*think*logical®
System Management Portfolio

Configurator

Hot Key Manager

● On-Screen Display

System Management Interface

Drag & Drop

PRODUCT MANUAL

Value Your Content

*think*logical®

Trust Our Proven Ingenuity

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System
Management
Portfolio

thinklogical®

Subject: System Management Portfolio Product Manual
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Thinklogical Innovation Leads the Way.
Performance • Security • Continuous Operation • Ease of Integration

www.thinklogical.com

PREFACE

About Thinklogical

Thinklogical, LLC®
100 Washington St.
Milford, CT 06460

> We, the Thinklogical team, are committed to understanding and exceeding our customers' requirements, the first time and every time.

Thinklogical is the leading manufacturer and provider of fiber optic KVM, video, audio, and peripheral extension and switching solutions used in video-rich, big-data computing environments.

Thinklogical offers the only fiber-optic KVM matrix switches in the world that are accredited to the Common Criteria EAL4, TEMPEST Level B, and NATO NIAPC Evaluation Scheme: GREEN information assurance standards. And Thinklogical Velocity products are the first system with both KVM and video matrix switching capabilities to be placed on the Unified Capabilities Approved Product List (UC APL) under the Video Distribution System (VDS) category.

Governments, entertainment, scientific and industrial customers worldwide rely on Thinklogical's products and solutions for security, high performance, continuous operation and ease of integration. Thinklogical products are designed and manufactured in the USA and are certified to the ISO 9001-2008 standard.

Thinklogical is headquartered in Milford, Connecticut and is privately held by Riverside Partners, LLC, Boston, MA (http://www.riversidepartners.com). For more information about Thinklogical products and services, please visit www.thinklogical.com.

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Note and Warning Symbols

Throughout this manual you will notice certain symbols that bring your attention to important information. These are **Notes** and **Warnings**. Examples are shown below.

⚠️ **Note: Important Notes appear in blue text preceded by a yellow exclamation point symbol, as shown here.**

A **note** is meant to call the reader's attention to **helpful** information at a point in the text that is relevant to the subject being discussed.

🛑 **Warning! All Warnings appear in red text, followed by blue text, and preceded by a red stop sign, as shown here.**

A **warning** is meant to call the reader's attention to **critical** information at a point in the text that is relevant to the subject being discussed.

> ## BEFORE STARTING ANY PROCEDURE, IT IS RECOMMENDED THAT YOU READ THE INSTRUCTIONS THOROUGHLY!

Class 1 Laser Information

All Thinklogical fiber-optic extension products are designed and identified as **Class 1 LASER products.**

CLASS 1 LASERS do not require any special precautions under conditions of normal use.

SFP Modules

Fiber-Optic Cables

Class 1 Lasers
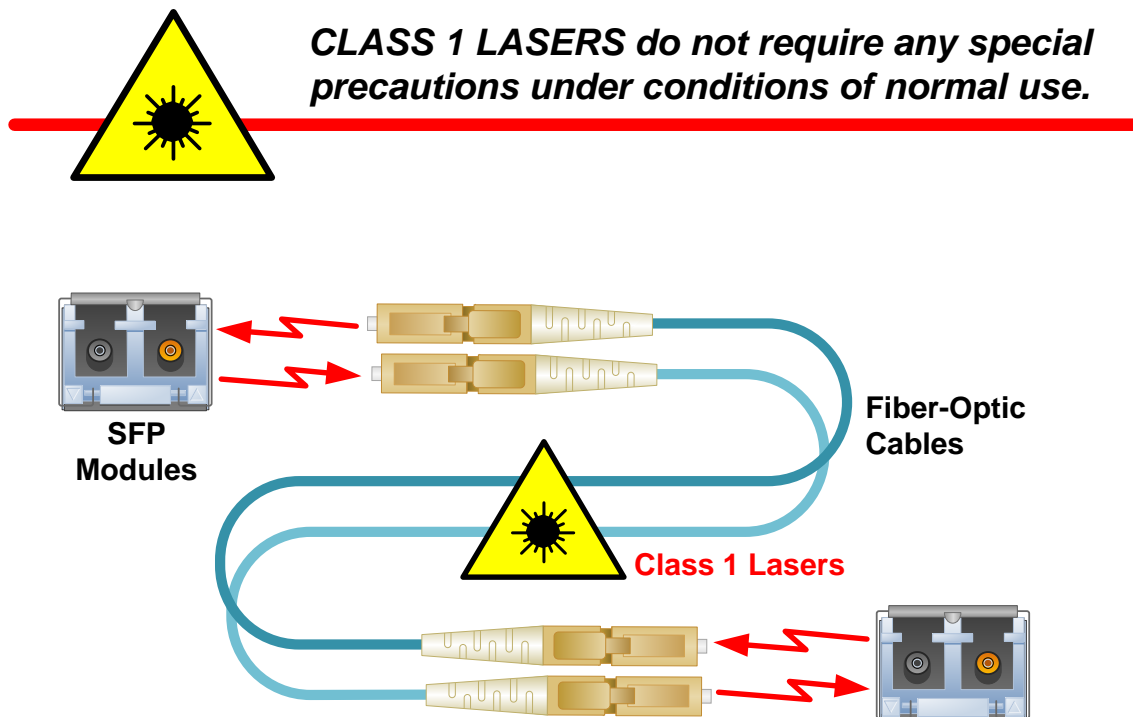
1.0 Introduction

Thinklogical's fiber-optic routing solutions address many of the complex signal management challenges facing today's broadcast and video post-production professionals. Signal management products from Thinklogical are optimized for broadcast, mobile production trucks, and post-production applications where quality, performance and security are paramount.

Thinklogical's *System Management Portfolio* is designed to help users easily manage and maintain Thinklogical deployments of any size.

The new *System Management Portfolio* from Thinklogical improves overall system performance and value by reducing support effort, lowering total cost of ownership, enhancing productivity and maximizing system uptime.

Including the following five specialized software packages, Thinklogical's *System Management Portfolio* provides powerful remote management and maintenance capabilities, making it easier for users to configure, operate and update a Thinklogical signal extension and switching system.

The Configurator is a standard software package included with every Thinklogical MX and VX matrix switch. The Configurator's intuitive graphical user interface enables faster router set-up and helps simplify the defining of users, groups, stations and macros.

The Premium Configurator is an upgraded software package with versions compatible with any MX, VX or TLX Router. It also provides users with **Premium Tie-Line Management** for bidirectional tie lines, with no restrictions for video path direction over the tie lines. (Bi-directional tie-lines are not supported on the VX160 or VX320 routers due to hardware restrictions.)
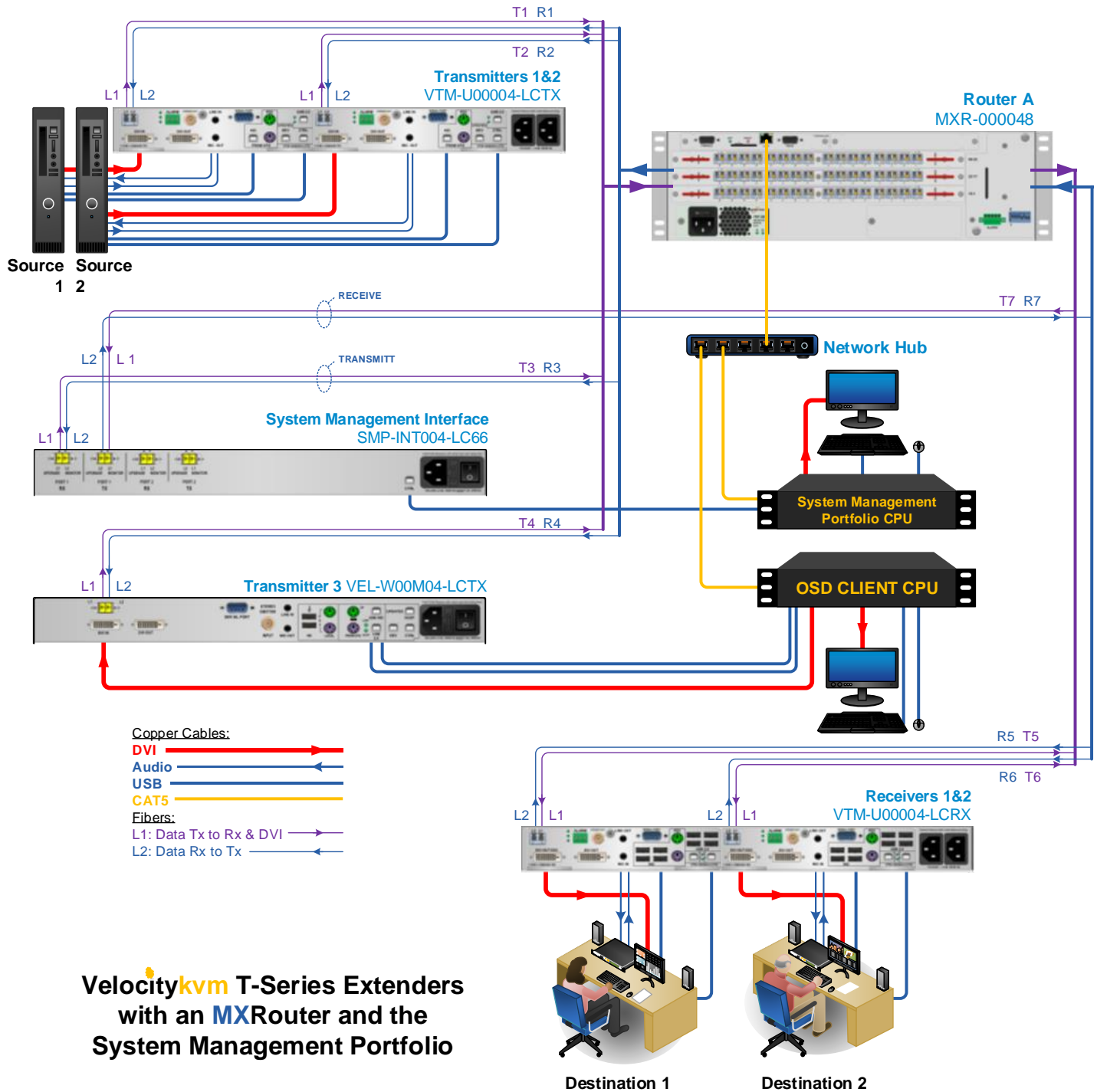
The Hot-Key Manager (SMP-HKM001-001) provides control access from workstations, allowing any authorized receiver on the router to make a switch. Administrators define a set of keystrokes (customizable per destination) to deliver routing control to the desktop, all managed through an easy-to-understand GUI. With a simple keystroke or movement of the mouse, multiple users in different locations can easily exchange a single source's keyboard and mouse to more efficiently collaborate and share resources.

The System Management Interface consists of a 1RU rack-mountable chassis (SMP-INT004-LC66, Multi-Mode or SMP-INTS04-LC66, Single-Mode) and a software component (SMP-0048INU) which executes on a Linux Debian (or Ubuntu) computer. Via the fiber infrastructure, the System Management Interface reports KVM extender status/alarms and enables KVM extender remote firmware (HOST, DEVICE, CONTROL) updating.

The Drag And Drop Graphical User Interface allows users to easily model their physical system layout on screen and quickly switch sources and destinations by simply moving the content source icon to the desired destination. As room configurations evolve over time, icons representing sources and destinations can be added or removed from the layout as required, making it simple to adapt to changing requirements.

Compatible Hardware and Requisite Firmware Levels: *OSD, Collaboration* and *Hot Key* require VelocityKVM Receivers with USB HID capability. Minimum required firmware levels for Thinklogical Transmitters, Receivers and Routers are listed in Appendix A on page 65. Customers with earlier versions may have to upgrade their router's controller card(s) and/or update their VelocityKVM Extenders.

SMP Software Installation instructions are included at the beginning of each chapter dedicated to each of the various packages: **Foundation and Configurator**, pg. 8, **Hot Key Manager**, pg. 37, **System Management Interface**, pg. 51, **Drag & Drop GUI**, pg. 58.

T1 R1

T2 R2

Transmitters 1&2
VTM-U00004-LCTX

L1 L2   L1 L2

Router A
MXR-000048

Source 1   **Source 2**

RECEIVE

T7 R7

L2 L 1

TRANSMITT

T3 R3

Network Hub

L1 L2

System Management Interface
SMP-INT004-LC66

System Management Portfolio CPU

T4 R4

L1 L2

Transmitter 3 VEL-W00M04-LCTX

OSD CLIENT CPU

R5 T5

Copper Cables:
DVI
Audio
USB
CAT5
Fibers:
L1: Data Tx to Rx & DVI
L2: Data Rx to Tx

R6 T6

Receivers 1&2
VTM-U00004-LCRX

L2 L1   L2 L1

**Velocitykvm T-Series Extenders
with an MXRouter and the
System Management Portfolio**

Destination 1   **Destination 2**

Typical System Management Portfolio application

System Management Portfolio IP Address Port Numbers		
Configurator	:60080	*(for example: 192.168.13.9:**60080**)*
System Management Interface	:60084	
Drag And Drop	:60086	
Hot Key Manager	:60082	
On-Screen Display	:60082/osd.html	

System Management Portfolio Part Numbers					
SMP Packages	**48 Ports** **MX48**	**80 Ports** **VX40, VX80**	**320 Ports** **VX160, VX320V**	**640 Ports** **VX320, VX640**	**PRODUCT**
Full SMP	SMP-0048CFF	SMP-0080CFF	SMP-0320CFF	SMP-0640CFF	SOFTWARE
Configurator	SMP-0000CFG	SMP-0000CFG	SMP-0000CFG	SMP-0000CFG	SOFTWARE
Configurator Plus	SMP-0048CFP	SMP-0080CFP	SMP-0320CFP	SMP-0640CFP	SOFTWARE
Enhanced Productivity Package	SMP-0048CFE	SMP-0080CFE	SMP-0320CFE	SMP-0640CFE	SOFTWARE
SMI, Multi-Mode	SMP-INT004-LC66	SMP-INT004-LC66	SMP-INT004-LC66	SMP-INT004-LC66	HARDWARE
SMI, Single-Mode	SMP-INTS04-LC66	SMP-INTS04-LC66	SMP-INTS04-LC66	SMP-INTS04-LC66	HARDWARE
Monitoring & Upgrades	SMP-0048INU	SMP-0080INU	SMP-0320INU	SMP-0640INU	SOFTWARE
Annual Maintenance	SMP-0048MNT	SMP-0080MNT	SMP-0320MNT	SMP-0640MNT	SERVICE

2.0 The Configurator

The following is an overview of the Configurator set-up procedure. For more information, see the Configurator Product Manual, available at: http://ftp.thinklogical.com/ftp/SMP

2.1. Foundation and Configurator Software Packages

⚠️ **NOTE:** **The Foundation package should be the first program installed, followed by the Configurator package, as the other SMP programs require them to run.**

Foundation is a software package needed to run all of the System Management Portfolio tools. The Configurator is a web-based control system for Thinklogical's family of VX, MX, TLX and HDX Routers and runs on a separate Windows or Linux computer. The Configurator allows for easy configuration, management and control of any number of routers.

The installation files, *tar* files ending in ".tgz" for Linux and ".exe" for Windows, will be on the included CD and are also available from the Thinklogical FTP site: http://ftp.thinklogical.com/ftp/SMP. Please contact your sales rep or Thinklogical support for details.

Please choose the latest version for your chosen platform (Linux or Windows).

Linux Installation: Foundation

The first thing that must be installed is Foundation, which is a Thinklogical package that installs some third-party software from the web. This package is needed to run all of the System Management Portfolio tools. The installation files will be compressed and stored in a single file named: `foundation_<version #>.tgz`.

- This should be copied to a directory, although `/tmp/` is preferred.

- Login as *root.*
- Use "cd" to change directory to the location of the installation package:
    ```
    cd /tmp/
    ```
- Extract the contents with the following command line:
    ```
    tar -xvzf foundation_full_<version>.tgz
    ```
- This will extract an install script, a README.txt file and one or more archive files. The script to execute is `foundation_install.sh`.
- To do this, login as *root* and type:
    ```
    sh foundation_install.sh
    ```

This will install the necessary utilities for the SMP programs.

Linux Installation: The Configurator

The following is an installation package that Thinklogical supplies for Linux Debian computers, in this case, for the *Configurator*.

Note: The Configurator package should be the next program installed as the other SMP programs require both Foundation and Configurator to run.

- The installation files will be compressed and stored in a single file named:

Basic version:	`cfm_install_<release #>.tgz`
Premium version:	`cfp_install_<release #>.tgz`

- Login as root
- Copy the installation package, `cfm_debian_install_<version #>.tgz,` to any directory (`/tmp/` is preferred, as used here).
- Change directory to the location of the installation package: - `cd /tmp/`
- Extract the enclosed scripts and archives:
    ```
    tar -xvf cfm_debian_install_<version #>.tgz
    ```
- Change to the newly added installation directory: - `cd cfm`
- Install and start the program as a service: - `sh cfm_install.sh`

This will install programs, configure log management and service files, set the program to start automatically as a service whenever the computer is restarted, and start the program running.

Open a browser (Google Chrome is recommended) and navigate to: `http://<localhost>:60080`

The default login will be username and password will be: **username: admin** and **password: admin.**
*When the script has finished:*

- The program(s) will have been installed to their proper directories.
- The configuration files to manage the logs will be added to `/etc/logrotate.d/`
- The service script will be added to `/etc/init.d/` and set to start the program automatically when the computer is restarted.
- The program will be started as a service.

