Titan 9000

Multiviewing experience taken to the next level

Revision 1.0.0, (May, 2014)

AVITECH

ABOUT THIS MANUAL
This manual contains information on how to use Avitech Titan 9000.

The following conventions are used to distinguish elements of text throughout the manual.

 *provides additional hints or information that require special attention.*

 *identifies warnings which must be strictly followed.*

Any name of a menu, command, icon or button displayed on the screen is shown in a bold typeset. For example: On the **Start** menu select **Settings**.

To assist us in making improvements to this user manual, we welcome any comments and constructive criticism. Email us at: sales@avitechvideo.com.

WARNING
Do not attempt to disassemble Titan 9000. Doing so may void the warranty. There are no user serviceable parts inside. Please refer all servicing to qualified personnel.

TRADEMARKS
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TECHNICAL SUPPORT
For any questions regarding the information provided in this guide, call our technical support help line at 425-885-3863, or our toll free help line at 1-877-AVI-TECH, or email us at: support@avitechvideo.com

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Warranty

Avitech International Corporation (herein after referred to as “Avitech”) warrants to the original purchaser of the products manufactured in its facility (the “Product”), that these products will be free from defects in material and workmanship for a period of 1 year or 15 months from the date of shipment of the Product to the purchaser. There is a 3 month grace period between shipping and installation.
If the Product proves to be defective during the 1 year warranty period, the purchaser’s exclusive remedy and Avitech’s sole obligation under this warranty is expressly limited, at Avitech’s sole option, to:
(a) repairing the defective Product without charge for parts and labor; or (b) providing a replacement in exchange for the defective Product; or (c) if after a reasonable time is unable to correct the defect or provide a replacement Product in good working order, then the purchaser shall be entitled to recover damages subject to the limitation of liability set forth below.

Limitation of Liability

Avitech’s liability under this warranty shall not exceed the purchase price paid for the defective product. In no event shall Avitech be liable for any incidental, special, or consequential damages, including without limitation, loss of profits for any breach of this warranty.

If Avitech replaces the defective Product with a replacement Product as provided under the terms of this Warranty, in no event will the term of the warranty on the replacement Product exceed the number of months remaining on the warranty covering the defective Product. Equipment manufactured by other suppliers and supplied by Avitech carries the respective manufacturer’s warranty. Avitech assumes no warranty responsibility either expressed or implied for equipment manufactured by others and supplied by Avitech.

This Warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty of merchantability or fitness for a particular purpose, all of which are expressly disclaimed.

This Hardware Warranty shall not apply to any defect, failure, or damage: (a) caused by improper use of the Product or inadequate maintenance and care of the Product; (b) resulting from attempts by other than Avitech representatives to install, repair, or service the Product; (c) caused by installation of the Product in a hostile operating environment or connection of the Product to incompatible equipment; or (d) caused by the modification of the Product or integration with other products when the effect of such modification or integration increases the time or difficulties of servicing the Product.

Any Product which fails under conditions other than those specifically covered by the Hardware Warranty, will be repaired at the price of parts and labor in effect at the time of repair. Such repairs are warranted for a period of 90 days from date of reshipment to customer.

Extended Warranty Options

Avitech offers OPTIONAL Extended Warranty plans that provide continuous coverage for the Product after the expiration of the Warranty Period. Contact an Avitech sales representative for details on the options that are available for the Avitech equipment.

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Avitech makes its best offer to repair a product that is outside the warranty period, provided the product has not reached its end of life (EOL). The minimum charge for such repair excluding shipping and handling is $200 (US dollars).

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Regulatory Information

Marking labels located on the exterior of the device indicate the regulations that the model complies with. Please check the marking labels on the device and refer to the corresponding statements in this chapter. Some notices apply to specific models only.

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense. Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Avitech is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

European Union CE Marking and Compliance Notices Statements of Compliance

English

This product follows the provisions of the European Directive 1999/5/EC.

Dansk (Danish)

Dette produkt er i overensstemmelse med det europæiske direktiv 1999/5/EC.

Nederlands (Dutch)

Dit product is in navolging van de bepalingen van Europees Directief 1999/5/EC.

Suomi (Finnish)

Tämä tuote noudattaa EU-direktiivin 1999/5/EC määräyksiä.

Français (French)

Ce produit est conforme aux exigences de la Directive Européenne 1999/5/EC.

Deutsch (German)

Dieses Produkt entspricht den Bestimmungen der Europäischen Richtlinie 1999/5/EC.

Ελληνικά (Greek)

Το προϊόν αυτό πληροί τις προβλέψεις της Ευρωπαϊκής Οδηγίας 1999/5/EC.

Íslenska (Icelandic)

Þessi vara stenst reglugerð Evrópska Efnahags Bandalagsins númer 1999/5/EC.

Italiano (Italian)

Questo prodotto è conforme alla Direttiva Europea 1999/5/EC.

Norsk (Norwegian)

Dette produktet er i henhold til bestemmelsene i det europeiske direktivet 1999/5/EC.

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Este produto cumpre com as normas da Diretiva Européia 1999/5/EC.

Español (Spanish)

Este producto cumple con las normas del Directivo Europeo 1999/5/EC.

Svenska (Swedish)

Denna produkt har tillverkats i enlighet med EG-direktiv 1999/5/EC.

Australia and New Zealand C-Tick Marking and Compliance Notice
Statement of Compliance

This product complies with Australia and New Zealand's standards for radio interference.

1. Getting Started

The **Titan 9000 Series** is a modular card based multiviewer. Each card can receive up to 4 input signals and up to 4 cards can be installed in the 1RU chassis. Users can monitor 4 HDMI/DVI/VGA/YPbPr sources via HD 1080p output.

The Titan 9000 allows for fully free-scaling windows. A high degree of flexibility is achieved through internal cascading. This flexibility allows all 4 cards (16 signals) to easily be displayed on one monitor, and/or be duplicated to other monitors. The Titan 9000 is also extremely scalable; users can easily expand the system by cascading up to 10 chassis which allows for the monitoring of up to 160 sources on one or multiple screens.

This chapter introduces the features and specifications as well as external components of Titan 9000.

1.1 Package Contents

After unpacking the shipping carton, the following items can be found:

Avitech Titan 9000 series

Utility Disc (software and user manual)

24 V DC Power Adapter

Standard Power Cord (USA customer only)

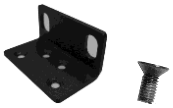
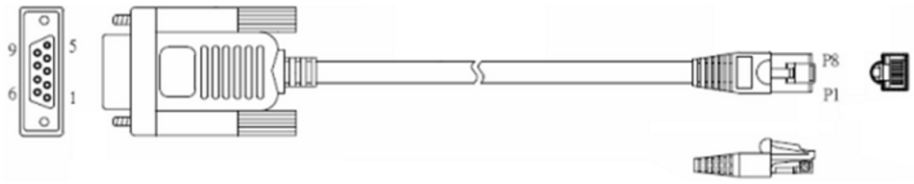
	
RS-485 Cascading Cable (optional – when purchasing 2 or more Titan 9000)	**Ear with screw (already installed on Titan 9000 upon order for assembly on to rack mount)**
	
DVI to HDMI® Adapter (optional)	**Proprietary RJ-45 to RS-232 (DB9-FM) Cable (optional) – see note below**

Table 1-1 Package Contents

Due to space limitation, the serial connector is replaced with a RJ-45 connector. A proprietary RJ-45 to RS-232 (DB9-FM) cable is needed for serial function. The pin definition is shown next.

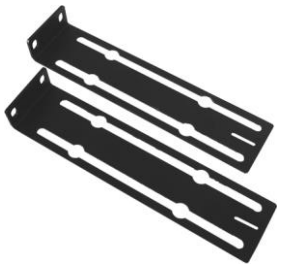


DB9-FM		RJ-45	
Pin	Assignment	Pin	Assignment
1		1	Tx
2	Tx	2	Gnd
3	Rx	3	
4		4	Rx
5	Gnd	5	Gnd
6		6	
7		7	
8	5 V	8	5 V
9			

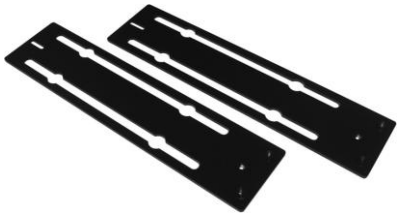
Figure 1-1 RJ-45 to RS-232 (DB9-FM) Cable Pin Definition

The following items are included if optional rack mount kit is ordered, refer to the “Rack Mount Assembly Reference Guide” for details.

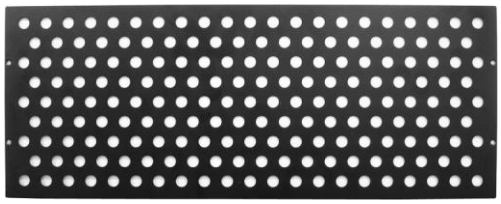
Rack Tray Ear (left and right pc)



Ear-A (2 pcs)



Ear-B (2 pcs)
Used on 700/750/800mm rack depth (27.56/29.53/31.49 inch)



Tray

Screw 3*4mm (4 pcs)

Screw 3*7mm (6 pcs)

Screw 3*5mm (12 pcs)

Screw 3*6mm (2 pcs)

Cable Tie 370*4.8mm (2 pcs)

Table 1-2 Optional Rack Mount Package Contents

1.2 Product Features

- ✓ *Automatic sensing of up to 16 HDMI/DVIVGA/YPbPr input signals*
- ✓ *Independent operation, settings can be configured from the front LCD panel*
- ✓ *1920×1200 maximum output resolution*
- ✓ *Up to 14 presets/configurations can be saved and recalled per card*
- ✓ *Supports HDMI®, features 4 HDMI outputs*
- ✓ *Supports DVI, features 4 DVI outputs (via a HDMI to DVI adapter)*
- ✓ *Supports cascading, features an HDMI input for cascading*
- ✓ *Supports Avitech's Phoenix-Q configuration interface via Ethernet connection*
- ✓ *Supports TSL through serial interface (RS-232) or Ethernet (UDP)*
- ✓ *Supports General Purpose Input/Output through Ethernet*
- ✓ *Supports Avitech ASCII Protocol (AAP) via Ethernet connection*

Robust Design:

- ✓ *Passed Extensive Vibration Test: (MIL-STD-810G vibration test) method 514.6 for US truck under random vibration while in operation*
- ✓ *Dual power supply with DC input (one main and one redundant, interchangeable)*
- ✓ *Field serviceable front fan module*

✓ *Video Control:*

1. *Free-scaling windows, quad view, full screen view, adjustable safe area, and aspect ratio control.*
2. *Picture-in-Picture (PiP) overlay display*
3. *Image crop and pan*
4. *Video loss detection*
5. *Image/Gain: automatic or manual adjustment*

✓ *On Screen Display (OSD):*

1. *Borders*
   - ✓ *Features fully customizable image borders (color and width)*
   - ✓ *Video borders*

2. *Labels*
   - ✓ *BMP label*
   - ✓ *UMD – (under monitor display)*
3. *Alarms*
   - ✓ *Video loss*
   - ✓ *Audio high*
   - ✓ *Audio low*
   - ✓ *Audio lost*
   - ✓ *Out of Phase*
4. *Tally*
5. *Audio meter*
6. *Digital clock / user logo*
7. *External Linear Time Code (LTC)*
8. *Safe area, aspect ratio detection*
9. *Screen background color is configurable*

✓ *Audio Control:*

1. *Audio input supports up to 8 channels of LPCM audio transmission (32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, or 192kHz sample rate)*
2. *Analog: 1/8 inch stereo headphone jack for audio monitoring*
3. *Audio loss / audio high / audio low / phase detection*

1.3 Specifications

Titan 9000 – (2H2V)	
Input	
HDMI (HDMI type A)	Automatic sensing, the following input signals are supported: ❖ *640×350, 85Hz* ❖ *640×400, 85Hz* ❖ *640×480, 60Hz/72Hz/75Hz/85Hz* ❖ *720×400, 85Hz* ❖ *480p, 59Hz* ❖ *480i, 59Hz* ❖ *576p, 50Hz* ❖ *576i, 50Hz* ❖ *800×600, 56Hz/60Hz/72Hz/75Hz/85Hz* ❖ *848×480, 60Hz* ❖ *1024×768, 60Hz/70Hz/75Hz/85Hz* ❖ *1152×864, 75Hz* ❖ *1280×720, 50Hz/60Hz* ❖ *1280×768, 60Hz (reduced blanking)/60Hz/75Hz/85Hz* ❖ *1280×800, 60Hz* ❖ *1280×960, 60Hz/85Hz* ❖ *1280×1024, 60Hz/75Hz/85Hz*

