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A BELDEN BRAND

SMP3

System Management Portfolio 3.0

PRODUCT MANUAL

Revision A, October 2021

SMP Software
SMP Appliance
SMP Module
SMP Client

Thinklogical, A BELDEN BRAND • 100 Washington Street • Milford, Connecticut 06460 U.S.A.

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Subject: System Management Portfolio 3.0 Product Manual
Revision: A, October 2021

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PREFACE

About Thinklogical A BELDEN BRAND

Thinklogical, a Belden Brand, is the leading manufacturer and provider of fiber-optic and CATx video, KVM, 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 SDIP 24 Level B, and NATO NIAPC Evaluation Scheme: GREEN and the U.S. DoD DISA JITC UCR 2013 APL 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.

Thinklogical products are designed and manufactured in the USA and are certified to the ISO 9001:2015 standard.

Thinklogical is headquartered in Milford, Connecticut and is owned by Belden, Inc., St. Louis, MO (http://www.belden.com). For more information about Thinklogical products and services, please visit https://www.thinklogical.com.

Note and Warning Symbols

Throughout this document, 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.

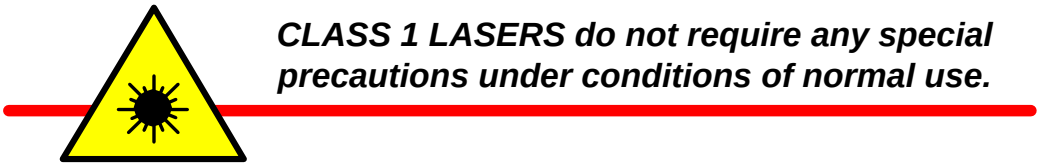
A **note** is meant to call the reader's attention to **helpful** information at a point in the text that is relevant to the subject being discussed.

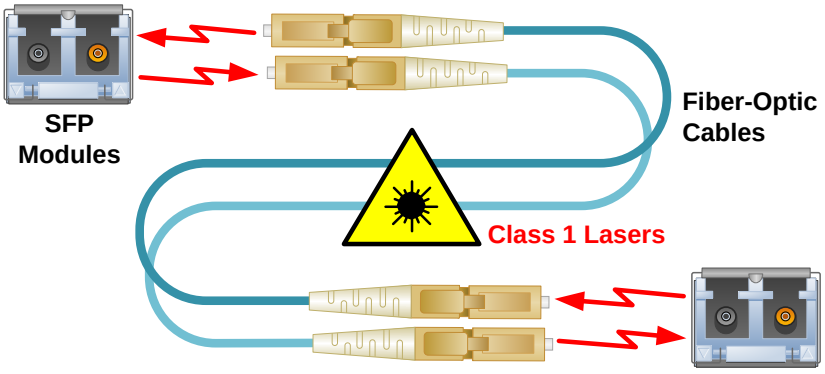
Warning! All Warnings appear in red text, followed by blue text, and preceded by a red stop sign, as shown here.

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.

Class 1 Laser Information

Thinklogical® products are designed and identified as **Class 1 LASER products.** This means the maximum permissible exposure (MPE) cannot be exceeded when viewing the laser with the naked eye or with the aid of typical magnifying optics (e.g., magnifying glass, eye loupe, etc.).





Scope

This document describes the functionality of ***Thinklogical's® System Management Portfolio 3.0***, also known as *SMP3*, a managed configuration and control system for Thinklogical's VX, MX and TLX line of Matrix Switches. (*See note, below*.)

Note: SMP3 does NOT support the VX160 or VX320 Matrix Switches due to hardware restrictions.

Introduction

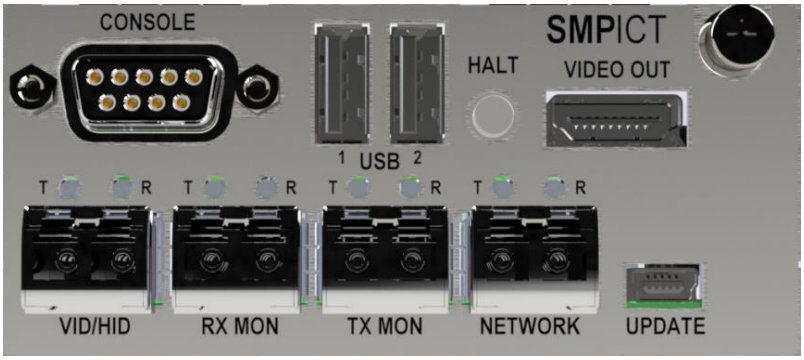
Thinklogical's® System Management Portfolio 3.0, or SMP3, control system is available on three hardware platforms, onto which is installed CentOS Linux and the System Management Portfolio software suite. There is also an SMP Client Module, available on two hardware platforms that is used for OSD functionality

SMP3 is available in 6G** (VX) **and 10G** (TLX) **and in Multi-mode and Single-mode and i7 varieties (SMP/ICT and OSD/ICT).

The SMP/ICT

The SMP/ICT (i7 version) is a quarter-width form-factor product that installs in one of the slots in a ***Thinklogical®*** CHSHP4 chassis.

For chassis information see: Manual_Integrated_Client_Transmitter_Rev_G.pdf.



SMP/ICT, rear panel

CONNECTIONS

- CONSOLE – Serial console to the Linux operating system. Datacomm parameters are: 38,400 baud, 8 bit, 1 stop, no parity.
- USB – USB 2.0 connections for keyboard and mouse.
- HALT – Halt button for resetting the unit.
- VIDEO OUT – Video connection to the Linux desktop.
- VID/HID – Fiber connection to the Linux desktop.
- RX MON – Connection to the Matrix Switch for monitoring (see Dashboard section).
- TX MON – Connection to the Matrix Switch for monitoring.
- NETWORK – Ethernet connection to the system which can include: Matrix Switches, Touchpanels, OSDs, etc.
- UPDATE – Serial USB connection. Used for firmware updates and also configuring the fiber optic transmitter portion of the SMP/ICT.

LEDs:

SFP	T LED	R LED	Condition
VID/HID, RX/TX MON	Blinking GRN	Blinking GRN	Normal
VID/HID, RX/TX MON		Blinking RED	Cannot lock onto data
VID/HID, RX/TX MON		Off	No signal (back channel)
NETWORK	GRN	GRN	Link up – 1Gbs
NETWORK	GRN	Off	Link up – 100Mbs
NETWORK	Off	GRN	Link up – 10Mbs
NETWORK	Off	Off	Link Down
NETWORK	RED	RED	SFP fault

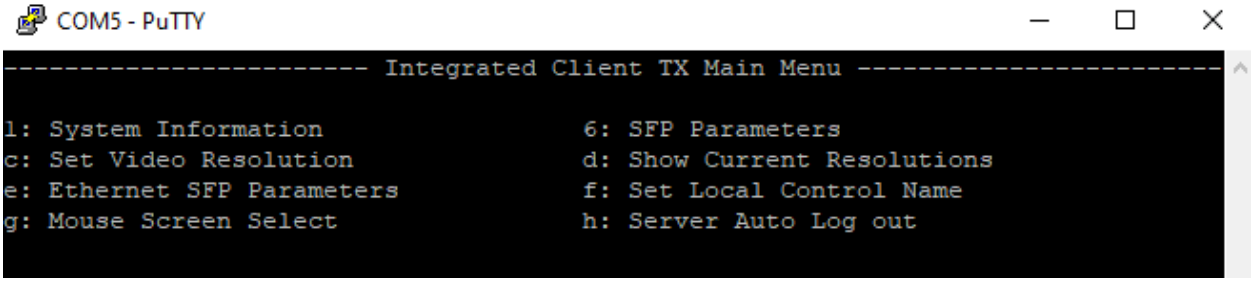
HARDWARE CONFIGURATION

IP address – The default IP address is 192.168.13.9. If the IP address needs to be changed it is done with the ***Dashboard*** utility.

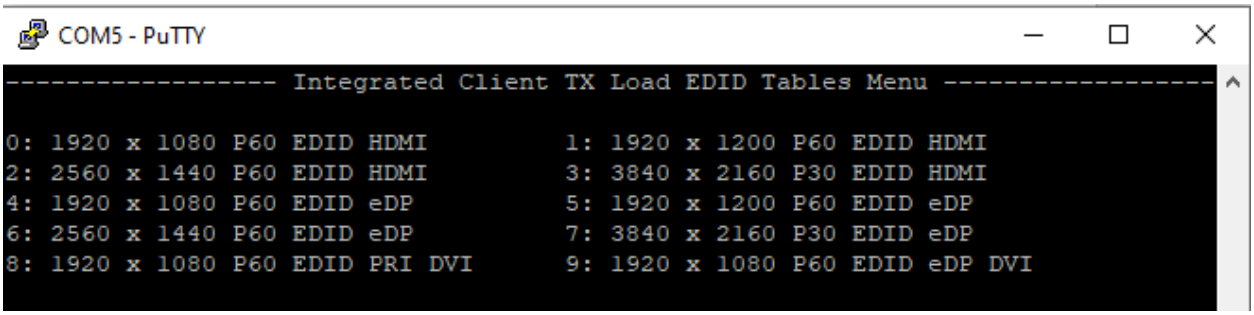
- Connect a keyboard, monitor, and mouse and power up the unit.
- A browser page will display in full screen kiosk mode; hit F11 to toggle kiosk mode.
- Choose the second browser tab which is https://localhost:60083 to open the SMP Dashboard application.
- Enter **`admin`** for *username* and **`admin`** for *password*.
- The IP Config page will appear. Enter the desired IP address and click on SET ETH0.
- Reboot the SMP/ICT (Applications Menu/Logout/Restart).

Video Parameters – The default video resolution is 1920x1080p and is normally left unchanged. However, if it does need to be modified:

- Connect a USB cable from the UPDATE port to a PC.
- Open a terminal emulation program such as PuTTY.
- Choose; Serial, the COM port to use, 38,400 baud, 8 bit, 1 stop, no parity.
- Hit <return> and you should see the main menu.



- Choose “c: Set Video Resolution” for the next menu.



- Choose 0-3 to set the resolution of the HDMI port (the eDP port is not present in these units).

The OSD/ICT

The OSD/ICT (i7 version) is a quarter-width form-factor product that installs in one of the slots in a ***Thinklogical***® CHSHP4 chassis. It provides a dedicated browser to the SMP3 that is customized to the assets of the Desk and User.

CONNECTIONS

- CONSOLE – Serial console to the Linux operating system. Datacom parameters are: 38,400 baud, 8 bit, 1 stop, no parity.
- USB – USB 2.0 connections for keyboard and mouse.
- HALT – Halt button for resetting the unit.
- VIDEO OUT – Video connection to the OSD.
- VID/HID – Fiber connection to the OSD.
- NETWORK – Ethernet connection to the system which can include Matrix Switches, Touchpanels, OSDs, etc.
- UPDATE – Serial USB connection. Used for firmware updates and also configuring the fiber optic transmitter portion of the SMP/ICT.

LEDs:

SFP	T LED	R LED	Condition
VID/HID	Blinking GRN	Blinking GRN	Normal
VID/HID		Blinking RED	Cannot lock onto data
VID/HID		Off	No signal (back channel)
NETWORK	GRN	GRN	Link up – 1Gbs
NETWORK	GRN	Off	Link up – 100Mbs
NETWORK	Off	GRN	Link up – 10Mbs
NETWORK	Off	Off	Link Down
NETWORK	RED	RED	SFP fault

OSD CONFIGURATION

IP address – The default IP address is 192.168.13.101. If the IP address needs to be changed it is done with the ***Dashboard*** utility.

- Connect a keyboard, monitor, and mouse and power up the unit.
- A browser page will display in full screen kiosk mode; hit F11 to toggle kiosk mode.
- Choose the second browser tab which is https://localhost:60083 to open the SMP Dashboard application.
- Enter **`admin`** for *username* and **`admin`** for *password*.
- The IP Config page will appear. Enter the desired IP address and click on SET ETH0.
- Reboot the OSD/ICT.

OSD configuration - For configuring the target SMP3 server and multiple OSD/ICTs as OSD1, OSD2, OSD3, etc. edit the /home/user/.xinitrc file as indicated below.

- Exit the browser to the Linux prompt by hitting <ctrl+alt+F1>
- Log in as **user / user.** Then enter **su**, password **root**.
- Edit the .xinitrc file by entering **vi .xinitrc**

Change the SMP web-server's address and OSD number accordingly. (See below)

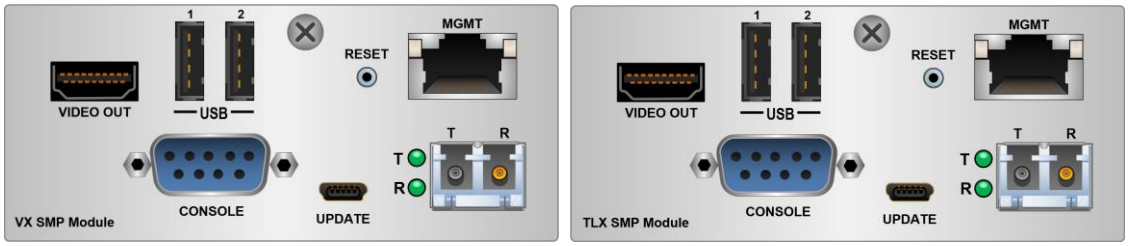
```
#!/bin/sh

profile=/home/user/.mozilla/firefox/kiosk
xulstore=$profile/xulstore.json

resolution=`xrandr -q -d :0|sed -n 's/.*current[ ]\([0-9]*\) x \([0-9]*\),.*/\1x\2/p'`
width=`echo $resolution | cut -d 'x' -f 1`
height=`echo $resolution | cut -d 'x' -f 2`

echo -n '{"chrome://browser/content/browser.xul":{"main-window":{"screenX":"0","screenY":"0","width":"1920","height":"1080","sizemode":"fullscreen"}}}' > "$xulstore"

#/bin/xmodmap -display :0 -e "keycode 95 = "

/bin/firefox --profile $profile https://192.168.13.9:60090/index.html?sname=OSD1 https://localhost:60083
```

- Press **i** to enter *insert mode,* then modify this line to change the IP address of the SMP3 unit the OSD/ICT will be accessing. Also check and/or change the OSD name for the unit you are configuring; OSD1, OSD2, OSD3, etc.
- Type an <esc> and colon **:** to return to the *vi command line* at the bottom of the window.
- Type **wq** and press <Enter> to save (write) and quit.
- Reboot the OSD/ICT.

SMP/ICT & OSD/ICT Technical Specifications

PHYSICAL	
Chassis CHS-HP0004	**Rack Size: EIA 19"** **Width: 17.47"** (443.8 mm) **Height** (1 RU)**: 1.72"** (43.7 mm) **Depth: 14.00"** (355.6 mm) **Weight** (Chassis only)**: 9.0 lbs.** (4.08 kg) **Shipping Weight: 11 lbs.** (4.99 kg) **Weight** (Chassis & 4 Modules)**: 13.8 lbs.** (6.26 kg) **Shipping Weight: 15 lbs.** (6.80 kg)
Chassis Status LEDs	**Module Temp (1-4), Module Status (1-4), Chassis Fans, Chassis Alarm, Power Supplies 1-2**
Integrated Client Transmitter	**Weight** (1 ICT module)**: 1.2 lbs.** (.54 kg) **Shipping Weight: 2 lbs.** (.91 kg)
ICT Interfaces	**1 Serial Console, 2 USB-A, 1 HDMI Video Out, 2 or 3 fiber SFPs, 1 RJ-45 *or* fiber Network SFP, 1 USB-mini-B Update**
Chassis Cooling	**Six fans per chassis:** 12VDC, 40x40mm 10.8CFM (306 L/min.)
Module Cooling	**Four fans per module:** 5VDC, 20x20mm 1.3CFM (.036m^3/min.)
ENVIRONMENTAL	
Temperature	**Operating: 0° to 50°C** (32°F to 122°F) **Ambient** **Storage: -20°C to 70°C** (-4°F to 158°F)
Humidity	**Operating: 5% to 95%, non-condensing** **Storage: Unlimited**
Altitude	**Operating: Thinklogical components are rated to 1000m max. elevation. Max. operating temp. derates by 3% for every 330m > 1000m** **Storage: Unlimited**
ELECTRICAL	
Input Rating	**100-240VAC, 1.5A, 50-60Hz** (current to nearest 0.1A)
Max. DC Power Consumption	***Equal to max. output of a single Power Supply.***
THERMAL	**Heat load (BTU/HR): *Equal to DC Power consumption x 3.412***
RELIABILITY	**MTBF** (calculated)**: 46.7K hrs.**
WARRANTY	**1 Year from date of shipment. Extended warranties available.**

▪ **The SMP Module** is a "Q Module" form factor product that installs in one of the slots in a ***Thinklogical***® chassis.



VX SMP Module (6Gb) TLX SMP Module (10Gb)

Connections:

- VIDEO OUT, USB – These provide a direct connection for a monitor, keyboard, and mouse to the Linux desktop. It also supports USB flash drives if a small hub is added (not included).
- CONSOLE – This is a serial console connection to the Linux desktop. Datacomm parameters are: 115,200 baud, 8 bits, No parity, 1 stop bit.
- RESET – Hardware reset button.
- MGMT – Ethernet port used for connection to the Matrix Switch(es), SMP Client(s) and Touchpanels.
- UPDATE – Used for updating the FPGA firmware.
- SFP – Used for a fiber optic TX connection to the Linux desktop. *Used for initial set-up and installation*. *Thinklogical recommends NOT connecting the SFP to the Matrix Switch during normal operation*.

LEDs:

RJ-45 connector LEDs indicate the mode of operation (**1G orange, 100M green, or 10M yellow**) with blinking as an indication of activity.

Fiber Status	Top LED	Bottom LED	Condition
T Active – Video OK	Green	-------	T active and transmitting data
R Active – Data OK	-------	Green	R active and transmitting data
R Active – No Data	-------	Red	R active, no data from Receiver

Navigating the SMP Module and SMP Client Front Panel LCD

Main Menu SMP_MC06

#Network Parameters

- Static IP Addr	IP = 000.000.000.000
- Static Subnet Mask	Subnet = 255.255.255.000
- Static Gateway Addr	GW = 000.000.000.000
- DHCP Mode	DHCP = DISABLED

#System Parameters

- Card Type	Type = 0xFD
-FPGA Rev.	Rev = 0001.00.04
- Software Rev.	Rev = 6
-Serial Number	S/N = 10-190212
- FPGA Temp. in C	39
- Board temp. in C	38
- Low Speed connected	No
- Local Ctrl Name	Name = OSD-01
-Remote Ctrl. Name	Name = Not Found
-Load Factory Defaults	Yes/No = No

#SFP1 Parameters

- SFP1 Vendor	Mfg = FINISAR CORP
- SFP1 Part Number	P/N = FTLF8528P3BNV
- SFP1 Wavelength	WL = 850
- SFP1 TX Power	TX Power = 0.467mW
-SFP1 RX Power	RX Power = 0.002mW
-SFP1 TX Bias	Bias = 7.318uA

#Alarms

- SFP1 Loss Of Signal	On
- Chassis Error	Off
- System Reboot	Off
- Configuration Changed	Off
- Remote Heartbeat Lost	On
- High Temperature Alarm	Off
- Clear Alarms	No

▪ **The SMP Appliance** is a 19" rack-mount unit with the same SMP3 software as the *SMP Module,* but also features two *Ethernet hubs* and monitoring connections to the *Matrix Switch.* The *SMP Appliance* also supports *Overlay (pg. 57).*

The Front Panel

SMP Appliance, front panel

- Dual redundant hot-swappable, load-sharing 120W power supplies, replaceable from the front panel.
- RESET – Hardware reset button.
- UPDATE - USB-mini B connector for FPGA firmware updates.
- LCD and navigation buttons for device configuration and download.

Navigating the SMP Appliance Front Panel LCD

Main Menu – The date and time is read from the Linux kernel. Change the date and time via the Linux command line.

Reboot/Poweroff – Use this function prior to unit power-down. This may also be done from a terminal session on the SMP3.

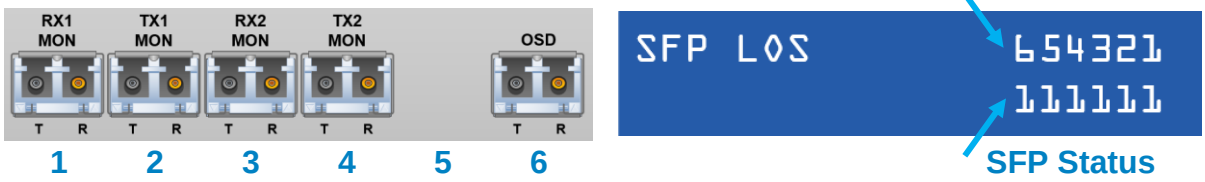
Program Network – Allows the Ethernet address parameters of Eth0 to be changed at the front panel. This may also be done from the SMP3 *Dashboard* browser page.

View Network - Allows viewing of the Ethernet address parameters of Eth0. This is useful if the IP address of Eth0 is unknown (changed from the default).

View System – Allows various system parameters to be viewed, including:

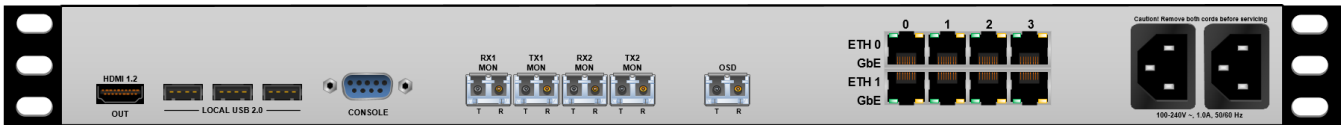
- **`smp-appl-release`** – The version of Linux machine appliance software that the SMP runs on.
- **`FPGA`** – The release of the FPGA software where **`2.x.xx`** is for 6Gb units and **`3.x.xx`** is for 10 Gb units.
- **`Serial Number`** – Serial number of the SMP3 Appliance.
- **`SFP LOS`** – SFP loss of signal where **`"1"`** indicates the loss of signal (see SFP table below).
- **`SFP DES OK`** – Indicates a valid connection to a destination such as a receiver or switch where **`"1"`** is a valid connection.
- **`PS1 IN OK  PS2 IN OK`** – Shows the power supply status where PS1 is near the power cord and PS2 is near the LCD panel. **`IN = "1"`** means the power supply is installed and **`OK = "1"`** shows it is operating and supplying power.
- **`Fan Alarm`** – The status of the four internal fans where **`"1"`** is an alarm condition.
- **`Temperature`** – Where **`imx`** is the processor temperature and **`FPGA`** is the FPGA chip temperature.
- **`Exit to Main Menu`** – Hit [**enter**] to return to the home menu level.

SFP Table –



Note: These ports must be configured in the SMP3 to enable them.

THE REAR PANEL



SMP Appliance back panel

Connections:

- HDMI 1.2 OUT, LOCAL USB 2.0 – These provide a direct connection for a monitor, keyboard, and mouse to the Linux desktop. It also supports USB flash drives.
- CONSOLE – This is a serial console connection to the Linux desktop. Datacomm parameters are: 115,200 baud, 8 bits, No parity, 1 stop bit.
- RX1 MON, TX1 MON, RX2 MON, TX2 MON – These provide for fiber optic connections to a Matrix Switch for the Monitoring function. Also used for the Overlay feature.
- OSD – Used for a fiber optic TX connection to the Linux desktop. *Used for initial set-up and installation*. *Thinklogical recommends NOT connecting the OSD port to the Matrix Switch during normal operation*.
- ETH0 – A 4-port unmanaged ethernet hub typically used for connection to a site's enterprise network.
- ETH1 – A 4-port unmanaged ethernet hub typically used for connection to a site's Matrix Switch(es), SMP Client(s) and Touchpanels (private network).
- AC Power – Connections for dual, redundant, hot swappable power supplies.

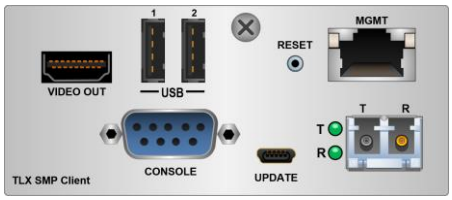
RJ-45 connector LEDs indicate the mode of operation (**1G orange, 100M green, or 10M yellow**) with blinking as an indication of activity.

SMP Appliance Technical Specifications

PHYSICAL	
Rack-Mountable Chassis Dimensions	Rack Size: EIA 1 in 1U Depth: 14.0 in (355mm) Width: 17.5 in (445 mm) Weight: 9.5 lbs. (4.3 kg) Shipping Weight: 18 lbs. (8.2 kg)
I/O Ports	**Front Panel:** 1 USB-mini *Firmware Updates* **Rear Panel:** 1 HDMI-A *Local Monitor* 3 USB-A *Local Keyboard/Mouse/Firmware* 1 DB-9F RS-232 *Console Port* 5 Duplex LC SFP *Fiber connections to/from Matrix Switch* 8 RJ45 10/100/1000 BaseT 802.11 Ethernet 2 IEC 60320-C14 AC Power Inlet
ENVIRONMENTAL	
Temperature	Operating: 0° to 50°C (32°F to 122°F) Ambient Storage: -20°C to 70°C (-4°F to 158°F)
Humidity	Operating: 5% to 95%, non-condensing Storage: Unlimited
Altitude	Operating: Thinklogical components are rated to 1000m max. elevation. Max. operating temp. de-rates by 3% for every 330m > 1000m Storage: Unlimited
ELECTRICAL	
Input Rating	100-240VAC, 0.33A, 50-60Hz
Power Consumption	35W (0.33A @ 115VAC)
THERMAL	Heat load 120 BTU/HR
WARRANTY	One year from date of shipment. Extended warranties available.

The SMP Client

The SMP Client is a "Q Module" form-factor product that installs in one of the slots in a ***Thinklogical®*** chassis. It provides user-customized *OSD (On Screen Display)* functionality to the user's configuration.



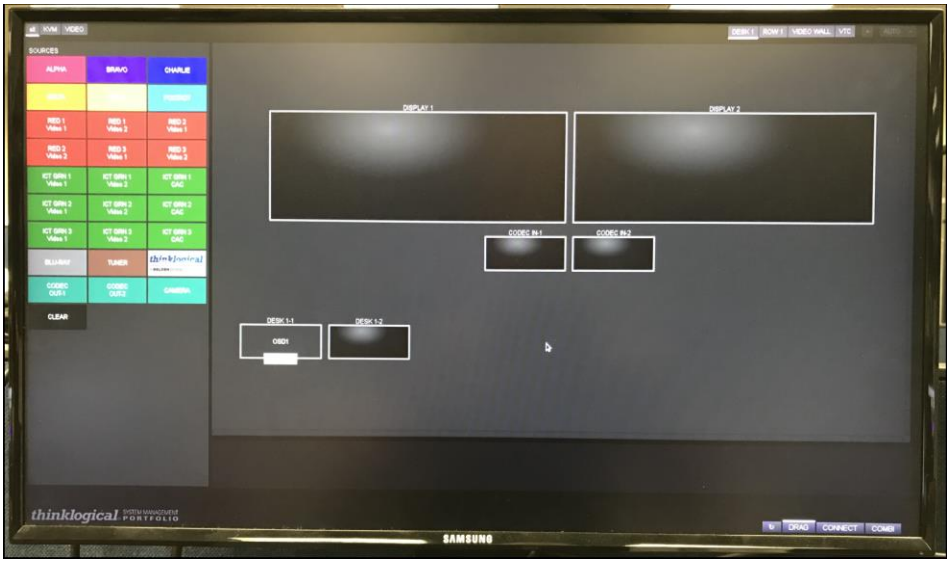
- VIDEO OUT, USB – These provide a direct connection for a monitor, keyboard, and mouse to the Linux desktop. It also supports USB flash drives.
- CONSOLE – This is a serial console connection to the Linux desktop. Datacomm parameters are: 115,200 baud, 8 bits, No parity, 1 stop bit.
- RESET – Hardware reset button.
- MGMT – Ethernet port used for connection to the Matrix Switch(es), SMP Client(s) and Touchpanels.
- UPDATE – Used for updating the FPGA firmware.
- SFP – Used for a fiber optic TX connection to the Matrix Switch.

LEDs:

RJ-45 connector LEDs indicate the mode of operation (**1G orange, 100M green, or 10M yellow**) with blinking as an indication of activity.

Fiber Status	Top LED	Bottom LED	Condition
T Active – Video OK	Green	-------	T active and transmitting data
R Active – Data OK	-------	Green	R active and transmitting data
R Active – No Data	-------	Red	R active, no data from Receiver

Sample OSD screen (Drag & Drop selected):



Connecting SMP Clients to the System

In larger deployments it may be desirable to have multiple SMP Clients in a system to allow several users to access the system simultaneously. This known as an "OSD Pool" in that if an OSD is in use, the system will deliver the next available OSD at a user's request. OSD Pooling requires configuring each SMP Client Module separately.

OSD Pooling

1. Add the SMP Clients to the *Sources* tab in the SMP configuration as **OSD1, OSD2, OSD3,** etc.
2. Configure each SMP Client with a unique IP address:
   - Connect a keyboard, monitor, and mouse and power up the unit.
   - After booting, a browser page will display. Enter F11 to exit kiosk mode.
   - Open a new browser tab with https://localhost:60083 to open the SMP Dashboard application.
   - Enter **`admin`** for *username* and **`admin`** for *password*.
   - The IP Config page will appear. Enter the desired IP address and click on SET ETH0.
   - Reboot the SMP Client.

Warning! Avoid IP addresses that are already in use. For example, the default addresses for a matrix switch are **192.168.13.15, 192.168.13.115** and **192.168.13.16.** The default address for the SMP Module or SMP Appliance is **192.168.13.9.**

3. Edit the `.xinitrc` file located in the `/home/user/` directory with the required SMP3 server address and OSD name.

   The first SMP3 Client will contain the URL:
   https://192.168.13.9:60090/index.html?sname=OSD1.

   The second SMP3 Client will contain the URL:
   https://192.168.13.9:60090/index.html?sname=OSD2, then **…**=OSD3, etc.

These examples are for an SMP3 server (Appliance or Module) with a default IP address of 192.168.13.9. Your configuration may vary.

Note: The SMP3 Client URL is different than the URL used for SMP2. This needs to be changed if upgrading to SMP3 from SMP2.

SMP Client Kiosk Mode

Note: The SMP Client **must** run its browser in Kiosk Mode to be accessible to the system.

SMP Client Default Autostart File

SMP3 Client modules have a default configuration file in the following location:
`/home/user/.xinitrc`

This file enables the OSD to power-up to the Chromium browser in Kiosk Mode with the following url:
https://192.168.13.9:60090/index.html?sname=OSD1

Reference - Default **.xinitrc** file contents:

```
#!/bin/sh

profile=/home/user/.mozilla/firefox/kiosk
xulstore=$profile/xulstore.json

resolution=`xrandr -q -d :0|sed -n 's/.*current[ ]\([0-9]*\) x \([0-9]*\),.*/\1x\2/p'`
width=`echo $resolution | cut -d 'x' -f 1`
height=`echo $resolution | cut -d 'x' -f 2`

echo -n '{"chrome://browser/content/browser.xul":{"main-
window":{"screenX":"0","screenY":"0","width":"1920","height":"1080","sizemode":"fullscreen"}}}' > "$xulstore"

#/bin/xmodmap -display :0 -e "keycode 95 = "

/bin/firefox --profile $profile https://192.168.13.9:60090/index.html?sname=OSD1 https://localhost:60083
```

Note: To disable the F11 key (kiosk mode toggle), edit the .xinitrc file by removing the # from this line:

```
#bin/xmodmap -display :0 -e "keycode 95 = “
```

Then reboot the device. (This is because F11 is code 95 in Linux.)

Kiosk Browser Restore

Since the SMP3 Client is a Linux computer with a Firefox browser, a user might accidentally or intentionally close that browser to access the Linux desktop. To prevent this, the SMP3 Client will restore the kiosk browser automatically if it is closed.

Default OSD Page

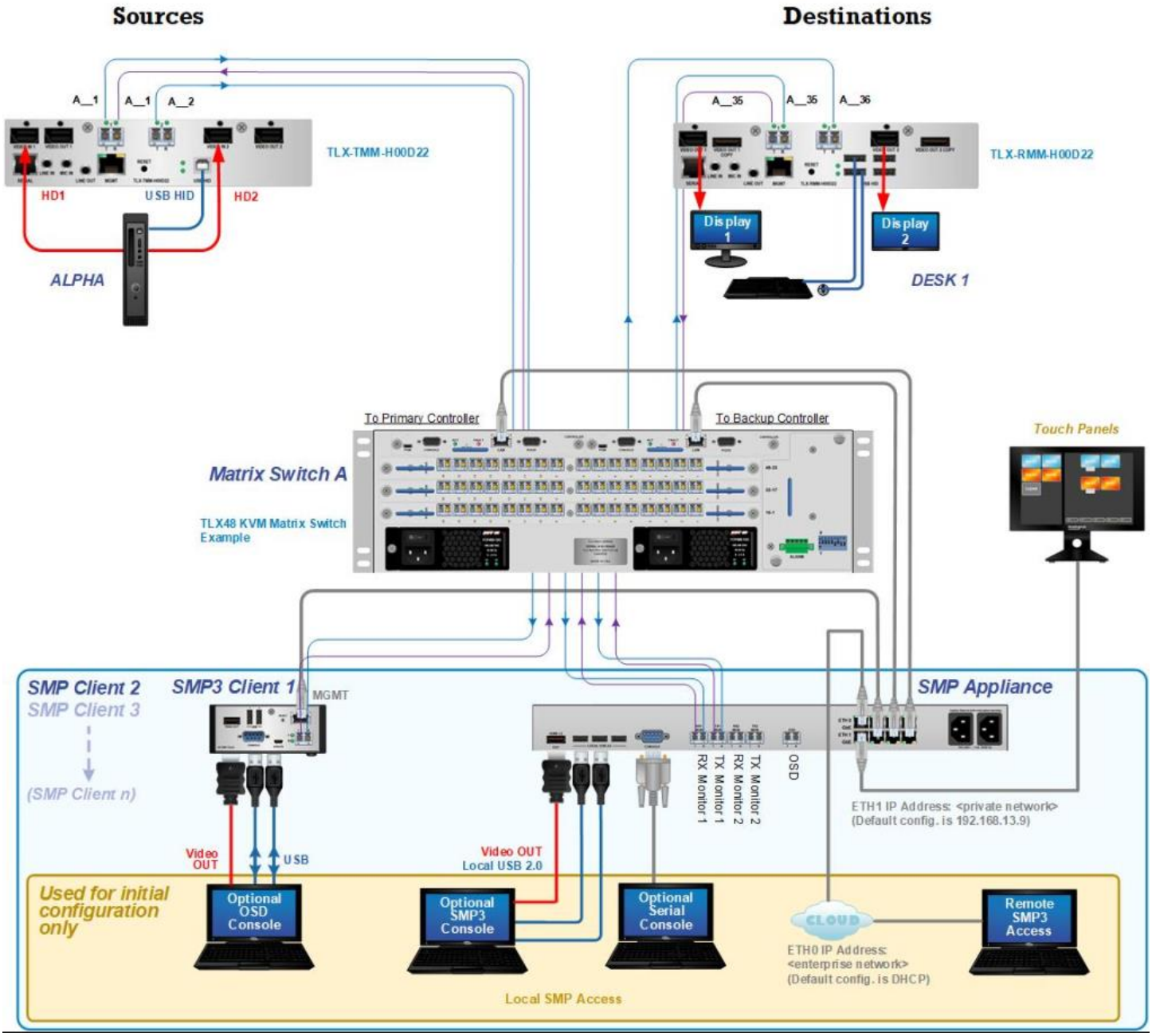
When the SMP3 Client Module powers up, it will automatically boot up and be ready for use. The initial browser page will be as shown below (if observed on a monitor connected directly). When the OSD is called by a Keyboard User at a Desk, the SMP3 will automatically populate the page with the appropriate assets for that Desk / Keyboard User. These assets are Sources, Destinations, Tags and Pools available to that Keyboard User. Assets can also include which pages are available to use; Drag & Drop, Connect or COMBI. See also the USERS section in this manual.

Cable Connection Diagram

Depicted below is a simple, but typical system with one Source and one Destination shown here (for clarity) as well as an SMP Client (OSD) and a Touchpanel.

Note:

- **The "SMP3 Client 1" pictured may be an SMP3 Client Module or an OSD/ICT module.**
- **The "SMP3 Appliance" pictured may be an SMP3 Appliance, an SMP3 Module or an SMP/ICT module.**



Warning! Some systems may include more than one SMP3 unit (Appliance or module). While this is an acceptable design, care must be taken when configuring them. ONLY ONE unit should have Hotkeys configured and ONLY ONE unit can have Tie Lines configured.

