

Workgroup Videohub Manual

Second Edition. November 2004



Mac OS X[™]

Windows XP™

Blackmagicdesign





Welcome



Thank you for purchasing Workgroup Videohub for your facility. We hope you share our dream for the television industry to become a truly creative industry by allowing anyone to have access to the highest quality video.

Previously high end television and post production required investment in millions of dollars of hardware, and professional SDI routing switchers

have always been way too high in cost for most people to afford. HD-SDI is even worse and until now, only the largest post production and television facilities could afford HD-SDI routing. Workgroup Videohub changes all that and we hope you get years of use from it and have lots of fun connecting everyone in your facility together!

This instruction manual should contain all the information you'll need on installing your Workgroup Videohub, although it's always a good idea to ask a technical assistant for help if you are not sure what IP addresses are, or if you don't know much about computer networks. Workgroup Videohub is easy to install, however, there are a few slightly technical preferences you will need to set after you install it.

We think it should take you approximately 5 minutes to complete installation. Please check our web site at www.blackmagic-design.com and click the support page to download the latest updates to this manual and Workgroup Videohub software.

Lastly, please email us (register@blackmagic-design.com) with your Workgroup Videohub serial number so we can keep you updated when new software is released. We are constantly working on new features and improvements, so we would love to hear from you!

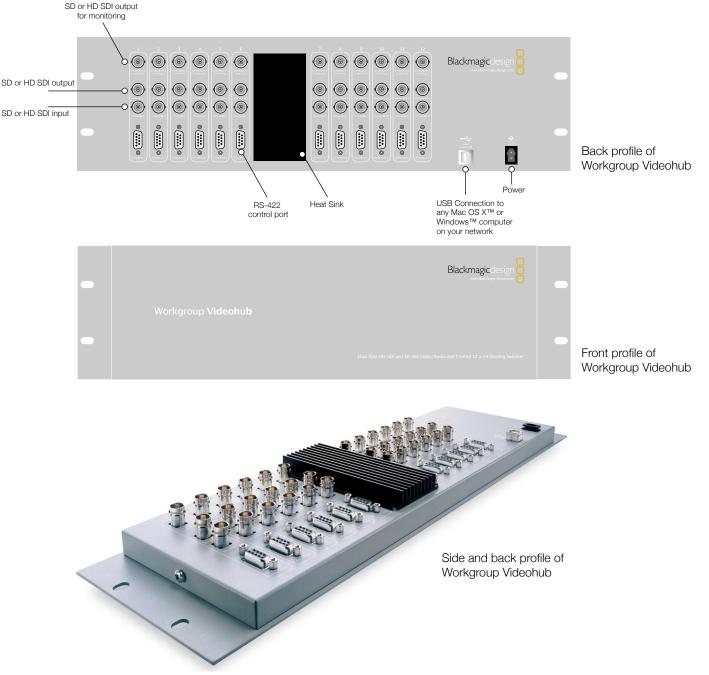
Grant Petty CEO Blackmagic Design

Contents

Welcome	2.
Workgroup Videohub	3.
Introduction	4.
Installing Workgroup Videohub	6.
Configuring Workgroup Videohub	9.
Using Workgroup Videohub	13.
Using Workgroup Videohub -	
Main Router Mode	15.
Using Workgroup Videohub -	
Real Time Down Converter	18.
Keying Frame Store	19.
Using Workgroup Videohub Locking	21.
Other Router Mode	22.
Trouble Shooting	25.
Workgroup Videohub Workflows	27.
If things go wrong	28.
Blackmagic Design Warranty	29.



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Workgroup Videohub

Introduction

Workgroup Videohub is a professional routing switcher compatible with both High Definition SDI and Standard Definition SDI video and also includes remote control routing as well as internal realtime processing. Workgroup Videohub is designed to connect to both HD-SDI and SD-SDI video devices.

Routing control of the Workgroup Videohub is easy as it connects to any computer on your local area IP based network. One computer on your network connects to Workgroup Videohub via plug and play USB connection, and shares the Workgroup Videohub with other computers on your network in a similar way to USB printer sharing.

The computer you connect the Workgroup Videohub to via USB is called the "server".

You don't need to worry about technical details as most of the setup is automatically done for you by the Workgroup Videohub installer software. You only need to run the installer with the Workgroup Videohub connected to the USB port on that computer, and the software automatically knows it's the 'server'.

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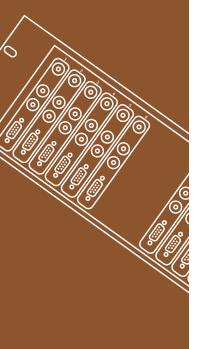
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Rear panel of Workgroup Videohub

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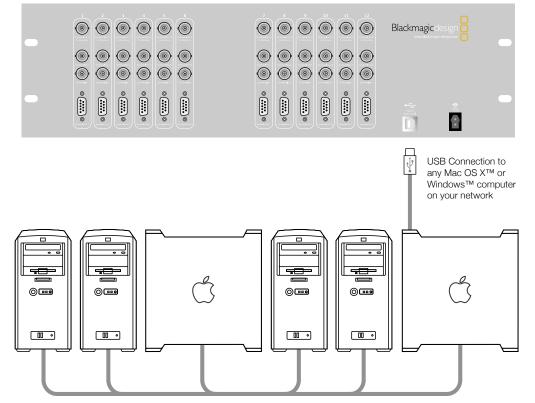


Workgroup Videohub The next step is to install the Workgroup Videohub software on the other computers used to control the router on your network. As the Workgroup Videohub is not directly connected to these computers, the software on these computers will need to talk directly to the server computer that is connected to the Workgroup Videohub via USB. All you need to do is tell the other computers which computer on your network is the Workgroup Videohub 'server'.

Because the software application controlling the Workgroup Videohub is really a client, even on the physically connected server, the router control application can be run from any computer within the Workgroup Videohub 'network'. The IP sharing is done via the USB driver, so you don't need to be always running the application on the server computer. This lets you use one of your editing systems as a server as long as the power is left on when you need to use the router.

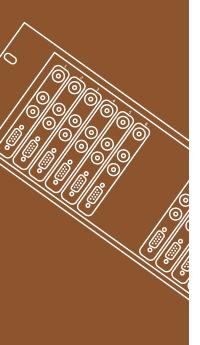
Apple Mac OS X[™] or Windows XP[™] Service Pack 1 computers can be the Workgroup Videohub 'server' or any number of 'clients' connected to the 'server' via USB.

This instruction manual will cover how to install Workgroup Videohub in your facility, as well as configuring and using Workgroup Videohub.



Workgroup Videohub shares through the IP network to any Mac OS X[™] or Windows[™] computer





Installing Workgroup Videohub

Prior to connecting any devices to the Workgroup Videohub, you must choose a computer to be the Videohub "Server".

This machine must -

▶ Run Mac OS X[™] 10.3 or Windows XP[™] Service Pack 1 or later revisions;

• Be powered 'on' at all times for the Videohub settings to be modified;

Have a free USB port.

Next, you need to run the Workgroup Videohub Software on the server computer.

This will install – • Workgroup Videohub Server

• Workgroup Videohub Client

Note: Don't connect the Workgroup Videohub to the server before the software is installed. Before installing the server software you will need administrator privileges.

The CD supplied with the Workgroup Videohub contains the installer. In order to ensure that you have the very latest driver please visit www.blackmagic-design.com and click on the Support page.

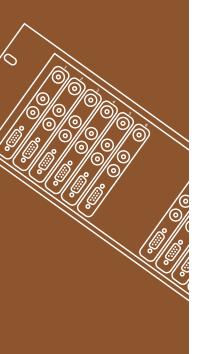












Installing Workgroup Videohub

Locate the installer file and double-click it. This will be on the CD supplied or, if downloaded from the Blackmagic website, in your downloads folder.

The server software, router control application and USB driver will now be installed on your system.

Note: Before installing any software or hardware you will need administrator privileges on Windows[™] or to Authenticate your name and password on Mac OS X[™].

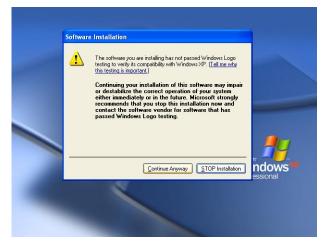
When installing the Workgroup Videohub on Windows™, a warning will appear that "this software has not passed logo certification to run on Windows XP".

Click "Continue Anyway" and ignore this warning.

Note: Windows XP[™] may prompt you during installation to ask if you wish to open a port in the firewall. If you're going to have other computers on your network control Workgroup Videohub, then you must click "Yes".

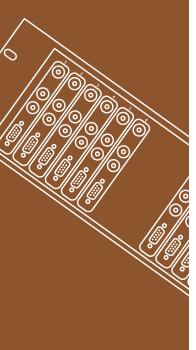
	Auth	enticate	
e introduce Read Me Ulcense Select D	Name: Demo Password:	that you type your password.	
0 Installar © Installin © Finish U	0	Cancel	
_	Customize	Go Back Up	grade











If running Wing

Installing Workgroup Videohub

Once the installation has finished you'll have to restart your computer if running Mac OS X[™]. Windows[™] users will not need to restart.

Now connect the Workgroup Videohub to the server via USB cable.

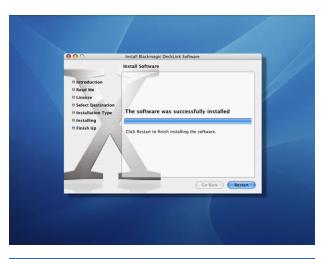
If running Windows XP[™], a dialog will appear saying, "Found new hardware" and the Hardware Wizard will start. If prompted to search the Windows[™] Update Website, select, "No, not at this time" and click "Next".

Select "Install the Software Automatically" and the system will find the Workgroup Videohub drivers for you.

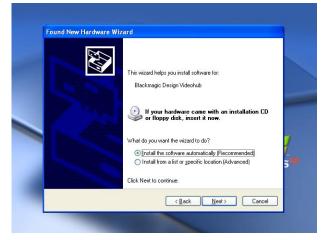
Note: The "software has not passed logo certification" warning may reappear during this process. Simply select "Continue Anyway" again.