	❖ *1360×768, 60Hz* ❖ *1366×768, 60Hz* ❖ *1400×1050, 60Hz (reduced blanking)/60Hz/75Hz* ❖ *1440×900, 60Hz* ❖ *1440×1050, 60Hz* ❖ *1600×1200, 60Hz* ❖ *1680×1050, 60Hz* ❖ *1920×1080i, 50Hz/60Hz* ❖ *1920×1080p, 50Hz/60Hz* ❖ *1920×1200, 60Hz (reduced blanking)*
DVI-I **(DVI-I connector)**	Automatic sensing, the following input signals are supported: ❖ *640×350, 85Hz* ❖ *640×400, 85Hz* ❖ *640×480, 60Hz/72Hz/75Hz/85Hz* ❖ *720×400, 85Hz* ❖ *480p, 59Hz* ❖ *480i, 59Hz* ❖ *576p, 50Hz* ❖ *576i, 50Hz* ❖ *800×600, 56Hz/60Hz/72Hz/75Hz/85Hz* ❖ *848×480, 60Hz* ❖ *1024×768, 60Hz/70Hz/75Hz/85Hz* ❖ *1152×864, 75Hz* ❖ *1280×720, 50Hz/60Hz* ❖ *1280×768, 60Hz (reduced blanking)/60Hz/75Hz/85Hz* ❖ *1280×800, 60Hz* ❖ *1280×960, 60Hz/85Hz* ❖ *1280×1024, 60Hz/75Hz/85Hz* ❖ *1360×768, 60Hz* ❖ *1366×768, 60Hz* ❖ *1400×1050, 60Hz (reduced blanking)/60Hz/75Hz* ❖ *1440×900, 60Hz* ❖ *1440×1050, 60Hz* ❖ *1600×1200, 60Hz* ❖ *1680×1050, 60Hz* ❖ *1920×1080i, 50Hz/60Hz* ❖ *1920×1080p, 50Hz/60Hz* ❖ *1920×1200, 60Hz (reduced blanking)* Transmission of audio signal is included when passing through the DVI port using the DVI to HDMI adapter.
VGA/YPbPr **(through adapter)**	Automatic sensing, via adapter in DVI-I IN port; input signals supported: ❖ *480p, 59Hz* ❖ *480i, 59Hz* ❖ *576p, 50Hz* ❖ *576i, 50Hz* ❖ *1280x720p, 50Hz/59.94Hz/60Hz* ❖ *1920x1080i, 50Hz/59.94Hz/60Hz* ❖ *1920x1080p, 24Hz/25Hz/29.97Hz/30Hz/50Hz/60Hz* ❖ *1920×1080PsF, 23.98Hz/24Hz* ❖ *1920×1035i, 59.94Hz/60Hz* Transmission of audio signal is not included when using the DVI to VGA, DVI to YPbPr adapters.

VGA (through adapter)	Automatic sensing, via adapter in DVI-I IN port; input signals supported: ❖ *640×480, 60Hz/72Hz* ❖ *640×512, 60Hz* ❖ *800×600, 50Hz/56Hz/60Hz/72Hz/75Hz* ❖ *848×480, 60Hz* ❖ *852×480, 60Hz* ❖ *960×540, 60Hz* ❖ *960×620, 60Hz* ❖ *960×680, 60Hz* ❖ *1024×576, 60Hz/72Hz* ❖ *1024×768, 50Hz/60Hz/70Hz/75Hz/85Hz* ❖ *1152×864, 75Hz* ❖ *1152×900, 66Hz/76Hz* ❖ *1200×900, 72Hz* ❖ *1280×720, 50Hz/59.94Hz/60Hz/75Hz* ❖ *1280×768, 50Hz/56Hz/60Hz/75Hz* ❖ *1280×960, 60Hz/70Hz/75Hz* ❖ *1280×1024, 50Hz/60Hz/72Hz/75Hz/76Hz/85Hz* ❖ *1360×765, 60Hz* ❖ *1360×768, 50Hz/60Hz/75Hz* ❖ *1360×1024, 75.1Hz* ❖ *1365×768, 60Hz* ❖ *1365×1024, 60Hz* ❖ *1366×768, 60Hz* ❖ *1400×1050, 50Hz/60Hz/75Hz* ❖ *1440×900, 50Hz/60Hz/75Hz* ❖ *1500×1200, 60Hz* ❖ *1600×1024, 60Hz* ❖ *1600×1200, 50Hz/60Hz/75Hz* ❖ *1680×1050, 50Hz/60Hz/75Hz* ❖ *1760×1100, 60Hz* ❖ *1920×1035, 60/30Hz* ❖ *1920×1080, 50Hz/60Hz/ 60/30Hz* ❖ *1920×1200, 50Hz/60Hz* Audio signal transmission is not included when using DVI to VGA adapter.
Output	
HDMI and DVI (through HDMI to DVI adapter)	Normal/VESA output timing; 8-bit/10-bit HDMI color depth; user configurable: ❖ *1920×1200 (WUXGA) 50Hz/60Hz* ❖ *1920×1080 (HD 1080) 50Hz/60Hz* ❖ *1680×1050 (WSXGA+) 50Hz/60Hz/75Hz* ❖ *1600×1200 (UXGA) 50Hz/60Hz/75Hz* ❖ *1600×900 (HD+) 60Hz* ❖ *1440×900 (WSXGA, WXGA) 50Hz/60Hz/75Hz* ❖ *1400×1050 (SXGA+) 50Hz/60Hz/75Hz* ❖ *1360×768 (WXGA) 50Hz/60Hz/75Hz* ❖ *1280×1024 (SXGA) 50Hz/60Hz/75Hz* ❖ *1280×768 (WSGA) 50Hz/60Hz/75Hz* ❖ *1280×720 (HD 720) 50Hz/59.94Hz/60Hz/75Hz* ❖ *1024×768 (XGA) 50Hz/60Hz/75Hz* ❖ *800×600 (SVGA) 50Hz/60Hz/75Hz* ❖ *640×480 (VGA) 60Hz* Transmission of audio signal is not included when passing through the HDMI to DVI adapter.

Table 1-3 Titan 9000 – (2H2V Card) Specifications

Titan 9000 – (4H)

Input	
HDMI **(HDMI type A)**	Automatic sensing, the following input signals are supported: ❖ *640×350, 85Hz* ❖ *640×400, 85Hz* ❖ *640×480, 60Hz/72Hz/75Hz/85Hz* ❖ *720×400, 85Hz* ❖ *480p, 59Hz* ❖ *480i, 59Hz* ❖ *576p, 50Hz* ❖ *576i, 50Hz* ❖ *800×600, 56Hz/60Hz/72Hz/75Hz/85Hz* ❖ *848×480, 60Hz* ❖ *1024×768, 60Hz/70Hz/75Hz/85Hz* ❖ *1152×864, 75Hz* ❖ *1280×720, 50Hz/60Hz* ❖ *1280×768, 60Hz (reduced blanking)/60Hz/75Hz/85Hz* ❖ *1280×800, 60Hz* ❖ *1280×960, 60Hz/85Hz* ❖ *1280×1024, 60Hz/75Hz/85Hz* ❖ *1360×768, 60Hz* ❖ *1366×768, 60Hz* ❖ *1400×1050, 60Hz (reduced blanking)/60Hz/75Hz* ❖ *1440×900, 60Hz* ❖ *1440×1050, 60Hz* ❖ *1600×1200, 60Hz* ❖ *1680×1050, 60Hz* ❖ *1920×1080i, 50Hz/60Hz* ❖ *1920×1080p, 50Hz/60Hz* ❖ *1920×1200, 60Hz (reduced blanking)*
DVI-I **(DVI-I connector)**	Automatic sensing, the following input signals are supported: ❖ *640×350, 85Hz* ❖ *640×400, 85Hz* ❖ *640×480, 60Hz/72Hz/75Hz/85Hz* ❖ *720×400, 85Hz* ❖ *480p, 59Hz* ❖ *480i, 59Hz* ❖ *576p, 50Hz* ❖ *576i, 50Hz* ❖ *800×600, 56Hz/60Hz/72Hz/75Hz/85Hz* ❖ *848×480, 60Hz* ❖ *1024×768, 60Hz/70Hz/75Hz/85Hz* ❖ *1152×864, 75Hz* ❖ *1280×720, 50Hz/60Hz* ❖ *1280×768, 60Hz (reduced blanking)/60Hz/75Hz/85Hz* ❖ *1280×800, 60Hz* ❖ *1280×960, 60Hz/85Hz* ❖ *1280×1024, 60Hz/75Hz/85Hz* ❖ *1360×768, 60Hz* ❖ *1366×768, 60Hz* ❖ *1400×1050, 60Hz (reduced blanking)/60Hz/75Hz* ❖ *1440×900, 60Hz* ❖ *1440×1050, 60Hz* ❖ *1600×1200, 60Hz*

	❖ *1680×1050, 60Hz* ❖ *1920×1080i, 50Hz/60Hz* ❖ *1920×1080p, 50Hz/60Hz* ❖ *1920×1200, 60Hz (reduced blanking)* Transmission of audio signal is included when passing through the DVI port using the DVI to HDMI adapter.
Output	
HDMI and DVI (through HDMI to DVI adapter)	Normal/VESA output timing; 8-bit/10-bit HDMI color depth; user configurable: ❖ *1920×1200 (WUXGA) 50Hz/60Hz* ❖ *1920×1080 (HD 1080) 50Hz/60Hz* ❖ *1680×1050 (WSXGA+) 50Hz/60Hz/75Hz* ❖ *1600×1200 (UXGA) 50Hz/60Hz/75Hz* ❖ *1600×900 (HD+) 60Hz* ❖ *1440×900 (WSXGA, WXGA) 50Hz/60Hz/75Hz* ❖ *1400×1050 (SXGA+) 50Hz/60Hz/75Hz* ❖ *1360×768 (WXGA) 50Hz/60Hz/75Hz* ❖ *1280×1024 (SXGA) 50Hz/60Hz/75Hz* ❖ *1280×768 (WSGA) 50Hz/60Hz/75Hz* ❖ *1280×720 (HD 720) 50Hz/59.94Hz/60Hz/75Hz* ❖ *1024×768 (XGA) 50Hz/60Hz/75Hz* ❖ *800×600 (SVGA) 50Hz/60Hz/75Hz* ❖ *640×480 (VGA) 60Hz*

Table 1-4 Titan 9000 – (4H Card) Specifications

Only 720p and 1080p 50Hz/60Hz output resolution is available when cascading.

