SYSTIMAX® imVision® Controller
User Guide

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www.commscope.com/ProductPatent/ProductPatent.aspx

Overview

The **SYSTIMAX® imVision®** System helps customers provide and maintain physical layer connections for telecommunications and data services. In a standard configuration, the system includes the imVision System Manager software and one imVision Controller in each rack or cabinet that includes iPatch® Copper Panels or Fiber Shelves.

The imVision Controller is equipped with an intuitive touchscreen interface. Designed for optimum user-friendliness, this interface further simplifies access to the powerful capabilities of the imVision System.

Important Safety Instructions

Failing to follow basic safety precautions, including the following, may result in risk of fire, electric shock and injury to persons:

- Follow all warnings and instructions marked on this product.

- This product should be operated using only the power supply provided by CommScope® with the product. Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

- For proper mounting instructions, see Controller Installation Instructions 860526839 included with this equipment.

- Never install this product in wet locations or during lightning storms. There is a remote risk of electric shock.

- Do not place this product on an unstable cart, stand or table. The product may fall, causing serious damage to the product.

- When installing iPatch equipment not described in this guide, follow the instructions provided with that equipment. Take care not to compromise the stability of the rack by installation of equipment.

- The touchscreen display is designed to be used without the need for a stylus. Never use sharp objects or tools that may scratch or otherwise damage the touchscreen or apply excessive pressure with fingernails.

- Never push objects of any kind into this product through slots as they may touch dangerous voltage points or short-circuit parts that could result in a risk of fire or electrical shock. Never spill liquids of any kind on the product.

- To reduce the risk of electrical shock, do not disassemble this product. Only trained personnel should service this product. Opening or removing covers and/or circuit boards may expose you to dangerous voltages or other risks. Incorrect reassembly can cause electrical shock during subsequent use.

- If this product is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than the room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the product's maximum ambient temperature (104°F or 50°C).

- Installation of the equipment in a rack should be such that the amount of airflow required for safe operation of the equipment is not compromised.

Note: All wiring that connects to the equipment must meet applicable local and national building codes and network wiring standards for communication cable.

The imVision® System

The imVision System is comprised of three main components:

- iPatch Panels, either iPatch copper panels or iPatch fiber shelves
- imVision Controller (with touchscreen display)
- imVision System Manager software

Note: The imVision System supports the previous generation Panel Manager and Rack Manager Plus.

iPatch® Panel

The iPatch Panel monitors connections by sensing the insertion of the patch cord plugs. When a patch cord is added to the network, the system records the connection in a database. This record lets you trace the connection by pressing the button above one of the ports containing the patch cord. The LEDs above the connected ports turn on to show where both ends of the patch cord are located.

imVision Controller

The imVision Controller maintains a database of the patch connections at the rack. It responds to button presses and sensor changes at the iPatch panels. By monitoring button presses and sensor changes at the panels, the imVision Controller logically infers when patch connections are added or deleted and updates the database accordingly.

In most configurations, multiple imVision Controller units are grouped and connected into patching zones. Each patching zone requires a LAN connection in order to communicate with the System Manager server.

Each imVision Controller has a touchscreen display that lets you interact with the imVision System in an intuitive way. With this interface, making and managing connections in the data center has never been simpler.

This powerful display:

- relays guided patch jobs to the technician from the imVision System Manager software
- alerts technicians of equipment issues
- shows detailed port and device information
- prompts technicians on connections that require confirmation
- displays information about the ends of a connection as well as the entire connectivity trace between those end-points
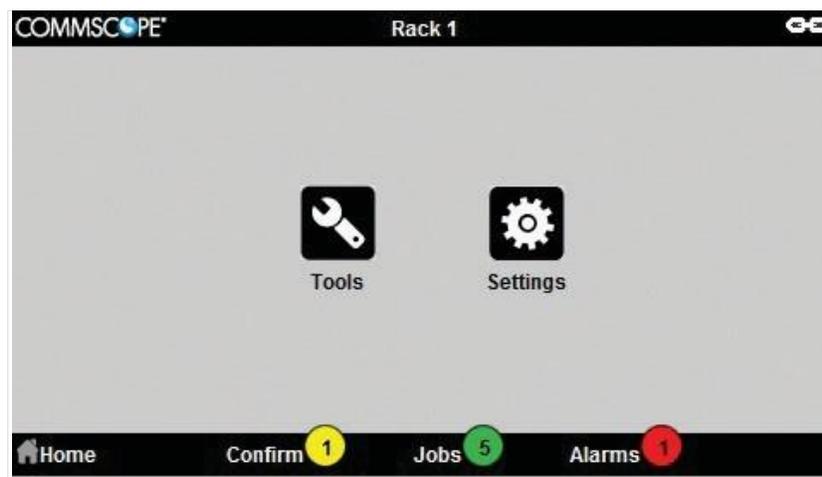
"Home" Screen

Note: Menu buttons 'Confirm, Jobs, or Alarms' on the bottom of touchscreen display open lists of options.

