

Matrix Switch Corporation

Mascot Control Protocol

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1 Mascot Control Protocol

The MASCOT (MAtrix Switch COrporaTion) protocol provides an ASCII text based command interface via several different transports to control and get status from Matrix Switch Corporation devices. This command protocol can be utilized for manual control or for integration with automation control systems.

Mascot command interface options

- [Web Page Command Tab](#) – The most convenient interface, which can be accessed using a Web Browser from a Computer system on the same network connected via the device's Ethernet port.
- TCP/IP port 40 – A telnet interface is provided on TCP/IP port 40 which uses the device's Ethernet connector as a physical transport.
- RS-232 Serial Port (Router devices and MSC-GCP2U32 LCD Control Panel)
 - Router serial config: 9600 baud, 8 data bits, 1 stop bit, No Parity, No flow control
 - MSC-GCP2U32 serial config: 115200, 8 data bits, 1 stop bit, No Parity, No flow control

3rd Party support

This protocol is currently supported by Crestron controllers. For information about other third party control system manufacturers who support this protocol, contact Matrix Switch Corporation.

1.1 Protocol changes

As new commands are added or other changes occur, the MASCOT protocol version is incremented. The protocol revision can be obtained using the [MascotVer command](#).

Protocol revision history.

Mascot version 2.1 (Carina Series Firmware 5.3.0)

- New commands: [PairIO](#) – for paired I/O 3D support, [PanelOfs](#) – for defining remote panel I/O regions to control, [PanelRate](#) – to set remote panel refresh rate, [ReclkDis](#) – for disabling SDI reclockers and [RemoteSync](#) – for synchronizing two video router systems for 3D use.
- Added E12 “Unsupported command” error which is returned when a command is not supported by the current system or settings.
- Added support for Line Feed character as a command terminator (to be compatible with older firmware). Carriage Return should normally be used.
- Added “lock” (0x02) and “reclk” (0x04) to [MtxCfg Command](#) “flags” field.

1.2 Telnet access

A telnet client can be used to access the command interface on TCP/IP port 40. Many operating systems come with a Telnet client or one can be easily obtained. To control a device using Telnet the IP address and TCP/IP port number will need to be supplied. This is typically added as arguments when executing the “telnet” command via your operating system's command prompt or run dialog. Here is an example for a device on the IP address 192.168.2.60:

```
telnet 192.168.2.60 40
```

Press the Enter key which should display the command “>” prompt character, confirming that the device is connected.

1.3 Serial access

Matrix Switch router systems come equipped with a serial port which can be used as another means

of sending Mascot commands. Connect a Computer system to the router device using a 9 pin RS-232 serial cable. Using this interface requires a serial terminal program, such as HyperTerminal on Windows. Configure the terminal software for 9600 Baud, 8 Data Bits, 1 Stop Bit, No Parity and No Flow Control. In addition Local Echo should be on in order to see what is typed. Pressing the Enter key once connected should yield the “>” prompt character.

1.4 Command format

Commands consist of a command name, zero or more arguments separated by commas and a carriage return (CR, ASCII 13 - the Enter key on a keyboard). Optionally multiple commands can be combined by separating them with a '#' character and the command chain is terminated with a CR character. Spaces are not required between arguments, but can be optionally supplied for readability. A space is also not required between command names and their first argument, if the argument is numeric.

Special command characters

#	Multiple command separator, for chaining commands.
<CR>	Carriage Return (ASCII 13), indicates the end of a command or chain of commands, Enter key.
<BS>	Backspace character (ASCII 11), can be used to backspace characters in interactive command shells.
“	Used for double quoting string arguments.
'	Used for single quoting string arguments.

Command example

```
X1, 1#X2, 2#S<CR>
```

Connects Source 1 to Destination1 and Source 2 to Destination 2, followed by displaying the Active Routing matrix status. The <CR> is the Carriage Return character.

1.4.1 Command names

Command names consist of one or more alphabetical characters and are case **insensitive**. For convenience with manual command entry they can also be matched using partial names. The first matching alphabetically sorted command is used (for example: 'H', 'He', 'hEL' or 'Help' can be used to execute the Help command). This feature, however, should not be relied on with automation systems, since a given partial command may execute a different command as new ones are added to the protocol.

