

Pathport[®] ***Rooms***

DMX Management For Divisible Halls

Operations, Maintenance
and Design Manual
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Overview

Pathport® *Rooms* is a room-combine system for control consoles, providing a DMX Management System for Divisible Halls.

Convention centers, meeting rooms and ballrooms often have the ability to be reconfigured into several smaller rooms. While architectural control systems can manage the control of room lighting in these special facilities, portable entertainment control consoles can be a problem. Pathport *Rooms* ensures that a console connected in one room doesn't "spill over" and control lights that it shouldn't in the next room.

In this document, "Hall" refers to the entire space. "Room" refers to a smaller area within the hall created by moving or closing temporary interior walls. Many hotels and convention centers refer to these smaller rooms as 'salons'.

Operational Philosophy

The *Rooms* Control Module is preprogrammed with a map of the hall and all possible room layout schemes within the hall. Associated with each layout scheme is a specific DMX channel routing table. Routing tables are based on the initial design specification and are created during the set-up, programming and commissioning of the system. With this information, the *Rooms* Control Module acts like a DMX patch bay with built-in signal splitting and merging options.

System hardware is interconnected using readily-available Ethernet wiring and switches. Power-over-Ethernet is supported to further minimize wiring requirements.

DMX input and output access points are provided in each possible room, using Pathport® nodes. Contact closure modules or an installation-specific selection interface – typically a pushbutton switch matrix (by others) – report the hall's current layout scheme to the *Rooms* Control Module.

As the configuration is changed, *Rooms* dynamically reassigns the DMX channels available in each given room of the hall. By automatically managing the channel routing, *Rooms* ensures an entertainment control console can only access the dimmers, moving lights and other devices within each desired area.

Because reassignment can include the merging or prioritizing of input sources, a *Rooms* system is typically interfaced with an architectural control system, so the general room or 'house' light controls are also automatically reconfigured according to the specific layout schemes.

Operation

Operation of the Pathport Rooms system is intended to be transparent to the end user.

To change the configuration, the user simply properly closes the walls necessary to create the rooms desired, or the user sets the new configuration with the installation-specific interface (by others). The *Rooms* Control Module detects the changes and automatically reassigns DMX channels accordingly.

Maintenance

The *Rooms* system requires very little maintenance.

The *Rooms* Control Module should be powered directly from an appropriate, unswitched electrical source, ideally incorporating an uninterruptible power supply (UPS). In the event power is lost to the Control Module, adequate time must be allowed once power is restored for the Control Module to reboot and re-establish the hall's configuration before any reconfiguration is undertaken.

Contact closure modules should be periodically inspected for damage or loose connections and tested.

Pathport nodes should be periodically inspected for physical damage from impacts or spilled liquids, but otherwise require no maintenance.

If an installation-specific switch interface has been provided, please follow the interface's documentation regarding maintenance.

Other elements of the *Rooms* system, such as Ethernet switches and wiring, should be maintained and inspected according to their manufacturers' recommendations.

Troubleshooting

Please remember *Rooms* is a signal distribution system. The vast majority of problems that arise lie with the control console or the equipment at the other end, rather than the wiring in between. Before attempting the recommendations below, ensure that the controller and the end equipment are powered up, configured and functioning correctly.

1. Lights or other equipment come on in unexpected or undesired places.
 - a. Ensure that all moving or temporary walls are properly closed for this particular room configuration, the manual room-combine switches are set correctly, and that the contact closure modules are undamaged and properly engaged.
 - b. If an oversight in the original channel assignments is suspected, contact the original installer or integrator for correction.
2. The *Rooms* Control Module appears to be frozen.
 - a. The Control Module is able to auto-recover from errors. Do NOT manually reboot the server by cycling the power.
3. The input and output Pathport nodes don't appear to be on.
 - a. *Rooms* systems typically employ Ethernet switches with a Power-over-Ethernet capability. Ensure the switch is on and follow the switch manufacturer's instruction to ensure PoE is active.
 - b. Contact your installer or integrator to test the wiring between the switch and the nodes.

Layout and Configuration - Overview

The steps below will guide a designer through determining the hardware requirements of a *Rooms* system and will gather and organize the information required to configure and program the Control Module. The steps are suitable for creating a new installation, extending a current one, or retrofitting a *Rooms* system into an existing hall. Sample worksheets are included in the appendix.

For those unfamiliar with the DMX512 control protocol for entertainment lighting, please keep these key points in mind while planning. The protocol allows for a maximum of 512 channels of control. If more channels are required, they will exist in a second 'universe' of 512 channels, then a third and so on.

Although a dimmer requires only one DMX channel to operate, a moving light may require as many as 32. Each output port will provide one universe of channels, so it is a good practice to specify a 2-port node for each general output location.

The *Rooms* System will manage up to 128 possible input universes. There is no limit to the number of outputs.