"Ready" Screen

After a period of inactivity, the display screen will turn off. The imVision Controller LED will light up when attention is required, such as pending Jobs, Alarms or Confirmations. Tap to activate the display and touch the colored circles next to Confirm, Jobs, or Alarms.

Ordering Panels in the imVision System

- Order the panels in the imVision System during initial start-up.

Order the panels sequentially from top to bottom. To enter the panel order, simply press any port number in each row on the uppermost panel in the rack. Then press any port number on each row in the second panel in the rack, and any port number in each row on the third panel in the rack and so on. Press each button to hear a tone confirming its inclusion in the order, until all the panels in the rack are numbered. At that point, the tone will change and the imVision System will enter the Ready state with the Home screen appearing on the interface.

- If the rack includes a high-density fiber shelf or shelves, you must also order the modules by pressing a button on each module of the shelf in order. These modules are ordered from left to right.

Note: To re-order the panels at any time after the initial startup, select *Reset Panels* from the Tools menu, which will re-initialize the rack. Once this initialization is complete, you will be prompted to order the panels. Proceed with panel ordering as instructed above. Also, if you add or remove panels from an existing rack, the system will prompt you to re-order the panels. Proceed with panel ordering as instructed above.
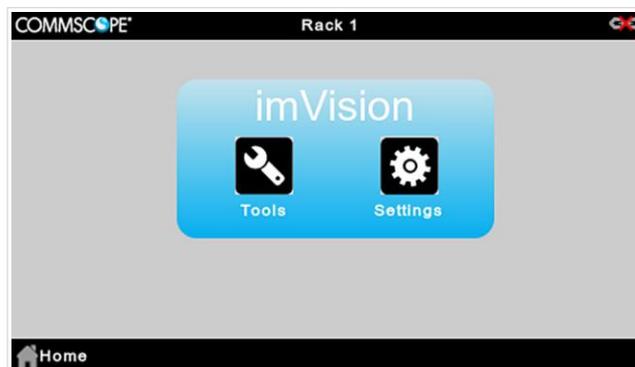
imVision Controller with Touchscreen Display

Following Prompts in the imVision System

The imVision System provides helpful feedback on its controller display. While performing work on panels or responding to alarms, be sure to follow any prompts that appear on the display.
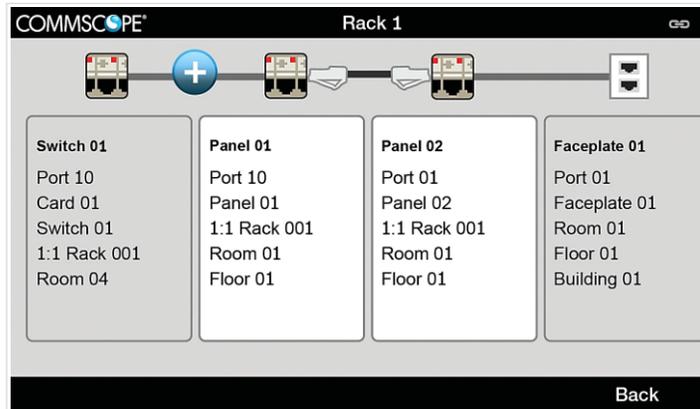
Tracing Example on imVision Touchscreen Display

Screen Lock PIN Feature

When enabled, the Screen Lock PIN feature locks an **imVision** Controller display until a PIN is entered on the display number keypad. Touch the lock icon on the bottom right corner of display to show a keypad, then enter PIN to unlock the display screen.
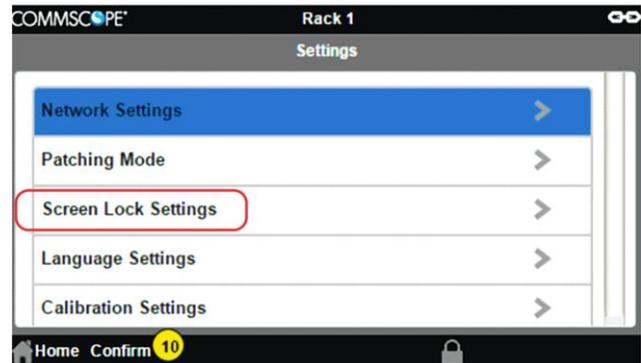
Enable the screen lock PIN feature by entering the Controller Settings menu on the Home screen.

Choose *Screen Lock Settings*, check the *Screen Lock Enable* box, and enter a time setting for screen lock activation.