Mac OS X^{TM} machines will automatically install the required drivers with no user interaction.

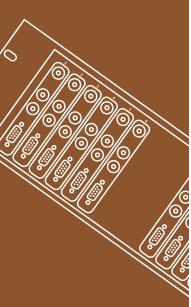
Once this is complete and the Workgroup Videohub is connected and turned on, you are ready to configure the device for your facility.











Workgroup Videohub

Configuring Workgroup Videohub

Renaming labels for router inputs and outputs, or changing routing settings are done via the Workgroup Videohub router control software. This acts as a client and talks to the USB server that's connected to the Workgroup Videohub. All computers on your network communicate with Workgroup Videohub through the Workgroup Videohub control software.

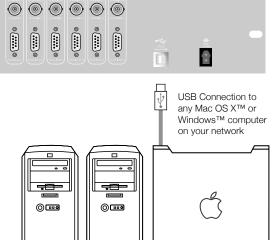
This client control software is network enabled so it allows either Mac[™] or Windows[™] computers to control the Workgroup Videohub regardless of the operating system the server is running. Every computer on your network that is running the Workgroup Videohub control software will automatically update its status when another user makes a connection or label change. This allows any number of users to control the Workgroup Videohub simultaneously.

The client software is pre-installed on the Workgroup Videohub server. This is the computer on which it is easiest to perform initial configuration tasks such as setting port labels on the Workgroup Videohub.

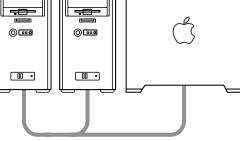
After starting the Workgroup Videohub application on the Workgroup Videohub server it will display the "Main Router" mode.

Note: Remember the Workgroup Videohub server is just the computer that's connected to the Workgroup Videohub via USB connection.

To D	Destination			TON	4onitoring				Ded	k Control Connectio	ins		
2	Device 1	->	Device 1	3	Device 1	~	->	Device 13	3	Disconnect	~	->	Device
2	Device 2	~ ->	Device 2	3	Device 2	~	->	Device 14	3	Disconnect	*	->	Device
2	Device 3	->	Device 3	3	Device 3	~	->	Device 15	3	Disconnect	~	->	Device
3	Device 4	•->	Device 4	3	Device 4	*	->	Device 16	3	Disconnect	~	->	Device
2	Device 5	~ ->	Device 5	3	Device 5	~	->	Device 17	3	Disconnect	~	->	Device
2	Device 6	~ ->	Device 6	3	Device 6	~	->	Device 18	3	Disconnect	~	->	Device
3	Device 7	•->	Device 7	3	Device 7	~	->	Device 19	3	Disconnect	~	->	Device
3	Device 8	~ ->	Device 8	3	Device 8	~	->	Device 20	3	Disconnect	*	->	Device
2	Device 9	->	Device 9	3	Device 9	~	->	Device 21	3	Disconnect	~	->	Device
3	Device 10	•->	Device 10	3	Device 10	~	->	Device 22	Ъ	Disconnect	~	<-	Device
2	Device 11	~ ->	Device 11	3	Device 11	~	->	Device 23	3	Disconnect	~	<-	Device
3	Device 12	~ ->	Device 12	3	Device 12	~	->	Device 24	3	Disconnect	~	<-	Device
Real	Time Down Converter			Keyi	ing Frame Store								
2	Device 6	~ ->	Down Converter	3	Device 6	~	->	Video Input					
				3	No Image	~	->	Current Image					



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Workgroup Videohub shares through the IP network to any Mac OS X[™] or Windows[™] computer



"Main Router" mode



Configuring Workgroup Videohub

All Workgroup Videohub preferences are configured through the preferences window of the Workgroup Videohub control software, regardless of whether performed on the Workgroup Videohub server or another client. This can be accessed by selecting "Preferences …" from the "Edit" Menu under Windows™. For Mac OS X[™] select "Customize Labels" under the "Workgroup Videohub" menu.

The preferences dialog is split into three sections.

1. Video Connections

This section is used to specify the labels assigned to each port. These labels are saved on the Workgroup Videohub server and will be seen by all clients. This is where you enter labels for each device you connect to the video ports on the Videohub.

For example, you might have a Digital Betacam[™] deck connected to 'Input 12' and 'Output 12' of the Workgroup Videohub. In this case you could change the label to "Digibeta" or even "Doug's Deck". It really doesn't matter what you label the inputs and outputs, but remember that everyone on your network running the Workgroup Videohub software can see the labels. This is because label changes are system wide and are reflected on all clients.

If you're working in non-Roman character set languages such as Japanese, Chinese, Korean or Middle Eastern languages, then you can enter double byte unicode labels. This is supported on both Mac[™] and Windows[™] based computers.

Connecti	ons	Serial Connection	is Videohub Serve	r		
ource (Ro	uter	Input) Labels —	Destination (Ro	uter Output) Labels	Monitor Destinatio	n (Router Output) Labels
ource 1	De	vice 1	Destination 1	Device 1	Destination 13	Device 13
ource 2	De	vice 2	Destination 2	Device 2	Destination 14	Device 14
ource 3	Der	vice 3	Destination 3	Device 3	Destination 15	Device 15
ource 4	De	vice 4	Destination 4	Device 4	Destination 16	Device 16
ource 5	De	vice 5	Destination 5	Device 5	Destination 17	Device 17
ource 6	Der	vice 6	Destination 6	Device 6	Destination 18	Device 18
ource 7	De	vice 7	Destination 7	Device 7	Destination 19	Device 19
ource 8	De	vice 8	Destination 8	Device 8	Destination 20	Device 20
ource 9	De	vice 9	Destination 9	Device 9	Destination 21	Device 21
ource 10	De	vice 10	Destination 10	Device 10	Destination 22	Device 22
ource 11	De	vice 11	Destination 11	Device 11	Destination 23	Device 23
ource 12	De	vice 12	Destination 12	Device 12	Destination 24	Device 24

Destination		Video Connectio	Serial Conne	ections		-
Device	Source (Router Input) Labels	Destination (Route	er Output) Labels	Monitor Destinatio	n (Router Output) Labels	wice 1
Device Device	Source 1 Device 1	Destination 1	Device 1	Destination 13	Device 13	rvice 2 rvice 3
Device	Source 2 Device 2	Destination 2	Device 2	Destination 14	Device 14	vice 4
Device	Source 3 Device 3	Destination 3	Device 3	Destination 15	Device 15	wice S
Device	Source 4 Device 4	Destination 4	Device 4	Destination 16	Device 16	wice 6
Device	Source 5 Device 5	Destination S	Device 5	Destination 17	Device 17	vice 7
Device	Source 6 Device 6	Destination 6	Device 6	Destination 18	Device 18	wice 8
Device Device	Source 7 Device 7	Destination 7	Device 7	Destination 19	Device 19	tvice 9
Device	Source 8 Device 8	Destination 8	Device 8	Destination 20	Device 20	wice 11
Device	Source 9 Device 9	Destination 9	Device 9	Destination 21	Device 21	wice 12
al Time Down	Source 10 Device 10	Destination 10	Device 10	Destination 22	Device 22	
Device	Source 11 Device 11	Destination 11	Device 11	Destination 23	Device 23	
Conte	Source 12 Device 12	Destination 12	Device 12	Destination 24	Device 24	



Configuring Workgroup Videohub

2. Serial Connections

This section is used to specify the labels and directions assigned to each RS-422 serial port. You can label these ports in a similar way to the video ports .

"Remote Out (Deck)" specifies that the port is connected to a deck that will be controlled from another editing or design workstation. Decks are called "controlled devices" which means they are sent commands and are controlled from other editing or design workstations.

Workgroup Videohub can change serial port directions so you can connect both decks and workstations to any port on the router. Decks need to be selected to Remote Out so they can be controlled.

Sometimes if you're running deck to deck editing, the deck that you're editing with and setting in and out points becomes a controller and controls another deck. In this case the deck that you select the in and out points on becomes a controller device, so you would configure this deck as "Remote In (Workstation)". That's because this deck is now controlling another deck. Deck to deck editing is not as popular as it once was, however, with Workgroup Videohub it's still easy.

"Remote In (Workstation)" specifies that the port is connected to a workstation that will send data through its RS-422 port so it can control decks and other devices. A good example of this is a DeckLink card running in a Mac or Windows computer. It needs to capture clips from in and out points on a take deck, so the DeckLink card will send remote commands through the router. This is why you need to select "Remote In" when connecting a workstation such as DeckLink, Avid[™] or Discreet[™] systems to Workgroup Videohub.

o Connect	ions Serial Connectio	ns Videohub Server		
Serial Cont	rol Port Labels and Dir	ections		
Device 1	Device 1	Remote In (Workstation)		
Device 2	Device 2	Remote In (Workstation)	•	
Device 3	Device 3	Remote In (Workstation)	•	
Device 4	Device 4	Remote In (Workstation)	•	
Device 5	Device 5	Remote In (Workstation)	•	
Device 6	Device 6	Remote In (Workstation)	•	
Device 7	Device 7	Remote In (Workstation)		
Device 8	Device 8	Remote In (Workstation)		
Device 9	Device 9	Remote In (Workstation)		
Device 10	Device 10	Remote Out (Deck)		
Device 11	Device 11	Remote Out (Deck)		
Device 12	Device 12	Remote Out (Deck)	•	

To Destination			Video Connections	al Connections	
Device	Serial Control P	ort Direction	Theo connections (Data		rvice 1
Device	Device 1	Dealers 1	Remote In (Workstation)		tvice 2
Device				-	rvice 3
device	Device 2	Device 2	Remote In (Workstation)	•	rvice 4
Device	Device 3	Device 3	Remote In (Workstation)	•	rvice 5
d Device	Device 4	Device 4	Remote In (Workstation)	•	wice 6
Device	Device 5	Device 5	Remote In (Workstation)	•	wice 7
di Device	Device 6	Device 6	Remote In (Workstation)		rvice 8
Device	Device 7	Device 7	Remote In (Workstation)		tvice 9
Device	Device 8	Device 8	Remote In (Workstation)		vice 10
Device Device	Device 9	Device 9	Remote In (Workstation)	•	vice 11
Contraction of the local division of the loc	Device 10	Device 10	Remote Out (Deck)	•	WICE 12
Real Time Down	Device 11	Device 11	Remote Out (Deck)		
Device	Device 12	Device 12	Remote Out (Deck)	•	



Workgroup Videohub

Configuring Workgroup Videohub

3. Videohub Server

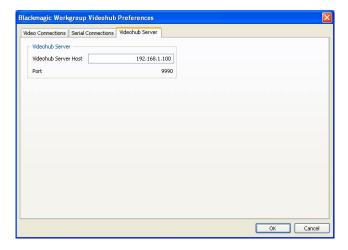
After setting customized labels for your connected decks, workstations and monitors, and configuring the directions of the RS-422 ports, you are ready to use the client software on other machines to control the Videohub remotely.