Titan 9000 – (HOB)	
Input	
	Automatic sensing from internal cascade, the following input signals are supported: ❖ *1280×720, 50Hz/60Hz* ❖ *1920×1080, 50Hz/60Hz*
Output	
HDBaseT (RJ45 connector)	For direct pairing between Titan 9000 – (HOB) and Pacific X-HDUR (sold separately); can be extended up to 100m (328ft).
DVI and HDMI (through DVI to HDMI adapter)	Supports all VESA output timing; 8-bit/10-bit HDMI color depth; user configurable: ❖ *1920×1200 (WUXGA) 50Hz/60Hz* ❖ *1920×1080 (HD 1080) 50Hz/60Hz* ❖ *1680×1050 (WSXGA+) 50Hz/60Hz/75Hz* ❖ *1600×1200 (UXGA) 50Hz/60Hz/75Hz* ❖ *1600×900 (HD+) 60Hz* ❖ *1440×900 (WSXGA, WXGA) 50Hz/60Hz/75Hz* ❖ *1400×1050 (SXGA+) 50Hz/60Hz/75Hz* ❖ *1360×768 (WXGA) 50Hz/60Hz/75Hz* ❖ *1280×1024 (SXGA) 50Hz/60Hz/75Hz* ❖ *1280×768 (WSGA) 50Hz/60Hz/75Hz* ❖ *1280×720 (HD 720) 50Hz/59.94Hz/60Hz/75Hz* ❖ *1024×768 (XGA) 50Hz/60Hz/75Hz*

Table 1-5 Titan 9000 – (HOB Card) Specifications

1. *One Titan 9000 – (HOB card) can do 1×2 wall display.*
   Likewise, two Titan 9000 – (HOB cards) can do 2×2 wall display.
2. *The system only allows a set of "Bezel Gap Adjustment" configuration at a time (via Phoenix-Q software).*
   Make sure to use an identical model and size of monitors when outputting a signal source simultaneously to two 1×2 wall display or two 2×2 wall display.
3. *It is highly recommended to input at 1920×1080 and output at 1920×1080 resolution.*

Titan 9000 – (Control card)	
Control interface (Ethernet/serial connector)	RJ-45 connector for connection to TSL port of the TSL controller for TSL interface via the proprietary RJ-45 to RS-232 (DB9-FM) cable
Cascade (HDMI Type A connector)	For multimedia input coming from HDMI Out port (cascadable to any other Titan 9000 – (2H2V) and Titan 9000 – (4H))
LTC (BNC connector)	Linear (or Longitudinal) Time Code input (encoding of SMPTE Time Code data in an audio signal) Electrical: Single End Impedance: >30k ohms Sensitivity: 500 mV pk-pk (5V maximum)
Audio (Headphone jack)	Analog Audio (audio out port) Stereo
Power	Power consumption is 110 Watt (maximum) Power Supply: ❖ *24 V DC 120 Watt adapter*
Dimensions/Weight	Dimensions: 439×310×44.4 mm (17.3×12.2×1.8 inch) Weight: 4.2 kg (9.3 lb)
Environment/Safety	Temperature: ❖ *Operating: 0 ℃ (32 ℉) to 40 ℃ (104 ℉)* ❖ *Storage: –10 ℃ (14 ℉) to 50 ℃ (122 ℉)* Humidity, 0% to 80% relative, non-condensing Safety, FCC/CE/C-Tick/Class A Pass MIL-STD-810G test method 514.6 for US truck under random vibration while in operation

Table 1-6 Titan 9000 – (Control Card) Specifications

Rainier 3G Plus – (1 card)	
Input	
SDI/CVBS (BNC connector)	Automatic sensing, the following input signals are supported: ❖ *3G-SDI: 1080p60, 1080p59.94, 1080p50 (YUV 4:2:2 10-bit)* ❖ *HD-SDI: 1080p30, 1080p29.97, 1080PsF29.97 (segmented frame), 1080p25, 1080PsF24, 1080PsF23.98, 1080i60, 1080i59.94, 1080i50, 1035i60, 1035i59.94, 720p60, 720p59.94, 720p50, 720p30, 720p29.97, 720p25* ❖ *SD-SDI: 480i60, 576i50* ❖ *CVBS: NTSC/PAL*

Rainier 3G Plus – (1 card)	
Output	
HDMI and DVI (through HDMI to DVI adapter)	Normal/VESA output timing; 8-bit/10-bit HDMI color depth; user configurable: ❖ *1920×1200 (WUXGA) 50Hz/60Hz* ❖ *1920×1080 (HD 1080) 50Hz/60Hz* ❖ *1680×1050 (WSXGA+) 50Hz/60Hz/75Hz* ❖ *1600×1200 (UXGA) 50Hz/60Hz/75Hz* ❖ *1600×900 (HD+) 60Hz* ❖ *1440×900 (WSXGA, WXGA) 50Hz/60Hz/75Hz* ❖ *1400×1050 (SXGA+) 50Hz/60Hz/75Hz* ❖ *1360×768 (WXGA) 50Hz/60Hz/75Hz* ❖ *1280×1024 (SXGA) 50Hz/60Hz/75Hz* ❖ *1280×768 (WSGA) 50Hz/60Hz/75Hz* ❖ *1280×720 (HD 720) 50Hz/59.94Hz/60Hz/75Hz* ❖ *1024×768 (XGA) 50Hz/60Hz/75Hz* ❖ *800×600 (SVGA) 50Hz/60Hz/75Hz* ❖ *640×480 (VGA) 60Hz* *Note: If the Rainier 3G Plus-1 is in cascade mode, the output resolution can only support 720p/1080p at 50Hz/60Hz.*
SDI (BNC connector)	User configurable: ❖ *1920×1080 50Hz/60Hz Progressive (4:2:2 YUV / 10-bit)* ❖ *1280×720 50Hz/60Hz Progressive (4:2:2 YUV / 10-bit)* *Note:* *1. If the Rainier 3G Plus-1 is in cascade mode, the output resolution can only support 720p/1080p at 50Hz/60Hz.* *2. In complying with the HDCP license there is no SDI conversion with HDCP video.*

Table 1-7 Rainier 3G Plus – (1 Card) Specifications

1.4 Connections to the Titan 9000

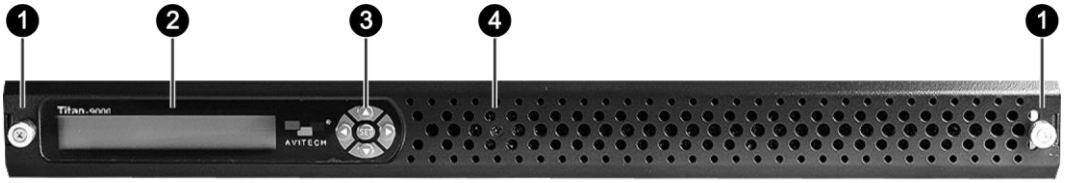


Figure 1-2 Titan 9000 Front Components

Front Panel	
❶ **Release Knob**	Turn the knob counter-clockwise to loosen and clockwise to secure the front panel to the chassis
❷ **LCD Panel**	For displaying the configuration and control parameters
❸ **Control Buttons**	▲ Go to previous selection ▼ Go to next selection ◀ A quick press moves the cursor one character to the left, while a long press deletes the character to the left of the current cursor position (e.g., set password) ▶ Moves the cursor one character to the right. Upon reaching the last character, a space will be added (e.g., set password) SET Enter next menu level or select item
❹ **Release Screw**	Turn the screw counter-clockwise to loosen and clockwise to secure the front panel to the chassis

Table 1-8 Titan 9000 Front Component Description

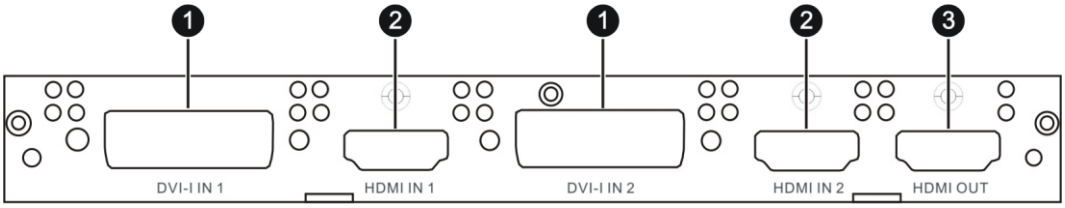


Figure 1-3 Titan 9000 – (2H2V Card) Components

Rear Panel	
❶ **DVI-I IN**	DVI connector for HDMI/DVI/VGA/YPbPr input sources (a DVI to HDMI adapter or DVI to VGA adapter or DVI to YPbPr adapter may be required) *Note: Transmission of audio signal is included when passing through the DVI port using the DVI to HDMI adapter but is not included when using the DVI to VGA, DVI to YPbPr adapters*
❷ **HDMI IN**	HDMI connector for HDMI/DVI input source
❸ **HDMI OUT**	Connect to the monitor's HDMI signal cable

Table 1-9 Titan 9000 – (2H2V Card) Component Description

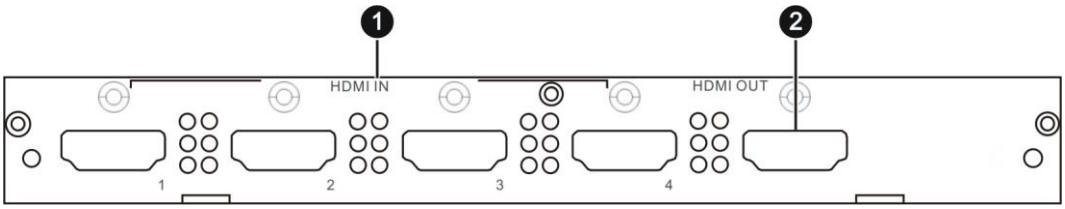


Figure 1-4 Titan 9000 – (4H Card) Components

Rear Panel	
❶ **HDMI IN**	HDMI connector for HDMI input source
❷ **HDMI OUT**	Connect to the monitor's HDMI signal cable

Table 1-10 Titan 9000 – (4H Card) Component Description

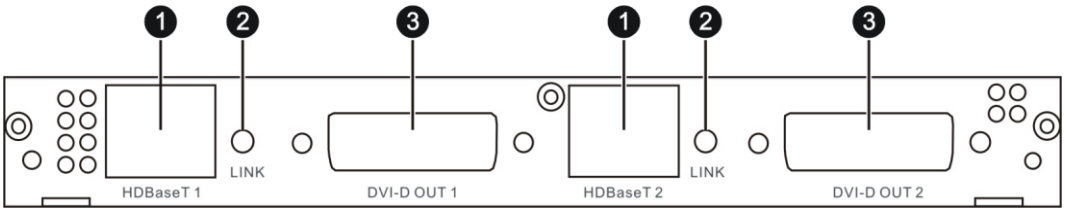


Figure 1-5 Titan 9000 – (HOB Card) Components

Rear Panel	
❶ **HDBaseT (RJ-45)**	For Titan 9000 – (HOB card) and Pacific X-HDUR connection via Cat.5e/6 cable (shielded)
❷ **LINK Indicator**	Glows green when both Titan 9000 – (HOB card) and Pacific X-HDUR are connected and turned ON
❸ **DVI OUT**	Connect to the monitor's DVI signal cable

Table 1-11 Titan 9000 – (HOB Card) Component Description

The system only allows a set of "Bezel Gap Adjustment" configuration at a time (through Phoenix-Q software). Make sure to use an identical model and size of monitors when outputting a signal source simultaneously through the HDBaseT and DVI OUT connectors to two 1×2 wall display or two 2×2 wall display.