1.4.2 Command arguments

Command arguments are separated into two categories: numeric and string arguments. These are further explained in the table below:

Command argument types			
Numeric		String	
Decimal (123)	1 to 3 decimal digits	Unquoted	Commands with string arguments automatically interpret argument as string (spaces and commas not allowed).
Hex (0x3D)	0xNN where NN are 2 hex digits	Double quoted	One or more characters surrounded by double quotes (“An Argument”).
		Single quoted	One or more characters surrounded by single quotes ('An Argument').

1.5 Response format

Most command responses consist of one or more values separated by newlines and ending with the '>' prompt character. **Newlines** follow the "DOS" Carriage Return/New Line (CR LF) pair of characters (ASCII 13 followed by ASCII 10).

The Prompt '>'

A prompt character '>' is displayed each time a command or chain of commands is entered, to indicate readiness to receive additional commands. If an error occurs in response to a command, an error will be displayed prior to the prompt with the following format:

```
E00: Error message
>
```

00 will contain a 2 digit decimal error code.

1.6 Command argument values

Command arguments are shown in the Help command output surrounded by square brackets '[ARG]' or parenthesis '(ARG)'. Square brackets indicate an optional argument and parenthesis indicate a required argument. Any optional argument specified requires that all prior optional arguments are also specified.

Argument	Valid Range	Meaning
DEST	1-N	Destination number (N = Count of destinations)
SRC	1-N or 0	Source number (N = Count of sources), 0 acts as mute (if supported).
LEVEL	1-N	Level number (N = Count of system levels)
PRESET	0-9	Preset number (preset 0 is special Startup preset)
IP	D.D.D.D	IP address string argument, specified as 4 decimal digits from 0 to 255 separated by periods.
NETMASK	D.D.D.D	Network mask string argument, specified as 4 decimal digits from 0 to 255. Must be a valid IPv4 netmask.
LABEL	string	A string label argument, max of 8 characters.
STR	string	A generic string argument (max length depends on command).

1.7 Error codes

This following table shows possible error codes which may be returned in response to commands.

Error #	Message	Description
E01	Token too long	A command name or string argument was too long.
E02	Invalid command	Invalid command name.
E03	Invalid argument	One or more invalid argument values.
E04	Invalid destination	Invalid matrix destination number.
E05	Invalid source	Invalid matrix source number.
E06	Invalid level	Invalid matrix level number.
E07	Invalid preset	Invalid preset number.
E08	Unterminated string	Double or single quoted string not terminated.

E09	Backspace limit reached	Devices have a limited backspace buffer size, if too many characters are backspaced and then more characters are appended, this error will occur.
E10	HTTP buffer overflow	Only applicable to the web page command interface. Unlimited command input or output can be handled, but not both.
E11	Serial receive overrun	One or more characters were lost on the serial interface.
E12	Unsupported command	Command is not supported by the system or current configuration. Firmware 5.3.0 and newer.

1.8 Basic command reference

Basic commands consist of those commands which are used for modifying the state of the matrix routing and other simple commands.

Command	Arguments	Description
Help		Display command help reference.
P *	[PRESET]	Recall a preset.
PAdd *	(PRESET)(DEST)(SRC) [LEVEL]	Add a connection to a preset.
PClr *	(PRESET)	Clear a preset to “No Change” values.
PSub *	(PRESET)(DEST)[LEVEL]	Subtract a connection from a preset.
PView *	[PRESET]	View preset contents.
S *	[1]	Matrix routing status (supplying 1 will display labels).
W *	[PRESET]	Store current matrix routing to a preset.
X *	[DEST][SRC][LEVEL]	Perform a matrix connect operation.

* - Router systems only

1.9 Advanced command reference

These additional commands consist of those which are not as commonly used as the basic commands, such as system configuration commands.

Command	Arguments	Description
B	(0 1)	Reboot system into Bootloader, typically used for software update. A 0 or 1 value is required and selects the Bootloader IP address. A value of 0 uses 192.168.2.59 and 1 uses configured system IP.
C *		Query system matrix info, which is displayed in the format DESTS,SRCS,LEVELS,FLAGS1,FLAGS2. MtxCfg command supersedes this one.
DestNames *	[DEST][LEVEL][LABEL]	Query or assign destination names.
DHCP	[0 1]	Query or assign DHCP enable.
E *	[0 1]	Query or assign matrix connection echo enable.
Firmware		Query system firmware version.
FrameIP	[IP]	Remote router IP address the panel will control.
Gateway	[IP]	Query or assign network gateway IP address.