The "Videohub Server" preferences of the Workgroup Videohub control software is used to specify the address of the Videohub server. On Windows™ this can be accessed through the preferences window and on Mac OS X™ through the "Videohub Server Preferences" item in the "Workgroup Videohub" menu.

When the Workgroup Videohub Client is first started, the "Videohub Server Host" field will contain the address of the local machine. All clients will need to specify the address of the server (which can be found by opening this screen on the server computer) before they can connect and control the Workgroup Videohub.

For example, on the computer connected to the Workgroup Videohub through USB, you might select the Videohub Server section and see an IP address that reads 192.168.1.120. This would be the IP address of the computer connected to the Workgroup Videohub via USB. The other computers on your network need to know this number so they know which computer on your network is talking to the Workgroup Videohub as the server. Once each computer knows the address of the server, they will be able to control the router.

In the above example, after reading this address from the server computer, you just need to enter it onto the computers on your network. This is entered into the same "Videohub Server" section, and then each copy of the software can connect to the main computer connected to the Workgroup Videohub via USB. More on how to do this follows.



to D	estination							Control Connection		
			Videoh	ub Server Host	192.1	68.1.1	10			
e.	Device 1	-> Device 1			9990			Disconnect	10	-> Device 1
ď	Device 2	-> Device 2		POIL	9990			Disconnect	•	-> Device 2
ď	Device 3	-> Device 3				OK		Disconnect		-> Device 3
å	Device 4	: -> Device 4			_		-	Disconnect	•	-> Device 4
ď	Device 5	: -> Device 5	a de	Device 5	•	-> Device 17	a di	Disconnect	•	-> Device 5
d'	Device 6	: -> Device 6		Device 6	•	-> Device 18	a	Disconnect	•	-> Device 6
đ	Device 7	: -> Device 7	-	Device 7	•	-> Device 19	-	Disconnect	•	-> Device 7
ď	Device 8	: -> Device 8	-	Device 8	•	-> Device 20	a	Disconnect		-> Device 8
ď	Device 9	: -> Device 9		Device 9	:	-> Device 21		Disconnect	•	-> Device 9
ď	Device 10	: -> Device 10		Device 10	:	-> Device 22	a	Disconnect		<- Device 10
a l	Device 11	: -> Device 11	a	Device 11	•	-> Device 23	a	Disconnect	•	<- Device 11
đ	Device 12	÷ -> Device 12	a	Device 12	:	-> Device 24	-	Disconnect	•	<- Device 12
Real	Time Down Convert	er	Keyis	ng Frame Store						
a	Device 6	: -> Down Converter		Device 6	:	-> Video Input				
			-	No Image		-> Current Image				



Workgroup Videohub

Using Workgroup Videohub

To control Workgroup Videohub from machines other than the Workgroup Videohub server, you should copy the client software from the server onto the client machines.

Note: The Workgroup Videohub application can be found in the "Client" subdirectory of your chosen installation directory on the server on Windows, or on Mac OS X[™] systems, you will find the Workgroup Videohub application in the Mac OS X[™] Applications folder.

If you are using the client on the Videohub Server machine, a shortcut to the client can be found on the desktop.

The client will initially display the "Main Router" window. The first time a client is started on a machine its interface will appear disabled and it must be told which server to connect to (the interface will also be disabled whenever the Videohub is physically disconnected from the Videohub server). As previously described, obtain the server address by running the client on the Videohub Server itself and examining the "Videohub Server Host" field of the "Videohub Server" screen in the preferences page.

To Destination				Tot	fonitoring			Ded	Control Connection	15		
Device 1		->	Device 1	3	Device 1	->	Device 13	3	Disconnect		->	Device 1
Device 2		->	Device 2	3	Device 2	->	Device 14	3	Disconnect		->	Device :
Device 3		->	Device 3	3		->	Device 15	3	Disconnect		->	Device :
Device 4		->	Device 4	3	Device 4	->	Device 16	긜	Disconnect		->	Device
Device 5		->	Device 5	3	Device 5	->	Device 17	3	Disconnect		->	Device
Device 6		->	Device 6	3	Device 6	->	Device 18	3			->	Device
Device 7		->	Device 7	3	Device 7	•>	Device 19	3	Disconnect		->	Device
Device 8		->	Device 8	3	Device 8	->	Device 20	3	Disconnect		->	Device
Device 9		->	Device 9	3	Device 9	->	Device 21	3			->	Device
Device 10		->	Device 10	3	Device 10	->	Device 22	3	Disconnect		<-	Device 1
Device 11		->	Device 11	3	Device 11	•>	Device 23	3	Disconnect		<-	Device 1
Device 12		->	Device 12	3	Device 12	->	Device 24	3	Disconnect		<-	Device 1
teal Time Down Conve	rter			Key	ing Frame Store							
Device 6		->	Down Converter	3	Device 6	->	Video Input					
				3	No Image	->	Current Image					

Top	lestination			To M	enitoring	rorkgro	oup Videohub	Deck	Control Connection	15	
			-> Device 1		Device 1	:	-> Device 13				-> Device 1
Ē	Device 2	\$	-> Device 2		Device 2		-> Device 14	1	Disconnect		-> Device 2
	Device 3	0	-> Device 3		Device 3	:	-> Device 15		Disconnect	:	-> Device 3
	Device 4	:	-> Device 4		Device 4	:	-> Device 16		Disconnect	0	-> Device 4
	Device 5	0	-> Device 5		Device 5		-> Device 17		Disconnect	:	-> Device S
		0	-> Device 6		Device 6	0	-> Device 18		Disconnect	0	-> Device 6
	Device 7	4	-> Device 7		Device 7		-> Device 19		Disconnect	\$	-> Device 7
	Device 8		-> Device 8		Device 8	\$	-> Device 20			\$	-> Device 8
	Device 9	\$	-> Device 9		Device 9	\$	-> Device 21		Disconnect	0	-> Device 9
			-> Device 10		Device 10	\$	-> Device 22			•	<- Device 10
			-> Device 11		Device 11	:	-> Device 23				<- Device 11
			-> Device 12		Device 12	\$	-> Device 24				<- Device 12
Real	Time Down Conver	ter		Keyis	g Frame Store						
		\$	-> Down Converter		Device 6	\$	-> Video Input				
					No Image	0	-> Current Image				



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Using Workgroup Videohub

The address the of the 'Videohub server' can then be entered on all clients which will connect after clicking on "OK". After connection the Main Router window will appear as in the two lower images.

ideo Connections Serial Conne	ections Videohub Server	
Videohub Server		
Videohub Server Host	192.168.1.100	
Port	9990	

0	2		-		Blackmagic	Vorkgri	oup Videohub				
To D	estination					_		-	Control Connection	15	
đ	Device 1	•	-> Device 1	Videot	nub Server Host:		68.1.1		Disconnect	:	-> Device 1
a	Device 2	•	-> Device 2		Port:	9990			Disconnect	•	-> Device 2
ď	Device 3	•	-> Device 3				OK		Disconnect	•	-> Device 3
ď	Device 4	•	-> Device 4		_	_		-	Disconnect	•	-> Device 4
ď	Device 5	•	-> Device 5	ď	Device 5	•	-> Device 17	di la	Disconnect	•	-> Device 5
đ	Device 6	•	-> Device 6		Device 6	:	-> Device 18	a	Disconnect	•	-> Device 6
ď	Device 7	•	-> Device 7	6	Device 7	•	-> Device 19	4	Disconnect	•	-> Device 7
di l	Device 8	•	-> Device 8	a	Device 8	:	-> Device 20	a	Disconnect	•	-> Device 8
ď	Device 9	•	-> Device 9		Device 9	:	-> Device 21		Disconnect	•	-> Device 9
ď	Device 10	•	-> Device 10	6	Device 10	:	-> Device 22	a	Disconnect	•	<- Device 10
ď	Device 11	•	-> Device 11	đ	Device 11	•	-> Device 23	a	Disconnect	•	<- Device 11
ď	Device 12	:	-> Device 12	a	Device 12	•	-> Device 24	ď	Disconnect	•	<- Device 12
Real	Time Down Convert	ter		Keyi	ng Frame Store						
6	Device 6		-> Down Converter		Device 6	:	-> Video Input				
				a	No Image		-> Current Image				

To Destination			TON	Monitoring			Dec	k Control Connectio	ins		
Device 1	~ ->	Device 1	3	Device 1	v ->	Device 13	3	Disconnect	~	->	Device
Device 2	~ ->	Device 2	3	Device 2	✓ ->	Device 14	3	Disconnect	~	->	Device
Device 3	✓ ->	Device 3	3	Device 3	~ ->	Device 15	3	Disconnect	~	->	Device
Device 4	~ ->	Device 4	3	Device 4	~ ->	Device 16	3	Disconnect	~	->	Device
Device 5	~ ->	Device 5	3	Device 5	v ->	Device 17	3	Disconnect	~	->	Device
Device 6	~ ->	Device 6	3	Device 6	✓ ->	Device 18	3	Disconnect	~	->	Device
Device 7	~ ->	Device 7	3	Device 7	->	Device 19	3	Disconnect	~	->	Device
Device 8	~ ->	Device 8	3	Device 8	✓	Device 20	3	Disconnect	~	->	Device
Device 9	~ ->	Device 9	3	Device 9	v ->	Device 21	3	Disconnect	~	->	Device
Device 10	~ ->	Device 10	3	Device 10	->	Device 22	3	Disconnect	~	<-	Device
Device 11	✓ ->	Device 11	3	Device 11	<mark>></mark> ->	Device 23	3	Disconnect	~	<-	Device
Device 12	->	Device 12	3	Device 12	v ->	Device 24	3	Disconnect	~	<-	Device
Real Time Down Conver	tor		Kevi	ing Frame Store							