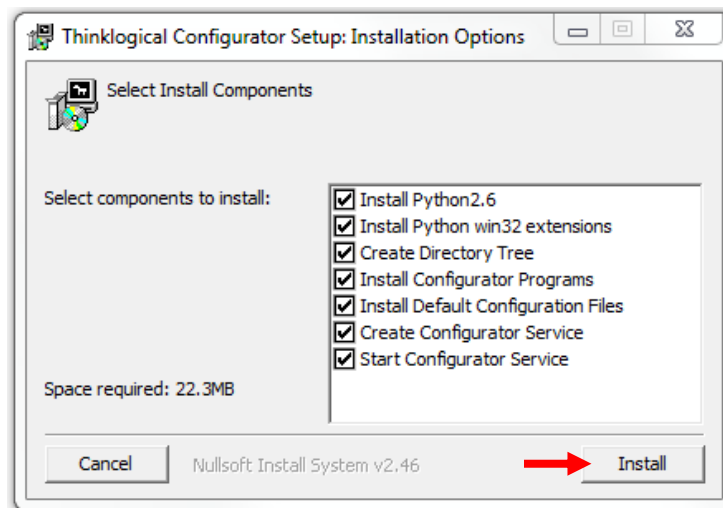After this, the service for this program can be controlled with the service command:

```
service tl-cfm restart
```
(or stop or start)

2.2. Windows Installation

The Windows installation program will have a name similar to `cfm_install_0258.exe`
When executed, Windows may open a warning window as shown below:
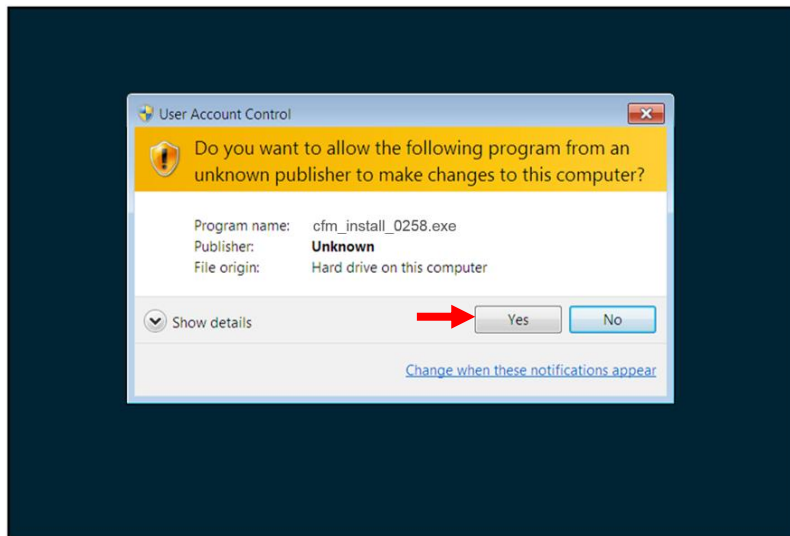
Click the "Yes" button to continue.
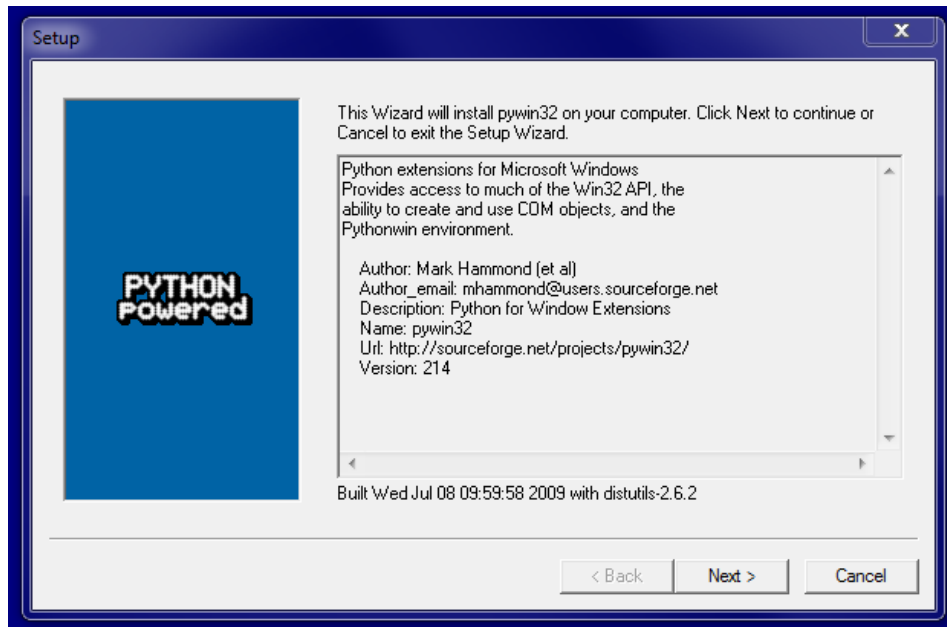

First installation

If this is the first installation, then leave all the boxes checked. However, if this is an update from an earlier version, you can safely uncheck the first two boxes for "**Install Python2.6**" and "**Install Python win32 extensions**" as they will already be on your computer. Click Install.
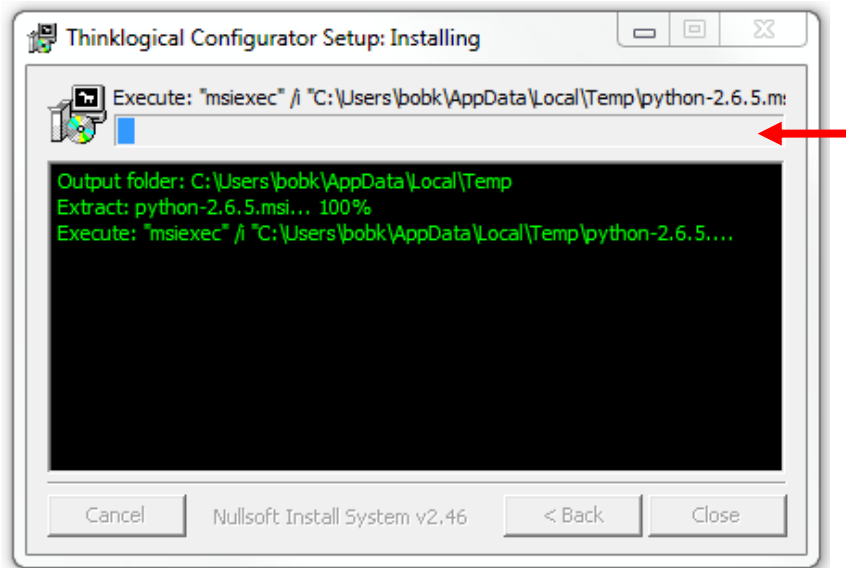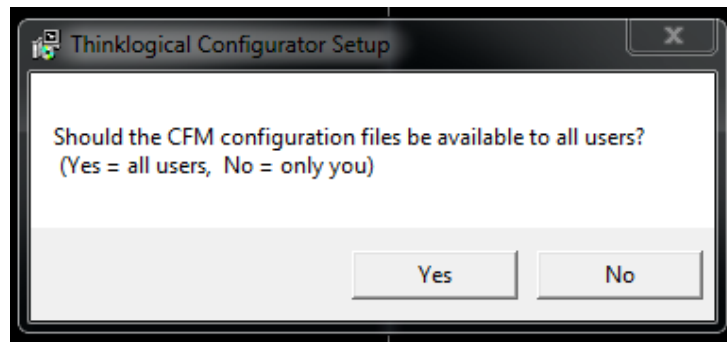
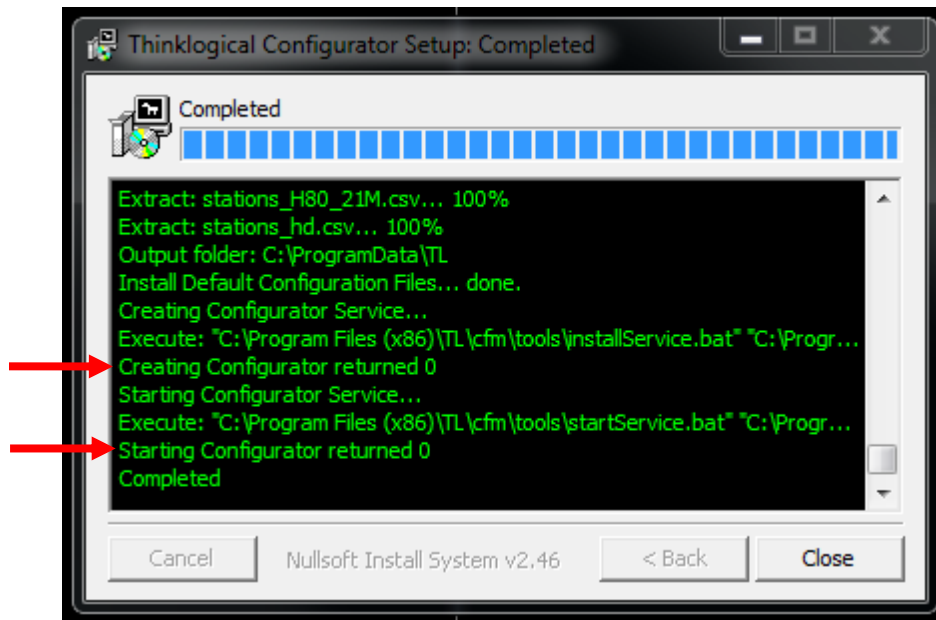*Update installation in process. A blue bar at the top indicates progress.*

Select "Install for all users" and click on Next>

As the default windows appear, select the Next, Yes or Agree options to advance through the installation process.

Click "Yes" to be available to all users.

When the installation process is complete, please note the last five rows. The fifth row from the bottom should read Creating Configurator returned 0 and the second row from the bottom should read Starting Configurator returned 0. If either of these lines does not show "returned 0", then a problem was encountered during installation and the Configurator will not work. Repeat the installation process.

Firewall Considerations

If your firewall is enabled, you may require some additional configuration. By default, firewalls block connections on port 60080, which is the standard for web communications. The easiest/fastest way to get around this is to disable the firewall, but this is not always acceptable. If you need your firewall enabled, you must open port 60080.

In addition, Thinklogical VX Routers periodically broadcast their connection status via UDP on port 17564. Firewalls normally block this as well, so the firewall requires a new in-bound rule to let the status broadcast in.

⚠️ **Note: You may need administrator privileges to install this software and make the required changes to the firewall. Please speak to your network administrator or refer to your firewall program documentation for more information.**

2.3. Configurator Login

The Configurator is accessed via a web browser from any computer on the same network as its server. (Some of the administrative pages can be demanding on the browser's JavaScript engine, so if it's running too slowly on your current browser, try **Google Chrome**.)

The Configurator's port number is **:60080**. Set the browser's URL to your IP address (for example: *192.168.13.9***:60080**) to load the page. Logins are required by default, so for initial access, the following will be displayed:

*The default user name and the password are both "**admin**"*
(This should be changed by the administrator.)

For first time log-in, the **Connections** page will load automatically.
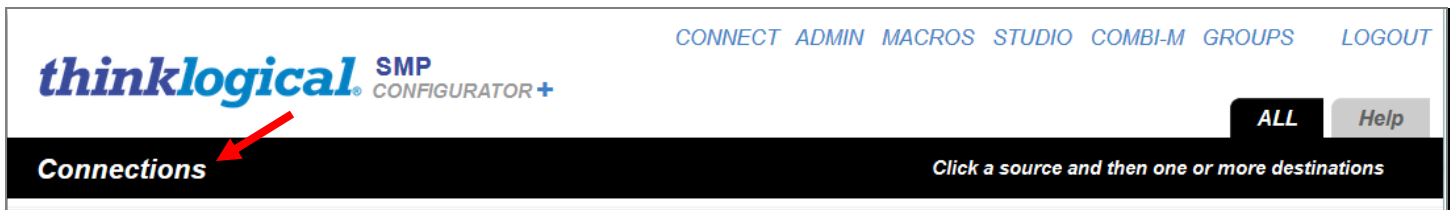
This is one of the pages used for connecting sources to destinations. The first time the program is accessed it will be unpopulated.

2.4. Navigating the Configurator

The blue link names across the top-right of the page, starting with *CONNECT* and ending with *LOGOUT* are links to the other configuration and control pages.

First click the *ADMIN* link. A new page will load that looks like this:
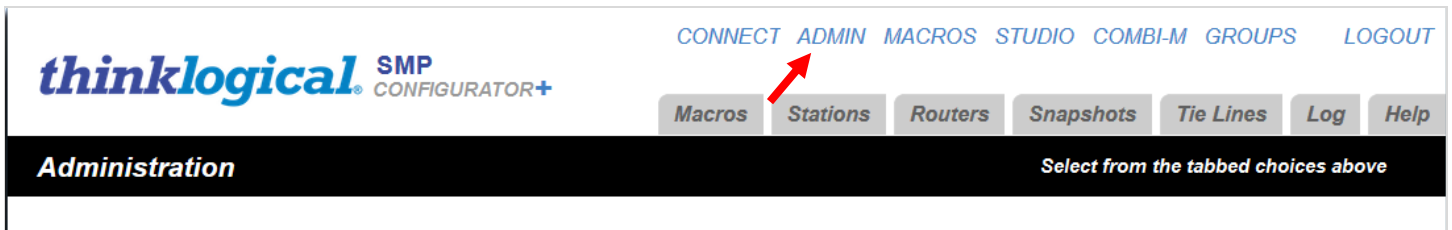
Above the black stripe are tabs for the administrative functions beginning with *Macros* and ending with *Help*. Clicking on a tab will open that window and allow modifications to the associated settings.

System Management Portfolio IP Address Port Numbers	
Configurator	:60080 *(for example: 192.168.13.9:60080)*
System Management Interface	:60084
Drag And Drop	:60086
Hot Key Manager	:60082
On-Screen Display	:60082/osd.html

System Management Portfolio Part Numbers					
SMP Packages	**48 Ports ● MX48**	**80 Ports ● VX40, VX80**	**320 Ports ● VX160, VXV320**	**640 Ports ● VX320, VX640**	**PRODUCT**
Full SMP	SMP-0048CFF	SMP-0080CFF	SMP-0320CFF	SMP-0640CFF	SOFTWARE
Configurator	SMP-0000CFG	SMP-0000CFG	SMP-0000CFG	SMP-0000CFG	SOFTWARE
Configurator Plus	SMP-0048CFP	SMP-0080CFP	SMP-0320CFP	SMP-0640CFP	SOFTWARE
Enhanced Productivity Package	SMP-0048CFE	SMP-0080CFE	SMP-0320CFE	SMP-0640CFE	SOFTWARE
SMI, Multi-Mode	SMP-INT004-LC66	SMP-INT004-LC66	SMP-INT004-LC66	SMP-INT004-LC66	HARDWARE
SMI, Single-Mode	SMP-INTS04-LC66	SMP-INTS04-LC66	SMP-INTS04-LC66	SMP-INTS04-LC66	HARDWARE
Monitoring & Upgrades	SMP-0048INU	SMP-0080INU	SMP-0320INU	SMP-0640INU	SOFTWARE
Annual Maintenance	SMP-0048MNT	SMP-0080MNT	SMP-0320MNT	SMP-0640MNT	SOFTWARE

2.4.1. Naming Routers

Throughout this section we will use a demonstration system with two sources and two destinations as an example. The sources will be fed to an MX48 Router. This configuration will demonstrate the basic elements of the System Management Portfolio without being overly crowded or complicated. The system is diagramed on the following page and includes all the fiber and port references that will be used to set up the various fields in each of the SMP tabs and windows. (A more advanced system, with two routers and four sets of extenders will be detailed later in section 2.5., page 30.)

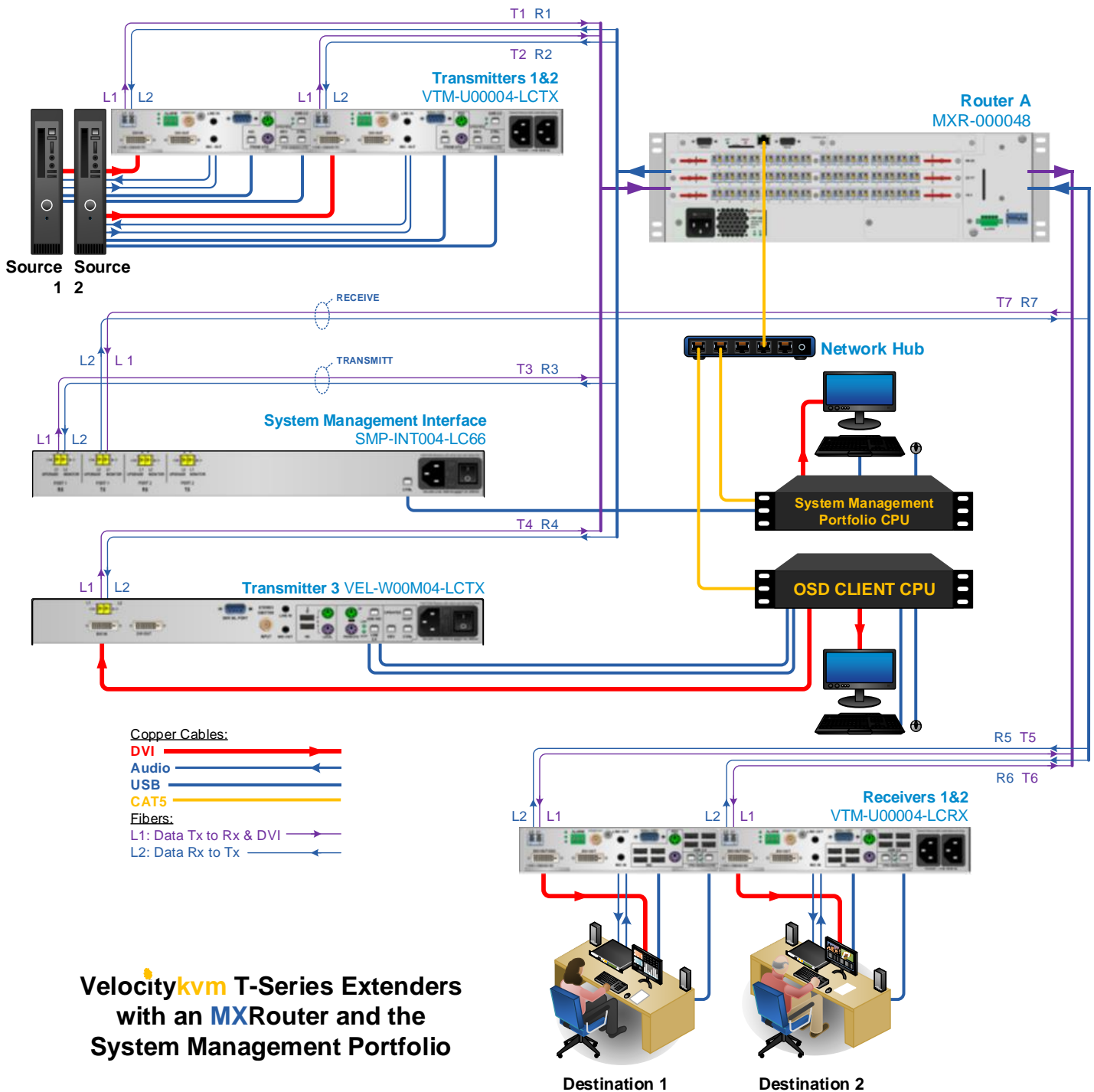**SOURCES:** 2 CPUs with KVM, USB and audio connections to 2 single-head transmitters

ROUTER: MX48

SMP: An OSD Client CPU with video and USB connections to a single-head transmitter

An SMP CPU with USB connection to the *System Management Interface*

A network hub connecting the router and the OSD Client and SMP CPUs

DESTINATIONS: 2 work stations, each with single-head receivers with KVM, USB and audio

VelocitykvmT-Series Extenders with an MXRouter and the System Management Portfolio

Copper Cables:
DVI
Audio
USB
CAT5
Fibers:
L1: Data Tx to Rx & DVI
L2: Data Rx to Tx

ADMIN Routers

On the *ADMIN* page, the *Routers* tab allows you to configure the Configurator for your router. The router must be running and on the network. The setup process will attempt to communicate with the router over the network and will fail if the router does not respond or is a router type other than the one selected.