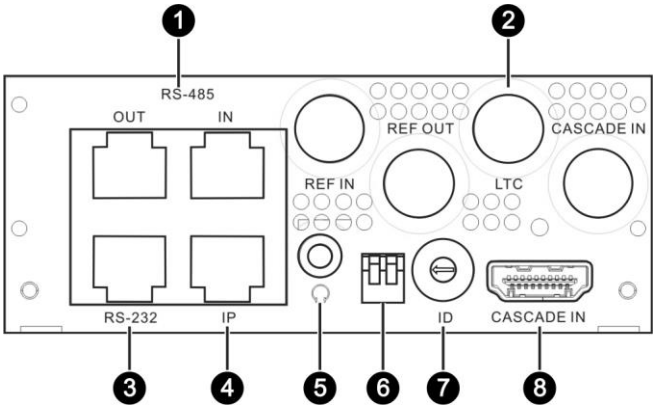


Figure 1-4 Titan 9000 – (Control Card) Components

Rear Panel (control card)	
❶ **RS-485 IN/OUT**	For serial cascading input/output control signals
❷ **LTC Audio In**	For linear (or longitudinal) Time Code input (encoding of SMPTE Time Code data in an audio signal)
❸ **Serial**	❖ Connects to TSL port of the TSL controller for TSL interface through the proprietary RJ-45 to RS-232 (DB9-FM) cable *Note: This port is **not** available for connecting to a computer for configuration and control (Phoenix-Q utility). Likewise, it **cannot** be used for entering the Avitech ASCII Protocol (AAP) X command interface.*
❹ **Ethernet (IP)**	❖ For setup through Avitech Phoenix-Q utility (network connection) ❖ For entering the Avitech ASCII Protocol (AAP) X command interface ❖ For connecting to TSL port of the TSL controller for TSL interface
❺ **Headset**	1/8 inch audio port for connecting headphones (stereo)
❻ **Dip Switches**	Updates the firmware; as well as resets the Titan 9000 to the factory-default setting. *Note: Dip Switch 2 is for factory reset, see Appendix F.*
❼ **ID**	Rotary dial to assign unique addresses in systems with 2 or more chassis.
❽ **Cascade In (HDMI)**	HDMI connector for multimedia input. (cascade from other Titan 9000 (HDMI) or from other video source) *Note: BNC connector not available.*

Table 1-12 Titan 9000 – (Control Card) Component Description

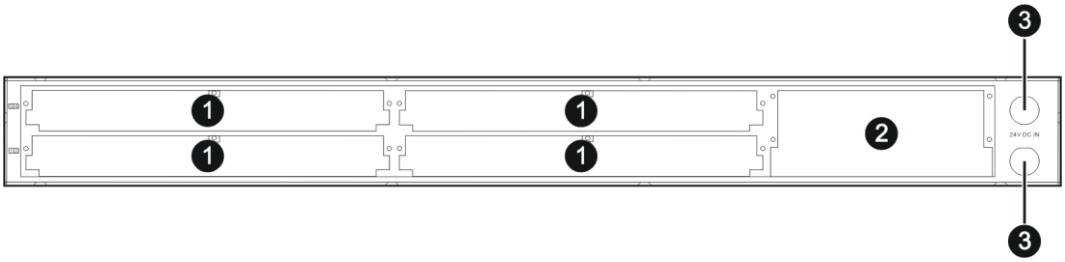


Figure 1-5 Titan 9000 Chassis Component

Rear Panel (chassis)	
❶ **Card Cover Plate**	Remove the cover plate to install any of the following: ✓ Titan 9000 – (2H2V card) ✓ Titan 9000 – (4H card) ✓ Titan 9000 – (HOB card)
❷ **Control Card Cover Plate**	Remove the cover plate to install the Titan 9000 – (control card)
❸ **Power (DC 24V)**	Connects to the 24 V DC power adapter *Note: When connecting 2 power adapters for redundant power supply, make sure to maintain a distance of at least 10 cm away from each other.*

Table 1-13 Titan 9000 Chassis Component Description

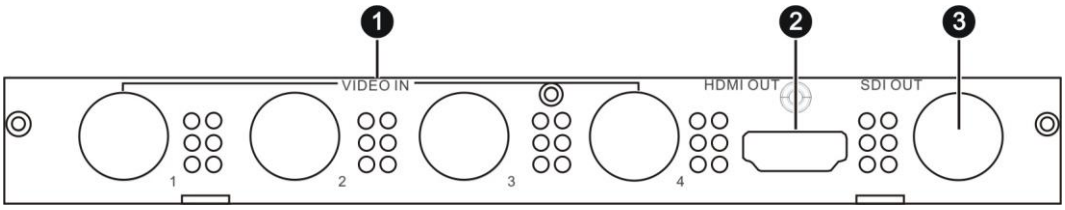


Figure 1-6 Rainier 3G Plus – (1 Card) Components

Rear Panel (–1 card)	
❶ **SDI/CVBS IN**	BNC connector for SDI (3G/HD/SD) CVBS (NTSC/PAL) video sources
❷ **HDMI OUT**	Connect to the monitor's HDMI signal cable*
❸ **SDI OUT**	BNC connector supports SDI (1080p/720p) signal output

Table 1-14 Rainier 3G Plus – (1 Card) Component Description

** In complying with the HDCP license there is no SDI conversion with HDCP video*

2. Hardware Configuration

This chapter discusses the process of installing a card into Titan 9000 chassis.

To prevent any damage to hardware components as well as avoid any injury, make sure to turn off power coming from the power strip to the Titan 9000 before making any changes to the hardware configuration.

2.1 Installing New Card on Blank Slot

The Titan 9000 chassis accept any of the following cards:

- ✓ *Titan 9000 – (2H2V card)*
- ✓ *Titan 9000 – (4H card)*
- ✓ *Titan 9000 – (HOB card)*
- ✓ *Rainier 3G Plus – (1 card)*

Step 1. Remove the two screws securing the back plate.

Figure 2-1 Remove the 2 Back Plate Screws

Step 2. Remove the back plate.

Figure 2-2 Remove the Back Plate

Step 3. Use a flat screwdriver to unscrew the left and right puller screws on the control board.

Figure 2-3 Remove the Left and Right Puller Screws on Control Board

Step 4. Use the just removed puller screws and screw it to both sides of new card. Then, align both sides of the card to the rails, and slide all the way into the chassis.

Figure 2-4 Align the Card to the Rail on Both Sides

Step 5. Secure the screws on both sides to fix the card to the chassis.

Figure 2-5 Secure the Screws on Both Sides

Step 6. Remove the left and right puller screws on both sides of the newly installed card and re-attach to the control board of the chassis.

Figure 2-6 Remove the Left and Right Puller Screws on Newly Installed Card

2.2 Removing a Previously Installed Card

Step 1. Use a flat screwdriver to unscrew the left and right puller screws on the control board module.

Figure 2-7 Remove the Left and Right Puller Screws on Control Board

Step 2. Use the just removed puller screws and screw it to both sides of the card to be removed.

Step 3. Remove the left and right screws securing the card to be removed from the chassis.

Figure 2-8 Remove the Left and Right Screws

Step 4. Grasp both left and right puller screws and pull the card to be removed away from the chassis.

Figure 2-9 Pull the Left and Right Puller Screws

Step 5. Remove left and right puller screws on just removed card and return to control board module.

3. Cascading

Cascading is the technique of "daisy-chaining" multiple Titan 9000s through an HDMI display and a digital control backbone. This connection allows the combined Titan 9000s to operate as a single integrated system. Up to 10 different Titan 9000s can be combined in this fashion to create extremely large and complex systems with the ability to simultaneously monitor audio, video, and computer signals on the same display.

Cascading in Titan 9000 can be classified into 2 types:

- ✓ *Internal cascading – achieved by grouping 2 or 3 or 4 cards within a single Titan 9000 through the Phoenix-Q configuration software (4 displays of any 4 multiple windows combination).*
- ✓ *External cascading – achieved by physically "daisy-chaining" 2 or more (up to 10) Titan 9000 chassis to increase windows on one screen (up to 160 – achieved by cascading 10 Titan 9000 with 4 windows from each of the 4 cards). Multiple card versions allow mix of HDMI, DVI, and VGA signals on one display.*

***The following illustrations would require a working knowledge of Phoenix-Q software**.*
For an in-depth understanding of Phoenix-Q, turn to the succeeding chapters for more information.

3.1 Internal Cascading

3.1.1 Example 1: Cascade 2 cards and duplicate display

*Step 1. Make sure that 4 card ID belongs to the same group. Verify this as shown on the **Group View** tree found on the left panel of the Phoenix-Q software. To change the group setup, go to **System→Configuration**.*

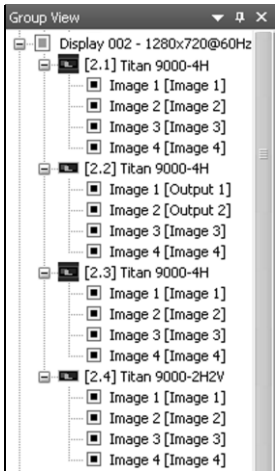


Figure 3-1 Phoenix-Q Software: Group View Panel

*Step 2. Right-click the group heading in the **Group View** panel (e.g., **Display 002 1280×720@60Hz**) and then click **Set Subgroup** item in the menu.*

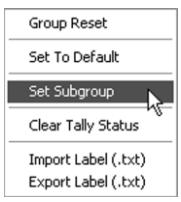


Figure 3-2 Phoenix-Q Software: Group View Panel – Set Subgroup

*Step 3. Click to remove the checkboxes on the left. Then drag the desired configuration (either left or right illustration below) and then click **OK**.*

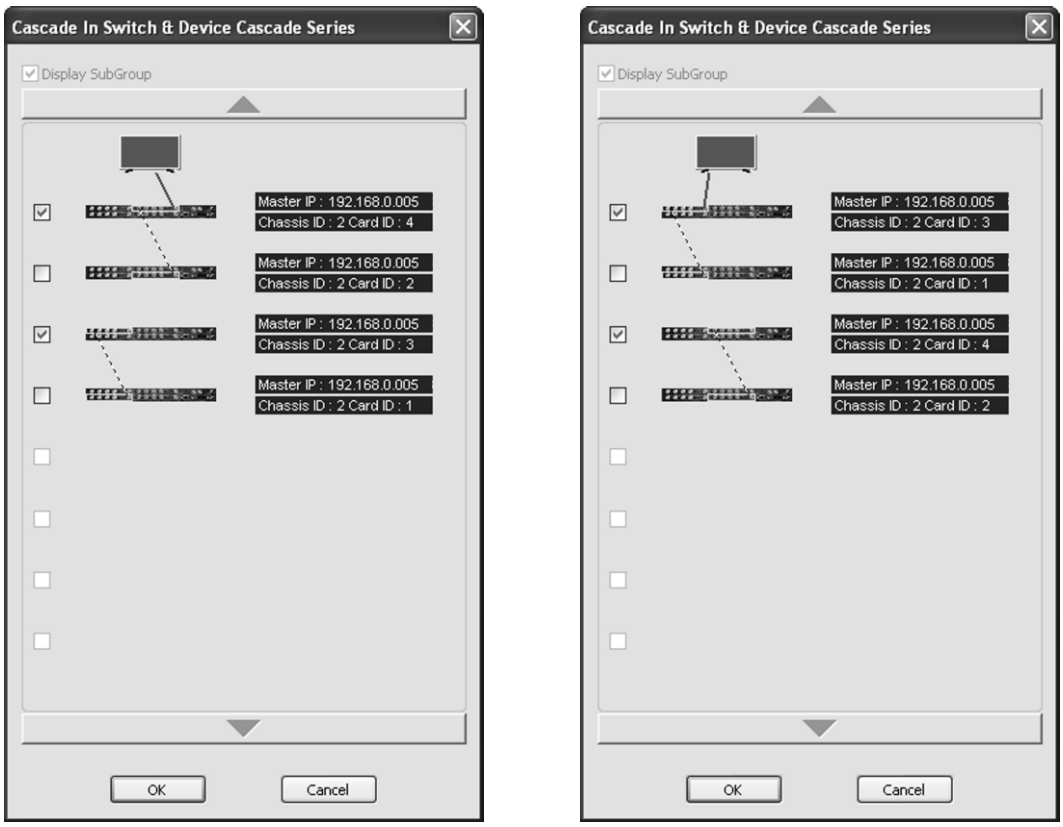


Figure 3-3 Phoenix-Q Software: Set Subgroup Configuration

*There is no need to make any adjustments in the **HDMI OUT** item in **Properties** panel as the software smartly does it.*

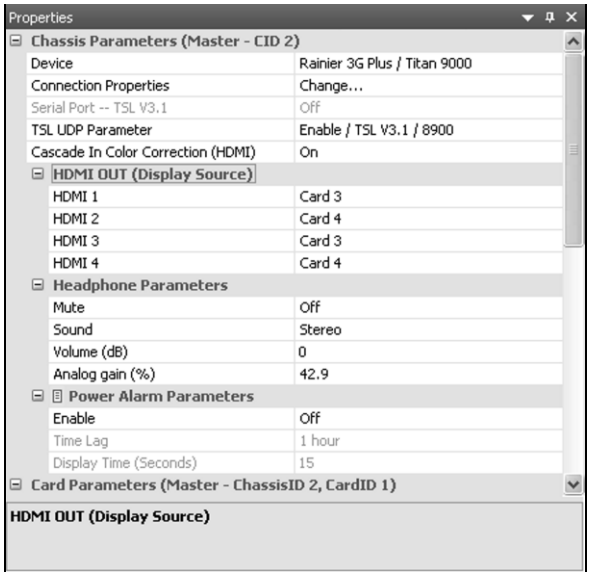


Figure 3-4 Phoenix-Q Software: Properties – HDMI OUT (Display Source)

The following figure illustrates the above setup.