Dest	tination			To M	onitoring			Deck	Control Connection	5	
r) (1	Device 1		-> Device 1		Device 1		-> Device 13		Disconnect		-> Device 1
r) (1	Device 2		-> Device 2		Device 2		-> Device 14	-	Disconnect		-> Device 2
r (1	Device 3		-> Device 3		Device 3	:	-> Device 15	ď	Disconnect	:	-> Device 3
8	Device 4	•	-> Device 4		Device 4	•	-> Device 16	ď	Disconnect	:	-> Device 4
8	Device 5	:	-> Device 5		Device 5	:	-> Device 17	4	Disconnect	•	-> Device 5
s (Device 6	•	-> Device 6	a	Device 6		-> Device 18	ď	Disconnect	:	-> Device 6
8 (I	Device 7	:	-> Device 7	ď	Device 7		-> Device 19	ď	Disconnect	•	-> Device 7
r (1	Device 8	•	-> Device 8	6	Device 8	•	-> Device 20	di la	Disconnect		-> Device 8
F) (1	Device 9	•	-> Device 9	a	Device 9	\$	-> Device 21		Disconnect	:	-> Device 9
s (Device 10	:	-> Device 10	đ	Device 10	:	-> Device 22	a	Disconnect	:	<- Device 10
s (Device 11		-> Device 11	di la	Device 11	•	-> Device 23	đ	Disconnect	•	<- Device 11
a (Device 12	:	-> Device 12	a l	Device 12	•	-> Device 24	a	Disconnect	:	<- Device 12
eal Tie	me Down Converte	r		Keyir	ng Frame Store						
a (Device 6		-> Down Converter	-	Device 6		-> Video Input				
				1	No Image		-> Current Image				



Using Workgroup Videohub Main Router Mode

The Main Router mode can be split into four distinct areas -

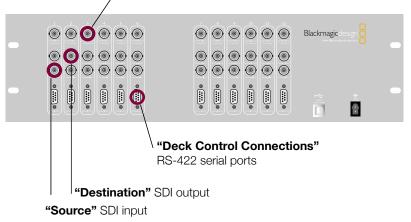
- 1. **"To Destination"** Controls routing for the "Destination" SDI outputs;
- 2. **"To Monitoring"** Controls routing for the "Monitor" SDI outputs;
- 3. **"Deck Control Connections"** Controls routing for the RS-422 serial ports;
- 4. **"Real Time Down Converter"** Sets the input signal to down convert, and;

5. "Keying Frame Store"

Sets the input signal and image into the Keying Frame Store

You connect a video input to a video output by selecting the menu of any destinations outputs or monitoring outputs. The example to the right shows the input on Port 2 (whose label has been set to "HD Deck") being connected to the output of Port 9.

"Monitoring" SDI outputs



	agic Workgroup Vid	leohu	b - Main Router										
e Edit													
lo Destin	ation			Tot	fonitoring				Dec	k Control Connection	16		
Dev	rice 1 💌	->	Device 1	3	Device 1	~	->	Device 13	3	Disconnect	~	->	Device
HDI	Deck 🕑	->	Device 2	3	HD Deck	~	->	Device 14	3	Disconnect	~	•>	Device
Dev	rice 3 💌	->	Device 3	3	Device 3	~	->	Device 15	3	Disconnect	~	->	Device
Dev	ice 4 🛩	->	Device 4	3	Device 4	~	->	Device 16	3	Disconnect	~	->	Device
Dev	rice 5 💌	->	Device 5	3	Device S	~	->	Device 17	3	Disconnect	~	•>	Device
Dev	rice 6 💌	->	Device 6	3	Device 6	~	->	Device 18	3	Disconnect	~	•>	Device
Dev	rice 7 💌	->	Device 7	3	Device 7	~	->	Device 19	3	Disconnect	~	->	Device
Dev	rice 8 💌	->	Device 8	3	Device 8	~	->	Device 20	3	Disconnect	~	->	Device
HO	Deck. 🛩	->	Device 9	3	Device 9	~	->	Device 21	3	Disconnect	~	•>	Device
Dev	Deck	->	Device 10	3	Device 10	~	->	Device 22	3	Disconnect	~	<-	Device
Dev Dev	ice 4	->	Device 11	3	Device 11	~	->	Device 23	3	Disconnect	~	<-	Device :
Dev Dev		.>	Device 12	3	Device 12	~	->	Device 24	3	Disconnect	~	<-	Device
teal Dev	ice 8			Key	ng Frame Store								
Dev	ice 9 ice 10	->	Down Converter	3	Device 6	~	->	Video Input					
Dev	ice 11 ice 12 me Store			3	No Image	~	->	Current Image					

Device 2 de Device 3 de	HD Deck	-> Device 13 -> Device 14	-		-> Device 1
Device 3		-> Device 14			
			d'	Disconnect	-> Device 2
Durland D	Device 3	-> Device 15	ď	Disconnect	-> Device 3
Device 4	Device 4	-> Device 16	a	Disconnect	-> Device 4
Device 5	Device 5	-> Device 17	6	Disconnect	-> Device 5
Device 6	Device 6	-> Device 18	ď	Disconnect	-> Device 6
Device 7	Device 7	-> Device 19	-	Disconnect	-> Device 7
Device 8	Device 8	-> Device 20	ď	Disconnect	-> Device 8
Device 9	Device 9	-> Device 21	đ	Disconnect	-> Device 9
Device 10	Device 10	-> Device 22		Disconnect	- Device 10
Device 11	Device 11	-> Device 23	ď	Disconnect	- Device 11
Device 12	Device 12	-> Device 24		Disconnect	- Device 12
Keyir	g Frame Store				
Down Converter	Device 6	-> Video Input			
æ	No Image	-> Current Image			
二日 二	Device 6 de Device 7 de Device 8 de Device 9 de Device 10 de Device 11 de Device 12 de Device 12 de Device 12 de	Device 6 2 Device 6 2 Device 6 2 Device 7 2 Device 7 2 Device 7 2 Device 9 2 Device 9 2 Device 9 2 Device 10 2 Device 10 2 Device 10 2 Device 11 2 Device 11 2 Device 12 2 Device 12 Devic	Device 6 a Device 7 3 >> Device 18 Device 7 a Device 7 3 >> Device 18 Device 7 a >> Device 10 >> Device 10 Device 8 a Device 9 >> Device 20 Device 9 a Device 9 >> Device 20 Device 10 a Device 11 a Device 11 a Device 11 >> Device 23 Device 12 a >> Device 24 Device 24 Device 12 a Device 12 >> Device 24 Device 12 a Device 12 >> Device 24 Device 12 a Device 12 >> Device 24 Device 12 a Device 12 >>> Device 24 Device 12 a Device 12 >>>>>>>>>>>>>>>>>>>>>>>>>>>>	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$



Workgroup Videohub

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Using Workgroup Videohub Main Router Mode

Blackmagic Workgroup Videohub supports "one-to-many" routes. Continuing on from the previous example, the HD Deck can also be routed to the first monitoring output port (in addition to the ninth destination output) as shown to the right.



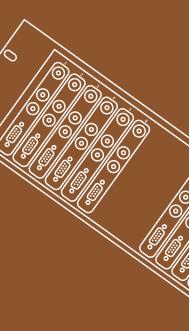
Monitoring 1 Out Video 2 In (HD Deck)

ode	Edit													
To D	estination				ToM	fonitoring				Dec	Control Connection	15		
3	Device 1	~	.>	Device 1		Device 1	~	•>	Device 13	3	Disconnect	~	•>	Device 1
3	HD Deck	×	->	Device 2	3	Device 1 HD Deck		->	Device 14	3	Disconnect	~	->	Device 2
3	Device 3	*	->	Device 3	3	Device 3 Device 4	-	.>	Device 15	3	Disconnect	~	.>	Device 3
3	Device 4	×	->	Device 4	3	Device 5 Device 6		•>	Device 16	3	Disconnect	~	.>	Device 4
3	Device 5	~	->	Device 5	3	Device 7 Device 8 Device 9		->	Device 17	3	Disconnect	~	.>	Device 5
3	Device 6	~	->	Device 6	3	Device 9 Device 10 Device 11		->	Device 18	3	Disconnect	~	•>	Device 6
3	Device 7	~	->	Device 7	3	Device 12 Frame Store		->	Device 19	3	Disconnect	~	->	Device 7
3	Device 8	~	->	Device 8		Down Converter		->	Device 20	3	Disconnect	~	->	Device 8
3	HD Deck	¥	->	Device 9	3	Device 9	~	->	Device 21	3	Disconnect	~	•>	Device 9
3	Device 10	~	->	Device 10	3	Device 10	~	->	Device 22	3	Disconnect	~	<-	Device 10
3	Device 11	*	->	Device 11	3	Device 11	~	->	Device 23	3	Disconnect	*	e.	Device 11
3	Device 12	~	->	Device 12	3	Device 12	~	•>	Device 24	3	Disconnect	~	<-	Device 12
Real	Time Down Converter				Key	ng Frame Store								
3	Device 6	×	->	Down Converter	3	Device 6	~	->	Video Input					
					3	No Image	*	->	Current Image					

To D	estination		To	Device 1		Deck	Control Connection	15	
	HD Deck Device 3 Device 4 Device 5 Device 6			/ HD Deck Device 3 Device 4 Device 5 Device 5 Device 7 Device 7 Device 8 Device 9 Device 10 Device 11 Device 12	-> Device 13 -> Device 14 -> Device 15 -> Device 16 -> Device 17 -> Device 18 -> Device 19 -> Device 21	-	Disconnect Disconnect Disconnect Disconnect Disconnect Disconnect Disconnect Disconnect		-> Device 1 -> Device 2 -> Device 3 -> Device 4 -> Device 4 -> Device 5 -> Device 5 -> Device 7 -> Device 8 -> Device 9
di di	Device 11	-> Device 10 -> Device 11	a a	Down Converter Frame Store Device 11	-> Device 22 -> Device 23		Disconnect Disconnect		<- Device 10 <- Device 11
Real	Device 12 Time Down Convert Device 6	+ -> Device 12	Keyir	Device 6	-> Device 24 -> Video Input -> Current Image	ď	Disconnect		<- Device 12

Blackmagic Design - Leading the creative video revolution[™]





Workgroup Videohub

Using Workgroup Videohub -Main Router Mode

The RS-422 port on the deck can be routed to the another RS-422 port of opposite direction on the Videohub (for example to connect a deck to an NLE workstation). Unlike the video, RS-422 control is point to point, so when you connect two devices together, one will disable so it cannot be accidentally connected to another port. To change the control port connection, just change the connection to another port. Or you can choose to Disconnect the RS-422 port completely.