THE SYSTEM MANAGEMENT PORTFOLIO 3.0

▪ The SMP3 Software Package

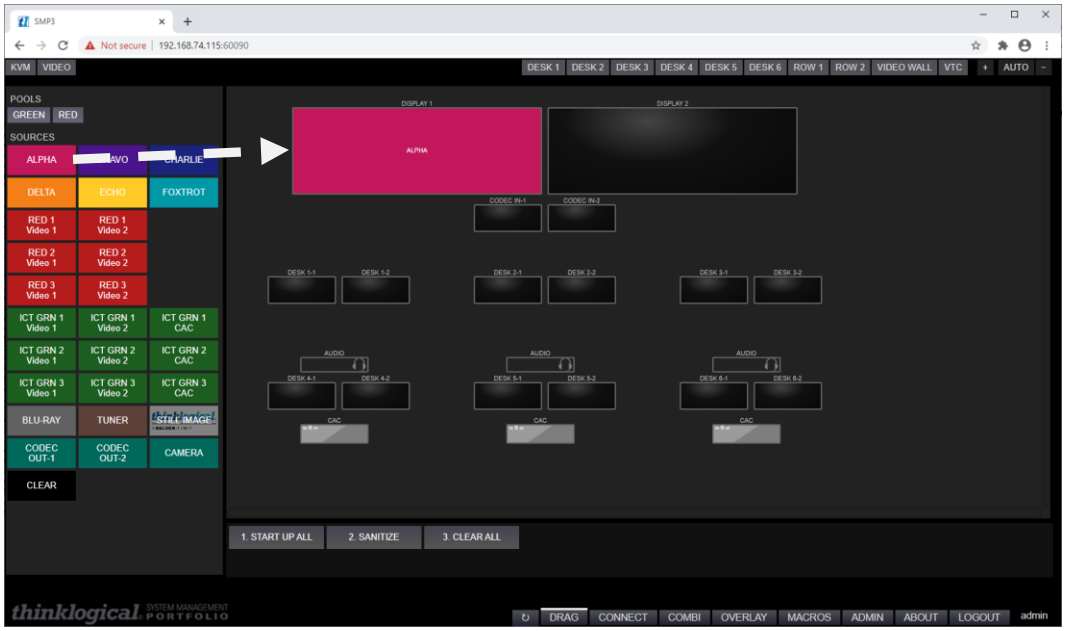
Thinklogical's *System Management Portfolio 3.0* includes a specialized software package that provides powerful remote management and maintenance capabilities, making it easier for users to configure, operate and update Thinklogical signal extension and switching systems of any size.

Among the key enhancements of SMP3:

- **Hierarchical Drag & Drop**
- **Drag & Drop zoom**
- **OSD Drag & Drop, Connect and Combi pages available.**
- **Touchpanel Drag & Drop, Connect and Combi pages available.**
- **Advanced Pooling**
- **SMP3 API (Application Programming Interface)**

The intuitive graphical user interface enables fast set-up and control of each Matrix Switch (also called a Switch or Router) in the system. Tabs along the bottom of the screen allow users to navigate through the various configuration and usage pages.

The **Drag & Drop** Graphical User Interface makes it easy for users to visualize their workstations on-screen and switch Sources and Destinations by simply moving an icon. **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.



A sample configuration is graphically depicted above in the Drag & Drop GUI, with Sources on the left, Destinations on the right, and Macros on the bottom. Connections can be made or changed simply by clicking on an icon and dragging it to a desired location. Macros can be executed, with a single click.

Login To Linux (optional)

For security and performance reasons, when powering up or rebooting an SMP3 Appliance, Module or Client it will finish with the browser open in kiosk mode. There will not be a Linux desktop.

- To change to the Linux terminal prompt: Hit <ctrl+alt+F1>
- To change to the browser: Hit <ctrl+alt+F7>
- To toggle kiosk mode: Hit F11.

At the terminal prompt default credentials are: user/user. You may then elevate to root if required.

Default password is: root

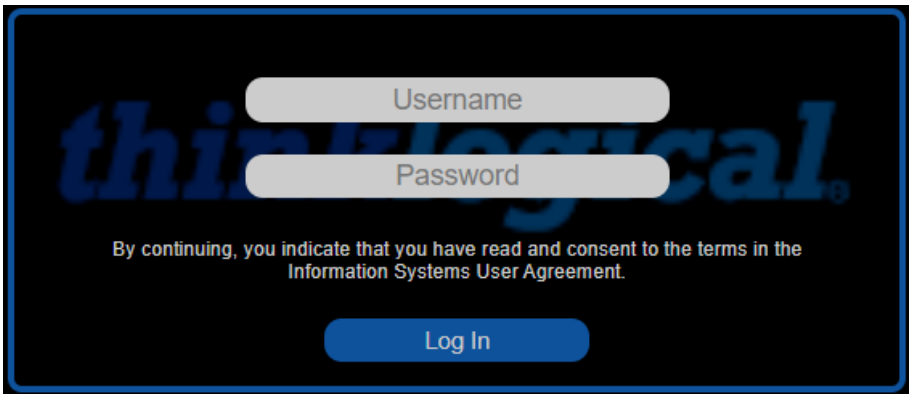
(Remote login as root is not enabled.)

If you need to change these credentials use the Linux `passwd` command.

Login To SMP3 As An Administrator

The System Management Portfolio 3.0 is accessed via a web browser from any computer on the same network as the SMP3 server (or direct connection). The SMP3's port number is **:60090**. Set the browser's URL to your IP address, for example: `https://192.168.13.9:60090`, to load the page. When directly connected to the SMP3 Appliance or SMP3 Module you may use: `https://localhost:60090`. See also the DASHBOARD section for the Dashboard port number and usage.

Logins are required to access these pages and the following will be displayed:



The administrator's default Username and Password are:
admin / admin

(This can be changed by the administrator.)

Additional Users can be created with different access rights.

How to Create or Modify a User or Password

This applies to credentials used by the SMP3 browser and OSD logins (if configured).

1. Open a terminal window and become the root user by typing **`su`** <return>. The password is **`root`**.
2. Navigate to **`/opt/tl/tools`**
3. Enter **`ls`** to show the contents of the directory.
4. Use the **`cat`** command to view the file **`userpwd_README.txt.`** Follow the instructions that appear:

```
root@smp-appl:/opt/tl/tools#
root@smp-appl:/opt/tl/tools# cat userpwd_README.txt
#==============================================================================
  userpwd README

Utility to create or update user/password entries in /opt/tl/setup/users.csv

#==============================================================================
alex hansen for Thinklogical Inc. All rights reserved.
#==============================================================================

This utility is required to generate hashed user passwords without
sending them in plain text across the network.

Users can be created using this utility or the web client ADMIN page.

If there is NO existing entry in users.csv with the username, this utility
will create one which can then be edited with the web client.

If there IS an entry with the username, this utility will set the password

This utility must be run as root or with sudo.

method:  node userpwd.js <username> <password>

As mentioned above, /opt/tl/setup/users.csv is modified by this utility.

#==============================================================================
root@smp-appl:/opt/tl/tools#
```

Note: The above `userpwd.js` javascript file has PAM (Password Authentication Module) enabled. If you require a simple password, then use the command:
`node userpwd_nopam.js <username> <password>`

Note: Special characters may be used for passwords if they are configured correctly. When defined with the node command, special characters must be preceded with a \ which is known as the 'literal character'. For example, if your password is to be p@$$w0rd then define it as p\@\$\$w0rd when using the node command above.

TECH NOTES: ***Set or Change the Date, Time and Time Zone***

1. Log into the device as **root**.
2. Check the date, time and time zone by issuing a "**date**" command.
3. To change the time zone, issue a "**timedatectl set-timezone UTC**" command (for example). For a list of available time zones, issue a "**timedatectl list-timezones**" command.
4. To set the date and time, issue the command in the format "date mmddhhmmyy" for month, day, hour, minute, year. For example: "**date 1203163820**" will set the module for December 3, 4:38PM, 2020. This sets the Linux clock. However, this will be lost after repowering the unit.
5. Check the date, time and time zone again to make sure it is correct.
6. Set the permanent hardware clock with the following command: "**hwclock --systohc**". Note that there is a space and double hyphen between the parameters. Now when Linux boots it will read the H/W clock correctly.

Warning:
Make sure you double check your date & time setting after configuring it. Accidentally changing the date too far in the past will prevent Linux from booting at all. If this should ever happen, remove and replace the RTC battery to reset the date/time to a known state and then correct it.

Additional benefit:
Having the clocks set on system devices ensures that the log entries will have accurate timestamps if the system needs troubleshooting or the logs need to be examined.

Warning! The SMP3 Appliance, SMP3 Module and SMP3 Client modules are Linux® based devices and should not be powered off without a controlled shut-down. Prior to powering down, issue a *poweroff* command from a terminal window. On an SMP Appliance you may also use the front panel for this purpose.

Using SMP3

In the following scenarios we will use a typical, but not overly complicated, Thinklogical deployment with one Matrix Switch, 20 Sources (including an SMP Client module OSD1) and 10 Destinations as shown below. *This is the configuration represented by most of the screen-shots that follow.*

Sources:

ALPHA
BRAVO
CHARLIE
DELTA
ECHO
FOXTROT
RED 1
RED 2
RED 3
ICT GRN 1
ICT GRN 2
ICT GRN 3
BLU-RAY
TUNER
LOGO
CODEC OUT-1
CODEC OUT-2
CAMERA
OSD1
SMP

Destinations:

DESK 1-1
DESK 2-1
DESK 3-1
DESK 4-1
DESK 5-1
DESK 6-1
DISPLAY 1
DISPLAY 2
CODEC IN-1
CODEC IN-2

Pools:
CODEC
GREEN
RED

Macros:

1. START UP ALL
2. SANITIZE
3. CLEAR ALL

TECH NOTES: ***Initial setup of your SMP3***

If you are creating your SMP3 configuration yourself, Thinklogical recommends that you "start small," especially if your system has dozens, or even hundreds, of Sources and Destinations.

- You may wish to connect just a few of your Sources and Destinations to first get a feel for how connections are made and broken and how to name and group Sources, Destinations and Matrix Switches.

- As you become more familiar with the system, you can add more extenders, connect multiple Matrices with Tie-Lines and create Macros to help you better manage and maintain deployments of any size.

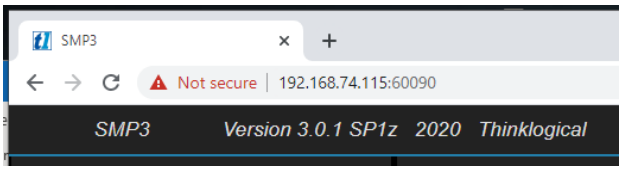
When SMP3 opens with administration rights, there will be this selection of tabs along the bottom of the page. The login name (in this case 'admin' is visible at the extreme right). Clicking these tabs takes the administrator to the pages used to set-up and manage SMP3.

☐ THE LOGOUT TAB

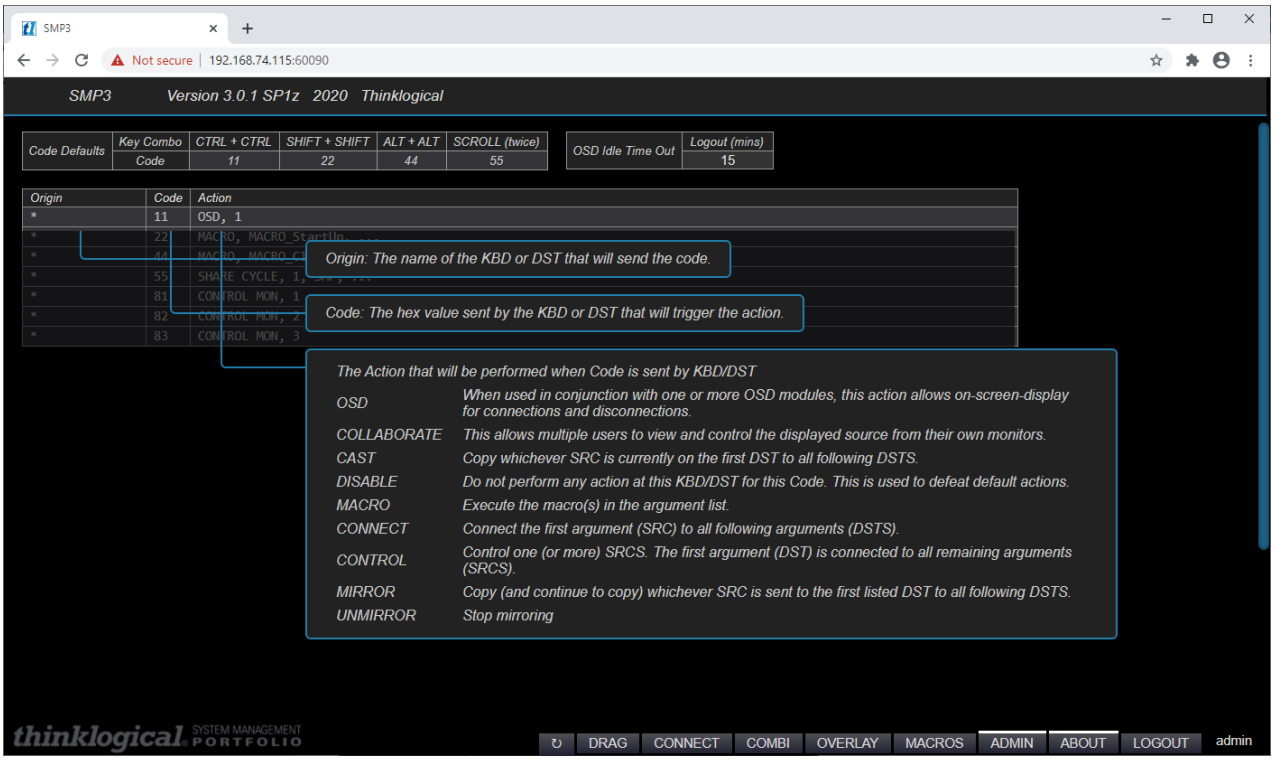
The LOGOUT tab will take the user out of the current session and open a new Login window, where the user can begin a new session under a different log-in.

☐ THE ABOUT TAB

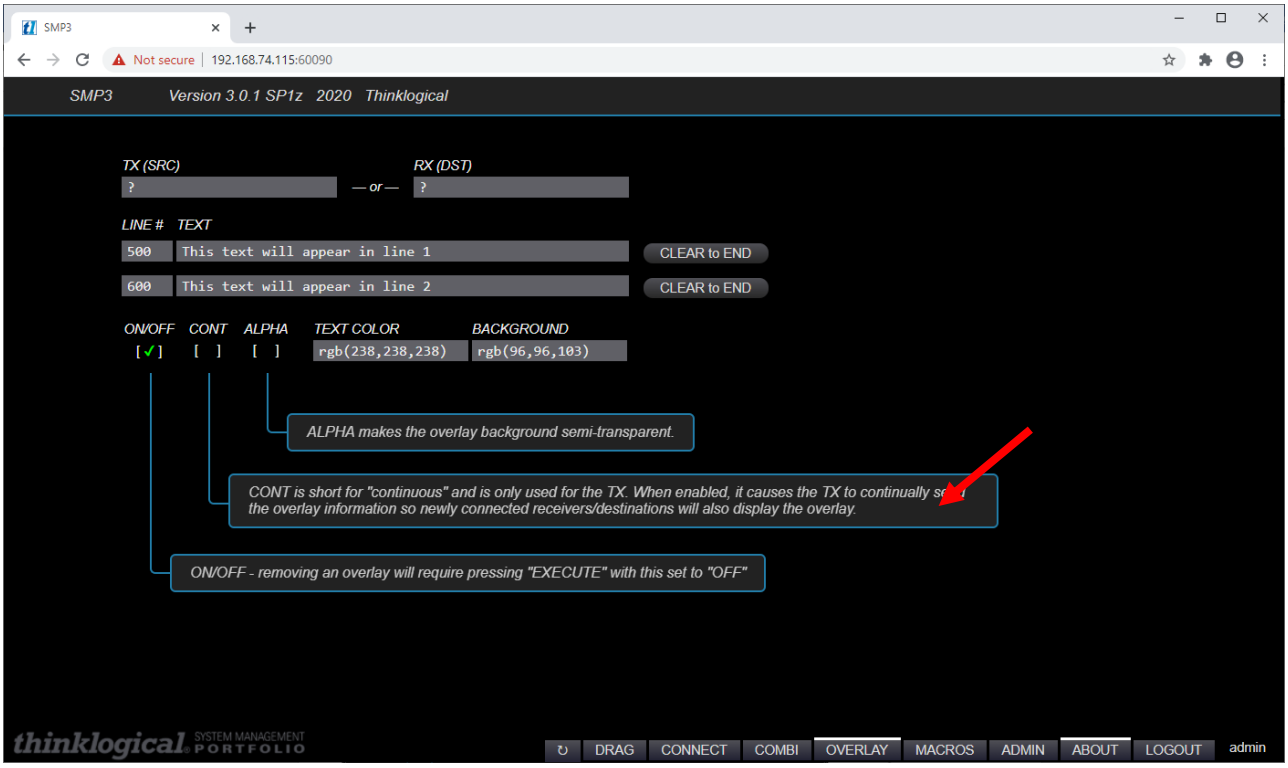
When clicked from any window, the ABOUT tab displays the installed version of SMP3 along the top of the page.



Additional ABOUT information is displayed in the ADMIN tab, with HOT KEYS selected (below).



The OVERLAY tab also displays additional information when the ABOUT tab is selected.



☐ THE ADMIN (Administration) TAB

The ADMIN tab is only available to an administrator logged in as *admin* and is used to configure the SMP3 workstation environment. Most other users will not see this tab. There are eleven tabs along the top left of the ADMIN page, each with a separate function. There are also four buttons on the top right. Each function is discussed below.

Warning! Source names, Destination names and KBDS names must be unique and must not match. Certain names are reserved for system functions and should not be used for site-specific Source and Destination names. These include: CLEAR, RX MON1, RX MON2, TX MON1, TX MON2, Src Name, Dst Name, or any other column header name.

Special characters should be avoided, but space, dash, period and single-underscore are allowed.

☐ The SRCS (Sources) Tab

SRCS is the area for adding and deleting Sources to and from the system. Note that the SRCS Tab lists all Sources including OSDs and RX MON1 in the first column. RX MON should not be an icon and therefore should not have X, Y, W, H entries.

In most Tabs, users may right-click on a row and use the drop-down menu to make modifications to the list, such as adding or deleting rows, etc.

Right clicking on a Row will open a small menu to aid in creating configurations.

SRCS | DSTS | KBDS | FRMS | MTX | HOT KEYS | TIE LINES | USERS | TAGS | POOLS | RESTART

Src Name	Follows	Primary	VidA(R)	VidB(R)	Kbd(T)	Kbs(R)	Aud(R)	!USBd(T)	!USBs(R)	Alias	BGround	Color	X	Y	W	H	Level	Rank
ALPHA			A__1	A__2	A__1	A__1	A__1				#C2185B	#fff			33	15	1	20
BRAVO			A__3	A__4	A__3	A__3	A__3				#4A148C	#fff			33	15	1	40
CHARLIE			A__5	A__6	A__5	A__5	A__5				#1A237E	#fff			33	15	2	60

The *Src Name* Column

This column lists all Sources and the names must be unique within the system. These names can be *displayed* differently however when used by the Drag & Drop, connect and Combi pages (see Alias column).

The *Follows* Column

The Follows column is found under the SRCS, DSTS and KBDS tabs.

If a Source with a follower is connected to a Destination with a follower, the *Following Source* will be connected to the *Following Destination*. For example; This is used to switch both displays of a dual-video source to a two-monitor Destination in one operation.

In this example, **RED 1-1** has been added to the Follows column beside **RED 1-2**, therefore, it is said to "follow" **RED 1-1**. This means that, if **RED 1-1** is moved to a destination, **RED 1-2** will automatically move to the same destination.

Src Name	Follows
ALPHA	
BRAVO	
CHARLIE	
DELTA	
ECHO	
FOXTROT	
RED 1-1	
RED 1-2	RED 1-1

Note: An alternate method of switching two video Sources simultaneously would be to use the two Vid(R) columns. However, using the Follows feature allows the switching of only one of the two video Sources independently if necessary. This is because each video Source has its own line defined here.

The *Primary* Column

The Primary column is used to indicate 'monitor 1' of a Pooled Source. This is utilized to support multi-asset pooling (multi-video-head, separate audio, separate USB, etc.). This is not needed for single asset Pooled Sources.

Note: This column is included in the default SMP3 configuration. However, if upgrading from SMP2 then this column needs to be added. Otherwise, Pools cannot be created.

The *Port* Columns

The next columns define the port mapping which consist of the Switch name and Port Number, indicating the Fiber-optic cable connection points on each Switch. Note that the "R" and "T" designations are from the Matrix Switch point of view. For example, VidA(R) is an input and Kbd(T) is an output of the Matrix Switch.

The naming convention for connections is *Switch Name-underscore-underscore-Port Number*, as in *A__1,* for example. The *double underscore* is a separator between the Switch name (which, in some cases, may contain its own underscore) and the Port Number. ***Double underscore*** *is not allowed for anything but* ***port numbers****.*

On **ALPHA** for example, A__1 indicates Port 1 is used as a Source on Switch A. This carries video *Vid(R)* and data *Kbs(R)* and *Aud(R)* from the Source to the Destination. On the same SFP, a return fiber *Kbd(T)* carries data from the Destination back to the Source. Port A__2 is also used by Source ALPHA for either a second video head, or as the second fiber in a 4K60Hz Source.

Src Name	Follows	Primary	VidA(R)	VidB(R)	Kbd(T)	Kbs(R)	Aud(R)
ALPHA		→	A__1	A__2	A__1	A__1	A__1

In this example port A__1 is used for both the first video and the keyboard/mouse/audio connections. However, in some systems it may be required to use different extenders for video and keyboard/mouse/audio. Different ports can be configured here for that purpose.

The next two columns in our example are not present by default but may be added by the Administrator. Column headings preceded by a "!" are known as "persistent" and are described in Appendix I.

The *Alias* Column

If left empty, the name displayed will be the same as what is entered in the ***SRC Name*** column. However, Aliases may be used for more user-friendly labeling of Sources and Destinations. The Alias can also be positioned in the Drag & Drop icon with the following parameters:

(l) = Left justified

(r) = Right justified

(c) = Centered

 = line break

(blank) = There will not be a name displayed and the icon cannot be "dragged."

The *BGround* Column

The background color, or image, used by the Drag & Drop and COMBI icons.

The *Color* Column

The text color used by the Drag & Drop and COMBI icons.

The *X,Y* Columns

Not used in the Sources tab. Icons are arranged automatically in order of the Rank column.

The *W,H* Columns

The icon size (percentage of Frame).

The *Level* Column

The optional *Level* column is commonly used for security levels 1 through 4. However, any number of Levels may be defined. This is used to define classification levels if desired with Level 1 being highest, (most restricted access). It will apply to which Sources and Destinations can be connected, depending on their Level.

For example:

1	**Top Secret**
2	**Secret**
3	**Classified**
4	**Unclassified**

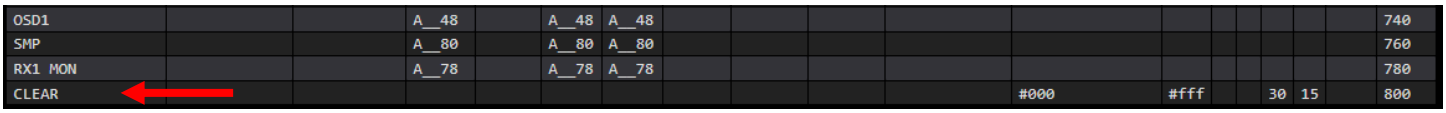
A Destination with Level 1 clearance will have access to Source Levels 1 and lower (2, 3, 4, etc). A Destination with Level 2 clearance will have access to Source Levels 2 and lower, but not Level 1, etc.

Note: When using the Level feature, keep in mind that no entry (empty) in the Level field means that Levels do not apply to that line. This would be equivalent to Level 1, or no restriction.

The *Rank* Column

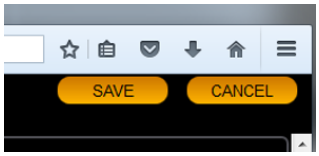
This column defines icon locations in the Drag & Drop, Connect and COMBI pages with the lowest Rank appearing first. It also defines monitor number for Sources and Destinations.

Note: The default CLEAR line on the SRCS page, while not requiring size and shape parameters, is necessary for the CLEAR actions to function properly. It is recommended to not delete this Source.



The SAVE Button

When making changes, click on the SAVE button in the upper right corner to preserve changes. Click CANCEL to disregard changes.

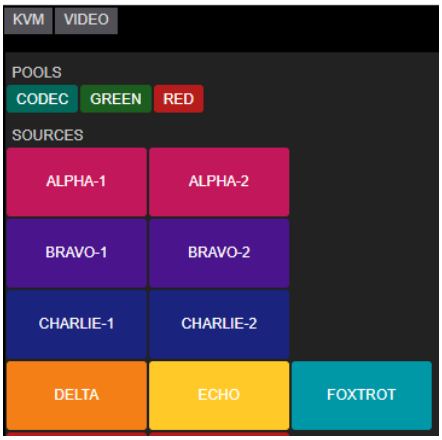


TECH NOTES: *Adjusting the appearance of Sources icons*

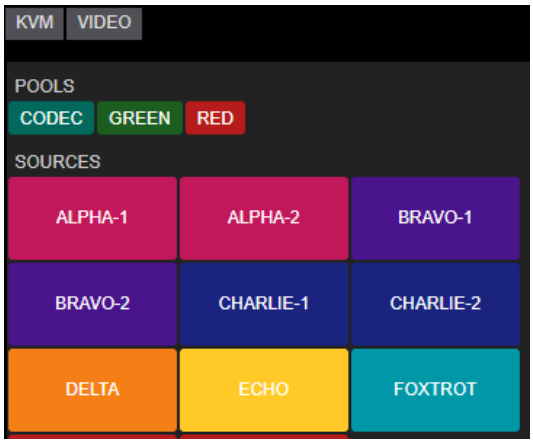
When adding Sources, their icon ***size*** is determined by the W and H columns. However, their ***location*** is defined by their order in the Rank column. This may be inconvenient if you wish them to line up conveniently. Therefore you can add a spacer (or phantom icon) to move the next Source down one location. This will create a gap allowing the icons following it to line up correctly. See example:

Src Name	Follows	Primary	VidA(R)	VidB(R)	Kbd(T)	Kbs(R)	Aud(R)	!USBd(T)	!USBs(R)	Alias	BGround	Color	X	Y	W	H	Level	Rank
ALPHA-1			A_1		A_1	A_1	A_1				#C2185B	#fff			30	15		20
ALPHA-2	ALPHA-1		A_2								#C2185B	#fff			30	15		40
ALPHA-spacer										(blank)	#222	#fff			30	15		60

Examples:



With spacer.



Without spacer.

☐ The DSTS (Destinations) Tab

This tab defines Destinations such as; User desks, video walls, VTC CODECS, etc. Note that the DSTS Tab lists all Destinations including TX MON1 in the first column. TX MON should not be an icon and therefore should not have X, Y, W, H entries.

Keyboard ports are not configured in the DSTS Tab, use the KBDS Tab below. The *Kbs(R)* and *Kbs(T)* columns are only used by the Monitor feature.)

The *Control* column shows which destination has control of the keyboard. The names in this column must match those in the KBDS tab.

SRCS | DSTS | KBDS | FRMS | MTX | HOT KEYS | TIE LINES | USERS | TAGS | POOLS | RESTART

Dst Name	Follows	VidA(T)	VidB(T)	Aud(T)	!USBd(R)	!USBs(T)	Alias	BGround	Color	X	Y	W	H	Control	Level	Rank
DESK 1-1		A__35	A__36							5	45	8	6	DESK 1-kbd		20
DESK 1-2	DESK 1-1	A__37	A__38							14	45	8	6	DESK 1-kbd		40

☐ The KBDS (Keyboards) Tab

This tab defines where an active keyboard is located.

Follows = N/A

Kbd(R) = **d**ata from keyboard/mouse to PC (Rx to Tx), *fiber **L2** or **K2** (data backchannels)*

Kbs(T) = **s**tatus from PC to keyboard/mouse (Tx to Rx), *fiber **L1** (video/data) or **K1** (USB HID data)*

BGround = A custom keyboard image may be used here if desired.

SRCS | DSTS | KBDS | FRMS | MTX | HOT KEYS | TIE LINES | USERS | TAGS

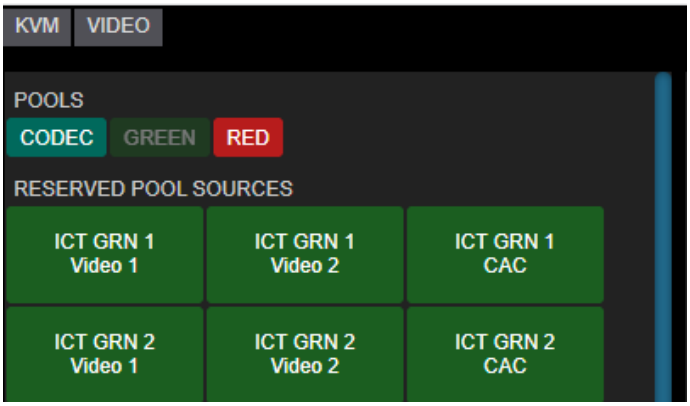
Kbd Name	Follows	Kbd(R)	Kbs(T)	Aud(T)	BGround	Rank
DESK 1-kbd		A__35	A__35		kb.jpeg	20
DESK 2-kbd		A__39	A__39		kb.jpeg	40
DESK 3-kbd		A__43	A__43		kb.jpeg	60
DESK 4-kbd		A__53	A__53		kb.jpeg	80
DESK 5-kbd		A__60	A__60		kb.jpeg	100
DESK 6-kbd		A__67	A__67		kb.jpeg	120

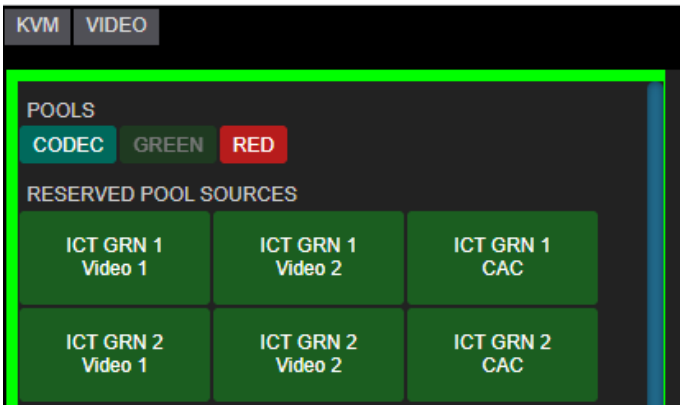
☐ The FRMS (Frames) Tab

This tab is where the Drag & Drop Frame background colors, sizes and locations are defined. *Refer to an RGB Color Table for more on the numeric codes.*

Frm Name	Xoff	Yoff	W	H	Xscale	Yscale	Xmargin	Ymargin	BGround	Color	Border
dstsBG	21	1	78	84					#222	#fff	
macsBG	21	86	78	10					#111	#fff	
srcsBG	0.1	1	20.5	95					#222	#000	

Frm Name: In this example, dstsBG is the Destination frame, top right, macsBG is the Macro frame on the bottom right, and srcsBG is the Sources frame on the left side.
Xoff: X offset from the left, percentage.
Yoff: Y offset from the top, percentage.
W, H: Width and height, percentage.
X, Y scale: N/A
X, Y margin: N/A
BGround: Background color of the Frame.
Color: N/A
Border: This can create a border around a frame. For example, “8px solid #0f0” would yield an 8-pixel solid green border. You can also use the variable ‘dotted’ and ‘dashed’ as well as ‘solid.’





TECH NOTES: ***Upgrading from SMP2 to SMP3***

With the earlier product, SMP2, an asset has values for X, Y, W and H measured in ***pixels***. The new SMP3 measures the ***percentage*** of the Frame used in the asset's location. This can be a challenge when upgrading from SMP2 to SMP3. To assist in converting existing room layouts, Thinklogical has included a new utility script called "pixel2percent.js".

This program takes the room layout from SMP2, defined in /opt/tl/setup/stations.csv as input, and creates a new stations file compatible with SMP3.

To use the program:

```
cd /opt/tl/tools
node pixel2percent.js <input setup file name> <output setup file name>
```

Example: In order to overwrite the previous file with the new one:

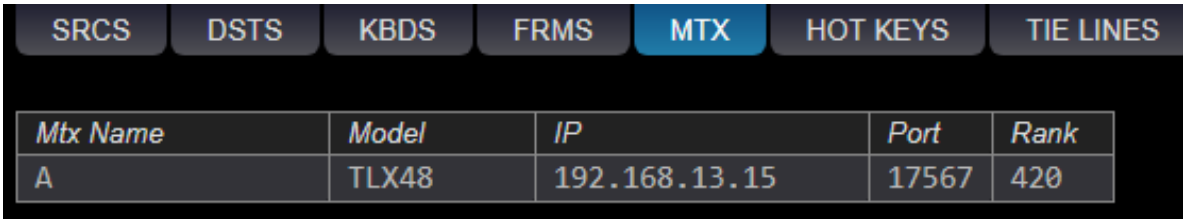
```
node pixel2percent.js /opt/tl/setup/stations.csv /opt/tl/setup/stations.csv
```

It is recommended to make a copy of the stations.csv file prior to doing the conversion.

☐ The MTX (Matrix Switch) Tab

This tab indicates the *Matrix Switch* ***Name*** (A, B, C, A1, B1, etc..), the Matrix Switch ***Model*** (pulldown selectable), the ***IP*** address of each Matrix Switch and the network ***Port*** (17567) used for communication with the switch. The Matrix Switch Name is used to define ports in the other tabs. For example: A__1 would be port 1 on Matrix A.

Available Matrix Switch models are listed on the right.



Right click on a line to insert new lines for multiple matrices.

☐ The HOT KEYS Tab

This tab provides access to the Hot Key Manager and displays the default Hot Keys loaded into each extender, plus any additional Hot Keys as defined by the user.

Note: All Hot Key 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 only work on keyboards using the HID port. The USB 2.0 port does not support Hotkeys.*

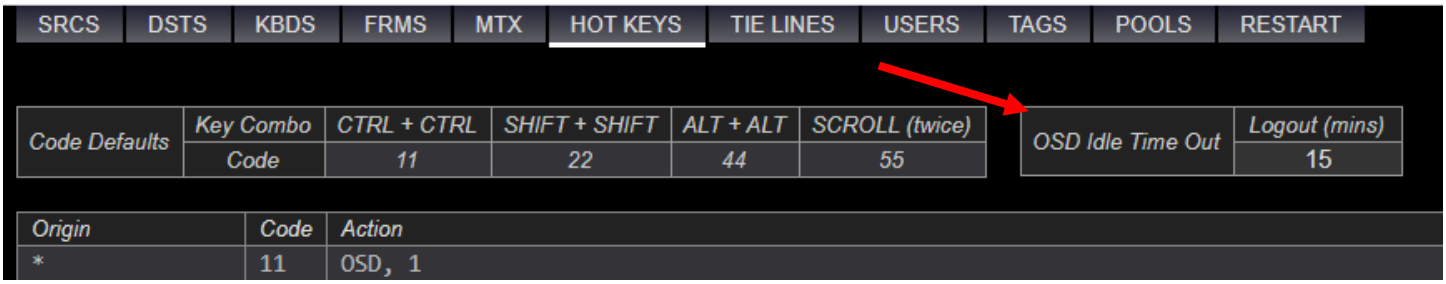
Code Defaults **:** Default Hotkey codes are displayed here as a reference. Additional or other codes can be used when programmed into the receivers. See Appendix E: Flex Keys.

The ***OSD Idle Time Out*** is also configured on this page. Set the time-out level here. (15 min. in this example.) This feature is only used by OSDs that are configured with an optional User login. (Defined 'keyboard Users' do not need to login)

Users that request an OSD and then login will have access to sources already available to that keyboard in addition to Sources permissioned for that User (additive function).

After logging in, the user can continue to recall the OSD and still be logged in until the OSD Idle Time Out period elapses. After the OSD Idle Time Out has elapsed, the next time the OSD is requested it will only show the sources normally available to that keyboard.

Users that do not login are unaffected by the OSD Idle Time Out.



HOT KEYS Syntax

Users can customize their system's performance and functions by programming the Hot Keys using the three columns in the HOT KEYS tab as shown below.

Origin	Code	Action
*	11	OSD, 1
*	22	MACRO, MACRO_StartUp, ...

Origin **:** The name of the keyboard where the Hot Keys sequence is entered. An asterisk * indicates all keyboards. Otherwise, the keyboard name that the Hotkey applies to is entered here.

Code **:** The Hotkey code that the SMP3 will respond to.

Action **:** The function(s) to be performed when the code is received. Available *Actions* are:

OSD (On-Screen Display): Allows local workstation control access giving any authorized receiver on the Matrix Switch the ability to make a change. *Example:* **OSD, 1** routes the OSD browser to Monitor 1. Note that a SOURCE *must be a member of at least one* ***Tag*** *to be usable by the OSD. (See pg. 46.)*

CONNECT: Connects *SRCx* to *DSTx.*

CONTROL MON: Assigns KM control to *DSTx*.

MACRO: Run a pre-defined macro. This has the advantage of displaying a list of macros when *Details* is selected.

MACRO CYCLE: Sequentially executes one or more macros separated by commas. Each time the key sequence is entered, the program will execute the next macro in the list, then return to the first.

SHARE CYCLE: There are two modes for this operation, described below:

Src_1, Src_2 Connect first/only monitor associated with this keyboard (but not listed) to the first Source in the list (Src 2). Connect the keyboard named in *Origin* to the Source. Each subsequent Hot Key will cycle to the next Source listed, then back to the beginning.

Mon_A, Src_1, Src_2 If the first name in the list is a Destination, connect it to the second through Source names in the list. Connect the *Origin* keyboard to *Src* (like the first example, but with a named Destination as the first element).

VIEW CYCLE: Same as *SHARE CYCLE* but without the connecting keyboard.

TAKE CYCLE: Cycles through a string of 'taken' sources. Prior destinations are blanked.

CLEAR DST: Blanks the monitor at *DSTx*.

CLEAR KBD: Removes keyboard/mouse control.

CLEAR SRC: Blanks that source from all destinations.

COLLABORATE: Allows multiple users to easily exchange a single Source's KM controls. Note that Collaboration must also be enabled in the receiver modules. There are two types of Collaboration, switching via mouse or via keyboard (or both).

*	6b	COLLABORATE, 1
*	6d	COLLABORATE, 1

Code 6b is used for mouse.
Code 6d is used for keyboard (space invokes it).

TOGGLE: Reset the Monitors/Destinations associated with this keyboard to their previous Sources. Alternates between two previous Sources called from the OSD.

CAST: Duplicates video on the 'From' destination to the 'To' destination.

MIRROR: Links one Monitor/Destination to one or more additional "mirrored" Destinations so that any time a Source is connected to the first Monitor/Destination, the same Source will also be connected to the remaining Monitors/Destinations.