Select *Change Screen Lock PIN* to customize PIN settings.
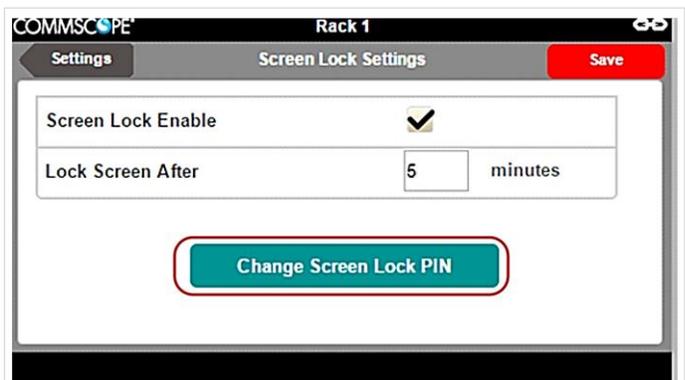
imVision Controller users can also change screen lock PIN settings on the Controller web UI, as shown below.
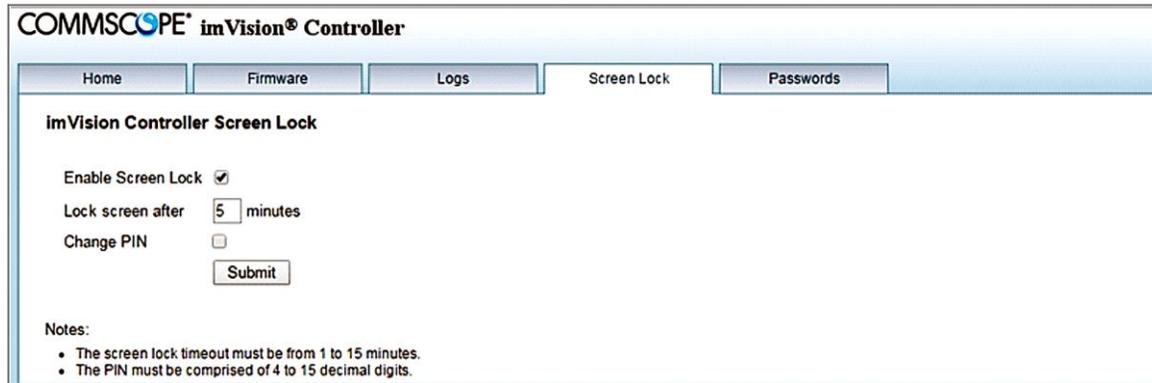
Audible and Visible Feedback

To help technicians work efficiently and accurately, the imVision System provides feedback to the user in a number of ways – through the imVision Controller display, through LEDs above the ports on each panel and through a number of audible tones. (See table.)

The ImVision Controller remembers each panel and each rack that it has communicated with in the past, and will raise an alarm if communication with any of these items fails. If a rack or panel is legitimately removed, the user must view the associated alarm and tap *Delete* informing the controller that the item in question has been permanently removed.

Audible Tones

Tone Type	Tone	Action or Event
Key beep or sensor beep	1 short beep	Pressed controller key. Inserted or removed a patch cord at an iPatch Panel.
Completion tone	3 short tones (low, medium, high)	Added or removed patch connection at an iPatch Panel. Indicated the position of a row of iPatch Panel ports. Saved a network setting.
Confirmation tone	2 short tones	Programmed the order of the panels and modules in the rack.
Attention tone	1 long, low tone	Technician is requested to confirm an action. Error occurred. Diagnostic tests detected a problem.

imVision System Manager Software

Using the imVision System Manager Software, the physical infrastructure team can view and manage the patch connections for the entire network from a workstation. The software documents the physical layer network between faceplates, consolidation points, panels and network equipment. Through the software, the administrator can schedule change orders for people needing additional services or moving offices. Change orders can be electronic work orders that are relayed to the imVision Controllers, and track the fulfillment of the change orders, trace circuits and locate end-points.

The imVision System Manager software also alerts the administrator to conditions such as unauthorized changes to the physical infrastructure, or work that was not performed as scheduled.