The figures to the right show the third RS-422 port being routed to the HD Deck. Due to the direction the ports have been configured to, RS-422 commands will now be sent from Port 3 to HD Deck via Workgroup Videohub. Note that changing an RS-422 deck control route will affect other ports involved in the routing - if Port 1 and 2 are connected together, and you connect Port 3 to Port 2, Port 1 will become disconnected.

Note: RS-422 ports must be configured in opposite directions ("Remote In" or "Remote Out") to be allowed to connect.

• "Remote In (Workstation)" specifies that RS-422 commands will flow into the router from a connected device. This configuration direction would allow an NLE workstation to send control commands to a deck.

• "Remote Out (Deck)" specifies that RS-422 commands will flow out of the router to a deck connected to the Workgroup Videohub. This configuration direction allows a deck to receive control commands.

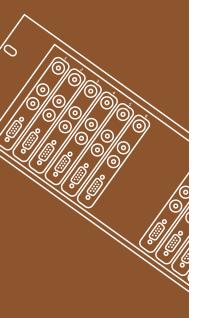
Remote In control ports can only be connected to Remote Out ports, and Remote Out ports can only be connected to Remote In ports. If you cannot select two devices to connect together, then you might need to check your Remote In/Remote Our direction settings in the preferences.

		۲	٢	۲	۲		۲	٢	۲				Blackmagic	
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•	٩	٩	•	•	•		•	•	•	•	•	•		
	/	$^{\prime}$	\R	5-4	22	serial por	t 3.							
		\F	RS-	422	2 se	erial port :	2.							

o Destinal	ixon			Tot	fonitoring				Dec	k Control Connection	15		
Devio	e 1 💦	->	Device 1	3	HD Deck	~	->	Device 13	3	Disconnect	~	•>	Device 1
HD De	eck N	->	Device 2	3	HD Deck	~	->	Device 14	3	Disconnect	~	<-	HD Deck
Devio	e 3 🔥	->	Device 3	3	Device 3	~	->	Device 15	3	Disconnect	~	->	Device :
Devio	04	>	Device 4	3	Device 4	~	->	Device 16	3	HD Deck Device 10		•>	Device
Devio	e 5 🔹	->	Device 5	3	Device 5	~	->	Device 17	3	Device 11 Device 12		.>	Device !
Devio	e 6	->	Device 6	3	Device 6	~	->	Device 18	3	Disconnect	~	->	Device (
Devio	07	->	Device 7	3	Device 7	~	->	Device 19	3	Disconnect	~	->	Device :
Devio	e 8 💦	->	Device 8	3	Device 8	~	->	Device 20	3	Disconnect	~	->	Device I
HDD	sck s	->	Device 9	3	Device 9	~	->	Device 21	3	Disconnect	~	->	Device 1
Devio	e 10	->	Device 10	3	Device 10	~	->	Device 22	3	Disconnect	~	<-	Device 1
Devio	e 11 🕓	->	Device 11	3	Device 11	~	->	Device 23	3	Disconnect	~	<-	Device 1
Devio	e 12	->	Device 12	3	Device 12	~	->	Device 24	3	Disconnect	~	<-	Device 1
Real Time C	Xown Converter			Keyi	ng Frame Store								
Devio	e6 S	->	Down Converter	3	Device 6	~	->	Video Input					
	Xown Converter			Keyl	ng Frame Store Device 6		->		3	Disconnect	~	<-	

o Destination		7.4	Ionitoring			Deck Control Connections	
TO Descination		100	ionicoring			Deck Control Connections	
di Device 1	-> Device 1	ď	HD Deck	•	-> Device 13	d Disconnect	-> Device 1
HD Deck	-> Device 2	a di	HD Deck	•	-> Device 14	Device 1	<- HD Deck
Device 3	-> Device 3	4	Device 3	•	-> Device 15	d ✓ HD Deck	-> Device 3
d Device 4	-> Device 4	-	Device 4	:	-> Device 16	Device 3	-> Device 4
Device 5	-> Device 5	-	Device 5	•	-> Device 17	Device 4 Device 5	-> Device S
a Device 6	-> Device 6	di la	Device 6	:	-> Device 18	Device 6	-> Device 6
Device 7	-> Device 7	-	Device 7		-> Device 19	Device 7 Device 8	-> Device 7
d Device 8	-> Device 8	4	Device 8	•	-> Device 20	Device 9	-> Device 8
HD Deck	-> Device 9	a	Device 9	•	-> Device 21	Device 10	-> Device 9
Device 10	-> Device 10	a	Device 10	•	-> Device 22	Device 11 Device 12	<- Device 10
Device 11	-> Device 11	4	Device 11	•	-> Device 23	Disconnect	<- Device 11
Device 12	-> Device 12	-	Device 12	:	-> Device 24	Disconnect	- Device 12
Real Time Down Co	nverter	Keyi	ng Frame Store				
Device 6	-> Down Converte	r 💣	Device 6		-> Video Input		
		4	No Image	•	-> Current Image		

Mac OS X[™] Windows XP[™]



Workgroup Videohub

Real Time Down Conversion

The Workgroup Videohub contains two Real Time Processing Units currently setup for HD-to-SD Down Conversion and a Keying Frame Store.

The HD Down Converter can be used to convert an HD signal to any of the Videohub inputs to an SD signal to be routed out to any monitoring or output port.

To use the Down Converter:

▶ First you need to send an input into the down converter. To do this, select an input in the drop down list in the "Real Time Down Converter" area (see "Step 1" image on right). This input needs to be an HD source.

▶ Next select "Down Converter" on any output menu. The output of the down converter is available in the menu on all router outputs, and can be selected and sent to any or all outputs. (see "Step 2" image on right)

Only one source HD signal can be Down Converted at a time because there is only one down converter in the router. The Down Converted signal can be routed to any number of output ports. In some cases where you want to impress your clients, you could run two monitors from the router into your edit suite, and have both HD and SD video monitoring at the same time.

e	Edit													
00	estination				Ton	fonitoring				Dec	k Control Connectio	ns		
3	Device 1	~	->	Device 1		Device 1	~	->	Device 13	3	Disconnect	~	•>	Device 1
Ъ	HD Deck	~	->	Device 2	3	HD Deck	~	->	Device 14	3	Device 3	~	<-	HD Deck
Ъ	Device 3	~	->	Device 3	3	Device 3	~	•>	Device 15	3	HD Deck	~	->	Device 3
Ы	Device 4	~	->	Device 4	3	Device 4	~	->	Device 16	3	Disconnect	~	•>	Device 4
Ы	Device 5	~	->	Device 5	3	Device 5	~	->	Device 17	3	Disconnect	~	.>	Device 5
Ъ	Device 6	~	->	Device 6	3	Device 6	~	->	Device 18	3	Disconnect	~	->	Device 6
5	Device 7	~	->	Device 7	3	Device 7	~	•>	Device 19	3	Disconnect	~	->	Device 7
5	Device 8	~	•>	Device 8	3	Device 8	~	->	Device 20	3	Disconnect	~	->	Device 8
Ъ	Device 9	~	->	Device 9	3	Device 9	*	->	Device 21	3	Disconnect	~	.>	Device 9
5	Device 10	~	->	Device 10	3	Device 10	~	->	Device 22	3	Disconnect	~	<-	Device 10
5	Device 11	*	->	Device 11	3	Device 11	~	.>	Device 23	3	Disconnect	~	<-	Device 11
Ъ	Device 12	~	->	Device 12	3	Device 12	~	•>	Device 24	3	Disconnect	~	¢.	Device 12
lea	Time Down Conver	ter			Key	ing Frame Store								
Ы	Device 6	~	->	Down Converter	3	Device 6	~	->	Video Input					
	Device 1 HD Deck Device 3 Device 4	_			3	No Image	*	->	Current Image					



se .	Edit												
To D	estination			ToM	fonitoring				Dec	k Control Connection	6		
3	Device 1	->	Device 1	۵	Device 1	~	->	Device 13	3	Disconnect	~	•>	Device
3	HD Deck.	->	Device 2	3	HD Deck	~	->	Device 14	3	Device 3	~	<-	HD Dec
3	Device 3	->	Device 3	3	Device 3	~	.>	Device 15	3	HD Deck	~	.>	Device
Ъ	Device 4	->	Device 4	3	Device 4	~	->	Device 16	3	Disconnect	~	•>	Device
3	Device 5	->	Device 5	3	Device 5	~	->	Device 17	3	Disconnect	~	->	Device
3	Device 6	->	Device 6	3	Device 6	~	->	Device 18	3	Disconnect	~	->	Device
	Device 1 HD Deck	.>	Device 7	3	Device 7	~	->	Device 19	3	Disconnect	×	.>	Device
3	Device 3 Device 4	->	Device 8	3	Device 8	~	->	Device 20	3	Disconnect	~	->	Device
	Device 5 Device 6	->	Device 9	3	Device 9	~	->	Device 21	3	Disconnect	~	->	Device
3	Device 7 Device 8 Device 9	->	Device 10	3	Device 10	~	->	Device 22	3	Disconnect	~	<-	Device 1
Ъ	Device 9 Device 10 Device 11	.>	Device 11	3	Device 11	~	.>	Device 23	3	Disconnect	~	e.	Device 1
Ъ	Device 11 Device 12 Frame Store	->	Device 12	3	Device 12	~	->	Device 24	3	Disconnect	~	÷	Device 1
Real	Down Converter			Keyl	ng Frame Store								
3	HD Deck.	->	Down Converter	3	Device 6	~	->	Video Input					
				3	No Image	~	->	Current Image					

