# X4 Configurator. Product Manual



A complete guide to the installation and use of *Thinklogical's* X4 Configurator web-based control system for the Thinklogical family of VX, MX and HDX Routers



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# **Table of Contents**

Conventions Used in this Manual
Overview
Overview
Linux Installation
Windows Installation
Windows Installation
X4 Configurator Login
Introduction9
ADMIN: Routers10
ADMIN: Stations13
Adding new ports17
Import/Export Station Configurations18
ADMIN: Tie Lines
Using and Monitoring Tie Lines24
ADMIN: Snapshots
ADMIN: Log
ADMIN: Help
CONNECT Page
Stations Categories
MACROS Page40
Creating/Editing/Deleting Macros44
STUDIO Page48
COMBI Page55
Multiple Browser Tabs58
GROUPS Page59
Appendixes67
File Locations67
Other DocumentationX4 Configurator Login67
HOW TO CONTACT US
Customer Support
Website
Email
Telephone
Fax
Product Support
Limited Warranty Information
Our Address

#### PREFACE

#### **Conventions Used in this Manual**

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

**<u>Note</u>**: Important Notes appear in blue text preceded by a yellow exclamation point symbol, like this.

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, like this.

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

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

# X4 Configurator Software Package

#### Overview

X4 is a web-based control system for Thinklogical's® family of VX, MX, and HDX routers. It runs on a separate Windows or Linux computer and allows for easy configuration, management and control of any number of routers.

The installation files, rpm for Linux and exe for Windows, will be on the included CD and are also available from the Thinklogical FTP site: <u>http://ftp.thinklogical.com/ftp/VxRouter/X44/</u> Please choose the latest version for your chosen platform (Linux or Windows).

#### Linux Installation

The Linux installation using **yum** or **rpm** is automatic and allows a few installation options:

```
First time installation: rpm -I filename.rpm
Upgrade existing installation: rpm -U filename.rpm
```

#### Windows Installation

The Windows installation program will have a name similar to X44\_02\_41.exe When executed, Windows may open a warning window as shown below:



Click the "Yes" button to continue.

Select Install Compor	nents	
Select components to install:	<ul> <li>✓ Install Python2.6</li> <li>✓ Install Python win32</li> <li>✓ Create LSI/X44 Dire</li> <li>✓ Install X44 Configuration</li> <li>✓ Install X44 Default C</li> <li>✓ Create X44 Configuration</li> <li>✓ Start X44 Configuration</li> </ul>	ctory Tree ator Programs Configuration Files rator Service
Space required: 22.2MB		
Cancel Nullsoft Ins	stall System v2.46	Install

#### First installation

Thinklogical VX Router X44		
Select components to install:	<ul> <li>☐ Install Python2.6</li> <li>☐ Install Python win32 extensions</li> <li>☑ Create LSI/X44 Directory Tree</li> <li>☑ Install X44 Configurator Programs</li> <li>☑ Install X44 Default Configuration Files</li> <li>☑ Create X44 Configurator Service</li> <li>☑ Start X44 Configurator Service</li> </ul>	
Space required: 1.6MB		
Cancel Nullsoft Install	System v2.46 Install	

Installation if an update

If this is the first installation, then leave all the checkboxes checked. However, if this is an update from an earlier version, you can safely uncheck the first two boxes for "Install Python2.6" and "Install Python win32 extensions" as they will already be on your computer. Click Install.

	al VX Router X44 Configura folder: C:\Program Files\LSI	tor setup. m		1
	C*\Program Files\  SI			
	gical VX Router X44 Config	jurator Setup	23	
	ne X44 configuration files b I users, No = only you)	e available to a	ill users?	
		Yes	No	
Cancel	Nullsoft Install System v2.46	s < Back	Close	

Click "Yes".

Complet	I VX Router X44 Configurato	or Setup: C 🗖		
Extract: station Output folder: Install X44 Def Creating X44 C Execute: "C:\P Creating X44 r Starting X44 C	onfigurator Service rogram Files\LSI\X44\tools\star			
Cancel	Nullsoft Install System v2.46	< Back	Close	

Please note the last five rows. The fifth from the bottom should read "Creating X44 returned 0" and the second from the bottom should read "Starting X44 returned 0". If either of these lines does not show "returned 0", then a problem was encountered during installation and X4 will not work.

#### Firewall Considerations

If your firewall is enabled, you may require some additional configuration. By default, firewalls block connections on port 80, which is the standard for web communications. The easiest/fastest way to get around this is to disable the firewall, but this is not always acceptable. If you need your firewall enabled, you must open port 80.

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

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

#### X4 Configurator Login

X4 is accessed via a web browser from any computer on the same network as the X4 server. Some of the administrative pages can be demanding on the JavaScript engine on the browser, so if it's running too slowly on your current browser, please try **Google Chrome**.

Set the browser's URL to the IP address of your server to load the page. Logins are required by default, so if this is your first access you may see this:

1	thinklogical
E	ixtend • Distribute • Innovate
	Please log in
	USERNAME admin
	PASSWORD
	Submit

The default user name is "admin" and the password is "admin" (You can change this later.)

#### Introduction

The first time you log in, the *CONNECT* page will load automatically.

thinklogical X4Configurator	CONNECT ADMIN MACROS STUDIO COMBI GROUPS LOGOUT
Connections	Click a source and then one or more destinations

This page is one of the pages used for connecting sources to destinations. However, the first time the program is accessed it will be unpopulated.

There are blue names across the top of the page along the right side, starting with *CONNECT* and ending with *LOGOUT*. These are links to the other pages. This document will describe each of them as needed.

The first step will be to click the *ADMIN* link. A new page will load that looks like this:

thinklogical X4Configurator	CONNECT ADMIN MACROS			DS STUDIO COMBI GROUPS LOGOUT			
Extend • Dishibute • Innovate	Macros	Stations	Routers	Snapshots	Tie Lines	Log	Help
Administration	Select from the tabbed choices above				ve		

Above the black stripe are tabs for the administrative functions beginning with **Macros** and ending with **Help**. Clicking on a tab will highlight it and load the settings for modifying the settings associated with that tab. Click the **Routers** tab and continue to the page.

#### **ADMIN:** Routers

On the *ADMIN* page, the **Routers** tab allows you to configure X4Configurator for your routers. The router (or router simulator program) must be already running and on the network. The setup process will attempt to communicate with the router over the network and will fail if the router does not respond or is a different type than the one you selected.

thinklogica	hinklogical <sup>®</sup> X4Configurator		CONN	IECT ADMIN	MACROS	STUDIO CO	ombi groups	LOGOUT
Extend • Distribute • Innovate		Macros	Stations	Routers	Snapshots	Tie Lines	Log Help	
Administration						Select from	the tabbed choi	ces above
				C	Import	Export	SAVE	Cancel
Click inside any cell to change the right-click inside any column heat where the second sec	ne contents of that cell, <i>rig</i> ader to add or delete colum	ht-click inside any cell ns (if appropriate), and	to see additional row o press the SAVE or Ca	ptions, <b>ncel</b> buttons (abo	ove) when chan	iges are complete.		
Router Name: Type:	IP Address:	Socket:	Enabled:	Default Station	ns: Sync For	(1110-97) (110-97) (110-	Sync: Sync	Status:
				CREATE		Cardin	otinstaned	
ADD Tie Line Table								

If this is a fresh install, there will be no routers declared yet. Click on the gray row beneath the column header "Router Name:" and enter the name you will use for your router. If you click on the entries for the remaining fields, you will be offered pop-up lists of choices. For this example, we will use a VX80.

					Impor	t Export	SAVE	Cancel		
Click inside any cell to change the contents of that cell, right-click inside any cell to see additional row options, right-click inside any column header to add or delete columns (if appropriate), and press the SAVE or Cancel buttons (above) when changes are complete.										
# Routers (versi	on: X4.4)									
Router Name:	Type:	IP Address:	Socket:	Enabled:	Default Stations:	Sync Format:	House Sync:	Sync Status:		
A			Brown and		CREATE	)	card not installed			
ADD Tie Line Ta	ble									

Next, choose the router type by clicking in the 'Type' gray box.

Click inside any cell to char right-click inside any colum	ge the contents of that cell, <i>rig</i> a header to add or delete colum	<i>ht-click</i> inside any o	cell to see additional ro and press the SAVE o	Import ow options, or <b>Cancel</b> buttons (above) w			Cancel
# Routers (version: X4	4)						
Router Name: Type	IP Address:	Socket:	Enabled:	Default Stations:	Sync Format:	House Sync:	Sync Status:
Α				CREATE	)	card not installed	
ADD Tie Line Table	■ Router Typ VX 40 VX 80 VX 160 VX 320 VX 320V VX 640 HDX 80 HDX 7576 MX 48	e					

Clicking in the IP Address:, Socket:, and Enabled: boxes will pop up choices for each of those fields.

					Import	Export	SAVE	Cancel
		contents of that cell, right r to add or delete column			ow options, r Cancel buttons (above)	when changes are o	complete.	
ing it concerns to be	,		in the photoe state of the stat			and an analysis are t		
2								
# Routers (vers	sion: X4.4)							
Router Name:	Threat	IP Address:	Socket:	Enabled:	Default Stations:	Sume Formati	House Sume	Sync Status:
	Type:	IP Address.	SOCKEL.	Enabled.	Contraction of the second second	Sync Format:	House Sync:	Sync Status.
A	VX 80				CREATE		card not installed	
			IP Address	S				
			192,168,13,15	2				
			192.168.13.17					
			192, 168, 13, 19					
			102.100.101.10	5 C				

When the router's name, type, IP address, socket, and enabled fields are complete, click the **SAVE** button near the top right corner.

Next, we will create some "stations." **Stations are source and destination elements that can be connected.** A station can contain a single port or multiple ports, and a single station can include ports located on multiple routers.

For this example we will create a default set of stations that has a single video head with keyboard and mouse (KVM 1 Head).

Click the 'CREATE' button under *Default Stations:*, then click on 'KVM 1 Head'.

lick inside any cell to chang ight-click inside any column	ge the contents of that cell, <i>righ</i> header to add or delete column	ht-click inside any cell ns (if appropriate), and	to see additional row of press the SAVE or Ca	options, ancel buttons (above)	when changes are c	omplete.	
Routers (version: X4.4	4)						
Router Name: Type:	IP Address:	Socket:	Enabled:	Default Stations:	Sync Format:	House Sync:	Sync Status:
A VX 80	192.168.	17567	yes	CREATE		card not installed	
					Station Type	S	
					Video Only KVM 1 Head KVM 2 Head		
ADD Tie Line Table					(close)		
too ne tine tubic							
				( Imp	oort Exp	oort SAV	E Canc
	The page at 127.0.0	and the second second second					E Canc
ht-click inside a	The page at 127.0.0 This step will erase any replace them with a defa router type you've select	existing stations settings ult set of stations for the	SAVE or Ca	options,			E Cano
ht-click inside a	This step will erase any ereplace them with a defa	existing stations settings ult set of stations for the ed, "VX 80". nodifications on the station	s and e ons	options, ancel buttons (above)	when changes are co	omplete.	
ht-click inside a Routers (vers	This step will erase any or replace them with a defa router type you've select If you've already made m	existing stations settings ult set of stations for the ed, "VX 80". modifications on the stati- sst. viously changed names f	s and e ons ed:	options,			E Cance
ick inside any ce int-click inside a Routers (vers touter Name:	This step will erase any or replace them with a defa router type you've select If you've already made m page, this work will be to Any macros that use pre	existing stations settings ult set of stations for the ed, "VX 80". modifications on the stati- sst. viously changed names f	s and e ons for	options, ancel buttons (above) Default Stations:	when changes are co	omplete. Ноиse Sync:	

Here is a last chance - if you've already configured your stations, you may not wish to overwrite them with the defaults. Since we haven't created any yet, click OK.

Click insi-	The page at 127.0.0.1:8080 says: Default stations list created.	dditional row options, the SAVE or Cancel buttons (above	) when changes are c		E Cancel
# Route	Prevent this page from creating additional dialogs.				
Router	ОК	bled: Default Stations:	Sync Format:	House Sync:	Sync Status:
A		CREATE		card not installed	

The new stations have been created. We can inspect and change them by clicking the **Stations** tab.

#### **ADMIN: Stations**

As we've seen before, stations are the sources and destinations that can be connected together. Click the *ADMIN* link and then the **Stations** tab to get to the stations page.

think	logical		rator	CONN	ECT ADMIN N	MACROS STUD	IO COMBI GROUI	PS LOGOL
Extend • Distribute •	nnovate	<b>C</b> reolligu		Macros	Stations	Routers Snap	shots Tie Lines	Log He
Adminis	tration					Sel	ect from the tabbed ch	noices above
					Im	port Exp	oort SAVE	Cancel
	y cell to change the conten						1.1	ſ
gnt-click Insid	e any <i>column header</i> to ad	a or delete columns (	r appropriate), and pr	ess the SAVE of Car	icel buttons (above)	when changes are c	ompiete.	
Stations (	ersion: X4.4)							
					-			
Width:	Height:	Font Size:	Update Interval:	Destination Side:	Connection Type:	Touch Type:	STUDIO BREAK:	
120	28	12	2000	RIGHT	SHARE	VIEW	HIDE	
Source Catego	ory: Source Category:	Source Category:	Source Category:	Source Category:	Source Category:	Source Category:	Ĩ.	
ALL								
Destination C	atego Destination Catego	Destination Catego	Destination Catego	Destination Catego	Destination Catego	Destination Catego	2	
ALL							1	
Source Name	Router Name:	<i>L1</i> :	12:	L3:	Category:	Category:	Color:	
Src 1	A	UR-001	UT-001		ALL		fuchsia	
Src 2	A	UR-002	UT-002		ALL		lime	
Src 3	A	UR-003	UT-003		ALL		blue	
Src 4	A	UR-004	UT-004		ALL		red	
Src 5	A	UR-005	UT-005		ALL		purple	
Src 6	A	UR-005	UT-006		ALL		orange	
Src 7	A	UR-007	UT-007		ALL		vellow	
Src 8	A	UR-008	UT-008		ALL		green	
Src 9	A	UR-009	UT-009		ALL		navy	
Src 10	Ä	UR-010	UT-010		ALL		aqua	
Src 10	A	UR-010	UT-011		ALL		fuchsia	
Src 12	A	UR-012	UT-012		ALL		lime	
Src 12 Src 13	A	UR-012 UR-013	UT-012 UT-013		ALL		blue	
210.12	A	UR-013 UR-014	UT-013 UT-014		ALL		red	
Fee 14								
Src 14 Src 15	Â	UR-015	UT-015		ALL		purple	

This page is designed to operate like a simple spreadsheet. Any value can be changed by clicking in it and typing a new value. Values can be copied and pasted, but only one at a time.

For more powerful editing options, see the chapters **Import/Export Station Configurations** (pg. 18) and **Configuring via Spreadsheet** (pg. 20).