Please note that the imVision Controller requires imVision System Manager software version 7.0 or higher.
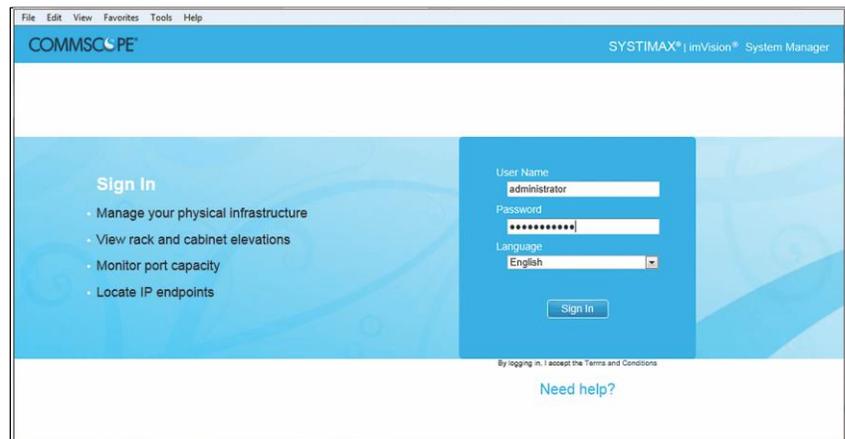
Settings

Through the imVision Controller, you can change the settings for a number of the system's administrative functions, run equipment tests, reset racks and panels and view rack and controller configuration.

Patching Mode

The imVision System has three settings for Patching Mode: Normal, Local and Equipment. The patching mode at the rack is set to Normal by default. The patching mode can be changed temporarily at the imVision controller, but the mode set in System Manager software will override a locally set mode during synchronization. When the patching mode is set to something other than Normal, the imVision Controller shows the patching mode on the Idle screen below the Rack Name.

- The patching mode is set to Normal when the Jobs button is pressed.

Normal

All imVision Controllers in this mode monitor connections simultaneously for a given Controller LAN.

Local

Unless the Jobs button is pressed, each imVision Controller monitors only the activity in its own rack, creating a "local" patching zone.

Equipment

Unless the Jobs button is pressed, an imVision Controller in Equipment mode will treat each connection as an equipment connection, eliminating the need to press and hold the port button for 2 seconds.

Patching and Tracing

Be sure to follow onscreen instructions while performing any activity on iPatch panels. The display will provide critical information and feedback throughout your work.

Performing Guided Patching Jobs

With the imVision System, the network administrator sends patching jobs directly to the rack via the imVision System Manager software. On the imVision Controller, technicians can simply view the list of jobs to be performed and follow the onscreen instructions for adding or removing connections between iPatch panels.

In addition to the display information, LEDs above the relevant ports will indicate where to add or remove the connection for the given job. Completing each patching job automatically queues the next job on the list to be performed.

If a job requires adding or removing a connection between an iPatch panel and non-iPatch equipment, the display and the correct LED on the panel will indicate where to add/remove the patch on the iPatch Panel. The display will also identify the non-iPatch equipment. When working with non-iPatch connections, be sure to press and hold the button above the corresponding iPatch port on the iPatch Panel for 2 seconds. This will confirm that the job has been completed. Completing this activity automatically queues the next job on the list to be performed.

Performing Unguided Patching Jobs

To add or remove connections not in the Jobs list, simply connect each end of the patch cord to the appropriate ports on the iPatch Panel. If you are making a Simplex connection in duplex ports, connect both ends of the patch cord. Then tap *Simplex* on the touchscreen display.

To add a connection between an iPatch Panel and non-iPatch equipment, first plug in the non-iPatch equipment, then plug the other end of the patch cord into the iPatch panel. Press and hold the button above the newly occupied port on the iPatch Panel for 2 seconds. This will confirm that the unguided equipment patch has been completed. Another method is pressing the *Equipment* button to complete connections to non-iPatch equipment.

To disconnect non-iPatch equipment from the iPatch Panel, unplug the patch cord from the equipment. Then, disconnect the patch cord from the panel. Press and hold the button above the newly vacated port on the iPatch Panel for 2 seconds. This will confirm that the unguided equipment patch removal has been completed.

Tracing a Patch Connection

When you connect a patch cord to an iPatch Panel, the system records the connection in a database. To trace the connection, simply press the button above one of the ports used for the connection. The panel indicates each end of the connection by lighting a LED above each of the ports. Also, the display of the imVision Controller lists the ports used in the connection. To learn more, tap the port information on the display and you can see details on any devices in this connection. To end the trace, press the button above one of the ports.

If only one of the ports in a patch connection is on an iPatch Panel, you still can trace the connection. The LED turns on above the iPatch Panel port. The imVision Controller display shows as much information as is known about the connection. If the connection was made as a guided job, both the iPatch Panel port and the equipment port are identified.

Correcting Patching Errors

If you discover that a patch cord is connected to the wrong port or that the database has recorded a connection that does not exist between two ports, you can correct the database using the Change feature.

To correct a connection, please use the following steps.