Mon_1, Mon_2, Mon_3 Any time a Source is connected to Mon 1, it is automatically connected to Mons 2 and 3.

MIRROR OFF: Turns off mirroring.

INT MOUSE: Enables the **Int**uitive **Mouse** feature and shows a list of monitor names describing how the monitors are arranged. Commas separate monitors, and slashes (/) separate rows. *Examples:*

Desk_1, Desk_2 Two Desks, left and right.

Desk_1 / Desk_2 Desk 1 is on the top row; Desk 2 is on the bottom.

Desk_1, Desk_2 / Desk _3, Desk_4 Two rows: Desk 1 and 2 are on the top row and Desk 3 and 4 are below.

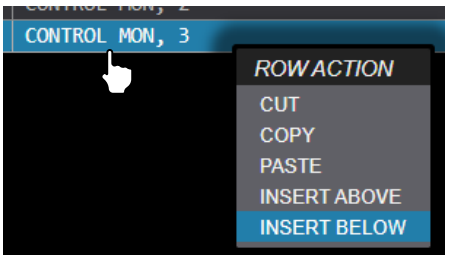
Desk_1, Desk_2, Desk_3 / Desk_4, , Desk_6 Two rows of three with a blank space in the bottom where Desk 5 would be (signified by empty space between the commas).

Note that Intuitive Mouse must also be enabled in the extender modules. See Appendix H, pg. 93.

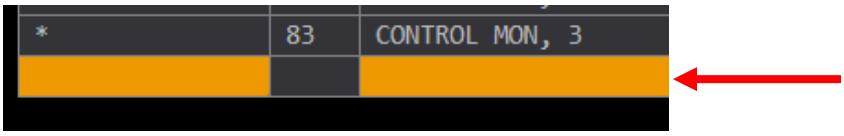
IGNORE: Causes a command to be ignored. This is used to exclude a destination from a wildcard (*) hotkey. (Enter the keyboard and the Code to be ignored.)

Adding HOT KEY Functions

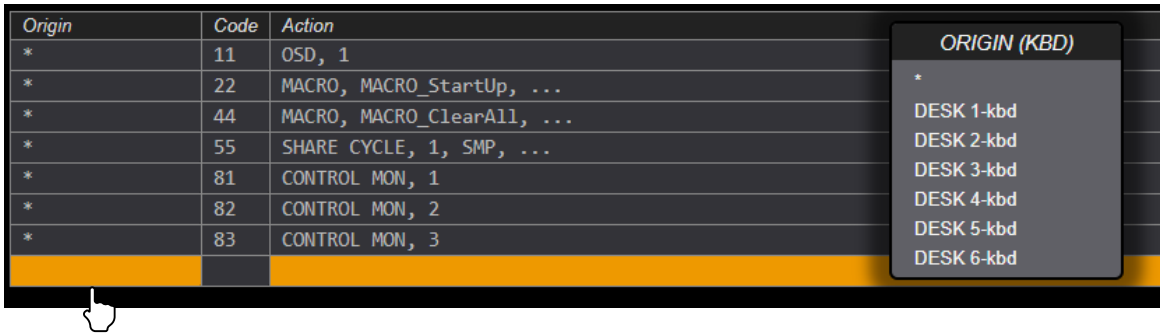
Add additional Hot Key functions by right-clicking on a field. For example, select INSERT BELOW to add Hot Keys. (See *Appendix D: Enable Hot Keys*, and *Appendix E: Flex Keys*)



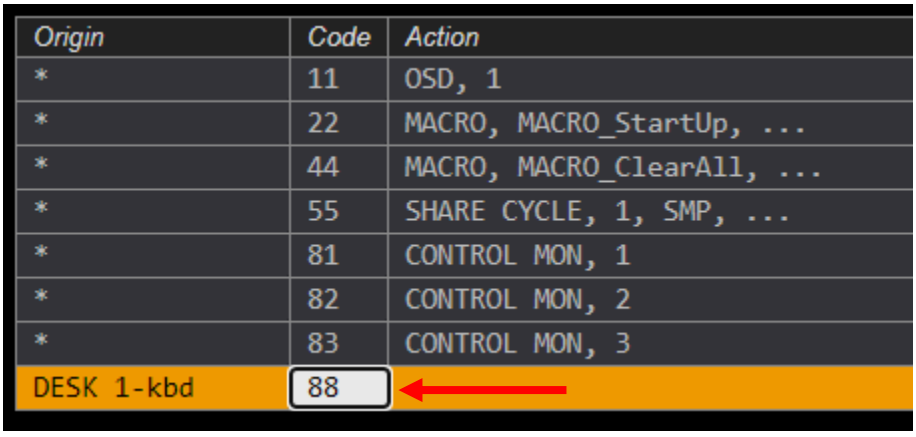
A new row will appear below the row selected.



Origin: Left-click to select a keyboard from the drop-down menu. (* = all keyboards)

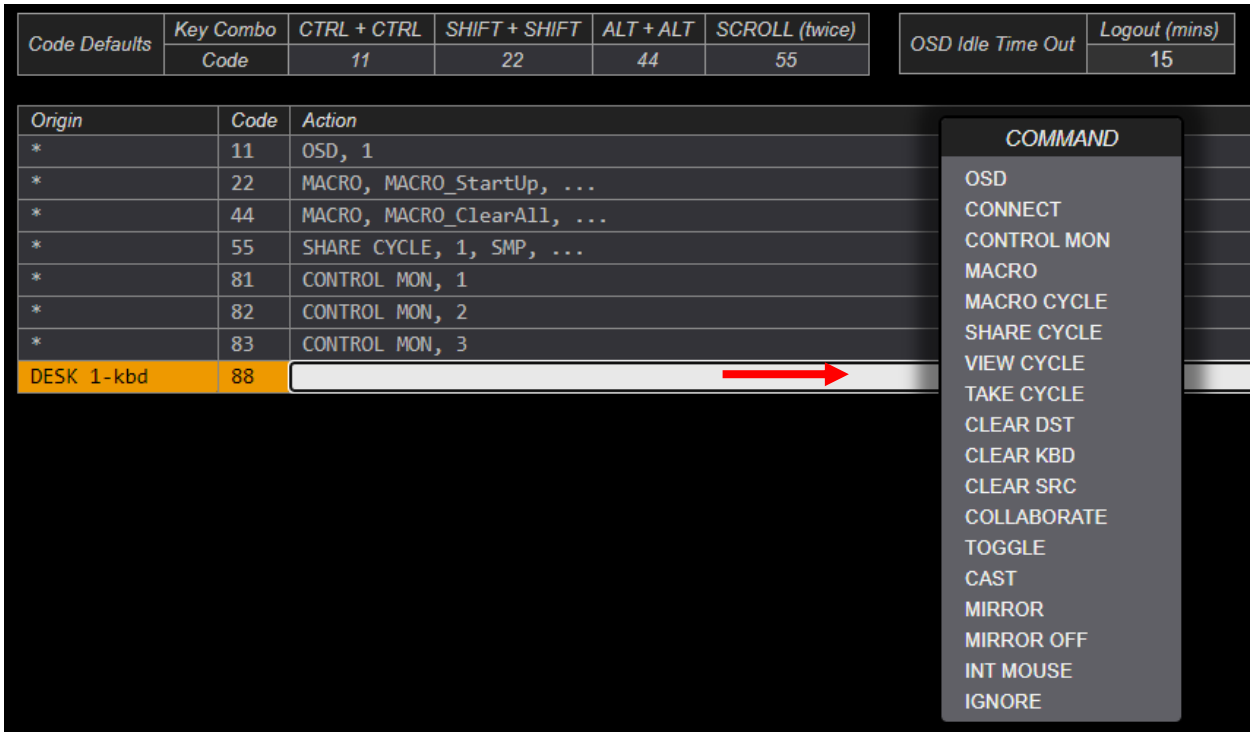


Code: Left-click within the *Code* field. Type in a hexadecimal key combo as shown below. (In this example code '88' was chosen for a new hotkey function.)



Note: If Intuitive Mouse or Collaboration is used in the extenders then avoid using the following Hotkey codes: For INT mouse avoid: 62, 6c, 72, 74. For Collaboration avoid: 6b, 6d.

Action*:** Left-click within the Action field. Select from the drop-down menu. See more of what each *Action* does under ***Details .

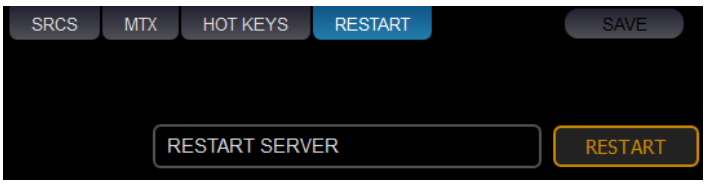


TECH NOTES: *Hotkey via mouse – "MsSwitch Toggle" setting in TLX receivers*

There is an additional feature available in TLX series receivers known as "MsSwitch Toggle" which can be enabled (default is disabled). This is used in conjunction with 5 button mice. When enabled the receiver will send a Hotkey code of '99' when the left mouse button is pressed along with the front side button. The receiver will send a Hotkey code of '98' when the left mouse button is pressed along with the back side button. Therefore, when enabled, Hotkey Actions can be configured for these Hotkey codes.

☐ The RESTART Tab

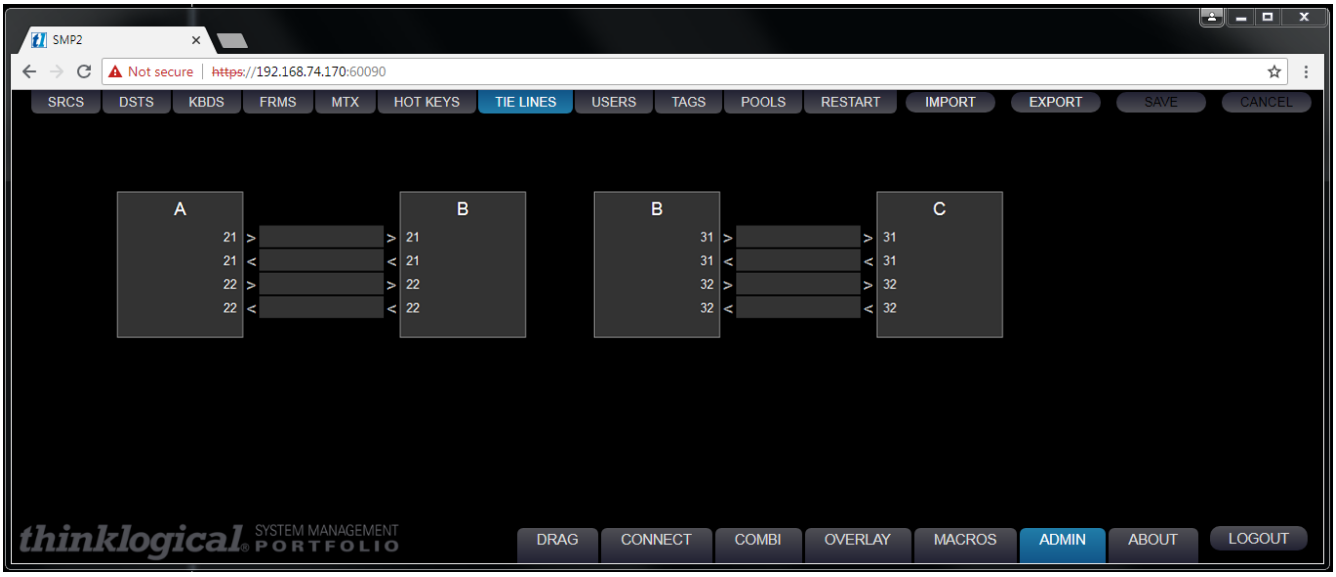
This is a convenient way to restart the SMP3 server after certain conditions, such as when making edits or changes to the system that may require the system to restart.



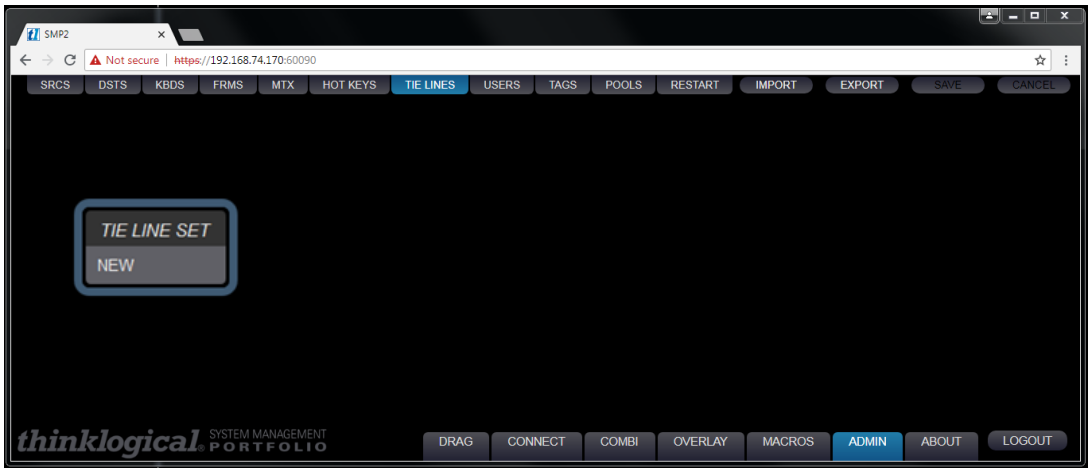
Note: A Restart is not required after doing all changes. For example, changes affecting the Drag & Drop page may only need a browser refresh (F5) to display correctly.

☐ The TIE LINES Tab

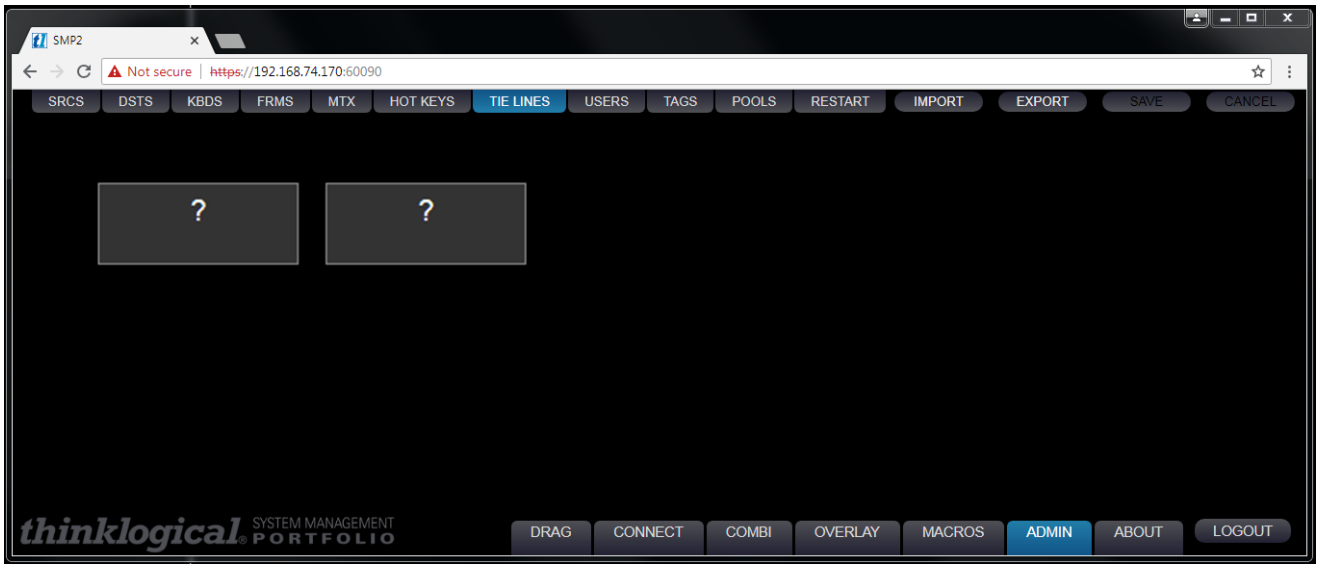
Tie lines provide a means for connecting sources and destinations across two or more Matrix Switches. This tab displays the tie lines that connect Matrix Switches together. Tie lines are typically bi-directional, providing video and data Tx to Rx and back-channel data Rx to Tx. *(SMP3 is not supported on the VX160 or VX320 Matrix Switches due to hardware restrictions.)*



To create tie lines, right click in the field and select NEW.

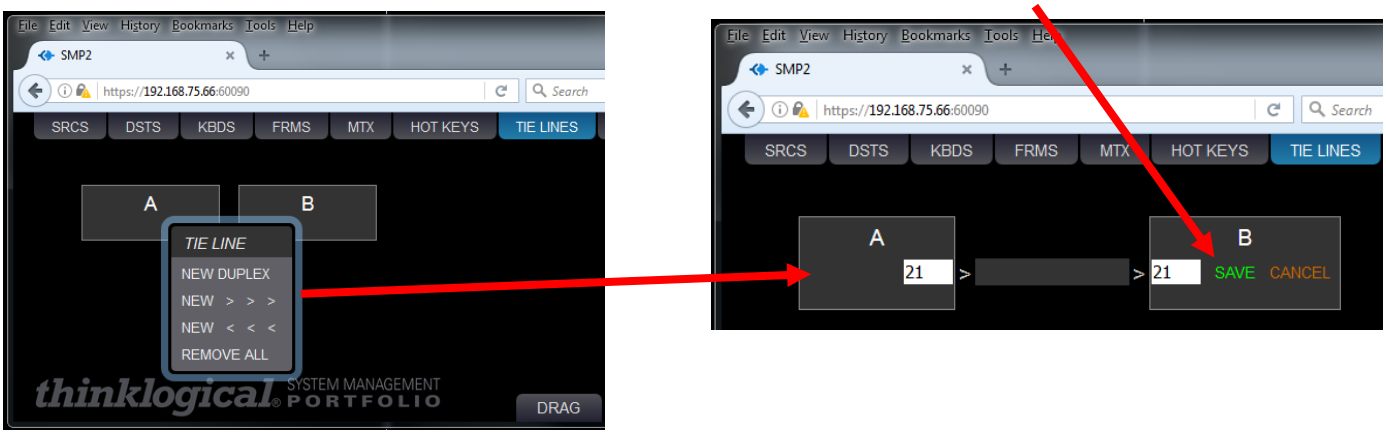


A pair of un-named Matrix Switch icons will appear.

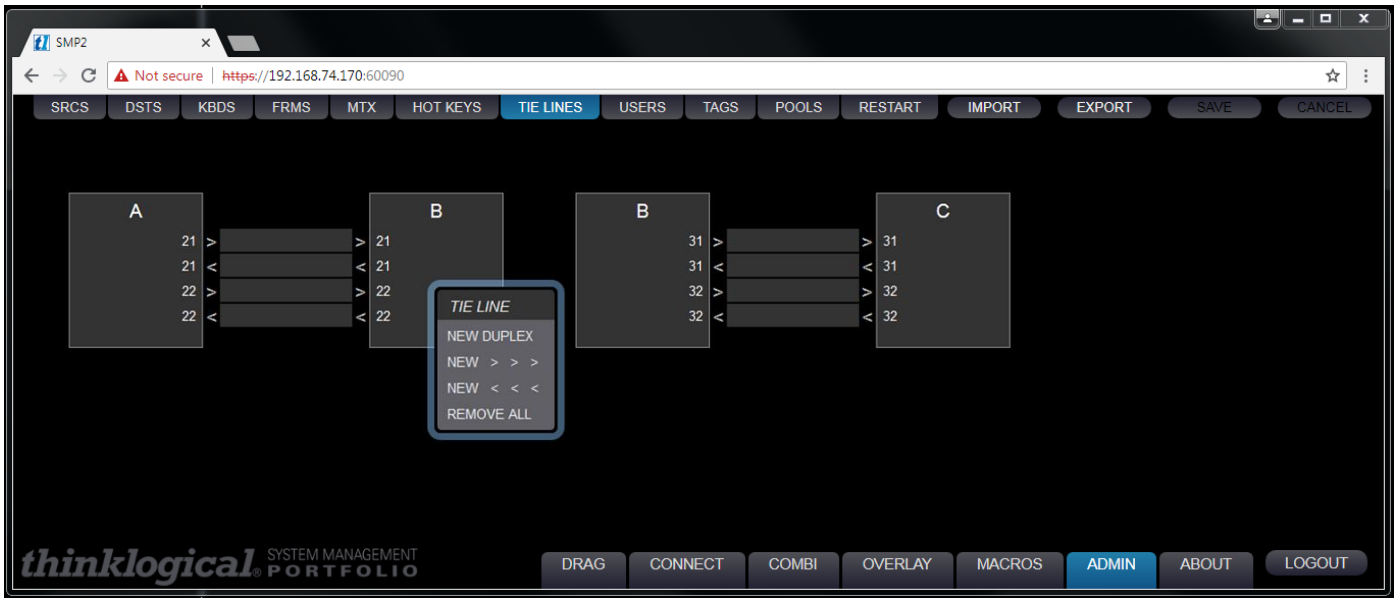


Click within a Switch icon to select from the list of Switches in the MTX tab.

Once the Switches are named, right click within an icon to select a tie line for either direction. Selecting NEW DUPLEX will create a bi-directional tie line using the T and R of the same SFP. Port numbers can be specified in the white fields in each Switch icon. Click SAVE to preserve changes.



Add tie lines to as many Switches as needed. After the tie lines are created, users may click on them for a new menu: CLEAR, DELETE, AUTO, *MANUAL*. Selecting AUTO is required for the SMP3 to automatically use an available tie line when making routes. The *MANUAL* selection is used when the tie line is to be used by a third-party control system (such as AMX or Crestron, etc.).

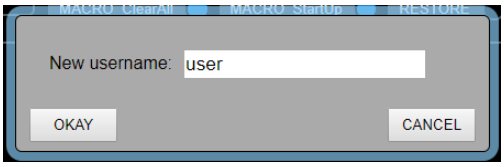


☐ The USERS Tab

USERS defines which assets; Pools, Sources, Destinations, Macros and Tags are available to the *three user types**. This tab displays the Users on the left USER/KBDS and which assets are available on the right under USER DETAIL. When a new keyboard is added under the KBDS tab, it also needs to be added here.

*Right clicking in the left frame will display a menu to select of one of **three user types**.*

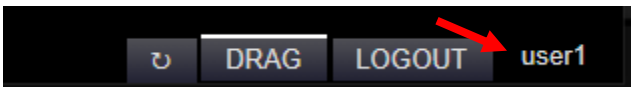
NEW USER This type of user applies to systems where asset availability is controlled by a log-in, such as the OSD (optional, not required) and when logging into the SMP3 via a browser over the network. Selecting this item displays a window where a username is entered.



The default password for newly created users is also the username. To change this password, see *How to Create or Modify a User or Password*.

Note: The SMP3 supports a User named “api.” This is used for API access to the SMP3 for various functions and this name is reserved for that purpose. See Appendix J.

The username that is currently logged in to the SMP3 will be displayed in the lower right corner.

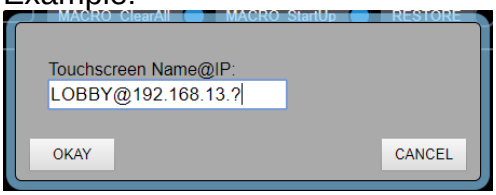


KBD USER Keyboard User applies to the physical keyboard and its location at a workstation console. Selecting this will display a menu of available KBD Users to choose from. Assets added to a Keyboard User will apply to OSDs and Touchpanels. These assets also include the START PAGE (first page to be displayed) as well as PAGES (these will appear as button selections on the bottom).

Note: If the KBD names have been changed in the KBDS tab, then they also need to be updated here.

TOUCHPANEL This is where Thinklogical Touchpanels are added and configured. The Touchpanel name (default name is LOBBY) and the IP address of the Touchpanel are entered here. This is the IP address of the Touchpanel at the Desk. The resulting USERS/KBDS icon will display this name and indicate that it is a Touchpanel by the **(ip)** prefix.

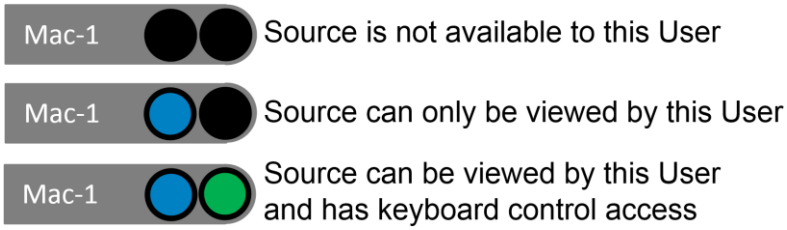
Example:



Will display as: 

For more information on installing Thinklogical Touchpanels, see Manual_PoE_Touch_Panel_Rev_A.pdf

Assets: Once a new User is added, assets are then made available by selecting the appropriate colored-coded dot. In the case of *Sources,* there are two dots, defined as follows:



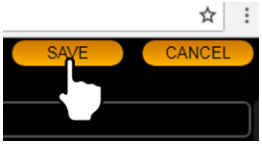
Note: To restrict assets (if necessary) via OSD or user login:
1) Deselect all assets for the kbd-user.
2) Enable selected assets for a User (otherwise they will be added together).

The right frame, USER DETAIL**,** has six categories that can be configured:

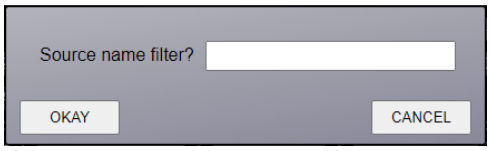
- PAGES – These are the pages that will be available on a Touchpanel or web server login for the operator to choose from. These options will appear as tabs at the bottom of their screen.
- START PAGE – Only one category may be configured here. This is the first page an operator will see upon Touchpanel or web server login.
- POOLS, • SRCS, • DSTS, • MACROS – System assets that can be made available to a User.
- TAGS – If nothing is selected here then all Tags will be available to a user if they have any asset contained within that Tag. However, if Tags are selected here then only the selected Tags will appear for that User. This is useful if many Tags are created but a User only needs to use a subset of them (for convenience). For example, you would want a minimum of Tags to be displayed on a Touchpanel to avoid or minimize scrolling in the Tag area.

Note: When assigning Pages to a Touchpanel User, it is recommended to have at least two Pages selected. For example: About or Logout in addition to what is required, like Drag.

Click on SAVE to activate the change or CANCEL to discard changes.



The USER DETAIL area has additional menus available for ease of configuring. Right-Clicking in the SOURCES frame will yield the illustrated menu.
For example: FILTER allows you to filter the display of a subset of Sources by defining what to filter by. Choose SHOW ALL to undo the

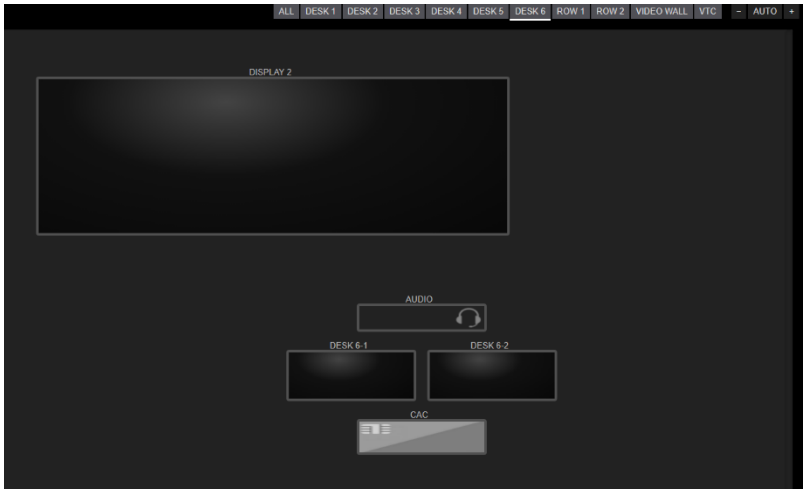


Note: If a Source is a member of a Pool, then it is not recommended to assign the non-Pool Source Asset to a User that also has that Pool as an Asset. This would defeat the purpose of pooling. However, you could create Users with Pooled Assets and additional Users using the same Assets in a non-Pooled fashion.

EZ View

There is an option in the Users tab for EZ VIEW. This will affect the appearance of the Drag & Drop display for that User. When enabled the SMP3 adjusts the display of the Destination assets for the best fit. This is useful in larger installations where the icons are much smaller and farther apart than our simple example below. This applies to all Tags (views) for that User. (See also EZ View under Tags.)

EZ VIEW disabled. The Users Assets are displayed retaining their original D&D orientation from the main page (of all Assets).



EZ VIEW enabled The Users Assets are moved closer together and the size is optimized.

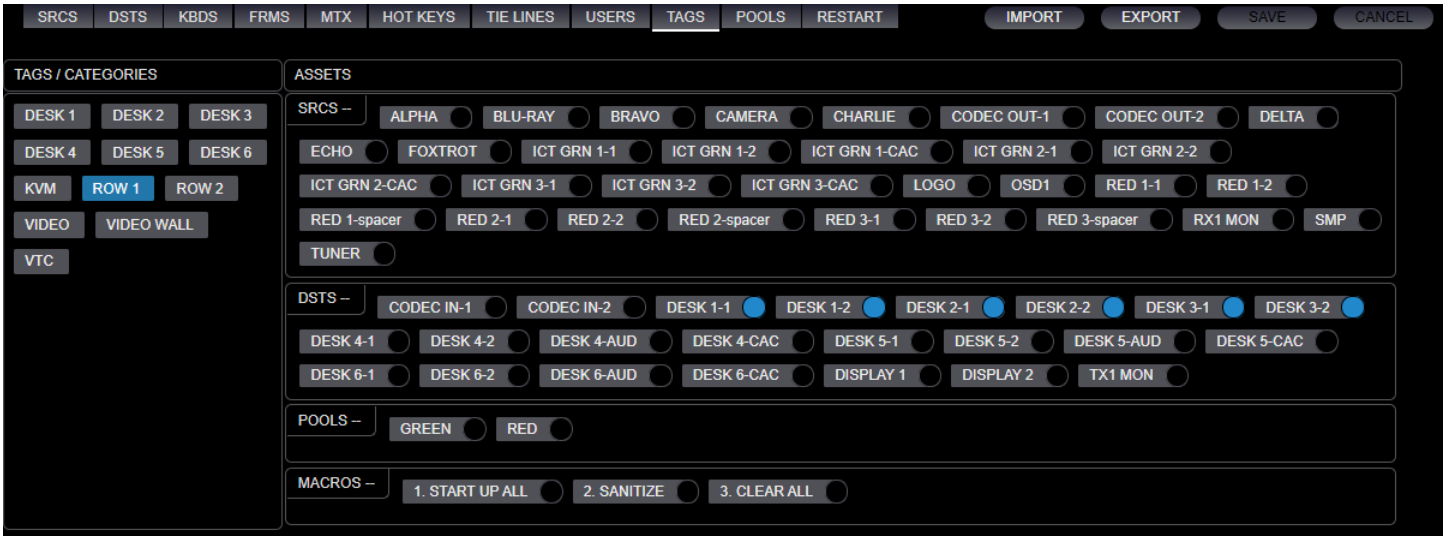
☐ The TAGS Tab

TAGS creates **named sub-sets** of Sources and/or Destinations that belong to a specific group. It can be thought of as a “display filter.” This is useful in larger systems with many sources and destinations. TAGS will be displayed and used on the DRAG & DROP, CONNECT and COMBI pages.

- Right click in the TAGS/CATEGORIES area to create a new TAG.
- TAGS that consist only of Destinations will be displayed on the right on the D&D or CONNECT pages and in the center of the COMBI page.
- TAGS that have ***one or more*** Sources will be displayed on the left on the D&D or CONNECT pages and at the top of the COMBI page.
- A Pool may be part of a TAG.
- Right clicking on a TAG will allow renaming or deleting a TAG.

Note: A SOURCE must be a member of at least one Tag to be usable by the OSD.

Example of a Tag to display only one row of desks:



EZ View

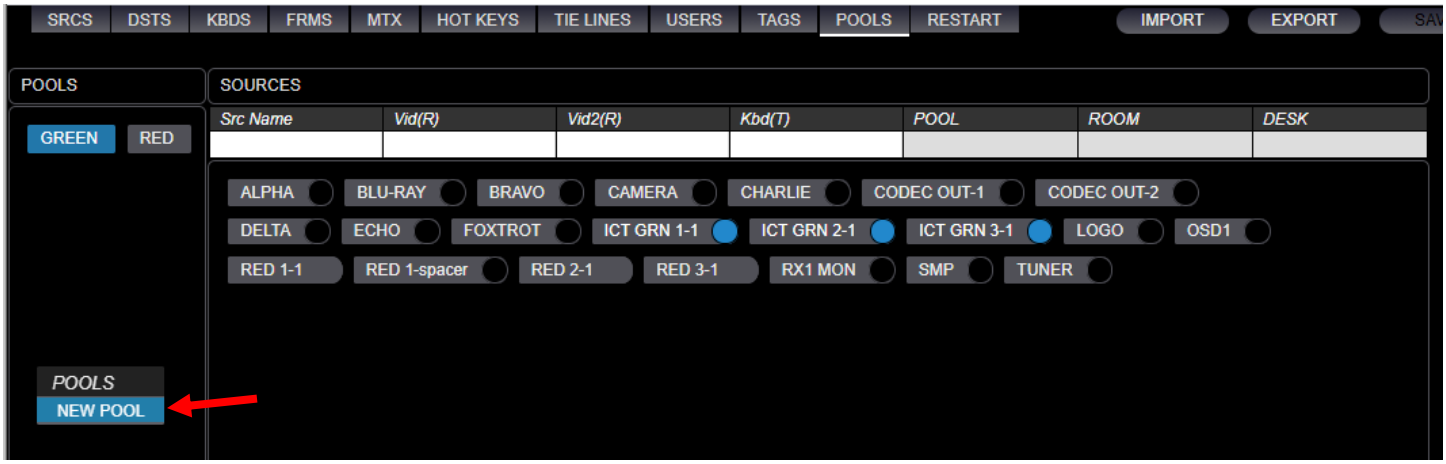
There is an option in the Tags tab for EZ VIEW. This is useful if a User wishes only certain Tags to have this feature, as opposed to always being present.

☐ The POOLS Tab

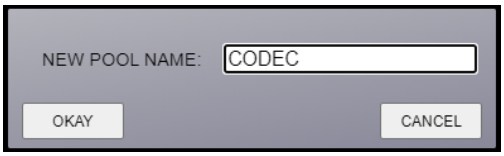
This tab displays the Pools that have been created by an administrator and the Sources assigned to each Pool. A Pool is a set of Sources that all perform the same function (i.e., graphics processor, thin client, etc.). Sources must first be defined in the SRCS Tab prior to creating Pools.

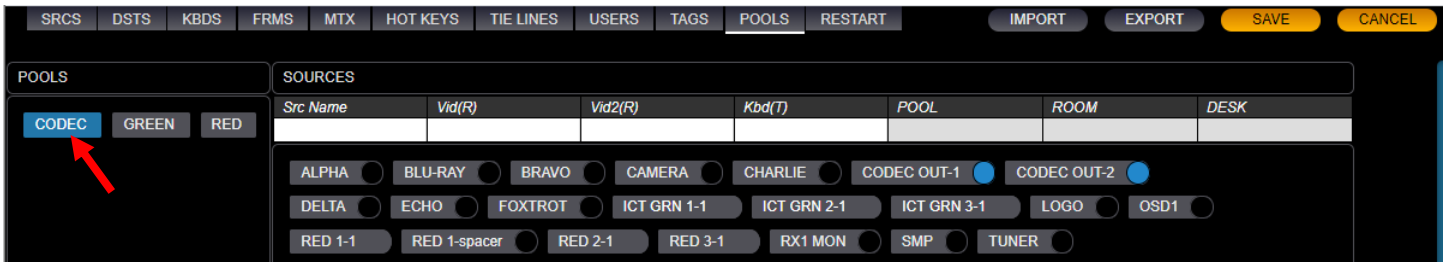
Note: Pools are used via the Drag & Drop page, including a Touchpanel or OSD with Drag & Drop enabled. Pools are not supported on the Connect or Combi pages.

An example of adding a Pool is shown below:



Right-click in the empty *POOLS* area and select NEW POOL from the drop-down menu. Enter a name for the new pool: For Example: CODEC, then click OK.





This Pool has been created and named CODEC. Select this new Pool and choose the SOURCES to be added, then click SAVE.

Warning! Once assigned to a Pool, a source should not be used as a separate source; this would defeat the purpose of Pooling. However, there is an exception, see Users tab section above.

Pool buttons are color coded to display their status:

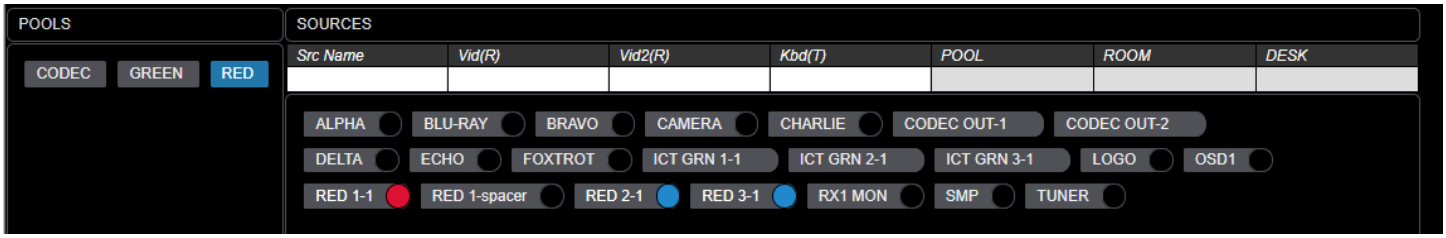
Assigned to the displayed source pool.

Available.

Allocated to a source pool other than the currently displayed pool.