The first table, starting with the column "Width", sets up values that will be common for all the stations on certain pages. We can ignore it for now.

The second and third tables are also safely ignored for now. We will return to them later.

The fourth table, starting with the column header *Source Name:* defines the source stations. Since we created a default set with a single video and a data return channel for a VX80 named "A", we will find sources named Src 1 through Src 40. Each source will have two ports; the first for video and the second for the data return.

Source stations can be added or deleted by right-clicking on an existing station row and selecting Insert, Append, or Delete from the pop-up menu. Existing station rows can be copied and pasted using the same menu.

Width:	Height:	Font Size:	Update Interval:	Destination Side:	Connection Type:	Touch Type:	STUDIO BREAK:
120	28	12	2000	RIGHT	SHARE	VIEW	HIDE
Source Category:	Source Category:	Source Category:	Source Category:	Source Category:	Source Category:	Source Category:	5
ALL							
Destination Categ	gol Destination Catego						
ALL							
Source Name:	Router Name:	L1:	L2:	L3:	Category:	Category:	Color:
Src 1	A	UR-001	UT-001		ALL		fuchsia
Src 2	🛛 🕺 Row	UR-002	UT-002		ALL	U	lime
Src 3	Insert	UR-003	UT-003		ALL		blue
Src 4	Append	UR-004	UT-004		ALL		red
Src 5	Delete	UR-005	UT-005		ALL		purple
Src 6		UR-006	UT-006		ALL		orange
Src 7	Copy Paste	UR-007	UT-007		ALL		yellow
Src 8	Paste	UR-008	UT-008		ALL		green
Src 9	A	UR-009	UT-009		ALL		navy
Src 10	A	UR-010	UT-010		ALL	0	aqua
Src 11	A	UR-011	UT-011		ALL		fuchsia
Src 12	A	UR-012	UT-012		ALL		lime

Scrolling down the page, we find the next and final table, which is for destination stations.

					C	Import E	xport SA
Src 29	A	UR-029	UT-029		ALL		navy
rc 30	Α	UR-030	UT-030		ALL		aqua
rc 31	A	UR-031	UT-031		ALL		fuchsia
rc 32	Α	UR-032	UT-032		ALL		lime
rc 33	A	UR-033	UT-033		ALL		blue
rc 34	A	UR-034	UT-034		ALL		red
rc 35	A	UR-035	UT-035		ALL		purple
rc 36	Α	UR-036	UT-036		ALL		orange
irc 37	A	UR-037	UT-037		ALL		yellow
irc 38	A	UR-038	UT-038		ALL		green
rc 39	A	UR-039	UT-039		ALL		navy
rc 40	A	UR-040	UT-040		ALL		aqua
Dst 1	A	UT-041	UR-041		ALL	curcyory.	
Destination Name:	Router Name:	L1:	L2:	L3:	Category:	Category:	
	and the second se						
st 2	A	UT-042	UR-042		ALL		
			UR-043		ALL		
Ost 3	A	UT-043					
Ost 3 Ost 4	A	UT-044	UR-044		ALL		
Ost 3 Ost 4 Ost 5	A A	UT-044 UT-045	UR-044 UR-045		ALL ALL		
Ost 3 Ost 4 Ost 5 Ost 6	A A A	UT-044 UT-045 UT-046	UR-044 UR-045 UR-046		ALL ALL ALL		
0st 3 0st 4 0st 5 0st 6 0st 7	A A A	UT-044 UT-045 UT-046 UT-047	UR-044 UR-045 UR-046 UR-047		ALL ALL ALL ALL		
Ost 3 Ost 4 Ost 5 Ost 6 Ost 7 Ost 8	A A A A	UT-044 UT-045 UT-046 UT-047 UT-048	UR-044 UR-045 UR-046 UR-047 UR-048		ALL ALL ALL ALL ALL		
st 3 st 4 st 5 st 6 st 7 st 8 st 9	A A A A A	UT-044 UT-045 UT-046 UT-047 UT-048 UT-049	UR-044 UR-045 UR-046 UR-047 UR-048 UR-049		ALL ALL ALL ALL ALL ALL		
Dst 3 Dst 4 Dst 5 Dst 6 Dst 7 Dst 8 Dst 8 Dst 9 Dst 10	A A A A A A	UT-044 UT-045 UT-046 UT-047 UT-048 UT-049 UT-050	UR-044 UR-045 UR-046 UR-047 UR-048 UR-049 UR-050		ALL ALL ALL ALL ALL ALL ALL		
Dst 3 Dst 4 Dst 5 Dst 5 Dst 6 Dst 7 Dst 8 Dst 9 Dst 10 Dst 11	A A A A A A A	UT-044 UT-045 UT-046 UT-047 UT-047 UT-048 UT-049 UT-050 UT-051	UR-044 UR-045 UR-046 UR-047 UR-048 UR-049 UR-050 UR-051		ALL ALL ALL ALL ALL ALL ALL ALL		
list 3 Jist 4 Jist 5 Jist 6 Jist 7 Jist 8 Jist 9 Jist 10 Jist 11 Jist 12	A A A A A A A A	UT-044 UT-045 UT-046 UT-047 UT-048 UT-049 UT-050 UT-051 UT-052	UR-044 UR-045 UR-046 UR-047 UR-048 UR-049 UR-050 UR-051 UR-052		ALL ALL ALL ALL ALL ALL ALL ALL ALL		
st 3 st 4 st 5 st 6 st 7 st 8 st 9 st 10 st 11 st 12 st 13	A A A A A A A A A	UT-044 UT-045 UT-046 UT-047 UT-048 UT-049 UT-050 UT-051 UT-052 UT-053	UR-044 UR-045 UR-046 UR-047 UR-048 UR-049 UR-050 UR-051 UR-052 UR-053		ALL ALL ALL ALL ALL ALL ALL ALL ALL ALL		
st 3 st 4 st 5 st 5 st 7 st 8 st 9 st 10 st 11 st 12 st 13 st 13 st 14	A A A A A A A A A A	UT-044 UT-045 UT-046 UT-047 UT-048 UT-049 UT-050 UT-051 UT-052 UT-053 UT-054	UR-044 UR-045 UR-046 UR-047 UR-048 UR-049 UR-050 UR-051 UR-052 UR-053 UR-054		ALL ALL ALL ALL ALL ALL ALL ALL ALL ALL		
st 3 st 4 st 5 st 5 st 7 st 8 st 9 st 10 st 11 st 12 st 12 st 13 st 14 st 14 st 15	A A A A A A A A A A A	UT-044 UT-045 UT-046 UT-047 UT-047 UT-048 UT-049 UT-050 UT-051 UT-051 UT-052 UT-053 UT-054 UT-055	UR-044 UR-045 UR-046 UR-047 UR-047 UR-049 UR-050 UR-051 UR-051 UR-052 UR-053 UR-054 UR-055		ALL ALL ALL ALL ALL ALL ALL ALL ALL ALL		
st 3 st 4 st 5 st 6 st 7 st 8 st 9 st 10 st 11 st 12 st 13 st 14 st 14 st 15 st 16 st 15 st 12 st 13 st 14 st 15 st 15 st 16 st 16 st 17 st 16 st 17 st 17 st 18 st 19 st 10 st 19 st 10 st 12 st 13 st 14 st 14 st 15 st 15 st 13 st 14 st 15 st 15 st 13 st 14 st 15 st 15 st 13 st 14 st 15 st 15 st 10 st 11 st 12 st 13 st 14 st 15 st 16 st 15 st 16 st 15 st 16 st 15 st 16 st 15 st 16 st 15 st 16 st 16 st 16 st 16 st 15 st 16 st	A A A A A A A A A A A A	UT-044 UT-045 UT-046 UT-047 UT-049 UT-050 UT-051 UT-053 UT-053 UT-054 UT-055 UT-056	UR-044 UR-045 UR-046 UR-047 UR-048 UR-049 UR-050 UR-051 UR-052 UR-053 UR-054 UR-055 UR-056		ALL ALL ALL ALL ALL ALL ALL ALL ALL ALL		
st 3 st 4 st 5 st 6 st 7 st 8 st 9 st 10 st 11 st 12	A A A A A A A A A A A	UT-044 UT-045 UT-046 UT-047 UT-047 UT-048 UT-049 UT-050 UT-051 UT-051 UT-052 UT-053 UT-054 UT-055	UR-044 UR-045 UR-046 UR-047 UR-047 UR-049 UR-050 UR-051 UR-051 UR-052 UR-053 UR-054 UR-055		ALL ALL ALL ALL ALL ALL ALL ALL ALL ALL		

Scrolling back up to sources, it's time to examine the fields in depth.

Source Name:	Router Name:	L1:	L2:	L3:	Category:	Category:	Color:
Src 1	A	UR-001	UT-001		ALL		fuchsia
Src 2	A	UR-002	UT-002		ALL		lime
Src 3	A	UR-003	UT-003		ALL		blue
Src 4	A	UR-004	UT-004		ALL		red
Src 5	A	UR-005	UT-005		ALL		purple

The first source station is named "Src 1". It has ports that are attached to the router named "A". The ports are named L1:, L2:, and L3: for convenience (since they match the first video, data return, and second video fiber names on Thinklogical fiber extenders), but the names are not important. Only the router name that precedes them and their order matter.

The port names require some explanation:

Thinklogical's VX160 and VX40 routers have boards that are labeled "Upstream" or "Downstream". The VX320 has two separate card cages in the same enclosure, "Up" and "Down". (*Please see the VX Router Manual for a view of the card cages and card designations.*)

The port names are very specific and unambiguously define a unique SFP and the Transmit "T" or Receive "R" port within that SFP. Ports in the "upstream" cards on VX160 and VX40 routers or the "up" card cage on the VX320 start with "U" and ports in the "downstream" cards (VX160, VX40) or "down" card cage (VX320) start with "D".

Cards in Thinklogical's other routers (VX80, VX320 Video, MX48, VX640, HDX80, and HDX576) do not have "upstream," "up," "downstream," or "down" designations. However, for consistency, the ports in those routers are always preceded by "U".

Our example of Src 1 on a VX80 has two ports. The first is port UR-001 and it is being used for video.

- "U" is because this port is on a VX80 (and they are all "U")
- "R" means this is receiving a signal from the TX extender (video in this case)
- 001 means this port is on the very first SFP in the card cage (bottom, left)

The second port on Src 1 is UT-001 and is for the data return channel (USB, serial, DDC, etc.)

- "U" is because this port is on a VX80 (and they are all "U").
- "T" means this is transmitting a signal to the TX extender (data in this case).
- 001 means this port is on the very first SFP in the card cage (bottom, left).

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

The next two columns are labeled "Category". These allow the administrator to organize the sources and destinations so that they can be organized and viewed together or separated as appropriate. We will return to this topic later.

Scroll down to the lower half of the stations page to find the destinations.

Destination Name:	Router Name:	L1:	L2:	L3:	Category:	Category:
Dst 1	Α	UT-041	UR-041		ALL	
Dst 2	Α	UT-042	UR-042		ALL	
Dst 3	А	UT-043	UR-043		ALL	
Dst 4	A	UT-044	UR-044		ALL	
Dst 5	А	UT-045	UR-045		ALL	

The default stations set up for single-headed KVM use half the SFPs as sources and half as destinations. Since there are eighty (80) SFPs, each with its own receiver and transmitter, there are eighty receiver ports and eighty transmitter ports. Every receiver port and every transmitter is completely independent. With the exception of the VX160, any receiver port can be connected to any transmitter port.

In Dst 3, the first port is UT-043 and it is being used for video.

- "U" is because this port is on a VX 80 (all "U").
- "T" means this is transmitting a signal from the router to the extender (video in this case).
- 043 means this port is on SFP number 43.

Similarly, the second port is the same as the first, with the exception of the "R" replacing the "T," since this port will receive the data return from the receiver extender.

Therefore, when told via a browser page to connect Src 1 to Dst 3, the router will

- Connect UR-001 to UT-043 (for the video).
- Connect UR-043 to UT-001 (for the data return).

At this point the two stations are considered connected.

**NOTE:** If the source and destination each have two heads, then the router will connect all the R ports from the source to all the T ports on the destination, and all the R ports on the destination to all the T ports on the source. Blank entries will be skipped. If a two-headed source is connected to a single-head destination, the first head of the source will be connected and the second will not. If a single-head source is connected to a double-head destination, the second head of the destination will be disconnected.

#### **Adding New Ports**

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

Source Name:	Router Name:	L1:	L2:	L3:	Category:	Category:	Color:
Src 1	A	UR-001	UT-001		😣 Column		fuchsia
Src 2	A	UR-002	UT-002		Append		lime
Src 3	A	UR-003	UT-003		Delete		blue
Src 4	A	UR-004	UT-004		ALL		red
Src 5	Α	UR-005	UT-005		ALL	T.	purple
Src 6	A	UR-006	UT-006		ALL		orange
Src 7	A	UR-007	UT-007		ALL		yellow
Src 8	A	UR-008	UT-008		ALL		green
Src 9	A	UR-009	UT-009		ALL		navy
Src 10	A	UR-010	UT-010		ALL		aqua
Src 11	A	UR-011	UT-011		ALL		fuchsia
Src 12	A	UR-012	UT-012		ALL		lime

A new *L3*: column appears. Left click on the new *L3*: header and select *L4*:

Source Name:	Router Name:	<b>L1</b> :	L2:	L3:	L3:	Category:	Category:	Color:
Src 1	A	UR-001	UT-001			Station Labels		fuchsia
Src 2	A	UR-002	UT-002			DeuteeNews		lime
Src 3	A	UR-003	UT-003			Router Name: L1:		blue
Src 4	A	UR-004	UT-004			L1.		red
Src 5	Α	UR-005	UT-005			L3:		purple
Src 6	A	UR-006	UT-006			L4:	f.	orange
Src 7	A	UR-007	UT-007			L5:		yellow
Src 8	A	UR-008	UT-008			Category:		green
Src 9	A	UR-009	UT-009			Color:		navy
Src 10	A	UR-010	UT-010			Viewable: Takeable:		aqua
Src 11	A	UR-011	UT-011			rakeable:		fuchsia
Src 12	A	UR-012	UT-012			ALL		lime

The column will be renamed.

					Im	port Exp	ort S/	<b>VE</b>	Cance
	ell to change the conter ny column header to ac					when changes are co	mplete.		
2	1 52/		ev sviet 26111 2827311 35			10.28	18		
Stations (vers	sion: X4.4)								
Vidth:	Height:	Font Size:	Update Interval:	Destination Side:	Connection Type:	Touch Type:	STUDIO BREAK:		
.20	28	12	2000	RIGHT	SHARE	VIEW	HIDE		
ource Category:	Source Category:	Source Category:	Source Category:	Source Category:	Source Category:	Source Category:	21		
LL									
estination Cate	go Destination Catego	Destination Catego	Destination Catego	Destination Catego	Destination Catego	Destination Catego			
LL.	yo, bestminiten carege	a bostination catego	Destination catego	. Destimation currege	a continuitori carege	Departmenton carego			
Source Name:	Router Name:	11:	12:	L <b>3</b> :	14:	C	C	Color:	
rc 1	A	UR-001	UT-001	L3.	47.	Category:	Category:	fuchsia	
rc 2	A	UR-002	UT-002			ALL		lime	
irc 3	A	UR-003	UT-003			ALL		blue	

However, we don't need extra signals right now, so click the Cancel button (not **SAVE**).