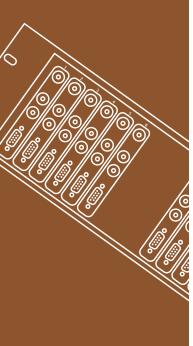


Step 1

- 10	tination		-			oup Videohub		Control Connection		
Des	tination		TON	lonitoring			Deci	Control Connection	ns	
	Device 1	-> Device 1	4	Device 1	\$	-> Device 13	đ	Disconnect	\$	-> Device 1
	HD Deck	-> Device 2	di	HD Deck	0	-> Device 14	ď	Device 3	0	<- HD Deck
	Device 3	-> Device 3		Device 3	•	-> Device 15	a di	HD Deck	•	-> Device 3
	Device 4	-> Device 4	d	Device 4	4	-> Device 16	a di	Disconnect	0	-> Device 4
	Device 5	-> Device 5	đ	Device 5	•	-> Device 17	đ	Disconnect		-> Device 5
I	Device 6	-> Device 6	6	Device 6	\$	-> Device 18	đ	Disconnect	•	-> Device 6
	Device 7	-> Device 7	ď	Device 7		-> Device 19	a c	Disconnect	•	-> Device 7
	Device 8	-> Device 8		Device 8	\$	-> Device 20	ď	Disconnect	•	-> Device 8
	HD Deck	-> Device 9	4	Device 9	0	-> Device 21	a	Disconnect		-> Device 9
	Device 10	-> Device 10	di	Device 10	0	-> Device 22	ď	Disconnect	•	<- Device 10
	Device 11	-> Device 11	6	Device 11	0	-> Device 23	a di	Disconnect	•	<- Device 11
	Device 12	-> Device 12	ď	Device 12	\$	-> Device 24	di	Disconnect	0	<- Device 12
-	Deve Connette		Keyi	ng Frame Store						
	Device 1 HD Deck	-> Down Converter		Device 6	10	-> Video Input				
	Device 3	-> Down Converter	-	No Image		-> Current Image				
	Device 4		-	teo image) -> current image				
	Device 5						-			
	Device 6	_	-	_	-		-	_	-	_
	Device 7									
	Device 8 Device 9									

HD Deck Device 3			Blackmagic W	orkgrou	p Videohub				
Device 4		To M	onitoring			Deck	Control Connection	us.	
Device 5 Device 6	-> Device 1		Device 1		-> Device 13		Disconnect		-> Device 1
Device 8 Device 8	-> Device 2	4	HD Deck		-> Device 14		Device 3	•	<- HD Deck
Device 8	-> Device 3	a l	Device 3	•	-> Device 15	a a	HD Deck	:	-> Device 3
Device 9 Device 10	-> Device 4	d'	Device 4	•	-> Device 16	4	Disconnect		-> Device 4
Device 11	-> Device 5	a	Device 5		-> Device 17	6	Disconnect	•	-> Device 5
Device 12	-> Device 6	4	Device 6	:	-> Device 18	a	Disconnect	:	-> Device 6
✓ Down Converter	-> Device 7	di la	Device 7		-> Device 19	-	Disconnect	•	-> Device 7
Frame Store	-> Device 8	a	Device 8	:	-> Device 20		Disconnect	•	-> Device 8
HD Deck	-> Device 9	4	Device 9	:	-> Device 21	-	Disconnect	:	-> Device 9
Device 10	-> Device 10	4	Device 10		-> Device 22	a	Disconnect	•	<- Device 10
Device 11	-> Device 11		Device 11	•	-> Device 23		Disconnect	\$	<- Device 11
Device 12	-> Device 12	ď	Device 12		-> Device 24		Disconnect	:	<- Device 12
eal Time Down Converter		Keyin	g Frame Store						
B HD Deck	-> Down Converter	ď	Device 6		-> Video Input				
			No Image	-	-> Current Image				





Keying Frame Store

The Keying Frame Store is used to key a user-supplied image onto one of the input video signals.

NOTE: The dimensions of the image should match the input signal resolution as listed below.

NTSC 720 x 486 PAL 720 x 576 1080 HD 1920 x 1080 720 HD 1280 x 720

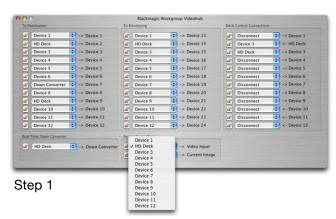
Images of invalid dimensions will be cropped or appear only in the top-left corner of the output.

Input images can be supplied in many formats including Photoshop, Bitmap, PICT, Targa and others. The image should contain a valid alpha channel. Simply copy images you wish to alpha-blend into the "FrameStore" folder on the Videohub "Server" machine.

▶ Under Windows XP the "FrameStore" folder can be found in the "Server" subdirectory of the folder you installed Workgroup Videohub at (normally C:\Program Files\Blackmagic Design\Blackmagic Workgroup Videohub).

• Under Mac OS X the "FrameStore" folder can be found at "/Library/ Application Support/Blackmagic Design/Workgroup Videohub"

de	Edk													
To E	Destination				ToP	tonitoring				Dec	k Control Connection	15		
3	Device 1	*	•>	Device 1		Device 1	~	->	Device 13	3	Disconnect	~	->	Device
3	HD Deck	~	->	Device 2	3	HD Deck	~	->	Device 14	3	Device 3	~	<-	HD Dec
3	Device 3	~	->	Device 3	3	Device 3	~	->	Device 15	3	HD Deck	~	->	Device :
3	Device 4	۷	->	Device 4	3	Device 4	~	•>	Device 16	3	Disconnect	~	->	Device
3	Device 5	~	->	Device 5	3	Device 5	~	->	Device 17	3	Disconnect	~	->	Device
3	Down Converter	~	->	Device 6	3	Device 6	~	->	Device 18	3	Disconnect	~	->	Device
3	Device 7	~	•>	Device 7	3	Device 7	~	->	Device 19	3	Disconnect	~	->	Device
3	Device 8	~	->	Device 8	3	Device 8	~	->	Device 20	3	Disconnect	~	->	Device I
3	Device 9	~	->	Device 9	3	Device 9	~	->	Device 21	3	Disconnect	~	->	Device
3	Device 10	~	•>	Device 10	3	Device 10	~	.>	Device 22	3	Disconnect	~	<-	Device 1
3	Device 11	~	->	Device 11	3	Device 11	~	•>	Device 23	3	Disconnect	~	<-	Device 1
3	Device 12	~	->	Device 12	3	Device 12	~	->	Device 24	3	Disconnect	~	<-	Device 1
Rea	Time Down Converter				Keyi	ng Frame Store								
3	HD Deck	~	-> Down	Converter	2	Device 6	~	->	Video Input					
					3	Device 1 HD Deck		->	Current Image					





Workgroup Videohub

Keying Frame Store cont.

Framestore images can be copied into this folder at any time. Once the Workgroup Videohub has recognized the images they will be immediately available for keying. Videohub will recognize the images immediately when they are placed in the folder, so you just need to copy them into the correct location.

To use the Keying Frame Store:

Select the video signal you wish to key against from the "Video Input" drop-down list in the "Keying Frame Store" area (see "Step 1" image on previous page). This will also determine the video format of the output of the frame store.

▶ Select the image you wish to key onto the signal from the "Current Image" drop-down list in the "Keying Frame Store" area (see "Step 2" image on right). This will then download the image into the frame store on the router, and allow this frame to be output to any other output on the router. If you look at the image as it's being loaded, you will see it download into the router.

Select "Frame Store" from the drop-down list on any monitor or video output port on the router. You can output the frame store to any or all of the video outputs on the router. (see "Step 3" image below)

ide Edit													
To Destination				ToM	fonitoring				Dec	k Control Connection	15		
Device 1	~	->	Device 1		Device 1	*	->	Device 13	3	Disconnect	~	->	Device
HD Deck	~	->	Device 2	3	HD Deck	~	->	Device 14	3	Device 3	~	<-	HD De
Device 3	~	->	Device 3	3	Device 3	~	•>	Device 15	3	HD Deck	~	->	Device
Device 4	~	->	Device 4	3	Device 4	~	->	Device 16	3	Disconnect	~	•>	Device
Device 5	~	->	Device 5	3	Device 5	~	->	Device 17	3	Disconnect	~	->	Devic
Down Converter	~	->	Device 6	3	Device 6	*	->	Device 18	3	Disconnect	~	->	Devic
Device 7	~	->	Device 7	3	Device 7	~	•>	Device 19	3	Disconnect	~	->	Devic
Device 8	~	->	Device 8	3	Device 8	~	->	Device 20	3	Disconnect	~	->	Devic
Device 9	~	->	Device 9	3	Device 9	~	->	Device 21	3	Disconnect	~	->	Devic
Device 10	~	->	Device 10	3	Device 10	~	->	Device 22	3	Disconnect	~	<-	Device
Device 11	~	->	Device 11	3	Device 11	~	.>	Device 23	3	Disconnect	~	ج.	Device
Device 12	~	->	Device 12	3	Device 12	~	->	Device 24	3	Disconnect	~	<-	Device
Real Time Down Converte	e			Key	ing Frame Store								
HD Deck	~	->	Down Converter	3	HD Deck	~	->	Video Input					
				3	HD Color Bars	*	->	Current Image					
				-	Color Bars HD Color Bars								



ie <u>E</u> dit												
fo Destination			Tot	fonitoring				Dec	k Control Connection	15		
Device 1	~ ->	Device 1	3	Device 1	*	->	Device 13	3	Disconnect	~	•>	Device :
HD Deck	v ->	Device 2	3	HD Deck	~	->	Device 14	3	Device 3	~	<-	HD Ded
Device 3	× ->	Device 3	3	Device 3	~	->	Device 15	3	HD Deck	~	.>	Device
Device 4	·>	Device 4	3	Device 4	*	->	Device 16	3	Disconnect	~	->	Device
Device 5	v ->	Device 5	3	Device 5	~	->	Device 17	3	Disconnect	~	->	Device
Device 6	× ->	Device 6	3	Device 6	~	->	Device 18	3	Disconnect	~	->	Device
Down Converter	× ->	Device 7	3	Device 1 HD Deck		->	Device 19	3	Disconnect	~	.>	Device
Device 8	v ->	Device 8	3	Device 3 Device 4		->	Device 20	3	Disconnect	~	•>	Device
HD Deck	~ ->	Device 9	3	Device 5 Device 6 Device 7		->	Device 21	3	Disconnect	~	->	Device
Device 10	·>	Device 10	3	Device 8 Device 9		->	Device 22	3	Disconnect	~	<-	Device 1
Device 11	¥ ->	Device 11	3	Device 10 Device 11		->	Device 23	3	Disconnect	~	<-	Device 1
Device 12	~ ->	Device 12	3	Device 12 Frame Store		->	Device 24	3	Disconnect	~	<-	Device 1
eal Time Down Converter			Key	Down Converter								
HD Deck	v ->	Down Converter	3	Device 6	~	->	Video Input					
			3	HD Color Bars	~	->	Current Image					



