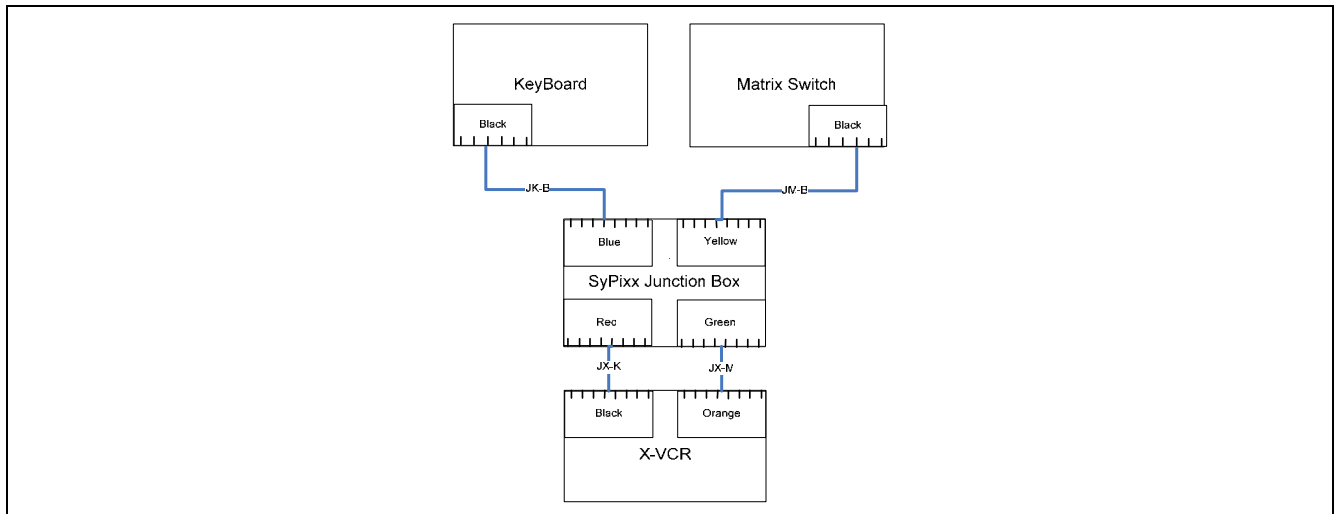


FIGURE 12
Bosch Cable Connections

WIRING HARNESS PINOUT GUIDE

American Dynamics

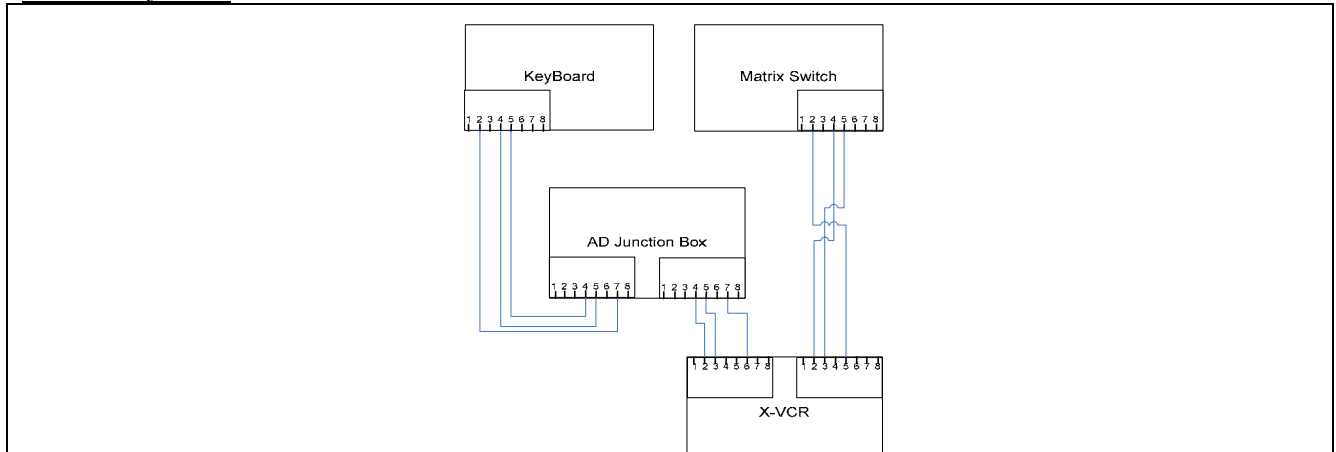


FIGURE 13
AD Wiring Harness Pin-Out

Pelco

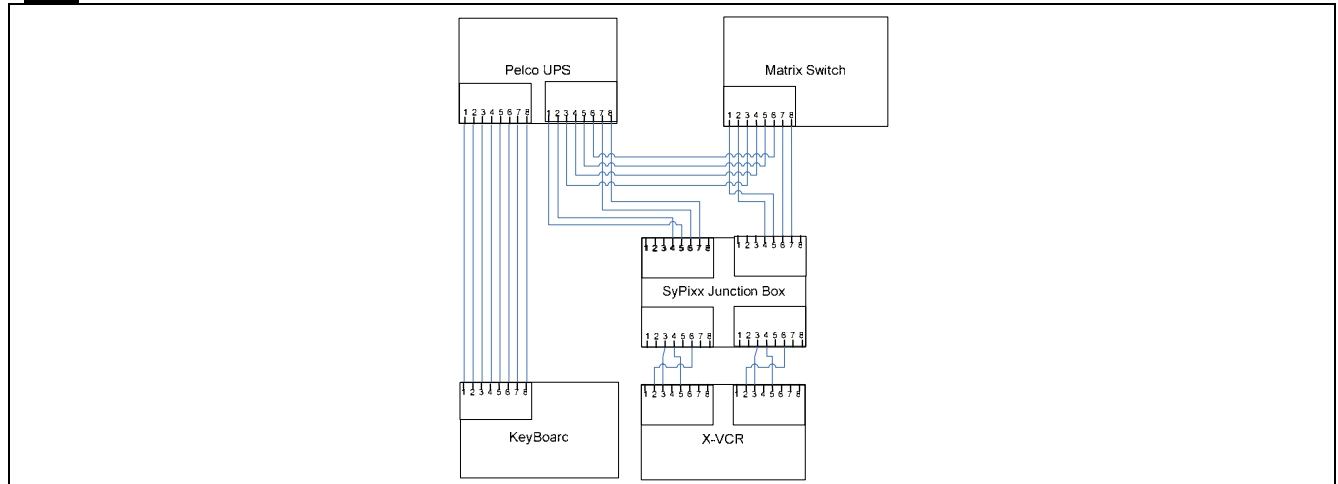


FIGURE 14