At this point, we have a router and some stations defined, so X4 can make connections between sources and destinations. To see how this is done, proceed to the *CONNECT* **Page** in this manual.

#### **Import/Export Station Configurations**

Internally, all configurations for stations and routers are maintained in Comma Separated Value format, or CSV files. For complex installations, it is often easier to modify these stations and router configuration files using a spreadsheet program.

To save a local copy of the stations.csv file, select *ADMIN* **Stations** and click the "Export" button. A copy of the file will be downloaded through the browser's normal file download function.

**NOTE:** In file names for stations, the name must start with "stations" and end with ".csv". The part of the file name between "stations" and ".csv" is ignored, so the administrator can use the middle of the file name for any identifying information.

For example, the first time Windows downloads the "stations.csv" file into the download directory, it will be saved as "stations.csv". Future downloads may be named "stations (2).csv", etc. The administrator may decide to rename their saved "stations.csv" as "stations-phase-1.csv", and X4 will still upload it and save it as "stations.csv" internally.

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

To upload the stations.csv file, select *ADMIN* **Stations** and click the "Import" button. The web browser will pop up a file browser window and let you select the file to be uploaded. Select it and the file browser will close. Now click the "UPLOAD" button and the file will be transmitted to the server.

think	logical	<sup>™</sup> X4Config		ECT ADMIN	MACROS	STUDIO CO	MBI GROUPS	s LC	GOUT
Extend + Distribute + Ir	nnovate		Macros	Stations	Routers	Snapshots	Tie Lines	Log	Help
Adminis	tration					Select from	n the tabbed cho	ices abo	ve
	Choose File	stationsAB.csv	UPLOAD		mport	Export	SAVE	Ca	ancel
			<i>ht-click</i> inside any cell ins (if appropriate), and				nen changes are c	omplete.	
# Stations (v						_			
<i>Width:</i> 120	Height: 28	Font Size: 12	Update Interval: 2000	Destination Sid RIGHT	e: Connect SHARE	tion Type: Touch VIEW	h Type: STO SHO	UDIO BREA OW	K:

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

think	logical	<sup>™</sup> X4Config		ECT ADMIN	MACROS	STUDIO CON	MBI GROUPS	s LC	GOUT
Extend • Distribute • I	nnovale		Macros	Stations	Routers	Snapshots	Tie Lines	Log	Help
Adminis	tration					Select from	the tabbed cho	oices abo	ve
	y cell to change the c le any <i>column header</i> ersion: X4.4)		The page at localho Please allow a few secon	st:8080 says:		Export	SAVE on changes are c	_	ancel
Width: 120	Height: 28	Font Size: 12	Update Interval: 2000	Destination Side	e: Connect SHARE	tion Type: Touch VIEW	Type: ST SH	U <i>DIO BREA</i> OW	к:

#### **Configuring via Spreadsheet**

Configuring many stations using X4's ADMIN: **Stations** page can be slow. An alternative is to export the stations file (as described in **Import/Export Station Configurations** on page 18 and then make changes using a spreadsheet program like Excel or Open Office.

**NOTE:** It is important to save the file as CSV after editing and always keep an unedited backup.

🗄 • 🎯 🗖 👘 • 🖄	1 I A A Q	Arial	■ 10 ■ B	III E E E E	≣ € € L·2	- A - 🖮 🖮 🖽 🖬	e I		
		Allei		10====			•		
45 💌 :	∱∑ =								
A	В	С	D	E	F	G	Н	1	J
# Stations (version: X	4.4)								
					o		0711010 005414		
Width:	Height: 120 2	Font Size: 8 1	Update Interval: 2 2000	Destination Side: RIGHT	Connection Type: SHARE	Touch Type: VIEW	STUDIO BREAK: SHOW		
	120 2	8	2 2001	IRIGHT	SHARE	VIEW	SHUW		
Source Category:	Source Category:	Source Category:	Source Category:	Source Category:	Source Category:	Source Category:			
ALL	1-5	1357	oranoe catogory.	oodiso odiogsij.	oouroo outogorj.	cource outegory.			
1									
Destination Category	Destination Category:	Destination Category:	Destination Category:	Destination Category:	Destination Category:	Destination Category:			
0 ALL	1-5	1357							
1									
2 Source Name:	Router Name:	L4:	L2:	L3:	Category:	Category:	Category:	Takeable:	
3 Src 1	A	UR-001	UT-001		ALL	1-5	1357	user	fuchsia
4 3rc 2	A	UR-002	UT-002		ALL	1-5		user	lime
5 Src 3	A	UR-003	UT-003		ALL	1-5	1357	user	blue
6 Src 4	A	UR-004	UT-004		ALL	1-5	1057	user	red
7 Src 5 8 Src 6	A	UR-005 UR-006	UT-005 UT-006		ALL	1-5	1357		purple
9 Src 7	A	UR-007	UT-006 UT-007		ALL		1357		orange vellow
9 Src 8	A	UR-008	UT-008		ALL		1357		green
1 Src 9	A	UR-009	UT-009		ALL				navy
2 Src 10	A	UR-010	UT-010		ALL				aqua
3 Src B1	B	UR-021	UT-021		ALL				red
4 Src E2	B	UR-022	UT-022		ALL				blue
5									
b									
7 Destination Name:	Router Name:	L1:	L2:	L3:	Category:	Category:	Category:	Takeable:	
8 <u>Dst</u> 1	A	UT-041	UR-041		ALL	1-5	1357		
9 Dst 2	A	UT-042	UR-042		ALL	1-5			
D Dst 3	A	UT-043	UR-043		ALL	1-5	1357		
1 Dst 4	A	UT-044	UR-044		ALL	1-5			
2 Det 5 3 Det 6	A	UT-045 UT-046	UR-045 UR-046		ALL	1-5	1357	user	
4 Dst 7	A	UT-046 UT-047	UR-040		ALL		1357	user	
5 Dst 8	Â	UT-048	UR-048		ALL		1357	user	
5 Dat 0	Å	UT-040	UR-040		ALL				
7 Dst 10	A	UT-050	UR-050		ALL				
B DSt B1	в	UI-041	UK-041		ALL				
Dst B2	В	UT-042	UR-042		ALL				
)									
L									
)(•)(•) Sheet1/		********	********						) 4

As shown, we have removed all the sources after "Src 10" and added three new ones that refer to router "B." Don't forget to insert a heading in the Category column so these new sources will be found.

The process is the same for destinations named "B1" and "B2."

Save this file with a new name and upload it using the instructions in **Import/Export Station Configurations.** Once the ADMIN: **Stations** page reloads there will be a shorter page with some new sources and destinations on router B as well as the previous ones from router A.

thinkl	ogical	<mark>X4</mark> Configu	rator		CONNE	CT ADMIN	MACROS STUD	IO COMBI GI	ROUPS LOGO
extend s plandore s inno	-un-				Macros	Stations	Routers Snap	shots Tie L	ines Log H
Administr	ation						Sel	ect from the tabl	ed choices above
							mport Exp	ort SA	VE Cance
	ell to change the conte ny column header to a					when changes are	complete.		
Stations (ver	sion: X4.4)								
Width:	Height:	Font Size:	Update Interval:	Destination Side:	Connection Type:	Touch Type:	STUDIO BREAK:		
120	28	12	2000	RIGHT	SHARE	VIEW	SHOW		
Source Category	Source Category:	Source Category:	Source Category:	Source Category:	Source Category:	Source Category	r.		
ALL	1-5	1357							
Destination Cate	gol Destination Catego	Destination Catego	Destination Catego	Destination Catego	Destination Catego	Destination Cat	egol		
ALL	1-5	1357				e H			
Source Name:	Router Name:	L1:	L2:	L3:	Category:	Category:	Category:	Takeable:	Color:
Src 1	A	UR-001	UT-001		ALL	1-5	1357	user	fuchsia
Src 2	A	UR-002	UT-002		ALL	1-5		user	lime
Src 3	A	UR-003	UT-003		ALL	1-5	1357	user	blue
Src 4	A	UR-004	UT-004		ALL	1-5		user	red
Src 5	A	UR-005	UT-005		ALL	1-5	1357		purple
Src 6	A	UR-006	UT-006		ALL				orange
Src 7	A	UR-007	UT-007		ALL		1357		yellow
Src 8	Α	UR-008	UT-008		ALL				green
Src 9	A	UR-009	UT-009		ALL				navy
Src 10	A	UR-010	UT-010		ALL				aqua
Src B1	В	UR-021	UT-021		ALL				red
Sinc B2	В	UR-022	UT-022		ALL				blue
Destination Nam	Contraction of the Although Contra-	L1:	L2:	L3:	Category:	Category:	Category:	Takeable:	
Dst 1	A	UT-041	UR-041		ALL	1-5	1357		
Ost 2	A	UT-042	UR-042		ALL	1-5			
Ost 3	A	UT-043	UR-043		ALL	1-5	1357		
Ost 4	A	UT-044	UR-044		ALL	1-5			
Ost 5	A	UT-045	UR-045		ALL	1-5	1357	user	
Ost 6	A	UT-046	UR-046		ALL			user	
Ost 7	A	UT-047	UR-047		ALL		1357	user	
Ost 8	A	UT-048	UR-048		ALL				
Ost 9	A	UT-049	UR-049		ALL				
	A	UT-050	UR-050		ALL				
Dst 10									
Dst 10 Dst B1 Dst B2	B	UT-041 UT-042	UR-041 UR-042		ALL				

#### **ADMIN: Tie Lines**

"Tie lines" are fiber interconnects between routers that allow sources on one router to be seen at destinations on another.

Thinklogical's implementation of tie lines can automatically allocate, utilize, and deallocate tie lines as necessary, even creating multi-hop connections utilizing intermediate routers when no direct paths are available.

Tie lines are created on the ADMIN: **Routers** page. First, we'll need more than one router. Right click on the existing router description to activate the Row pop-up, and then select Append from the list to add a new row.

think	<b>Logical</b> X4Configurator				ONNECT AD			MBI GROUPS	S LOGOUT
				Mac	ros Station	ns Routers	Snapshots	Tie Lines	Log Help
Administ	ration						Select from	the tabbed cho	ices above
						Import	Export	SAVE	Cancel
# Routers (ver Router Name: A	sion: X4.4) <i>Type:</i>	<i>IP Address:</i> 192.168.7.100	Socket: 17567	Enabled: yes	Default Sta	STREET, STREET	ALCOME AND A DESCRIPTION	Sync: Sync S	Status:
ADD Tie Line	Insert Append Delete Copy Paste								

Enter the information for the second router as described in ADMIN: Routers.

\*Note: The IP addresses shown in this manual are not the defaults used in most installations. Please insert your own addresses where appropriate.

		contents of that cell, <i>right</i> to add or delete columns			Impo ow options, r <b>Cancel</b> buttons (above)			Cancel
# Routers (vers Router Name:	ion: X4.4) <i>Type:</i>	IP Address:	Socket:	Enabled:	Default Stations:	Sync Format:	House Sync:	Sync Status:
A	VX 80	192.168.7.100	17567	yes	CREATE		card not installed	
В	VX 80	192.168.7.108	17567	yes	CREATE		card not installed	
ADD Tie Line T	able							

Click **SAVE** when done.

Next, create the Tie Line Table. This is done by clicking the "ADD Tie Line Table" button on the bottom left. When clicked, it will insert a headers and a single, blank row for the first tie line (and replaces the Add Tie Line Table button with a REMOVE Tie Line Table button).

Router Name:	Type:	IP Address:	Socket:	Enabled:	Default Stations:	Sync Format:	House Sync:	Sync Status:
A	VX 80	192.168.7.100	17567	yes	CREATE	$\supset$	card not installed	
В	VX 80	192.168.7.108	17567	yes	CREATE		card not installed	
Tie Line Name:	Start Router:	Start Port:	End Router:	End Port:	Duplex:	Automatic:		
					yes	yes		

Add the values for the first tie line. The start port is where the signal will exit the start router and will be a Transmit. The end port is where the signal enters the end router and will be a Receive port. Duplex means there is a second fiber for the return channel, so since duplex is true in this case, it would be on router A at port UR-071 and router B at UT-061.

The easiest way to add new tie lines is to:

- 1. Right click on the first one and select Copy.
- 2. Right click on the first one again, select Append.
- 3. Right click on the new, blank line and select Paste.

The choice of each tie line name is up to the administrator. It is used to uniquely identify the tie line to the program and for diagnostics as we will see later. Make sure that the Duplex and Automatic columns are set to "yes".

Routers (vers	ion: X4.4)							
Router Name:	Type:	IP Address:	Socket:	Enabled:	Default Stations:	Sync Format:	House Sync:	Sync Status:
1	VX 80	192.168.7.100	17567	yes	CREATE		card not installed	
1	VX 80	192.168.7.108	17567	yes	CREATE	5	card not installed	
Tie Line Name:	Start Router:	Start Port:	End Router:	End Port:	Duplex:	Automatic:		
AB-1	A	UT-071	В	UR-061	yes	yes		
NB-2	A	UT-072	В	UR-062	yes	yes		
NB-3	A	UT-073	В	UR-063	yes	yes		
A-1	В	UT-064	A	UR-074	ves	yes		

In this case, we have created three duplex paths from A to B and one from B to A. Click **SAVE** when done.

Next, we need to create stations on both routers. If you are using one of the default files created automatically by X4, it probably has many more stations than are needed. Use the ADMIN Stations Export function to save a copy of stations.csv, and edit it using a spreadsheet program like Excel or Open Office.