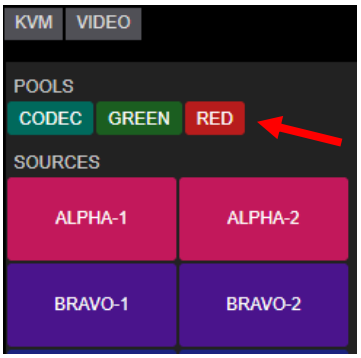
Allocated to a source pool and Reserved. (Can only be used by the user who reserved it.)

Example of POOL status buttons:

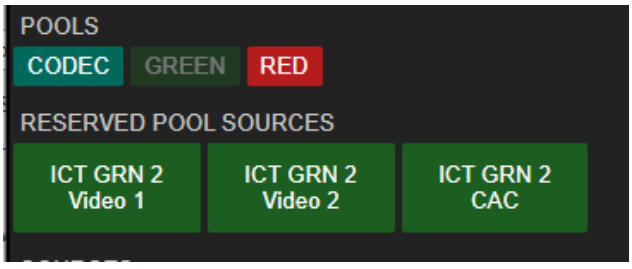


Using POOLS

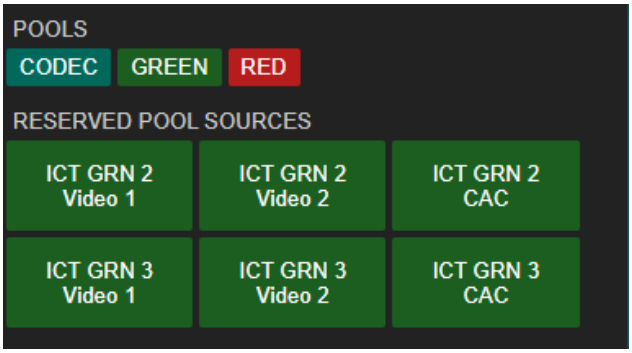
Users can reserve Sources from any number of Pools, each of which can have its own function. Pools can be used with; OSDs, Touchpanels and Drag & Drop. Once a User has Reserved a Pool, they can then select a Pool Source for use.



Example: Pools created and available (none are Reserved here). Note that the POOL icon takes the color of the first Source in the POOL for convenience.



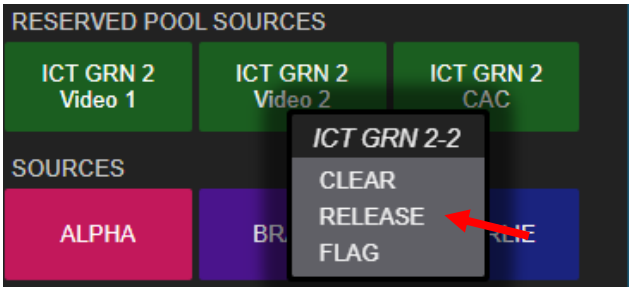
Click GREEN once and a GREEN Pool Source is reserved and “RESERVED POOL SOURCES” is added to the frame.



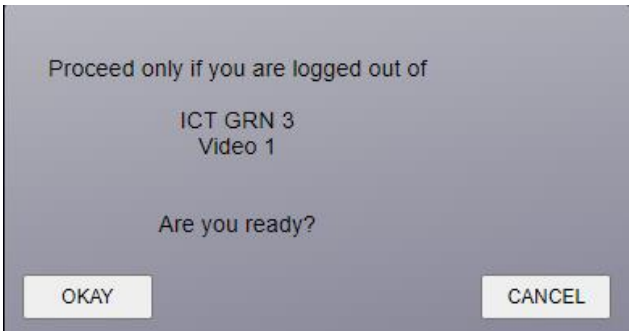
Click GREEN again, a second GREEN Pool Source is reserved.

Once a Source is Reserved, the User can then connect it to their desk.

Note that Reserved Sources cannot be Reserved or accessed by another User.



To release a Source back into the Pool, right click on the Source and choose RELEASE.



A warning message will pop up.

If all Sources in that Pool are reserved, a message will pop up.

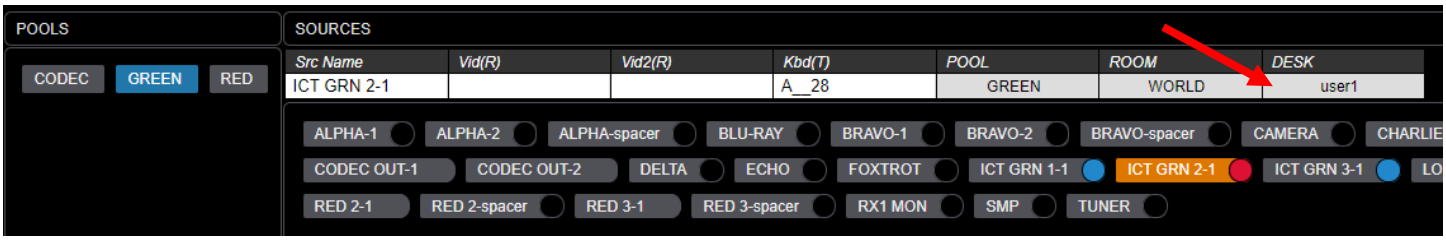
Other options from this menu are:

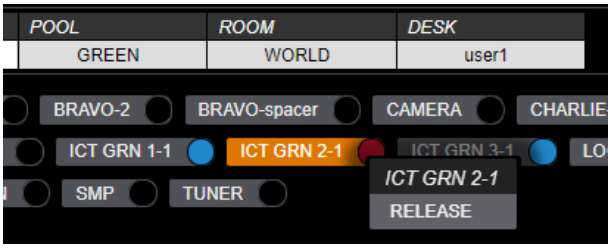
- Clear – This option clears the Destination connected to this Source.
- Flag – This alerts that this Source as having a problem. The System Administrator can then address the issue.

POOLS – Administrator Functions

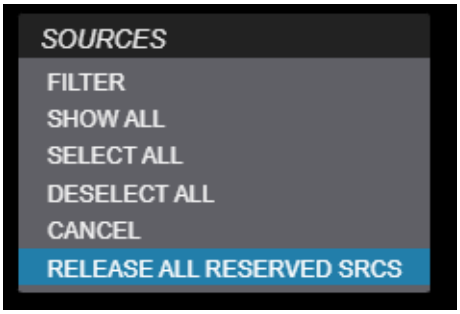
Reservations & Flags

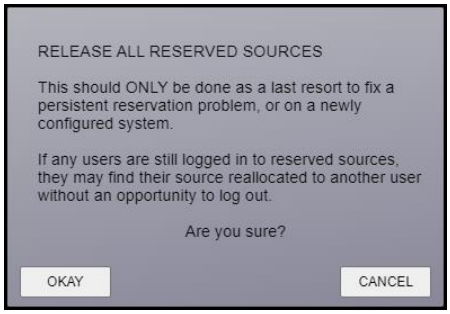
The Administrator can determine who has a Pooled Source reserved and also has the ability to release the Source(s) back into the Pool. For example: Use “user1” has Source “ICT GRN 2-1” reserved below (circle is red). Left clicking on the Source name will display details in the fields above





Right clicking in the red circle will allow the Administrator to release that Source back into the Pool.





Right clicking in the space between the Sources will allow the Administrator to release all Sources.
A warning message will pop up.

If a User should Flag a Source as problematic, the Administrator will get a notification.

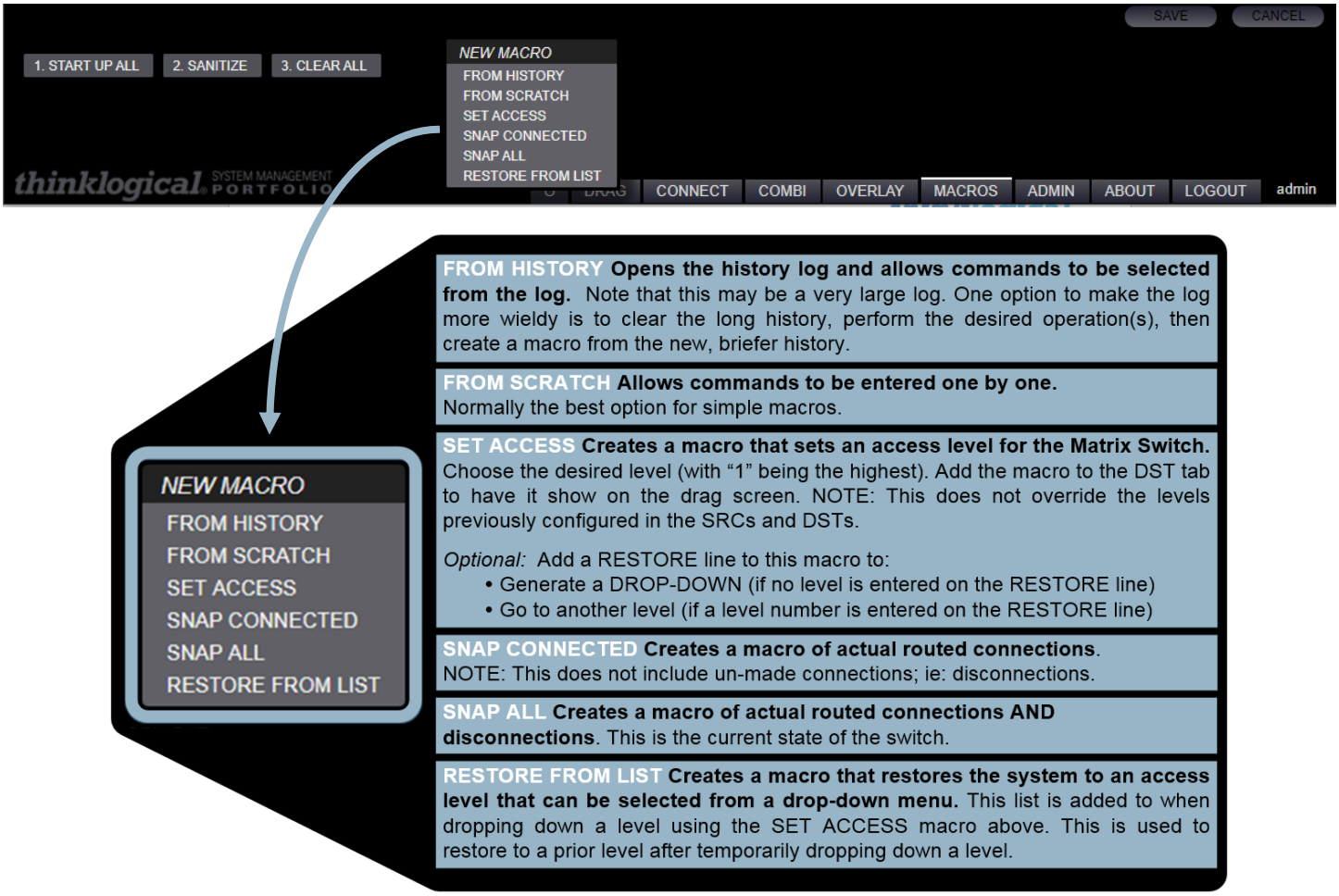
The Administrator will also see this Source displayed in red and can clear the Flag by right clicking on the Source name.

☐ THE MACROS TAB

A macro is a set of programmed connection instructions that execute automatically with a single command. The Macros Tab is used for displaying and creating Macros. These Macros are stored in the system under the `/opt/tl/setup/macros` directory.

SMP3 comes with two pre-installed macros for making and breaking specific connections. These are labeled MACRO_ClearAll and MACRO_StartUp. Additional macros can be added by following a few simple steps.

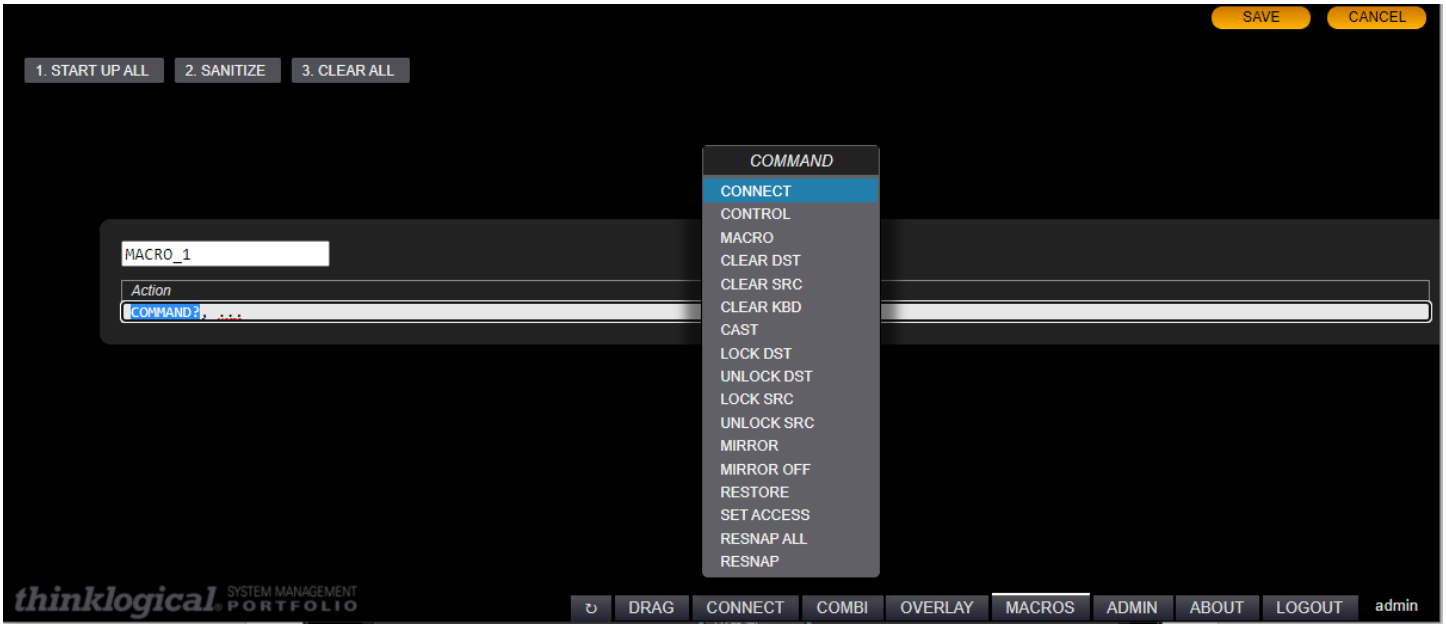
Right-click anywhere on the screen to get the drop-down menu for adding new macros.



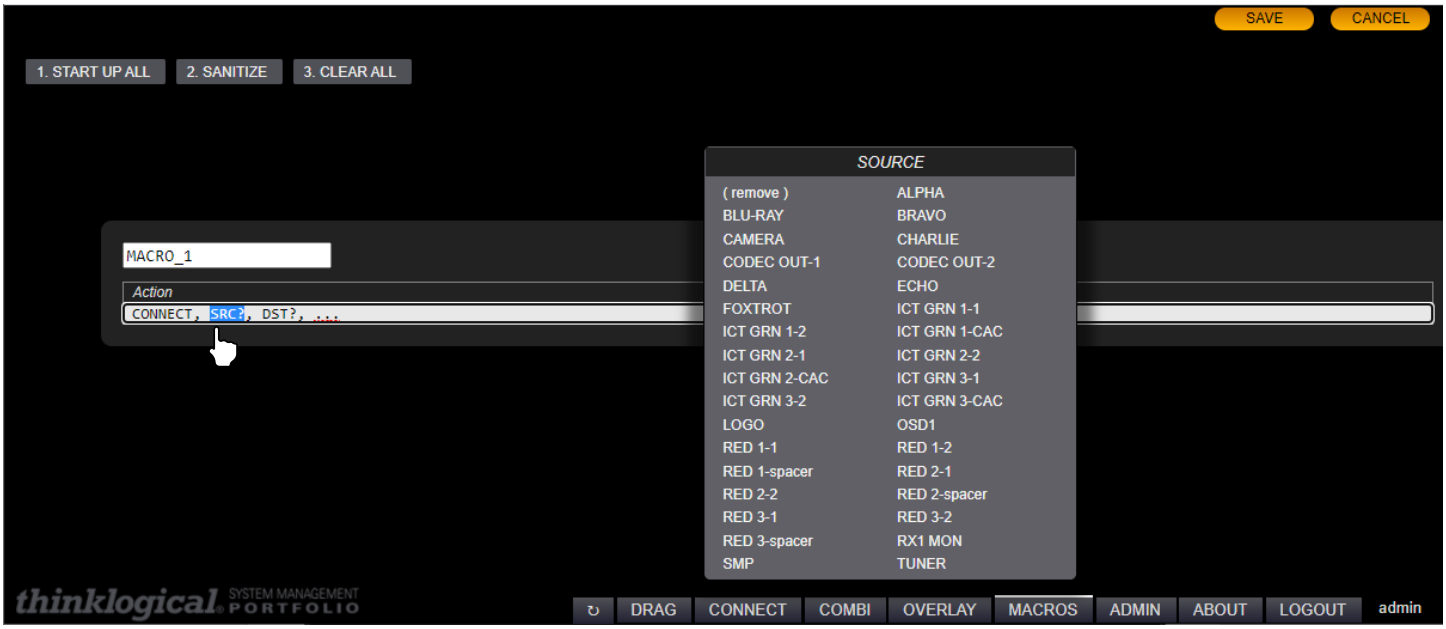
Pick the FROM HISTORY option to use previous operations. Connections that have been created from the *Connect* page or from *Drag & Drop* will appear here. ***This will likely be a long list.*** Select all actions to be included in the macro**.** Some CONNECT will have a CONTROL line below it. Selecting a CONTROL line gives KM control to that connection.

Pick the FROM SCRATCH option to create a new Macro by adding new commands as required. Enter a name in the macro name here field.

When choosing FROM SCRATCH, an *Action* line appears below the macro's name. Left-click on `COMMAND` and a drop-down menu appears. Here *Actions, Sources* and *Destinations* are defined manually. For example users can select CONNECT as below.



The Action will now display `CONNECT, SRC?, DST?, ...` Left-click on `SRC?` and another drop-down menu appears. Choose a source name from the menu. Likewise, left-click on `DST?` and choose a destination name from the drop-down menu. Left-click on **...** to select more *Destinations*. Click SAVE to keep changes.



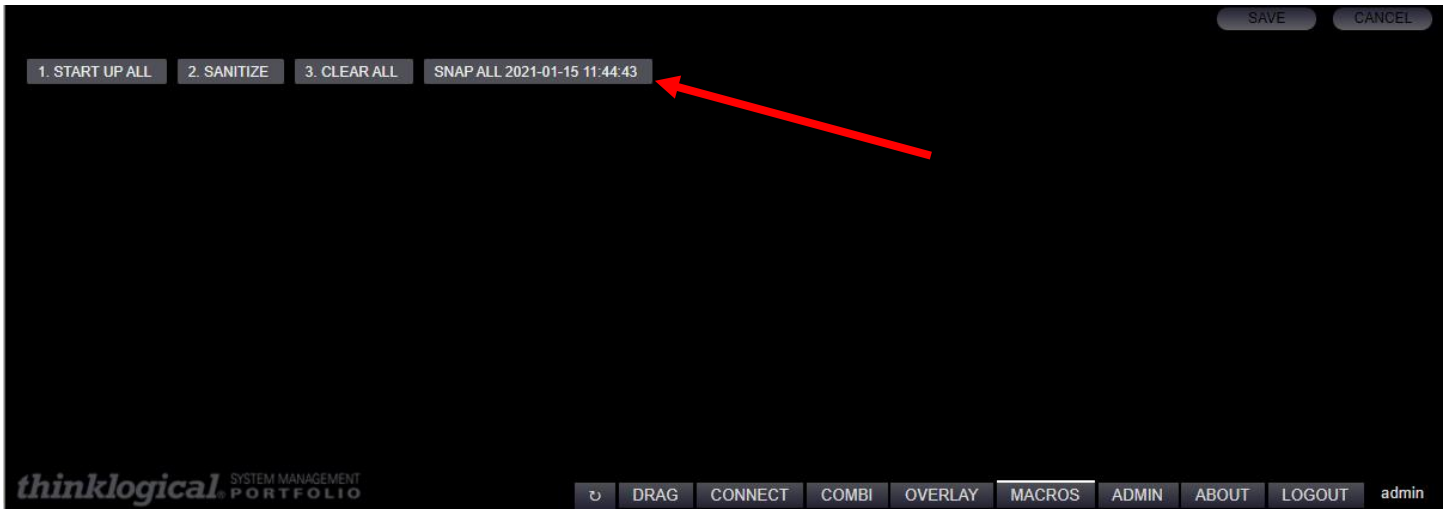
MACRO_1 now appears along with the original macros and can be executed with a single click.

Pick the SET ACCESS option to create a new Macro that will set the access level of your Sources.

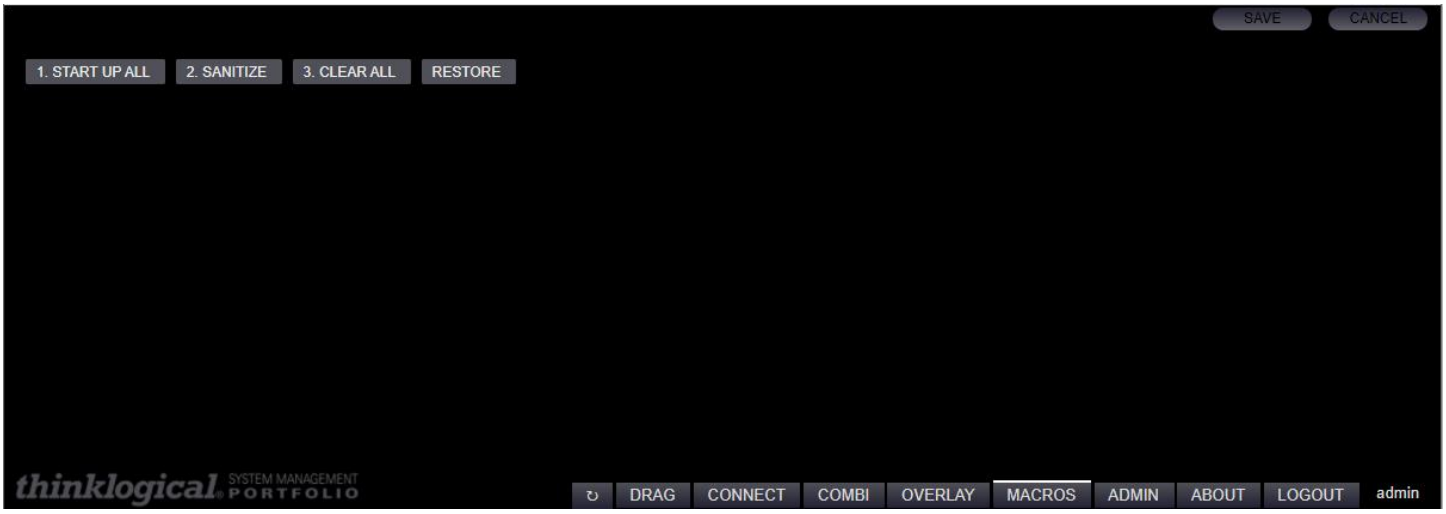
- Click on LEVEL to choose the Access Level. These relate to the values in the Level column of the Sources and Destinations.
- Click on REPLACEMENT SRC to select the Source that will be switched to the Destinations when the Macro is invoked.
- Click on TAG to select the tagged Destinations the Macro should apply to. The Tags need to be defined previously. If you wish the entire site to be affected, then create a Tag (Example: “ALL”) for the entire site

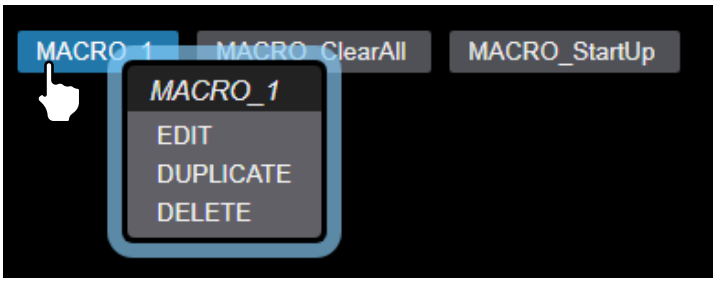
Pick the SNAP CONNECTED option to create a new Macro that will automatically create a Macro of all the active Matrix Switch connections.

Pick the SNAP ALL option to create a new Macro that will automatically create a Macro of all the current connections *AND* disconnections. This may also be thought of as the current state of the Matrix Switch.



Pick the RESTORE FROM LIST option to create a new Macro that will generate a pop up list. This list will contain access levels that were previously used when changing levels.



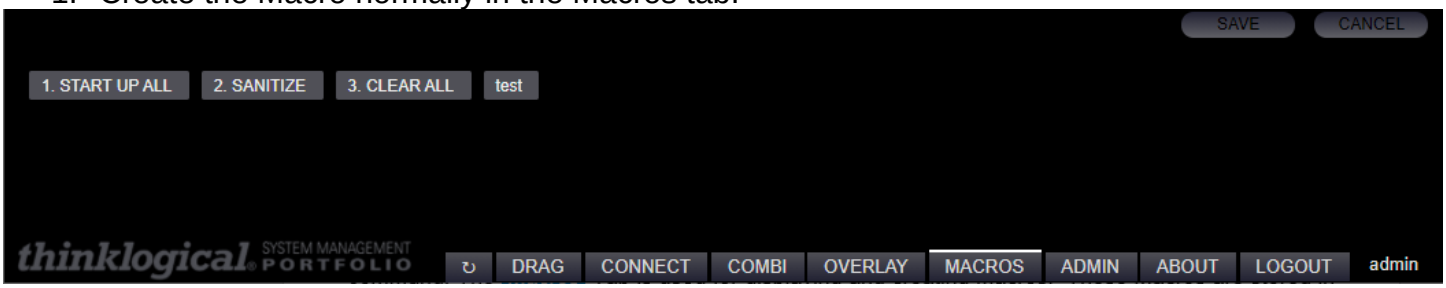


A Macro can be **edited, copied** or **deleted** by right-clicking on its name, then choosing from the drop-down menu.

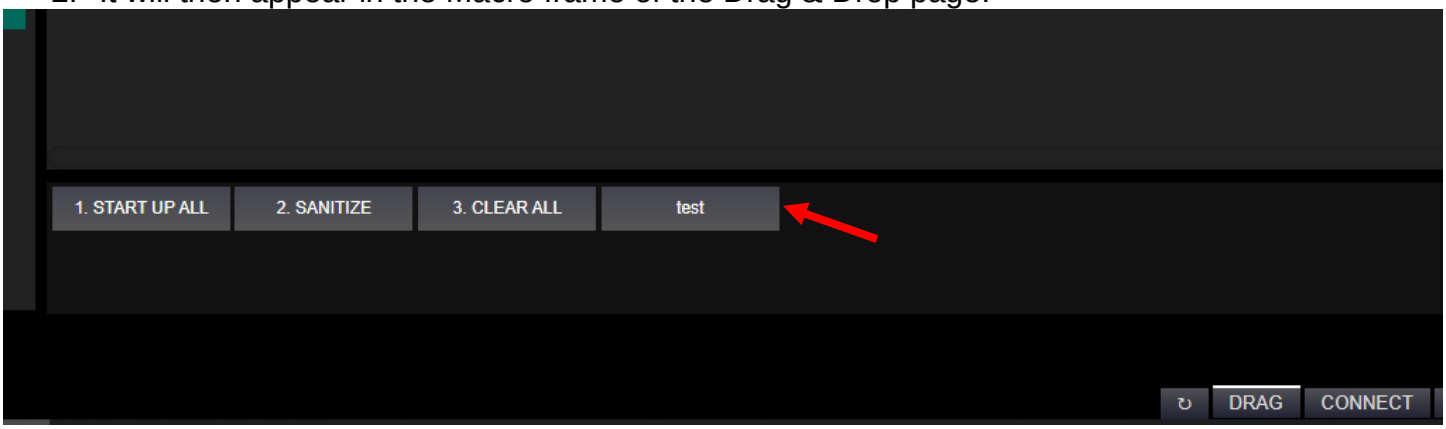
Note: The default location for the Macro icon is in the Drag & Drop Macro frame (see FRAMES above). However, this icon may be *moved* to the Destinations frame. To do this, first create the Macro as described in this section. Then create an entry in the Destination tab for the Macro.

Example*:*

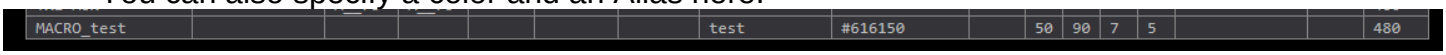
1. Create the Macro normally in the Macros tab.



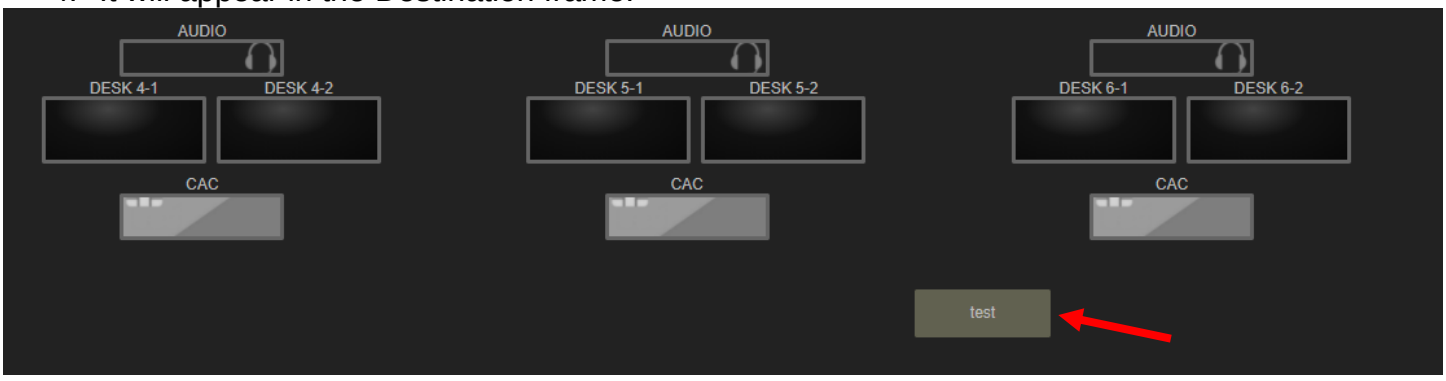
2. It will then appear in the Macro frame of the Drag & Drop page.



3. Add the Macro to the Destinations with the prefix “MACRO_” and the X, Y, W, H parameters. You can also specify a color and an Alias here.



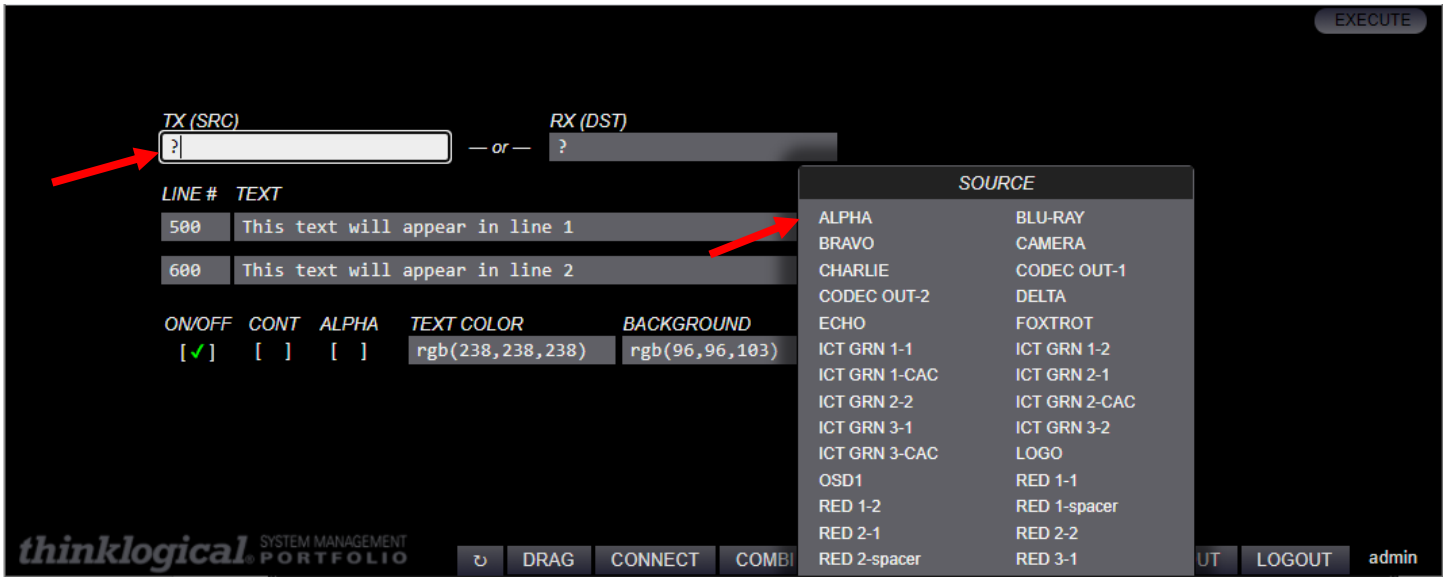
4. It will appear in the Destination frame.



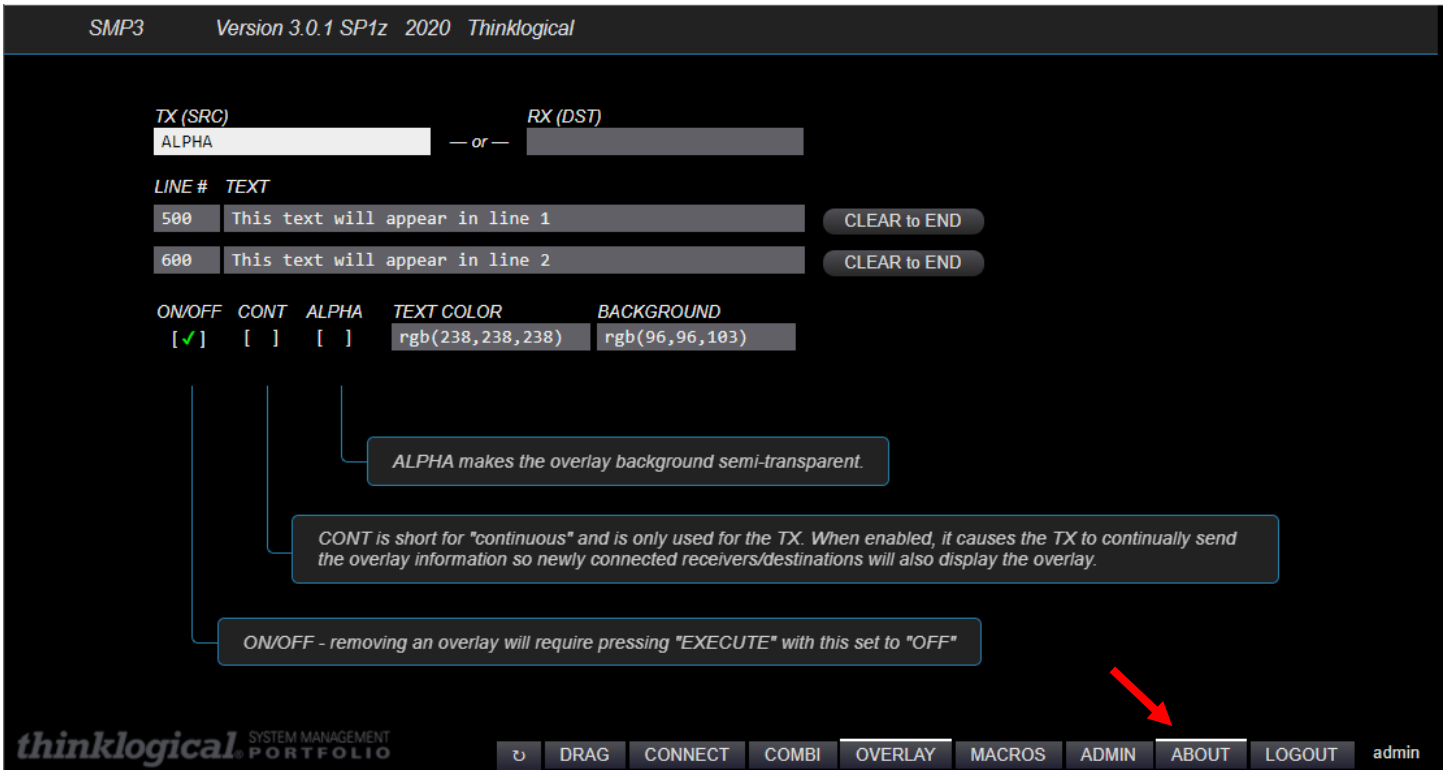
While configuring this feature, it may be necessary to refresh the browser page (F5) to see the change. To delete a Macro that has been moved to the Destination frame; **first** delete it from the Destination Frame, **then** delete it from the MACRO tab.

☐ THE OVERLAY TAB

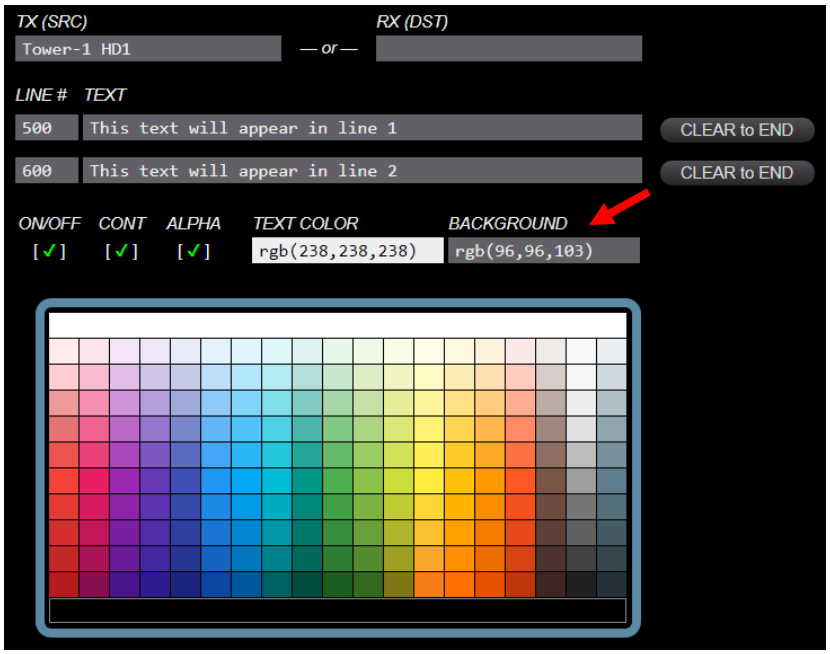
The Overlay Tab is used to format text that will show over the monitors video image. Left-click in the TX or RX field to select from a drop-down menu as shown below.