If this is a fresh install, there will be no router declared. **Left-click on the gray row beneath the column header "Router Name:" and enter a name for your router** (in this case, A). Left-clicking on the entries for the remaining fields will offer pop-up lists of choices. For this example an MX48 router is used. Left-click on *Type:* and select **MX48** in the pop-up window. MX48 will be placed in the *Type:* column.

Select the Router Type *by clicking in the gray box.*

*Left-clicking in the **IP Address:, Socket:, and Enabled:** boxes will offer pop-up choices for those fields.*

Socket: refers to a network socket that identifies the port used to communicate between the router and the Configurator. This information is provided by Thinklogical.

The Enable: field can be set to "no" if the router is not yet connected, which will keep the program from checking for the unreachable router and displaying error messages.

When the **Router Name, Type, IP Address, Socket**, and **Enabled** fields are complete, click the **SAVE** button near the top right corner.

Left-click the 'CREATE' button under Default Stations:. For this example, because single-head extenders are being used, click on 'KVM 1 Head'. Be sure to **SAVE** after making each of the changes.

2.4.2. Creating Stations

Stations are any source and destination elements that can be connected. A station can contain a single port or multiple ports, and a single station can include ports located on multiple routers. The Stations tab below reflects the system shown in the diagram on page 16.

SOURCES: 2 CPUs with KVM, USB and audio connections to 2 single-head transmitters

ROUTER: MX48

SMP: An OSD Client CPU with video and USB connections to a single-head transmitter

An SMP CPU with USB connection to the *System Management Interface*

A network hub connecting the router and the OSD Client and SMP CPUs

DESTINATIONS: 2 work stations, each with single-head receivers with KVM, USB and audio

ADMIN Stations

Click the *ADMIN* link and then the Stations tab to get to the stations page. This page is designed to operate like a simple spreadsheet. Any value can be changed by selecting it and typing a new value. Values can be copied and pasted one at a time.

Table 1

Width:	Height:	Font Size:	Update Interval:	Destination Side:	Connection Type:	Touch Type:	STUDIO BREAK:
120	28	12	2000	RIGHT	SHARE	VIEW	HIDE

Table 2

Source Category:	Source Category:	Source Category:	Source Category:	Source Category:	Source Category:	Source Category:
ALL	ROUTER A					

Table 3

Destination Category:	Destination Category:	Destination Category:	Destination Category:	Destination Category:	Destination Category:	Destination Category:
ALL	ROUTER A					

Table 4

Source Name:	Router Name:	L1:	L2:	L3:	Category:	Category:	Color:
Src 1	A	UR-001	UT-001		ALL	ROUTER A	red
Src 2	A	UR-002	UT-002		ALL	ROUTER A	orange
RX MONITOR 1	A	UR-003	UT-003		ALL	ROUTER A	yellow
OSD-1	A	UR-004	UT-004		ALL	ROUTER A	green

Table 5

Destination Name:	Router Name:	L1:	L2:	L3:	Category:	Category:
Dst 1	A	UT-005	UR-005		ALL	ROUTER A
Dst 2	A	UT-006	UR-006		ALL	ROUTER A
TX MONITOR 1	A	UT-007	UR-007		ALL	ROUTER A

In **Table 1**, Width:, Height:, and Font Size: define the size of the boxes and the font that appear in the Connections pages.

Table 2, Source Category:, and **Table 3,** Destination Category:, allow the administrator to filter large lists of sources and destinations down to defined categories. These categories will be in the form of tabs on the *CONNECT* page and on the OSD screen.

Table 4, starting with the column header Source Name: defines the source stations.
Each source will have a port for video and/or data and a second for data return. Likewise, **Table 5**, starting with the column header Destination Name: defines the video/data and data return ports for each destination.

Source and Destination Names can be added or deleted by right-clicking on an existing station row and selecting *Insert, Append*, or *Delete* from the drop-down menu. Existing station rows can be copied and pasted using the same menu.

Source Name:	Router Name:	L1:	L2:
Src 1	A	UR-001	UT-001
Src 2	A	UR-002	UT-002
RX MONITOR 1	⊗ Row	UR-003	UT-003
OSD-1	Insert	UR-004	UT-004
	Append		
	Delete		

Destination Name:	Copy	L1:	L2:
Dst 1	Paste	UT-005	UR-005
Dst 2	A	UT-006	UR-006
TX MONITOR 1	A	UT-007	UR-007

For example, the source station "**Src 1**" has ports attached to the router named "**A**". The ports are named *L1:* and *L2: (and L3: for use with dual-head extenders)* for convenience (since they match the video and data return fiber names on Thinklogical fiber extenders), but the names can be changed to the user's preference. The order and the name of the router that precedes them, however, must follow the established naming convention.

2.4.2.1. Naming the Ports

The convention behind assigning port names requires some explanation: Thinklogical's VX160 and VX40 routers have Input/Output Cards that are labeled "Upstream" or "Downstream". The VX320 has two separate card cages in the same enclosure, labeled "Upper" and "Lower". *(See the VX Router Manual for a view of the card cages and card designations.)*

The port names are very specific and unambiguously define a unique SFP and the Transmit "T" or Receive "R" port within that SFP. Ports in the "Upstream" cards on VX160 and VX40 routers, or the "Upper Card Cage" on the VX320, start with "U" and ports in the "Downstream" cards (VX160, VX40), or "Lower Card Cage" (VX320), start with "D".

Cards in Thinklogical's other routers (VX80, VX320Video, MX48, VX640, HDX80, and HDX576) do not have "Upstream," "Downstream," or "Card Cage" designations. However, for consistency, the ports in those routers are always preceded by "U".

 Src 1 on an MX48 has two ports. The first is port UR-001 and it can receive video, USB Tx to Rx, audio and serial signals from the source device (computer or other) into the router.

- "U" is because this port is on an MX48 (they are all "U")
- "R" means this is receiving a signal from the TX extender.
- 001 means this port is on the first SFP in the card cage (bottom, right)

The second port on Src 1 is UT-001 and is for the data return channel (Keyboard, Mouse, USB, Audio).

- "U" is because this port is on an MX48 (they are all "U").
- "T" means this is transmitting a signal to the TX extender (data in this case).
- 001 means this port is on the first SFP in the card cage (bottom, right).

L3: is empty on these sources because a default set of stations with single video and data return was created. If the sources have two heads, the second video will go in the *L3:* column.

The next two columns are labeled "**Category**". These allow the administrator to organize the sources

and destinations into logical collections that should be viewed together.

The stations set up for single-headed KVM use one half of each SFP as a source and one half as a destination. Since there are 48 SFPs, each with its own receiver and transmitter, there are 48 receiver ports and 48 transmitter ports. With the exceptions of the VX160 and VX320 Routers, any receiver port and every transmitter port is completely independent. With the exception of the VX160 Router, any receiver port can be connected to any transmitter port.

Destination Name:	Router Name:	L1:	L2:	L3:
Dst 1	A	UT-005	UR-005	
Dst 2	A	UT-006	UR-006	
TX MONITOR 1	A	UT-007	UR-007	

In **Dst 1** in the example above, the **L1:** port is UT-005 and it is being used for data return.

- "U" is because this port is on an MX48 (they are all "U").
- "T" means this is transmitting a signal from the router to the extender.
- 005 means this port is on SFP number 5.

Similarly, the **L2:** port is the same as the first, except "R" replaces "T," since this port will receive the data return from the receiver extender.

TECH NOTES: Naming Conventions
The default SMI and OSD port names are key. When making an entry on the STATIONS page under *Source Name:* and *Destination Name:* certain naming conventions must be followed:

SMI Ports are named:
RX MONITOR 1, RX MONITOR 2, etc.

OSD Ports are named:
OSD-1, OSD-2, etc.

Source Name:	Router Name:
Src 1	A
Src 2	A
RX MONITOR 1	A
OSD-1	A

SMI and OSD names are case sensitive. Include single spaces and hyphens as shown. Add "B" for redundant monitors, as in "RX MONITOR 1B." Additional monitors must follow the same naming convention.

Destination Name:	Router Name:
Dst 1	A
Dst 2	A
TX MONITOR 1	A

Source and Destination names are unrestricted with one important exception: *DO NOT USE SINGLE QUOTES (') OR DOUBLE QUOTES (").*
Examples: Scr 1, Dst 2, CPU 1, WorkstationA, etc.

⚠ NEVER put a space *before or after* a port name!
It won't work and will be hard to find!

There is a way for users to deviate from the default naming convention for SMI monitor ports. See paragraph *4.3.2. The ADMIN/CONFIGURATOR SETTINGS Tab*, on page 36 for more details.

⚠️ **Note:** If the source and destination each have two heads, then the router will connect all the R ports from the source to all the T ports on the destination, and all the R ports on the destination to all the T ports on the source. Blank entries will be skipped.

If a two-headed source is connected to a single-head destination, the first head of the source will be connected and the second will not.

If a single-head source is connected to a double-head destination, the second head of the destination will be disconnected.

2.4.2.2. Adding *System Management Interface* Port Columns

Source Name:	Router Name:	L1:	L2:	L3:	Category:
Src 1	A	UR-001	UT-001		⊗ Column
Src 2	A	UR-002	UT-002		Append
RX MONITOR 1	A	UR-003	UT-003		Delete
OSD-1	A	UR-004	UT-004		ALL

If the sources and destinations have more than two heads, additional port columns can be added. **Right click on the existing *L3:* column header and select *Append* from the drop-down menu.**

A new *L3:* column appears. Left click on the new *L3:* header and select *L4:* from the drop-down menu:

Source Name:	Router Name:	L1:	L2:	L3:	L3:	Category:	Category:
Src 1	A	UR-001	UT-001			⊗ Station Labels	ROUTER A
Src 2	A	UR-002	UT-002			Router Name:	ROUTER A
RX MONITOR 1	A	UR-003	UT-003			L1:	ROUTER A
OSD-1	A	UR-004	UT-004			L2:	ROUTER A
						L3:	
						L4:	
Destination Name:	Router Name:	L1:	L2:	L3:	Category:	L5:	
Dst 1	A	UT-005	UR-005		ALL	Category:	
Dst 2	A	UT-006	UR-006		ALL	Color:	
TX MONITOR 1	A	UT-007	UR-007		ALL	Viewable:	
						Takeable:	

The new *L3:* column will be renamed *L4:*

Source Name:	Router Name:	L1:	L2:	L3:	L4:
Src 1	A	UR-001	UT-001		
Src 2	A	UR-002	UT-002		
RX MONITOR 1	A	UR-003	UT-003		
OSD-1	A	UR-004	UT-004		

2.4.2.3. Color

Colors can be selected from the drop down menu on the *ADMIN* Stations page to be displayed in the *Connections* page. This will provide a visual scheme for quickly identifying various connections as they are made.

Source Name:	Router Name:	L1:	L2:	L3:	Category:	Category:	Color:
Src 1	A	UR-001	UT-001		ALL	ROUTER A	red
Src 2	A	UR-002	UT-002		ALL	ROUTER A	orange
RX MONITOR 1	A	UR-003	UT-003		ALL	ROUTER A	yellow
OSD-1	A	UR-004	UT-004		ALL	ROUTER A	green

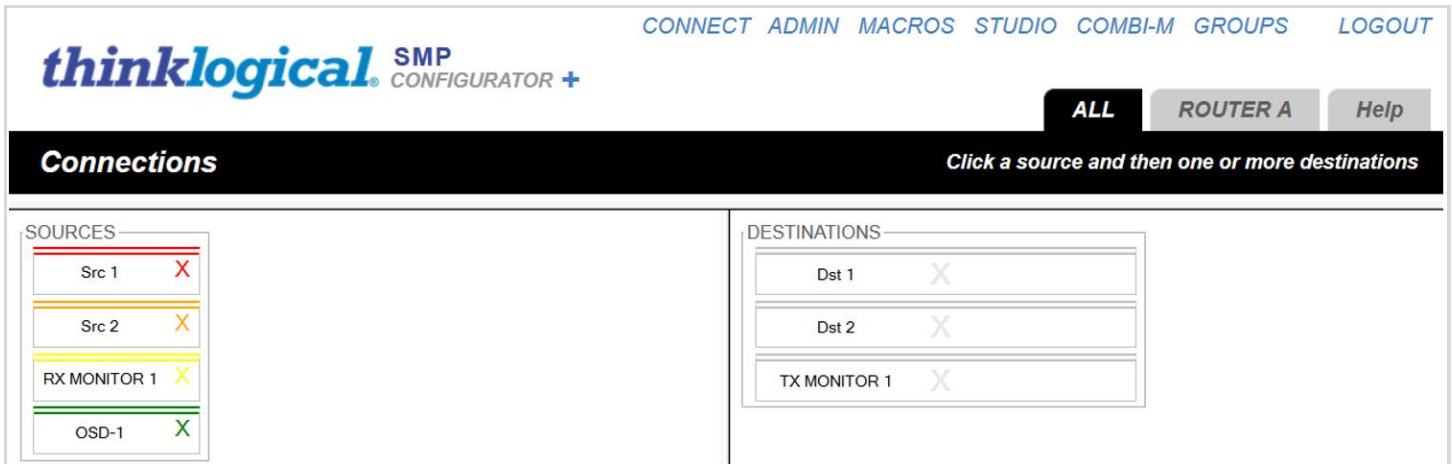SOURCES

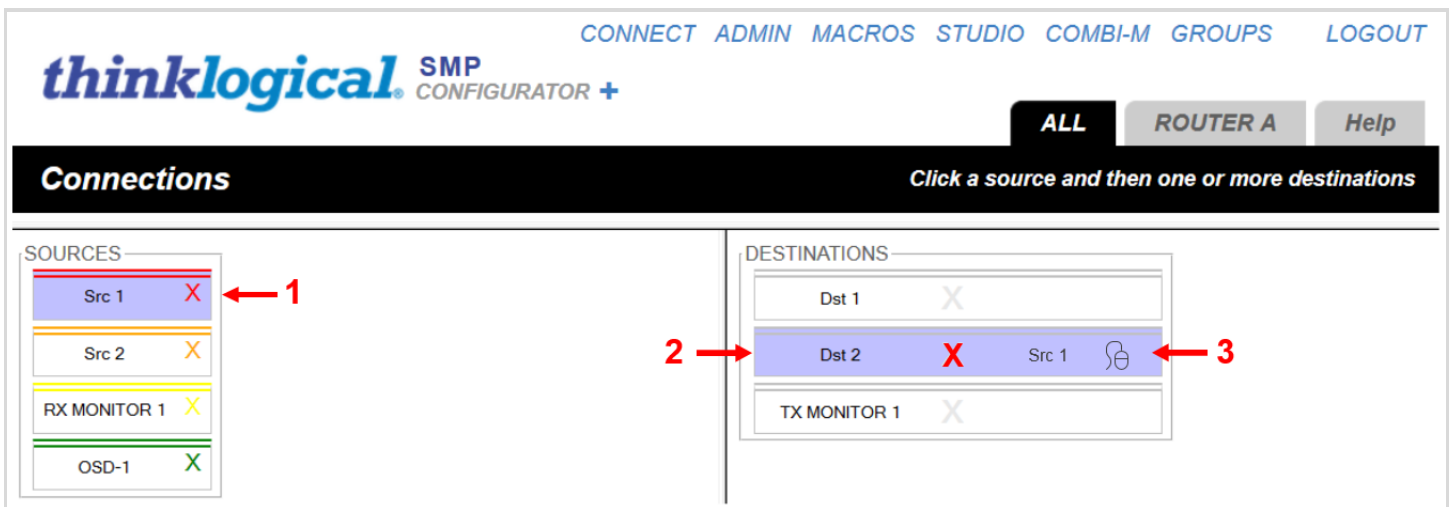|	
Src 1	X
Src 2	X
RX MONITOR 1	X
OSD-1	X

2.4.3. The *CONNECT* Page

A router and several stations are now defined. The Configurator can make connections between sources and destinations. Click the *CONNECT* link at the top of the page.

*Note that the Source colors match those chosen in the Stations page*

Sources are on the left, Destinations on the right.

1. Click **Src 1** and it will highlight in light blue.

2. Now that **Src 1** is selected, click on **Dst 2**.

3. Now Dst 2 shows that Src 1 is driving it. The disconnect **X** in the center takes on the color of the source's top border and the name "Src 1" appears on the right side of the destination. The small mouse icon indicates that the data return from Dst 2 is driving Src 1.

4. On the left side, the rectangle for Src 1 gets a dashed, upper border to show that it is in use.

5. By mousing over **Src 1** or **Dst 2**, the dashed border on the source will turn solid and all destinations being driven by it will have their top, gray borders become thicker and turn the color of the source that's driving them.
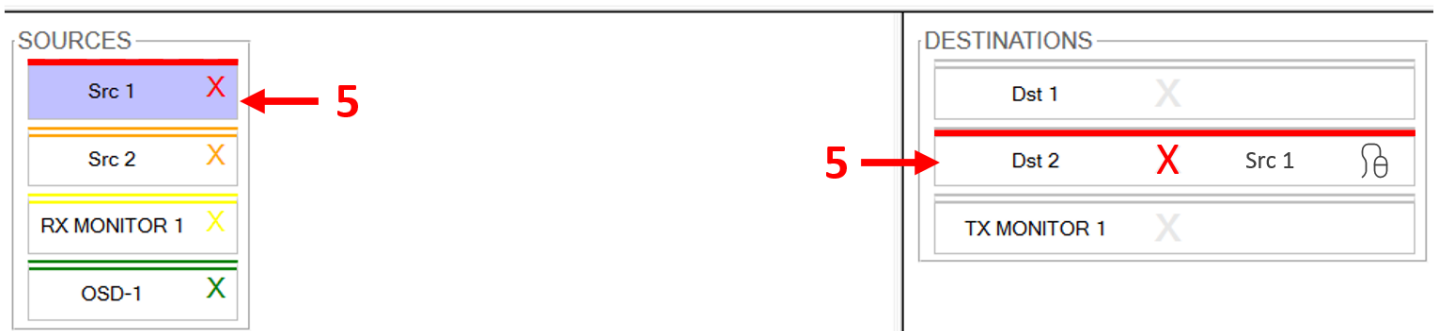
6. By default, when additional destinations are connected to a previously connected source, they will all **SHARE** the video from the source, but only the last one connected will have control of the mouse (as shown by the icon).