(*The chapters on* **Import/Export Station Configuration** *and* **Configuring via Spreadsheet**, *show how to create additional source and destination stations on the second router. The rest of this chapter uses the stations created from those chapters.*)

#### **Using and Monitoring Tie Lines**

In the chapters and , we modified our stations file. It now looks like this, with sources and destinations from both routers A and B.

thin la	logigal	VAc. c			CONNE	ECT ADMIN I	MACROS STUD	O COMBI G	ROUPS LOGO
xtend • Distribute • Inne	logical	X4Configu	irator		Macros	Stations	Routers Snap	shots Tie L	ines Log H
Administ	ration						Sele	ct from the tabl	ed choices above
						(Im	port Exp	ort S4	VE Cance
Niek ineide enu d	all to choose the cost	tents of that cell, right-	aliak inaida anu aall to	ana additional raw or	ationa				Cance
		add or delete columns				when changes are	complete.		
Stations (ver	rsion: X4.4)								
Width:	Height:	Font Size:	Update Interval:	Destination Side:	Connection Type:	Touch Type:	STUDIO BREAK:		
120	28	12	2000	RIGHT	SHARE	VIEW	SHOW		
					125				
Source Category		Source Category:	Source Category:	Source Category:	Source Category:	Source Category:			
ALL	1-5	1357			<u>n</u>				
Destination Cat	ego Destination Cate	go Destination Categ	o Destination Catego	Destination Catego	Destination Catego	Destination Cate	70		
ALL	1-5	1357				Belactive and an entry			
Source Name:	Router Name:	L1:	12:	13:	Category:	Category:	Category:	Takeable:	Color:
Src 1	A	UR-001	UT-001		ALL	1-5	1357	user	fuchsia
Src 2	Â	UR-002	UT-002		ALL	1-5	1007	user	lime
Src 3	A	UR-003	UT-003		ALL	1-5	1357	user	blue
Src 4	A	UR-004	UT-004		ALL	1-5		user	red
Src 5	A	UR-005	UT-005		ALL	1-5	1357		purple
Src 6	A	UR-006	UT-006		ALL				orange
Src 7	A	UR-007	UT-007		ALL		1357		yellow
Src 8	A	UR-008	UT-008		ALL				green
Src 9	A	UR-009	UT-009		ALL				navy
Src 10	A	UR-010	UT-010		ALL				aqua
Src B1	В	UR-021	UT-021		ALL				red
Src B2	В	UR-022	UT-022		ALL				blue
Destination Nan	ne: Router Name:	L1:	L2:	L3:	Category:	Category:	Category:	Takeable:	
Dst 1	A	UT-041	UR-041		ALL	1-5	1357		
Dst 2	A	UT-042	UR-042		ALL	1-5			
Dst 3	A	UT-043	UR-043		ALL	1-5	1357		
Dst 4	A	UT-044	UR-044		ALL	1-5			
Dst 5	A	UT-045	UR-045		ALL	1-5	1357	user	
Dst 6	A	UT-046	UR-046		ALL			user	
Dst 7	A	UT-047	UR-047		ALL		1357	user	
Dst 8	A	UT-048	UR-048		ALL				
Dst 9	A	UT-049	UR-049		ALL				
	A	UT-050	UR-050		ALL				
Dst 10 Dst B1 Dst B2	B	UT-041 UT-042	UR-041 UR-042		ALL				

Select *CONNECT* from the links across the top. There will be two new sources and two new destinations.

Select one of the older sources from router A and then a destination on router B. For this example we'll use Src 3 and destination Dst B2.

thinklogical X4con	CONNECT ADMIN		_		LOGOU
Connections		ALL Click a source an	1-5 d then one	1357 e or more desti	Help nations
OURCES	DESTINATIONS-	DESTINATIONS-			
Src 1 X Src B1 X	Dst 1 X	Dst B1			
Src 2 X Src B2 X	Dst 2	Dst B2	X	Src 3 🔒	
Src 3 X	Dst 3 🕺				
Src 4 X	Dst 4				
Src 5 X	Dst 5 💢				
Src 6 X	Dst 6				
Src 7 🗙	Dst 7 💢				
Src 8 X	Dst 8 X				
Src 9 X	Dst 9 🕺				
Src 10 X	Dst 10				

Note that there is no obvious indication that the connection required tie lines. But if you select the *ADMIN* link and the **Tie Lines** tab, you will see the tie line in action.

thinklog	inklogical <sup>®</sup> X4Configurator			ECT ADMIN	MACROS	STUDIO	COMBI	GROUPS	L	OGOUT
Extend • Distribute • Innovate		an a	Macros	Stations	Routers	Snapsho	ots 👖	e Lines	Log	Help
Administration	1					Select I	rom the t	abbed choi	ces abo	ove
							C	SAVE	C	Cancel
Src 3		AB-1		)[	Dst B2					
	A	AB-2	B							
		AB-3	)[	J.						
	В	BA-1	A	)[						

This page shows that the source, "Src 3", is entering router "A" and output through the tie line named AB-1 to enter router "B" and finally being sent to destination "Dst B2".

Clicking directly on the tie line icon for AB-1 will pop up some brief information about that tie line.

thinklog	i <b>cal<sup>≞</sup> X4</b> c	onfigurator	CONN	ECT ADMIN	MACROS	STUDIO CON	BI GROUPS	S LOGOUT
Extend • Distribute • Innovate			Macros	Stations	Routers	Snapshots	Tie Lines	Log Help
Administration						Select from t	he tabbed cho	ices above
							SAVE	Cancel
Src 3		AB-1 AB-2 AB-3 at localhost:8080 say:	B 5:		Dst B2			
	Name: AB-1 Start: A :: L	JT-0071 JR-0061	ОК					

As you can see from this graphical representation and from the earlier tie line table on the ADMIN: **Routers** page, we have three tie lines leading from A to B and only one from B to A. To see what happens when the tie lines become "oversubscribed," go back to the *CONNECT* page and connect a source on B to a destination on A.

thinklogical X4Configurator	CONNECT	ADMIN	MACROS	STUDIO	COMBI	GROUPS	LOGOUT
				ALL	1-5	1357	Help
Connections			Click a	source and	then one	or more dest	inations
SOURCESSOURCES	DESTINATIONS			DESTIN	ATIONS -		]
Src 1 X Src B1 X	Dst 1	Х			Ost B1	Х	
Src 2 X Src B2 X	Dst 2				Ost B2	X s	rc 3 🔓
Src 3 X	Dst 3	Х					
Src 4 X	Dst 4	X	Src B1				
Src 5 X	Dst 5	Х					
Src 6 X	Dst 6	Х					
Src 7 X	Dst 7	Х					
Src 8 X	Dst 8	Х					
Src 9 X	Dst 9						
Src 10 🗙	Dst 10						

thinklog	ical <sup>™</sup> X4o	onfigurator	CONN	ECT ADMIN	MACROS	STUDIO COI	MBI GROUPS	S LOGOUT
ixtend • Distribute • Innovate 🤎		-	Macros	Stations	Routers	Snapshots	Tie Lines	Log Help
Administratio	n					Select from	the tabbed cho	ices above
							SAVE	Cancel
Src 3		AB-1			Dst B2			
	A	AB-2	В			5		
	10000	100		0		-		
		AB-3						

Note that only the tie line from B to A is in use. Now return to the *CONNECT* page (for which you probably have kept a browser tab open) and connect another B source to another A destination.

← → C ↑ □ localhost:8080/connect	ක්. ක
<i>thinklogical</i> <sup>®</sup> X4con	CONNECT ADMIN MACROS STUDIO COMBI GROUPS LOGO
Extend • Distribute • Innovate	ALL 1-5 1 3 5 7 Hel
Connections	Click a source and then one or more destinations No path availab
SOURCES	DESTINATIONS
Src 1 X Src B1 X	Dst 1 X Dst 81 X
Src 2 X Src B2 X	Dst 2 X Dst B2 X Src 3
Src 3 X	Dst 3 X
Src 4 X	Dst 4 X Src B1
Src 5 X	Dst 5 🗙
Src 6 X	Dst 6 X
Src 7 X	Dst 7 X
5rt 8 X	Ust 8 X
Src 9 X	Dst 9 X
Src 10 X	Dst 10

The red message "No path available" will appear for a few seconds and then disappear whenever there are not enough tie lines to complete the desired connection.

Here is how the same condition looks on the STUDIO and COMBI screens.

Destination Categories (page 1 of 1)	Dst	Source Categories (page 1 of 1)
ALL 1-5 1357	< > < > < >	ALL 1-5 1357
Destination Entries (page 1 of 1)	Dst Pages Src Pages	Source Entries (page 1 of 1)
Dst 1 Dst 2 Dst 3 Src 81 Dst 4 Dst 5 Dst 6	<ul> <li></li> <li><th>Src 1     Src 2     Src 3       Src 4     Src 5     Src 6       Src 7     Src 8     Src 9</th></li></ul>	Src 1     Src 2     Src 3       Src 4     Src 5     Src 6       Src 7     Src 8     Src 9
Dst 7 Dst 8 Dst 9	No path available	Src 10 Src B1 Src B2
Dst 10 Dst 81 Dst 82		
Sequences		
mac 1 mac 2		<i>thinklogical</i> "
Actions		
DESTINATION: Dst 5		BREAK (VIEW) SHARE LOG IN



#### **ADMIN: Snapshots**

A "Snapshot" is a complete record of all the active connections on all the routers at the time it was recorded. It is a simple way to return all the connections to a previous state.

Snapshots are created and recalled from the *ADMIN* page **Snapshots** tab.

thinklogical <sup>®</sup> X4Configurator	CONN	ECT ADMIN	MACROS	STUDIO COI	MBI GROUP	S LO	OGOUT
Extend + Distribute + Innovate	Macros	Stations	Routers	Snapshots	Tie Lines	Log	Help
Administration				Select from	the tabbed ch	oices abo	ve
Select Snapshot to modify/delete	2						
xbk_284_12_43_55 xbk_284_12_43_59 xbk_284_12_44_39	xbk_284_	12_44_41	xbk_2	84_12_46_35	J		
xbk_284_12_46_37 xbk_284_12_46_51 xbk_284_12_46_53	xbk_284_	12_58_44	xbk_2	84_12_58_45			

The buttons that begin with xbk\_ are created automatically during an operation and are the results of the last ten actions (connects or disconnects). The names always begin with "xbk\_' followed by the day of the year, hour, minute and second. To go back to a previous time, click the button for that time.

A confirmation dialog will appear with one last chance to cancel.

				SAVE	Cancel
Select Snapshot to modify/delete 🗘					
xbk_284_12_43_55	The page at localhost:8080 says:	xbk_284_12_44_41	xbk_284_12_46_35	]	
xbk_284_12_46_37	This will conform every port on every router to the snapshot named: "xbk_284_12_58_44". This can be very disruptive.	xbk_284_12_58_44	xbk_284_12_58_45	]	
	Are you sure? Cancel to abort. OK to continue. Cancel OK				
-					

Click OK and the action is performed.

To create a new snapshot with your own title, either select the most recent automatic snapshot from the drop-down list and give it your own name or pull down to the last option and select "Create New Snapshot".

✓ Select Snapshot to modify/delete
xbk_284_12_43_55
xbk_284_12_43_59
xbk_284_12_44_39
xbk_284_12_44_41
xbk_284_12_46_35
xbk_284_12_45_37
xbk_284_12_45_51
xbk_284_12_46_53
xbk_284_12_58_44
xbk_284_12_58_45
Create New Snapshot

To give it a new name, click the "Press to Record" button and the new snapshot is created.

					SAVE	Cancel
Create New Snapshot	Change name here	Press to Record				
xbk_284_12_43_55	xbk_	The page at localhost:8080 says: Snapshot "startup" created.	284_12_44_41	xbk_284_12_46_35	]	
xbk_284_12_46_37	xbk_		284_12_58_44	xbk_284_12_58_45		

				(	SAVE	Cancel
Select Snapshot to modify/delete 🛊	)					
startup	xbk_284_12_43_55	xbk_284_12_43_59	xbk_284_12_44_39	xbk_284_12_44_41		
xbk_284_12_46_35	xbk_284_12_46_37	xbk_284_12_46_51	xbk_284_12_46_53	xbk_284_12_58_44		
xbk_284_12_58_45						

**NOTE:** There is one last important point to remember about snapshots: When a snapshot is executed, each router will first disconnect every port and then proceed to reconnect only the ports that were connected when the snapshot was recorded. This means that every screen will first go dark and then be reconnected the way the snapshot recorded it.

#### ADMIN: Log

A log file is kept of all user and system maintenance activities. To see it, go to the *ADMIN* page and the **Log** tab.

Extend - Distribute - Innovate		Macros	Stations	Routers	Snapshots	Tie Lines	Log Hel
Administration					Select from	the tabbed cho	ices above
2012.10.10 11:24:04 (system notice)		access warning user	127 0 0 1 +++	ampted to a	cass connect	html Denied	
2012.10.10 11:24:11 127.0.0.1	user	login (local) success				itemi. Denited.	
2012.10.10 12:37:01 127.0.0.1	admin		tionsAB.csv']		100		
2012.10.10 12:37:02 (system notice)		changes found, config					
2012.10.10 12:37:02 (system notice)		loading configuration	files				
012.10.10 12:38:58 127.0.0.1	admin	uploader ['sta	tionsAB.csv']				
012.10.10 12:38:58 (system notice)		changes found, config	reload				
012.10.10 12:38:58 (system notice)		loading configuration	files				
012.10.10 12:40:17 127.0.0.1	admin	share "Dst	1"="Src B1"				
2012.10.10 12:43:46 127.0.0.1	admin	disconnect src "Src	1"				
2012.10.10 12:43:46 127.0.0.1	admin	disconnect src "Src					
2012.10.10 12:43:48 127.0.0.1	admin	disconnect src "Src	9 "				
2012.10.10 12:43:49 127.0.0.1	admin	disconnect src "Src					
2012.10.10 12:43:54 127.0.0.1	admin		Bl"="Src 1"				
012.10.10 12:43:56 127.0.0.1	admin	disconnect "Dst	B1"				
2012.10.10 12:44:37 127.0.0.1	admin		B2"="Src 3"				
2012.10.10 12:46:34 127.0.0.1	admin		1"="Src B1"				
2012.10.10 12:46:36 127.0.0.1	admin		3"="Src B2"				
2012.10.10 12:46:40 127.0.0.1	admin		3"="Src B2"				
2012.10.10 12:46:44 127.0.0.1	admin		3"="Src B2"				
012.10.10 12:46:51 127.0.0.1	admin	disconnect src "Src					
2012.10.10 12:58:42 127.0.0.1	admin		4"="Src B1"	and the second second	warden anterested sector and		
2012.10.10 12:38:58 (system notice)		loading configuration					
012.10.10 12:38:58 (system notice)		changes found, config		ated 2 times	, last at 201:	2.10.10 12:37	:02)
2012.10.10 13:02:27 127.0.0.1	admin		6"="Src B2"				
2012.10.10 13:08:44 127.0.0.1	admin		5"="Src B2"				
2012.10.10 19:05:36 127.0.0.1	admin admin	snapExec "xbk snapNew "sta:	284_12_58_44"				
2012.10.10 19:11:00 127.0.0.1							

#### ADMIN: Help

The final tab is context sensitive "Help." A short help pop-up is available for every tab on the *ADMIN* page and also on the *CONNECT* page.

	are			Macros	Stations	Routers	Snapshots	Tie Lines	Log Help
			1	nacios	otations	NUBIOIS	Gnapshots	THO LINGS	109 1101
Administra	ation						Select from	the tabbed cho	ices above
012.			tess warning	ucor81	27 0 0 1 att	omptod to a	ccess connect.h	html Donied	C C
012.	The page at localhost:808	0 says:	jin (local) s loader	uccess u				ical. Denied.	
012.	The blue links across the top are		anges found,						
012.	that your user group is authorized	ed to access.	ading configu						
012.	The "Log" displays a recorded hi	rtony of actions	Loader		ionsAB.csv']				
12.	performed by the user interface.		anges found,						
012. 012.	connections, disconnections, ma		ading configu		"="Src B1"				
012.			ire						
12.	It is also helpful in finding config	guration and	sconnect src	"Src 1 "Src 2					
012.	execution errors.		sconnect src	"Src 9					
112.			sconnect src	"Src B					
012.	X4Configurator: Version		are		1"="Src 1"				
012.	(c) 2010-2012 Thinkle		sconnect	"Dst B					
012.	All rights reserved	69 (A)	ire		2"="Src 3"				
12.		ОК	ire		"="Src B1"				
012		UN	are		"="Src B2"				
			re		"="Src B2"				
	46:44 127.0.0.1	admin	share	"Dst 3	"="Src B2"				
	46:51 127.0.0.1	admin	disconnect src	"Src B					
12.10.10 12:	58:42 127.0.0.1	admin	share	"Dst 4	"="Src B1"				
	38:58 (system notice)		loading configu	ration f	iles (re	peated 2 tir	mes. last at 20	012.10.10 12:	37:02)
	38:58 (system notice)		changes found,						
	02:27 127.0.0.1	admin	share		"="Src B2"		15 AUGUST 1997 - 2016		200000 <b>4</b> 0
		admin	share	"Dat 5	"="Src B2"				
	08:44 127.0.0.1								
012.10.10 13:	05:36 127.0.0.1	admin	snapExec		84 12 58 44"				

#### **CONNECT** Page

Click the *CONNECT* link at the top of the page.