Step 2

00		Blackmagic Wol	kgroup Videohub			
To Destination		To Monitoring		Deck	Control Connection	15
Device 1	-> Device 1	Device 1	-> Device 13	ď	Disconnect	-> Device 1
HD Deck	-> Device 2	HD Deck	Device 14		Device 3	+- HD Deci
Device 3	-> Device 3	Device 3	-> Device 15	ď	HD Deck	-> Device 3
Device 4	-> Device 4	Device 4	-> Device 16	đ	Disconnect	-> Device 4
Device 5	-> Device 5	di Device 5	-> Device 17	di la	Disconnect	-> Device 9
Device 6	-> Device 6	Device 6	-> Device 18	ď	Disconnect	-> Device 6
Down Converter	-> Device 7	d Device 7	-> Device 19	ď	Disconnect	-> Device 7
Device 8	-> Device 8	Device 8	-> Device 20	-	Disconnect	-> Device 8
d HD Deck	-> Device 9	di Device 9	-> Device 21	ď	Disconnect	-> Device 9
d Device 10	-> Device 10	Device 10	-> Device 22	4	Disconnect	<- Device 1
di Device 11	-> Device 11	Device 11	-> Device 23	ď	Disconnect	- Device 1
d Device 12	-> Device 12	Device 12	-> Device 24	ď	Disconnect	<- Device 1
Real Time Down Converte		Keying Frame Store				
d HD Deck	-> Down Converter	Color Bars	-> Video Input			
		HD Color Bars	-> Current Image			

o Destination		To Monitoring		Deck	Control Connection	15	
Device 1 HD Deck Device 3 Device 4 Device 5 Device 6 Device 6 Device 8 HD Deck HD Deck Device 10	• >> Device 1 • >> Device 2 • >> Device 3 • >> Device 4 • >> Device 5 • >> Device 5 • >> Device 7 • >> Device 8 • >> Device 8	Device 1 HD Deck Device 3 Device 4 Device 5 Device 6 Device 7 Device 7 Device 10 Device 10 Device 11 Device 12	-> Device 13 -> Device 14 -> Device 14 -> Device 15 -> Device 15 -> Device 17 -> Device 17 -> Device 19 -> Device 20 -> Device 21 -> Device 22		Disconnect Device 3 HD Deck Disconnect Disconnect Disconnect Disconnect Disconnect Disconnect		-> Device 4 -> Device 5 -> Device 6 -> Device 7 -> Device 8 -> Device 9 <- Device 10
Device 11 Device 12	-> Device 11 -> Device 12	d ✓ Frame Store d Device 12	-> Device 23 -> Device 24	6	Disconnect Disconnect	0	
Real Time Down Converter	-> Down Converter		-> Video Input -> Current Image				



Workgroup Videohub

Using Workgroup Videohub Locking

Often you may not want other people in your facility to change the route of a signal you are working with. This is important when outputting a master ot tape, and you don't want anyone changing the input of the deck from your setting.

Workgroup Videohub supports locking to prevent people on other workstations from changing your routes.

To lock an output, simply click the "unlocked" icon next to the port's dropdown list (see "Step 1" image on right). The icon will change to a "locked" image and other people are now unable to make changes that impact your port (see "Step 2" image on right).

After you have locked a port the interface of other clients will change so the port becomes "grayed out". If ports on your interface appear grayed out it simply means that another user has locked the port.

If you have locked a port it will become unlocked as soon as you change its route. You may then relock the port if you wish to prevent further changes by other users.

The Workgroup Videohub control software running on the Videohub "server" can unlock any locked output. If you wish to over-ride someone else's lock setting, simply make the change on the Videohub server. This is nice if someone is controlling the router from their notebook, and they leave the office, Step 2 with a destination locked!

NOTE: Locking serial ports can have far-reaching effects as any new serial route involving your port will be disallowed for other users. For example, if Serial Port 1 is connected to Serial Port 2 and you lock Serial Port 2, no other users can establish a route to Serial Port 2, even though you locked Serial Port 1.

Step 1

01)				Blackmagic Wo	rkgro	up Videohub				
				To M	lonitoring			Deck			
	Device 1		-> Device 1	-	Device 1		-> Device 13	đ	Disconnect	4	-> Device 1
	HD Deck		-> Device 2	-	HD Deck	4	-> Device 14	1	Device 3	0	<- HD Deck
	Device 3	4	-> Device 3	a l	Device 3	4	-> Device 15	a de	HD Deck	4	-> Device 3
	Device 4	1	-> Device 4	a	Device 4	4	-> Device 16	a	Disconnect	4.4	-> Device 4
	Device 5	0	-> Device S	5	Device 5	4	-> Device 17	ď	Disconnect	0	-> Device 5
	Device 6		-> Device 6		Device 6	1	-> Device 18	a	Disconnect	0	-> Device 6
	Device 7	4	-> Device 7	a	Device 7	0	-> Device 19	đ	Disconnect	4	-> Device 7
	Device 8	0	-> Device 8	63	Device 8	4	-> Device 20		Disconnect	0	-> Device 8
	Device 9	0	-> Device 9	di	Device 9	4	-> Device 21	6	Disconnect	4	-> Device 9
	Device 10	0	-> Device 10	-	Device 10	0	-> Device 22		Disconnect	0	<- Device 1
	Device 11	0	-> Device 11	d'	Device 11	4	-> Device 23	a di	Disconnect	4	<- Device 1
	Device 12	0	-> Device 12	đ	Device 12	\$	-> Device 24		Disconnect	0	<- Device 1
Real 1	Time Down Conver	187		Keyis	ng Frame Store						
a l	Device 6	10	-> Down Converter	a	Device 6	0	-> Video Input				
				3	HD Color Bars	0	-> Current Image				

HD Deck HD Dec Device 3 Device 4 Device 4 3 Device 4 Device 5 Device 5 Device 5 Device 6 Device 7 Device 7 Cal Device 7 Device 8 Device 8 Device 8 Device 9 3 Device 9 Device 10 Device 10 Device 11 Device 11 Device 11 Device 12 Chevice 12 Device 6 Device 6 V -> 3 BD Color Bies

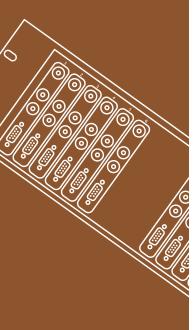


le	Edit												
lo D	estination			Tot	fonitoring				Dec	k Control Connection	15		
5	Device 1	v ->	Device 1	3	Device 1	~	->	Device 13	3	Disconnect	~	•>	Device :
	HD Deck	× ->	Device 2	3	HD Deck	~	->	Device 14	3	Device 3	~	<-	HD Dec
	Device 3	× ->	Device 3	3	Device 3	~	.>	Device 15	3	HD Deck	~	->	Device
	Device 4	× ->	Device 4	3	Device 4	*	->	Device 16	3	Disconnect	>	•>	Device
	Device 5	× ->	Device 5	3	Device 5	~	->	Device 17	3	Disconnect	~	->	Device
	Device 6	× ->	Device 6	3	Device 6	~	->	Device 18	3	Disconnect	~	->	Device
	Device 7	× ->	Device 7	3	Device 7	~	->	Device 19	3	Disconnect	~	->	Device
	Device 8	× ->	Device 8	3	Device 8	~	->	Device 20	3	Disconnect	~	->	Device
	Device 9	× ->	Device 9	3	Device 9	*	->	Device 21	3	Disconnect	~	->	Device
	Device 10	× ->	Device 10	3	Device 10	~	->	Device 22	3	Disconnect	~	<-	Device 1
	Device 11	× ->	Device 11	3	Device 11	~	.>	Device 23	3	Disconnect	~	ج.	Device 1
	Device 12	× ->	Device 12	3	Device 12	~	•>	Device 24	3	Disconnect	~	¢.	Device 1
al	Time Down Convert	ter		Key	ing Frame Store								
	Device 6	× ->	Down Converter	3	Device 6	~	->	Video Input					
				3	HD Color Bars	*	->	Current Image					



00		and the second se	orkgroup Videohub				
To Destination		To Monitoring		Deck	Control Connection	55	
Device 1	-> Device 1	a Device 1	-> Device 13	a	Disconnect	•	-> Device 1
HD Deck	-> Device 2	HD Deck	-> Device 14	-	Device 3		<- HD Deck
Device 3	-> Device 3	Device 3	-> Device 15	di la	HD Deck	•	-> Device 3
d Device 4	-> Device 4	Device 4	-> Device 16	di la	Disconnect	:	-> Device 4
a Device 5	-> Device 5	a Device 5	-> Device 17	4	Disconnect	\$	-> Device 5
Device 6	-> Device 6	Device 6	-> Device 18	đ	Disconnect	•	-> Device 6
Bevice 7	-> Device 7	Device 7	-> Device 19	di la	Disconnect	•	-> Device 7
Device 8	-> Device 8	Device 8	-> Device 20	ď	Disconnect	•	-> Device 8
Device 9	-> Device 9	Device 9	-> Device 21	ď	Disconnect		-> Device 9
Device 10	-> Device 10	Device 10	-> Device 22	di la	Disconnect	•	<- Device 10
di Device 11	-> Device 11	di Device 11	-> Device 23	ď	Disconnect		<- Device 11
Device 12	-> Device 12	Device 12	-> Device 24	ď	Disconnect	•	<- Device 12
Real Time Down Com	enter	Keying Frame Store					
Device 6	-> Down Converter	Device 6	-> Video Input				
		HD Color Bars	-> Current Image				





Using Workgroup Videohub -Other Router Modes

Often you may not want to see every device in your workgroup, as you may only be using one deck and one editing workstation at any point in time. As such Workgroup Videohub provides two alternate interfaces (modes) to help simplify your workflow. These are called the 'Personal Router' and the 'Simple Router' modes.