SHARE: Here **Dst 1** is selected, which will now show the same, **Src 1** video as **Dst 2**. But as the mouse icon shows, only the last destination selected, **Dst 1**, is driving the return data back to the source. Clicking a destination's colored X will disconnect that destination and clicking the X at the right side of the *source* will disconnect **all** the destinations connected to that source.

As stated above, when new destinations are connected to an already connected source, they will all *SHARE* the video and only one will have the data return. Note that *SHARE* is only one of three connection modes:

- *SHARE*: multiple video connections, last connection has data return
- *TAKE*: each newly connected destination removes the video from all previous destinations and

the new destination also has the data return
- **VIEW**: each newly connected destination can view the video but will not take the data return.

To change the connection mode used for the *CONNECT* page, return to *ADMIN* Stations.

Click SHARE under *Connection Type:* in the first table.

Mouse over and select TAKE.

By next selecting the **SAVE** button, the *CONNECT* page will be in TAKE mode until it is changed again.

While on the *ADMIN* Stations page, notice that the second and third tables, starting with *Source Category:* and *Destination Category:*, by default, will be ALL.

2.4.4.   Import/Export Station Configurations

Internally, all configurations for stations and routers are maintained in **C**omma **S**eparated **V**alue format, or **CSV** files. For complex installations, it is often easier to modify these stations and router
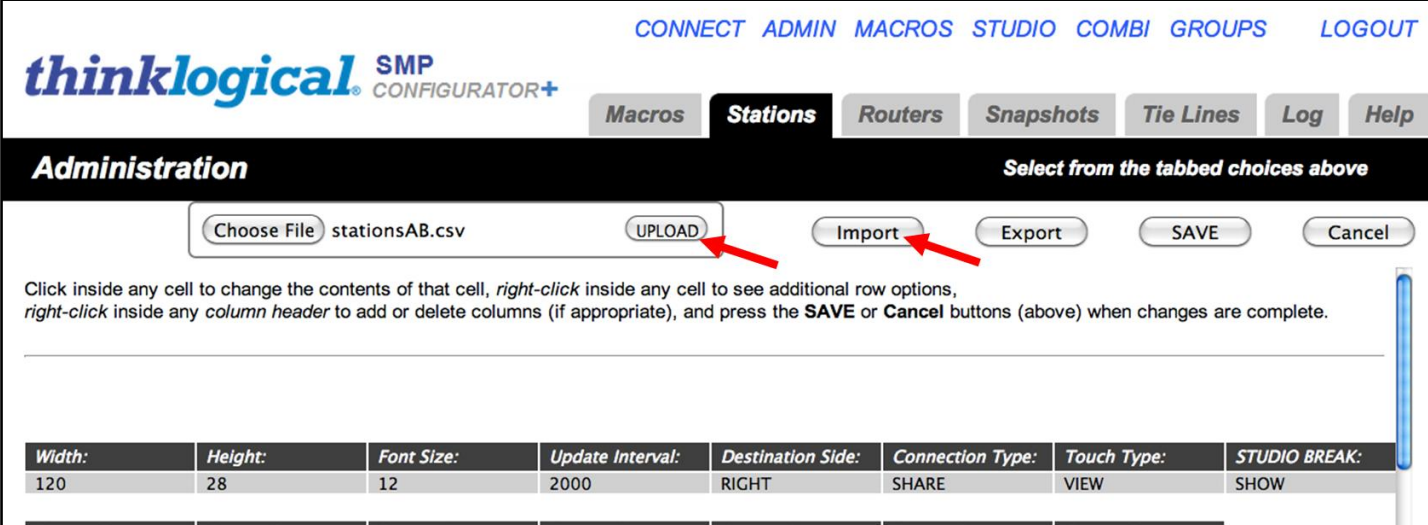
configuration files using a spreadsheet program.

To save a local copy of the **stations.csv file**, select *ADMIN* `Stations` and click the "Export" button.

A copy of the file will download through the browser's normal file download function.

⚠️ **Note: In file names for stations, the name must start with "stations" (in lower case) and end with ".csv". The file name is case sensitive. The part of the file name between "stations" and ".csv" is ignored, so the administrator can use the middle of the file name for any identifying information.**

For example, the first time Windows downloads the "stations.csv" file into the download directory it will be saved as "stations.csv". Future downloads may be named "stations (2).csv", etc. The administrator may decide to rename the saved "stations.csv" as "stations-phase-1.csv", and Configurator will still upload it and save it internally as "stations.csv".

This allows the administrator to maintain multiple stations and router files with their own names.

To upload the **stations.csv** file, select *ADMIN* `Stations` and click the "Import" button. The browser will open a small window. Click the "Choose File" button. The web browser will open a file browser window. Select the file to be uploaded and the file browser will close. Now click the "UPLOAD" button and the file will be transmitted to the server.

After the upload starts, the web browser will pop up an alert "Please allow a few seconds to reload..." Click the OK button and the page will reload.

2.4.5. The *STUDIO, COMBI* and *COMBI-M* Pages

The *STUDIO* and *COMBI* pages provide alternate ways to navigate through the stations and are designed to work with both full-size displays and touch-screens.
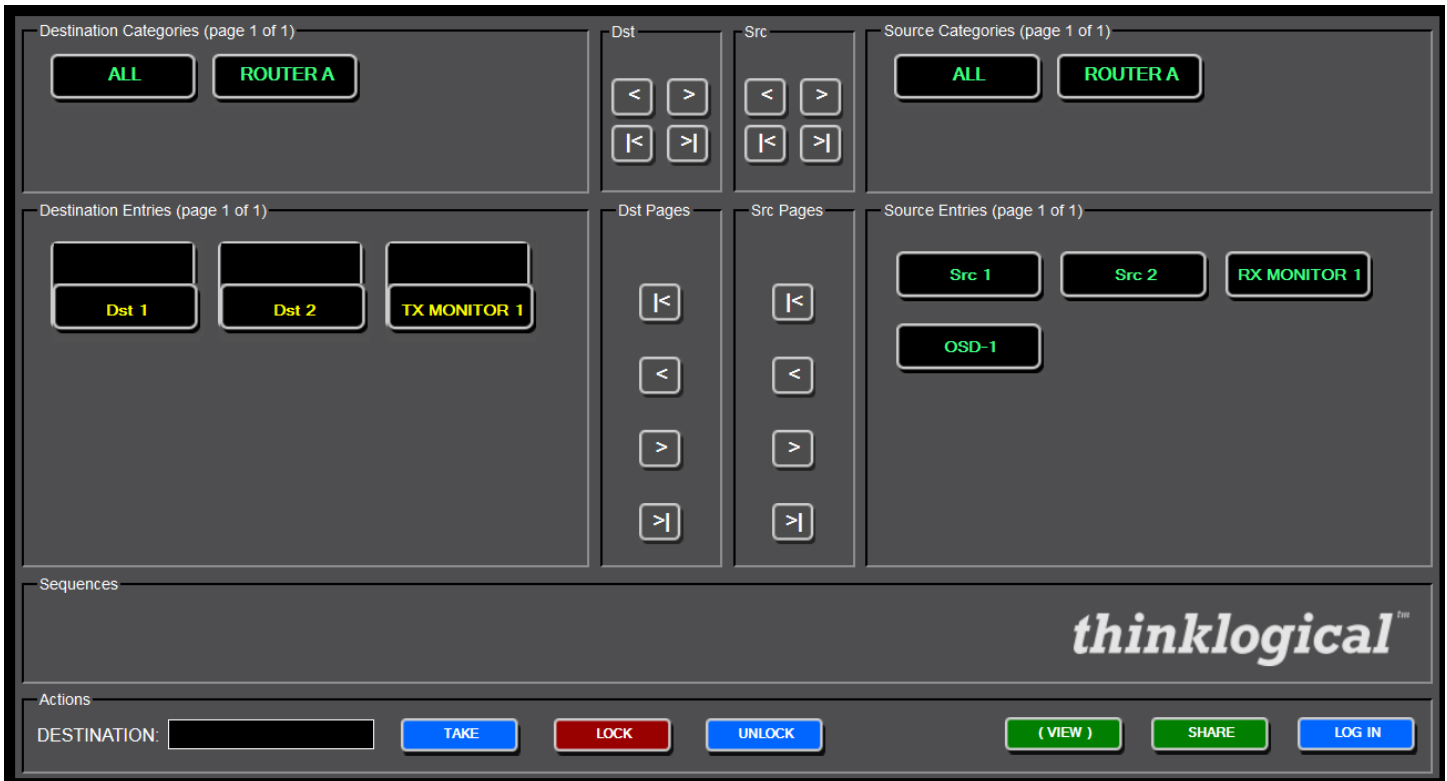
The STUDIO page

On the *STUDIO* page, the sources and destinations are reversed from the default **CONNECT** page. Here, sources are on the right and destinations on the left. Notice that the categories already created appear at the top of the page, but that the destination category and source category can be selected independently.

To perform operations on this page, click the ALL button for both Source and Destination categories (top left and right) to show all the stations. To make a connection, select a destination and a source (in either order) and then select from the connection types along the bottom: TAKE, (VIEW), SHARE.

⚠️ **Note: The *STUDIO* page does not have any clear way to move to other screens. This is intentional. This page is designed for users and operators who will seldom need any other page. The only way to get to another page is either with the browser's back button or by changing the browser's URL to another page.**

The *COMBI-M* page

To get to the *COMBI* page, select *COMBI* (or *COMBI-M*) from the links across the top. (You may need to use the browser's back button if you were last on the *STUDIO* page.) This page combines features from the *CONNECT* and *STUDIO* pages and is designed to work on both full size displays and touch-screens.

As in the *STUDIO* page, the user can select either the source or the destination first. Once a source and a destination have been selected, the user can connect using the buttons across the bottom. One difference from the *STUDIO* page is that on this page **the source icons also show which destinations they are driving**.

The *COMBI-M* Page includes a Macros button at the bottom-right corner that links to the *MACROS* page. In all other ways, however, it is the same as the *COMBI* page and is used mostly for demonstration purposes.

For a more complete guide to using the *STUDIO* and *COMBI* pages, please refer to the *Configurator Manual*: http://ftp.thinklogical.com/ftp/VxRouter/Configurator

2.4.6. The *GROUPS* page

Selecting the *GROUPS* tab will open the *Groups/Users Administration* page. From here, an administrator can define groups and users and assign group names and passwords to the various groups, which can then be made available to those who need access to each particular group.

The bottom table, "**# Groups assigned by IP address (touch panels)**" allows the administrator to assign a group and its associated permissions to requests coming from specific IP addresses. This means users from those addresses will not need to log in, but will automatically be part of the group

The Hot Key Manager needs to communicate with the Configurator as part of the 'admin' group. Since it is usually run on the same computer as Configurator, setting IP Address: '127.0.0.1' with Group: 'admin' means that the Hot Key Manager (or any browser running on the Configurator host machine) will have all admin rights.

If running on the same machine, *IP Address:* can be entered as the local host (127.0.0.1). If running on a different machine, however, the IP address of that machine will have to be entered.

2.4.7. The Premium Configurator

Premium Configurator (SMP-PCG001-001) is an upgraded software package, compatible with any MX and VX Router. The Premium Configurator offers advanced features such as **tie-line management for bi-directional tie-lines** (no restrictions for video path direction), as well as access to the **Drag & Drop GUI**. The Premium Configurator is required for software upgrades to the **Hot-Key Manager** and the **System Management Interface**.

2.5. Configurator Setup with Multiple Routers

Throughout this section we will use a different demonstration system as an example, this time with two routers, four sources and four destinations. The sources will be fed to two MX48 routers connected by a pair of fiber-optic tie lines. This configuration will demonstrate some of the more advanced elements of the System Management Portfolio, but again, without being overly crowded or complicated. The system is diagramed on the following page (pg. 31) and includes all the fiber and port references that will be used to set up the various fields in each of the SMP tabs and windows.

SOURCES: 4 CPUs with KVM, USB and audio connections to 4 single-head transmitters

ROUTERS: 2 MX48 Routers connected by a pair of fiber-optic tie lines.

SMP: An OSD Client CPU with video and USB connections to a single-head transmitter

An SMP CPU with USB connection to the *System Management Interface*

A network hub connecting the 2 routers and the OSD Client and SMP CPUs

DESTINATIONS: 4 work stations, each with single-head receivers with KVM, USB and audio
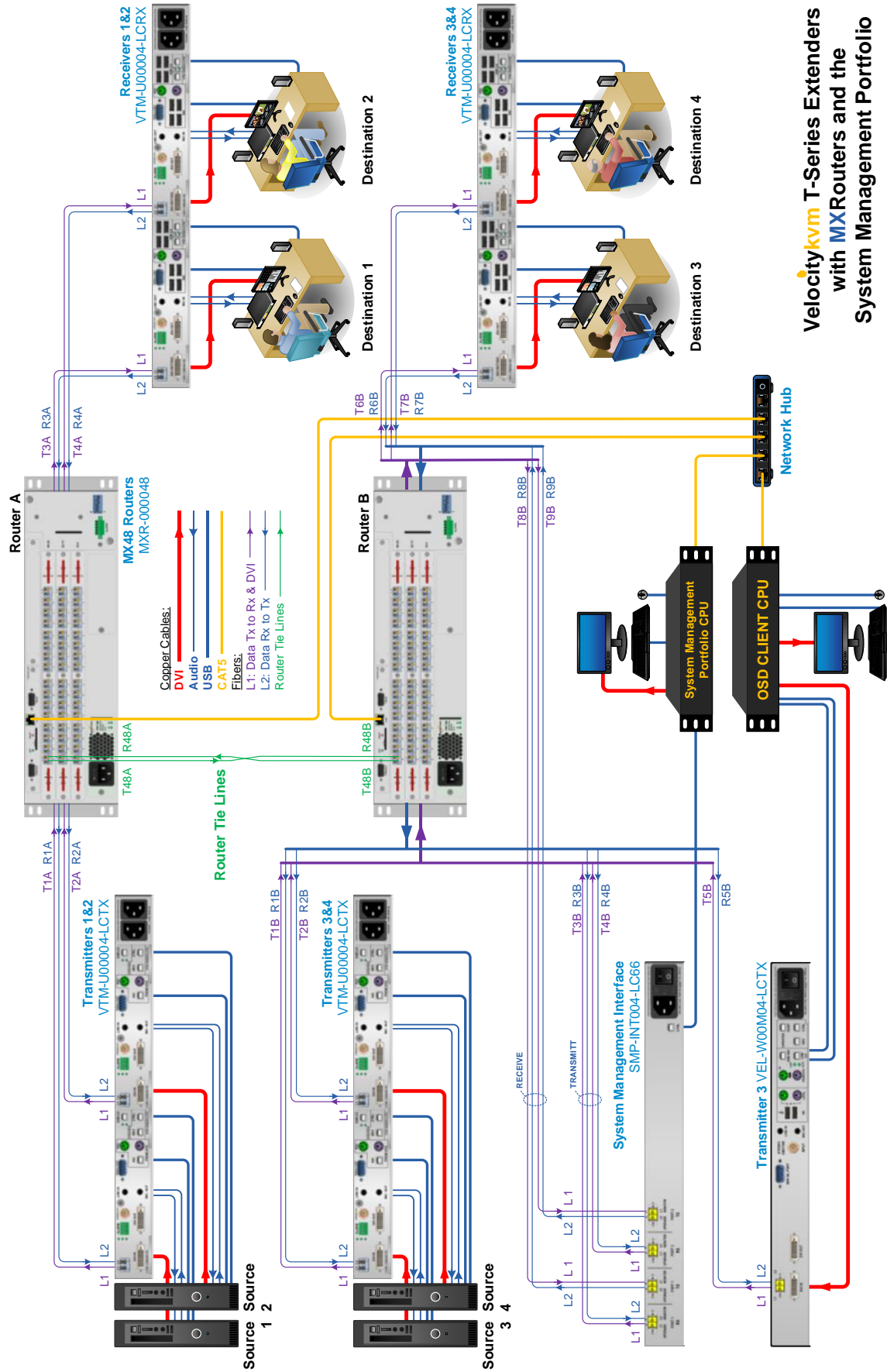
Velocitykvm T-Series Extenders with MXRouters and the System Management Portfolio

ADMIN Routers

On the *ADMIN* page, the Routers tab allows you to configure the Configurator for your routers. The routers must be running and on the network. The setup process will attempt to communicate with the routers over the network and will fail if a router does not respond or is a router type other than the one selected.

If this is a fresh install, there will be no routers declared. **Left-click on the gray row beneath the column header "Router Name:" and enter a name for your routers** (in this case, A and B). Left-clicking on the entries for the remaining fields will offer pop-up lists of choices. For this example, two MX48 routers connected by a pair of fiber-optic tie-lines are used. Left-click on *Type:* and select **MX48** in the pop-up window. MX48 will be placed in the *Type:* column.

Choose the Router Type *by clicking in the gray box.*

Router Name:	Type:	IP Address:	Socket:	Enabled:	Default Stations:	Sync Format:	House Sync:	Sync Status:
A	MX 48	192.168.13.45	17567	yes	CREATE		card not installed	
B	MX 48	192.168.13.41	17567	yes	CREATE		card not installed	

Socket
17567

Tie Line Name:	Start Router:	Start Port:	End Router:		Duplex:	Automatic:
A to B	A	UT-048	B		yes	yes

REMOVE Tie Line Table

*Left-clicking in the **IP Address:, Socket:, and Enabled:** boxes will offer pop-up choices for those fields.*

Socket: refers to a network socket that identifies the port used to communicate between the router and the Configurator. This information is provided by Thinklogical.

The Enable: field can be set to "no" if the router is not yet connected, which will keep the program from checking for the unreachable router and displaying error messages.

When the **Router Name, Type, IP Address, Socket**, and **Enabled** fields are complete, click the **SAVE** button near the top right corner.