Connection	ie.		ALL Help Click a source and then one or more destinations
		2212222	
SOURCES	SOURCES	Src 21 X	DESTINATIONS
Src 2 X	Src 12 X	Src 22 X	Dst 2 X
Src 3 X	Src 13 X	Src 23 X	Dst 3 🗙
Src 4 🛛 🗙	Src 14 X	Src 24 X	Dst 4
Src 5 X	Src 15 X	Src 25 X	Dst 5 X
Src 6 X	Src 16 X	Src 26 X	Dst 6 X
Src 7 🗙	Src 17 🗙	Src 27 🗙	Dst 7 X
Src 8 X	Src 18 X	Src 28 X	Dst 8 X
Src 9 X	Src 19 X	Src 29 X	Dst 9 X
Src 10 🛛 🗙	Src 20 X	Src 30 X	Dst 10
SOURCES			DESTINATIONS
Src 31 X			Dst 11
Src 32 X			Dst 12
Src 33 X			Dst 13 📉
Src 34 X			Dst 14
Src 35 X	=		Dst 15

Sources are on the left, destinations on the right. Click Src 1 and it will highlight in light blue.

ß	OURCES	1	SOURCES		SOURCES	DESTINATIONS
	Src 1	X	Src 11	X	Src 21 X	Dst 1 X
	Src 2	X	Src 12	X	Src 22 X	Dst 2 X
	Src 3	X	Src 13	x	Src 23 X	Dst 3 X
	Src 4	X	Src 14	x	Src 24 X	Dst 4

Now that Src 1 is selected, click Dst 3.

1	SOURCES		SOURCES		SOURCES		1	P	ESTINATIONS -			
	Src 1	X	Src 11	Х	Src 21	Х			Dst 1	X		
	Src 2	X	Src 12	X	Src 22	X			Dst 2	Х		
	Src 3	Х	Src 13	X	Src 23	Х			Dst 3	X	Src 1	ĥ
	Src 4	Х	Src 14	X	Src 24	Х			Dst 4	X		

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

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



By mousing over Src 1 or Dst 3, the dashed border on the source will turn solid and all destinations being driven by it will have their top, gray borders become thicker and turn the color of the source that's driving them.

By default, when additional destinations are connected to a previously connected source, they will all *SHARE* the video from the source, but only the last one connected will have control of the mouse (as shown by the icon). *SHARE* will be explained below.



Here we have clicked Dst 4, which will now show the same, Src 1 video as Dst 3. But as the mouse icon shows, only the last destination clicked, Dst 4, is driving the data return back to the source.

Clicking a destination's colored X will disconnect that destination and clicking the X at the right side of the *source* will disconnect *all* the destinations connected to that source.

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

- SHARE: multiple video connections, last connection has data return
- **TAKE**: each newly connected destination removes the video from all previous destinations and the new destination also has the data return
- **VIEW**: each newly connected destination can view the video but will not take the data return.

To change the connection mode, return to ADMIN: Stations.

thinklogical	<b>X4</b> Configu	rator	CONN		MACROS Routers	STUDIO CO	MBI GROUPS	S LOGOUT
Administration				Select from	the tabbed cho	ices above		
				(Ir	nport	Export	SAVE	Cancel
Click inside any cell to change the c right-click inside any column header					) when chan	ges are complete.		
# Stations (version: X4.4)								
Width: Height: 120 28	Font Size:	Update Interval: 2000	Destination Side: RIGHT	Connection Type. SHARE	Touch Ty VIEW	pe: STUDIC HIDE	BREAK:	U
Source Category: Source Categoria	ory: Source Category:	Source Category:	Source Category:	Source Category:	Source C	ategory:		
Destination Catego Destination Ca	ategol Destination Catego	Destination Catego	Destination Catego	Destination Categ	gol Destinati	on Catego		

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

Width:	Height:	Font Size:	Update Interval:	Destination Side:	Connection Type:	Touch Type:	STUDIO BREAK
120	28	12	2000	RIGHT	SHARE	VIEW	HIDE
						😣 Connect	
Source Category:	V:						
ALL						TAKE SHARE	
						VIEW	
Destination Catego	egoi						
ALL							

Mouse over and select TAKE.

Width:	Height:	Font Size:	Update Interval:	Destination Side:	Connection Type:	Touch Type:	STUDIO BREAK:
120	28	12	2000	RIGHT	SHARE	VIEW	HIDE
						😣 Connect	
Source Category:	V:						
ALL						SHARE	
						VIEW	
Destination Catego	egol						
ALL							

If you next click the **SAVE** button, the *CONNECT* page will be in TAKE mode until you change it again. For now, leave it in SHARE mode.

While on the ADMIN: **Stations** page, examine the second and third tables that start with "Source Category" and "Destination Category." By default these rows will only have one entry: ALL.

#### **Station Categories**

Return to the **CONNECT** page.

thinklogical X4Configurator	CONNECT ADMIN MACROS STUDIO COMBI GROUPS LOGOUT							
Connections	Click a source and then one or more destinations							
SOURCES Src 1 X	DESTINATIONS							
Src 2 X Src 12 X Src 22 X	Dst 2							

There are two tabs on this page: **ALL** and **Help**. If you want to break up the stations into smaller collections, go back to the page.

thinklog	rical" )	4 Configur	rator	CONN	ECT ADMIN	MACROS	STUDIO CO	MBI GROUP	s lo	GOUT
Extend • Distribute • Innovate	Macros	Stations	Routers	Snapshots	Tie Lines	Log	Help			
Administratio				Select from	Select from the tabbed cho		ve			
					Imp	ort	Export	SAVE	Ca	ancel
Click inside any cell to right-click inside any co						e) when chang	es are complete.			
							8			_
# Stations (version:	X4.4)									
La Chica States	leight: 8	Font Size: 12	Update Interval: 2000	Destination Side: RIGHT	Connection Type	e: Touch Typ VIEW	De: STUDIC HIDE	BREAK:		U
Source Category: S	ource Category:	Source Category:	Source Category:	Source Category:	Source Category	: Source Ca	tegory:			
The second se	-5									
Destination Catego L	Destination Catego	Destination Catego	Destination Catego	Destination Catego	Destination Cate	ao Destinatio	n Catego			

Here is added a new entry to both the source and destination categories, "**1-5**". Click **SAVE** and return to the *CONNECT* page.


Click on the new tab **1-5** next to **ALL**.

thinklogical <sup>®</sup> X4Configurator	CONNECT ADMIN MACROS STUDIO COMBI GROUPS LOGOUT
Connections	Click a source and then one or more destinations

The tab is selected, but there are no sources or destinations.

Go back to the ADMIN: **Stations** page:

Width:	Height:	Font Size:	Update Interval:	Destination Side:	Connection Type:	Touch Type:	STUDIO BREAK:
120	28	12	2000	RIGHT	SHARE	VIEW	HIDE
Source Category:	the state of the s	Source Category:					
ALL	1-5						
	3	0					
Destination Cate	gol Destination Catego	Destination Catego	Destination Catego	Destination Catego	Destination Catego	Destination Catego	
ALL	1-5				<u> </u>	1	
Source Name:	Router Name:	L1:	L2:	L3:	Category:	Category:	Color:
Src 1	A	UR-001	UT-001		ALL	1-5	fuchsia
Src 2	A	UR-002	UT-002		ALL	1-5	lime
Src 3	A	UR-003	UT-003		ALL	1-5	blue
Src 4	A	UR-004	UT-004		ALL	1-5	red
Src 5	Α	UR-005	UT-005		ALL	1-5	purple
Src 6	А	UR-006	UT-006		ALL		orange

Add "1-5" to the second Category column for the first five sources. Then scroll down to the destinations.

Src 40	A	UR-040	UT-040		ALL		aqua
Destination Name:	Router Name:	L1:	L2:	L3:	Category:	Category:	
Dst 1	A	UT-041	UR-041		ALL	1-5	
Dst 2	A	UT-042	UR-042		ALL	1-5	
Dst 3	A	UT-043	UR-043		ALL	1-5	
Dst 4	A	UT-044	UR-044		ALL	1-5	
Dst 5	A	UT-045	UR-045		ALL	1-5	1
Dst 6	Α	UT-046	UR-046		ALL		
Dst 7	A	UT-047	UR-047		ALL		
Dst 8	A	UT-048	UR-048		ALL		

Add "1-5" to the second Category column for the first five destinations. Then be sure to click the **SAVE** button.

Go back to the **CONNECT** page and click the **1-5** tab.

thinklogical X4Configurator	CONNECT ADMIN MACROS STUDIO COMBI GROUPS LOGOU
Extend - Distribute - Innovate	ALL 1-5 Heip
Connections	Click a source and then one or more destinations
SOURCES	DESTINATIONS-
Src 1 X	Dst 1
Src 2 X	Dst 2
Src 3 X	Dst 3 X Src 1
Src. 4 X	Dst 4
Src 5 X	Dst 5

Now clicking the **1-5** tab shows the sources and destinations included in that category. Stations can belong to multiple categories. To add a new category, return to *ADMIN* Stations.

Width:	Height:	Font Size:	Update Interval:	Destination Side:	Connection Type:	Touch Type:	STUDIO BREAK:
120	28	12	2000	RIGHT	SHARE	VIEW	HIDE
Source Category:	Source Category:	Source Category:	Source Category:	Source Category:	Source Category:	Source Category:	
ALL	1-5	1					
Destination Categ	go Destination Catego						
ALL	1-5					l.	
Source Name:	Router Name:	L1:	L2:	L3:	Category:	Category:	Color:
Src 1	A	UR-001	UT-001		ALL	1-5	fuchsia
Src 2	A	UR-002	UT-002		ALL	1-5	lime
Src 3	A	UR-003	UT-003		ALL	1-5	blue
Src 4	A	UR-004	UT-004		ALL	1-5	red
Src 5	Α	UR-005	UT-005		ALL	1-5	purple
Src 6	A	UR-006	UT-006		ALL		orange

There are currently only two Category columns. To add a new one, right click on the top of the last Category (where it says *Category:*).

Width:	Height:	Font Size:	Update Interval:	Destination Side:	Connection Type:	Touch Type:	STUDIO BREAK:
120	28	12	2000	RIGHT	SHARE	VIEW	HIDE
Source Category:	Source Category:	Source Category:	Source Category:	Source Category:	Source Category:	Source Category:	
ALL	1-5						
Destination Categ	o Destination Catego						
ALL	1-5						
Source Name:	Router Name:	L1:	L2:	L3:	Category:	Category:	Color:
Src 1	A	UR-001	UT-001		ALL	1-5	😣 Column
Src 2	A	UR-002	UT-002		ALL	1-5	Append
Src 3	A	UR-003	UT-003		ALL	1-5	Delete
Src 4	A	UR-004	UT-004		ALL	1-5	red
Src 5	A	UR-005	UT-005		ALL	1-5	purple
Src 6	A	UR-006	UT-006		ALL		orange

A pop-up window will appear. Select Append.

Width:	Height:	Font Size:	Update Interval:	Destination Side:	Connection Type:	Touch Type:	STUDIO BREAK:	2
120	28	12	2000	RIGHT	SHARE	VIEW	HIDE	
Source Category:	Source Category:	Source Category:	Source Category:	Source Category:	Source Category:	Source Category:		
ALL	1-5	1357						
Destination Catego	Destination Catego 1-5	1 3 5 7	Destination Catego	Destination Catego	Destination Catego	Destination Catego		
ALL	1-5	1337						
Source Name:	Router Name:	L1:	L2:	L3:	Category:	Category:	Category:	Color:
Src 1	A	UR-001	UT-001		ALL	1-5	1357	fuchsi
Src 2	A	UR-002	UT-002		ALL	1-5		lime
Src 3	A	UR-003	UT-003		ALL	1-5	1357	blue
Src 4	A	UR-004	UT-004		ALL	1-5		red
Src 5	A	UR-005	UT-005		ALL	1-5	1357	purple
		110 000	UT-006	(	ALL			orang
Src 6	A	UR-006	01-000					
COLUMN STATE	A	UR-006 UR-007	UT-007		ALL		1357	yellow
Src 6		11.79 11.0 11.79 77 77 1					1357	yellow green

There now are three Category columns. Add "1 3 5 7" to some source rows. Next, add it to the Source Category and Destination Category tables (above). Then scroll down to the destinations

Destination Name:	Router Name:	L1:	L2:	L3:	Category:	Category:	
Dst 1	A	UT-041	UR-041		ALL	1-5	😣 Column
Dst 2	Α	UT-042	UR-042		ALL	1~5	Append
Dst 3	A	UT-043	UR-043		ALL	1-5	Delete
Dst 4	A	UT-044	UR-044		ALL	1-5	
Dst 5	A	UT-045	UR-045	1	ALL	1-5	
Dst 6	A	UT-046	UR-046		ALL		
Dst 7	A	UT-047	UR-047		ALL		
Dst 8	A	UT-048	UR-048		ALL		
Dst 9	A	UT-049	UR-049		ALL		

Right click the last Category header, select Append and add the new Category. Now add the new category to some sources as shown below.