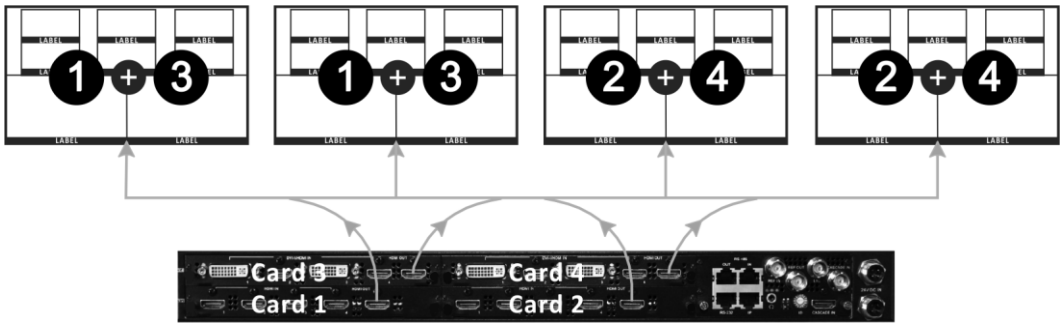


Figure 3-5 Cascade 2 Cards and Duplicate Display Illustration

3.1.2 Example 2: Cascade 2 cards and independent quads

*Step 1. Make sure that 2 card ID belong to the same group, while the other 2 card ID are each assigned a group by itself. Verify this as shown on the **Group View** tree found on the left panel of the Phoenix-Q software. To change the group setup, go to **System→Configuration**.*

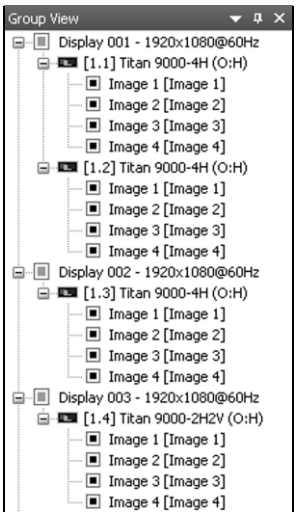


Figure 3-6 Phoenix-Q Software: Group View Panel

*There is no need to make any adjustments in the **HDMI OUT** item in **Properties** panel as the software smartly does it.*

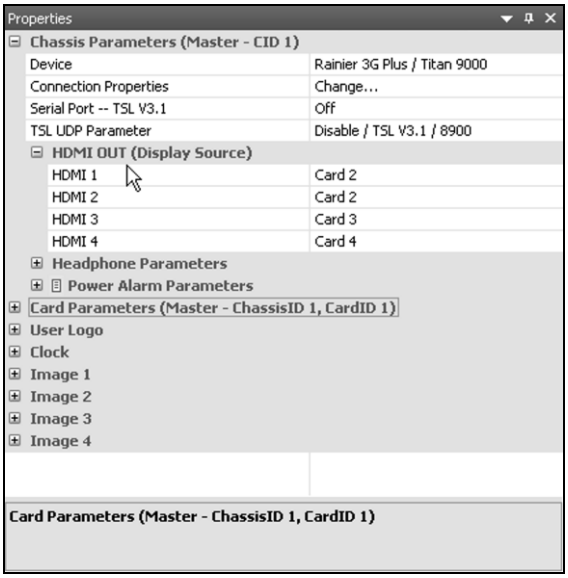


Figure 3-7 Phoenix-Q Software: Properties – HDMI OUT (Display Source)

The following figure illustrates the above setup.

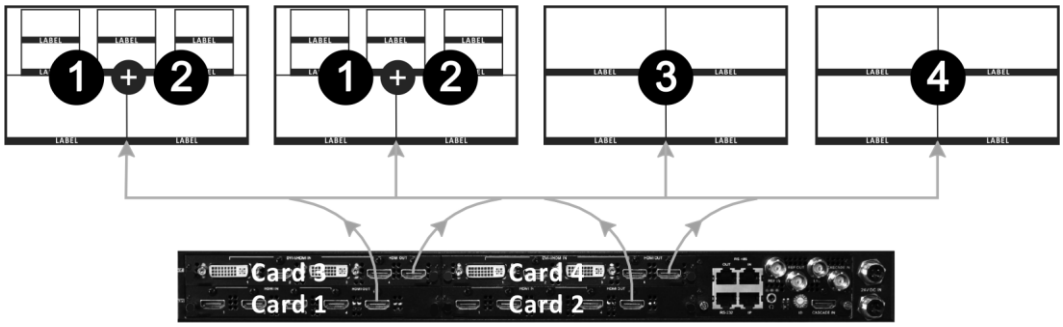


Figure 3-8 Cascade 2 Cards and 2 Independent Quad Illustration

3.1.3 Example 3: Cascade 3 cards and independent quad

*Step 1. Make sure that card ID 1 and 2 and 4 belong to the same group, while card ID 3 is assigned a group by itself. Verify this as shown on the **Group View** tree found on the left panel of the Phoenix-Q software. To change the group setup, go to **System→Configuration**.*

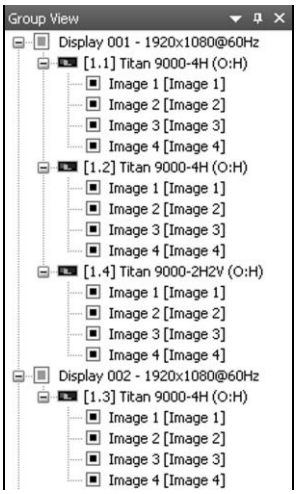


Figure 3-9 Phoenix-Q Software: Group View Panel

*There is no need of any adjustments in the **HDMI OUT** item in **Properties** panel as the software smartly does it.*

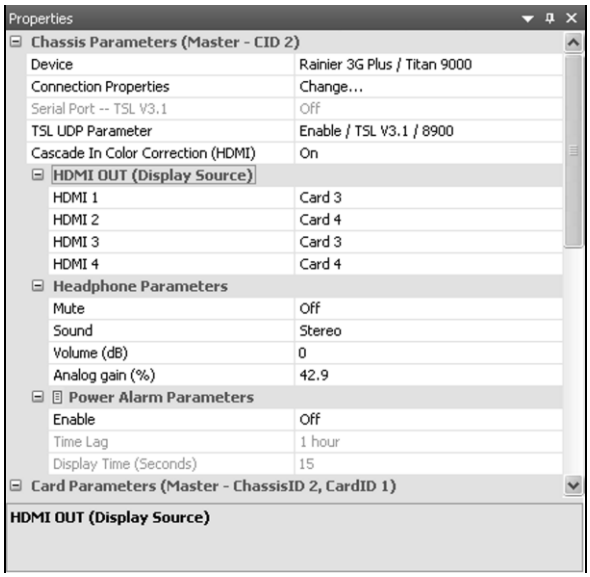


Figure 3-10 Phoenix-Q Software: Properties – HDMI OUT (Display Source)

The following figure illustrates the above setup.

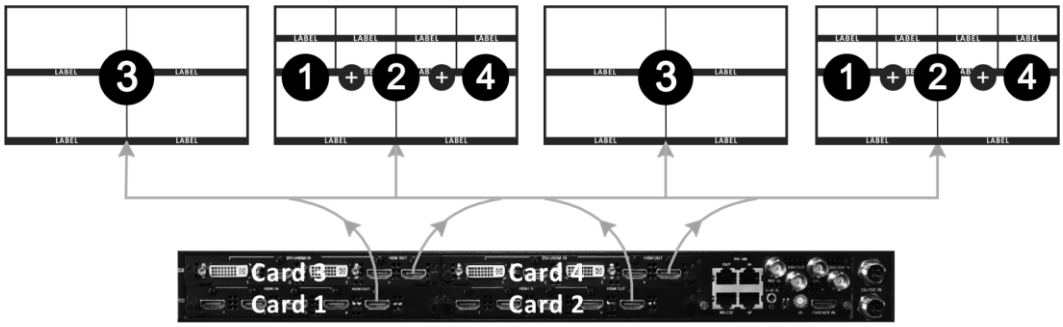


Figure 3-11 Cascade 3 Cards and 1 Independent Quad Illustration

3.1.4 Example 4: Cascade all 4 cards

*Step 1. Make sure that all 4 card ID belong to the same group. Verify this as shown on the **Group View** tree found on the left panel of the Phoenix-Q software. To change the group setup, go to **System→Configuration**.*

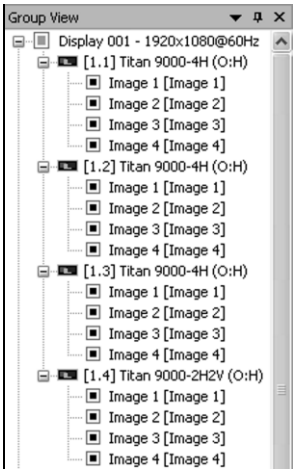


Figure 3-12 Phoenix-Q Software: Group View Panel

*There is no need of any adjustments in the **HDMI OUT** item in **Properties** panel as the software smartly does it.*

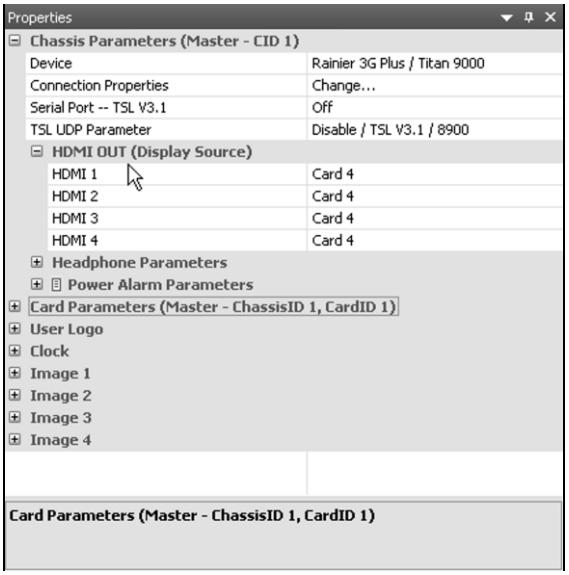


Figure 3-13 Phoenix-Q Software: Properties – HDMI OUT (Display Source)

The following figure illustrates the above setup.

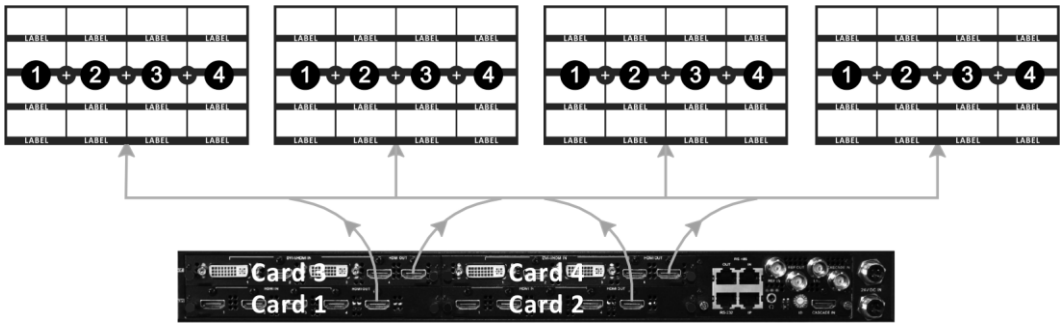


Figure 3-14 Cascade 4 Cards Illustration

3.2 External Cascading

*Step 1. Set the rotary **ID** on the first Titan 9000 to **0**, set the rotary **ID** on the second Titan 9000 to **1**, set the rotary **ID** on the third Titan 9000 to **2**, and so forth (can be other values except **F** as long as they are different from each other's setting).*

⚠ *To prevent input conflicts, when cascading 2 or more Titan 9000 (up to 10 maximum), make sure each Titan 9000 gets assigned a unique rotary ID.*

*Step 2. To display video overlay from each Titan 9000, all units must be connected to each other via HDMI cable. Connect one end to the **HDMI OUT** port on the first Titan 9000's **last** card (up to 4 cards in a single Titan 9000), and the other end to the **CASCADE IN** (HDMI) port of the next Titan 9000's (control card) in the chain.*

*Step 3. Cascading through RJ-45 (RS-485) is used to loop communication from one Titan 9000 to the next. The data stream carries control and configuration information. Connect one end of RS-485 cascading cable to the **RS-485 OUT** of the first Titan 9000 and the other end to **RS-485 IN** of the next Titan 9000 in the chain.*

*Step 4. Connect one end of HDMI cable to **HDMI OUT** port on the last Titan 9000 cascaded and the other end to the group output monitor.*

⚠ *Make sure to connect an HDCP-compliant monitor to enable video output with HDCP encryption.*

*Step 5. Connect the computer that is running the Phoenix-Q software to the Master Titan 9000 by using a straight-through or a cross-over RJ-45 cable from the computer to the **IP** port on the Titan 9000. Make sure you can ping the Master Titan 9000's IP address.*

The following illustration shows a typical setup of cascaded Titan 9000.