Left-click the 'CREATE' button under Default Stations:. For this example, because single-head extenders are being used, click on 'KVM 1 Head'. Be sure to **SAVE** after making each of the changes. The 'CREATE' button only creates a station file for the last router row where the button is pressed. It will create one default when "A" is selected and a different and separate one when "B" is selected.

Router Name:	Type:	IP Address:	Socket:	Enabled:	Default Stations:	Sync Format:	House Sync:	Sync Status:
A	MX 48	192.168.13.45	17567	yes	CREATE		card not installed	
B	MX 48	192.168.13.41	17567	yes	CREATE		card not installed	

❌ **Station Types**

Video Only
KVM 1 Head ←
KVM 2 Head
(close)

Tie Line Name:	Start Router:	Start Port:	End Router:	End Port:	Duplex:	
A to B	A	UT-048	B	UR-048	yes	

REMOVE Tie Line Table

Mousing over *House Sync:* will reveal the message: *If your router is an HDX 80 or HDX 576, this read-only field tells you the format of the external sync being fed to the card ("House Sync"), or displays "card not installed" if your unit does not have a sync card.*

Router Name:	Type:	IP Address:	Socket:	Enabled:	Default Stations:	Sync Format:	House Sync:	Sync Status:
A	MX 48	192.168.13.45	17567	yes	CREATE		card not installed	
B	MX 48	192.168.13.41	17567	yes	CREATE		card not installed	

Tie Line Name:	Start Router:	Start Port:	End Router:	End Port:	Duplex:	Automatic:
A to B	A	UT-048	B	UR-048	yes	yes

REMOVE Tie Line Table

If your router is an HDX 80 or HDX 576, this read-only field tells you the format of the external sync being fed to the card ("House Sync"), or displays "card not installed" if your unit does not have a sync card.

2.5.1. Tie Lines

Below the *Router Name:* and *Type:* fields is the Tie Lines Table, beginning with *Tie Line Name:*, *Start Router:*, etc. In a fresh install, there is no Tie Line table- just a button that says "ADD Tie Line Table". When pressed, it adds a blank table with headers only and the button is replaced with "REMOVE Tie Line Table".

In this example, a simple connection between the two routers is made with a pair of fiber-optic cables. Because the sources and destinations will be connected starting with router port 1, the tie-lines will be placed on the last router port, Port 48, to allow plenty of room for additional source and destination connections in the future. (Any unused port can be used for a tie line, but the user is responsible for choosing which ports to use as the program will not suggest nor auto-complete an available port.)

Type the name of the tie lines in the *Tie Line Name:* field (in this case, *A to B*). In the *Start Router:* and *End Router:* fields, type the names assigned to the routers in the fields above under *Router Name:*. Port Names will be discussed in the next section, but for this example, UT-048 and UR-048 refer to the last transmit and receive ports on each of the routers.

Duplex: is set to "yes" to automatically form a transmit and a receive path between the two fibers. *Automatic:* tells the program whether the tie line can be allocated by the program when needed. Some installers include tie lines here even if they want them to be manually connected by the operators.

Tie Line Name:	Start Router:	Start Port:	End Router:	End Port:	Duplex:	Automatic:
A to B	A	UT-048	B	UR-048	yes	yes

REMOVE Tie Line Table

From *ADMIN* select Tie Lines from the tabs at the top to see the current tie line configuration at a glance.
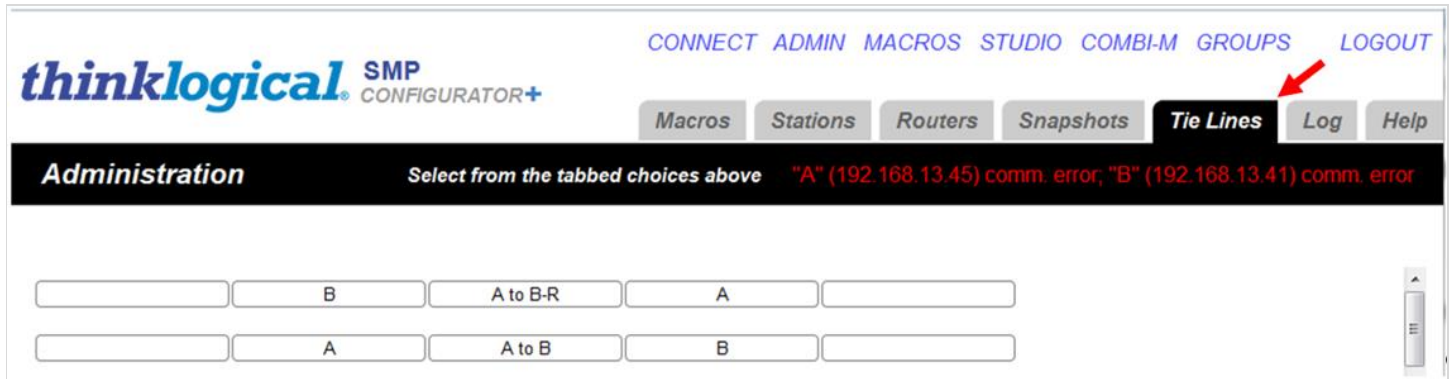
2.5.2. Creating Stations

Stations are any source and destination elements that can be connected. A station can contain a single port or multiple ports, and a single station can include ports located on multiple routers. The Stations tab below reflects the system shown in the diagram on page 31.

SOURCES: 4 CPUs with KVM, USB and audio connections to 4 single-head transmitters
ROUTERS: 2 MX48 Routers connected by a pair of fiber-optic tie lines.
SMP: An OSD Client CPU with video and USB connections to a single-head transmitter
An SMP CPU with USB connection to the System Management Interface
A network hub connecting the 2 routers and the OSD Client and SMP CPUs
DESTINATIONS: 4 work stations, each with single-head receivers with KVM, USB and audio

ADMIN Stations
Click the *ADMIN* link and then the Stations tab to get to the stations page. This page is designed to operate like a simple spreadsheet. Any value can be changed by selecting it and typing a new value. Values can be copied and pasted one at a time.

In **Table 1**, *Width:*, *Height:*, and *Font Size:* define the size of the boxes and the font that appear in the *Connections* pages.

Table 2, *Source Category:*, and **Table 3,** *Destination Category:*, allow the administrator to filter large lists of sources and destinations down to defined categories. These categories will be in the form of tabs on the *CONNECT* page and on the OSD screen.

Table 4, starting with the column header *Source Name:* defines the source stations.
Each source will have a port for video and/or data and a second for data return. Likewise, **Table 5**, starting with the column header *Destination Name:* defines the video/data and data return ports for each destination.

Source and Destination Names can be added or deleted by right-clicking on an existing station row and selecting *Insert, Append*, or *Delete* from the drop-down menu. Existing station rows can be copied and pasted using the same menu.

Source Name:	Router Name:	L1:	L2:
Src 1	A	UR-001	UT-001
Src 2	A	UR-002	UT-002
Src 3	B	UR-001	UT-001
Src 4	A	UR-002	UT-002
RX MONITOR 1		UR-003	UT-003
RX MONITOR 2		UR-004	UT-004
OSD-1		UR-005	UT-005

Row
Insert
Append
Delete
Copy
Paste

Destination Name:	Router Name:	L1:	L2:
Dst 1	A	UT-003	UR-003
Dst 2	A	UT-004	UR-004
Dst 3	B	UT-006	UR-006
Dst 4	B	UT-007	UR-007
TX MONITOR 1	B	UT-008	UR-008
TX MONITOR 2	B	UT-009	UR-009

For example, the source station "**Src 1**" has ports attached to the router named "**A**". The ports are named *L1:* and *L2: (and L3: for use with dual-head extenders)* for convenience (since they match the video and data return fiber names on Thinklogical fiber extenders), but the names can be changed to the user's preference. The order and the name of the router that precedes them, however, must follow the established naming convention.

2.5.2.1. Naming the Ports
Please refer to section 2.4.2.1. **Naming the Ports**, on page 20 for naming convention rules.

3.0 The Hot-Key Manager

The Hot-Key Manager (SMP-HKM001-001) allows users in multiple locations to share resources and provides control access from workstations, allowing any authorized receiver on the router to make a switch. Users define a set of keystrokes to deliver routing control to the desktop, all managed through an easy-to-understand *On-Screen Display*. With a simple keystroke or movement of the mouse, multiple users in different locations can easily exchange a single source's keyboard and mouse to more efficiently collaborate and share resources. All the Hot Key Manager's work is done through the USB HID port on the Thinklogical KVM Receiver. Most Thinklogical KVM Transmitters and Receivers are equipped with HID. *Hot Keys will not work on extenders without HID capabilities.*

The Hot-Key Manager is available for users with the Premium Configurator Software Package and comes in the Hot Key Basic or Hot Key Premium versions.

Hot Key Manager Basic: Included with the System Management Portfolio, all users have the same view and access to *Hot Keys, OSD, Collaboration, Cycle Forward* and *Cycle Back* functions without the need for login or authentication.

➢ **Hot-Keys** are configurable by destination and deliver routing control to each user's desktop.
➢ **On-Screen Display (OSD)** allows local workstation control access, giving any authorized receiver on the router the ability to make a change.
  • User selects from defined sources and destinations.
  • Filter to search for specific sources.
  • Advanced log-in features (allowable log-ins per destination).
  • Administrative log-in to control each specific destination's OSD.
➢ **Collaboration** allows multiple users to easily exchange a single source's KM controls.
  • Access a source workstation's KM with the space bar or mouse.
  • When keyboard and mouse are not in use, they become available for the next user.
➢ **Cycle Forward and Backward** through a set of configurable sources and/or KM. A keystroke moves to the next/previous source on the list.

Hot Key Manager Premium: Available through Thinklogical, every destination has its own customizable *On Screen Display*. In addition to the *Hot Keys, OSD, Collaboration, Cycle Forward* and *Cycle Back* functions described above, the Premium version also supports redundant applications and includes *Cycle Macro Forward, Cycle Macro Backward, Cycle KM Forward, Cycle KM Backward* and *Toggle*. The administrator will control each user's access to each destination.

➢ **On Screen Display (OSD)** is customizable for each destination.
➢ **Supports redundant applications**
➢ **Cycle Macro Forward and Backward** will scroll through the listed macros and allow the user to execute any selected macro.
➢ **Cycle KM Forward and Backward** reroutes the keyboard and mouse back-channels through the listed video heads.
➢ **Toggle** between the last two non-OSD sources.

3.1. Installing the Hot-Key Manager

The following is an installation package that Thinklogical supplies for Linux Debian computers, in this case, for the *Hot Key Manager*.

⚠️ **Note: The Foundation and Configurator packages should be installed first as the other SMP programs require them to run.**

- Installation package name: `hkm_debian_install_xxxx.tgz`
- Login as **root**
- Copy the installation package to any directory (/tmp/ is used here).
- Change directory to the location of the installation package: `- cd /tmp/`
- Extract the enclosed scripts and archives:
    - `tar -xvf hkm_debian_install_<version #>.tgz`
- Change to the newly added installation directory: `– cd hkm`
- Install and start the program as a service: `- sh hkm_install.sh`

This will install programs, configure log management and service files, set the program to start automatically as a service whenever the computer is restarted, and start the program running.

Open a browser (Google Chrome is recommended) and navigate to: `http://localhost:60082`

The default username and password will be: **username: admin** and **password: admin.**

 When the script has finished:

- The program(s) will have been installed to their proper directories.
- The configuration files to manage the logs will be added to `/etc/logrotate.d/`
- The service script will be added to `/etc/init.d/` and set to start the program automatically when the computer is restarted.
- The program will be started as a service.

After this, the service for this program can be controlled with the service command:

`service tl-hkm restart` (or stop or start)

3.2. The *RULES* Tab

The upper table, KEY and CODE, describes the standard mapping of keys to signals. These are the **actions to be performed for assigned key sequences. Click on fields in the lower table DESTINATION, CODE, ACTION and STATIONS/MACROS, to modify them, or right click to add/remove a row.**

3.3. The *CFM ADDRESS* Tab

This is the IP Address for the Configurator. The Out Of Band (OOB) Manager communicates with the CFM to connect stations. The CFM PORT is '60080' for all servers.

3.4. The *GUIDE* Tab

The OOB Manager helps the administrator specify actions that should be taken when special key code combinations, the space bar, or mouse motion will cause the router to act.

The actions to be performed for key sequences are assigned in the *RULES* Tab. The first table, headed *KEY and CODE*, describes the default mapping of key combinations to codes, which can be changed at the receivers.

KEY	CODE
CTRL	11
SHIFT	22
ALT	44
SCROLL/HOT KEY	55
WINDOWS	88
SPACEBAR	6b
MOUSE	6d
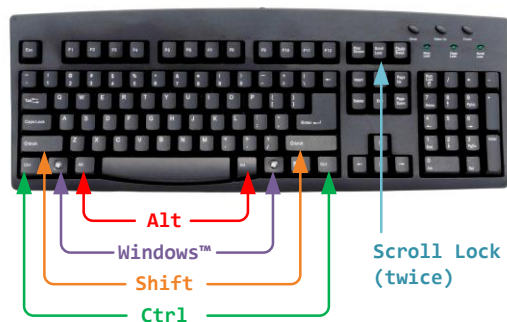
Available Key Codes:

- CTRL- Both **Ctrl** keys are pressed simultaneously

- SHIFT- Both **Shift** keys are pressed simultaneously

- ALT- Both **Alt** keys are pressed simultaneously

- WINDOWS- Both **Windows™** keys are pressed simultaneously

- SCROLL/HOTKEY- The **Scroll Lock** key (or whichever key has been designated as the Hotkey in the receiver's menu) has been pressed twice in quick succession.

The second table uses the destination name and the code received to define the action to be taken. In the *DESTINATION* column, when *DEFAULT is used, the actions assigned for each keycode will be performed for every destination defined in the Configurator. This behavior can be modified by making special cases, as shown below for destination "Dst 1."

DESTINATION	CODE	ACTION	STATIONS
*DEFAULT	44	OSD	
*DEFAULT	55	OSD	
*DEFAULT	6b	COLLABORATE	
*DEFAULT	6d	COLLABORATE	
Dst 1	11	CYCLE FWD	Src 1,Src 2,Src 3 ←
Dst 1	22	CYCLE BACK	Src 1,Src 2,Src 3 ←
Dst 2	6b	DISABLED	
Dst 2	6d	DISABLED	

Left clicking on a cell within the table will show the predefined choices available for that cell. Right clicking on any row within the table will show the options for adding or deleting rows. All OOB Manager activities will be listed in the *LOG* Tab.

Left click on a cell within the table to see predifined choices available for that cell.

DESTINATION	CODE	ACTION	STATIONS
*DEFAULT	44	OSD	
*DEFAULT	55	OSD	
*DEFAULT	6b	COLLABORATE	
*DEFAULT	6d	COLLABORATE	
Dst 1	11	CYCLE FWD	Src 1,Src 2,Src 3
Dst 1	22	E BACK	Src 1,Src 2,Src 3
Dst 2	6b	3LED	
Dst 2	6d	3LED	

CODE
11
22
44
55
88
6b
6d
Cancel

Right click on any row within the table to see options for adding or deleting rows.

DESTINATION	CODE	ACTION	STATIONS
*DEFAULT	44	OSD	
*DEFAULT	55	OSD	
*DEFAULT	6b	COLLABORATE	
*DEFAULT	6d	COLLABORATE	
Dst 1	11	CYCLE FWD	Src 1,Src 2,Src 3
Dst 1	22	CYCLE BACK	Src 1,Src 2,Src 3
Dst 2	6b		
Dst 2	6d		

ROW ACTIONS
COPY ROW
PASTE ABOVE
PASTE ON
PASTE BELOW
DELETE ROW
Cancel

3.5. The Hot-Key Manager Basic and Premium ACTION Tables

The **Hot-Key Manager Basic** package includes **On-Screen Display** (allows local workstation control access), **Collaboration** (allows multiple users to easily exchange a single source's KM controls) and **Cycle Forward/Backward** (moves to the next/previous source on the list).

The **Hot-Key Manager Premium** includes the features of the Basic version and also supports **Cycle Macro Forward/Backward** (scroll through and execute the listed macros), **Cycle KM Forward/Backward** (reroutes the keyboard and mouse back-channels through the listed video heads) and **Toggle** (switches between the last two non-OSD sources).

The Hot-Key Manager, through a USB HID capable receiver, allows the user to cycle through any number of monitoring stations connected to any number of sources.
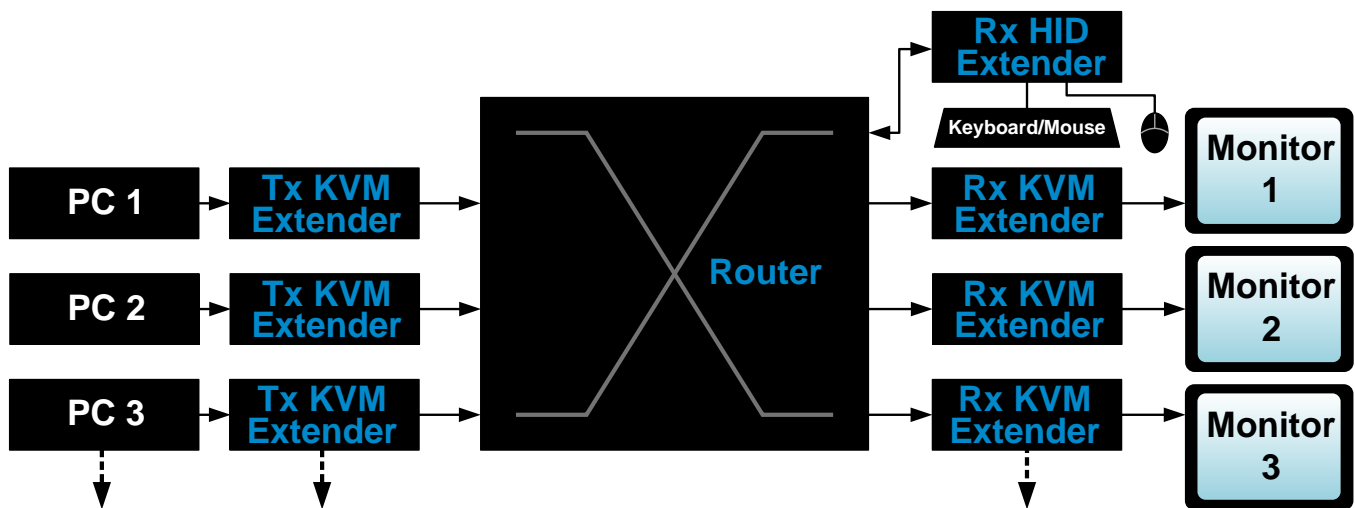
SOURCES: 1, 2, 3…   DESTINATIONS: 1, 2, 3…

3.5.1. Enable Collaboration and OSD at the VelocityKVM Receiver

VelocityKVM fixed and T-Series Extender Receivers feature a front panel LCD and navigation buttons for system monitoring and configuration. To enable OSD and Collaboration at the receiver, the user must change the settings at the LCD.