IP	[IP]	Query or assign device system IP address.
LockStatus *		Get video lock status and rate detection information (not all HD router systems are supported).
MAC		Query system MAC address
MascotVer		Query Mascot protocol version.
MtxCfg *+	[0-7]	Query current matrix config.
NetMask	[NETMASK]	Query or assign network mask.
PairIO *@	[0 1]	Query or assign I/O pairing enable (3D support).
PanelOfs @	[DEST][SRC][LVL1] [LVL2]	Query or assign button panel destination/source offsets and levels to control. Useful for configuring multiple panels to control different I/O regions of a router.
PanelRate @	[RATE]	Set remote panel refresh rate in seconds.
PsetNames *	[PRESET][LABEL]	Query or assign preset names.
Reboot		Reboot the system.
ReclkDis *@	[0 1]	Disable HD reclockers (not all HD router systems are supported).
RemoteSync *@	[0 1]	Query or assign remote router syncing. Useful for creating a 3D system out of 2 routers.
SrcNames *	[SRC][LEVEL][LABEL]	Query or assign source names.
SysName	[STR]	Query or assign system name.
WebPass	(STR)	Assign web password.

* Router systems only.

+ Added with protocol version 2.0 (Carina Series firmware version 5.2.1).

@ Added with protocol version 2.1 (Carina Series firmware version 5.3.0).

1.10 Detailed command descriptions

In this section can be found detailed documentation of each command in alphabetical order.

1.10.1 B Command

The B command is used for rebooting the system into Bootloader for software updates. See the Software Update section for details.

1.10.2 C Command

NOTE: Superseded by the [MtxCfg Command](#).

The C command queries the matrix size. The response is in the format “Dests,Srcs,Levels,Flags1,Flags2”. Where “Dests” is the count of system destinations, “Srcs” is the count of sources and “Levels” is the number of system levels. The Flags1 and Flags2 fields are currently unused and will be 0.

Example for a 16x16 system with 2 levels

```
>C
16,16,2,0,0
>
```

1.10.3 DestNames Command

Query or assign destination names. This command has 4 variations, described by the following table. Destination names are saved and recalled on power up.

Command	Description
DestNames	Query all destination names.
DestNames DEST	Query destination names for all levels of a given destination.
DestNames DEST, LEVEL	Query the name of a specific destination and level.
DestNames DEST, LEVEL, LABEL	Assign a label to a destination.

When querying names, labels are surrounded by double quotes and each level is separated by commas ',' (multi-level systems only) and each destination is separated by newlines. Secondary levels use empty strings to indicate that the label of the first level should be used.

Examples

```
>DestNames
"Dest1","AudDest1"
"Dest2",""
"Dest3",""
"Dest4",""
>DestNames 1
"Dest1","AudDest1"
>DestNames 1,2
"AudDest1"
>DestNames 1,2,""
>
```

The first 3 example commands are query commands. The last assigns an empty string to the second

level of the first destination (thereby indicating that the first level label should be used).

1.10.4 DHCP Command

Query or assign DHCP enable. A value of 0 disables DHCP client support and will therefore use the manual values assigned via the IP, Netmask and Gateway commands. A value of 1 enables DHCP and will obtain the values for the IP address, Netmask and Gateway from your DHCP server. This value is saved and recalled on power up.

WARNING: A DHCP server must be present on your network for this to function properly. Using DHCP allows for dynamic IP or fixed IP assignment from a central location (the DHCP server). Using this option is only recommended if using fixed IP assignment or if there is a way to determine what IPs the Matrix Switch Corporation systems get assigned. Otherwise it may become difficult to determine what IP address to use when accessing the Web Page interface.