Personal Router Mode

Personal Router mode can be entered by selecting "Personal Router" from the "Window" menu on Mac OS X[™] or the "Mode" menu under Windows XP[™].

Often you might want to monitor from your deck when batch capturing video off tape and then back to the video output of your editing workstation so you can see what you're editing. To make this simpler, keep the smaller Personal Router window on your desktop as you work so you can instantly change things such as monitoring while you work.

In this mode, the upper three pairs of drop-down lists represent video ports. Drop-down lists on the right-hand side represent a port that your edit suite is currently connected to. For example, in your suite you may have a workstation running editing software, a deck for your telecine video material and a monitor connected to the Workgroup Videohub.

Simply select the Videohub ports that your edit suite, deck and monitor are connected to in the right-hand drop-down lists. You should then see the dropdown lists change to reflect what is currently connected to your edit station, deck and monitor. Once this is set, you only see the three devices you're interested in when doing your job.

Blackmagic Workgroup Vid	eohub	- Personal Router	
ode <u>E</u> dit			
To My Workstation Device 1	->	Device 1	 2
To My Broadcast Deck Device 1	->	Device 1	 2
To My Monitoring Device 1	->	Device 13	 3
Deck Control Connections Disconnect	->	Device 10	 2



Using Workgroup Videohub -Other Router Modes

Personal Router Mode cont.

To select a new source to be routed to your monitor, deck or workstation, simply select it from the corresponding drop-down list on the left-hand side of the window and the new source will instantly be connected.

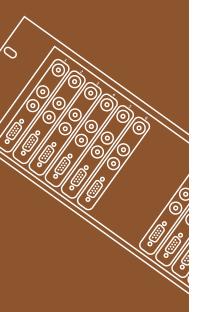
The lower most drop-down lists represent RS-422 control port connections. The right-hand drop-down list contain those ports configured in the "Remote Out (Deck)" direction. The left-hand drop-down list contains "Remote In (Workstation)" ports.

Note: Changes to drop-down lists on the right-hand side of the screen do not alter routes. These lists are only used to select which destination port you wish to change. Making changes to a left-side drop-down lists will change the route for the port displayed in the associated right-hand side list.

To My Workstation			
Device 1	✓ ->	Device 1	~ 2
Device 1			
HD Deck			
Device 3			
Device 4	->	Device 1	~ 2
Device 5			
Device 6			
Device 7	-		
Device 8			0
Device 9	->	Device 13	~ 2
Device 10			
Device 11			
Device 12			
Frame Store Down Converter	->	Device 10	2

To Mu Marketation	1		
Device 1			
HD Deck	->	Device 1	÷) 💣
Device 3			
Device 4	-		
Device 5	->	Device 1	•
Device 6	->	Device 1	•
Device 7	100		
Device 8			
Device 9	->	Device 1	🗧 🗧
Device 10			
Device 11	5		
Device 12	->	Device 10	-
Downconverter			
Framestore	-	_	-

C Image: Constraint of the second second



Using Workgroup Videohub -Other Router Modes

Simple Router Mode

Simple Router mode is very similar to the Personal Router mode and operates in the same way.

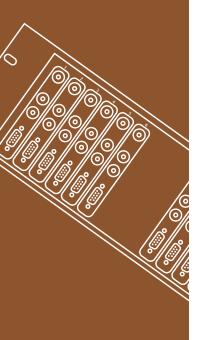
The Simple Router mode is simply a "compressed" view of the Main Router mode. Each of the sources and destinations in the Main Router have been compressed into two drop-down lists.

Like the Personal Router, right-hand drop-down lists in the Simple Router display possible destination ports whilst left-hand drop-down lists display possible source ports. Changes made to the right-hand drop-down lists do not alter routes whilst changes to the left-hand drop-down lists do. It's important to select ports from the right side drop-down lists first, to select the destination, and then to change the routing use the drop-down lists on the left side.

To Destination			
Device 1	× ->	Device 1	× 2
To Monitoring			
Device 1	v ->	Device 13	2
Deck Control Connect	ions		
Disconnect	->	Device 1	v 2







Troubleshooting

Q: The client software interface is always disabled.

A: This could be for several reasons -

The client is not connected to the Videohub server.

In this case, check the Question below titled "The client software cannot connect to the Videohub server".

If this is not the cause, then the Workgroup Videohub might not be physically connected to the host server computer. In this case, try the following:

The client interface is always disabled when the Videohub is not connected to the server via USB. Ensure there is a USB connection between the Videohub and the server computer.

When the USB connection is running the light next to the USB connector on the Videohub will blink intermittently indicating the USB is communicating correctly.

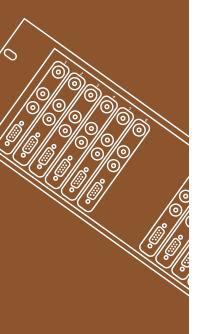
If this does not solve the problem, then the Videohub might not have been detected by the Videohub server. Try the following:

1) Ensure the drivers have been installed on the server by running the installer.

2) Disconnect and reconnect the Videohub's USB connection, on reconnect it should be detected by the server – allow any uninstalled drivers to be installed.

3) Uninstall the server software and repeat the installation process.





Workgroup Videohub

Troubleshooting

Q: The client software cannot connect to the Videohub server. In this case, check:

1) Is the Videohub server computer turned on? The Videohub server computer must be running for clients to control the Videohub.

2) Ensure the IP address of the Videohub server is correctly specified in your preferences on each client computer on your network.

3) Check that you have network connectivity to the Videohub server.

4) Ensure the Videohub server does not have TCP port 9990 blocked by a firewall. This port is automatically opened by the installer if possible. It may have inadvertently been closed by server software updates or user intervention.

5) Is the server service running on the server computer (Windows XP)? Check:

A) Double-click on "Administrative Tools" in the Control Panel (ensure you have "Classic View" enabled)

B) Double-click on "Services"

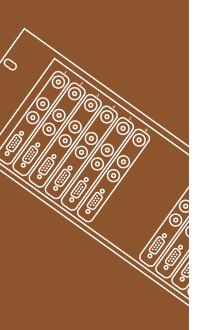
C) Ensure the word "Started" appears under the "Status" column for the "Blackmagic Workgroup Videohub Daemon" service. If it does not, click on the service and select "Start the service".

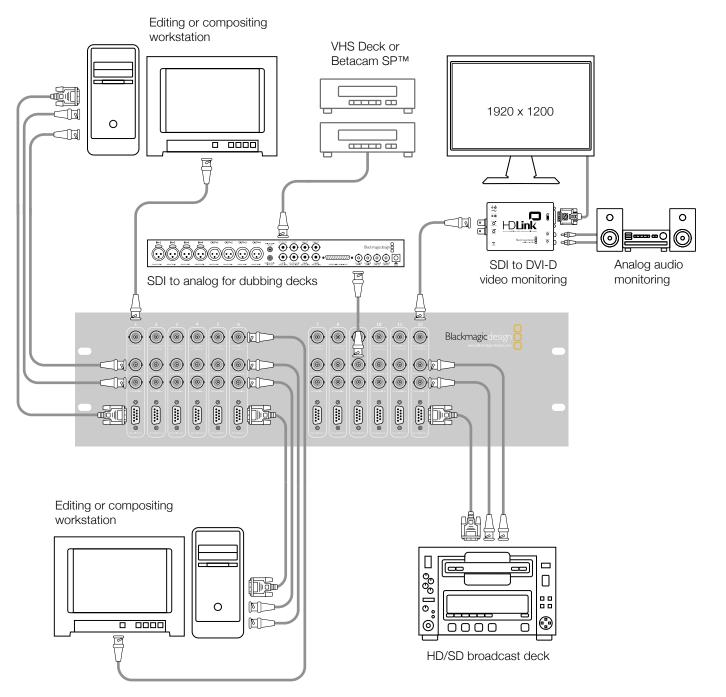


Workgroup Videohub Workflows



27







If things go wrong...

There are three steps to getting help.

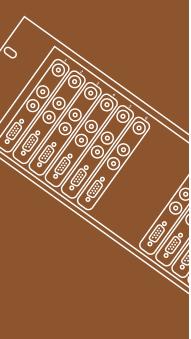
- Step 1. Check out the Blackmagic Design web site www.blackmagicdesign.com and click on the "Support" page for the latest support information.
- Step 2. Call your dealer.

Your dealer will have the latest technical updates from Blackmagic Design and should be able to give you immediate assistance. We also recommend you check out the support options your dealer offers as they can arrange various support plans based on your workflow requirements.

Step 3. The next option is to email us at pcsupport@blackmagicdesign.com for Windows, or support@blackmagicdesign.com for Mac OS X support with your questions.

Please provide us with as much information as possible regarding your technical problem and system specifications so that we may try to respond to your problem as quickly as possible.





Workgroup Videohub

Blackmagic Design Limited Warranty

Blackmagic Design warrants that this product will be free from defects in materials and workmanship for a period of 12 months from the date of purchase. If a product proves to be defective during this warranty period, Blackmagic Design, at its option, either will repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product.

In order to obtain service under this warranty, you the Customer, must notify Blackmagic Design of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. The Customer shall be responsible for packaging and shipping the defective product to a designated service center nominated by Blackmagic Design, with shipping charges pre paid. Customer shall be responsible for paying all shipping changes, insurance, duties, taxes, and any other charges for products returned to us for any reason.

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