3.5.1.1. Enable Collaboration

Upon turn-on, the receiver's LCD will display configuration and version information as shown, left.

Press the **down arrow** button to get to the *System root menu.
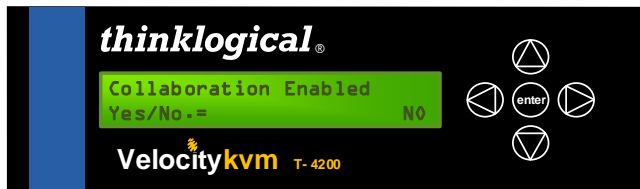
Press the **left arrow** button *once* to get to the Collaboration Enabled menu. Note that NO is displayed to the right.
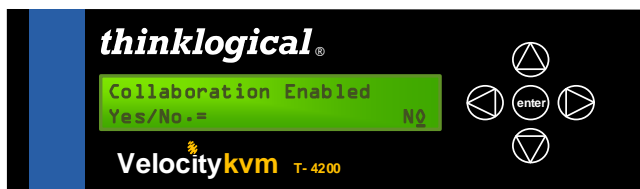
Press the **enter** button to select the YES/NO option. The last letter will display an underscore, indicating that it can now be changed or selected.
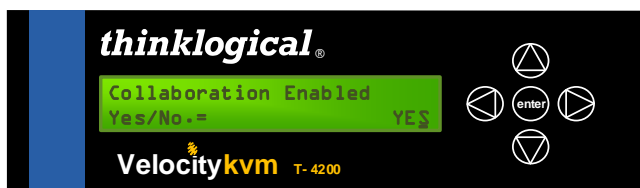
Press the **up arrow** button to toggle to the YES option. The last letter will display an underscore, indicating that it can be changed or selected.
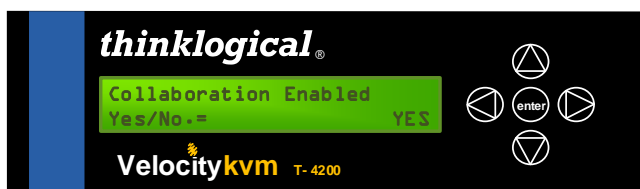
Press the **enter** button to select the YES option. The underscore will disappear, indicating that Collaboration Enabled is now active.

Watch a "How to Enable Collaboration" video:
https://www.dropbox.com/s/piq5tpq3vjsh6jw/Collaboration%20setup%20on%20Rx%20unit.mp4

3.5.1.2. Enable On Screen Display (or Out Of Band) at the VelocityKVM Receiver

thinklogical®

Thinklogical   <-
Velocity RX VTM24 V22.16

Velocitykvm T-4200

Upon turn-on, the receiver's LCD will display configuration and version information as shown, left.

---

thinklogical®

*System

Velocitykvm T-4200

Press the **down arrow** button to get to the *System root menu.

---

thinklogical®

Allow Out Of Band
Yes/No.=   NO

Velocitykvm T-4200

Press the **left arrow** button *twice* to get to the Allow Out Of Band menu. Note that NO is displayed to the right.

---

thinklogical®

Allow Out Of Band
Yes/No.=   NO̲

Velocitykvm T-4200

Press the **enter** button to select the YES/NO option. The last letter will display an underscore, indicating that it can now be changed or selected.

---

thinklogical®

Allow Out Of Band
Yes/No.=   YES̲

Velocitykvm T-4200

Press the **up arrow** button to toggle to the YES option. The last letter will display an underscore, indicating that it can be changed or selected.

---

thinklogical®

Allow Out Of Band
Yes/No.=   YES

Velocitykvm T-4200

Press the **enter** button to select the YES option. The underscore will disappear, indicating that Allow Out Of Band is now enabled.

Watch a "How to Enable OSD" video:
https://www.dropbox.com/s/5wpbbjvuruuxu14/OOB%20Switching%20on%20Rx%20Unit%20setup.mp4

On the RULES page, when using "CYCLE KM FWD" to cycle the keyboard and mouse between the individual sources driving multiple destinations, set up CYCLE KM FORWARD/BACK to cycle through the destination stations, not the sources. This allows the user to cycle through several monitoring stations connected to any number of sources. Note that Destinations 1, 2 and 3 have been defined in the STATIONS/MACROS field.

3.6. The *LOG* Tab

The *LOG* Tab lists all OOB Manager activity. The most recent activities are listed at the top. This list can be a valuable asset when configuring, debugging or trouble-shooting the system by providing a running list that clearly shows where and when each change or failure occurred.

3.7. The *ABOUT* Tab

The *ABOUT* Tab provides the current version number, the date that it was created, and other pertinent information about the Hot Key Manager.
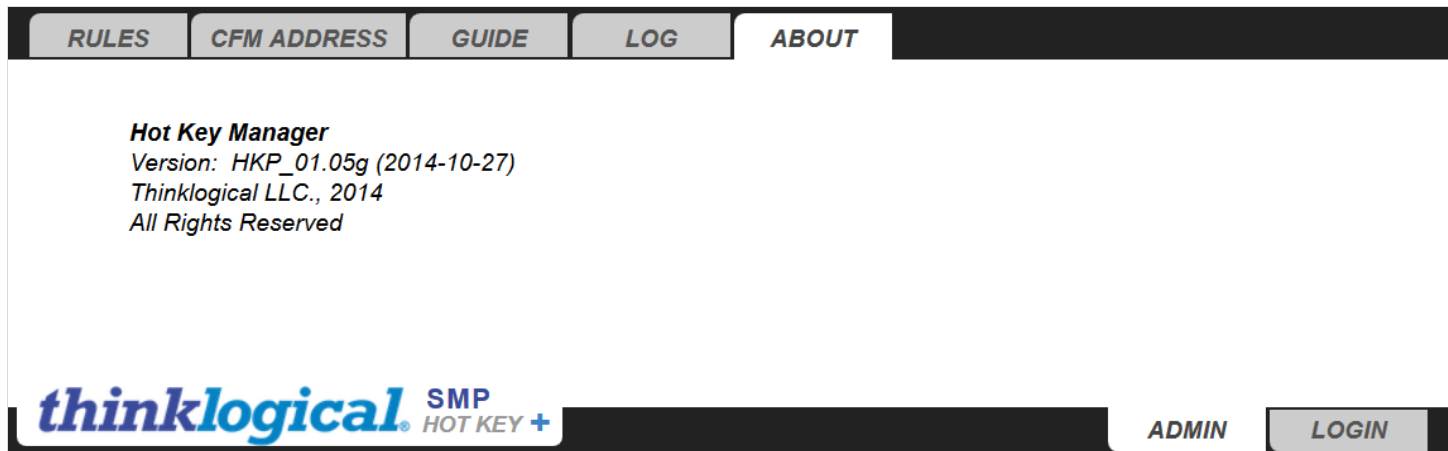
3.8. On-Screen Display

To allow local control access from workstations, users can define a set of keystrokes to deliver routing control to the desktop, managed through the *On-Screen Display*. With a keystroke or mouse movement, multiple users in different locations can easily exchange a single source's keyboard and mouse to collaborate and share resources more efficiently.

- The OSD IP address is the same as the Hot Key Manager, but with extension :60082/osd1.html
- Select from defined sources and destinations
- Customize each destination with a unique view
- Search filter for specific sources
- Scroll up/down the source list and across tabs with keyboard arrows, select with "Enter" key
- Advanced log-in features (allowable log-ins per destination)
- Administrative log-in to control a specific destination's OSD

Collaboration – *Allows multiple users to easily exchange a single source's keyboard/mouse controls.*

- Collaboration in this sense means that multiple destinations can simultaneously display the same source with keyboard/mouse control moving between them as needed.
- Collaboration can be triggered by any of the available Key Codes. The most frequently used are "6b" (SPACEBAR) and "6d" (MOUSE).
- If multiple destinations are viewing the same source's video and have CODE "6d" (MOUSE) with the ACTION column set to COLLABORATE, then anytime the mouse is moved at that destination, control of the currently displayed source will be moved to that destination.

The On-Screen Display is available as part of the Premium SMP package. It allows the administrator to create customized screens that let the user select from a list of sources tailored specifically for that user or the destination where the OSD has been requested.

3.8.1. Setup

- There must be one or more OSD sources defined in the ADMIN/Stations page on the Configurator. These must be computers capable of running the Google Chrome (or Chromium) browser, preferably in "*kiosk*" mode.

- Each OSD source must have its browser set to a different URL. For example: `http://<hot key manager ip>:60082/osd1.html` through `osdN.html,` depending on how many OSD sources are available.

- If these OSDs are to display customized source choices depending on their destination then there must be "groups" set up that define the associated sources and destinations. (More on this in the *Permissions* section, below.)

- On the *RULES* page, set a code with the *ACTION* "**OSD**" for all the destinations where the OSD should be available, or *DEFAULT if it should be available for all of them.

3.8.2. Operation

- When the Key Code associated with OSD is pressed, the Hot Key Manager will determine which destination sent it

- If the destination that sent the Key Code is part of a group, then the Hot Key Manager will make a list of all the sources that are also part of that group

- This list of sources is then sent to the next available OSD source computer. It will organize and display the sources by the categories defined for that source (from the ADMIN/Stations page).

- The OSD will be sent to the requesting destination with the categories displayed as tabs and the sources within those categories displayed in a list.

- The user can use the mouse or arrow keys to select categories and then select a source from within the chosen category.

- If a user is a member of a different group that has permissions for additional sources, she may press the LOGIN tab (bottom, right), enter username and password, and those additional sources and their categories will become available.

- Once a source has been selected from the list, the Hot Key Manager commands the Configurator to make the connection and the OSD is released to assist the next user waiting for service.

- If no connections are requested within eight (8) seconds after the OSD screen is displayed, the OSD computer will be released to assist the next user waiting for service.

3.8.3. Permissions

- For each unique collection of sources to be displayed there must be a group. For instance, if a several editors will frequently choose from the sources named AVID-1, AVID-2, and AVID-3, then the Configurator GROUPS page should have a group defined named "Editorial" or "AVID 1-3" or something similar.

- On the ADMIN/Stations page, each source that should be part of that group should have that group name ("Editorial" or "AVID 1-3") in a "Takeable" column.

- Since these editors usually work at the same destinations, call them DESK-1 and DESK-2, then these destinations must also have the same group name in a "Takeable" column.

- Finally, the Hot Key Manager loads the Configurator information at start up. If changes are made to the Configurator, the Hot Key Manager must be restarted to reflect those changes.

3.8.4. Stations Set-up

The Stations page below shows that several Sources and Destinations have been named (Src 1, RX MONITOR 1, Dst 1, etc.). In this example, the sources and destinations will fall under two Source Categories; ALL and ROUTER A. (If more than one router was listed as a *Source Category*, then ALL would contain those routers as well.) All the source categories are listed in Table 2 and all the

Destination Categories are listed in Table 3. The specific sources and destinations that fall into each category are listed in Table 4 (Sources) and Table 5 (Destinations).

The Configurator Stations page

Right click on the right-most *Category:* header and the Append/Delete drop-down menu will appear, as shown above. Select Append and a new column named *Category:* will appear (below). Left click on the column header and another drop-down menu offers a choice of headers. Choose Takeable:

Do this for both Sources and for Destinations. Under *Takeable:* enter the name of the user where connections are to be made. Note in the example below that Src 1 and Src 2 have been made Takeable: by *user* and that Dst 2 has also been made Takeable by *user*. Once the entries are made, click the **SAVE** button.

Source Name:	Router Name:	L1:	L2:	L3:	Category:	Category:	Takeable:	Color:
Src 1	A	UR-001	UT-001		ALL	ROUTER A	user	red
Src 2	A	UR-002	UT-002		ALL	ROUTER A	user	orange
RX MONITOR 1	A	UR-003	UT-003		ALL	ROUTER A		yellow
OSD-1	A	UR-004	UT-004		ALL	ROUTER A		green

Destination Name:	Router Name:	L1:	L2:	L3:	Category:	Category:	Takeable:
Dst 1	A	UT-005	UR-005		ALL	ROUTER A	
Dst 2	A	UT-006	UR-006		ALL	ROUTER A	user
TX MONITOR 1	A	UT-007	UR-007		ALL	ROUTER A	

3.8.5. The On-Screen Display (OSD) Pages

Logging in to the OSD Pages requires a username and password which are made available to the user by the administrator. (Usernames and passwords are assigned in the Configurator's *GROUPS* page. See page 29.)

The OSD Log-in page

The OSD pages are based on the categories named in the Stations page. (See page 47.) The example below shows two page tabs; ALL and ROUTER A. Clicking on a tab will show all the sources and destinations that are assigned to that particular category as well as which sources and destinations are connected. A mouse icon indicates mouse control. Because only one Router has been set up, *ALL* and *ROUTER A* will show the same connections.

TECH NOTES:
Rules of Thumb for *thinklogical* HotKey+ and OSD

- CFM and OSD Client PCs must have USB Keyboard & Mouse and DVI video.
- CFM PC must run Debian, Ubuntu, Redhat/CentOS, or Windows.
- OSD Client PCs must use the Chrome Browser in Kiosk Mode.
- Firmware at RX stations must be recent.
- Out of Band Switching must be enabled on the RX units via the LCD front panel.
- OSD Client PCs must be named OSD-1, OSD-2, and so on in the *STATIONS* page. Case sensitive.
- OSD Client URLs must reference the HKM:
  - http://192.168.13.9:60082/osd1.html,
  - http://192.168.13.9:60082/osd2.html, and so on.
- CFM URL on the CFM PC is:
  - http://127.0.0.1:60080/
  - http://192.168.13.9:60080 (or from a networked PC)
- Hotkey on the CFM PC is:
  - http://127.0.0.1:60082/
  - http://192.168.13.9:60082 (or from a networked PC)
- Commands to start & stop services (open terminal window):
  - sudo service tl-cfm start *Starts the **CFM** service*
  - sudo service tl-cfm restart *Shuts down and restarts the **CFM** service*
  - sudo service tl-cfm stop *Stops the **CFM** service*
  - sudo service tl-cfm status *Gives **CFM** the status.*
  - sudo service tl-hkm start *Starts the **HotKey** service*
  - sudo service tl-hkm restart *Shuts down and restarts the **HotKey** service*
  - sudo service tl-hkm stop *Stops the **HotKey** service*
  - sudo service tl-hkm status *Gives the **HotKey** status*
- View the log files:
  - cat /var/log/tl-cfm.log
  - cat /var/log/tl-hkm.log
- View the log files Live:
  - tail -f /var/log/tl-cfm.log
  - tail -f /var/log/tl-hkm.log
- CSV files are located in the /opt/tl/cfm/setup directory

4.0 System Management Interface

4.1   System Management Interface Features

The System Management Interface is a hardware/software package that allows users to remotely monitor and update the entire system.

The *System Management Interface* is a 1RU rack-mountable chassis that allows users to monitor the status and configuration of the entire system. (The Configurator maintains the reporting database.)

The front panel features a 2x24 character LCD and a set of navigation buttons for status and configuration control. The rear panel features four pairs of LC-type fiber-optic ports (two transmitters and two receivers) and a USB connection to a local Linux CPU. The AC power receptacle and the unit's ON (I)/OFF (O) switch are also located on the rear panel.

Hardware: (*Multi-Mode* SMP-INT004-LC66, *Single-Mode* SMP-INTS04-LC66) Four SFPs/eight fibers monitor and update 2 Transmitters and 2 Receivers, utilizing 4 ports on the router. The Interface provides USB connections to a local Linux CPU. The *System Management Interface* is available to users with the **Premium Configurator Software Package** (hardware and software sold separately).

System Management Interface, front panel

H: 1.72" (43.69 mm) x **D:** 8.70" (220.88 mm) x **W:** 17.49" (444.29 mm)

System Management Interface- Multi-Mode (Part Number SMP-INT004-LC)

System Management Interface- Single-Mode (Part Number SMP-INTS04-LC)

Software Package 1: System Monitoring (SMP-INT00M-001)
Software Package 2: System Monitoring & Upgrades (SMP-INT00U-001)

Both software packages run independently, but require the Configurator to provide naming and station information.

System Monitoring provides system diagnostics, displayed on its own web page.
- Cycles through system to check all ports and connections
- Compatible with VelocityKVM Fixed and T-Series
- Takes only 1 second to check each port
- USB port connects to PC

- Self-monitored health reports
- Ability to use multiple units for increasingly rapid diagnostics
- Sort by: *Station Name, Serial Number, Extender Model, RX/TX, Port Number*

System Updates allows the administrator to remotely update the extenders.
- No requirement to physically access extender
- Under 1 minute to upgrade, no multicasting (no display during upgrade)
- Host (RX KM)
- Device (TX HID)
- Control (front panel, etc.)
- Compatible with VelocityKVM Fixed, Q-Series and T-Series Extenders

Extender monitoring/reporting (front panel LCD):
- Product Type
- Serial Number
- Power Supply Status
- Fan Status
- Board Temperature
- SFP Status (optical power, LOS)
- Deserializer Status (DES OK)
- LS Connected
- Control Software Rev
- Host Software Rev
- Device Software Rev (Transmitter Only)
- DDC Mode (Transmitter Only)
- OOB Enabled (Receiver Only)
- Collaboration Enabled (Receiver Only)
- Redundancy Status (active port – pri/sec/ter)

RACK-MOUNT OR DESK-TOP OPTIONS: The *System Management Interface* can be mounted in a standard EIA 19" rack or on a shelf or desk-top.