Click on the ABOUT Tab for more information about the various fields. *LINE #* is used to position the Overlay on the screen. The value is number of pixels down from the top.



Choose from a range of colors for both the **overlay text** and **overlay background** by left-clicking on the *TEXT COLOR* and *BACKGROUND* fields.

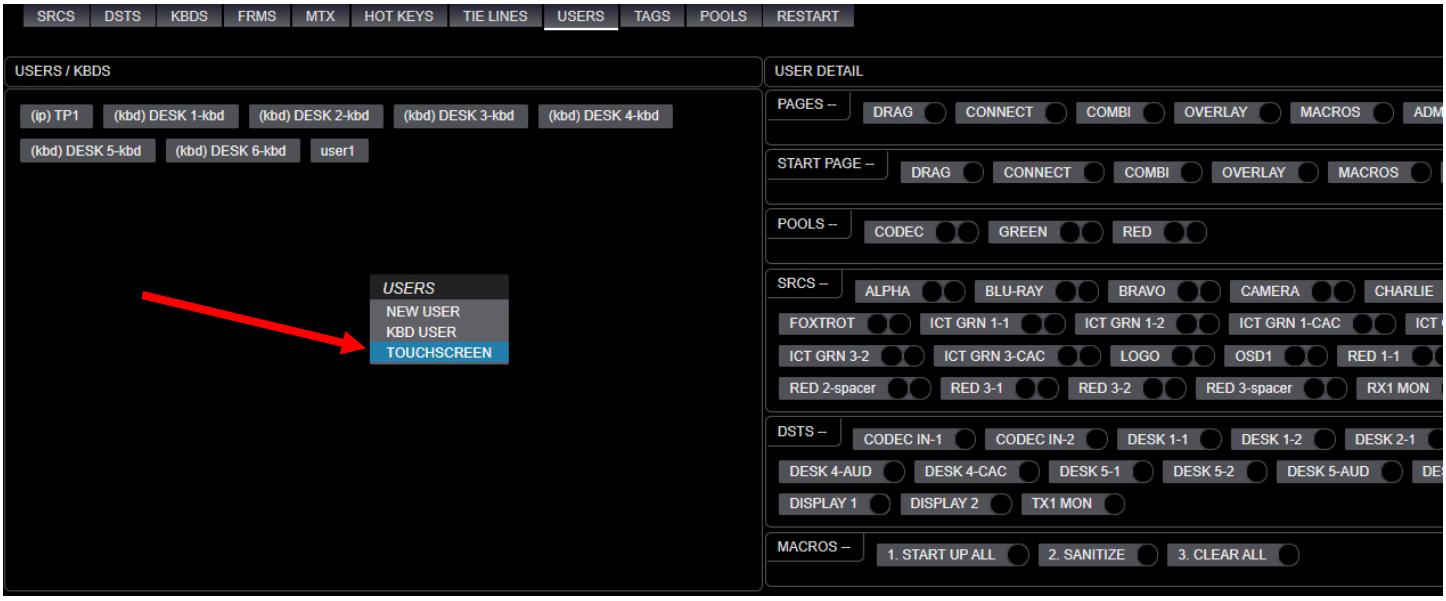


☐ THE COMBI TAB

The COMBI Tab is functionally identical to the CONNECT Tab but is formatted to accommodate use on a Touchpanel Screen or OSD configured for it. See THE CONNECT TAB, below, for an explanation of functionality.

Adding a Touchpanel

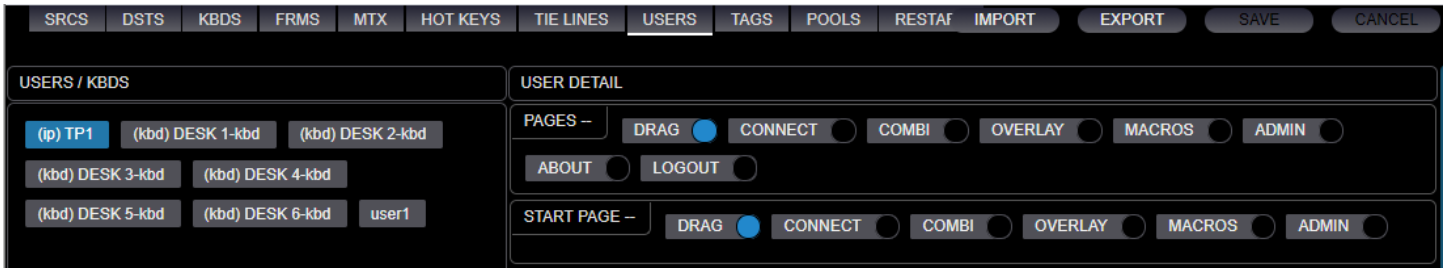
In the ADMIN page, select the USERS Tab. Click in the USERS / KBDS window, then Click on TOUCHSCREEN in the resulting drop-down menu.



Enter a Name and an IP address for the added Touchpanel, then click on OK.

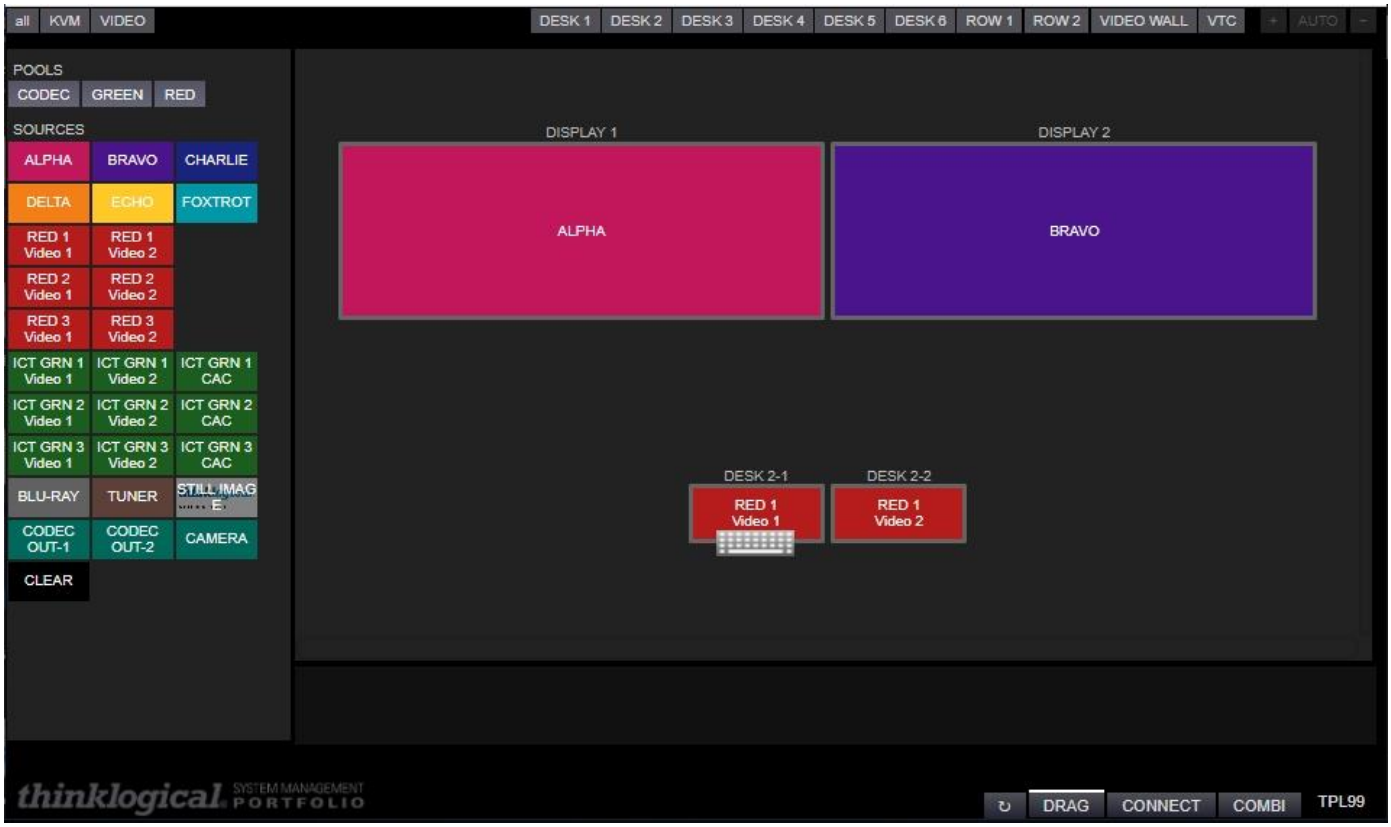
The new Touchpanel will appear in the USERS / KBDS window.

1. Select the desired SRCS , DSTS , POOLS , TAGS and MACROS to display on the new Touchpanel.
2. Select DRAG , COMBI or CONNECT under START PAGE . This will be the page the Touchpanel will display when booted up.
3. Select DRAG , COMBI or CONNECT under PAGES .
4. Click SAVE .



Note: After adding the Touchpanel to your USERS tab, make sure to also select an item in the START PAGE row in the USER DETAIL section. Otherwise, the Touchpanel will be blank when it is powered up. (See the Touchpanel manual for installation information.) It is also recommended to have at least two selections under Pages. For example: LOGOUT and ABOUT, as well as those you require.

Example of a Touchpanel with DRAG as a Start Page and DRAG, CONNECT and COMBI pages available.

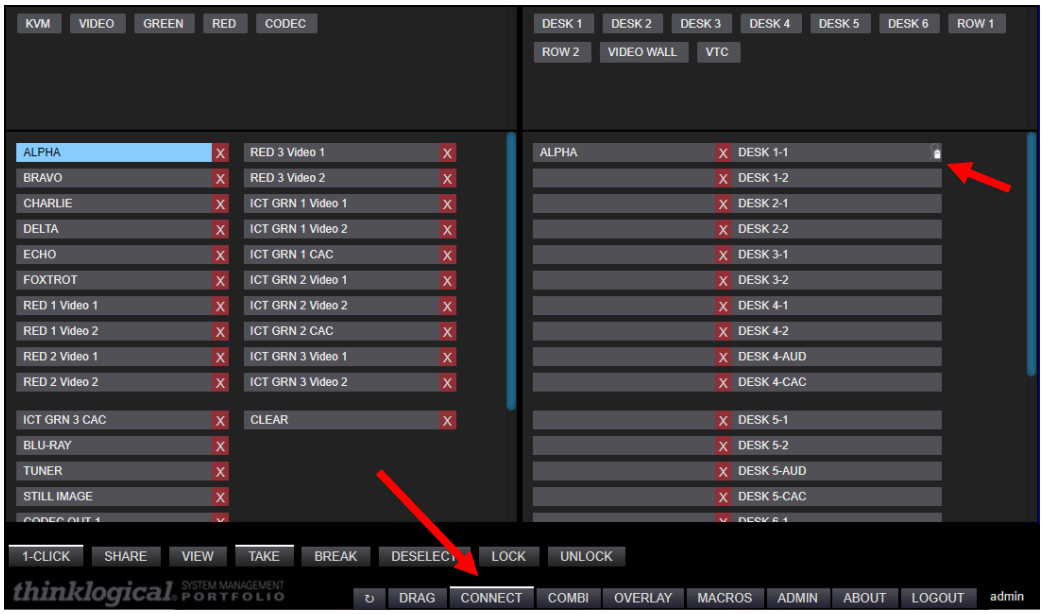


Note: The behavior of the Drag & Drop page is affected by the [1-Click] settings on the bottom of the Connect page (settings apply to both).

☐ THE CONNECT TAB

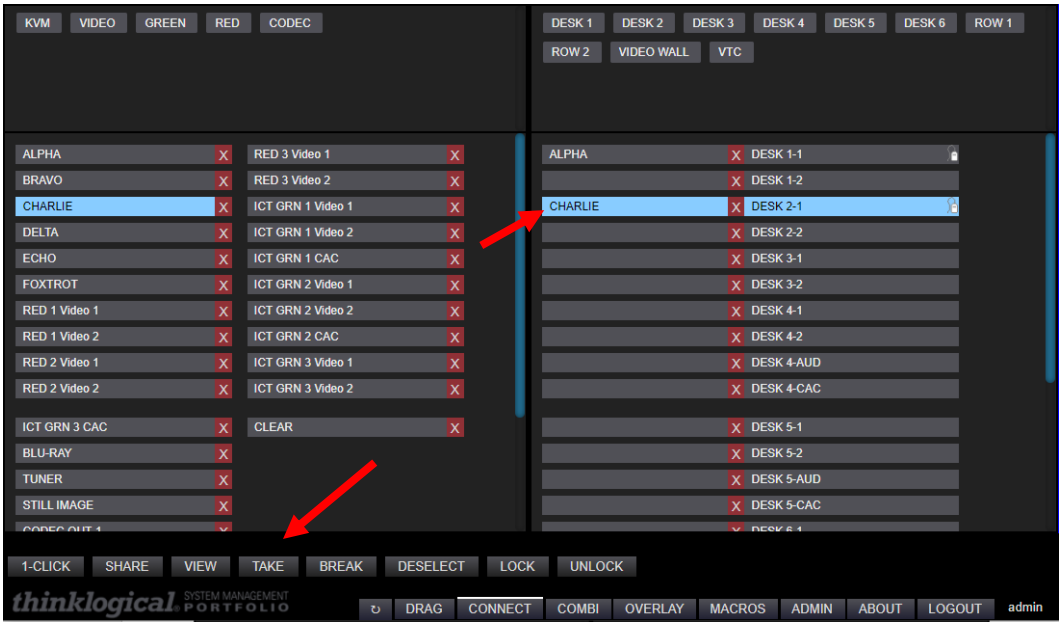
The CONNECT Tab's Graphical User Interface makes it easy for administrators to see connections on-screen and switch Sources and Rooms with a few mouse clicks.

A sample CONNECT page is illustrated below. In this example, Source ALPHA is connected to DESK 1-1 with KM control (note the mouse icon).



A typical operation will select a Source from the left and a Destination from the right. The selected assets will then be highlighted in blue.

By clicking the TAKE button, Source CHARLIE will be switched to DESK 2-1 with KM control.



Destinations with active sources will show the names of those sources on the left side. Hovering the cursor over a source or destination will highlight in orange any connections involving that source or destination. Clicking on X will break that connection.

A set of tabs along the bottom, left portion of the page (below) gives users a variety of ways to make and break single or multiple video and data connections.

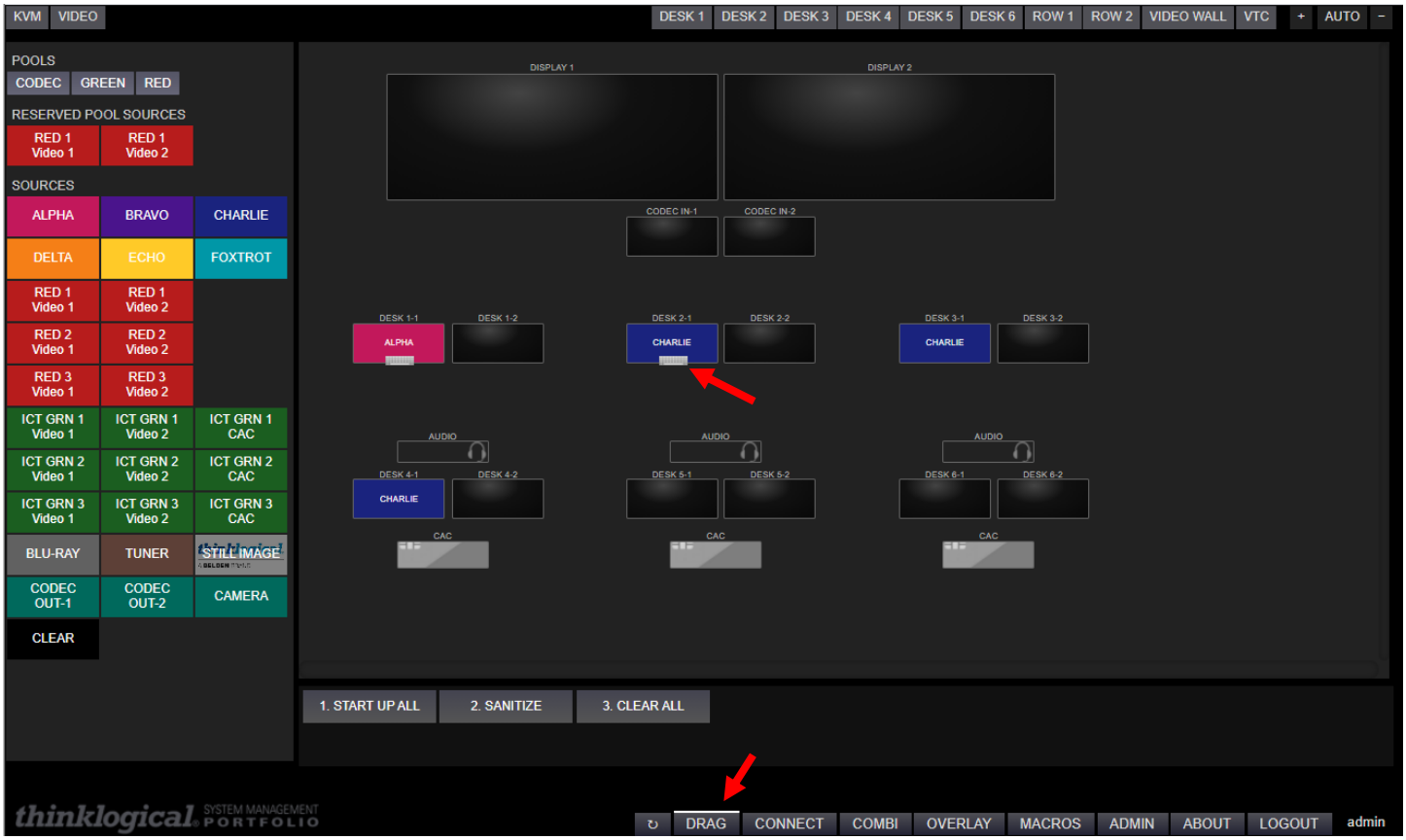
- **1-CLICK:** Click on any Source and any Destination to make a connection. **Must be used in conjunction with the other tabs**, listed below. *(If 1-CLICK and either SHARE, VIEW, TAKE, or BREAK are selected, as shown above, then the selected action (SHARE, VIEW, TAKE, or BREAK) will be executed immediately.)*
- **SHARE:** 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, or data return (as shown by the mouse icon).
- **VIEW:** Each newly connected Destination can view the video but will not take the data return.
- **TAKE:** Each newly connected Destination removes the video from all previous Destinations and the new Destination will take the data return.
- **BREAK:** Will break the connections of any highlighted Sources or Destinations.
- **DESELECT:** Clears all highlighted selections at once.
- **LOCK:** Locking a Source prevents it from being routed. Locking a Destination prevents it from being Cleared or routed over. A dashed line around the border will indicate a Locked condition.
- **UNLOCK:** Removes a Lock condition.

Connections can also be divided into **Tags** that appear in the tabs along the top. As shown in the example below, when the GREEN Tag is selected on the Source side, it will turn blue and only destinations that are members of Tag GREEN are displayed. Similarly, for the Destination side as illustrated with the DESK 1 tag. This feature is most useful at larger sites with many Sources and Destinations. See the separate TAGS section for configuration.

☐ THE DRAG (Drag & Drop) TAB

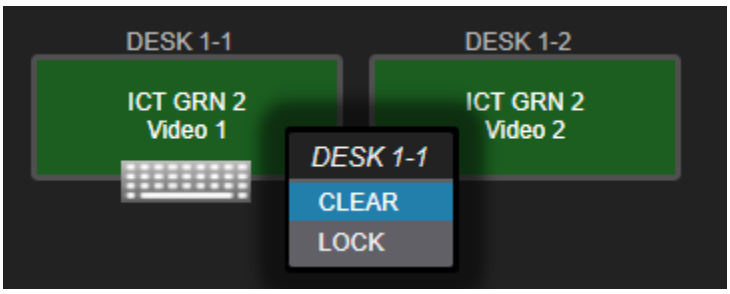
The Drag & Drop Graphical User Interface makes it easy for users to visualize their workstations on-screen and switch Sources and Destinations by simply moving an icon. **As room configurations evolve over time, icons representing Sources and Destinations can be added or removed from the layout as required,** making it simple to adapt to changing requirements.

Click on the DRAG Tab. The Sources, Pools, Tags, Macros and Destinations in the demonstration example are graphically depicted below in the Drag & Drop GUI.



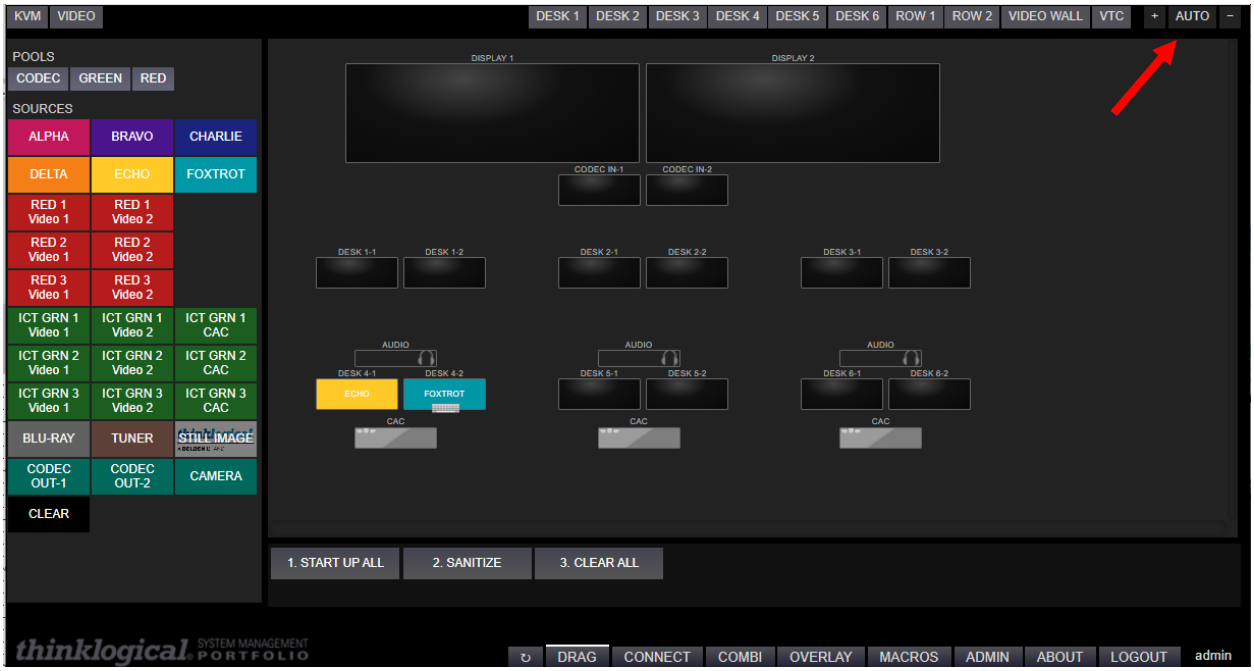
Connections are made by dragging a SOURCE icon from the POOL or SOURCE frame (or from another Destination) to a desired Destination. The Keyboard icon indicates which Destination has control of the keyboard. In this example, DESK 3-1 has control of the keyboard for Source CHARLIE.

To **CLEAR** a Source or Destination:,1) Drag the CLEAR icon, 2) Drag a blank Destination monitor, or 3) Right click on an icon (see below).

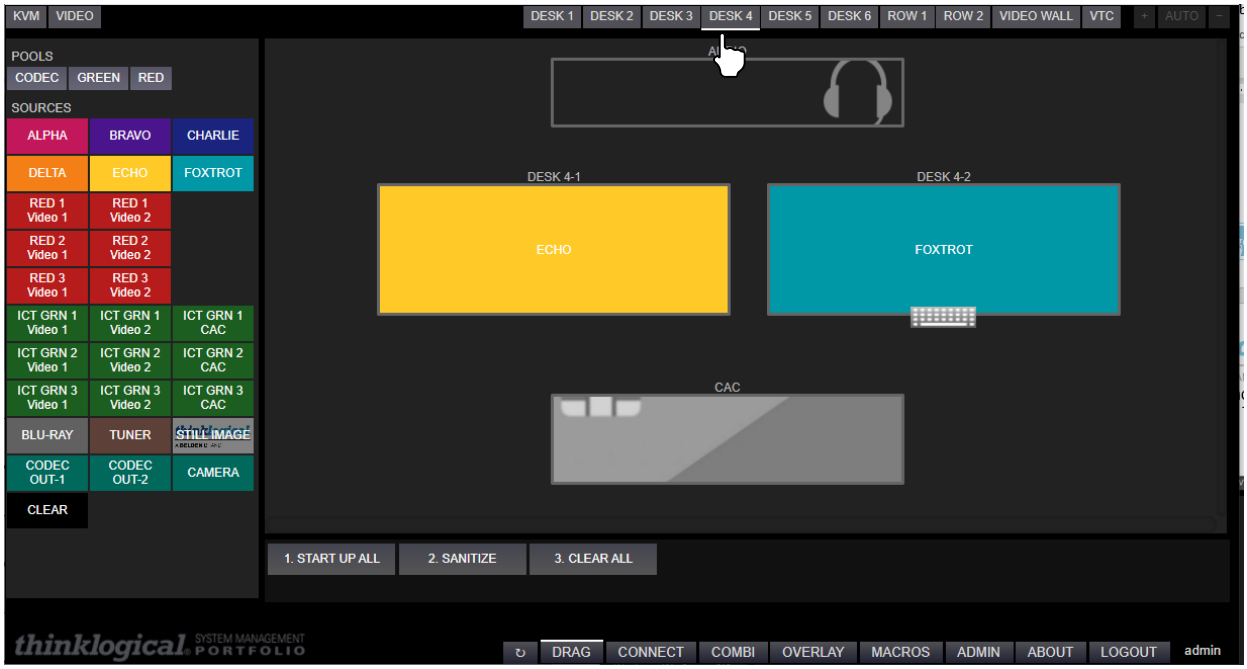


Tags are displayed along the top of the Drag & Drop page with Source Tags on the left and Destination Tags on the right. Selecting one of these Tags will display the assests of that Tag and will automatically zoom for the best fit. This is especially useful in larger sites with many Sources and Destinations. There are also separate “+ AUTO –“ buttons for general zoom functions. These buttons are active in the full Destination list view.

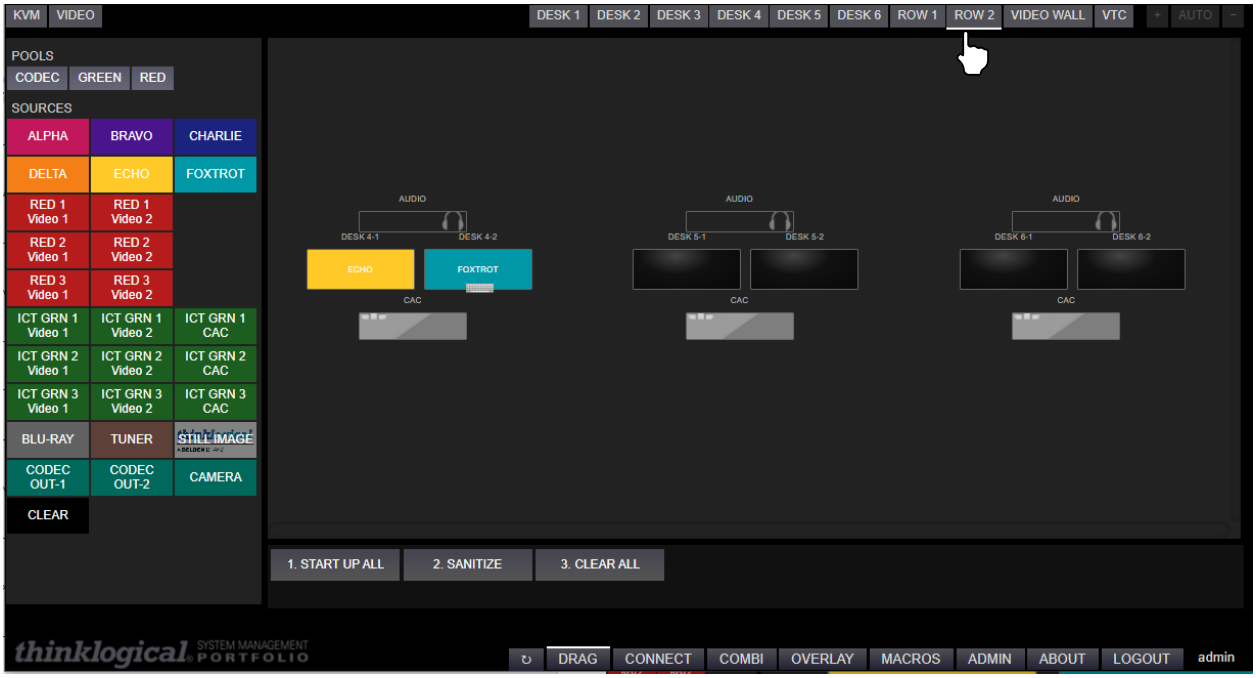
Example – No tag selected:



Example – DESK 4 Tag selected:

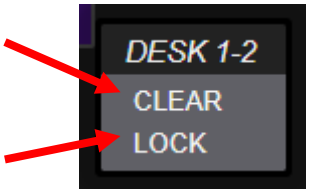


Example – ROW 2 Tag selected:



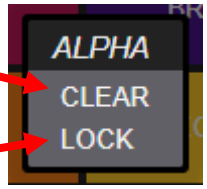
There are other functions available on the Drag & Drop page utilizing the right mouse button.

- Right Clicking on a Destination and selecting Clear will clear that one Destination.
  Example: DESK 1-2.



- Right Clicking on a Destination and selecting LOCK will not allow another Source to be routed there.
  Example: DESK 1-2.

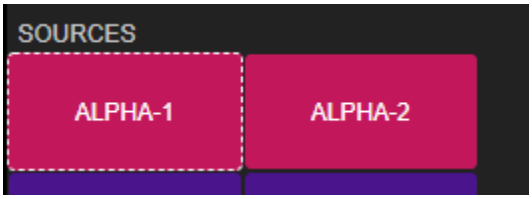
- Right Clicking on a Source and selecting Clear will clear that Source from all Destinations.
  Example: ALPHA.



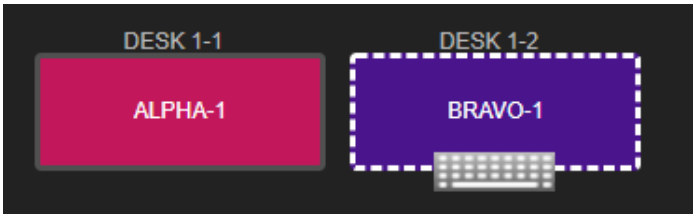
- Right Clicking on a Source and selecting Lock will not allow that Source to be connected to any new Destinations. Example: ALPHA.

- Right Clicking on a Pool Source and selecting Release will release a Pooled Source that has been Reserved. Example: RED 1-1

Note: When using a Touchpanel, right mouse button functions may also be used. Press on a Touchpanel location for >2 seconds for this feature.



Locked Sources will appear to Users with a dashed line border.



Locked Destinations will also appear to Users with a dashed line border.

Warning! Locked Sources and Destinations can only be unlocked by 1) The User that Locked them or 2) The Administrator.

TECH NOTES: *Customize Drag & Drop*

The appearance of the Drag & Drop page can be further customized:

1. Text in the **Alias** column can be centered by preceding it with (c), right justified with (r), or left justified with (l). You may also have multiple lines within an icon by entering <br> between text strings. If you wish to have no label in the Destination icon, then enter (blank) in the Alias column.
2. Custom images may also be used, but sizing is important. The system will take a custom image and size it to match the width of the icon. If the aspect ratios are the same, then this will appear correctly. But if they are not, this may result in clipping of the image, so take care when creating custom images for use in Drag & Drop. One technique is to add extra border area to the image, where appropriate, to 'fine tune' it to size.
3. Drag & Drop icon Images are located in `/opt/tl/smp3/public/images`.
4. Icons in the Sources Frame can be arranged for clarity For example, to have 2-headed Sources line up properly with 3-headed Sources. This is done by adding a line to the Sources tab to create a blank space there. This line will have no ports assigned and the Alias set to "(blank)".

Example:

TECH NOTES: *Adjusting the appearance of Touchpanel Drag & Drop*

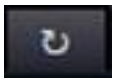
When using the Touchpanel in Drag & Drop mode, some adjustment in the configuration may be necessary to get the icons to display the way you wish. One parameter you can change is the Frame size (Source, Destination or Macro Frames). Within the Frame we need to remember that the Source and Destination icon sizes are in percentage of the Frame that they are located in. So for example: If our Sources are all 33% they will display three to a row. However, if there are a lot of Sources and a scroll bar is created (which adds 3%) then the total will be 102%. The icons will then display two to a row. To correct this one option is to change the Source width to 30% and they will then display three to a row again.

Note: The settings available to be configured on the CONNECT tab (1-CLICK, SHARE, VIEW, TAKE) will also affect the Drag & Drop page. This also applies to Drag & Drop used on the SMP Client (OSD) and the Touchpanel. So, for example if it is desired for the Drag & Drop to execute a TAKE function (as opposed to SHARE) then this needs to be selected on the CONNECT page. See below.

Additional Touchpanel Notes:

- SMP3 supports the POE Touchpanel only, P/N TPL-7 and TPL-10. The older models, VXM-000011 and VXM-000016 are not supported.
- The Touchpanel name (as configured in the Users tab) is displayed in the lower right corner.
- Source Tags can be created to filter Source names for convenience. These Tags will appear in the upper left corner of the Touchpanel.
- If there are many Sources, the user may “swipe” up and down to access the desired Source if not visible.
- Touchpanels use the Firefox browser for multi-touch support.

The Refresh Button

There is also a Refresh button on the bottom of the browser page. 

This is equivalent to hitting F5 on a keyboard to refresh the browser. The page will then reload. This is necessary to view certain configuration changes that are made that affect the browser; such as Drag & Drop appearance, etc.

Configuration Backup

After completing the SMP3 configuration, Thinklogical recommends creating a backup using one of the following methods:

1. The IMPORT and EXPORT functions provide a fast and convenient means to save and reload the SMP3 configuration files. This facilitates offline editing and restoration of archived configurations and is a convenient way to save work as the system is being built. It is then relatively easy to 'go back one version' if an error is made.

Selecting EXPORT will save the appropriate file to the directory `/home/user/Downloads`
These functions are context sensitive. For example, the `stations.csv` file is exported when in either the SRCS, DSTS, KBDS, FRMS or MTX Tabs and contains all the information within those tabs.
The tabs HOTKEYS, TIE LINES, USERS, TAGS and POOLS will export their corresponding files.

Files that can be exported and imported are:

- `stations.csv`
- `hotkeys.csv`
- `tielines.csv`
- `users.csv`
- `tags.csv`
- `allocations.csv`

If MACROS are created, they cannot be archived using the IMPORT and EXPORT functions. These macros are located separately in the `/opt/tl/setup/macros` directory and a backup must be copied from there.

2. Create a backup of your ***entire*** configuration:
   For example: Issue the following command from any directory (for example):
   `tar -cvzPf customer_20190718.tgz /opt/tl/setup`
   This will create a backup file of the entire setup directory with your name (`customer`) and date (`20190718`). This is also the preferred method for creating a backup to archive your configuration in a location separate from the SMP3 itself for safekeeping.

DASHBOARD

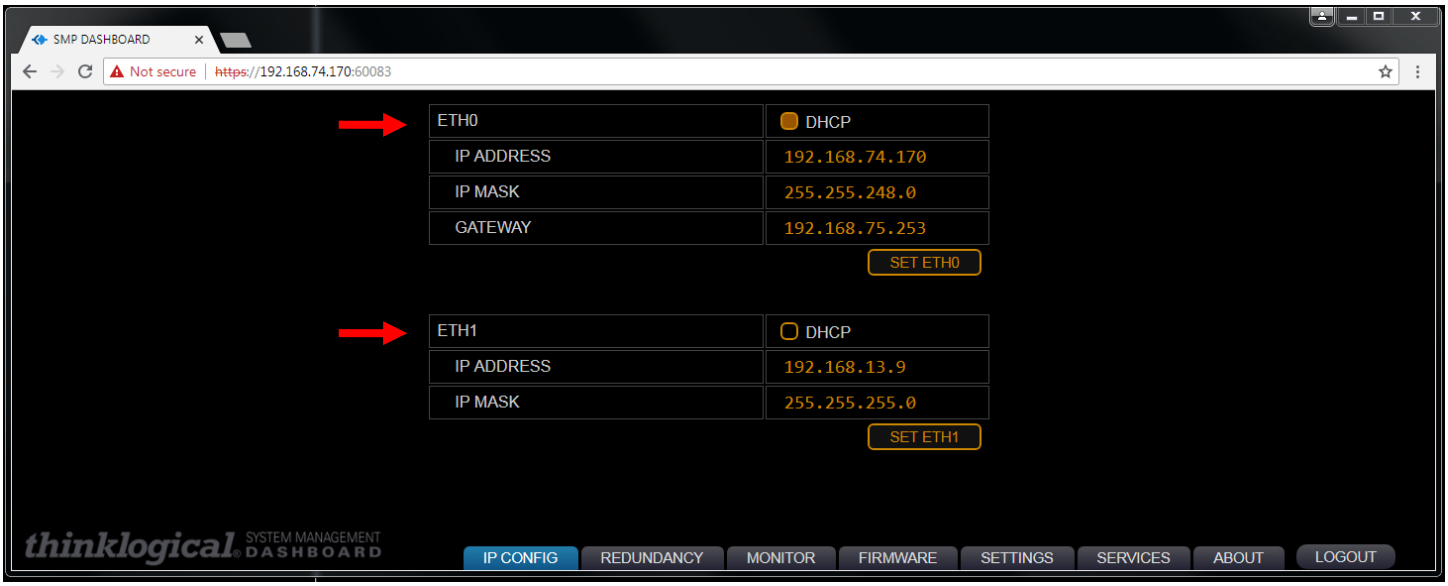
For experienced administrators only, Dashboard is included software that is used to configure the network interfaces, manage services and to enable and manage redundancy and file synchronization.