Pelco Wiring Harness Pin-Out

Bosch

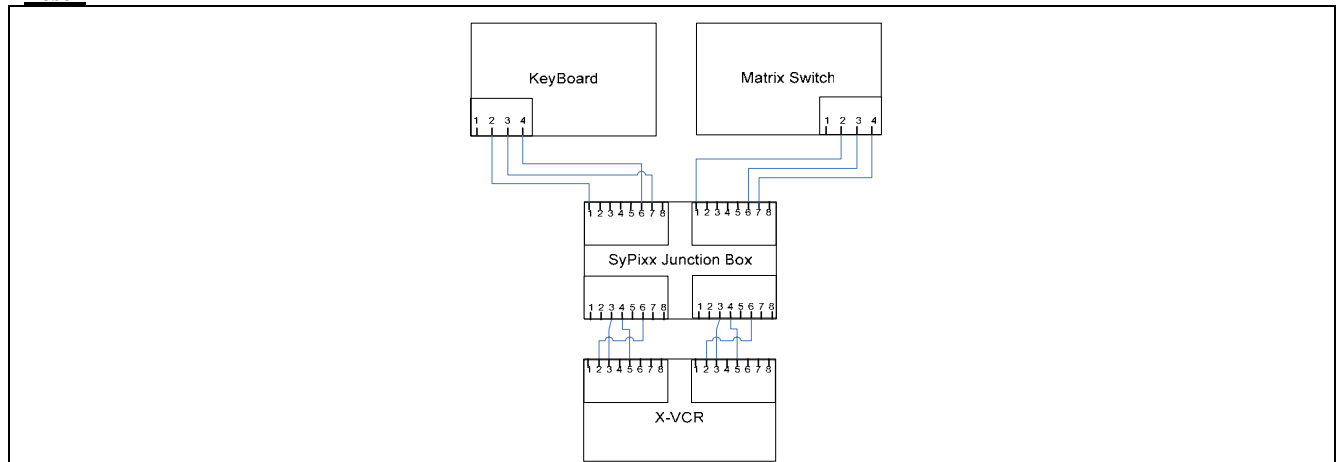


FIGURE 15
Bosch Wiring Harness Pin-Out

KEYBOARD PROGRAMMING INSTRUCTIONS

Many keyboards may be customized to interface with the Cisco Systems INTEGRATED SERVICES PLATFORM (AKA X-VCR).