Step 1 – Show a circuit trace

The first step in correcting a patching error is to show a circuit trace for a targeted port. To show a circuit trace, press the panel button corresponding to an iPatch Panel port. The LEDs associated with connected iPatch Panel ports will turn on. On the display, a graphical circuit trace will be shown, along with a Change button.
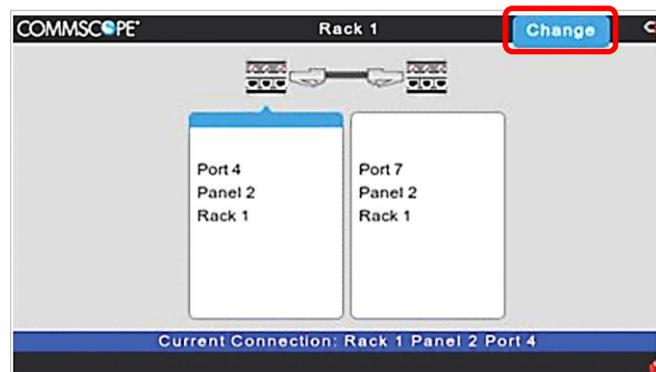
Step 2 – Use the Change button to break existing connection relationships

To break existing connection relationships for a traced port, press the *Change* button on the imVision Controller's display. After pressing the *Change* button, select *Yes* to continue past a warning about the connection being broken. Afterwards, the connection relationship will be deleted for any iPatch Panel ports that were connected to the traced port.
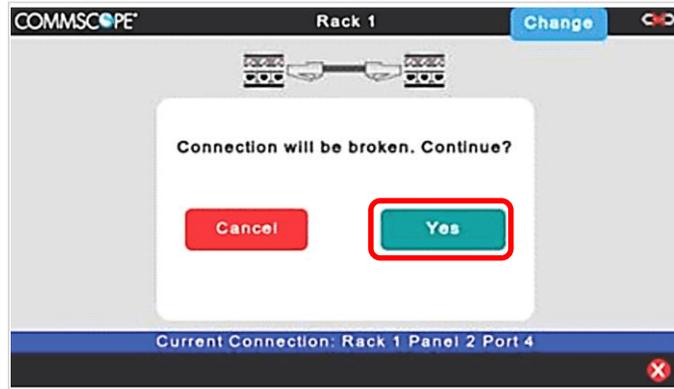
Step 3 – Confirm the correct connection for each port

After using the Change button, the imVision Controller will automatically step through each port that was involved in the changed connection. For each port, a "Confirm" screen will appear to provide guidance for confirming the connection information. Follow the on-screen instructions to create a new connection relationship between ports or with non-iPatch equipment.
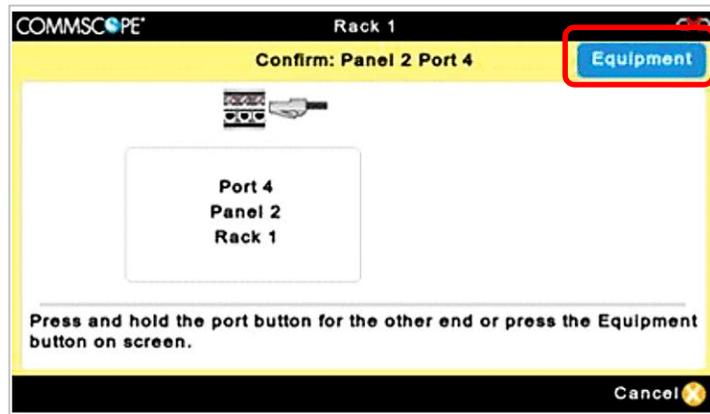
If the confirmation process is interrupted for any reason, the changed ports will remain on the Confirm list for later processing. **Confirming a Patch Connection** on the next page shows details about viewing the Confirm list and confirming patch connections.

Confirming a Patch Connection

If the imVision System no longer knows both ends of a connection, a Confirm tab will appear on the display. To confirm a connection, tap the *Confirm* tab on the display. You will see a list of any patch connections that need to be confirmed. On the display, select the patch connection you want to confirm.
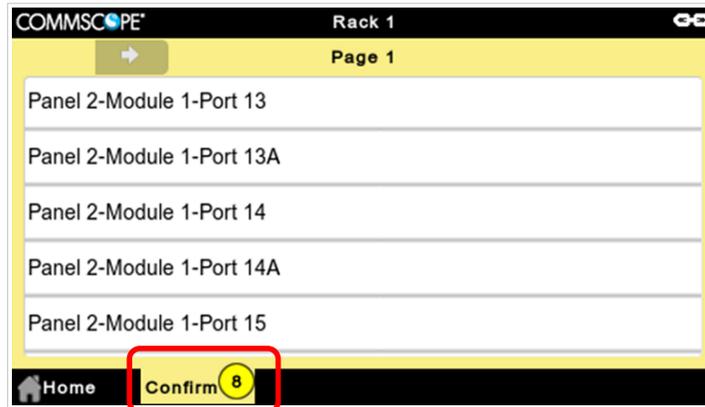
Then either:

- Press and hold the port button in the panel directly above the port where the other end of the cord is inserted and confirm on the display that the connection is complete,

  or

- If the other end of the patch cord is hanging free, plug in the cord and answer *Yes* to the question. Insert one end of the patch cord and press and hold the button on the panel directly above the newly connected plug. If the far end is not connected to the iPatch equipment, press and hold the button over the port that needs confirming.