Command	Description
DHCP	Query DHCP enable.
DHCP 0 1	Set DHCP enable (0 to disable, 1 to enable)

Examples to query and then enable DHCP

```
>DHCP
0
>DHCP 1
>
```

1.10.5 E Command

Query or assign matrix routing changes echo. A value of 0 disables this feature. A value of 1 will cause all matrix routing changes to be echoed in the form of an X command: “Xd,s[,l]”. Where 'd' is the destination number, 's' is the source number and 'l' is the optional level number. This is useful for diagnostic purposes or automation software which would like to receive synchronous matrix routing state updates.

NOTE: Enabling this feature may slow down the system significantly during excessive matrix routing changes (especially when enabled on the serial port). Also of note is that this option takes effect only while the system remains powered (serial port) or for the duration of the connection (TCP/IP telnet sessions). This command is not supported by the HTTP web command interface.

Command	Description
E	Query matrix echo enable.
E 0 1	Set matrix echo enable (0 to disable, 1 to enable).

Examples to query and then enable matrix echo

```
>E
0
>E 1
>
```

1.10.6 Firmware Command

Query the system firmware version.

Example

```
>Firmware
5.0.6
>
```

1.10.7 FrameIP Command

Query or assign the remote router IP address. Usually only used on Remote Panel devices or in conjunction with the [RemoteSync Command](#) to create a dual router 3D system. Sets the IP address of the Router system which the button panel will connect to and control (or which the router will synchronize to when using the RemoteSync command). This can also be enabled on Router systems with a local button panel to configure the Router's panel to control a different Router (set to 0.0.0.0 by default to disable remote control and control the Router device itself). This setting is saved and recalled on power up.

Command	Description
FrameIP	Query IP address of remote Router system to control.
FrameIP IP	Set IP address of remote Router system to control (use 0.0.0.0 on Router systems to disable remote control).

Example to query and assign the remote Router IP

```
>FrameIP
192.168.2.60
>FrameIP 192.168.2.61
>
```

1.10.8 Gateway Command

Query or assign the network Gateway IP address. This is usually only needed on Remote Panel systems which control a Router device on a different network. This setting is saved and recalled on power up.

Command	Description
Gateway	Query IP address of network Gateway.
Gateway IP	Set IP address of network Gateway.

1.10.9 Help Command

Display command reference information.

1.10.10 IP Command

Query or assign the system IP address. This setting is saved and recalled on power up.

WARNING: The system IP address should only be changed if one has an understanding of TCP/IP network configuration. Maintaining the ability to access a device's web page and for Remote Panel devices to be able to communicate with Routers requires that the IP address is known, valid and

systems are configured to be on the same IP network. In the event that the IP address of a system is unknown, Router systems can be configured via RS-232 Serial and Remote Panels can be temporarily forced to use the default IP network settings by enabling DIP switch 8.

Command	Description
Ip	Query IP address of the system.
Ip IP	Set IP address of the system.

Example querying and assigning the IP address

```
>IP
192.168.2.60
>IP 192.168.2.61
>
```

1.10.11 LockStatus Command

Query the video lock status and video rate of a Video Router's outputs. This command is only supported on some Router systems. Unsupported systems will return an "Unsupported command" error on version 2.1 and newer protocol versions and blank output on older versions.

Command	Description
LockStatus	Displays Video lock status and rate detection for outputs. Format is one decimal number per output (0: Unlocked, 1: SD, 2: HD).

Example for a 16x4 system (SD, HD, Unlocked, Unlocked)

```
>LockStatus
1,2,0,0
>
```

1.10.12 MAC Command

Query system Ethernet MAC address.

Command	Description
MAC	System Ethernet MAC address in hh:hh:hh:hh:hh:hh where each hh is a pair of hex digits.

Example

```
>MAC
00:50:C2:8B:DF:FE
>
```

1.10.13 MascotVer Command

Query Mascot protocol version. This is useful for software which interacts with a device using the Mascot protocol and wants to discover what protocol version is in use.

Example

```
>MascotVer
1.0
>
```

1.10.14 MtxCfg Command

Protocol Version: 2.0

Query matrix configuration. This command replaces the C command and provides the ability to query the matrix dimensions, labels, current matrix state and preset data. The information to return is specified by the sum of the flags values listed in the following table:

Flag	Information	Fields in JSON data
1	Return names (Destination, Source and Preset).	destNames, srcNames and psetNames
2	Return matrix routing state.	state
4	Return preset routing data.	psetData

The returned data is JSON formatted data (see www.json.org for details).