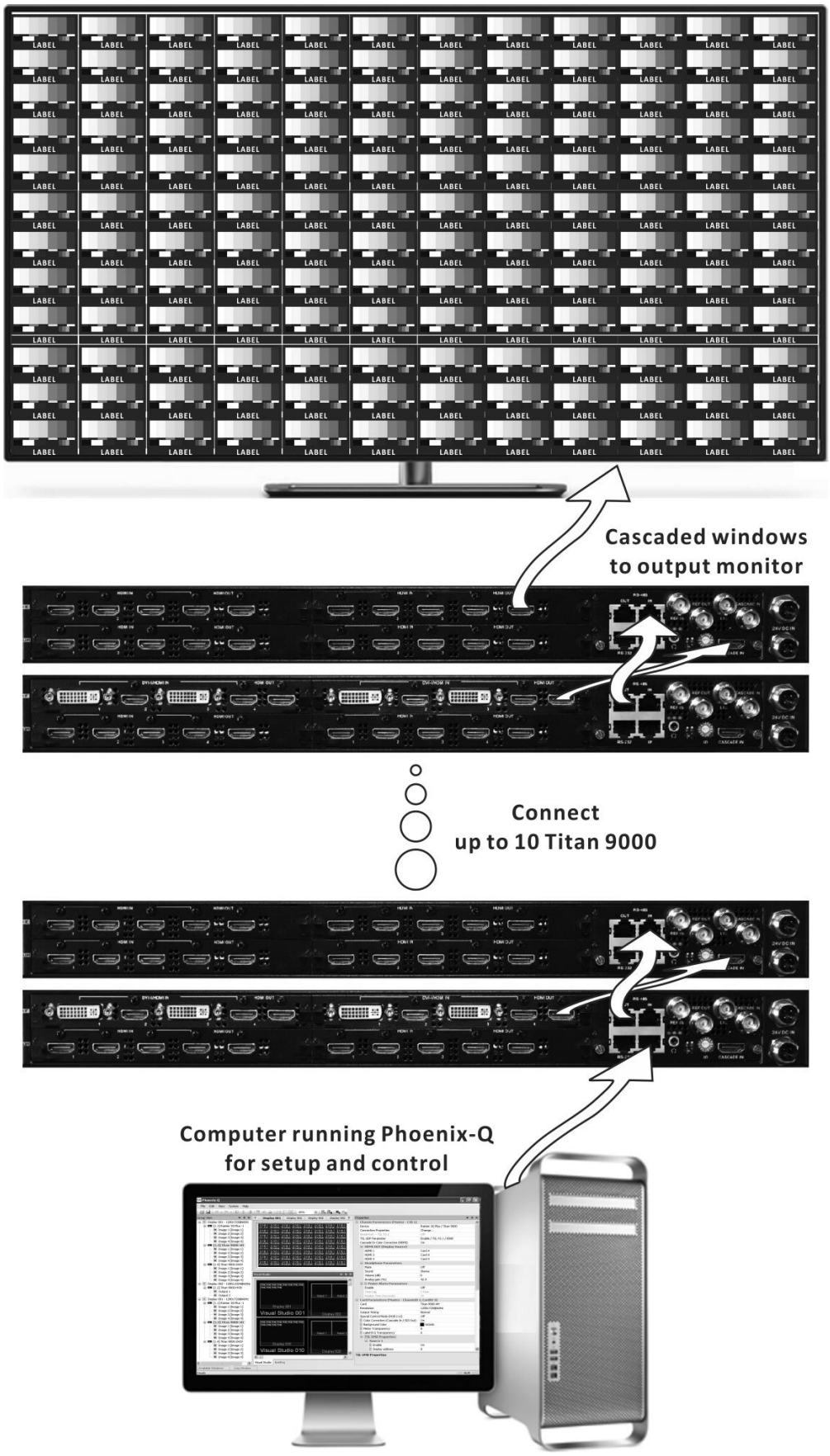


Figure 3-15 Cascaded Titan 9000 Illustration

3.2.1 Example 1: Take HDMI output of any card to the next chassis' cascade input

To be able to display all 32 input source windows (16 from each chassis) in one monitor, make sure to assign all 8 cards (4 from each chassis) to the same group.
Likewise, assigning card(s) to another group allows display of second group's window on a second monitor.

① *Card ID 1 output to the next chassis' cascade input.*

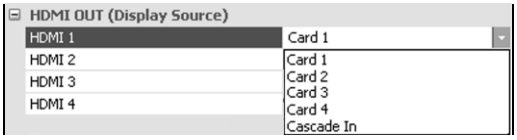


Figure 3-16 Phoenix-Q Properties: HDMI OUT (Display Source) Setting

✓ *Upon selecting "Card 1" for "HDMI 1" then only the 4 windows of (card ID 1) + 16 windows of chassis ID 2 will be displayed.*

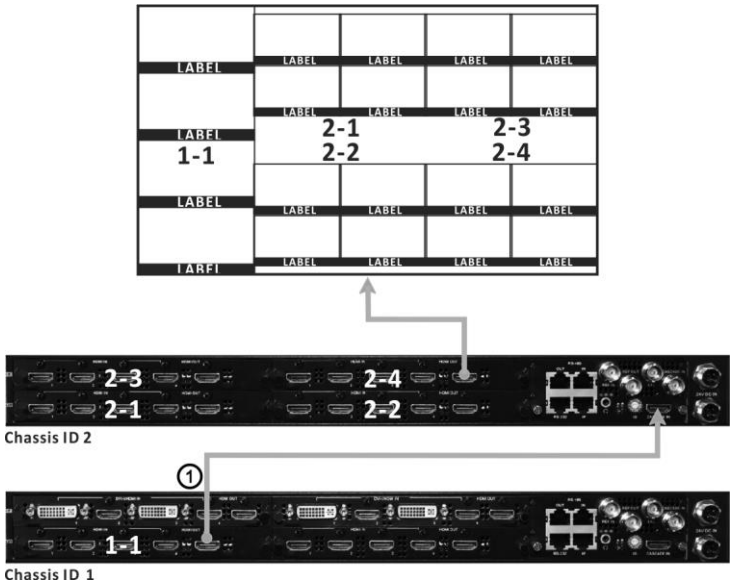


Figure 3-17 HDMI Output of Card ID 1 to the Next Chassis' Cascade Input Illustration 1

✓ *Upon selecting "Card 2" for "HDMI 1" then only the 8 windows of (card ID 1 and 2) + 16 windows of chassis ID 2 will be displayed.*

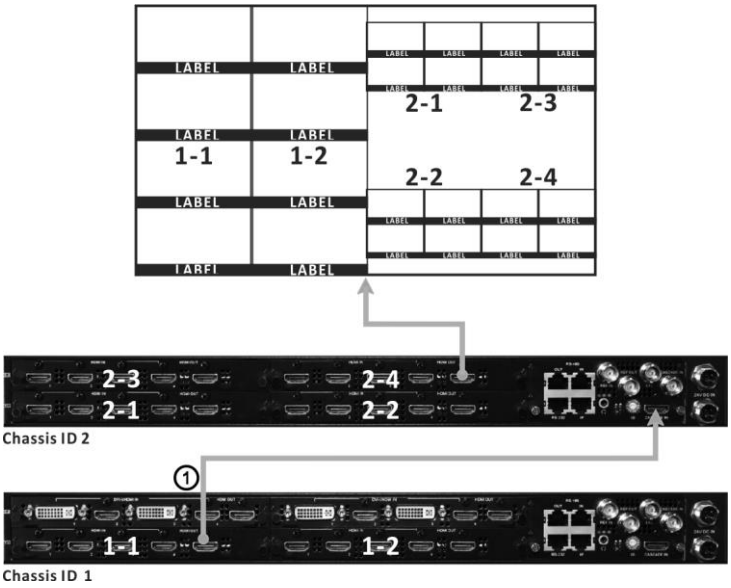


Figure 3-18 HDMI Output of Card ID 1 to the Next Chassis' Cascade Input Illustration 2

✓ *Upon selecting "Card 3" for "HDMI 1" then only the 12 windows of (card ID 1 and 2 and 3) + 16 windows of chassis ID 2 will be displayed.*

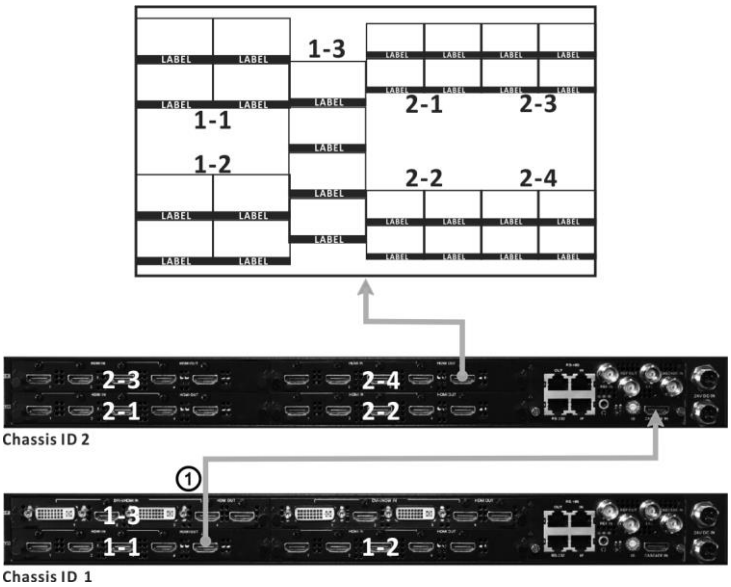


Figure 3-19 HDMI Output of Card ID 1 to the Next Chassis' Cascade Input Illustration 3

- ✓ *Upon selecting "Card 4" for "HDMI 1" then all 16 windows of (card ID 1 and 2 and 3 and 4) + 16 windows of chassis ID 2 will be displayed.*

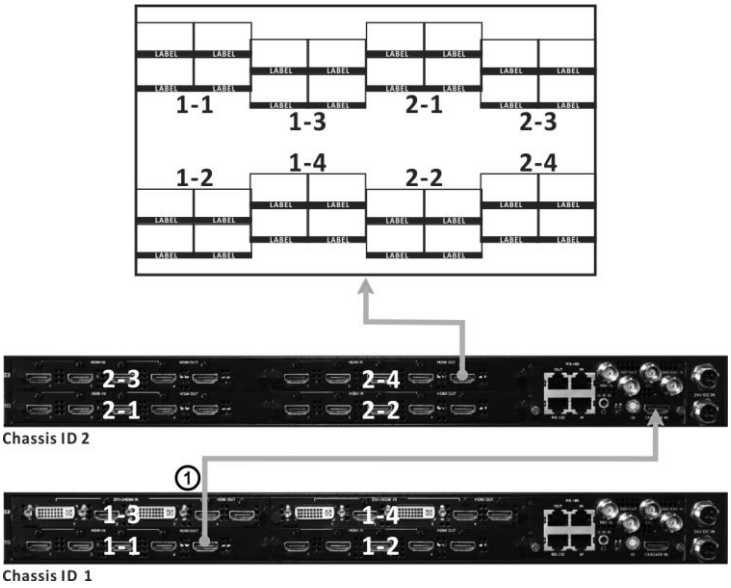


Figure 3-20 HDMI Output of Card ID 1 to the Next Chassis' Cascade Input Illustration 4