8 Mounting bracket screws
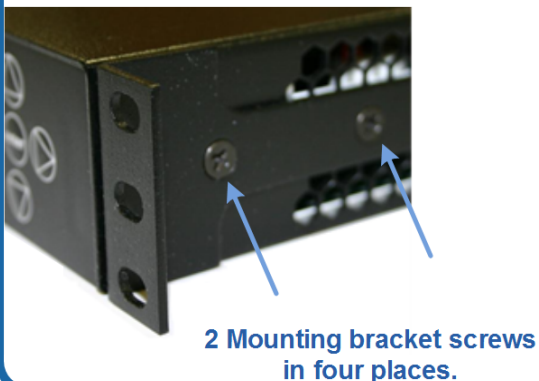
Both mounting brackets are secured by four screws. **After power has been removed from the unit,** each mounting bracket can be safely removed from the chassis for desk-top mounting. *All screws should be reinstalled after the brackets have been removed.*

2 Mounting bracket screws in four places.

The SMI can be desktop or rack mounted

4.2. System Management Interface Technical Specifications

System Management Interface	
AC/DC Power Supply Voltage	**100 – 240 VAC at a frequency of 50 - 60Hz.**
Dimensions	**Height:** **1.72" (43.69 mm)** **Depth:** **8.70" (220.88 mm)** **Width:** **17.49" (444.29 mm)** **Width (with mounting brackets): 19.03" (483.46 mm)** **(Tolerances: ± .039"; 1 mm)**
Rear Panel Connectors	**Four LC-Type fiber-optic connectors** **One USB-B connector for CTRL updates**
System Management Interface CPU	**Linux Debian**
Display	**2x24 character LCD with navigation buttons**
Operating Temp and Humidity	**0° to 50°C (32° to 122 °F), 5% to 95% RH, non-condensing**
Weight Shipping Weight	**4.06 lbs. (1.842 kg)** **15 lbs. (6.8 kg)**
Compliance	**Approvals for US, Canada and European Union**
Warranty	**12 months from date of delivery. Extended warranties available.**

4.3 Linux Installation: System Management Interface

The following is an installation package that Thinklogical supplies for Linux Debian computers, in this case, for the *System Management Interface*.

⚠ **Note: The Foundation and Configurator packages should be installed first as the other SMP programs require them to run.**

- Installation package name: `smi_debian_install_xxxx.tgz`

- Login as **root**

- Copy the installation package to any directory (`/tmp/` is used here).

- Change directory to the location of the installation package: – `cd /tmp/`

- Extract the the enclosed scripts and archives:

      `tar -xvf smi_debian_install_<version #>.tgz`

- Change to the newly added installation directory: – `cd smi`

- Install and start the program as a service: – `sh smi_install.sh`

After the extract with the "tar" command and cd to the SMI directory, users will find a `README.txt` with any new, last minute instructions and notes.

- Service is restarted with: – `service tl-smi restart`

- After the service is started, the web pages can be found at: – http://localhost:60084

- The program(s) will have been installed to their proper directories.
- The configuration files to manage the logs will be added to `/etc/logrotate.d/`
- The service script will be added to `/etc/init.d/` and set to start the program automatically when the computer is restarted.
- The program will be started as a service.

After this, the service for this program can be controlled with the service command:

> `service tl- smi restart` (or stop or start)

4.4. Navigating the System Management Interface

In the following examples, screen shots from an actual, fully functioning system are being used. These will illustrate all of the functions and elements of the System Management Interface.
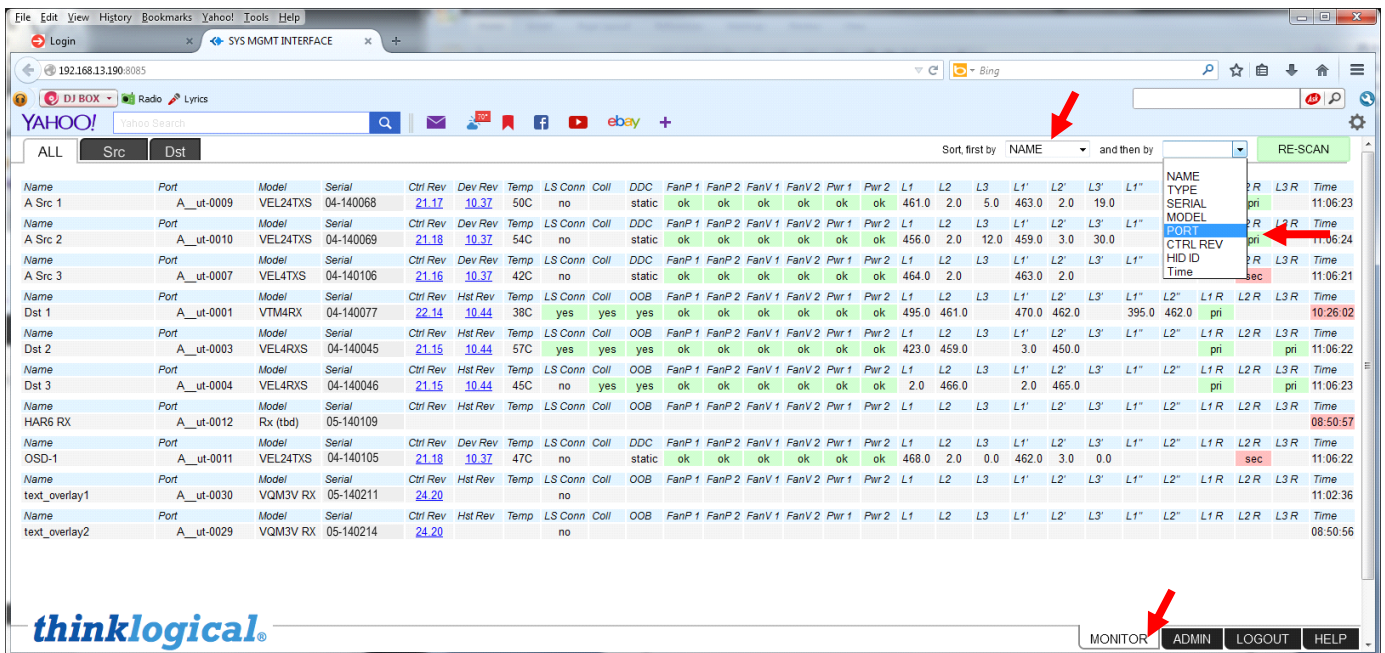
With the ALL tab selected at the top of the page, and with MONITOR selected at the bottom of the page, each of the assigned ports and associated status are available to view or edit at a glance. At the top of the page are two windows to specify the way the information will be displayed. In this example, the *Sort first by* NAME *and then by* PORT windows are selected. **Name** and **Port** appear in the left-most columns.
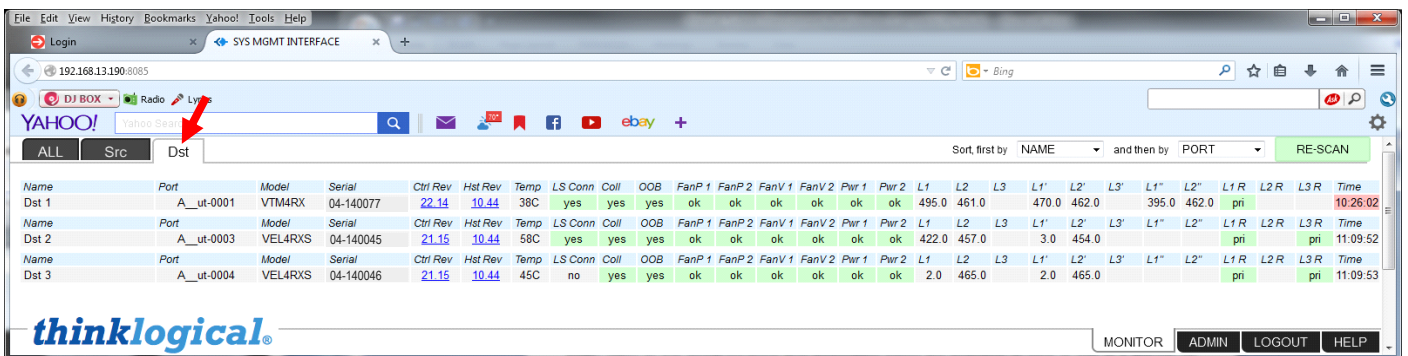
In this example, the Dst (destination) tab at the top has been selected and only the ports with 'Dst' in the name (Dst 1, Dst 2, Dst 3) are displayed.

Name	Port
Dst 1	A__ut-0001

Name	Port
Dst 2	A__ut-0003

Name	Port
Dst 3	A__ut-0004

Other notable information includes:

- The Transmitter or Receiver connected *(Model)*
- The unit's serial number, *formatted as MM-YY1234* *(Serial)*
- The current software revisions *(Ctrl Rev and Hst Rev)* *See para. 4.4.1.*
- The current internal temperature *(Temp)* of the Transmitter or Receiver

Model	Serial	Ctrl Rev	Hst Rev	Temp
VTM4RX	04-140068	22.14	10.44	38C

Model	Serial	Ctrl Rev	Hst Rev	Temp
VEL4RXS	04-140105	21.15	10.44	58C

Model	Serial	Ctrl Rev	Hst Rev	Temp
VEL4RXS	04-140106	21.15	10.44	45C

- **L**ow **S**peed return **Conn**ections (*LS Conn*)
- **Coll**aboration enabled (*Coll*)
- **O**ut **O**f **B**and status (*OOB*)
- Fan status *(FanP 1, FanP 2, etc.)*

LS Conn	Coll	OOB	FanP 1	FanP 2	FanV 1	FanV 2
yes	yes	yes	ok	ok	ok	ok

LS Conn	Coll	OOB	FanP 1	FanP 2	FanV 1	FanV 2
yes	yes	yes	ok	ok	ok	ok

LS Conn	Coll	OOB	FanP 1	FanP 2	FanV 1	FanV 2
no	yes	yes	ok	ok	ok	ok

- The Transmitters' or Receivers' power supply status *(Pwr 1, Pwr 2)*
- Power, in micro watts, being received or transmitted at the SFPs *(L1, L2, L3, etc.)*
- Primary or secondary redundant status *(L1R, L2R, etc.)*
- Time of day *(Time)* that the SMI ran its last scan

Pwr 1	Pwr 2	L1	L2	L3	L1'	L2'	L3'	L1"	L2"	L1 R	L2 R	L3 R	Time
ok	ok	495.0	461.0		470.0	462.0		395.0	462.0	pri			10:26:02

Pwr 1	Pwr 2	L1	L2	L3	L1'	L2'	L3'	L1"	L2"	L1 R	L2 R	L3 R	Time
ok	ok	422.0	457.0		3.0	454.0				pri		pri	11:09:52

Pwr 1	Pwr 2	L1	L2	L3	L1'	L2'	L3'	L1"	L2"	L1 R	L2 R	L3 R	Time
ok	ok	2.0	465.0		2.0	465.0				pri		pri	11:09:53

A failure, in this case *Power Supply 1*, will display "fail" in a red window as shown below.

Coll	OOB	FanP 1	FanP 2	FanV 1	FanV 2	Pwr 1	Pwr 2
yes	yes	ok	ok	ok	ok	fail	ok

Coll	OOB	FanP 1	FanP 2	FanV 1	FanV 2	Pwr 1	Pwr 2
yes	yes	ok	ok	ok	ok	ok	ok

Coll	OOB	FanP 1	FanP 2	FanV 1	FanV 2	Pwr 1	Pwr 2
yes	yes	ok	ok	ok	ok	ok	ok

Coll	DDC	FanP 1	FanP 2	FanV 1	FanV 2	Pwr 1	Pwr 2
	static	ok	ok	ok	ok	ok	ok

Coll	DDC	FanP 1	FanP 2	FanV 1	FanV 2	Pwr 1	Pwr 2
	static	ok	ok	ok	ok	ok	ok

Coll	DDC	FanP 1	FanP 2	FanV 1	FanV 2	Pwr 1	Pwr 2
	static	ok	ok	ok	ok	ok	ok

4.4.1. System Updates

System Updates allows users to remotely update the system without physically accessing the extender. Upgrades are performed in less than a minute with just two clicks of the mouse.

Right-click on *Ctrl Rev* and select the appropriate model from the drop-down menu to automatically download the most current revision.

- To update the Control firmware for a given extender, left click on the *Ctrl Rev* field and the file with the firmware for this type of extender will be selected and a confirmation box displayed.

- Right clicking is only required if the *Ctrl Rev* is unknown, signified by 1.00B. Normally a user would left-click and be offered the correct software for the extender in question.
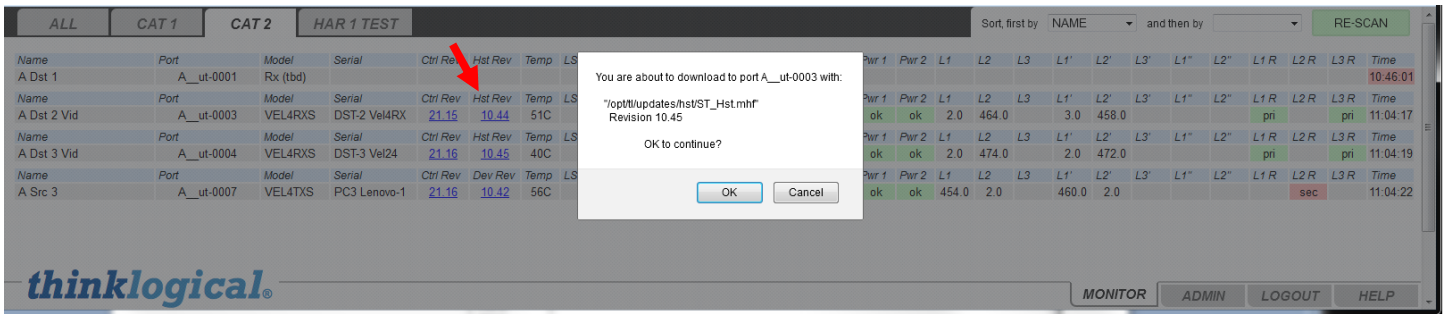
To update the 'Host' firmware for an Extender, left-click on *Hst Rev* and a dialog box will ask if you'd like to continue. Click OK.

4.4.2. The *ADMIN/STATIONS* Tab

- Configuration settings are available for the SMI from the *ADMIN* tab at the bottom right corner. Press it and new tabs for specific features will appear at the top left
- Press the *STATIONS* tab
- Depending on the SMI hardware, there can be one or two monitoring ports for transmitters (sources), and one or two monitoring ports for receivers (destinations).
- Check the box under Tx M1 or Tx M2 (for TX MONITOR 1 or 2) to select which transmitters are monitored by which ports.
- Repeat the process for Rx M1 and Rx M2
- Click the APPLY button at the top right to save the changes and restart the scan.
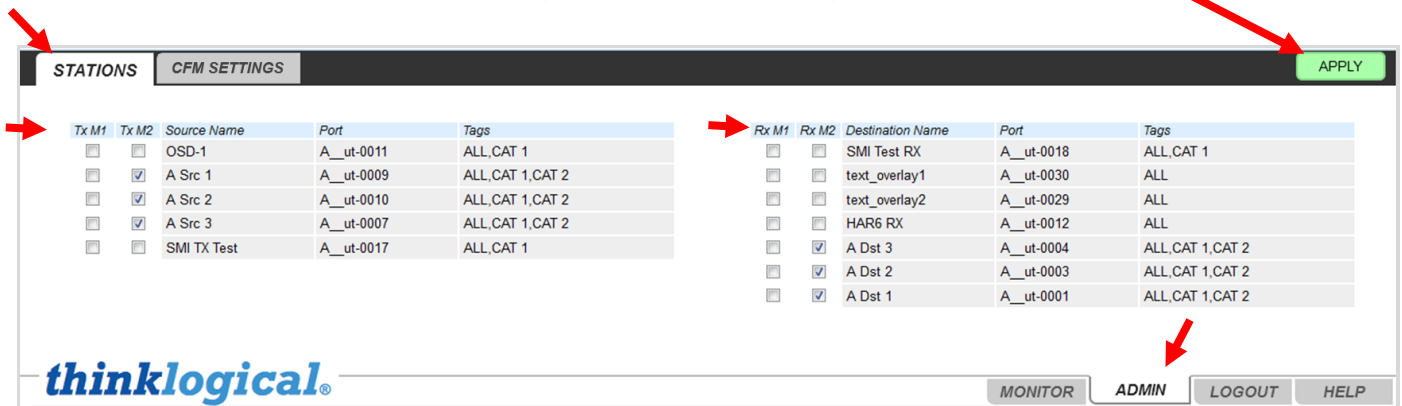
In the above example, the *ADMIN* Tab at the bottom of the page and the *STATIONS* tab at the top of the page have been selected. Transmitters and Receivers, Ports and Tags can be selected and edited here. Click the APPLY button when entries are completed.

4.4.3. The ADMIN/CFM SETTINGS Page

- Configuration settings are available for the SMI from the *ADMIN* tab at the bottom right corner. Press it and new tabs for specific features will appear at the top left
- Press the *CFM SETTINGS* tab
- On this page, the administrator can inspect and edit the CFM ADDRESS and CFM PORT, information necessary for the SMI to communicate with the Configurator
- The four monitoring station names can be changed from their defaults ("TX MONITOR 1", "TX MONITOR 2", "RX MONITOR 1", and "RX MONITOR 2") if desired. But the names specified here must match the names found in the Configurator *ADMIN/Stations* page.
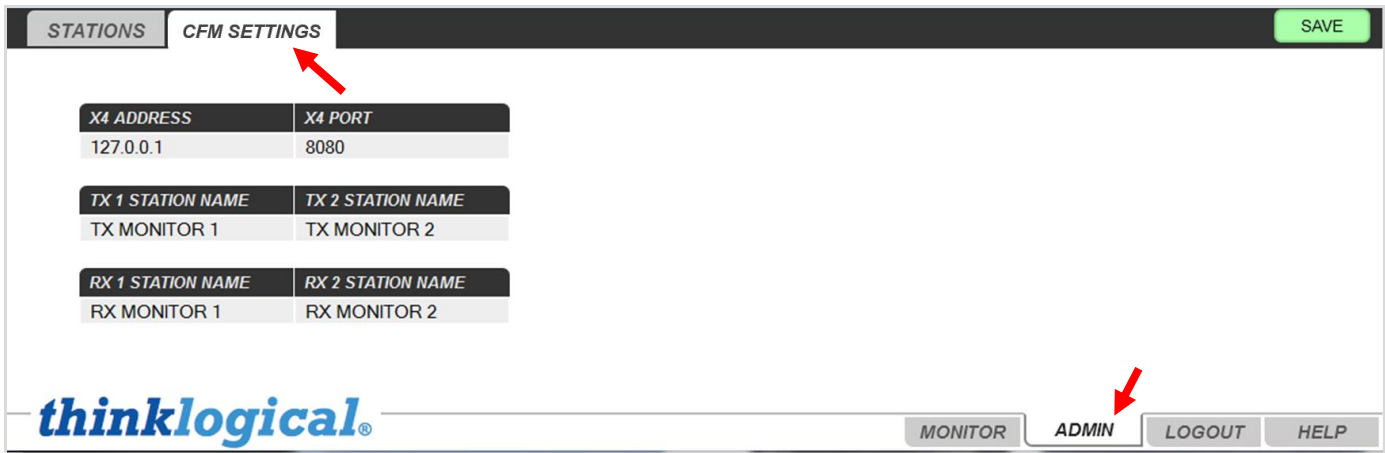
In the above example, the *ADMIN* Tab at the bottom of the page and the *CFM SETTINGS* tab at the top of the page have been selected.