If no arguments are specified then a simple format is returned consisting of an array of arrays (one per level) with 3 integer numbers specifying the destination count, source count and flags of the level. The flags value is the some of one or more values from the Flags table below.

Flags

Name	Value	Description
mute	1	Mute support.
lock	2	Video lock status query support
reclk	4	Reclocker disable support.

Example

```
>MtxCfg  
[[8,8,3][4,8,0]]
```

The example above is simple output (no arguments) for a matrix with 2 levels, the first has 8 destinations, 8 sources and supports mute and lock status query (1 + 2 = 3). The second level has 4 destinations, 8 sources and does not support mute, lock status query or reclocker disable.

If an argument is specified (0-7), then a more descriptive JSON structure is returned, of the following form (newlines and spaces added as a visual aid, but are not necessarily part of the response):

```
{  
  "version" : 1,  
  "status" : "STATUS",  
  "levels" :  
  [  
    {  
      "name" : "NAME",  
      "type" : "TYPE",  
      "destCount" : DEST_COUNT,  
      "srcCount" : SRC_COUNT,  
      "flags" : "FLAGS",  
      "destNames" : [ "NAME", "NAME", ... ],  
      "srcNames" : [ "NAME", "NAME", ... ],  
      "state" : [ SRC, SRC, ... ],  
    }  
  ]  
}
```

```

    "psetData" : [ [ SRC, ... ], [ SRC, ... ], ... ]
  },
  ...
],
"psetNames" : [ "NAME", "NAME", ... ]
}

```

Table of information on values in capital letters above:

Label	Description
STATUS	Matrix status: OK, UPDATING, DISCONNECT or ERROR. Returned if the matrix is OK, updating (from a remote router for example), one or more remote routers disconnected or a general error (remote router in error status for example) respectively.
NAME	Descriptive name of a level, destination, source or preset (8 chars or less).
TYPE	Level type: VIDEO, AUDIO, HD, VGA, 3G, ANALOG or AES. Used for general video, general audio, HD video, VGA video, 3G HD video, analog audio or AES digital audio respectively.
DEST_COUNT	Count of destinations for the level.
SRC_COUNT	Count of sources for the level.
FLAGS	A space separated list of flag keywords indicating support for various features, as defined by the Name column in the Flags table above.
SRC	Source values for matrix state and preset data. Values start from 1, 0 represents mute and -1 represents "No Change" (for preset data only).

Example - Newlines and spaces added to response as a visual aid.

```

>MtxCfg7
{
  "version" : 1,
  "status" : "OK",
  "levels" :
  [
    {
      "name" : "Level1",
      "type" : "VIDEO",
      "destCount" : 4,
      "srcCount" : 4,
      "flags" : "mute",
      "destNames" : [ "Dest1", "Dest2", "Dest3", "Dest4" ],
      "srcNames" : [ "Src1", "Src2", "Src3", "Src4" ],
      "state" : [ 1, 2, 3, 4 ],
      "psetData" :
      [
        [ 1,2,3,4], [ 1,1,1,1], [-1,-1,-1,-1], [-1,-1,-1,-1],
        [-1,-1,-1,-1], [-1,-1,-1,-1], [-1,-1,-1,-1], [-1,-1,-1,-1],
        [-1,-1,-1,-1], [-1,-1,-1,-1]
      ]
    },
  ],
  "psetNames" :
  [
    "Startup", "Preset1", "Preset2", "Preset3", "Preset4",
    "Preset5", "Preset6", "Preset7", "Preset8", "Preset9"
  ]
}

```

The example output above is a typical response for a 4x4 Video router. Current matrix routing is

“straight through”, 10 presets are defined (1st is straight through, 2nd is mapped all to source 1, and all other presets have not been assigned (No Change). Note that future protocol versions may support more than 10 presets and therefore may return information for more or less than 10 presets for the psetData and psetNames arrays.

1.10.15 NetMask Command

Query or assign the system network mask value. This value is related to the IP address of the system and is used for IP communications over the Ethernet network. This setting is saved and recalled on power up.