DASHBOARD Port :60083

Note: This example is with a 6G SMP Appliance. Available Dashboard selections will vary slightly for 10G or with an SMP Module.

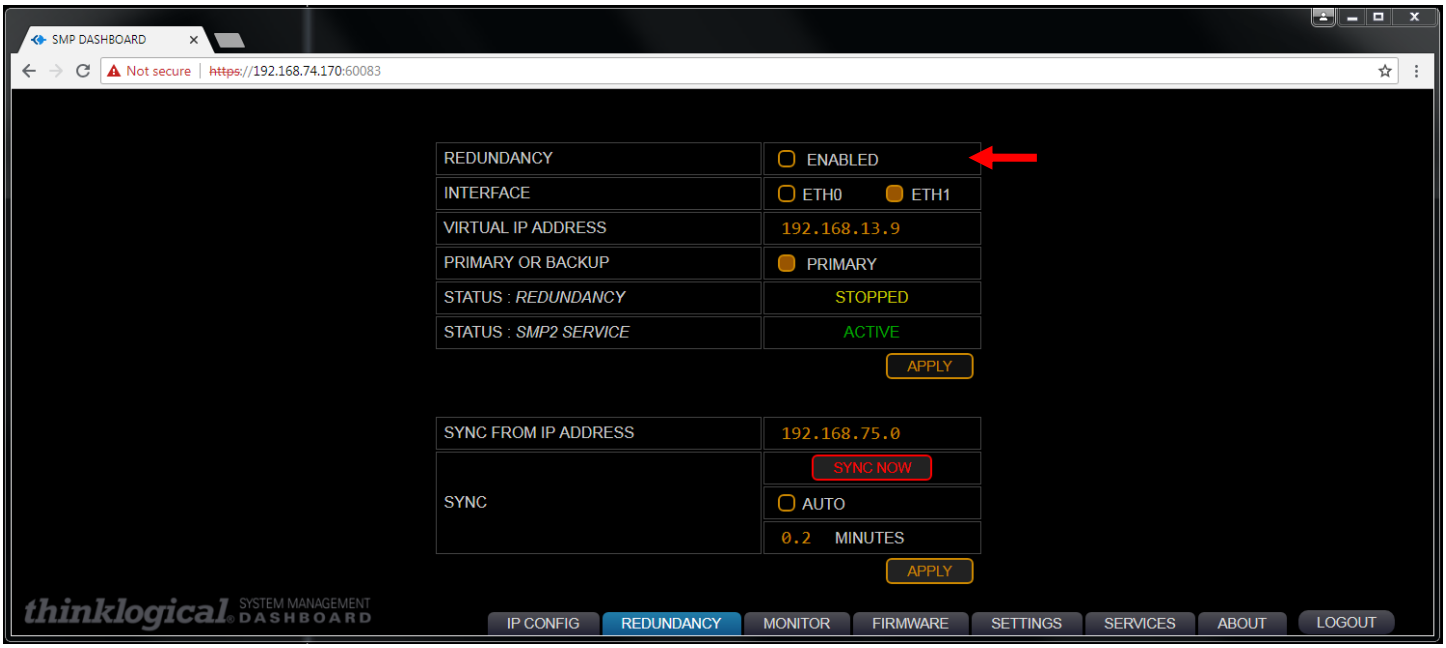
☐ The IP CONFIG Tab

This is where the Network Interfaces ETH0 and ETH1 are configured.



☐ The REDUNDANCY Tab

This is where the SMP Appliance Redundancy is enabled and the ETH0 or ETH1 Interface is chosen. The Virtual IP Address is always the active Controller Card in the Matrix Switch. *SMP3 Service* is ACTIVE. See *Appendix F: SMP3 Redundancy* on pg. 89 for configuration information.



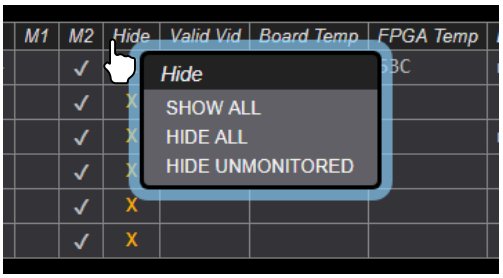
☐ The MONITOR Tab

The MONITOR pages gather and display diagnostic information received from the extenders connected to the Matrix Switch (when available). Some extenders do not provide this information, so some table entries may be blank.

Note: This feature is available on the SMP3 Appliance and the SMP/ICT, but not on the SMP Module. To enable this function, ports must be assigned in the SMP3 Source and Destination Tabs along with the corresponding ports. These ports must be connected between the Matrix Switch and the SMP3 Appliance. The Source tab must have “RX1 MON” and optionally “RX2 MON.” The Destination tab must have “TX1 MON” and optionally “TX2 MON.”

☐ The Transmitter (TX) Tab

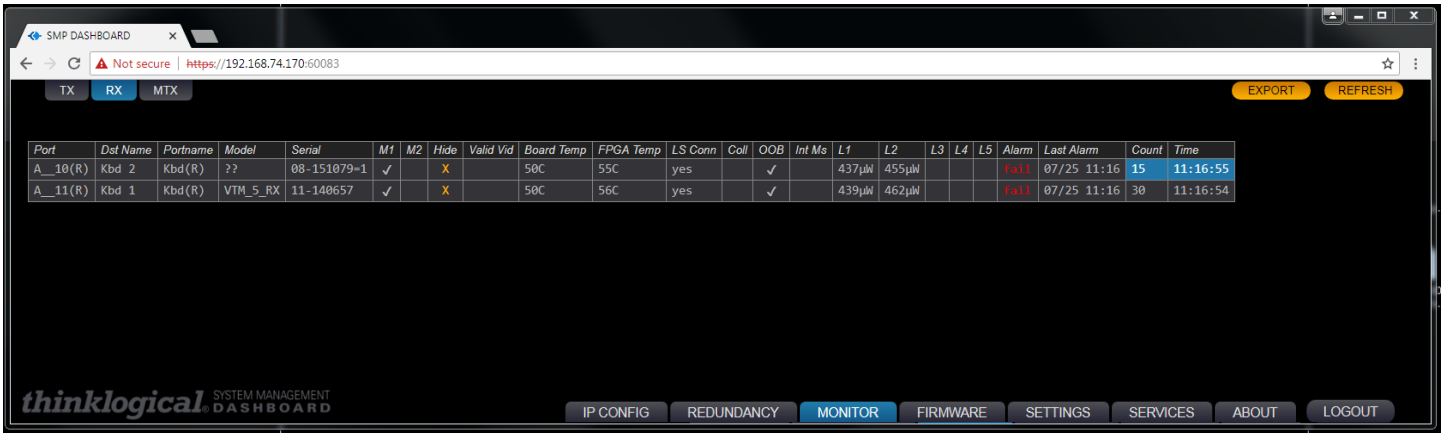
The MONITOR application scans each selected port approximately once per second and records the results. With large numbers of ports, this could take many minutes. It may be desirable to *Hide* some ports so not all are scanned at once. Also, the second MONITOR connection to the SMP3 Appliance may be enabled and connected to the switch to double the frequency of port monitoring to two ports per second.



Right-click on *Hide* and a drop-down allows show/hide options for the entire window.

Note: Users may left-click on any column heading to sort *in ascending order.*

☐ The Receiver (RX) Tab

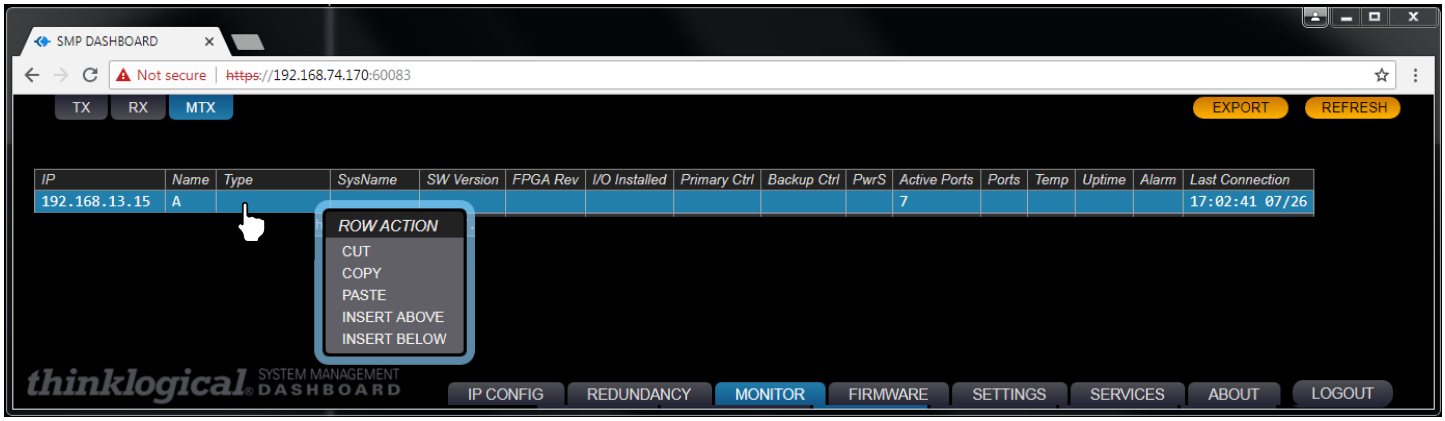


▪ The MONITOR Tab's TX and RX Columns:

- **Port name** - The matrix switch and port number that is being monitored.
- **Src Name/Dst Name** - The source/destination as named in the SMP3 configuration
- **Portname** - Functions being monitored on that port
- **Model** - Internal model number of the extender (if known).
- **Serial** - Serial number of the extender (if known).
- **M1** - Enables Monitor 1 for this port. Right-click allows the entire column to be modified at once.
- **M2** - Enables Monitor 2 for this port. Right-click allows the entire column to be modified at once.
- **Hide** - Allows the deselection of this port from being displayed.
- **Valid Vid** - Indicates a valid video signal at this port.
- **Board Temp** - Temperature of the extender board.
- **FPGA Temp** - Temperature of the extender FPGA.
- **LS conn** - Low speed connected.
- **Coll** - Collaboration enabled for this port.
- **OOB** - Out Of Band enabled.
- **DDC** - Indicates the DDC mode selected for the Tx extender.
- **Int Ms** - Indicates whether the *Intuitive Mouse* feature is enabled.
- **L1** - Power level of L1.
- **L2** - Power level of L2.
- **L3** - Power level of L3.
- **L4** - Power level of L4.
- **L5** - Power level of L5.
- **Alarm** - Indicates an alarm condition reported from the extender. Left-click for details.
- **Last Alarm** - Indicates the date and time of the latest alarm condition. Left-click on an entry to clear it. Right-click on the heading to clear all.
- **Count** - Number of packets received during the last scan.
- **Time** - Time of the last scan.

☐ The MTX (Matrix Switch) Tab

Additional Matrix Switches can be added or deleted by right-clicking a row and choosing from the drop-down menu. Multiple Matrix Switches can be connected to each other with tie lines. (See *the Tie Line Tab*, pg. 40.)



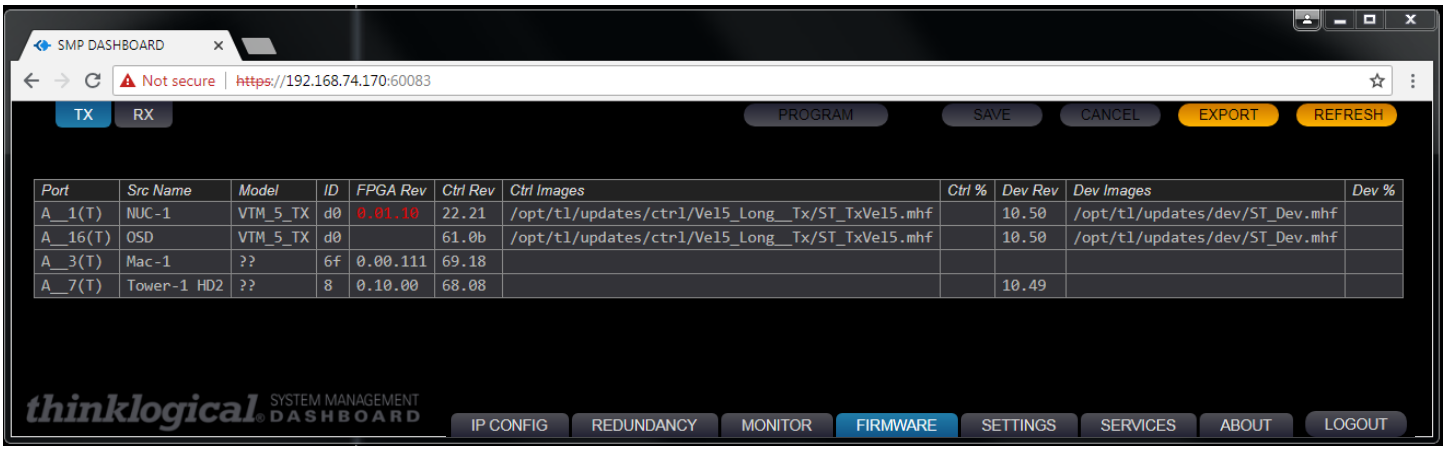
☐ The FIRMWARE Tab

This feature allows firmware updates to be downloaded to extender modules directly from the SMP3 Appliance or SMP3 Module. Some extenders do not provide this information, so some table entries may be blank. *This feature is supported on TLX Extenders, E-series only.*

Prior to this operation, obtain the correct firmware update from Thinklogical Technical Support (**1-800-647-8700**) and copy the file to a location in the **`/opt/tl/`**updates directory.

Note: It is possible that the files in this directory may not be later versions than what you have installed. Check with Thinklogical Technical Support before updating.

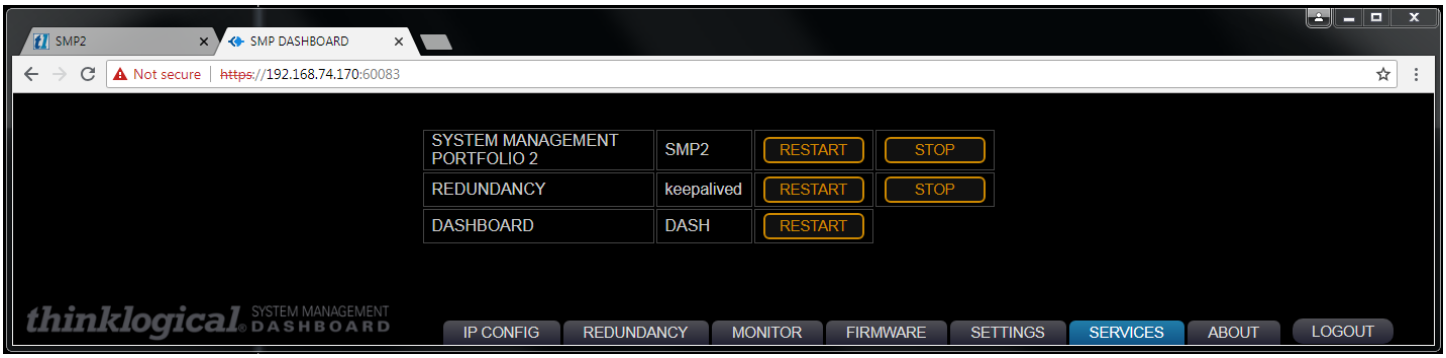
The TX Firmware Tab



The RX Firmware Tab

☐ The SERVICES Tab

This is where the SMP3, Redundancy and Dashboard Services are stopped and restarted.

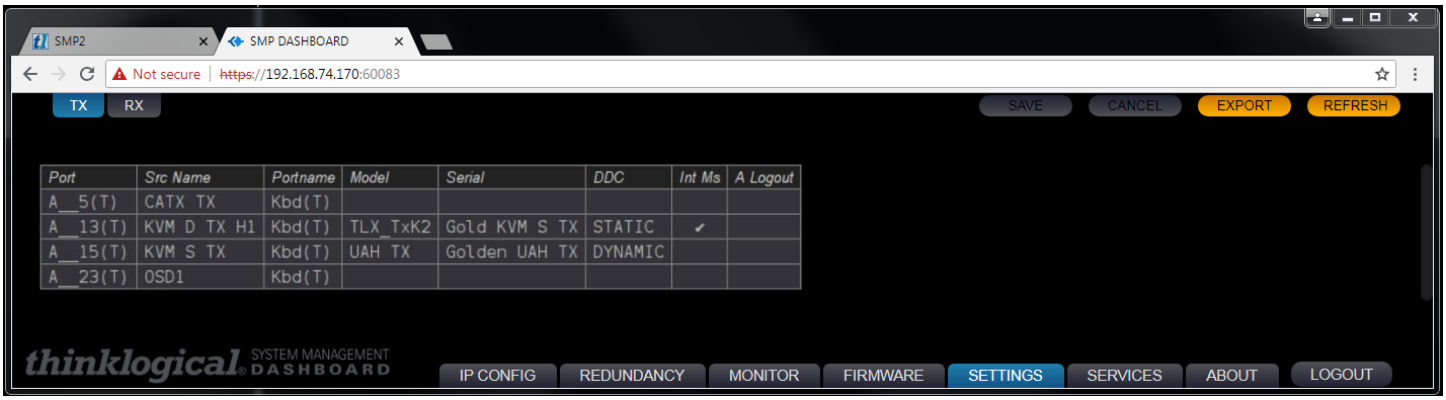


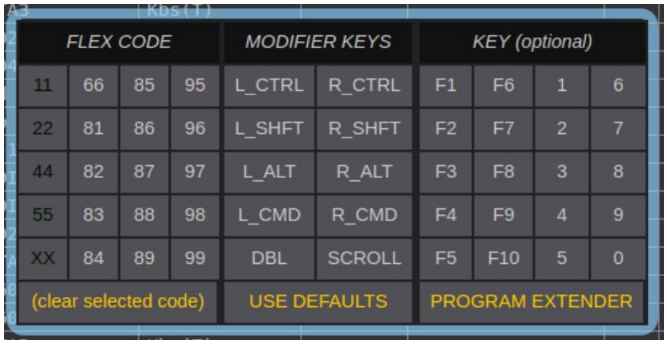
☐ The SETTINGS Tab

Note: This tab is only supported by SMP3 Appliances with 10G optics (TLX). The features described here apply to E-series TLX Extender modules.

Allows users enter such settings as:

DDC Mode	Tells the Tx what kind of monitor information to present to the computer. For more information see Manual_TLX_KVM_Extenders.pdf: https://www.thinklogical.com/downloads/
OOB	On / Off for the Rx
Collaboration	On / Off for the Rx
Intuitive Mouse	On / Off for the Rx and Tx
Flex Keys	Tells the Rx what OOB signal to send when a Hot-Key sequences is entered.



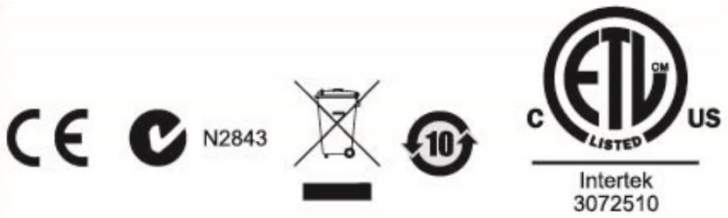


In the SETTINGS Tab's RX screen, left-click in *Flex Keys*, above, to get the *FLEX CODE* drop-down menu, left. Set up *Flex Keys* from here.

Regulatory & Safety Compliance

Symbols Found on Our Products

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



Regulatory Compliance

Thinklogical's® products are designed and made in the U.S.A. These products have been tested by a certified testing laboratory and found compliant with the following standards for both domestic USA and many international locations:

North America

Safety
UL 62368-1:2014Ed.2
CSA C22.2#62368-1:2014Ed.2

LASER Safety
CDRH 21 CFR 1040.10
Class 1 LASER Product
Canadian Radiation Emitting Devices Act, REDR C1370
IEC 60825:2001 Parts 1 and 2
Class 1 LASER Product

Electromagnetic Interference
FCC 47CFR Part 15 Subpart B: 2013 Class A
Industry Canada ICES-003: 2016 Ed. 6

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 action.

European Union

Declaration of Conformity

Manufacturer's Name & Address: **Thinklogical,** A **BELDEN** BRAND
100 Washington Street
Milford, Connecticut 06460 USA

Thinklogical's products comply with the requirements of the Low Voltage Directive 2006/95/EC, the EMC Directive 2004/108/EC, the RoHS Directive 2011/65/EU, the WEEE Directive 2012/19/EU and carry the CE marking accordingly.

Standards with Which Our Products Comply

Safety

IEC 62368-1:2014Ed.2+C1
CB Scheme Certificate

Electromagnetic Emissions

CENELEC EN 55022:2010 +AC:2011

Electromagnetic Immunity

EN 55024:2011+A1
CENELEC EN 55032:2015
EN 61000-3-2:2000 Harmonics
EN 61000-3-3:2008 Flicker
EN 61000-4-2:2009 Electro-Static Discharge Test
EN 61000-4-3:2006 A1:2008, A2:2010 Radiated Immunity Field Test
EN 61000-4-4:2004 Electrical Fast Transient Test
EN 61000-4-5:2006 Power Supply Surge Test
EN 61000-4-6:2009 Conducted Immunity Test
EN 61000-4-11:2004 Voltage Dips & Interrupts Test

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 matérial brouilleur du Canada*.
- 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 action.
- This equipment has been tested and found compliant 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 make adequate corrective measures at their own expense.
- This Class A digital apparatus complies with Canadian ICES-003 and has been verified as 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.
- 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 *at least four digits for a unique unit number*. For example:
09-210128 indicates the unit was built in the **9**th month of 20**21** and is unit number **128**.

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.

How to Contact Us

Customer Support

Website: https://www.thinklogical.com

Check out our website for current products, support documents and useful information about all the products and services we offer, including:

- **Technical Specification Sheets**
- **Quick-Start Guides**
- **Product Manuals** (for viewing online or for download)
- **Chat live with a Technical Service Representative**

Email: mailto:support@thinklogical.com

For product support, technical issues or questions, product repairs and request for Return Merchandise Authorization.

Telephone: 1-203-647-8700

Please contact our expert sales staff in Milford, CT **Monday-Friday from 8:30am to 5:00pm**, Eastern Time Zone. If leaving a voice message, please provide a preferred time to call back.

Fax: 1-203-783-9949

Please indicate the nature of the fax on your cover sheet and provide contact information.

Product Support

Warranty

Thinklogical warrants this product against defects in materials and workmanship for a period of one year from the date of delivery, with longer terms available at time of purchase on most products. Thinklogical and its suppliers disclaim all other warranties. Please refer to your product invoice for the 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 authorized dealer where you purchased the device, or if you purchased directly, call Thinklogical at **1-800-647-8700**.

Return Authorization

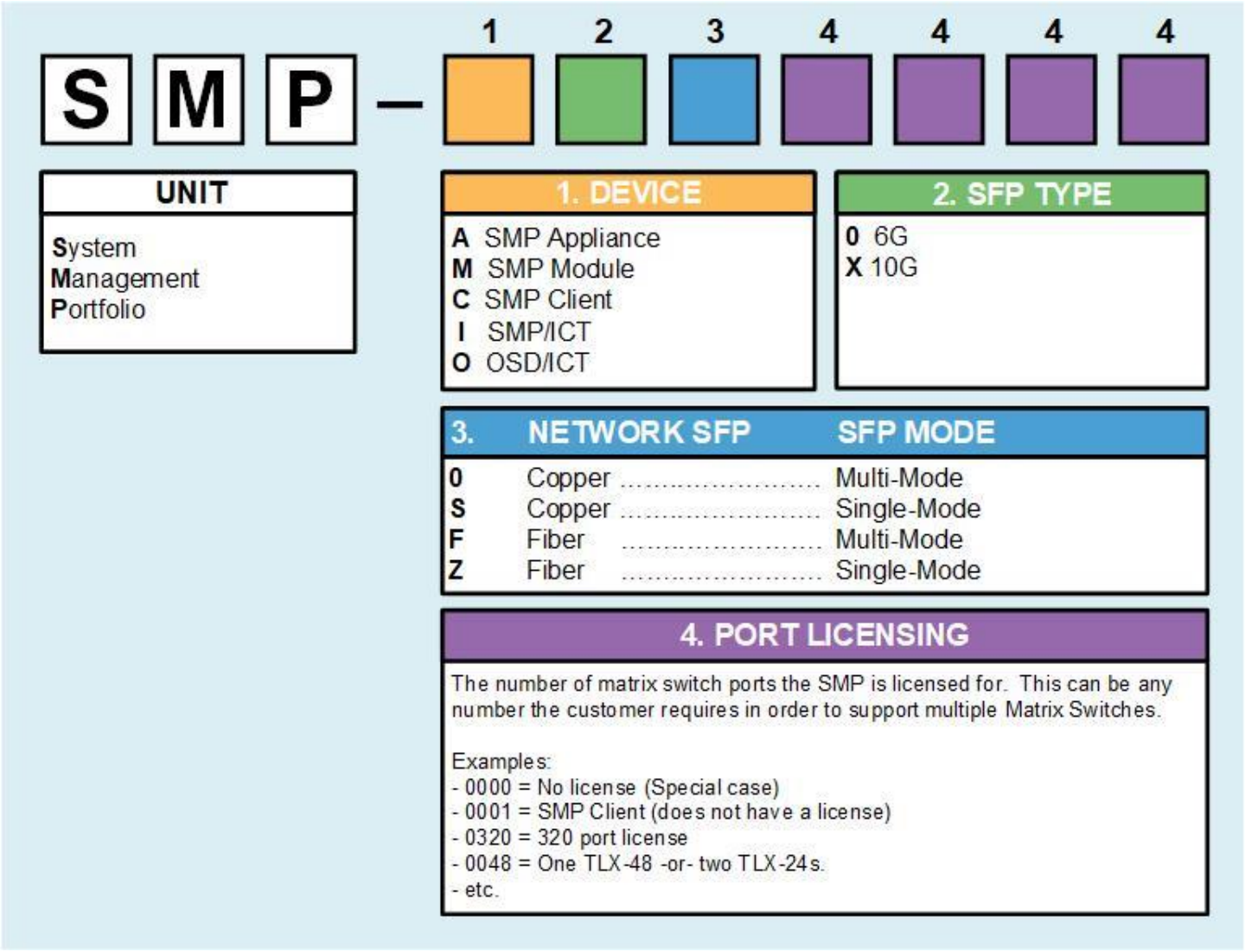
If you must return a product to Thinklogical directly, please contact us at **1-203-647-8700**. Customer Support will ask you to describe the problem and will issue you a **R**eturn **M**erchandise **A**uthorization **number** (RMA#). Pack the device in its original box, if possible, and return it with the RMA# printed on the outside of the box. **DO NOT return a product to Thinklogical without a *Return Merchandise Authorization*.**

Our Address

If you have any product issues or questions or need technical assistance with your Thinklogical system, please call us at **1-203-647-8700** and let us help. If you need to write us or return a product, please use the following address:

Please include the Return Merchandise Authorization number: **Thinklogical,** A BELDEN BRAND
100 Washington Street
Milford, CT 06460 USA
Attn: *RMA#*

Appendix A: Ordering / Configuration Guide



Appendix B: SSL Certificates for HTTPS

Secure **S**ockets **L**ayer (SSL) Certificates provide secure, encrypted communications between a website (SMP3 web server) and an internet browser. SSL is the protocol that provides the encryption. The locations for the SSL certificates and keys on the SMP3 computer are contained in the following two files:

Initial early version:	*Current version:*
`/opt/tl/SMP3/file.pem`	`/etc/ssl/private/SMP3.pem`
`/opt/tl/SMP3/file.crt`	`/etc/ssl/private/SMP3.crt`

These original files, `SMP3.pem` and `SMP3.crt`, are Thinklogical self-issued certificates and are intended to be place holders for a certificate from a recognized trusted certificate authority, to be installed by the SMP3 administrator.


Note: The file naming convention must be maintained for proper web server operation.

To **confirm the certificate's expiration date,** perform the following commands:

1.) From the Linux command line perform the '`su`' command to login as the *root user.*
2.) Change the directory to the location of the certificate: `cd /etc/ssl/private`
3.) Execute the following command: `openssl x509 -noout -in SMP3.crt -dates`

To **generate new self-issued certificates**:

1.) From the Linux command line perform the '`su`' command to login as the *root user.*
2.) Change the directory to the location of the certificate: `cd /etc/ssl/private`
3.) Execute the following command:

```
openssl  req -x509 -nodes -days 9999 -newkey rsa:2048 -keyout
SMP3.pem -out SMP3.crt
```


Note: 9999 days = ~ 27 years.


Note: Once the certificates have been acquired from an authorized source, they should be stored in the location specified above (SSL Certificates), using the exact naming convention shown above.

Appendix C: Key SMP3 File Locations (Accessible by root user only)

Configuration files:

`/opt/tl/setup/stations.csv`
`/opt/tl/setup/tags.csv`
`/opt/tl/setup/tielines.csv`
`/opt/tl/setup/users.csv`
`/opt/tl/setup/macros – directory`

Scripts:

`/opt/tl/tools/userpwd.js`
`/opt/tl/tools/userpwd_README.txt`

Internal use only:

`/opt/tl/setup/syncSettings.json`
`/opt/tl/setup/redundancySettings.json`
`/opt/tl/cache/`
`/opt/tl/tools/keepalivedMod.sh`

SSL Certificates:

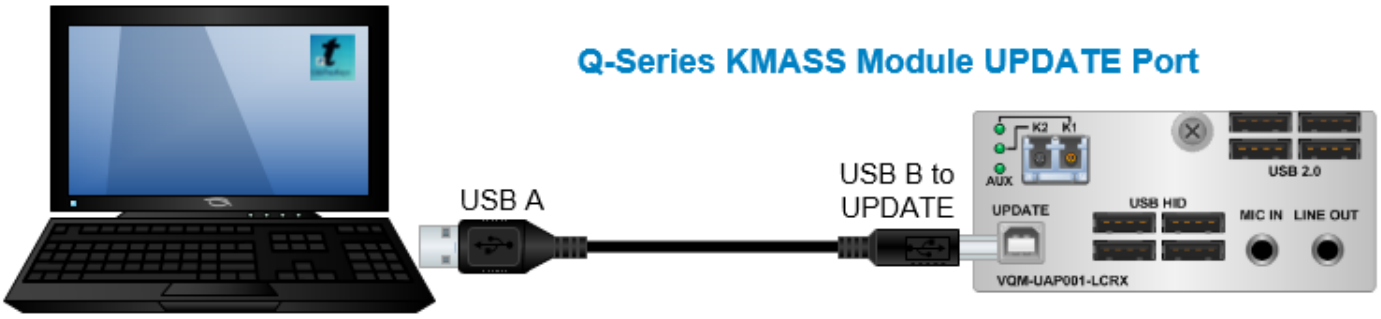
`/etc/ssl/private/SMP2.pem`
`/etc/ssl/private/SMP2.crt`

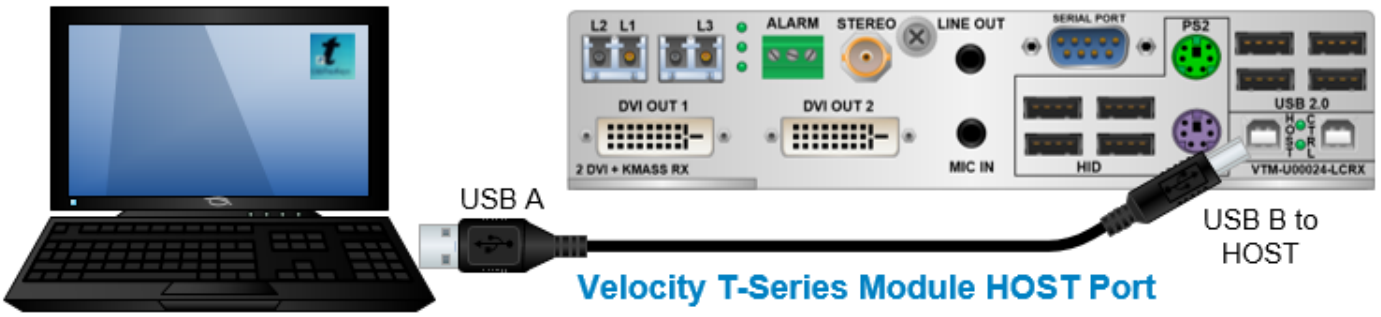
Log files:

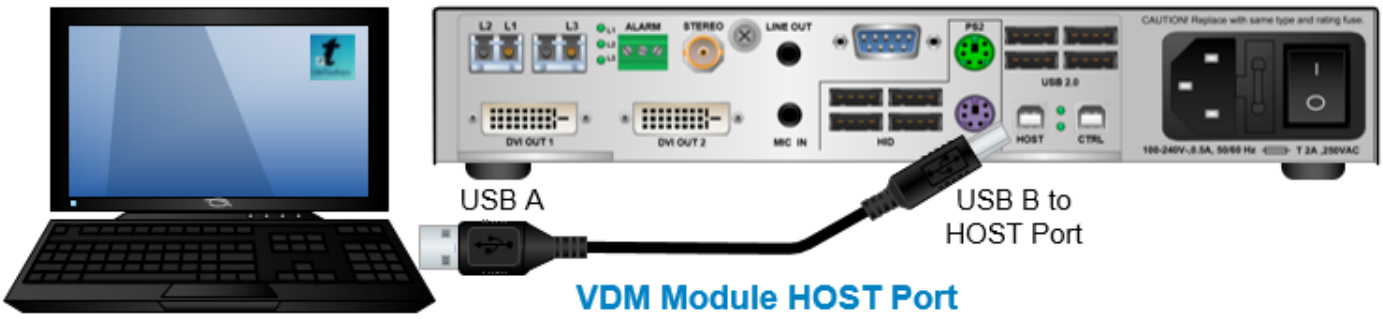
`/var/log/tl-SMP2.log`

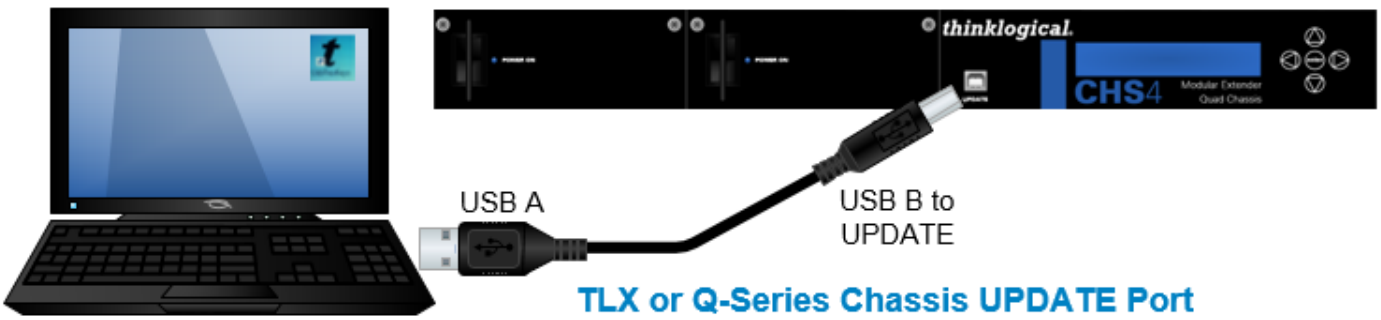
Appendix D: Enable Hot Keys (Out Of Band)

Connect the PC to the Rx HOST or Chassis UPDATE Port with a USB cable. Hot Keys can be enabled or disabled on a Receiver Module with HID capabilities using the Chassis front panel LCD and Navigation Buttons. See more about *Hot Keys* on pg. 36.