Programming guides may be found at the Keyboard Manufacturer's web site.

A quick start guide of select keyboards is included here.

Pelco (CM9760)

Step 1: Putting the keyboard in Setup Mode

Note: Make sure that the keyboard is connected directly with switch (not via the INTEGRATED SERVICES PLATFORM (AKA X-VCR)).

1. Flip Dip Switch 2 (underneath the keyboard)
2. Login (usually with 1234)
3. Looking at the row of blue keys, hit the left most key (not the esc key)
4. Continue hitting the left most key until the cursor is aligned next to FNC70

Step 2: Programming the keys

Function	INTEGRATED SERVICES PLATFORM (AKA X-VCR) Command
Instant Replay	99
Time/Date Search	98
Next field (Time/Date search)	97
Prev field (Time/Date search)	96
Play / Pause	95
Toggle GUI	94
Single Frame FF	93
Single Frame RW	92

For each of the keys listed in the table above, use the following procedure:

1. Press the chosen programmable key
2. Press the blue key that is 3rd from the left
3. Press the blue key that is beneath the “Def Num” menu entry
4. Using the numeric keypad, enter the INTEGRATED SERVICES PLATFORM (AKA X-VCR) Command from the table above
5. Press the blue key that is beneath the “Def Num” menu entry again

Step 3: Saving the keys

When all the keys have been programmed, hit the blue key that is beneath the “Save” menu entry. Then continue hitting the right most blue key until prompted to flip Dip Switch 2. Flip the switch, and then re-login to the keyboard.

Bosch (IntuiKey)

The Bosch “softkeys” may be repurposed by uploading the Cisco Systems customized “.ini” file into the IntuiKey keyboard. Following are steps to perform the upload.

Step 1: Assemble software and Installation Utilities

1. Download and install IntuiKey Downloader program on to PC.
2. Download the INTEGRATED SERVICES PLATFORM (AKA X-VCR) setup file from the Company’s website into Downloader program folder location.
3. Run the original files in order to uncompress them into "S20" formats.
4. Connect a serial RS-232 “null modem” cable between the keyboard and an available PC com port.

Step 2: Putting Keyboard in Setup Mode

1. Place keyboard into 'bootloader' mode per instructions in "Readme" file supplied with "IntuiKey_Downloader" program. The technique to place the keyboard into 'bootloader' mode depends on the keyboards current bootloader version, so review the instructions carefully.

Step 2: Transfer INTEGRATED SERVICES PLATFORM (AKA X-VCR) Overlay File to Keyboard

1. Open the "IntuiKey_Downloader" program. Select the appropriate PC Com port number and the desired "S20" file to transfer into the keyboard. Use the 'Browse' button, if necessary to select the correct file name.
2. After the transfer has finished, power keyboard off/on.

COMMUNICATIONS REGULATION INFORMATION

FCC COMPLIANCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with Cisco Systems instructions, may cause harmful interference with radio communications. Operations of this

equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his or her own expense.

IMPORTANT: Changes or modifications to this product not authorized by Cisco Systems, Inc., could void the EMC compliance and negate your authority to operate the product.

INDUSTRY CANADA STATEMENT

Complies with the Canadian ICES-003 Class B specifications.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

CISPR 22 & EN55022 STATEMENT

WARNING: This is a class B product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

REVISION HISTORY:

<u>Manual Number</u>	<u>Date</u>	<u>Comments</u>	
INTEGRATED SERVICES PLATFORM (AKA X-VCR) rev-.inst	3/14/05		Original version
INTEGRATED SERVICES PLATFORM (AKA X-VCR) rev a.inst	5/14/05		Manufacturer info
INTEGRATED SERVICES PLATFORM (AKA X-VCR) rev b.inst	6/16/05		Important Safety info
INTEGRATED SERVICES PLATFORM (AKA X-VCR) rev b.inst Format	4/16/06		Initial Conversion to Cisco Doc.