WARNING: The system netmask should only be changed if one has an understanding of TCP/IP network configuration. Maintaining the ability to access a device's web page and for Remote Panel devices to be able to communicate with Routers requires that the IP address is known, valid and systems are configured to be on the same IP network. In the event that the IP address or Netmask of a system is unknown, Router systems can be configured via RS-232 Serial and Remote Panels can be temporarily forced to use the default IP network settings by enabling DIP switch 8.

Command	Description
NetMask	Query network mask value.
NetMask NETMASK	Set network mask value.

Example querying and assigning netmask

```
>NetMask
255.255.255.0
>
```

1.10.16 P Command

Recalls a preset. Each Router system contains 10 presets numbered 0 through 9 which can store the entire matrix routing state or one or more single destination connections. Preset 0 is recalled on system power up.

Command	Description
P PRESET	Recall a preset.

Example to recall preset 1

```
>P 1
>
```

1.10.17 PAdd Command

Preset add command. Adds a connection to a preset. This can be used to incrementally create a preset without changing the active matrix routing. 0 can be used for SRC for Mute (if supported). This command stores preset information which is retained and available through system power cycles.

Command	Description
PAdd PRESET, DEST, SRC	Add a connection of SRC to DEST on PRESET for all levels.
PAdd PRESET, DEST, SRC, LEVEL	Add a connection of SRC to DEST/LEVEL on PRESET.

Example

```
>PAdd 1,2,3
>PAdd 1,3,0,2
>
```

The first command adds a connection from Source 3 to Destination 2 on Preset 1. The second command Mutes Destination 3/Level 2 on Preset 1.

1.10.18 PairIO Command

Protocol Version: 2.1

I/O pairing is used for pairing destinations/sources for 3D support. When activated a router will appear to have half the number of physical destinations and sources. A given matrix crosspoint change will cause 2 destinations to be changed. Each odd destination/source is paired with the next highest even number destination/source. This option is stored and recalled on power on. When enabling this feature on a 4x4 video router for example, it would appear as a 2x2 3D router where destination 1 & 2 are paired and 3 & 4 are paired, likewise for sources. This setting is stored and recalled on power up.

Command	Description
PairIO	Query current value of I/O pairing configuration.
PairIO 0 1	Enable or disable I/O pairing (0: disable, 1: enable)

Example

```
>PairIO
0
>PairIO 1
>
```

The first command queries the current state of I/O pairing, the second enables it.

1.10.19 PanelOfs Command

Protocol Version: 2.1

Define destination/source regions or assign media levels which a remote panel controls. This is typically used to configure multiple remote panels to control portions of a video/audio router. For example, two 8x8 remote panels could be used to control separate halves of an 8x16 router, the first would control the default destination 1-8 and the second would be configured using this command to control destination 9-16 (a destination offset of 9). Another useful configuration would be to configure one remote panel to control video only and another to control audio only of a video/audio router by assigning primary level values of 1 and 2 respectively using this command. This setting is stored and recalled on power up.

Command	Description
---------	-------------

PanelOfs	Query current panel offset settings, 4 values are returned separated by commas, corresponding to the same values which are assigned.
PanelOfs DESTOFS, SRCOFS, LVL1, LVL2	Assign panel destination/source offsets and level control values.

The DESTOFS parameter assigns a destination offset that determines which destination the button panel starts on, 0 is used for no offset (default). The SRCOFS parameter is used likewise to assign a source offset. The LVL1 and LVL2 parameters are used for modifying what levels the panel will control. The default is 0 for both values which uses the default levels of 1 and 2 for the primary and secondary levels respectively. If LVL1 is assigned a value other than 0 and LVL2 is 0 then the secondary level control will be disabled.

Examples

```
>PanelOfs
0,0,0,0
>PanelOfs 1,0,0,0
>PanelOfs 0,0,2,0
>
```

The first command just queries the current panel offset values, which returns all 0s (the default). The second command assigns 1,0,0,0 which sets a destination offset of 1, which will set the first destination of the button panel to destination 2. The third command sets up a button panel to control the 2nd level of a router.

1.10.20 PanelRate Command

Protocol Version: 2.1

For changing remote button panel refresh rate. When a button panel is configured to control a remote router the current connection status is refreshed at regular intervals. This command can be used to increase or decrease the rate, which is saved and recalled on system power up. The default refresh rate is 5 seconds. This value is stored and recalled on power up.