If you need to…	You should…
Confirm the other end of a connection between two iPatch panel ports.	Locate the unknown end of the patch cord. Then press and hold the unknown port's button for 2 seconds.
Complete the connection to an iPatch panel port.	Insert the other end of the patch cord. If the connection information on the display is correct, press Yes.
Confirm the other end of a simplex fiber connection between 2 iPatch panel ports for a known port (and both positions for the port to be confirmed are in use.)	1. Select a port to be confirmed from the confirms list. 2. If confirming a fiber port, and the two strands of that port are patched to different endpoints, press the "simplex" button, and then use use the A/B toggle button to choose whether the B or A strand is to be confirmed. 3. Locate the far end of the patch cord being confirmed, and then press and hold the trace button above that port. 4. If the port where the cord terminates is a fiber port, both strands of the port are populated and the patch being confirmed is a simplex connection, the system will ask which of the two strands is the strand being selected. Use the A/B toggle button to choose whether the B or A strand is the far end of the patch being confirmed. When the correct connection is displayed, press Yes.
Complete the connection to equipment.	Press and hold the iPatch panel port's button for 2 seconds, or press the *Equipment* button on the imVision Controller display.
Remove the connection.	Remove both ends of the patch cord.

Connecting Controllers in a Zone

A *zone* is a group of racks and cabinets (including mainframes) between which patch connections can be made.

- An imVision Controller has two communications ports:

  1. A/IN
  2. B/OUT

The controllers in a zone must be connected to each other in a chain using patch cords between the controllers. In a zone, the "B" or "OUT" port of one controller must connect to the "A" or "IN" port of the next controller.

Additionally, the communications mode of each imVision Controller communication port must be selected using a pushbutton next to the port. The options for communications mode are:

Network or Unused

- The "Network or Unused" communications mode should be selected if the port is unused, or if the port will be connected to the customer's Ethernet network.

- The "Network or Unused" mode is selected when the button next to a port is in the "pushed in" position. When pushed in, the button is inset from the controller housing.

- To configure an imVision Controller as a Network Manager, at least one of the controller's buttons must be set to the "Network or Unused" communications mode.
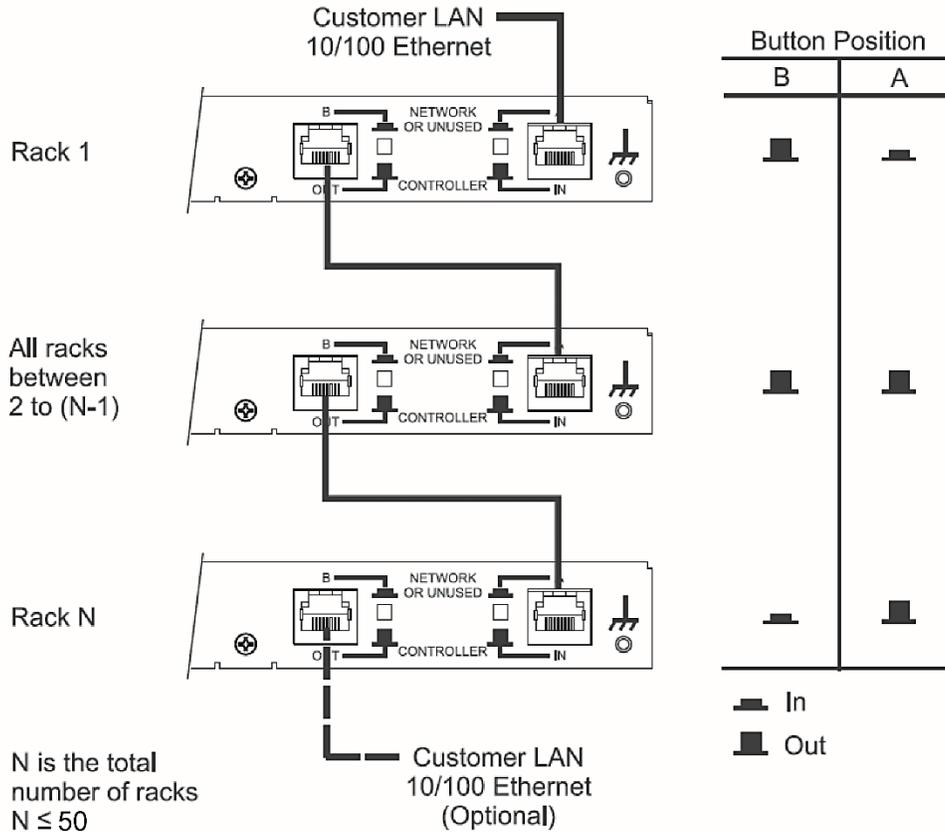
Configure a Zone Containing Three imVision Controllers

Controller

- The "Controller" communications mode should be selected if the port is used to connect from the imVision Controller to another controller in the zone.