② *Card ID 2 output to the next chassis' cascade input.*

- ✓ *Upon selecting "Card 1" for "HDMI 2" then only the 4 windows of (card ID 1) + 16 windows of chassis ID 2 will be displayed.*
- ✓ *Upon selecting "Card 2" for "HDMI 2" then only the 8 windows of (card ID 1 and 2) + 16 windows of chassis ID 2 will be displayed.*
- ✓ *Upon selecting "Card 3" for "HDMI 2" then only the 12 windows of (card ID 1 and 2 and 3) + 16 windows of chassis ID 2 will be displayed.*
- ✓ *Upon selecting "Card 4" for "HDMI 2" then all 16 windows of (card ID 1 and 2 and 3 and 4) + 16 windows of chassis ID 2 will be displayed.*

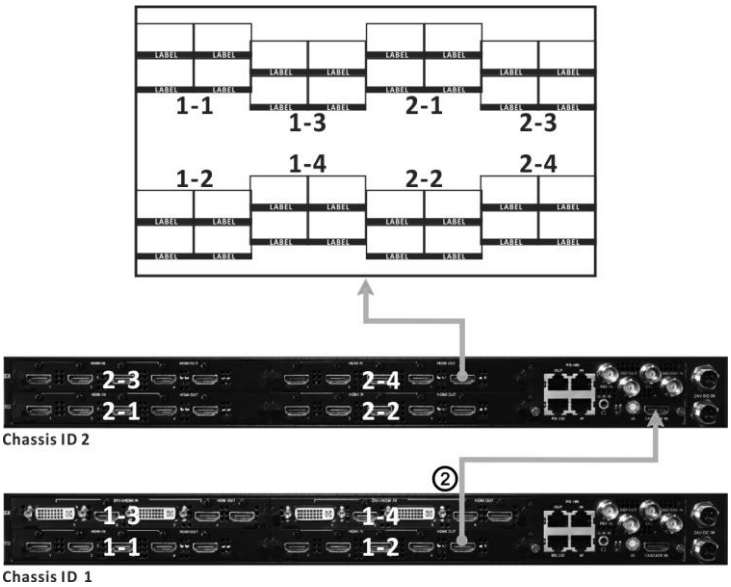


Figure 3-21 HDMI Output of Card ID 2 to the Next Chassis' Cascade Input Illustration 5

③ *Card ID 3 output to the next chassis' cascade input.*

- ✓ *Upon selecting "Card 1" for "HDMI 3" then only the 4 windows of (card ID 1) + 16 windows of chassis ID 2 will be displayed.*
- ✓ *Upon selecting "Card 2" for "HDMI 3" then only the 8 windows of (card ID 1 and 2) + 16 windows of chassis ID 2 will be displayed.*
- ✓ *Upon selecting "Card 3" for "HDMI 3" then only the 12 windows of (card ID 1 and 2 and 3) + 16 windows of chassis ID 2 will be displayed.*
- ✓ *Upon selecting "Card 4" for "HDMI 3" then all 16 windows of (card ID 1 and 2 and 3 and 4) + 16 windows of chassis ID 2 will be displayed.*

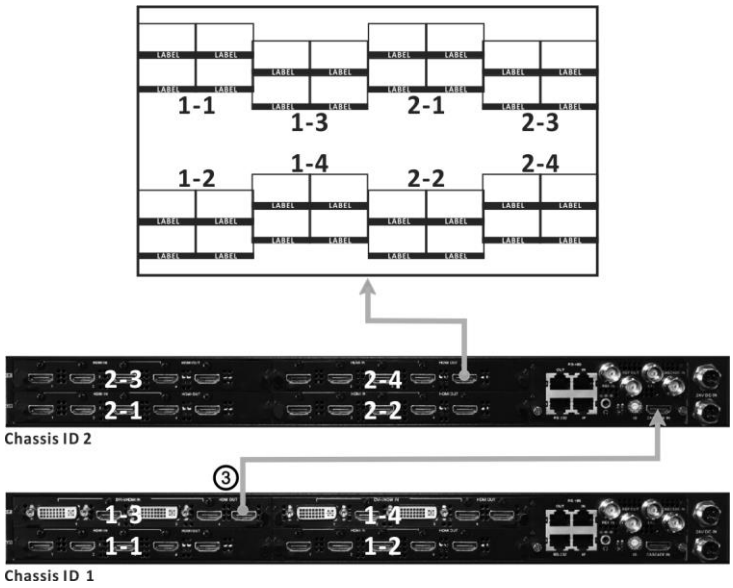


Figure 3-22 HDMI Output of Card ID 3 to the Next Chassis' Cascade Input Illustration 6

④ *Card ID 4 output to the next chassis' cascade input.*

- ✓ *Upon selecting "Card 1" for "HDMI 4" then only the 4 windows of (card ID 1) + 16 windows of chassis ID 2 will be displayed.*
- ✓ *Upon selecting "Card 2" for "HDMI 4" then only the 8 windows of (card ID 1 and 2) + 16 windows of chassis ID 2 will be displayed.*
- ✓ *Upon selecting "Card 3" for "HDMI 4" then only the 12 windows of (card ID 1 and 2 and 3) + 16 windows of chassis ID 2 will be displayed.*
- ✓ *Upon selecting "Card 4" for "HDMI 4" then all 16 windows of (card ID 1 and 2 and 3 and 4) + 16 windows of chassis ID 2 will be displayed.*

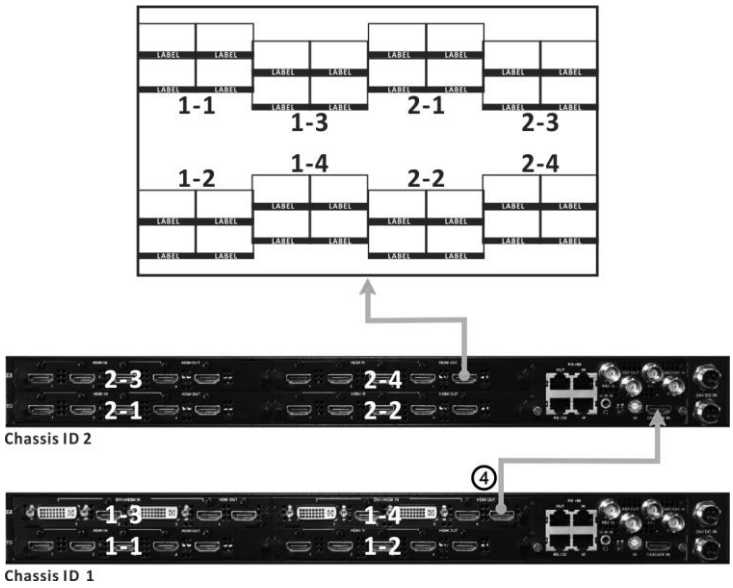


Figure 3-23 HDMI Output of Card ID 4 to the Next Chassis' Cascade Input Illustration 7

3.2.2 Example 2: Assign any or multiple cards (internal cascade) to the cascade output

To be able to display all 48 input source windows (16 from each of the 3 chassis) in one monitor, make sure to assign all 12 cards (4 from each of the 3 chassis) to the same group.
Likewise, assigning card(s) to another group allows display of second group's window on a second monitor.

For the purpose of this illustration, let us focus our Phoenix-Q setting for chassis ID 2.

✓ *To assign the input source signals of card ID 1 only from chassis ID 2 to be displayed– select "Card 1" for "HDMI 4"*
Only the 4 windows of (chassis ID 2 : card ID 1) + 16 windows of chassis ID 1 + 16 windows of chassis ID 3 will be displayed.

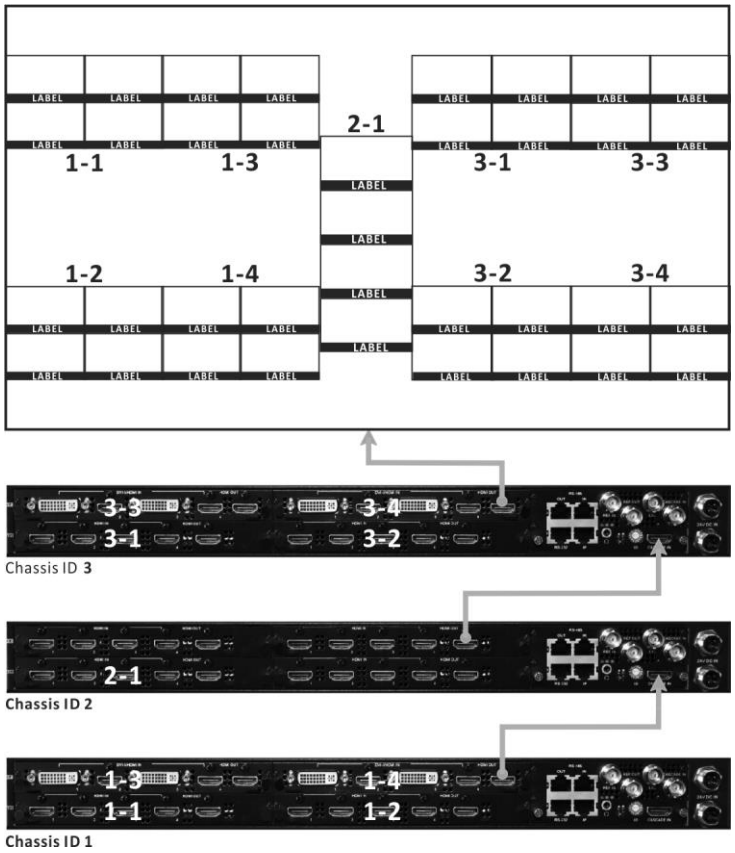


Figure 3-24 Assign Any or Multi-cards to the Cascade Output Illustration 1

✓ *To assign the input source signals of card ID 1 and 2 only from chassis ID 2 to be displayed– select "Card 2" for "HDMI 4"*
Only the 8 windows of (chassis ID 2 : card ID 1 and 2) + 16 windows of chassis ID 1 + 16 windows of chassis ID 3 will be displayed.

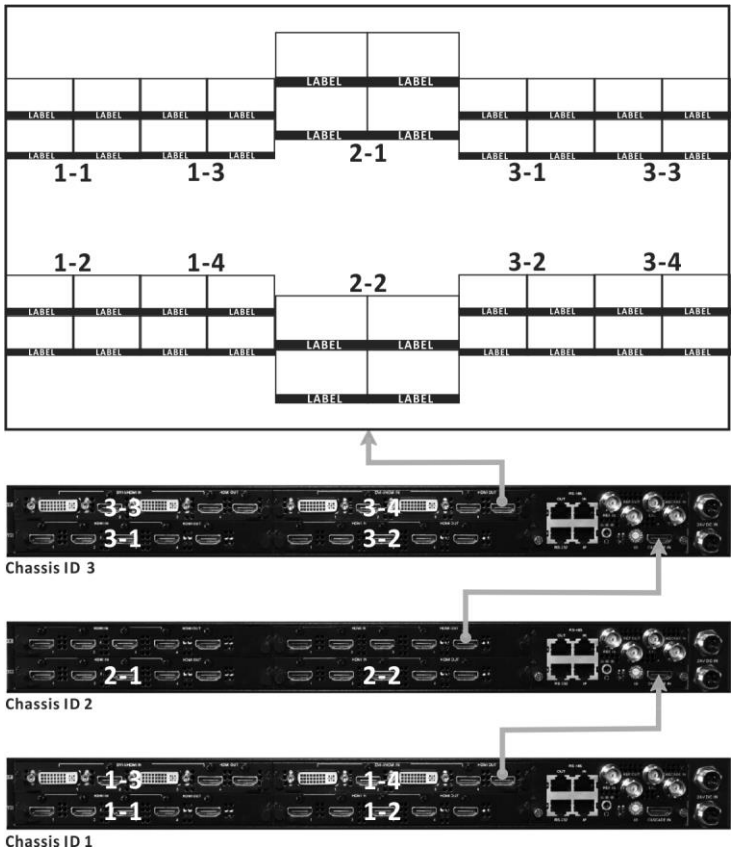


Figure 3-25 Assign Any or Multi-cards to the Cascade Output Illustration 2

✓ *To assign input source signals of card ID 1 and 2 and 3 only from chassis ID 2 to be displayed– select "Card 3" for "HDMI 4"*
Only the 12 windows of (chassis ID 2 : card ID 1 and 2 and 3) + 16 windows of chassis ID 1 + 16 windows of chassis ID 3 will be displayed.