Command	Description
PanelRate	Query current panel refresh rate (in seconds).
PanelRate RATE	Set remote panel refresh rate in seconds.

Examples

```
>PanelRate
5
>PanelRate 1
>
```

The first command queries the current panel refresh rate, which returns 5 (default). The second command sets the refresh rate to be 1 second.

1.10.21 PCIr Command

Clear a preset. For Preset 0 this sets all Destinations to Source 0. Other Presets are assigned “No

Change” to all Destinations. This command stores preset information which is available through system power cycles.

Command	Description
PCLr PRESET	Clear a preset.

Example to clear preset 1

```
>PCLr 1
>
```

1.10.22 PsetNames Command

Query or assign preset names. Preset names are stored and recalled on power up.

Command	Description
PsetNames	Query all preset names.
PsetNames PRESET	Query a single preset name.
PsetNames PRESET, LABEL	Assign a preset label.

When querying names, labels are surrounded by double quotes and separated by newlines.

Examples

```
>PsetNames
"Startup"
"Preset1"
"Preset2"
"Preset3"
"Preset4"
"Preset5"
"Preset6"
"Preset7"
"Preset8"
"Preset9"
>PsetNames 1
"Preset1"
>PsetNames 1,"MyPreset"
>
```

The first 2 example commands are query commands. The last assigns “MyPreset” to Preset 1.

1.10.23 PSub Command

Preset subtract command. Removes a connection in a preset by setting a Destination or Destination/Level to “No Change”. This can be used to incrementally create a preset without changing the active matrix routing. This command changes preset data which is stored and persists through power cycles.

Command	Description
PSub PRESET, DEST	Remove any existing connection to DEST in PRESET for any level.

PSub PRESET, DEST, LEVEL	Remove any existing connection to DEST/LEVEL in PRESET.
--------------------------	---

Example

```
>PSub 1,2
>PSub 1,3,2
>
```

The first command removes any connection to Destination 2 in Preset 1. The second command removes any connection to Destination 3/Level 2 on Preset 1.

1.10.24 PView Command

View presets. Displays the content of one or all presets. The format of the returned output is “1:S1[,S2] 2:S1[,S2] ...” where the 1: and 2: are incrementing destination values, followed by one or more source values (depending on the number of system levels).

Special source values

- '-' indicates “No Change”, which causes no changes to the given Destination/Level.
- 0 indicates “Mute”

Command	Description
PView	Display all presets.
PView PRESET	Display a single PRESET.

Example on a 16x4 system with 2 levels

```
>PView 1
1:1,1 2:2,2 3:6,7 4:0,-
>
```

The above example shows that Preset 1 would cause Destination 1 to be connected to Source 1 for both levels, Destination 2 to be connected to Source 2 for both levels, Destination 3 to be connected to Source 6 for Level 1 and Source 7 for Level 2 (break away) and Destination 4 to be Muted for Level 1 and “No Change” would be made for Level 2.

1.10.25 Reboot Command

Instructs the system to reboot, which is done after a brief delay.

1.10.26 ReclkDis Command

Protocol Version: 2.1

Command for disabling or enabling SDI reclockers. Not all router systems support this option. Value is saved and recalled on power up.

Command	Description
ReclkDis	Query current value of reclocker disable.
ReclkDis 0 1	Enable or disable reclockers (0 or 1 respectively).

Examples

```
>ReclkDis
0
>ReclkDis 1
>
```

The first command above queries the current reclocker disable value which returns 0 (the default, reclockers enabled). The second command disables the reclockers.

1.10.27 RemoteSync

Protocol Version: 2.1

Command to enable syncing matrices of two router systems. Usually used for creating a 3D matrix from two router systems, which will result in one router controlling the left 3D channels and the other router controlling the right channels. When enabled, this option synchronizes matrix crosspoint changes to the router IP address assigned with the [FrameIP Command](#). This command should only be enabled with one of the two routers (the primary router). This value is stored and recalled on power up.

Command	Description
RemoteSync	Query current value of remote router syncing.
RemoteSync 0 1	Enable or disable remote router syncing (1 or 0 respectively).