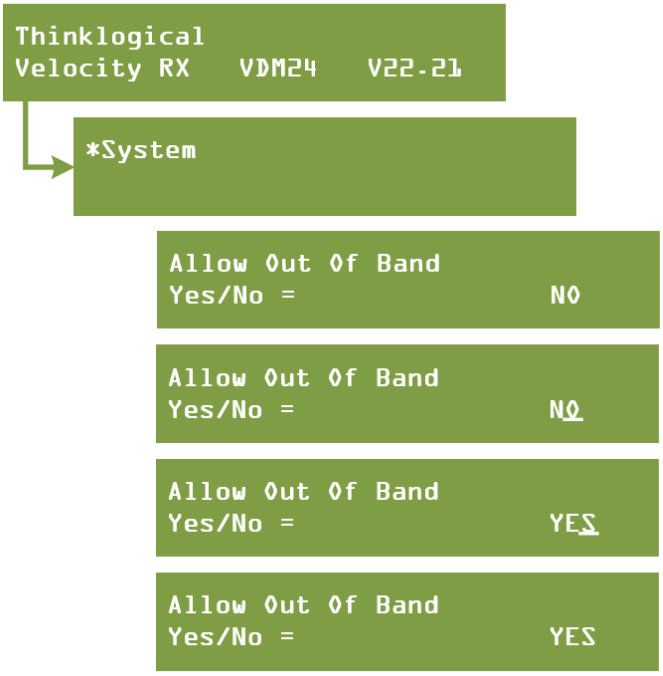


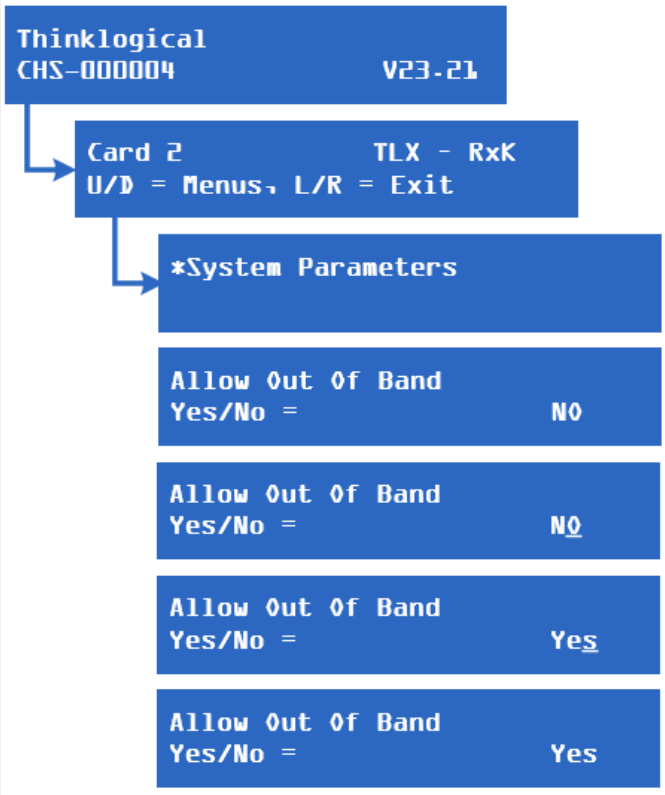






To Enable/Disable Hot Keys, follow the steps below:

Desktop Chassis Front Panel LCD Display	Description
	At **turn-on**, chassis type and current revision are displayed. Scroll Down to the ***System** menu. Press the **left arrow** button ~3 times to get to the *Allow Out Of Band* menu. If Out Of Band is disabled, NO will be 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 *Allow Out Of Band* is now enabled.

CHS-4 and CHS-2 Chassis Front Panel LCD Display	Description
	At **turn-on**, chassis type and current revision are displayed. Scroll Down to access the menu for the **Receiver Module** to be enabled. (Must have HID capability.) Scroll Down to the ***System Parameters** menu. Press the **left arrow** button ~5 times to get to the *Allow Out Of Band* menu. If Out Of Band is disabled, NO will be 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 *Allow Out Of Band* is now enabled.

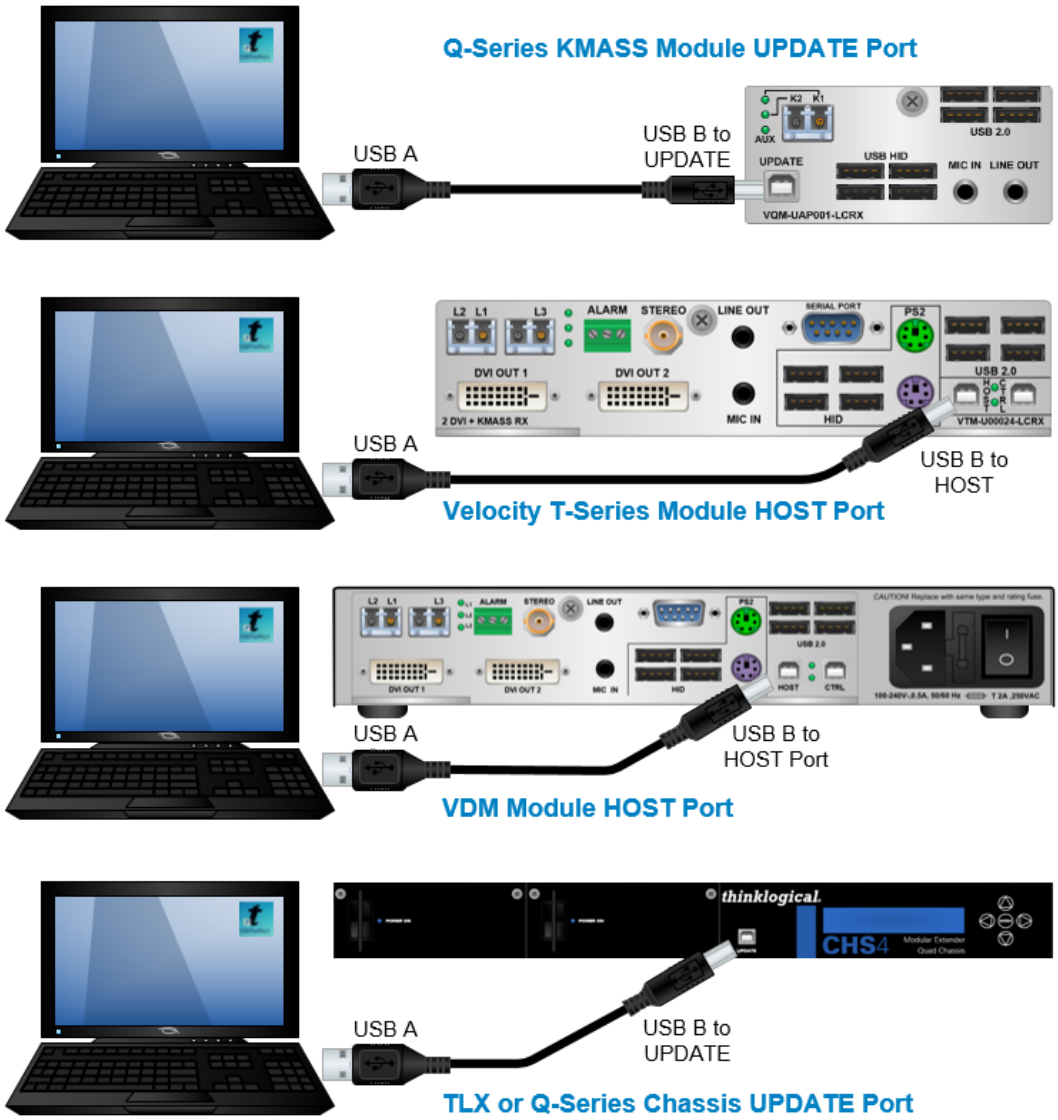
Appendix E: Flex Keys

Flex Keys is a Thinklogical Tool that installs onto a Windows PC. *Flex Keys* gives the administrator the ability to create unique **hot keys** to enable actions that are not in Thinklogical's default Hot Key Manager Legend. See more about *Hot Keys* on pg. 36.

Create Unique Flex Key Actions

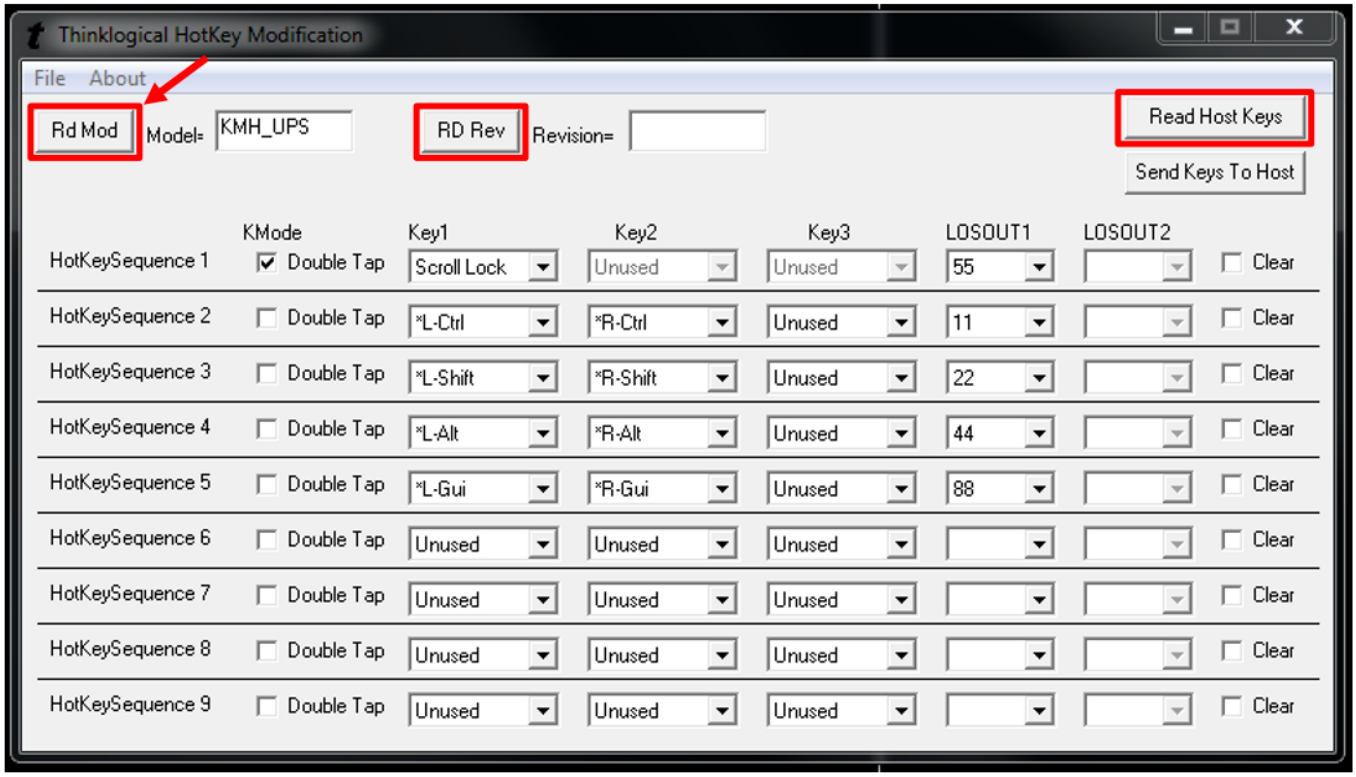
1. Connect a PC to the **HOST** or **UPDATE** port located on a Thinklogical Q-Series, T-Series or TLX Receiver or Chassis. Any changes will be saved to that Receiver.

Note: Use a USB 2.0 port only. *DO NOT use a USB 3.0 port.*

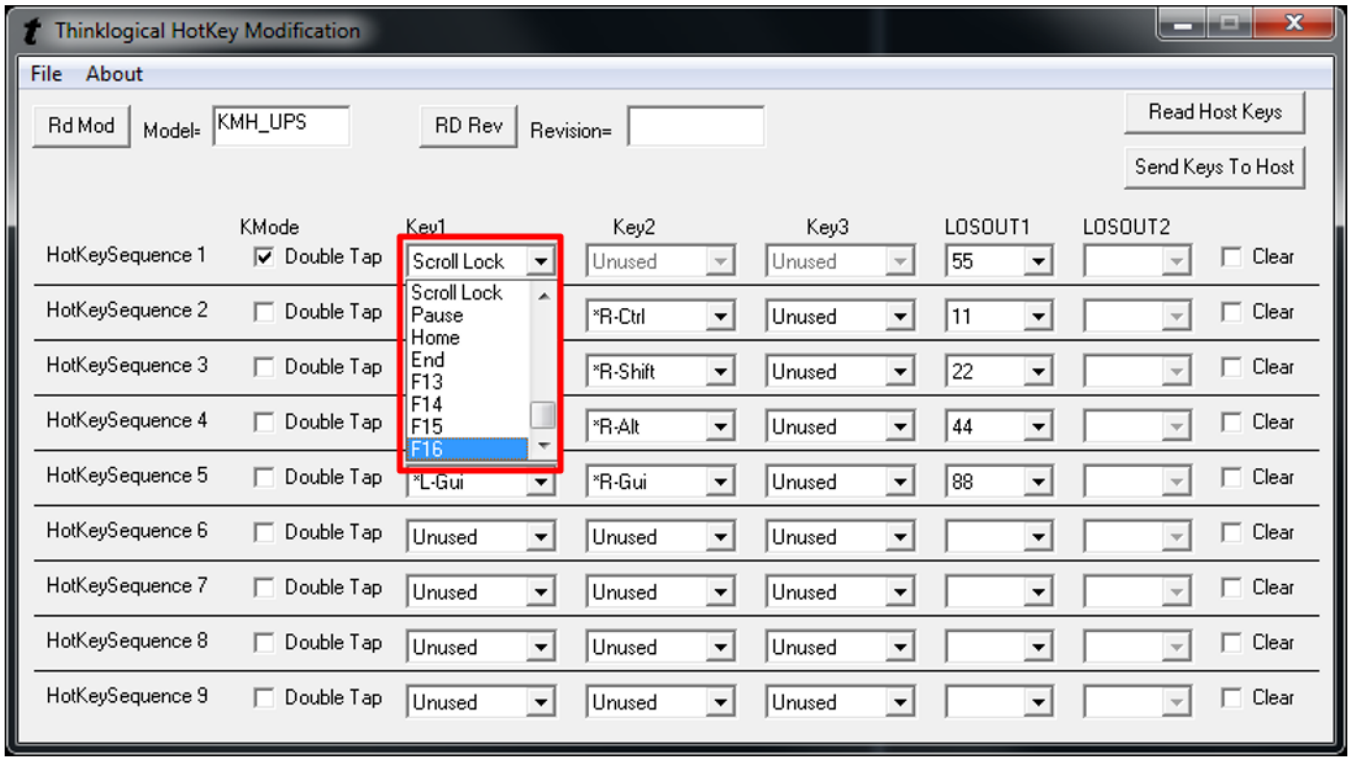


2. Click on the **UsbFlexKeys** icon. 

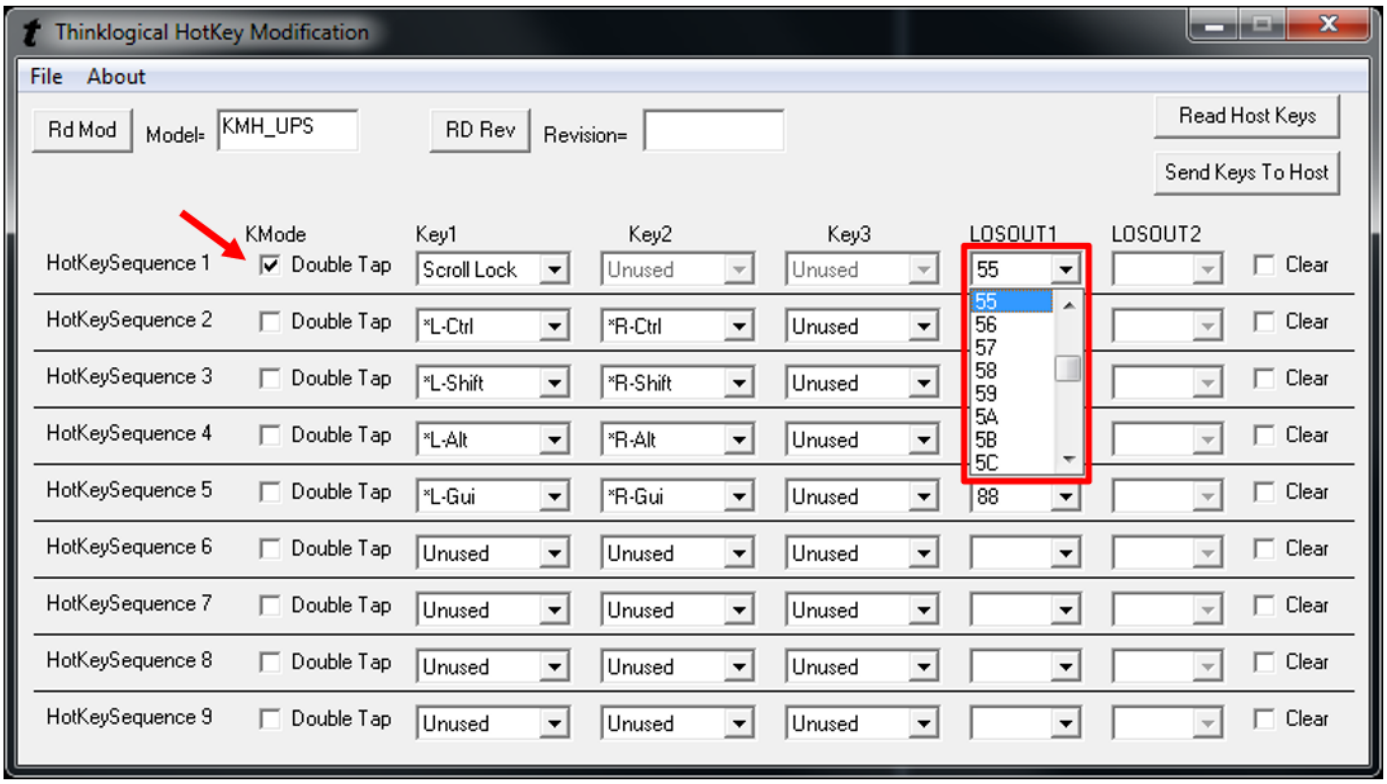
3. The saved HOST or UPDATE settings are read here. Click on *Rd Mod* to establish a connection to the Host. Then click on *Read Host Keys* to read the existing Flexkeys from the module. *The default keys are shown here. They may be used as they are or modified for your application.*



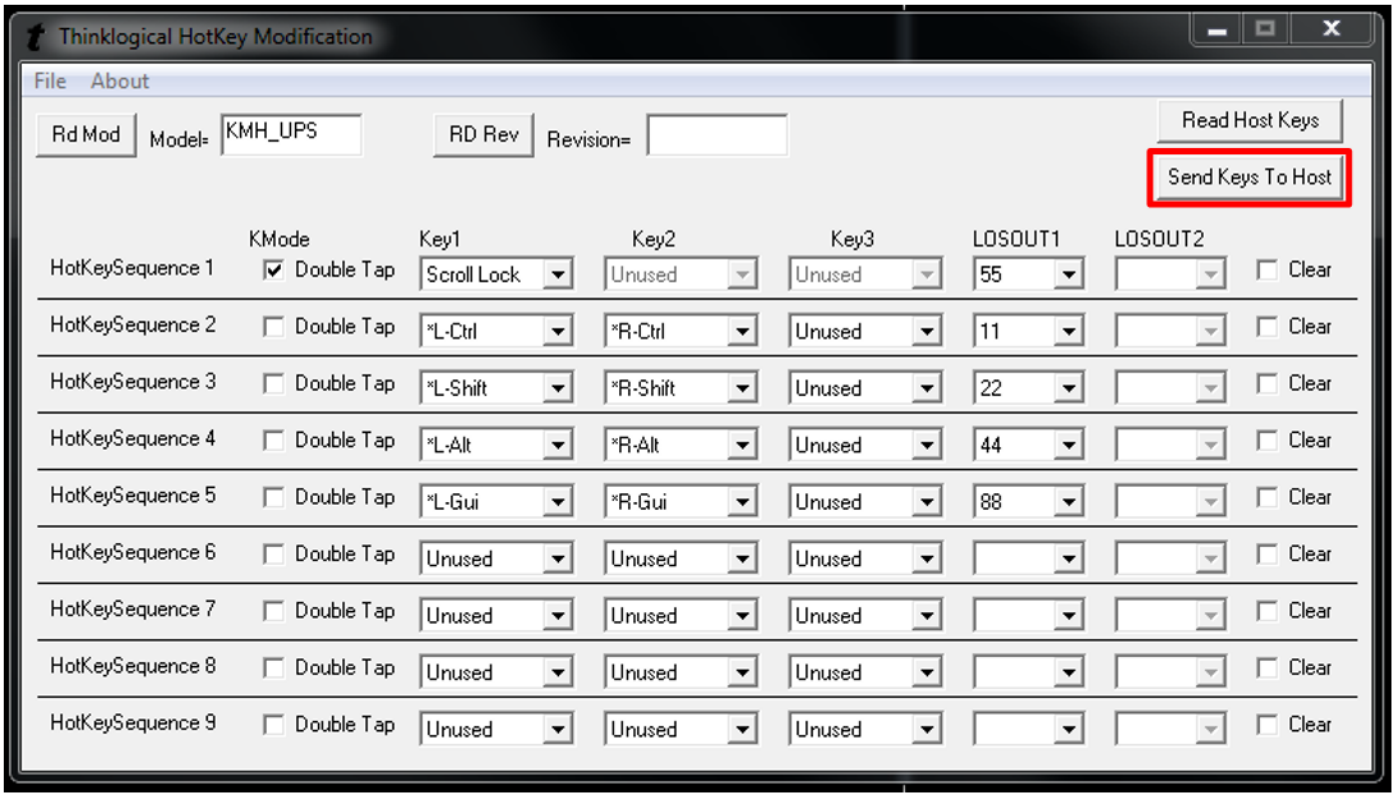
4. Left-click on the pull-down menus under *Key1, Key2* and *Key3* to select an **action** key.



5. Select the **code** desired, which may reflect a matching code in the SMP3's Hot Key Manager or may be a unique code for this application. *A Code used here must be **entered manually** into the* SMP3's *Hot Key Manager for the action to be applied.* Selecting **Double Tap** (as in "Scroll lock/Scroll lock") requires only one key. Non-Double Tap can use a sequence of up to three keys.



6. When the desired settings are selected, click on *Send Keys to Host* to **apply** the new settings.

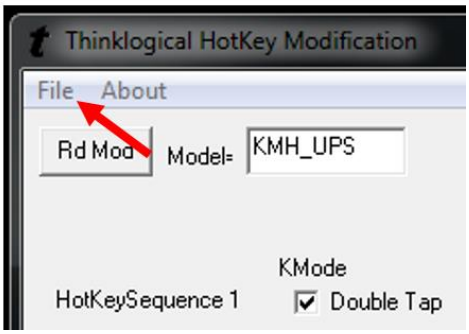


7. To **restore** a Receiver to its **default** settings:

a. Open Flex Keys without reading the device. (No USB cable to the PC.)
b. Click on *Send Keys to Host*. This will send the default Key Table to the device.
c. Click on *Rd Mod* to verify that the keys have returned to their default settings.

Or:

a. Click on *File* (Upper left)
b. Open **default.conf**
c. Click on *Save*

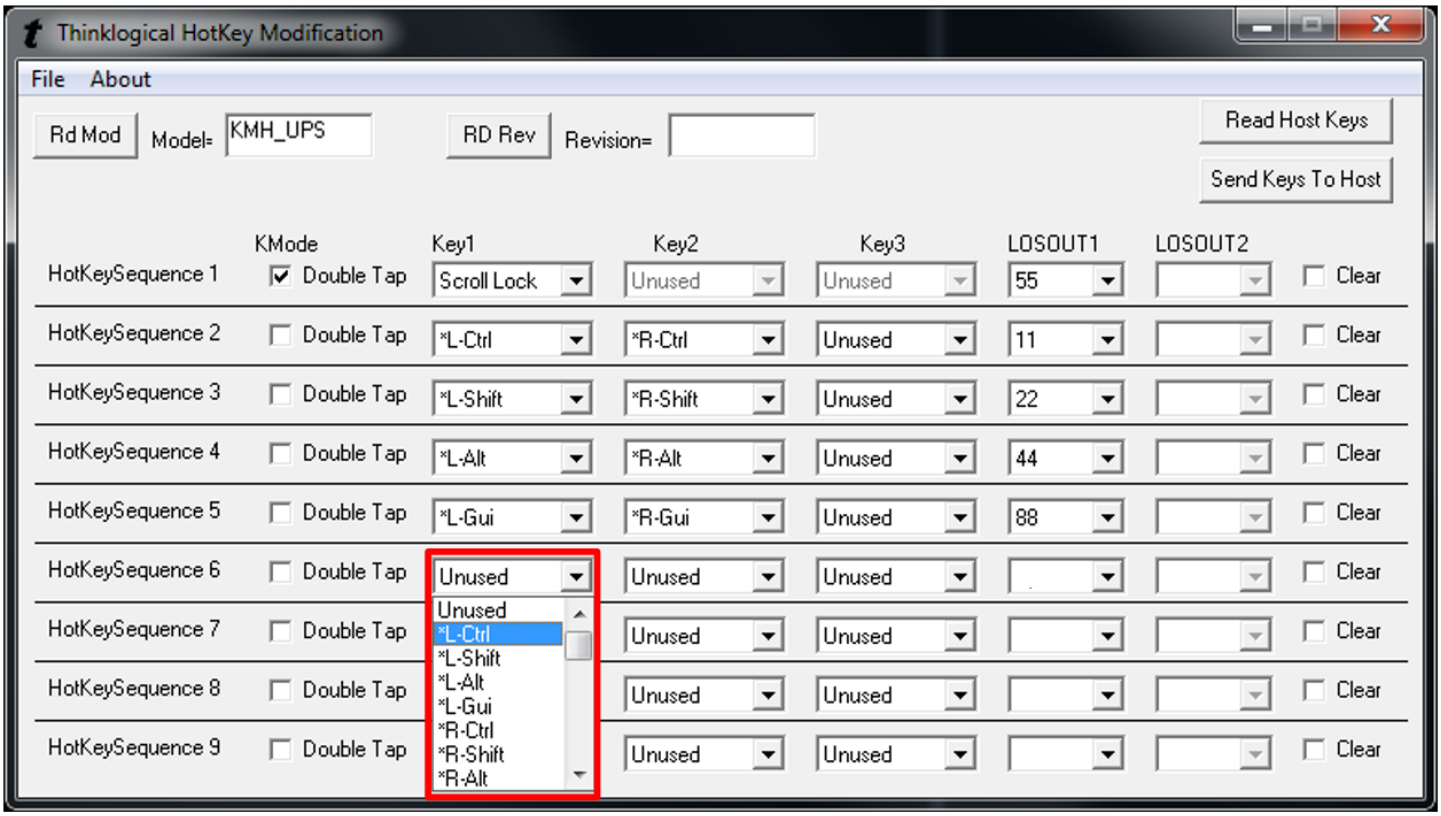


Creating Custom Actions

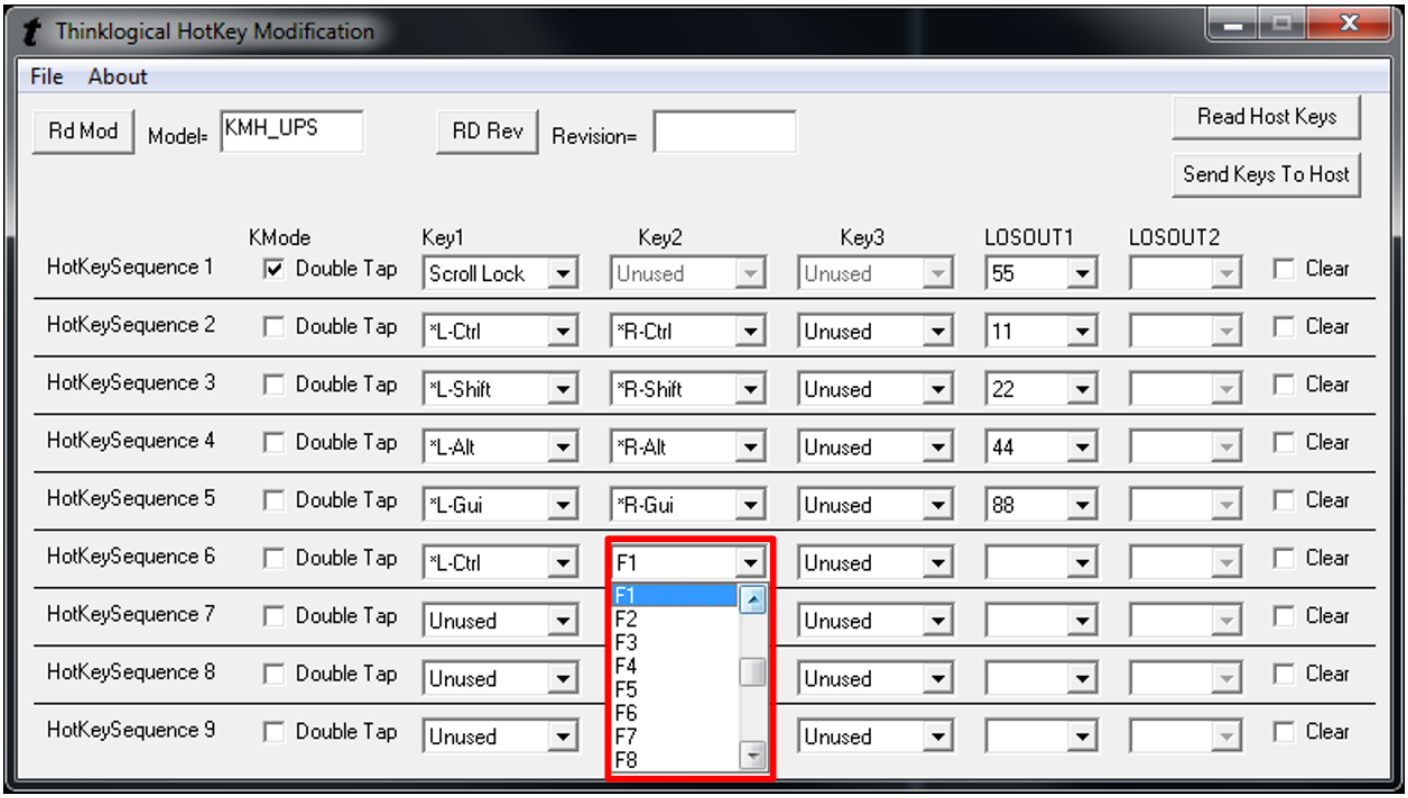
Some situations may require more than (9) key sequences. Users can then create a special key sequence requiring a two-digit number from 1 to 99, entered by the user.

Note: If using single digit numbers, then 01 through 09 are entered here. Corresponding SMP3 code values in the HOT KEYS tab will be 1-9.

By left-clicking on an "unused" **Key1 drop-down menu**, users can select from a list of key sequences. In this case, *Left Ctrl* is selected for Key 1.

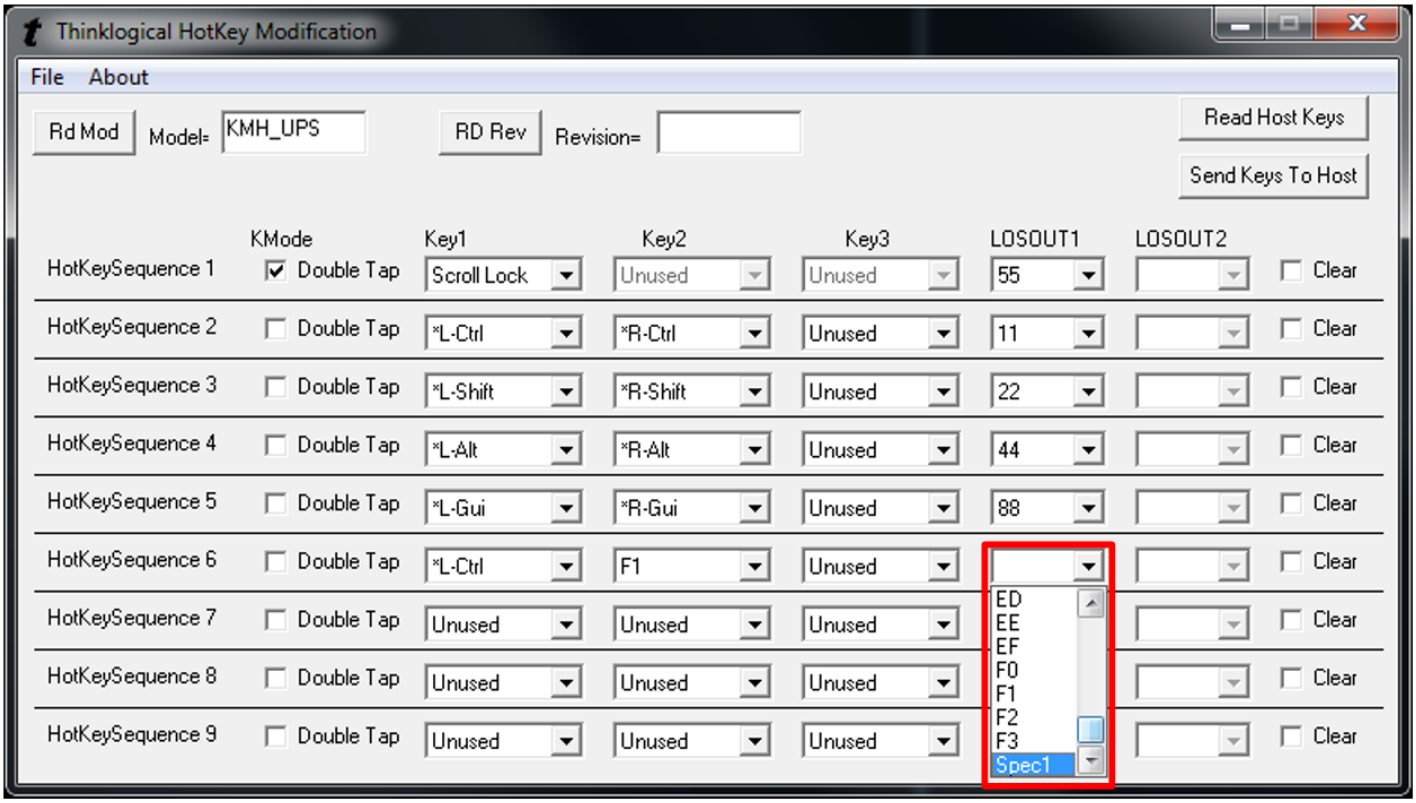


Left-click on the **Key2 drop-down menu** to select the Key 2 sequence. In this case, *F1* is selected for Key 2.

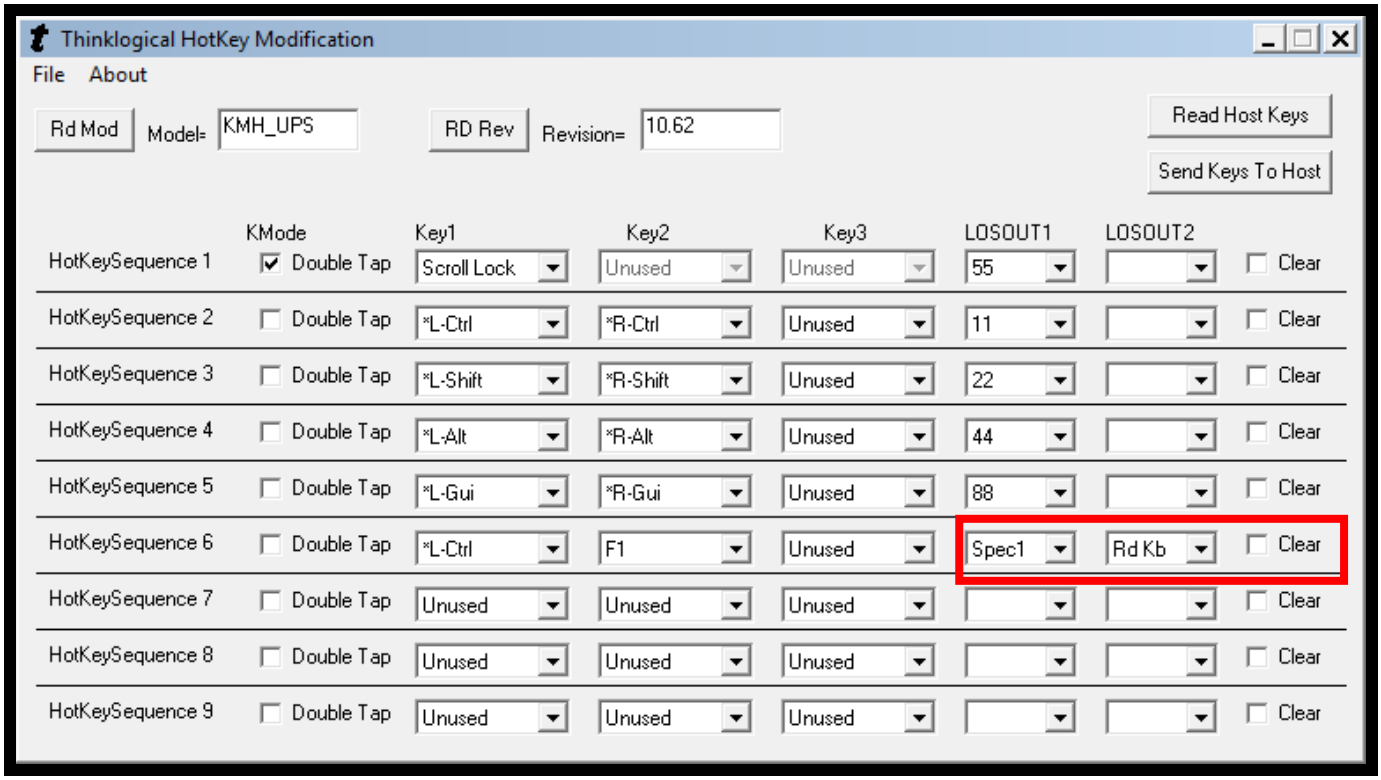


By left-clicking on the **LOSOUT1 drop-down menu**, users can select from a list of hex values, so that pressing *L-Ctrl* and *F1* will execute the function associated with that value.