Users will enter the router's IP address in the CFM ADDRESS box. This page also allows users to deviate from the standard default naming convention assigned to the various station names. (See the **TECH NOTES** on page 21.) Any name that does not conform to the default names can be entered into the TX 1 STATION NAME, RX 1 STATION NAME, etc. fields. Names entered into the STATIONS page must match exactly the names entered here. Click the SAVE button when entries are completed.

5.0 Drag & Drop GUI

The Drag & Drop Graphical User Interface is included with the **Premium Configurator** (SMP-PCG001-001) and provides users with content-based visual control, rather than purely source-based control.

- Manually create configurations, independent of Configurator
- Customize room designs to match destinations
- Use up to10 tabs, one room per tab
- Allows a maximum of 40 sources/destinations per tab
- The server runs on Mac/Linux only, while the client runs on any browser
- Thinklogical's professional set-up and training is available for each system

Linux Installation: Drag & Drop GUI

The following is an installation package that Thinklogical supplies for Linux Debian computers, in this case, for the *Drag & Drop GUI*.

⚠️ **Note: The Foundation and Configurator packages should be installed first as the other SMP programs require them to run.**

- The installation files will be compressed and stored in a single file named:
  ```
  dnd_<version #>.tgz.
  ```
- It should be copied to any directory, although `/tmp/` is preferred.
- Login as **root**.
- Use "cd" to change directory to the location of the installation package:
  ```
  cd /tmp/
  ```

- Extract the contents with the following command line:

  ```
  tar -xvzf dnd_full_<version>.tgz
  ```

- This will extract at least four scripts and archives. The script to execute is:

  ```
  dnd_install.sh .
  ```

- To do this, login as *root* and type:

  ```
  sh dnd_install.sh
  ```

This will install programs, configure log management and service files, set the program to start automatically as a service whenever the computer is restarted, and start the program running.

Open a browser (Google Chrome is recommended) and navigate to: `http://localhost:60086`

The default username and password will be: **username: admin** and **password: admin.**

When the script has finished:

- The program(s) will have been installed to their proper directories.
- The configuration files to manage the logs will be added to `/etc/logrotate.d/`
- The service script will be added to `/etc/init.d/` and set to start the program automatically when the computer is restarted.
- The program will be started as a service.

After this, the service for this program can be controlled with the service command:

  ```
  service tl- dnd restart
  ```
  (or stop or start)

The *Drag & Drop GUI* simulates the physical configuration of up to ten rooms (one per tab), including work stations and equipment, on screen. Each tab can support up to 40 sources and destinations.
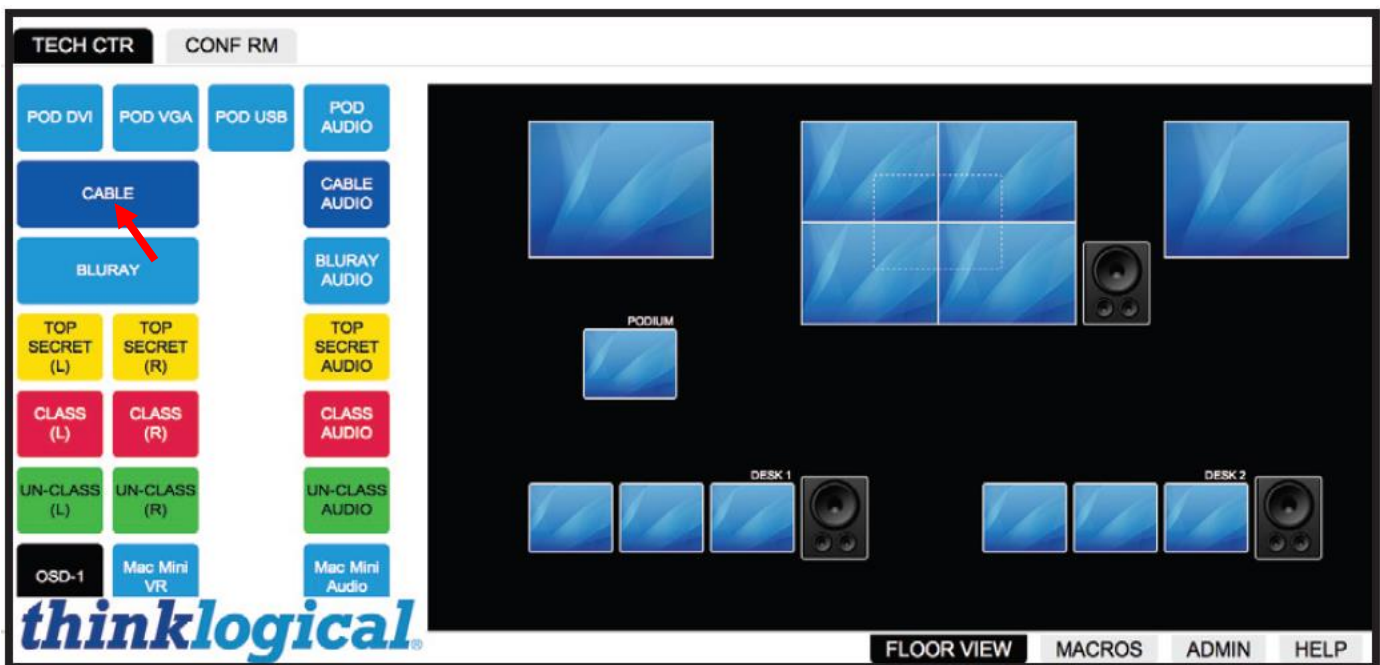
The Drag & Drop GUI set up with two tabs, one for each room, labeled TECH CTR and CONF RM.

For a complete guide to using the Drag & Drop GUI, please refer to the *Drag & Drop Manual*: http://ftp.thinklogical.com/ftp/Drag&Drop

System Management Portfolio IP Address Port Numbers	
Configurator	:60080 *(for example: 192.168.13.9:**60080**)*
System Management Interface	:60084
Drag And Drop	:60086
Hot Key Manager	:60082
On-Screen Display	:60082/osd.html

6.0 Regulatory & Safety Compliance

6.1. Safety Requirements

Symbols found on the product

Markings and labels on the product follow industry-standard conventions. Regulatory markings found on the products comply with domestic and many international requirements.

Regulatory Compliance

Thinklogical's products are designed and made in the U.S.A. Each product has been tested by a certified testing laboratory and found to be compliant with the following standards (for both domestic USA and international locations):

North America

Safety
ANSI/UL60950-1: 1st Edition (2003)
CAN/CSA C22.2 No. 60950-1-03

Electromagnetic Interference
FCC CFR47, Part 15, Class A
Industry Canada ICES-003 Issue 2, Revision 1

Australia & New Zealand

This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take corrective measures.

European Union

Declaration of Conformity
Manufacturer's Name & Address: **Thinklogical, LLC**®
100 Washington Street
Milford, Connecticut 06460 USA

These products comply with the requirements of the Low Voltage Directive 72/23/EEC and the EMC Directive 89/336/EEC.

Standards with Which Our Products Comply

Safety

CENELEC EN 60950-1, 1st Edition (2001)

Electromagnetic Emissions

EN55022: 1994 (IEC/CSPIR22: 1993)
EN61000-3-2/A14: 2000
EN61000-3-3: 1994

Electromagnetic Immunity

EN55024: 1998 Information Technology Equipment-Immunity Characteristics
EN61000-4-2: 1995 Electro-Static Discharge Test
EN61000-4-3: 1996 Radiated Immunity Field Test
EN61000-4-4: 1995 Electrical Fast Transient Test
EN61000-4-5: 1995 Power Supply Surge Test
EN61000-4-6: 1996 Conducted Immunity Test
EN61000-4-8: 1993 Magnetic Field Test

EN61000-4-11: 1994 Voltage Dips & Interrupts Test

6.2. Supplementary Information

The following statements may be appropriate for certain geographical regions and might not apply to your location.

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigencies du Règlement sur le maté rial brouilleur du Canada.

Warning! This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take corrective measures.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the 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 the instruction manual, may cause harmful interference to radio communications in which case the user may be required to take adequate corrective measures at their own expense.

Note: This Class A digital apparatus complies with Canadian ICES-003 and has been verified as being compliant within the Class A limits of the FCC Radio Frequency Device Rules (FCC Title 47, Part 15, Subpart B CLASS A), measured to CISPR 22: 1993 limits and methods of measurement of Radio Disturbance Characteristics of Information Technology Equipment.

Note: The user may notice degraded audio performance in the presence of electro-magnetic fields.

Product Serial Number

Thinklogical products have a unique serial number, which includes a date-code, printed on an adhesive label that is affixed to the unit. The format for the date-code is 2 digits for the month, dash, 2 digits for the year, plus four digits for a unique unit number. For example, **05-150127** indicates the unit was built in the **5**th month of 20**15**, and is unit number **127**.

Connection to the Product

Connections and installation hardware for our products use industry-standard devices and methods. All wiring connections to the customer equipment are designed to minimize proprietary or customized connectors and cabling. Power connections are made with regionally appropriate power cords and approved methods.

7.0 How To Contact Us

7.1. Customer Support

Thinklogical® is an engineering company and you will receive any information you require directly from our most knowledgeable engineers.

We believe that the first line of support comes from the design engineers that developed each particular product.

Therefore, your questions or issues will be handled promptly by our in-house engineers who are most familiar with your products.

> **Thank you for choosing Thinklogical® products for your application.**
>
> *We appreciate your business and are dedicated to helping you successfully use our products.*
>
> **thinklogical® is always here to help you.**
>
> *To contact us, please use the following telephone numbers and internet-based methods:*

Website

Check out our website for current product offerings, support information and general information about all of the products we offer.

Our internet website offers product information on all current systems, including technical specification sheets and installation guides (for viewing online or for download), product diagrams showing physical connections and other information you might need.

Internet: **www.thinklogical.com**

⚠️ **Note: Most online documents are stored as Adobe Acrobat "PDF" files. If you do not have the Adobe Acrobat reader needed to view PDF files, visit www.adobe.com for a download.**

Email

Thinklogical is staffed **Monday through Friday from 8:30am to 5:00pm**, Eastern Time Zone. We will try to respond to your email inquiries promptly, use the following email addresses for your different needs:

info@thinklogical.com – Information on Thinklogical and our products.

sales@thinklogical.com – Sales Department - orders, questions or issues.

support@thinklogical.com – Product support, technical issues or questions, product repairs and request for Return Authorization.

Telephone

Product & Customer Support:	**1-203-647-8798**
US Commercial & Canada Sales:	**1-203-647-8715**
US Federal Government Sales:	**1-203-647-8716**
Toll Free in the Continental US:	**1-800-291-3211**
International Sales (Europe, Middle East, Africa)**:**	**1-203-647-8704**
International Sales (Asia Pacific, Central & Latin America)**:**	**1-203-647-8734**

Please contact our expert sales staff in Milford, CT, Monday through Friday from 8:30am to 5:00pm, Eastern Time Zone. We'll provide a representative's direct dial phone number when you call.

If leaving a voice message, please provide a preferred time to call back so we may reach you at your convenience.

Our switchboard attendant will direct your call during regular business hours. We have an automated attendant answering our main telephone switchboard after regular business hours and holidays. You can leave voice messages for individuals at any time.

Fax

Our company facsimile number is **1-203-783-9949**. Please indicate the nature of the fax on your cover sheet and provide return contact information.

7.2. Product Support

Thinklogical's support personnel are available **Monday through Friday from 8:30am to 5:00pm**, Eastern Time Zone. If your application requires assistance at some time outside of our normal business hours, please contact us beforehand and we will do our best to make arrangements to help you with your Thinklogical products.

7.2.1. Warranty

Thinklogical, LLC® warrants this product against defects in materials and workmanship for a period of one year from the date of delivery. Thinklogical, LLC and its suppliers disclaim any and all other warranties.

⚠️ **Note: Thinklogical, LLC products carry a one year warranty, with longer term available at time of purchase on most products. Please refer to your product invoice for your products Warranty Terms & Conditions.**

Defect remedy shall be the repair or replacement of the product, provided that the defective product is returned to the authorized dealer within a year from the date of delivery.

If you wish to return your device, contact the Thinklogical, LLC authorized dealer where you purchased the device, or if you purchased directly, call Thinklogical, LLC at **1-800-291-3211** (USA).

7.2.2. Return Authorization

> **If you need to return your Thinklogical® product to us for any reason, please get a**
>
> **R**eturn **M**erchandise **A**uthorization Number (RMA#)
>
> **from Thinklogical's Product Support Department (1-203-647-8700) before sending the unit in.**

If you need to return a product to Thinklogical directly, please contact **Customer Support** at **1-800-291-3211** or **1-203-647-8798**. Customer Support will ask you to describe the problem and will issue you a **R**eturn **M**erchandise **A**uthorization number (RMA#). Pack the device in its original box, if possible, and return it with the RMA number printed on the outside of the box.

⚠️ **Note: DO NOT return a product to Thinklogical® without a *Return Material Authorization*.**

Our Addresses

If you have any product issues or questions or need technical assistance with your Thinklogical system, please call us at **1-800-291-3211 (USA only)** or **1-203-647-8798** and let us help. If you need to write us or return a product with a Return Material Authorization, please use the following address:

Thinklogical, LLC®
Attn: *RMA#*
100 Washington Street
Milford, CT 06460 USA

Website:	www.thinklogical.com
Facebook:	www.facebook.com/ThinklogicalUSA
LinkedIn:	www.linkedin.com/company/thinklogical
Google+:	http://plus.google.com/u/0/109273605590791763795/about
YouTube:	www.youtube.com/user/thinklogicalNA
Twitter:	@thinklogical

MADE IN USA

Appendix A: Minimum Required Firmware Versions for Thinklogical Transmitters, Receivers and Routers

System Management Portfolio Minimum Required Firmware Levels, Extenders and Routers					
KVM Extender Model	Video Support	Control Code Version	Host Code Version	Device Code Version	Boot Code Version
VelocityKVM-4 RX	1 x DVI	21.13	10.43	N/A	1.0B
VelocityKVM-4 TX	1 x DVI	21.14	N/A	10.36	1.0B
VelocityKVM-5 RX	1 x DVI or 1 x RGB	21.14	10.43	N/A	1.0B
VelocityKVM-5 TX	1 x DVI or 1 x RGB	21.16	N/A	10.36	1.0B
VelocityKVM-8 RX	1 x DL DVI	21.12	10.43	N/A	1.0B
VelocityKVM-8 TX	1 x DL DVI	21.11	N/A	10.36	1.0B
VelocityKVM-24 RX	2 x DVI	21.21	10.43	N/A	1.0B
VelocityKVM-24 TX	2 x DVI	21.16	N/A	10.36	1.0B
VelocityKVM-28 RX	1 x DL DVI & 1 x DVI	21.14	10.43	N/A	1.0B
VelocityKVM-28 TX	1 x DL DVI & 1 x DVI	21.12	N/A	10.36	1.0B
VelocityKVM-34 RX	4 x DVI	21.13	10.43	N/A	1.0B
VelocityKVM-34 TX	4 x DVI	21.12	N/A	10.36	1.0B
VelocityKVM-35 RX	3 x DVI	21.11	10.43	N/A	1.0B
VelocityKVM-35 TX	3 x DVI	21.11	N/A	10.36	1.0B
VelocityKVM-38 RX	2 x DL DVI	21.13	10.43	N/A	1.0B
VelocityKVM-38 TX	2 x DL DVI	21.15	N/A	10.36	1.0B
T_Series VTM-4 RX	1 x DVI	22.12	10.43	N/A	1.0B
T_Series VTM-4 TX	1 x DVI	22.12	N/A	10.36	1.0B
T_Series VTM-5 RX	1 x DVI or 1 x RGB	22.10	10.43	N/A	1.0B
T_Series VTM-5 TX	1 x DVI or 1 x RGB	22.13	N/A	10.36	1.0B
T_Series VTM-8 RX	1 x DL DVI	22.09	10.43	N/A	1.0B
T_Series VTM-8 TX	1 x DL DVI	22.09	N/A	10.36	1.0B
T_Series VTM-24 RX	2 x DVI	22.15	10.43	N/A	1.0B
T_Series VTM-24 TX	2 x DVI	22.15	N/A	10.36	1.0B
MX/VX Router Model		Control Code Version			
MX48		4.09			
VX40		4.07			
VX80		4.07			
VX160		4.10			
VX320		4.10			
VX320V		4.08			

Appendix B: External Control CPU Minimum Requirements

The External Control CPU must meet the following minimum requirements (including requirements for using Thinklogical's System Management Portfolio)**:**

- **System Management Interface** package requires Debian or Ubuntu 32 or 64 bit.
- **Configurator** and **Hot Key Manager** run on Linux (RedHat 32 & 64 bit, Debian 32 & 64 bit or Windows XP, 7, and 8).
- **RAM** (minimum): **Linux:** 1GB   **Windows:** 4GB   **OSX:** 4GB
- **VIDEO:** Works with all video adapters. (Not required if the computer is used as a headless server.)
- **KEYBOARD/MOUSE:** Works with any keyboard/mouse/touchpad. (Not required if the computer is used as a headless server.)
- **NETWORK:** One port minimum, although two ports are recommended for security considerations.
- **DISK SPACE:** Thinklogical programs typically use less than 40 MB.
- **SERIAL PORT:** 1 optional RS-232 serial port (Crestron/AMX serial access)

A **Back-Up Controller Card is optional** to ensure uninterrupted functionality if the Primary Controller Card fails or needs to be replaced. The **Primary Controller Card should always be in the upper controller slot**. The back-up card must have a LAN connection that allows it to communicate with both the Primary Controller and a server with the IP address **192.168.13.9**. Without this interface, the back-up controller cannot take control of the router.