Destination Name:	Router Name:	L1:	L2:	L3:	Category:	Category:	Category:
Dst 1	A	UT-041	UR-041	1	ALL	1-5	1357
Dst 2	Α	UT-042	UR-042		ALL	1-5	
Dst 3	A	UT-043	UR-043		ALL	1-5	1357
Dst 4	A	UT-044	UR-044		ALL	1-5	
Dst 5	Α	UT-045	UR-045		ALL	1-5	1357
Dst 6	Α	UT-046	UR-046		ALL		
Dst 7	Α	UT-047	UR-047		ALL		1357
Dst 8	A	UT-048	UR-048		ALL		
Dst 9	A	UT-049	UR-049		ALL		

Go back to the *CONNECT* page to see the results.

thinklogical X4Configurator	CONNECT ADMIN MACROS STUDIO COMBI GROUPS LOGOUT
Extend - Distribute - Innovate	ALL 1-5 1357 Help
Connections	Click a source and then one or more destinations
ISOURCES	DESTINATIONS
Src 1 X	Dst 1 X
Src 3 X	Dst 3 X Src 1
Src 5 X	Dst 5 X
Src 7 X	Dst 7 🗶

## **MACROS** Page

A macro is a sequence of operations that the user can create, save, and recall to repeat steps that will be executed frequently. They can be restricted to specific user groups or made available to all groups.

The easiest way to create a macro is to perform the desired steps and then let the *MACROS* page tell you what you've done and how to save it.

Use the *CONNECT*, *STUDIO*, or *COMBI* pages to make and/or break some connections and then select the *MACROS* link from the top of the page.

Initially, this page is blank since no macros have been created yet.

thinklogical	CONNECT ADMIN MACROS STUDIO COMBI GRO X4Configurator	DUPS LOGOUT
Macros	Pressing a button (below) will execute that macro	Macro from History

Click the "Macro from History" button on the right side of the black bar.

la	cros		Pressing	a button (	below) will e	xecute that	macro	ly.	Back to M	lacros
						New Mad	ro name?		SAVE	$\supset$
	Action:	Destination/Macro:	Source:							
S	HARE	Dst 3	Src 1							
S	HARE	Dst 6	Src 1							
S	HARE	Dst 1	Src 2							
S	HARE	Dst 8	Src 9							
Selec	and the second s		Src 9							

The page now shows the most recent connect and disconnect operations that have been performed at this location by this user. Check the rows that should be part of a macro (in this case by using the "Select All" button) and enter a new name for the macro in the "New Macro Name?" field.

<b>t</b> ]	hinklog	ical <sup>®</sup> X4	CONNECT Configurato		MACROS	STUDIO	COMBI	GROUPS	LOGOUT
М	acros		Pressing	a button (	below) will e	xecute that	macro	Back	to Macros
						mac 1		SAV	E
	Action:	Destination/Macro:	Source:						
☑	SHARE	Dst 3	Src 1	1					
⊻	SHARE	Dst 6	Src 1	1					
$\checkmark$	SHARE	Dst 1	Src 2	1					
☑	SHARE	Dst 8	Src 9	1					
Se	lect All Deselect All	Clear History							

Next click the "SAVE" button and wait for the update. After a few seconds, the new macro will appear in its own box on the *MACROS* page.

thinklogical X4cc	CONNECT ADMIN	MACROS	STUDIO	COMBI	GROUPS	LOGOUT
Macros	Pressing a button	(below) will e	xecute the	t macro	Macro	from History
mac 1						

Clicking this button will execute the macro immediately.

Macros can also include other macros. Click the "mac 1" button, go to the *CONNECT* page and add one more connection.

Now return to the *MACROS* page and click "Macro from History".

Action:	Destination/Macro:	Source:	
SHARE	Dst 3	Src 1	
SHARE	Dst 6	Src 1	
SHARE	Dst 1	Src 2	
SHARE	Dst 8	Src 9	
MACRO	mac 1		
SHARE	Dst 11	Src 4	

Select the last two steps. Give this new macro a name and click SAVE.

mac 1	mac 2

"mac 2" will first execute "mac 1" and then perform any additional steps.

Macros are also available on the *STUDIO* page where they are called "Sequences".

Destination Calegories (page 1 of 1)	Dst Sro	Source Categories (page 1 of 1)           ^11
Destination Entries (page 1 of 2)           Src 2         (Src 1)           Dst 1         Dst 2           Dst 3         Src 1           Dst 4         Dst 5           Src 9         Src 9           Dst 7         Dst 8	Det Pages Stro Pr	Src 1         Src 2         Src 3           Src 4         Src 5         Src 6           Src 7         Src 8         Src 9           Src 10         Src 70         Src 8
Sequences       mac 1     mac 2       Actions     DESTINATION:     Dst 4		thinklogical <sup>®</sup>

To execute a macro or "sequence" on the *STUDIO* page, select it and it will highlight. Then click the TAKE button to execute it.

The *STUDIO* page has another feature involving sequences: right click on one and it will display the actions that will be performed.

Destination Categories (page 1 of 1) ALL 1-5 1 3 5 7 Destination Entries (page 1 of 2) Src 2 (Src 1) (Src 1) Dst 1 Dst 2 Dst 3 Src 1 (mac 1) ACTION DESTINATION SOURCE SHARE Dst 3 Src 1 SHARE Dst 6 Src 1 SHARE Dst 6 Src 1 SHARE Dst 1 Src 2 VIEW Dst 2 Src 1 SHARE Dst 8 Src 9	Det  Src    <  >    <  >    <  >    Dat Pages  Src Pages	Source Categories (page 1 of 1) Aut 1-5 1.3 5 7 Source Entries (page 1 of 1) Src 1 Src 2 Src 3 Src 4 Src 5 Src 6 Src 7 Src 8 Src 9 Src 10 Src B1 Src B2
Sequences       Mac 1     mac 2       Actions     DESTINATION:       Dst 4     TAKE		thinklogical <sup>®</sup>

Left click on the sequence's description to close it.

#### Creating/Editing/Deleting Macros

Go to the *ADMIN* page and select **Macros** from among the tabs. Select "mac 1" from the "First Select Macro" drop down on the left side of the page.

Administra Administra	il to change the conte	X4Config	urator		Routers	Snapshots	MBI GROUPS Tie Lines the tabbed choic	Log Help
Administra Administra	ation Il to change the conte	A-+Config		Stations F	Routers			
Click inside any ce <i>ight-click</i> inside ar	il to change the conte		Macros	Stations I	Routers			
Click inside any ce <i>ight-click</i> inside ar	il to change the conte					Select from	the tabbed choic	ces above
ight-click inside ar								
ight-click inside ar							SAVE	Cancel
Thist Select Macro	ny <i>column header</i> to a <b>\$</b> New Name? (or	dd or delete column	<i>t-click</i> inside any cell is (if appropriate), and					nplete.
							Delete	This Macro
							SAVE	Cancel
Niek inelde env es	I to change the conte	unto of that call righ	t aliak inaida anu aall	to opp additions				
	ny column header to a						an changes are con	noloto
	and the second sec	leave unchanged) r		press the SAVE	- or cancer b	uttons (above) whe	an changes are con	ipiete.
mac 1	New Name? (or	leave unchanged) r	nac 1					
							Delete	This Macro
Groups that can	see this macro							
Group:	Group:	Group:	Group:	Group:	1	Group:	Group:	Group:
	ci cupi	circup:	ci cup:	ci cup.		circop.	Cite up	croup.
and a first of								
undefined								
	Oestinations	Courses						
Action:	Destination:	Source:						
Action: SHARE	Dst 3	Src 1						
SHARE SHARE	Dst 3 Dst 6	Src 1 Src 1						
Action: SHARE SHARE SHARE	Dst 3 Dst 6 Dst 1	Src 1 Src 1 Src 2						
Action: SHARE SHARE	Dst 3 Dst 6	Src 1 Src 1						

From this page the macro can be renamed, modified, or deleted.

To add a step, right click on the row either above or below the desired point in the sequence. In this example we have chosen to insert a step before the last step.

Group:	Group:	Group:	Group:	Group:	Group:	Group:	Group
undefined							
Action:	Destination:	Source:					
SHARE	Dst 3	Src 1					
SHARE	Dst 6	Src 1					
SHARE	Dst 1	Src 2					
SHARE	Dst 8	Src 9					
	n see this macro						
	n see this macro Group:	Group:	Group:	Group:	Group:	Group:	Group
# Groups that ca Group: undefined		Group:	Group:	Group:	Group:	Group:	Group
Group: undefined	Group:		Group:	Group:	Group:	Group:	Group
Group: undefined Action:	Group: Destination:	Source:	Group:	Group:	Group:	Group:	Group
Group: undefined Action: SHARE	Group: Destination: Dst 3	Source: Src 1	Group:	Group:	Group:	Group:	Group
Group: undefined Action: SHARE SHARE	Group: Destination: Dst 3 Dst 6	Source: Src 1 Src 1	Group:	Group:	Group:	Group:	Group
Group: undefined Action: SHARE SHARE SHARE	Group: Destination: Dst 3 Dst 6 Dst 1	Source: Src 1 Src 1 Src 2	Group:	Group:	Group:	Group:	Group
Group: undefined Action: SHARE SHARE	Group: Destination: Dst 3 Dst 6 Dst 1 St 1 Row	Source: Src 1 Src 1	Group:	Group:	Group:	Group:	Group
Group: undefined Action: SHARE SHARE SHARE	Group: Destination: Dst 3 Dst 6 Dst 1 St 1 St 1 St 1 St 1 St 1	Source: Src 1 Src 1 Src 2	Group:	Group:	Group:	Group:	Group
Group: undefined Action: SHARE SHARE SHARE	Group: Destination: Dst 3 Dst 6 Dst 1 St 1 Row	Source: Src 1 Src 1 Src 2	Group:	Group:	Group:	Group:	Group

Left click on the empty field below Action and you will be given a choice of Actions.

# Groups that can see	this macro						
Group:	Group:	Group:	Group:	Group:	Group:	Group:	Group:
undefined							
Action:	Destination:	Source:					
SHARE	Dst 3	Src 1					
SHARE	Dst 6	Src 1					
SHARE	Dst 1	Src 2					
SHARE	Action	Src 9					
	TAKE SHARE VIEW DISCONNECT MACRO						

Select VIEW and then click on the empty field below Destination to call up the pop-up of destinations.

Group:	Group:	Group:	Group:	Group	:	Group:	Group:	
undefined								
Action:	Destination:	Source:						
SHARE	Dst 3	Src 1						
SHARE	Dst 6	Src 1						
SHARE	Dst 1	Src 2						
VIEW								
SHARE	Dst 8		Destination					
		Dst 1 Dst 4 Dst 7 Dst 10 Dst 10 Dst 13 Dst 16 Dst 19 Dst 22	Dst 2 Dst 5 Dst 8 Dst 11 Dst 14 Dst 17 Dst 20 Dst 22	Dst 3 Dst 6 Dst 9 Dst 12 Dst 15 Dst 15 Dst 18 Dst 21				

# Groups that car	n see this macro							
Group:	Group:	Group:	Group:	Group:	Group	:	Group:	Group:
undefined								
4-41	Bastinations	Courses						
Action:	Destination:	Source:						
SHARE	Dst 3	Src 1						
SHARE	Dst 6	Src 1						
SHARE	Dst 1	Src 2						
VIEW	Dst 2							
SHARE	Dst 8	Src 9	×	Source				
			Src 1 Src 4 Src 7 Src 10 Src 13 Src 16 Src 19	Src 2 Src 5 Src 8 Src 11 Src 14 Src 17 Src 20	Src 3 Src 6 Src 9 Src 12 Src 15 Src 18 Src 21 Src 24			

If the name is to be changed, it will be done in the field to the right of "New Name? (or leave unchanged)"

Administratio	on	
	change the contents of that cell, <i>right-click</i> inside any olumn header to add or delete columns (if appropriate) New Name? (or leave unchanged) mac 1	

Finally, there is a row of Group headings that decide which users can see and execute this macro. The admin group can see all of them, but if other groups need to see them, they must all be listed. For this example we've changed "undefined" to "user" so user can see it.

Group:	Group:	Group:	Group:	Group:	Group:	Group:	Group
user							
Action:	Destination:	Source:					
SHARE	Dst 3	Src 1					
SHARE	Dst 6	Src 1					
SHARE	Dst 1	Src 2					
VIEW	Dst 2	Src 1					
SHARE	Dst 8	Src 9					

Click **SAVE** when all changes are complete.

## **STUDIO** Page

Destination Categories (page 1 of 1)	Dat         Src           < >         <           < >            < >	Source Categories (page 1 of 1)
Destination Entries (page 1 of 4)         Dst 1       Dst 2         Dst 1       Dst 2         Dst 4       Dst 5         Dst 7       Dst 8         Dst 10       Dst 11	Det Pages     Src Pages       I     I       I     I       I     I       I     I	Source Entries (page 1 of 2)         Src 1       Src 2       Src 3         Src 4       Src 5       Src 6         Src 7       Src 8       Src 9         Src 10       Src 11       Src 12         Src 13       Src 14       Src 15         Src 16       Src 17       Src 18         Src 19       Src 20       Src 21
Actions DESTINATION: TAKE		thinklogical"

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



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

Destination Categories (page 1 of 1)	Dist         Src           < >         <           < >            < >            < >	Source Categories (page 1 of 1)
Destination Entries (page 1 of 4)         Dst 1       Dst 2         Dst 1       Dst 2         Dst 4       Dst 5         Dst 7       Dst 8         Dst 10       Dst 11         Dst 10       Dst 11	Det Pages Src Pages	Source Entries (page 1 of 2)         Src 1       Src 2       Src 3         Src 4       Src 5       Src 6         Src 7       Src 8       Src 9         Src 10       Src 11       Src 12         Src 13       Src 14       Src 15         Src 16       Src 17       Src 18         Src 19       Src 20       Src 21
Actions DESTINATION: Dst 6 TAKE		

Here is selected Dst 6 and Src 4. Notice that Dst 6 appears in a window at the bottom left before we've performed any action to make sure we're affecting the correct destination.

Click the TAKE button (blue, bottom, next to the DESTINATION window) and the connection is made.

Destination Categories (page 1 of 1)	Dst	Src	Source Categories (page 1 of 1)
AL 1-5 1357	< > < >	< > < >	ALL 1-5 1357
Destination Entries (page 1 of 4)	Dst Pages	Src Pages	Source Entries (page 1 of 2)
Dst 1Dst 2Dst 3Dst 1Dst 2Dst 3Dst 4Dst 5Ost 6Dst 7Dst 8Dst 9Dst 10Dst 11Dst 12	X V V	× ×	Src 1       Src 2       Src 3         Src 4       Src 5       Src 6         Src 7       Src 8       Src 9         Src 10       Src 11       Src 12         Src 13       Src 14       Src 15         Src 16       Src 17       Src 18         Src 19       Src 20       Src 21
Sequences			
			<i>thinklogical</i> <sup>*</sup>
Actions DESTINATION: Dst 6 TAKE		LOCK	(VIEW) SHARE LOC IN

As mentioned earlier, the TAKE type connection performs differently than the SHARE and (VIEW). Leave Src 4 selected, select destination Dst 5 and click TAKE.

Now Dst 5 has Src 4 and the space above Dst 6 is blank, which signifies no connection.