- The "Controller" mode is selected when the button next to a port is in the "pushed out" position. When pushed out, the button is flush with the controller housing.

The example above shows the patch cord connections and button positions required to configure a zone containing three imVision Controllers.

Troubleshooting

You notice...	Possible causes include...	You should...
You attempt to trace a patch connection and the rack/panel/ port information does not appear on the imVision Controller display.	a. Panel bus jumper connecting the panel or shelf to the panel bus is loose or upside down. b. Panel bus jumper connecting the panel or module to the panel bus has failed. c. Panel or module is not communicating. d. Port's button has failed. e. HD Fiber module is not inserted	a. Check the panel bus jumper. If it is loose, secure both ends of the panel bus jumper. Make sure the polarized tab on the connector is inserted into the opening in the header on the panel bus. Also check that panel bus jumper chain is connected all the way back to the main panel bus. See instruction manual for details. b. Disconnect the panel bus jumper and connect a known working panel bus jumper. If the problem is fixed, permanently replace the failed panel bus jumper. c. Press a button on the imVision Controller. If the imVision Controller responds, see the troubleshooting information for the "Panel X (Row X) Not Communicating" alarm. d. Press the port's button. If the imVision Controller display does not change, the port's button has failed. You can use System Manager to mark the port broken". See the imVision System Manager help topic "Marking Ports and Outlets as Broken" or contact CommScope support. e. Verify HD Fiber module is properly seated in the shelf backplane.
You trace a patch connection and a port in the connection is identified on the display with the wrong panel or shelf number.	The order of iPatch equipment in the rack was not programmed correctly.	Use the Reset Panels feature to reprogram the order of iPatch equipment in the rack.
You attempt to trace a patch connection and the LEDs do not turn on where you expect.	a. Patch cord is not connected where it is supposed to be. b. Wrong connection has been recorded in the database.	a. Manually trace the patch connection to determine the other end of the connection. Remove the patch cord and reconnect the patch cord to the proper ports. b. Use the Trace and Change feature to update the connection.
Your administrator just used the System Manager Software to schedule a job, but the job does not appear on the imVision Controller display.	a. The imVision Controller is not communicating with the System Manager Software. b. The job was not scheduled as an "immediate" job. c. iPatch equipment in the equipment room is in use. d. System Manager was synchronizing its database with an equipment room when the job was scheduled. e. The job is not displayed because it cannot be performed until another job in the job queue is performed. f. System Manager has placed the job on hold because a port to be used in the job is unavailable or there is a problem at the equipment.	a. Check whether there is a red X ∞ appears on the Ready screen. If not see the troubleshooting table entry for this problem. b. Contact your System Manager administrator to check the scheduling for the job. Only jobs that are scheduled as "immediate" will be sent to the rack right away. c. Return to the Ready screen at the imVision Controller display. Do not perform any activities until you see "Communicating, Please Wait" and then the Ready screen. d. Wait for System Manager to complete the synchronization. Upon completion, it will automatically send the job. e. Perform any other jobs in the job queue. The job you are waiting for should appear. f. Contact your System Manager administrator to check why the job is on hold. Then respond to the problem causing the job to be kept on hold. See the imVision System Manager help topic "Managing the Work Order Queue"