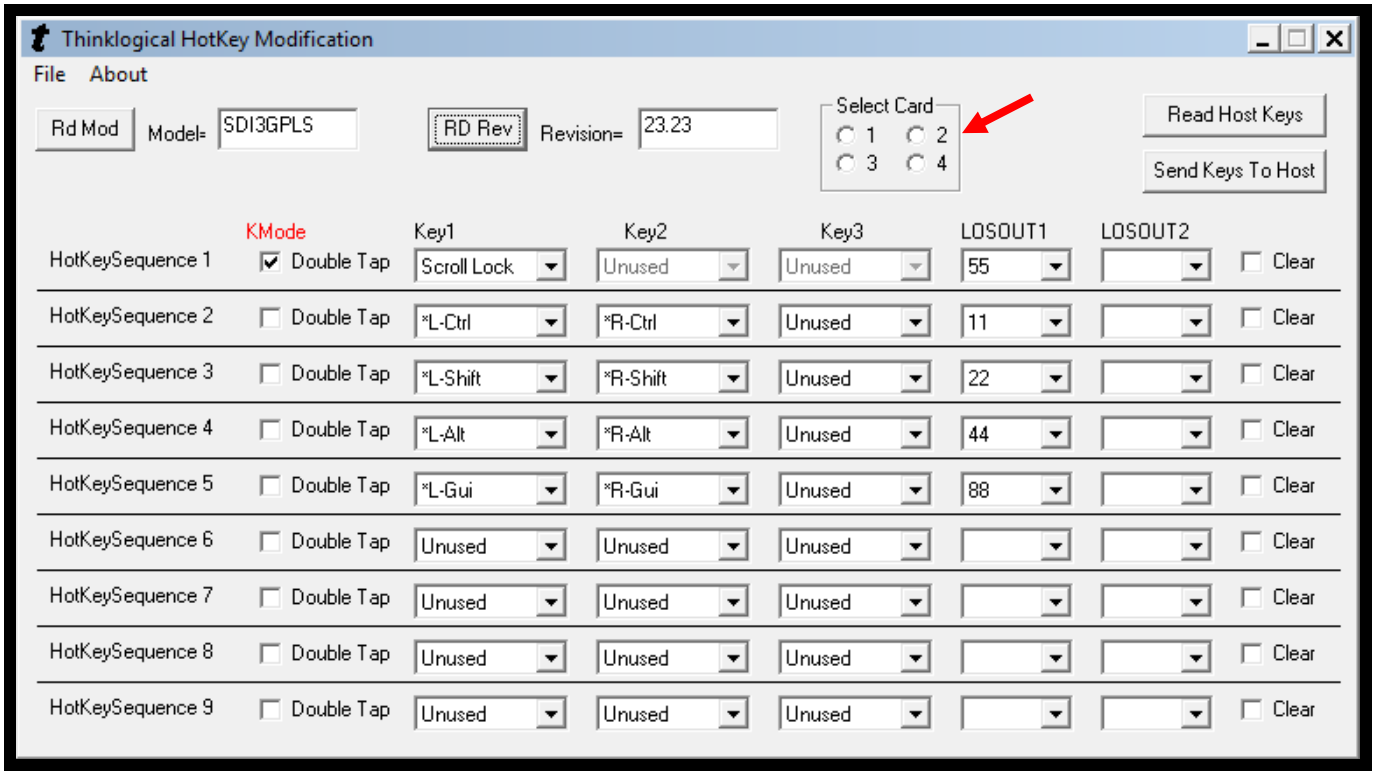
Users can also enter a non-hex value by scrolling to the bottom of the list and clicking on *Spec1*.



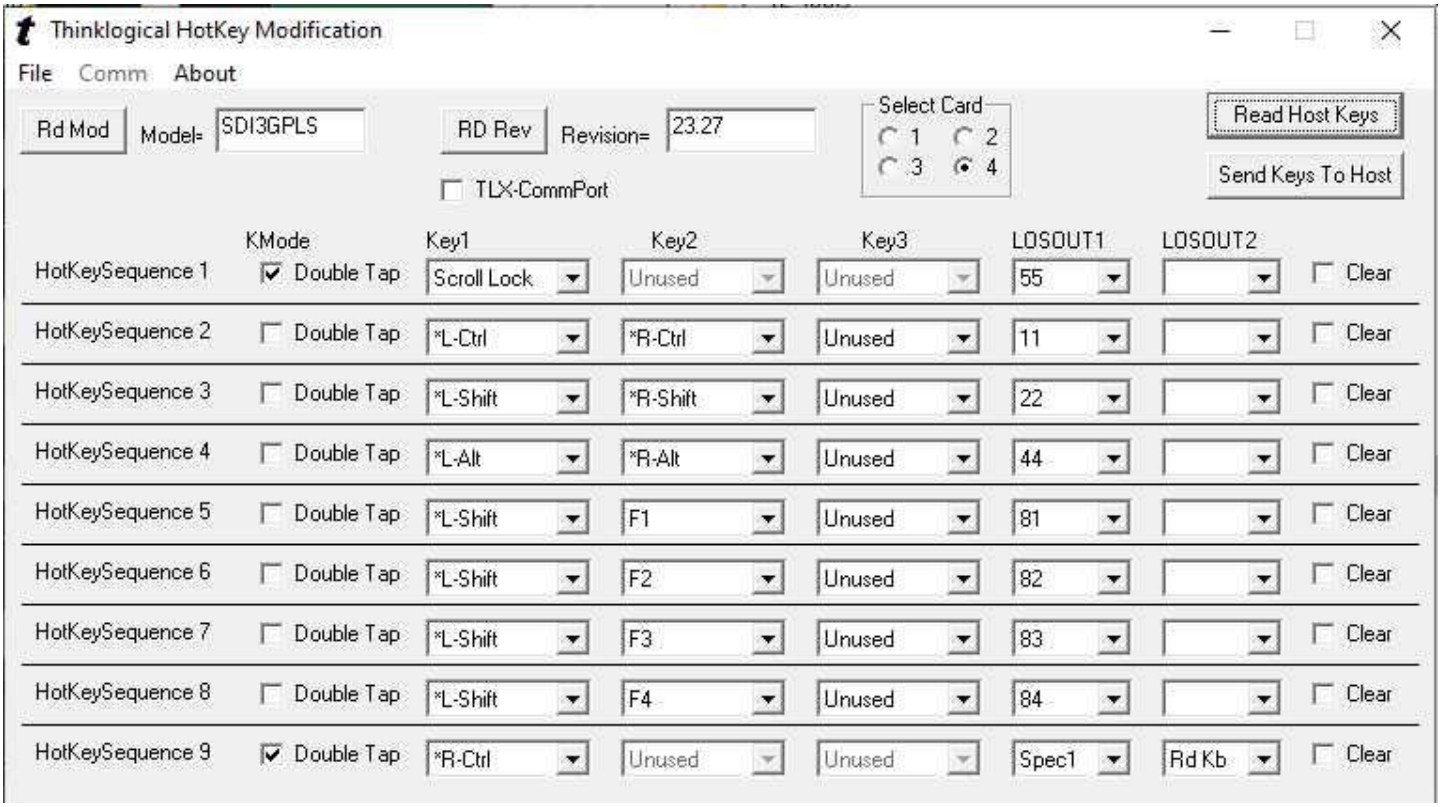
By selecting *Spec1*, the value in LOSOUT2 will automatically become *Rd Kb* (Read Keyboard), meaning it will "read" the next thing typed. **The user must now enter a non-hex numerical value, which will become an action associated with *L-Ctrl* and *F1.*** To clear the entries, click in the *Clear* box to the right.



For **Q-Series Systems**, connect to the Q4300/4200 chassis via the front panel Update port. A *Select Card* box allows changes to a specific module in one of the four available card slots.

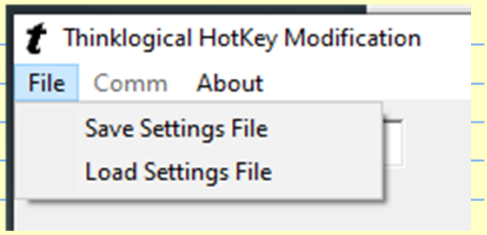


Below are the default Hotkeys programmed into TLX Receivers:



TECH NOTES: *Programming Many Receiver Modules*

If it is necessary to program many receiver modules, it is possible to save a set of Flexkeys in a file on your PC. This file can then be downloaded to as many receivers as required. These operations are located under the File menu as shown.



Appendix F: *SMP3 Redundancy*

There is typically only one SMP Appliance or SMP Module controlling the system, which may also be in conjunction with a third-party control system. However, it is possible for two SMP Appliances or Modules to be installed and configured in a redundant fashion as Primary and Backup units. In this case, the Backup SMP Appliance or Module will take control of the system if the Primary SMP Appliance or Module should fail.

Three configuration areas must be set up for SMP3 Redundancy:

1. Install the Redundancy package on both SMP3 units.
2. Install the Linux sync utility on each unit.
3. Configure each SMP Appliance or SMP Module as Primary or Backup.

1. Installing Redundancy (this is done on both units)

- Open a terminal window, login as **`root`**.
- Navigate to `/home/user/pkg`.
- Unpack the install files: **`tar -xvzf redundancy_install_010004.tgz`**
- Change directories: cd redundancy
- Install the package: **`sh red_install.sh`**

2. Installing SYNC

- Connect the Matrix Switch and both SMP3 units (eth0 for the SMP3 Module, eth1 for the SMP3 Appliance) to the same network, but with different static IP addresses.
- On the Primary SMP3:
  - Open a terminal window, login as **`root`**.
  - Navigate to `/home/user/pkg`.
  - Unpack the install files: **`tar -xvzf sync_install_010004.tgz`**
  - Change directories: **`cd sync`**
  - Install the package: **`sh sync_install.sh`** [secondary IP address]
  - The administrator must enter the default password **`thinkl`**
- On the Secondary SMP3 unit:
  - Open a terminal window, login as **`root`**.
  - Navigate to `/home/user/pkg`.
  - Unpack the install files: **`tar -xvzf sync_install_010004.tgz`**
  - Change directories: **`cd sync`**
  - Install the package: **`sh sync_install.sh`** [primary IP address]
  - The administrator must enter the default password **`thinkl`**
- On the Primary SMP3:
  - Install the package again: **`sh sync_install.sh`** [secondary IP address]
- SYNC is now installed and running on both units.

Note: During the installation of the SYNC application a user is created with the password '`thinkl`.' For security, it is recommended that this password be deleted by running the command '`passwd -d thinkl`' at the Linux prompt. Delete the password, not the account. (Account is for internal use only.)

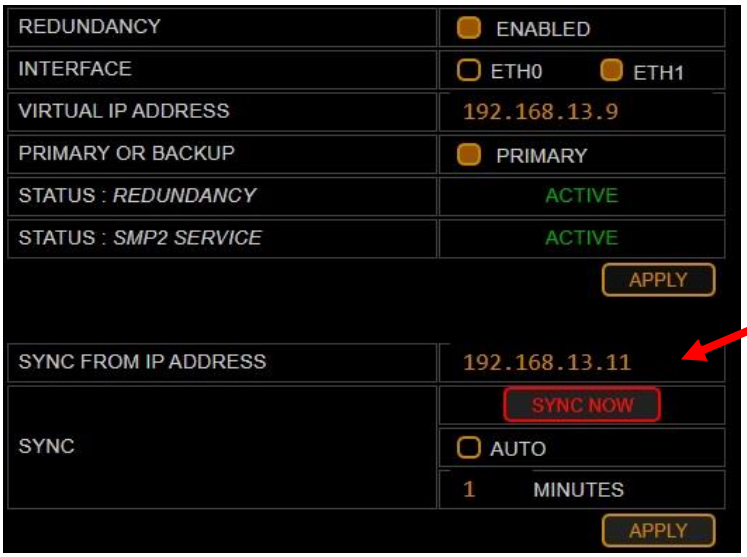
3. Configuring the SMP3 units

If available, install the desired SMP3 configuration files on the Primary SMP3 unit. If not completed, they can be installed later.

For this example, we have chosen:

- IP address 192.168.13.9 as the virtual IP address.
- IP address 192.168.13.10 as the Primary IP address.
- IP address 192.168.13.11 as the Secondary IP address.

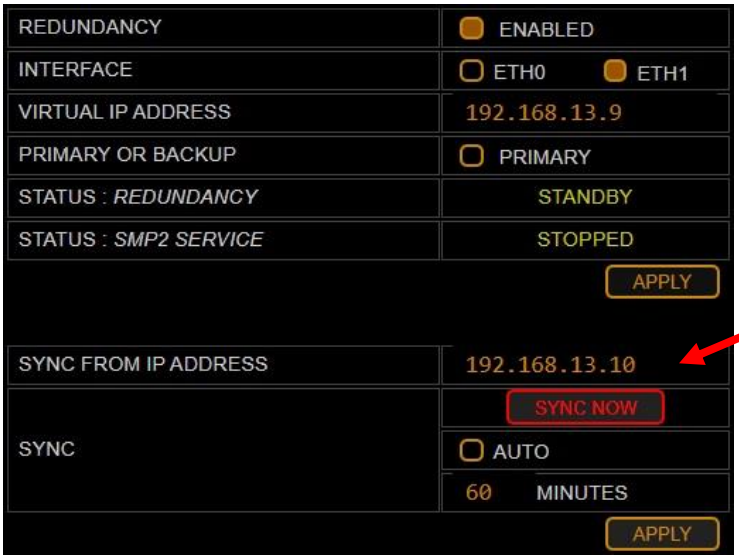
Configure the Primary SMP3 as shown:



Address of Eth1 (TLX Control) on Backup

Primary Dashboard REDUNDANCY Tab

Configure the Secondary SMP3 as shown:



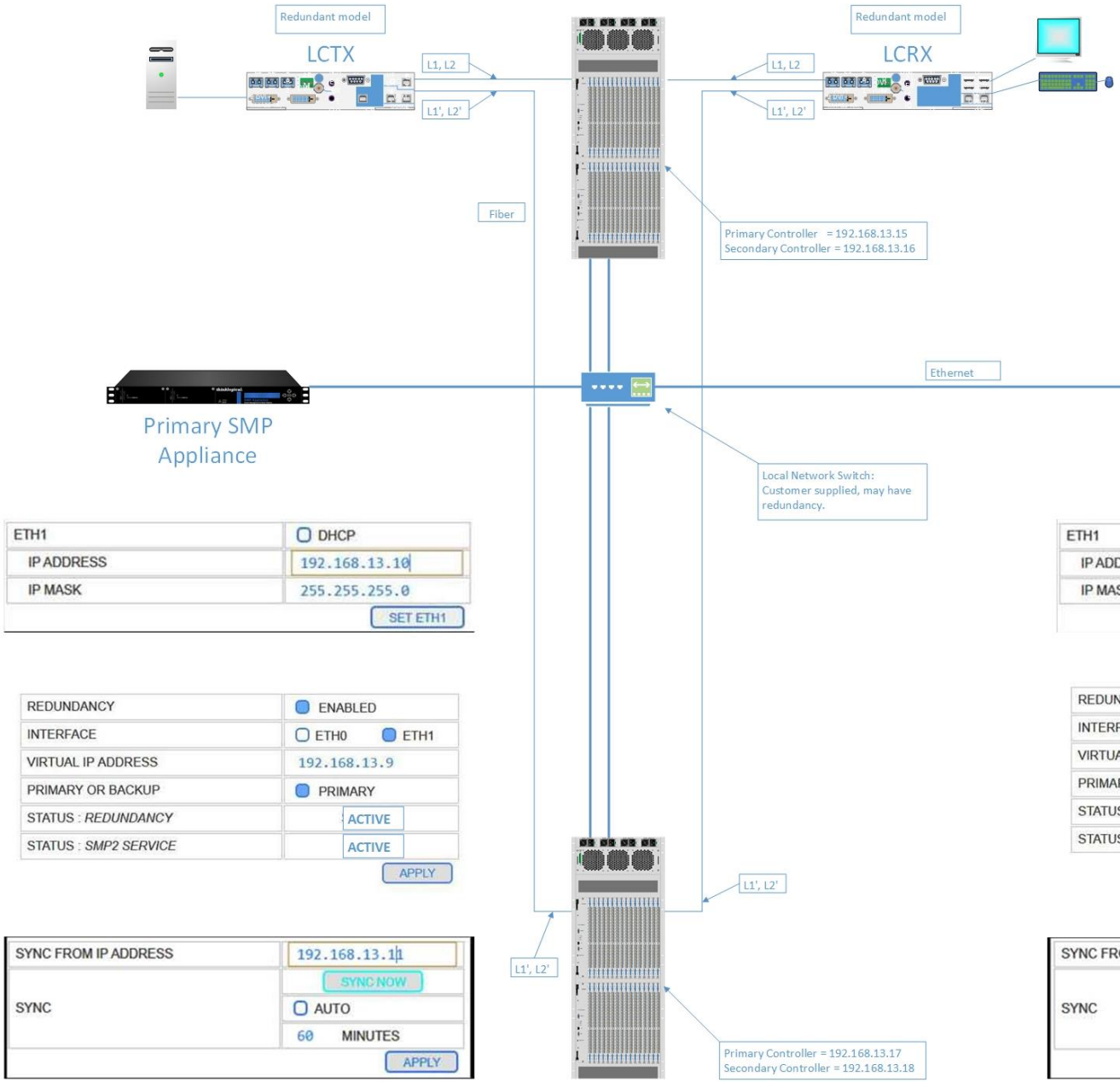
Address of Eth1 (TLX Control) on Primary

Secondary Dashboard REDUNDANCY Tab

Warning! If an SMP3 Appliance or SMP3 Module is configured and running and then a Backup is added, do NOT sync the Primary to the Backup. The configuration may be lost.

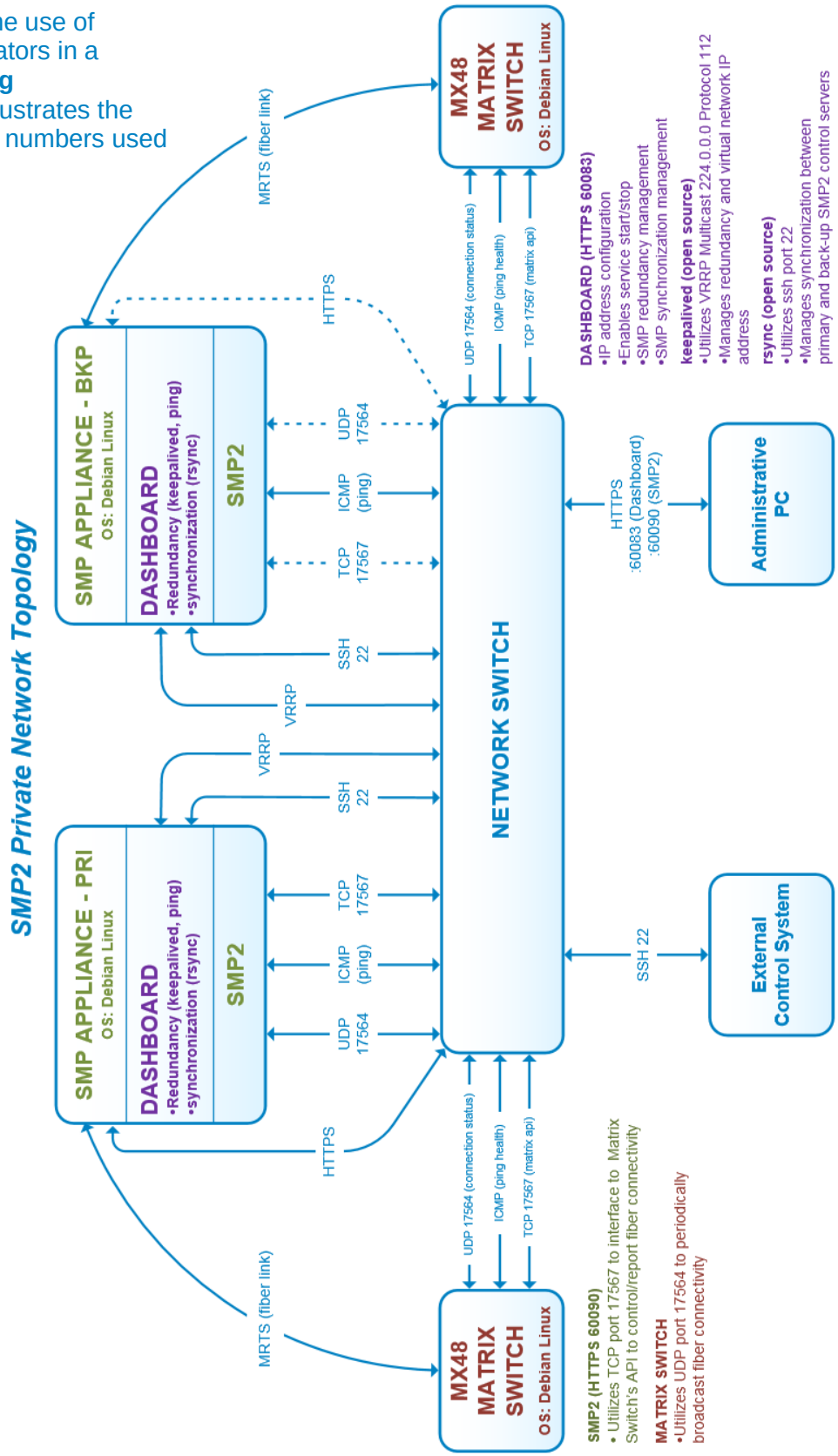
Note: If testing your Redundancy setup, click APPLY on the SMP3 unit that is currently active. This will temporarily stop the SMP3 service and the other SMP3 unit will take over.

Redundant System Configuration; Example



Appendix G: *Protocols and Port Numbers*

This figure is for the use of network administrators in a **secure computing environment**. It illustrates the protocols and port numbers used



Appendix H: *Intuitive Mouse Setup*

If the Intuitive Mouse feature is being setup in the system, it must first be configured in the SMP3 as described on pg. 37. The extenders must also have this feature enabled.

Hardware Settings:

- On the chassis LCD supporting an Intuitive-Mouse-capable Transmitter, the **`MS Screen Select`** must be set to **`YES`**. This lets the computer know that it should use *Absolute Position* for the mouse.

```
MS Screen Select
Yes/No                    YES
```

-OR-

```
Mouse Screen Select
Yes/No                    YES
```

- On an Intuitive-Mouse-capable Receiver, **`MsScrn Sel Disable`** must be set to **`NO`**.

```
MsScrn Sel Disable
Yes/No                    NO
```

-OR-

```
Intuitive Mouse
Mode =                 Enabled
```

- On an Intuitive-Mouse-capable Receiver, **`Allow Out of Band?`** must be set to **`Y`**.

```
Allow Out of Band?
Yes/No                    Y
```

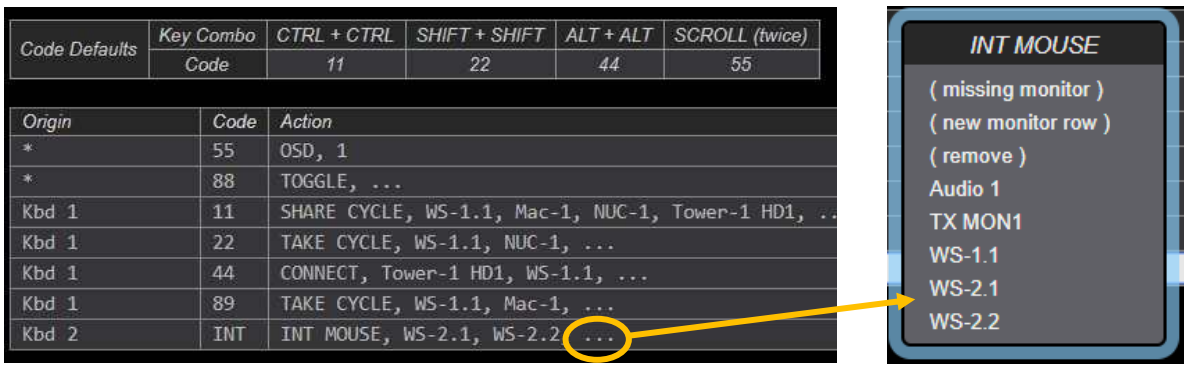
Note: All TLX Extenders support Intuitive Mouse, as do some Velocity extenders, such as the VQM-HA0006-LCRX.

- Extenders support Intuitive Mouse at the HID ports, not the USB 2.0 ports.
- The back channel is required for Intuitive Mouse; both fibers connected.

Software Configuration:

Each keyboard requiring INT Mouse must create a Hotkey. This is done in the SMP3 application admin/hotkeys tabs as shown below. This example is for two monitors mounted side by side.

- Add a new line for the hotkey and select the keyboard.
- Select “INT MOUSE” in the Action column. The Code column will autofill with “INT.”
- Monitors must now be defined in the Action column. They must be in the same order as they are installed at the desk.
- Left-click on the ellipsis (…) and a menu will pop up that includes provisions for monitor and row selection.



Code Defaults	Key Combo	CTRL + CTRL	SHIFT + SHIFT	ALT + ALT	SCROLL (twice)
	Code	11	22	44	55

Origin	Code	Action
*	55	OSD, 1
*	88	TOGGLE, ...
Kbd 1	11	SHARE CYCLE, WS-1.1, Mac-1, NUC-1, Tower-1 HD1, ..
Kbd 1	22	TAKE CYCLE, WS-1.1, NUC-1, ...
Kbd 1	44	CONNECT, Tower-1 HD1, WS-1.1, ...
Kbd 1	89	TAKE CYCLE, WS-1.1, Mac-1, ...
Kbd 2	INT	INT MOUSE, WS-2.1, WS-2.2, ...

Appendix I: *"Persistent" Feature*

There may be a need to have what is called a "Persistent connection" which would apply to CACs, PIV, Audio, or other functions (including video).

Standard

In a standard configuration, Sources may have blank assignments for ports that are not needed. Then if a new Source with a blank cell is routed to a Destination that has something already routed to it; the previous Source is disconnected.

Example:

Src Name	*Vid(R)*	*Vid2(R)*
PC1	A__1	A__2
PC2	A__3	
Dst Name	*Vid(T)*	*Vid2(T)*
Desk1	A__4	A__5

Operation:

1. PC1 is routed to Desk 1; A__1 is connected to A__4 and A__2 is connected to A__5.
2. Then PC2 is routed to Desk 1; A__3 is connected to A__4 and A__5 is disconnected.

Persistent

However, the SMP3 can be configured with the Persistent feature. In this case the Persistent connection will remain while the user routes a different Source with a blank port assignment.

Example:

Src Name	*Vid(R)*	*!Vid2(R)*
PC1	A__1	A__2
PC2	A__3	
Dst Name	*Vid(T)*	*!Vid2(T)*
Desk1	A__4	A__5

Operation:

1. PC1 is routed to Desk 1; A__1 is connected to A__4 and A__2 is connected to A__5.
2. Then PC2 is routed to Desk 1; A__3 is connected to A__4 and A__2 stays connected to A__5.

Typical use case

- A User routes a Source with a CAC attached to it to one of their monitors.
- The User then accesses a different Source that does not have a CAC.
- The CAC connection remains in place.
- The User then returns to the original Source.
- The User does not have to log in again to that Source since the CAC connection was not broken.

Persistent connections can be disconnected in one of two ways:

1. Intentionally Clear the connection.
2. Route another Persistent Source to that Destination.

Typical configuration

Note that this feature is not included in the factory default SMP3 configuration. The appropriate columns need to be added to the Sources and Destination areas of the stations.csv file. Persistent columns are preceded by a "!" sign.

Notes:

- Adjacent new columns must have unique names. In this example they are "USBd" and USBs."
- The Source and Destination column names must match up with each other, with the exception of the "T" and "R" designation. In this example "USBd(T)" lines up with "USBd(R)", and "USBs(R)" lines up with "USBs(T)"

Src Name	Follows	Primary	VidA(R)	VidB(R)	Kbd(T)	Kbs(R)	Aud(R)	!USBd(T)	!USBs(R)
ALPHA			A__1	A__2	A__1	A__1	A__1		
BRAVO			A__3	A__4	A__3	A__3	A__3		
CHARLIE			A__5	A__6	A__5	A__5	A__5		

Standard

Persistent

Dst Name	Follows	VidA(T)	VidB(T)	Aud(T)	!USBd(R)	!USBs(T)
DESK 1-1		A__35	A__36			
DESK 1-2	DESK 1-1	A__37	A__38			

Appendix J: *SMP3 API*

Thinklogical's SMP3 API is an ASCII based control interface available to interactive users and third-party controller hardware.

Commands and responses are S-expressions. Every statement (command or response) is started and terminated by parentheses. The commands and responses are string fields separated by spaces. Field identifiers begin with colons (':') and the strings they identify follow immediately after and are enclosed with double quotes (").

For example, the command to connect the Destination named "Dst 1" from the Source named "Src A" is as follows: `(dstExe "Dst 1" :sname "Src A")`

The first field in every statement is normally a conjunction of the object type being acted upon and the action to be performed. In this case it is a Destination ("dst") and execution ("Exe").
The second field is the object of the command or description. Since the command in this case is dstExe, the next field should be a string with the name of the destination: "Dst 1".
The remaining fields are strings of information required for the operation or description of the related object.

In this example, `(dstExe "Dst 1" :sname "Src A")`, there is an identifier :sname (for Source name), and "Src A" (the name of the Source).

This command means "dstExe" (execute for the Destination named) "Dst 1" by setting the Source (:sname) to "Src A" (or more simply, connect "Dst 1" from "Src A"). The response to this command is similarly formatted: `(dstSta "Dst 1" :sname "Src A").`

It is important to note that the automatic status response to a command (in this case "*dstSta*" as a response to "*dstExe*") only includes information that has changed *because* of the command. It is a status *update*, not a complete listing of the status for the object in question. This will be important when we consider other fields, such as :control and :lockBy as shown below. If required, the complete status must be requested explicitly.

In addition, the API will push status updates to the client even when the command(s) that caused the updates originated from other sources like web or other API clients.

Finally, other controllers (AMX, Crestron) may be sending commands *directly to the matrix* that can cause status changes, and these will also be pushed to the web and API clients. An API client needs to be ready to receive status updates even when it is not actively sending commands.

SMP3 configuration

SMP3 must first be configured with a user named “api”, lowercase, along with selected assets.

Accessing the SMP3 API

To access the SMP3 API ASCII based control interface from a Linux machine:
`“telnet <ip address> 60092”`

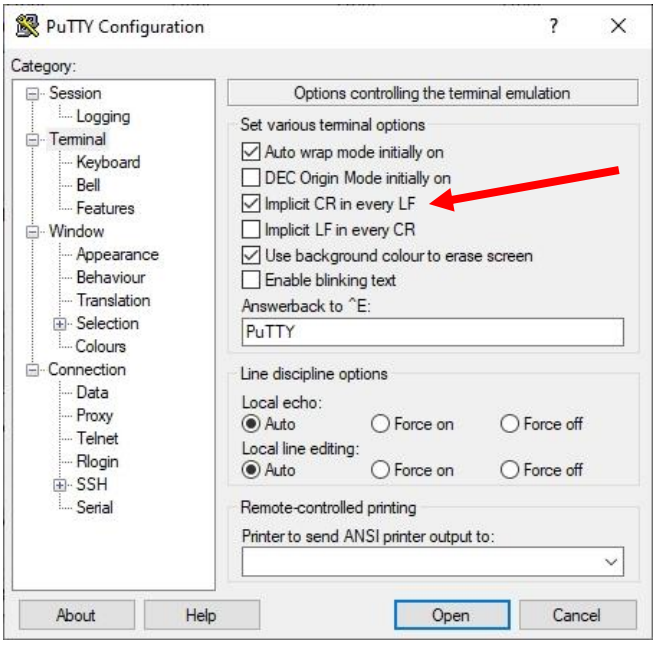
The escape character to exit API: “<Ctrl>]”

To exit telnet client interface: `“quit”`

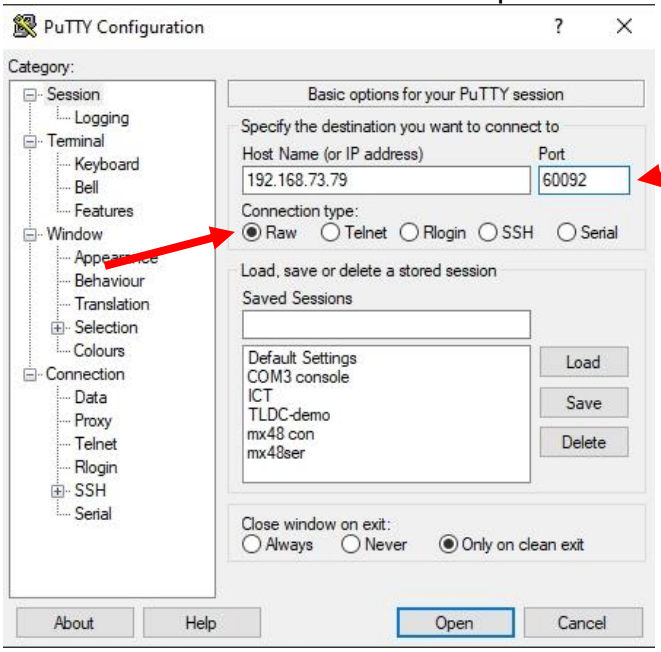
```
root@smp-appl:/# telnet 192.168.1.22 60092
Trying 192.168.1.22...
Connected to 192.168.1.22.
Escape character is '^]'.
(dstExe "WALL 90-1" :sname "CABLE")
OK
(dstSta "WALL 90-1" :sname "CABLE")
^]
telnet> quit
Connection closed.
root@smp-appl:/#
```

To access the SMP3 API ASCII based control interface from a PC using PuTTY:

Setup PuTTY as follows:



Then telnet to the SMP. Our example has the SMP3 at IP address 192.168.73.79.



As a test of the connection, type:

(dstSta? "*")

This will return with a list of Destinations and the Sources connected to them.
To exit, close the PuTTY window.

Commands and Responses

Connect video: (dstExe “<destination name>” :sname “<source name>”)
Example: `(dstExe “Dst 1” :sname “Src A”)`
Translation: connect “Src A” to “Dst 1”
Response: `(dstSta “Dst 1” :sname “Src A”)`

Connect keyboard: (dstExe “<destination name>” :control “<source name>”)
Example: `(dstExe “Dst 1” :control “Src A”)`
Translation: Connect the keyboard at “Dst 1” to “Src A”
Response: `(kbdSta “Dst 1-Kbd” :dname “Dst 1”)`

Note: kbdSta (keyboard status) will show as its object the keyboard associated with the Destination(s). A single keyboard may serve multiple Destinations, so the need is to show which Destination’s source is being controlled. This association is set and described in the “ADMIN / DST” and “ADMIN / KBD” pages.

Note: In order to avoid controlling the wrong Source, the Source must first be present at the Destination video before the keyboard can be connected. In practice, this usually requires connecting the video about 300 ms before connecting the keyboard.

Disconnect video: (dstExe “<destination name>” :sname “”)
Example: `(dstExe “Dst 1-Kbd” :sname “”)`
Translation: Disconnect “Dst 1”
Response: `(dstSta “Dst 1” :sname “CLEAR”)`

Note: If the keyboard assigned to this Destination was controlling a Source, then it will also send a response showing the keyboard status has changed:

Response: `(kbdSta “Dst 1-Kbd” :dname “”)`

Disconnect keyboard: (kbdExe “<keyboard name>” :control “”)
Example: `(kbdExe “Dst 1-Kbd” :control “”)`
Translation: Disconnect “Dst 1”
Response: `(kbdSta “Dst 1-Kbd” :dname “”)`

Lock a Destination: (dstExe “<destination name>” :lockBy “<user name>”)
Example: `(dstExe “Dst 1” :lockBy “api”)`
Translation: API is locking Dst 1
Response: `(dstSta “Dst 1” :lockBy “api”)`

Note: When commanded from the API, the program will ignore the name in the :lockby field and always use “API” except when the value is false (as shown in unlock).

Request complete Destination status: (dstSta? “<destination name>”)
Example: `(dstSta? “Dst 1”)`
Translation: Request status of “Dst 1”
Response: `(dstSta “Dst 1” :sname “Src A” :lockBy “bob”)`

Unlock a Destination: (dstExe "<destination name>" :lockby false)
Example: `(dstExe "Dst 1" :lockBy false)`
Translation: "Dst 1" is being unlocked
Response: `(dstSta "Dst 1" :lockBy false)`

Note: The Destination can only be unlocked by the user who locked it or admin. If the API is attempting to unlock a Destination locked by another User, the response will show the Destination still locked as shown below:
Response: `(dstSta "Dst 1" :lockBy "carol")`

Request complete Source status: (srcSta? "<source name>")
Example: `(srcSta? "Src A")`
Translation: Request complete status of Src A
Response: `(srcSta "Src A" :dnames '("Dst 1", "Dst 2") :control "Dst 1")`

Note: As shown, the associated value for the identifier/key "dnames" is a list which starts with a single quote and left parenthesis and ends with a right parenthesis.

Lock Source: (srcExe "<source name>" :lockBy "api")
Example: `(srcExe "Src A" :lockBy "api")`
Translation: The API is locking "Src A" so it cannot be used anywhere else.
Response: `(srcSta "Src A" :lockBy "api")`

Note: Requests for "Src A" will also include the lockBy if it is not false, as in:

```
(srcSta "Src A" :dnames '("Dst 1", "Dst 2") :control "Dst 1" :lockBy "api")
```

Unlock Source: (srcExe "<source name>" :lockBy false)
Example: `(srcExe "Src A" :lockBy false)`
Translation: "Src A" is being unlocked
Response: `(srcSta "Src A" :lockBy false)`

Disconnect a Source from all Destinations: (srcExe "<source name>" :dname "")
Example: `(srcExe "Src A" :dname "")`
Translation: Disconnect "Src A" from all Destinations
Response (assuming "Src A" was previously connected to "Dst 1" and "Dst 2" and controlled by "Dst 1-Kbd"):

```
(dstSta "Dst 1" :sname "CLEAR")
(dstSta "Dst 2" :sname "CLEAR")
(kbdSta "Dst 1-Kbd" :dname "")
```

Execute a Macro: (macExe "<macro name>")
Example: `(macExe "Start Up")`
Translation: Execute the macro named "Start Up"
Response(s):

```
(dstSta "Dst 1" :sname "Src A")
(dstSta "Dst 2" :sname "Src B")
(dstSta "Dst 3" :sname "Src C")
(dstSta "Dst 4" :sname "Src D")
(kbdSta "Dst 1" :dname "Dst 1")
```

Note: As shown, there may be many responses to a single macro, depending on the number of steps.