Destination Categories (page 1 of 1)	Dst	Src	Source Categories (page 1 of 1)
ALL 1-5 1357			1-5 1357
	[< >]	[< >]	
Destination Entries (page 1 of 4)	Dst Pages	Src Pages	Source Entries (page 1 of 2)
Dst 1     Dst 2     Dst 3	I<	K	Src 1 Src 2 Src 3
Src 4	<	<	Src 4 Src 5 Src 6
Dst 4 Dst 5 Dst 6	Þ	Þ	Src 7 Src 8 Src 9
Dst 7 Dst 8 Dst 9	Þ	N	Src 10 Src 11 Src 12
			Src 13 Src 14 Src 15
Dst 10 Dst 11 Dst 12			Src 16 Src 17 Src 18
			Src 19 Src 20 Src 21
Sequences			
			<i>thinklogical</i> "
Actions DESTINATION: Dst 5 TAKE		LOCK	

By default, there is no way to disconnect stations on the **STUDIO** page.

If necessary or desirable, there is a way to add one. Using the browser's back key, go to the *ADMIN* **Stations** page. In the first table on the page, click the field below the *STUDIO BREAK:* header.

thinkle	gical	<mark>X4</mark> Configu	rator	CONN		MACROS			
Administra	tion			Macros	Stations	Routers	Snapshots Select from	Tie Lines the tabbed cho	Log Help vices above
						mport	Export	SAVE	Cancel
	y column header to a	nts of that cell, <i>right-c</i> dd or delete columns				re) when chan	ges are complete.		
Width:	Height:	Font Size:	Update Interval:	Destination Side:	Connection Type	e: Touch Ty	vpe: STUDIC	BREAK:	U
120	28	12	2000	RIGHT	SHARE	VIEW	HIDE		
Source Category: ALL	Source Category: 1-5	Source Category: 1357	Source Category:	Source Category:	Source Category	: Source C	ategory:	1	BREAK SHOW HIDE
Destination Catego	Destination Catego 1-5	Destination Catego 1 3 5 7	Destination Catego	o Destination Catego	Destination Cate	egol Destinati	ion Categoi		

Select SHOW, click the **SAVE** button and select the *STUDIO* link. There will be a new, red "BREAK" button at the bottom. Select Dst 5, click BREAK and the destination will be disconnected.

Dst 1 Dst 2 Dst 3 Dst 4 Dst 5 Dst 6 Dst 7 Dst 8 Dst 9 Dst 10 Dst 11 Dst 12 Dst 12	X V V	X V V	Src 1       Src 2       Src 3         Src 4       Src 5       Src 6         Src 7       Src 8       Src 9         Src 10       Src 11       Src 12         Src 13       Src 14       Src 15         Src 16       Src 17       Src 18         Src 19       Src 20       Src 21
Sequences			thinklogical
Actions DESTINATION: Dst 5 TAKE		оск	BREAK (VIEW) SHARE LOG IN

The STUDIO page supports TAKE, SHARE, and (VIEW) connections. *The use of parentheses around VIEW is deliberate - parentheses around the source name in the destination box show that the source is being viewed but does not have the return channel and cannot control the keyboard/mouse.* If an operator wanted to see the video from a source without disturbing someone already using it, they would have to select the source and their own destination and then click (VIEW). It would then appear as below:

Destination Categories (page 1 of 1)	Dst	Src	Source Categories (page 1 of 1)
иц. <u>1-5</u> <u>1357</u>	< > < >	< > < >	AU. 1-5 1357
Destination Entries (page 1 of 4)	Dst Pages	Src Pages	Source Entries (page 1 of 2)
Dst 1 Dst 2 Dst 3	K	[<	Src 1 Src 2 Src 3
(Src 1)	<	<	Src 4 Src 5 Src 6
Dst 4 Dst 5 Dst 6	▶	►	Src 7 Src 8 Src 9

The operator has selected Src 1 and Dst 6 and clicked the (VIEW) button. Now the video from Src 1 is at both Dst 3 and Dst 6, but only Dst 3 has control of the keyboard/mouse.

**SHARE** allows cooperative viewing. If the operator at Dst 6 clicked the SHARE button, both Dst 3 and Dst 6 would still have the video, but the keyboard/mouse control would move to Dst 6 and Dst 3 would show Src 1 in parentheses (as below).

Destination Categories (page 1 of 1)	Dst	Src	Source Categories (page 1 of 1)
AL. 1-5 1357	< >	< >	ALL 1-5 1357
		< >I	
Destination Entries (page 1 of 4)	Dst Pages	Src Pages	Source Entries (page 1 of 2)
(Src 1)			Src 1 Src 2 Src 3
Dst 1 Dst 2 Dst 3	<	$\left \right $	
Src 1	<	<	Src 4 Src 5 Src 6
Dst 4 Dst 5 Dst 6			Src 7 Src 8 Src 9
	>	>	

At this point, Dst 1 could take back control by selecting Dst 1 and clicking SHARE.

**TAKE** removes the video from any destinations that are currently viewing it and also takes control of the keyboard/mouse.

The **LOCK** and **UNLOCK** buttons allow the user to restrict a source and destination. If a connected destination is selected and the the LOCK button clicked on, both that destination and the source that is feeding it become locked and unavailable for other connections. They turn red to show this status and will not allow any connection changes to the destination or the source until the destination is unlocked

In this capture, Dst 3 has been selected and the LOCK button clicked. Both are now red.



If an operator attempts to connect Src 1 with another destination, Dst 6 in the example below, the program will display a notice that no new connections or disconnections involving this source and this destination will be allowed until the destination is unlocked from the source.

Destination Categories (page 1 of 1)	Det         Src         Source Categories (page 1 of 1)           < >         < >          1-5         1 3 5 7           < >             1-5         1 3 5 7
Destination Entries (page 1 of 4)	Dst Pages Src Pages Source Entries (page 1 of 2)
Dst 1 Dst 2 Src 1 Dst 3	I     Src 1     Src 2     Src 3
Dst 4 Dst 5 Dst 6	The page at localhost:8080 says: This source is in use by a locked destination. No changes can be made until it is unlocked.
Dst 7 Dst 8 Dst 9	OK Src 12

Selecting Dst 3 and clicking the blue UNLOCK button will release it.

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

#### **COMBI** Page

Select **COMBI** from the links across the top. (You may need to use the browser's back button if you were last on the **STUDIO** page.)

SOURCES								
ALL	1-5 13	57						
Src 1	Src 2	Src 3	Src 4	Src 5	Src 6	Src 7	Src 8	
Dst 3*								1 of 2
Src 9	Src 10	Src 11	Src 12	Src 13	Src 14	Src 15	Src 16	
Src 17	Src 18	Src 19	Src 20	Src 21	Src 22	Src 23	Src 24	
DESTINATIONS								
ALL	1-5 13	57					$\square$	
		Src 1*						< >
Dst 1	Dst 2	Dst 3	Dst 4	Dst 5	Dst 6	Dst 7	Dst 8	1 of 3
Dst 9	Dst 10	Dst 11	Dst 12	Dst 13	Dst 14	Dst 15	Dst 16	
think	logical	8		ТАКЕ	SHARE	VIEW BR	EAK	UNLOCK

This page combines features from the *CONNECT* and *STUDIO* pages and is designed to work on both full size displays and touch-screens.

As in the **STUDIO** page, the user can select a source or a destination first. Once a source and a destination have been selected, the user can connect using the buttons across the bottom right.



One difference from the *STUDIO* page is that on this page **the source icons also show which destinations they are driving**. In this example, Src 1 (top left) shows Dst 6\* and Dst 3 in its window. The asterisk after Dst 6 means that it has the return channel and has control of the keyboard/mouse. In the destinations section at the bottom half of the page, both destinations show Src 1 as their source. But Dst 3 appears in parentheses, indicating it is video only, and Dst 6 has the asterisk, indicating that Dst 6 has control.

The tabs below the SOURCES and DESTINATIONS banners (ALL, 1-5, 1 3 5 7) are the same as the categories in the *STUDIO* page and the LOCK and UNLOCK functions also work the same way as in the *STUDIO* page.

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

#### **Multiple Browser Tabs**

When switching back and forth between X4 pages, it is often convenient to make use of the browser's ability to maintain multiple open tabs. This way an administrator can keep the *ADMIN* page on one tab, the *CONNECT* page on another tab, and so on.

At the top of the image below, the browser shows tabs for *COMBI*, *ADMIN*, *STUDIO* and *CONNECT*, all available at the same time for easy access to whichever page is needed.

⊨⇒ C ff	localhost:8080/a	dmin						🗾 🏠 🔳
	\			CONN	EGT ADMIN N	ACROS STUD	IQ COMBL G	ROUPS LOGOU
thin b	logical	VAcantan	vetev	00/11				20000
Extend • Distribute • Inno	indical .	<b>A</b> -Configu	rator					
				Macros	Stations F	Routers Snap	shots Tie L	ines Log Help.
Administ	nation.					0-1		
Administ						Selo	ect from the tabl	bed choices above
					(Im	port Exp	iort S/	AVE Cancel
Click inside any o	ell to change the conter	nts of that cell <i>right-c</i>	lick inside any cell to	see additional row o	ations			0
	any column header to ac					when changes are e	omplete.	
-						-		
# Stations (ver	sion: X4.4)							
	3011.74.47							
Width:	Height:	Font Size:	Update Interval:	Destination Side:	Connection Type:	Touch Type:	STUDIO BREAK:	
120	28	12	2000	RIGHT	SHARE	VIEW	SHOW	
							_	
Source Category	: Source Category:	Source Category:	Source Category:	Source Category:	Source Category:	Source Category:		
ALL	1-5	1357						
Destination Cate	-	-	Destination Catego	Destination Catego	Destination Catego	Destination Catego	01	
ALL	1-5	1357						
Source Name:	Router Name:	L1:	L2:	L3:	Category:	Category:	Category:	Color:
Src 1	A	UR-001	UT-001		ALL	1-5	1357	fuchsia
Src 2	A	UR-002	UT-002		ALL	1-5		lime
Src 3	A	UR-003	UT-003		ALL	1-5	1357	blue
Src 4	A	UR-004	UT-004		ALL	1-5		red
Src 5	A	UR-005	UT-005		ALL	1-5	1357	purple
Src 6	A	UR-006	UT-006		ALL			orange
Src 7	A	UR-007	UT-007		ALL		1357	yellow
Src 8	A	UR-008	UT-008		ALL			green
Src 9	A	UR-009	UT-009		ALL			navy
Src 10	A	UR-010	UT-010		ALL			aqua
Src 11	A	UR-011	UT-011		ALL			fuchsia
Src 12 Src 13	A	UR-012 UR-013	UT-012 UT-013		ALL			lime A
31013	A	UK-013	01-013		ALL			

#### **GROUPS** Page

**NOTE:** Sometimes it is important to restrict access to assets and control pages. Thinklogical's X4 supports this requirement through the use of user groups, or just groups.

Use the browser's back button (or one of the tabs you've opened for easy access to different pages) to get back to a page with links across the top and select the *GROUPS* link.

think	logical	X4Configu	rator	CON	NECT	ADMIN	MACROS	STUDIO	COMBI	GROUPS	LOGOUT
											Help
Groups/l	Jsers Admini	stration									
						C	Import	Export		SAVE	Cancel
	any column header to d: Default Group: admin		(if appropriate), a	ell to see additional row and press the SAVE or 0		uttons (abo	ve) when chan	ges are com	plete.		
Group Name:	Startpage:	Page:	Page:	Page:	Page	2	Page:	1	Page:	Page:	
admin	connect	admin	macros	studio	com	bi	groups				U
user	studio	combi	macros	touchscreen							
touch	combi-m	macros									
# User definit	ions										
Username:	Group:	Local Password:									
admin	admin	admin									
user	user	user									
# Groups ass	igned by IP addres	s (touchpanels)									
IP Address:	Group:	Comment:									
192.168.13.11	Concerning and the second s	104 (104 (104 (104 (104 (104 (104 (104 (									

This page defines users, groups and the access granted to them. There are four tables on this page which will be indexed by the leftmost header for each table.

*Logins Required* -- If this value is set to *yes*, then every user must enter a username and password in order to access X4. If this value is set to *no*, then users need not log in and they will all be assigned to a group named in the next field, the *Default Group*.

*Restore on Restart* -- If this is set to *yes*, then when X4 is started it will automatically set the router(s) to the last set of connections present when X4 was last running. (See ADMIN: **Snapshots** for more information.)

The next table is labeled *Group Definitions* and each row starts with a *Group Name*. This table determines which pages are available to each group. The *Startpage* will be presented when the user logs in. The remaining fields are all labeled *Page* and they are the links found at the top of the page that will be available to the group. As shown above, the admin group will have links to the *Connect, Admin, Macros, Studio, Combi*, and *Groups* pages.

To add, change or delete page permissions to a group, click on any of the existing page fields or a blank one.

Logins Required:	Default Group:	Restore on Restar						
yes	admin	no						
# Group definition	ons							
Group Name:	Startpage:	Page:	Page:	Page:	Page:	Page:	Page:	Page:
admin	connect	admin	macros	studio	combi	groups		
user	studio	combi	macros	touchscreen				
touch	combi-m	macros				Pages		
# User definitior Username:	Group:	Local Password:				connect macros admin		
admin	admin	admin				studio		
user	user	user				combi		
	ned by IP address	Contract of the second second second second				combi-m groups touchscreen		
	Group:	Comment:				(blank)		
IP Address: 192.168.7.112	touch							

The "Pages" pop-up provides a list of page choices or blank if the page is to be removed from this group.

The next table is for *User Definitions* and starts with the username. This is the name the user/operator will use when logging in. The next field is *Group* and shows to which user group the user/operator will be assigned after logging. The final field is the *Local Password* for that user. This field will let you change passwords for any account, including admin.

The last table is labeled *#Groups assigned by IP address (Touchpanels)*. This table is used most often for touchpanels where typing in a username and password may be difficult. Any communications coming from these addresses will be treated as though received from a logged-in user of the group name shown.

For example, if a touchpanel is connected to the network at IP address 192.168.13.112, that device is automatically assigned to the group "touch," which will only be able to see the startpage, combi-m and macro page.

So far, we have only demonstrated restricted access to page links, but it is possible to restrict access to macros and source and destination assets as well. For instance, we have declared a user named *user* with password *user* and group name *user*. As this page shows, this user will only have access to the *Studio*, *Combi*, *Macros*, and touchpanel pages.

Click the *LOGOUT* link (top right) and log in as *user* with password *user*.

Since our startpage is Studio, we are immediately taken to the **STUDIO** page, but there are no sources or destinations shown. (We'll fix that in a minute.)

Destination Categories (page 0 of 0)		Det < > < >	Src <	Source Categories (page 0 of 0)
Destination Entries		Det Pages	Src Pages	Source Entries
Sequences				thinklogical
Actions DESTINATION: TAKE	LOCI		LOCK	

Unfortunately, since we've assigned *user* to start out in the **STUDIO** page, there are no page links at the top, but there's an easy solution. In the URL at the top of the page, change *studio* to another page that this user is allowed, like *combi*.