Examples

```
>RemoteSync
0
>RemoteSync 1
>FrameIP 192.168.2.61
>
```

The first command in the above examples queries the current value of the remote sync option, which returns 0 (disabled, the default). The second command enables remote syncing and the final command sets the IP address of the router to sync (secondary router).

1.10.28 S Command

Query the current matrix routing state. Source values for all levels of every destination are shown. This command without an argument is equivalent to the [X Command](#) with no arguments. If an argument value of '1' is supplied, then the matrix state is displayed with labels. The state of each destination is displayed, one per line, in the format:
"DestNLvl1": "SrcLvl1", "DestNLvl2": "SrcLvl2", ...

Example

```
>S1
"Dest1": "Src4", "Dest1": "Src4"
"Dest2": "Src3", "Dest2": "Src3"
"Dest3": "Src2", "Dest3": "Src2"
"Dest4": "Src1", "Dest4": "Src4"
```

The example above is output from a two level (Video and Audio for example) 4x4 matrix with sources routed in reverse order, except destination 4, which has a 2nd level break away which is routed from source 4.

1.10.29 SrcNames Command

Query or assign source names. This command has 4 variations, described by the following table. Source names are stored and recalled on power up.

Command	Description
SrcNames	Query all source names.
SrcNames SRC	Query source names for all levels of a given source.
SrcNames SRC, LEVEL	Query the name of a specific source and level.
SrcNames SRC, LEVEL, LABEL	Assign a label to a source.

When querying names, labels are surrounded by double quotes and each level is separated by commas ',' (multi-level systems only) and each source is separated by newlines. Secondary levels use empty strings to indicate that the label of the first level should be used.

Examples

```
>SrcNames
"Src1", "AudSrc1"
"Src2", ""
"Src3", ""
"Src4", ""
>SrcNames 1
"Src1", "AudSrc1"
>SrcNames 1,2
"AudSrc1"
>SrcNames 1,2, ""
>
```

The first 3 example commands are query commands. The last assigns an empty string to the second level of the first source (thereby indicating that the first level label should be used).

1.10.30 SysName Command

Query or assign system name. The system name is provided for convenience when managing multiple Matrix Switch Corporation systems. This value is stored and recalled on power up.

Command	Description
SysName	Query system name.
SysName STR	Set system name (up to 15 characters).

Example for querying and assigning system name

```
>SysName
MSC-Router
>SysName "MyRouter"
>
```

1.10.31 W Command

Write current matrix routing state to a preset. Recalling the preset later will restore the routing matrix to the same state. This command modifies preset data which persists through power cycles.

Command	Description
W PRESET	Write current matrix routing state to PRESET.

Example to save state to preset 1

```
>W 1
>
```

1.10.32 WebPass Command

Assign a web password to password protect the web page interface. The serial and TCP/IP port Mascot protocol control is not protected by this password. This value is stored and recalled on power up.

Command	Description
WebPass STR	Set web page password (blank to disable)

Examples of setting and clearing web page password

```
>WebPass SeCr3t
>WebPass ""
>
```

1.10.33 X Command

Query or make changes to the matrix routing state. This command comes in several variations described by the following table.

Command	Description
X	Query complete routing state (equivalent to S Command).
X DEST	Query connected sources for DEST for all levels.
X DEST, SRC	Connect SRC to DEST for all levels.
X DEST, SRC, LEVEL	Connect SRC to DEST/LEVEL.

When querying connection state, sources for each level are separated by commas (multi-level systems only) and are displayed for each destination and separated by newlines.

The value 0 can be used for SRC to Mute a destination (if supported for a given level).

Examples

```
>X
1, 1
```

```
2,2
3,8
0,4
>X 3
3,8
>X 3,4
>X 4,0,2
>
```

In the above examples the first command queries the entire matrix routing state (typical of a 16x4 system for example), the second command queries destination 3 only, the third command connects source 4 to destination 3 on all levels and the fourth command mutes destination 4 level 2.

Command stacking

Command stacking is especially useful for the X command, since it allows for several connections to be performed at the same time.

Example

```
>X1,4#X2,3#X3,2#X4,1
>
```

The above would connect source 4 to destination 1, source 3 to destination 2, source 2 to destination 3 and source 1 to destination 4 for all levels.