You notice...	Possible causes include...	You should...
You are viewing a job and touch the Details button, and the Details information does not appear.	a. imVision Controller is communicating with the System Manager Software.	a. If "Communicating" appears on the display, the imVision Controller is in the process of communicating with System Manager. The information should appear after a few seconds.
	b. System Manager is unable to communicate with the imVision Controller.	b. If "Information not available at this time" appears on the display, check link indicator on upper right side of display; if link is down, refer to troubleshooting section for link down.
	c. There is a zone communication degraded alarm.	c. See troubleshooting section for zone communication degraded See troubleshooting information for this problem.
	d. Touchscreen on the imVision Controller has failed.	d. Exit the job screen. From the job list screen, touch Home. If the home screen does not appear, the touchscreen on the imVision Controller display has failed. Contact CommScope Support via the Support Portal.
You attempt to add or remove a patch connection and the imVision Controller display does not change.	a. Alarm conditions exist, such as imVision Controller X Not Communicating, panel X not communicating, or imVision Controllers Are Connected Incorrectly.	a. Refer to troubleshooting section for the type of alarm(s) in question.
	b. Panel's or module's sensor is bad.	b. Contact CommScope Support via the Support Portal.
You attempt to add a patch connection across two racks and both imVision Controllers fail to acknowledge the completed connection.	a. The port configuration switches on one or more imVision controllers is not set properly for the current patching	a. At each imVision controller, press Home to view the controller configuration screen. This screen will display the current configuration of that unit's IN and OUT ports. Make sure all ports connecting imVision controller units together are configured as Controller and that the IN port of rack 1 and the OUT port of the last rack are configured as Ethernet/Unused.
	b. imVision Controller is not connected to the adjacent imVision controller.	b. At the imVision Controller display, press Home, Tools, then highlight Reset Racks and press Continue. Check the imVision Controller units to see whether all of the displays show "Initializing, Please Wait". If an imVision Controller display does not show the message, the imVision Controller is not connected to the LAN. Connect the imVision Controller to the Rack Manager LAN.
	c. imVision Controller has failed	c. Attempt to add a patch connection to a different panel in the rack. If the imVision Controller does not respond, the imVision Controller has failed. Contact CommScope Support via the Support Portal.
	d. imVision Controller is not responding.	d. See the troubleshooting table entry for the "Controller X Not Communicating" alarm.
	e. Panel or module is not communicating with the imVision Controller.	e. See the troubleshooting table entry for the "Panel X (Row X) Not Communicating" alarm.
	f. Patch cord connecting an imVision Controller to an adjacent controller failed.	f. At the imVision Controller display, press Home, Tools, Press Reset Racks and select continue. Check the imVision Controller units to see whether all of the displays show "Initializing, Please Wait". If an imVision Controller display does not show the message, one of the patch cords connecting the imVision Controller to the imVision Controller LAN may have failed. Disconnect one of the patch cords and connect a working patch cord. If the problem is fixed, replace the failed patch cord. Otherwise, repeat for the other patch cord.

You notice...	Possible causes include...	You should...
You attempt to program the order of the panels and modules on a rack and the imVision Controller does not sound a confirmation tone after a button is pressed on the last panel in the rack.	You missed a row or module of iPatch ports on the rack.	Press Start Over. Make sure that you press a button on every row and every module of iPatch ports on the rack.
You power up any rack or run Reset Racks within a patching zone, but after initialization, the racks are not numbered in the expected order.	a. The IN and OUT port switch settings are configured incorrectly somewhere in the zone. b. The imVision LAN is connected incorrectly.	a. View the controller configuration screen on each rack to verify that the port switches are in the appropriate position. See the instruction manual for details. b. Verify that the OUT port of each controller is connected to the IN port of the subsequent controller in the chain. See instruction manual for details.
Display reboots.	USB cable between base and display was replaced by a cable that is too long or of poor quality.	a. Make sure USB cable is USB-IF certified. b. Make sure the USB cable is not more than 3 meters in
Supplemental trace information from System Manager is not displayed during unguided patching or trace.	The link with system manager is down. (Link icon has a red X.)	See troubleshooting guide for Link with System Manager is Down. Verify that any firewalls between the imVision controller and the System Manager server allow port 5558.
"Controller X Not Communicating" alarm is present on one or more racks in the patching zone.	a. The Controller in question has lost power. b. The Controller in question is improperly connected to the other controllers in the patching zone. c. The Controller in question does not have its IN and OUT port switches configured correctly. d. The Controller has been removed from the patching zone in question. e. The Controller in question has failed	a. Make sure the Controller is properly connected to its power supply unit, and that the power supply unit is plugged into a wall outlet. b. The Controller's IN port should be connected to the OUT port of the Controller in the rack to its immediate left, and its OUT port should be connected to the IN port of the Controller in the rack to its immediate right. c. If the Controller's IN port and/or OUT ports are connected to other controllers, the button should be placed in the "controller" position. If either port is connected to the customer's Ethernet network, or is empty, that port's switch should be placed in the "Network or Unused" position. See diagram on page 12. d. On any rack in the patching zone that is displaying the Controller X not communicating alarm, select the alarm, and press the "delete" button. This will tell all of the remaining racks in the patching zone that the controller in question has been removed. e. Contact CommScope Support via the Support Portal.
A "Panel X not communicating alarm" is displayed on a controller, and/or there is no response if any of the trace buttons are pressed on that panel.	a. The panel in question has become disconnected from the panel bus. b. The panel has failed. c. The panel is not supported by the current version of firmware loaded on the rack controller.	a. Ensure that the jumper that connects the panel to the panel bus is inserted securely at both ends. Also make sure the panel bus daisy chain is intact. b. Contact CommScope Support via the portal. c. Contact CommScope Support via the portal.