				☆
SOURCES				
				< >
				< >
DESTINATIONS			_	K
DESTINATIONS				
DESTINATIONS				
DESTINATIONS				

Again, the page has loaded, but there are no assets visible (soon to be corrected).

For a test, enter a page that this user is not allowed, such as admin.



This demonstrates that the user will be restricted to only the pages they are allowed.

Use the LOGIN link at the bottom of this warning to again login as *admin*, password: *admin* (unless you've changed the password). Select the *ADMIN* link at the top and then select the **Stations** tab.

think	logical	X4Configu	irator			CONNECT A	ADMIN MACROS	S STUDIO CO	MBI GROUP	S LOGOU
Extend • Distribute • In	novate	-			1	Macros Stati	ons Routers	Snapshots	Tie Lines	Log Help
Adminis	tration							Select from	the tabbed cho	ices above
							(Import)	Export	SAVE	Cancel
Click inside any	cell to change the conte	nts of that cell right-	click inside any cell to	see additional row o	ntions					0
	any column header to a					when changes are o	omplete.			
# Stations (ve	ersion: X4.4)									
								_		
Width:	Height:	Font Size:	Update Interval:	Destination Side:	Connection Type:	Touch Type:	STUDIO BREAK:			
120	28	12	2000	RIGHT	SHARE	VIEW	SHOW			U
Source Catego	ry: Source Category:	Source Category:	Source Category:	Source Category:	Source Category:	Source Category:				
ALL	1-5	1357	Build and and the second stand and							
The second second second				성) 						
Destination Ca	tegol Destination Catego 1-5	ol Destination Categ	o Destination Catego	Destination Catego	Destination Categ	Destination Categ	0			
ALL	1-5	1357			-					
Source Name:	Router Name:	L1:	L2:	L3:	Category:	Category:	Category:	Color:	Color:	
Src 1	A	UR-001	UT-001		ALL	1-5	1357	fuchsia		
Src 2	A	UR-002	UT-002		ALL	1-5		lime		
Src 3	A	UR-003	UT-003		ALL	1-5	1357	blue		
Src 4	A	UR-004	UT-004		ALL	1-5		red		
	A	UR-005	UT-005		ALL	1-5	1357	purple		
					ALL			orange		
Src 5	A	UR-006	UT-006		ALL			orunge		
Src 5 Src 6 Src 7	22	UR-006 UR-007	UT-006 UT-007		ALL		1357	yellow		
Src 5 Src 6	A						1357			

As done before, right click on the rightmost *Category:* header and select Append. A new *Category:* column will appear. Now left click on the *Category:* header at the top of this new column and a pop-up list of stations labels will appear.

Width:	Height:	Font Size:	Update Interval:	Destination Side:	Connection Type:	Touch Type:	STUDIO BREAK:		
120	28	12	2000	RIGHT	SHARE	VIEW	SHOW	(	
Source Category:	Source Category:	Source Category:	Source Category:	Source Category:	Source Category:	Source Category:			
ALL	1-5	1357							
Destination Categ	Destination Catego								
ALL	1-5	1357			1920				
Source Name:	Router Name:	L1:	L2:	L3:	Category:	Category:	Category:	Category:	
Src 1	A	UR-001	UT-001		ALL	1-5	1357		
Src 2	A	UR-002	UT-002		ALL	1-5			
Src 3	A	UR-003	UT-003		ALL	1-5	1357		
Src 4	A	UR-004	UT-004		ALL	1-5			
Src 5	A	UR-005	UT-005		ALL	1-5	1357		
Src 6	A	UR-006	UT-006		ALL				
Src 7	Α	UR-007	UT-007		ALL		1357		
Src 8	A	UR-008	UT-008		ALL				
Src 9	A	UR-009	UT-009		ALL				
Src 10	A	UR-010	UT-010		ALL				
Src 11	A	UR-011	UT-011		ALL				
Src 12	A	UR-012	UT-012		ALL				
Src 13	A	UR-013	UT-013		ALL				
Src 14	A	UR-014	UT-014		ALL				
Src 15	A	UR-015	UT-015		ALL				
Src 16	A	UR-016	UT-016		ALL				

Click the bottom choice, "Takeable:". The new column header, which used to read *Category:*, will now be *Takeable:*.

Source Name:	Router Name:	L1:	L2:	L3:	Category:	Category:	Category:	Takeable:	Color:
Src 1	A	UR-001	UT-001		ALL	1-5	1357		fuchsia
Src 2	Α	UR-002	UT-002		ALL	1-5			lime
Src 3	A	UR-003	UT-003		ALL	1-5	1357		blue
Src 4	A	UR-004	UT-004		ALL	1-5			red
Src 5	A	UR-005	UT-005		ALL	1-5	1357		purple
Src 6	A	UR-006	UT-006		ALL				orange
Src 7	Α	UR-007	UT-007		ALL		1357		yellow
Src 8	Α	UR-008	UT-008		ALL				green
Src 9	A	UR-009	UT-009		ALL				navy
Src 10	A	UR-010	UT-010		ALL				agua

Now add the group name "user" to a few of the source rows as shown below:

Source Name:	Router Name:	L1:	L2:	L3:	Category:	Category:	Category:	Takeable:	Color:
Src 1	Α	UR-001	UT-001		ALL	1-5	1357	user	fuchsia
Src 2	A	UR-002	UT-002		ALL	1-5		user	lime
Src 3	A	UR-003	UT-003		ALL	1-5	1357	user	blue
Src 4	A	UR-004	UT-004		ALL	1-5		user	red
Src 5	A	UR-005	UT-005		ALL	1-5	1357		purple
Src 6	A	UR-006	UT-006		ALL				orange
Src 7	A	UR-007	UT-007		ALL		1357		yellow
Src 8	Α	UR-008	UT-008		ALL				green
Src 9	A	UR-009	UT-009		ALL				navy
Src 10	A	UR-010	UT-010		ALL				aqua

Scroll down to the bottom and do the same thing for some destinations: Right click the right-most *Category:* header, select Append. Left click on the new *Category:* header, select *Takeable:* and enter "user" into some destination rows.

thinkle	ogical	X4Confi	gurator			CONNECT	ADMIN	MACROS	STUDIO COI	MBI GROUP	S LOGOUT
Extend • Distribute • Innova	te State		<b>J</b>			Macros	ations	Routers	Snapshots	Tie Lines	Log Help
Administra	ation								Select from	the tabbed cho	oices above
							Imp	oort (	Export	SAVE	Cancel
Src 37	A	UR-037	UT-037		ALL					vellow	6
Src 38	A	UR-038	UT-038		ALL					green	
Src 39	A	UR-039	UT-039		ALL					navy	
Src 40	A	UR-040	UT-040		ALL					aqua	
Destination Name	: Router Name:	<i>L1</i> :	L2:	L3:	Category:	Category:	Categ	iory:	Takeable:		
Dst 1	A	UT-041	UR-041		ALL	1-5	135		The local sector of		
Dst 2	A	UT-042	UR-042		ALL	1-5					
Dst 3	A	UT-043	UR-043		ALL	1-5	135	7			
Dst 4	A	UT-044	UR-044		ALL	1-5					
Dst 5	A	UT-045	UR-045		ALL	1-5	135	7	user		
Dst 6	A	UT-046	UR-046		ALL				user		
Dst 7	A	UT-047	UR-047		ALL		135	7	user		
Dst 8	A	UT-048	UR-048		ALL						

#### Now click the **SAVE** button

**NOTE:** This might be a good time to make use of a second browser. It cannot be just another window for the same browser because the browser cookie that makes you admin will carry over to the other windows. But if you've been using Google Chrome so far and you have Firefox or Internet Explorer available, it would be convenient to login on a different browser as "user". If another browser is not available, you'll just need to log in and out more often.

To see the changes you've made, you'll need to log out of *admin* and log back in as *user*, because as long as you're logged in as *admin*, you'll never see the restricted choices you're creating for *user*.

00	- A	Welcome!		
Welcome!	+			 
localhost:8080			🏠 ₹ 😋 🤡 🕻 Google	۹) 🍙 💽 -
		hinklog	ical"	
	E	thinklog	Icai	
		Please log in.		
		USERNAME user		
		PASSWORD		
			iubmit	

Hit submit and you will go directly to the **STUDIO** page and display the source and destination stations that you've made *Takeable*:.

Destination Categories (page 1 of 1)           All         1-5         1 3 5 7           Destination Entries (page 1 of 1)	Dst	Src Src Pages	Source Categories (page 1 of 1)           ALL         1-5         1 3 5 7           Source Entries (page 1 of 1)
Destination Entres (page 1 of 1)           Src 1           Dst 5           Dst 6           Dst 7	LY V N	Site Pages	Source Entries (page 1 of 1) Src 1 Src 2 Src 3 Src 4
Sequences		·	thinklogical
	LOCK	UNLOCK	BREAK (VIEW) SHARE LOG IN

**NOTE:** *Takeable:* does not mean that only the TAKE button applies. The stations you've made Takeable: are also viewable and shareable. When used in the context of Group permissions, it just means that they are available to this user group.

Setting the URL to Combi wi	l now show the same stations	as found in the <b>STUDIO</b> page.
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😑 🔿 😁	MBI	+		СОМВІ				
Iocalhost:80	080/combi	<u></u>		☆	⊤ C <sup>4</sup> (37 Goo	gle		
SOURCES								
ALL	1-5 1 3	57						
Src 1	Src 2	Src 3	Src 4					
Dst 6*, Dst 3								
DESTINATIONS								
ALL	1-5 1 3	57						
	Src 1*							
Dst 5	Dst 6	Dst 7						
think	logica	<b>7</b> .	Т	AKE SHARE	VIEW	BREAK	LOCK	UNLOCK

#### **Appendixes**

#### File Locations

On a Windows computer, the program files can typically be found in:

64 bit Windows 7: C:\Program Files (x86)\LSI\X44\

32 bit Windows 7 and XP The configuration files are in:

> Windows 7: Windows XP: Data\LSI\X44\setup\

C:\Program Files\LSI\X44\ C:\Program Data\LSI\X44\setup\

C:\Documents and Settings\All Users\Application

On a **Linux** computer, the program and data files are found in: /opt/lsi/vxrouter/intuicon/X44/

#### **Other Documentation**

These documents are available on our web and ftp sites and provide additional helpful information.

- Manual\_Customer\_Overview\_VXRouters\_Rev\_B.pdf
- Manual\_MX48\_Rev\_B.pdf
- VX40\_160\_320\_320V\_Manual\_Rev\_J.pdf
- Manual\_VX640\_Rev\_B.pdf
- Router-ASCII-API.pdf
- Configuring-the-ASCII-Interface.pdf
- Router\_SNMP\_Traps.pdf
- Router\_Interfaces.pdf

The letter after '\_Rev\_' may differ from this list. As the manuals are updated, the next letter is sequence

#### How to Contact Us Customer Support

Thinklogical is an engineering company and you will receive the assistance you require directly from our most knowledgeable engineers. We believe that the first line of support is the design engineer that developed each particular product. Therefore your needs will be handled promptly by our in-house engineers who are most familiar with your products.

Thank you for choosing Thinklogical® products for your application.

We appreciate your business and are dedicated to helping you successfully use our products.

# thinklogical. is always here to help you.

*To contact us, please use the following telephone numbers and internet-based methods:* 

#### Website

Check out our website for firmware updates, support information and general information about all of the products we offer.

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

#### Internet: www.thinklogical.com

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

#### Email

Thinklogical is staffed **Monday through Friday from 8:30am to 5:00pm**, Eastern Time Zone. We will do our best to respond to your emails promptly. Please use one of the following email addresses for your particular needs:

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

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

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

#### Telephone

**Telephone Sales:** Contact our expert sales staff in Milford, CT at **1-203-647-8700** or if in the continental USA, you may use our **toll-free number 1-800-291-3211**. We are here Monday through Friday from 8:30am to 5:00pm, Eastern Time Zone. Ask for your representative's direct dial phone number when you call.

**Telephone Product Support:** Contact Product Support in Milford, CT at **1-203-647-8700**. The support lines are manned Monday through Friday, 8:30am to 5:00pm, Eastern Time Zone.

**International Sales:** Please contact our US sales staff in Milford, CT at **1-203-647-8700**. We are here Monday through Friday, 8:30am to 5:00pm, Eastern Time Zone (same as New York City). If leaving a voice message please let us know the best time to return your call so we may reach you at your convenience.

Our switchboard attendant will direct your call during regular business hours. We have an automated attendant answering our main telephone switchboard after regular business hours and holidays. You can leave a voice message for an individual at any time. Our Sales Representatives have direct numbers to speed up your next call to us.

#### Fax

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

#### **Product Support**

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

#### **Limited Warranty Information**

Thinklogical, LLC ("Thinklogical") warrants this product against defects in materials and workmanship for a period of one (1) year from the date of delivery (ordinary wear and tear excluded). This limited warranty does not cover defects resulting from (i) use of the product other than as described in the applicable documentation for the product; (ii) modifications to or repairs of the product that are made by any party other than Thinklogical or a party acting on Thinklogical's behalf, or (iii) combination of the product with third party products that is not consented to by Thinklogical. Occurrences of events described in (i) – (iii) shall void the foregoing warranty. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

# Except for the express warranty set forth above, to the fullest extent permitted under applicable law, Thinklogical, LLC and its suppliers disclaim any and all other warranties, express and implied, including without limitation the implied warranties of merchantability, fitness for a particular purpose, title and non-infringement.

If the defective product is returned to the authorized dealer within one (1) year of the delivery date, repair or replacement of the product will be made. Repairs may be made with refurbished parts. If repair or replacement is not possible, Thinklogical may keep the defective product and refund the amount that you paid for the defective product. These are Thinklogical's sole obligations, and your exclusive remedies, for a breach of the limited warranty set forth above.

To return a defective product, contact the Thinklogical authorized dealer from whom you purchased the product. Do not return a product directly to Thinklogical without prior authorization from your dealer.

If you have received prior authorization from your dealer and are returning a product directly to Thinklogical:

- 1. You may contact your *Sales Representative* directly or call *Customer Support* at 1-203-647-8700 or 1-800-291-3211 (toll free).
- 2. Describe the defect with the product and Customer Support will issue a Return Merchandise Authorization Number (RMA#).
- 3. Pack the product in all of its original packing, if possible, and write the RMA number on the box.

4. Return the product to:

Thinklogical, LLC Attn: RMA# [Insert the RMA# issued to you, by Thinklogical, here.] 100 Washington Street Milford, CT 06460 USA

#### **Our Address**

If you have any issue with a product, have product questions or need technical assistance with your Thinklogical system, please call us at **1-800-291-3211 (USA only)** or **1-203-647-8700** and let us help. If you'd like to write us, our mailing address is:

Thinklogical® LLC 100 Washington Street Milford, CT 06460 USA