It is possible to set multiple devices to a single DMX control channel, such as when many dimmers are required for the ceiling lights in a given area or zone, but the lights are always to be controlled together.

Layout and Configuration – Design Process

1. Make a drawing of the hall.

The drawing should be with all walls and partitions closed, showing the maximum number of rooms. Label the rooms (A, B, C, etc.). It may be useful to note the location of the devices described in each further step, or to make copies of the base drawing and devote one copy to each type of device.

2. Create a table of Input Ports.

An input port is an access point for a portable control console, so the ports should be located in each room where users are likely to place their control board. List each input port by node serial number and port letter, room location, node type and any special notes.

3. Create a table of General Output Ports.

A general output port is a location where event-specific or portable equipment can be plugged in to receive DMX control. General output ports should be placed near anticipated stage locations or evenly scattered around a given room. There is no limitation to the number of outputs in a Rooms system. List each output port by node serial number and port letter, room location, node type and any special notes.

4. Create a table of Dimmer Output Ports.

Dimmer output ports will typically be located in a separate dimmer room from the hall proper. Determine the number of required dimmer ports from the number of dimmer racks or relay panels and their intended usage. Sometimes a hall will have designated locations for temporary dimmers inside the hall itself. A dedicated dimmer output port should be used at such locations, rather than utilizing a general output port.

List each dimmer output port by number, location (if necessary), node type, rack name and the rack's planned range of DMX addresses. Note which room or rooms contain the lights controlled by the rack's dimmers.

Optionally, stipulate a specific channel to be used for some or all of the rack's dimmers, regardless of the hall configuration.

5. Create a table of Miscellaneous Device Ports.

Miscellaneous device ports are devoted to permanently installed equipment such as moving lights, cove lighting or accent LED strips. While determining numbers and locations, bear in mind the number of DMX channels some of these devices require. List each miscellaneous device port by serial number, port letter, room location, node type and purpose. Note the number of channels of DMX required and the start address, if known.

Optionally, stipulate a specific channel or range of channels to be used by the device or devices, regardless of the hall's configuration.

6. Create a table of Device and Fixture Groups

Although not strictly necessary, this step ensures no equipment is overlooked and assists in the logical grouping of equipment. The difference between a device and a fixture is that a device is equipment that receives DMX, such as a dimmer, which in turn controls a fixture or fixtures, such as pot lighting. Some equipment, such as a moving light, can be treated both as a device and a fixture. A device or fixture group can consist of a single piece of equipment.

A fixture group consists of a number of fixtures that should behave the same (i.e. potlights), even though they are controlled by a number of different devices (i.e. dimmers). Fixture groups are usually based on individual rooms.

A device group can also be used to ensure similar behavior. For example, a device group can be used to control the color attribute of a group of moving lights, even though the pan and tilt of each light will be different.

List each group by equipment type, room location, node and port it's connected to, DMX channels required, DMX start address, purpose and any special notes.

7. Create a table of Input Groups.

Sort input ports into groups that should control the same equipment. First describe the groups required for a completely open hall, then describe the groups if all the internal walls were closed.

8. Create a Connection Description.

Describe how the input groups will connect to the output ports, miscellaneous device ports and to the device and fixture groups. The order the ports and groups are listed is the order in which DMX channels will be assigned. There are four distinct ways Rooms will connect the inputs to the outputs.

a. Absolute Patch. The device or fixture group will always be at the same DMX address or address range.

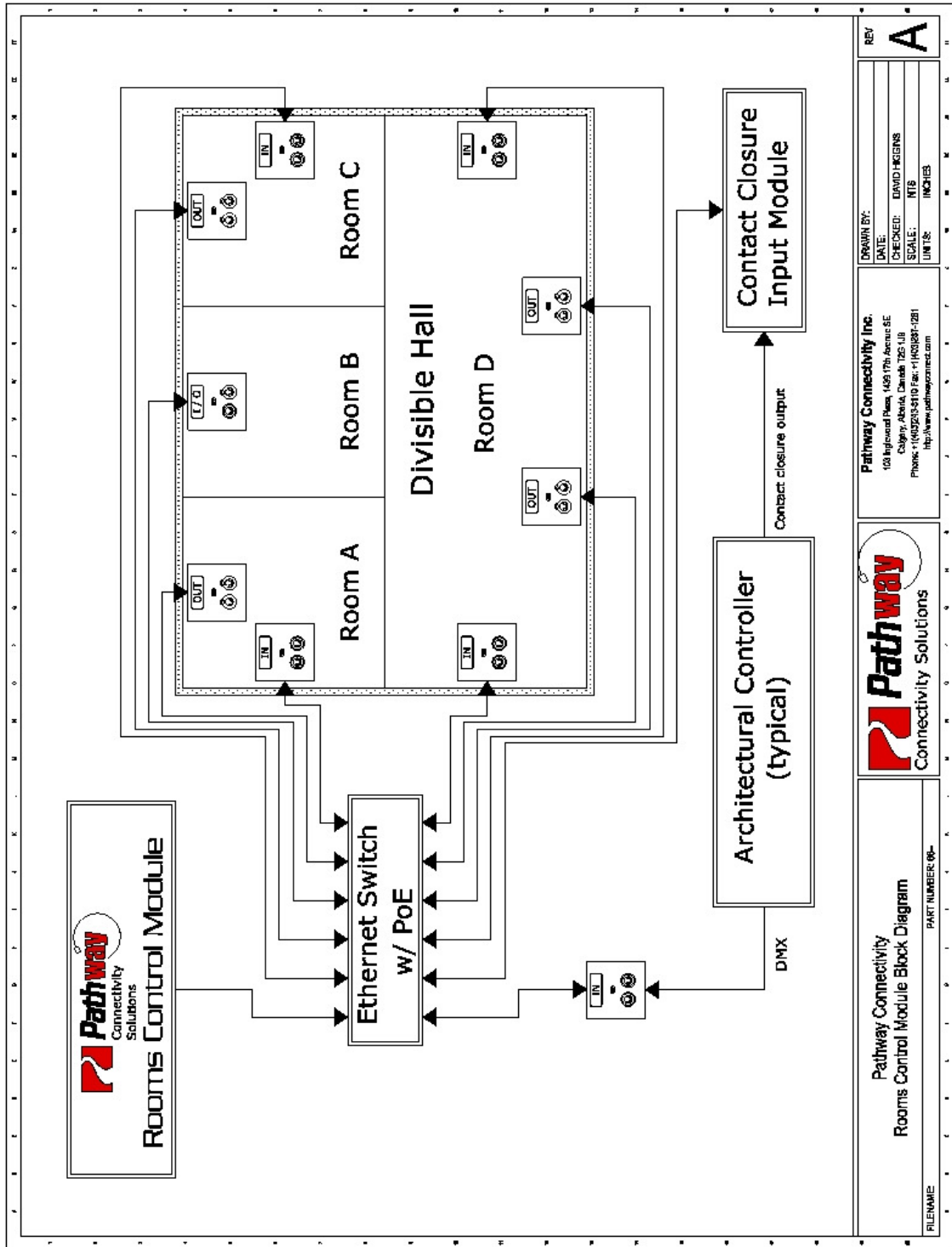
b. Consolidate. The device or fixture group will be controlled by a user-specified single DMX control channel.

c. Append. The device or fixture group will be appended starting at the next available DMX channel and will be mapped on a one-to-one basis, allowing for individual control.

d. Disconnect. The device or fixture group will be disconnected.

Once the relationship between the input nodes and the end equipment is summarized, along with how the input nodes are to connect to the end equipment in each applicable hall layout, the paperwork is now in place for the Pathway Connectivity technician to set up and program the Rooms Control Module internal database.

Appendix 1 – Typical System Layout



Appendix 3 – *Rooms* and Pathport Components

Rooms Controller Modules

Model Number	Model Description
6605	Pathport <i>Rooms</i> controller for up to 5 rooms
6610	Pathport <i>Rooms</i> controller for up to 10 rooms
6620	Pathport <i>Rooms</i> controller for up to 20 rooms
6630	Pathport <i>Rooms</i> controller for up to 30 rooms

Pathport System Components

Model Number	Model Description
6001	Single node inline power supply
6010	Pathport Manager Configuration Software on CD
6101	Pathport Uno, Single DMX input node with cover
6102	Pathport Uno, Single DMX output node with cover
6151	Pathport Uno, Single DMX input with Portable Enclosure and bracket
6152	Pathport Uno, Single DMX output with Portable Enclosure and bracket
6201	Pathport C-series node with 2 DMX inputs (XLR5)
6202	Pathport C-series node with 2 DMX outputs (XLR5)
6203	Pathport C-series node with 1 DMX input and 1 DMX output (XLR5)
6225	Pathport D-series node with 2 DMX ports (terminals) and backbox
6235	Pathport R-series node with 2 DMX ports (terminal strips)
6241	Pathport R-series node with 2 DMX inputs (XLR5)
6242	Pathport R-series node with 2 DMX outputs (XLR5)
6243	Pathport R-series node with 1 DMX input and 1 DMX output (XLR5)
6301	Pathway DMX Manager Plus 4-port node (XLR5)
6302	Pathway DMX Manager Plus 4-port node (terminal strips)
6901	C-series Surface Mount Enclosure
6911	C-series Portable Enclosure with hanging bracket
6913	R-series Truss mount kit
6931	R-series front connectors adaptor kit – inputs (XLR5)
6932	R-series front connectors adaptor kit – outputs (XLR5)
6933	R-series front connectors adaptor kit – input/output (XLR5)
6950	RJ45 female in-line mini-jack and M-M RJ45 jumper kit