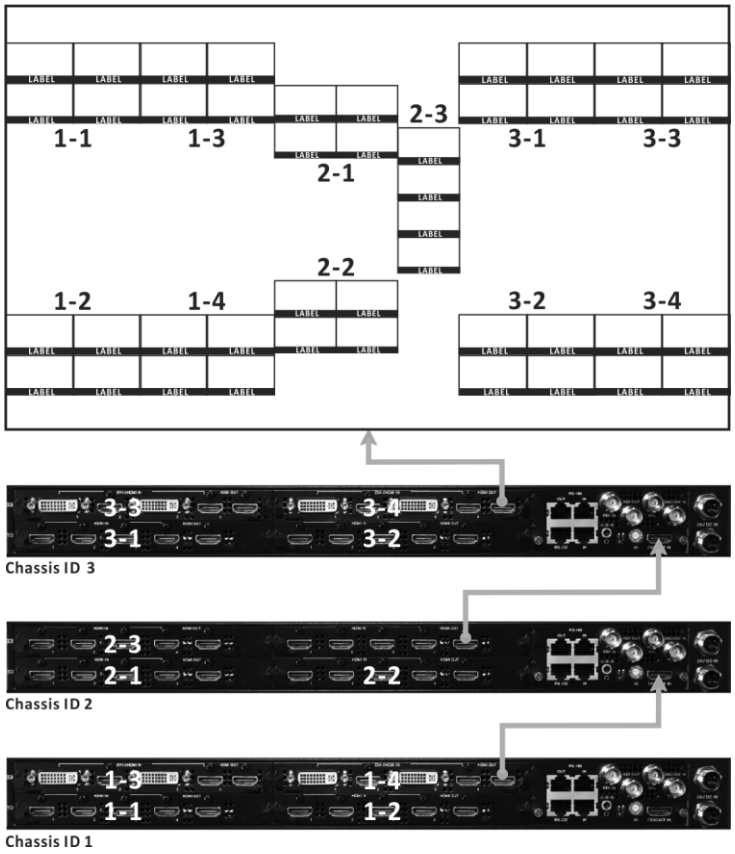


Figure 3-26 Assign Any or Multi-cards to the Cascade Output Illustration 3

✓ *To assign the input source signals of all 4 cards from chassis ID 2 to be displayed– select "Card 4" for "HDMI 4"*
All 16 windows of (chassis ID 2 : card ID 1 and 2 and 3 and 4) + 16 windows of chassis ID 1 + 16 windows of chassis ID 3 will be displayed.

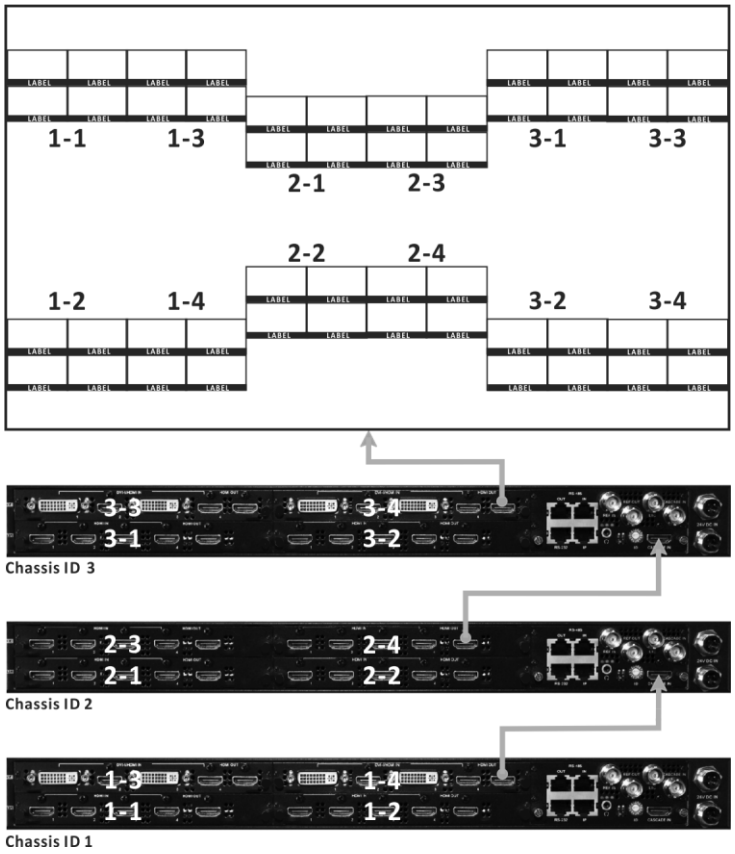


Figure 3-27 Assign Any or Multi-cards to the Cascade Output Illustration 4

✓ *To bypass all input source signals of all 4 cards from chassis ID 2–*
select "Cascade In" for "HDMI 4"
Only the 16 windows of chassis ID 1 + 16 windows of chassis ID 3 will be displayed.

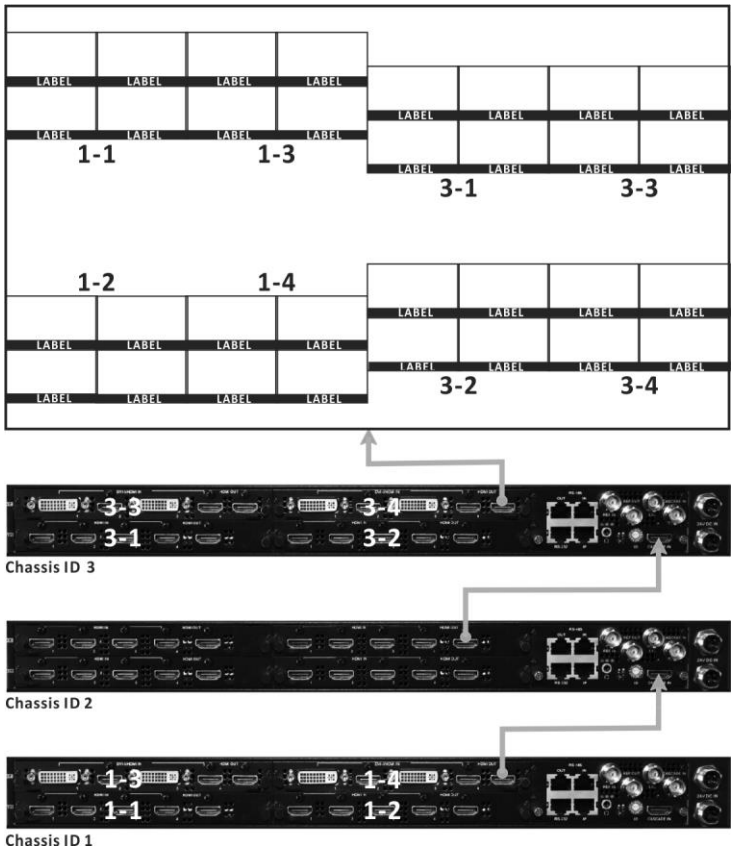


Figure 3-28 Assign Any or Multi-cards to the Cascade Output Illustration 5

4. Phoenix-Q Configuration

The Avitech Phoenix-Q program requires no installation. Just copy the system files to your computer's hard drive. This chapter introduces the Phoenix-Q software for setting up the Titan 9000.

1. *Make sure the Titan 9000 is powered on and connected properly to your computer through Ethernet before launching the Phoenix-Q software.*
2. ***DO NOT** use the serial cable to connect the Titan 9000 to your computer. The serial port is for connecting to a TSL controller/interface.*

4.1 Connection Method

Connect your Titan 9000 to the controlling computer through an Ethernet cable (IP address).

Before connecting the computer to the Titan 9000, the computer will need to be changed to a static IP, and its subnet mask must be set to a similar range as the Titan 9000 (e.g., "192.168.0.5" – factory-default setting). Or, the IP address of the Titan 9000 Master chassis can be changed to a similar range as the controlling computer. See Appendix E for details.

4.2 Pinging the Titan 9000

Make sure you can ping the chassis at "192.168.0.5" (factory-default IP address).

*Step 1. Run the Phoenix-Q software by double-clicking **Phoenix-Q.exe**.*

*Step 2. Enter the factory-default IP address **192.168.0.5**. Then click **Ping**.*

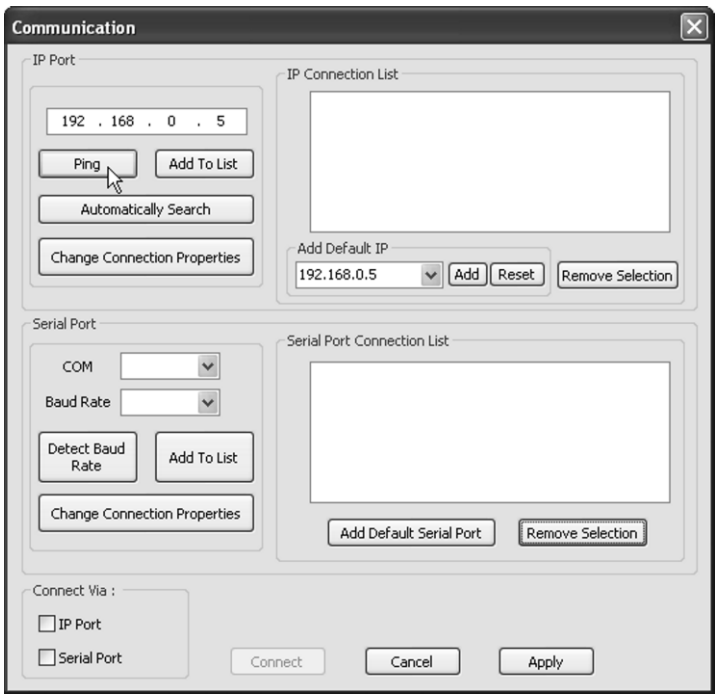


Figure 4-1 Enter the IP Address to Ping

*Step 3. The following window will appear to signify a successful communication. Click **OK** to exit.*

Figure 4-2 IP Address Pinged Successfully

4.3 Starting Up the Phoenix-Q Software

*Step 1. Run the Phoenix-Q software by double-clicking **Phoenix-Q.exe**.*

Step 2. Make sure you have set the correct IP address (see Appendix E for details).

*Step 3. Select the only type of connection allowed by clicking **IP Port** checkbox. Then click **Connect**.*

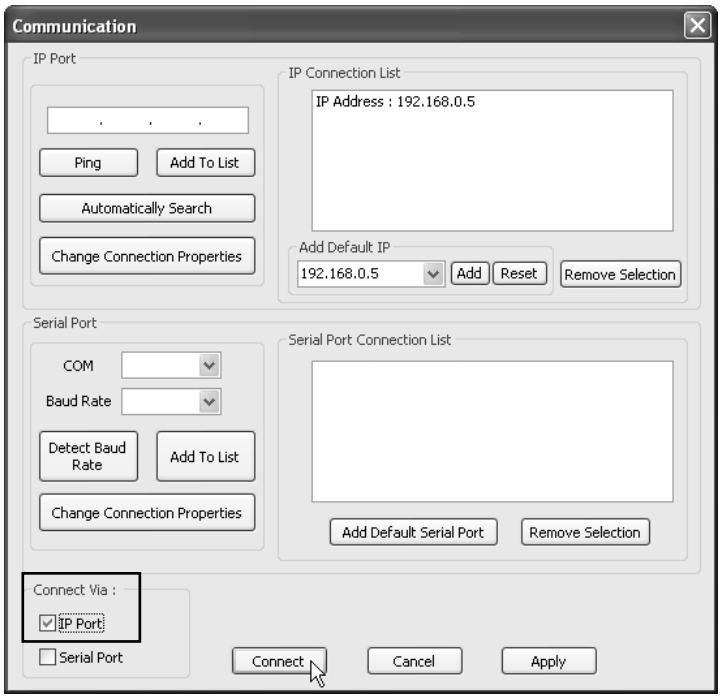


Figure 4-3 Phoenix-Q Software: Select the Ethernet Connection Method

The computer will start to search for your Titan 9000.

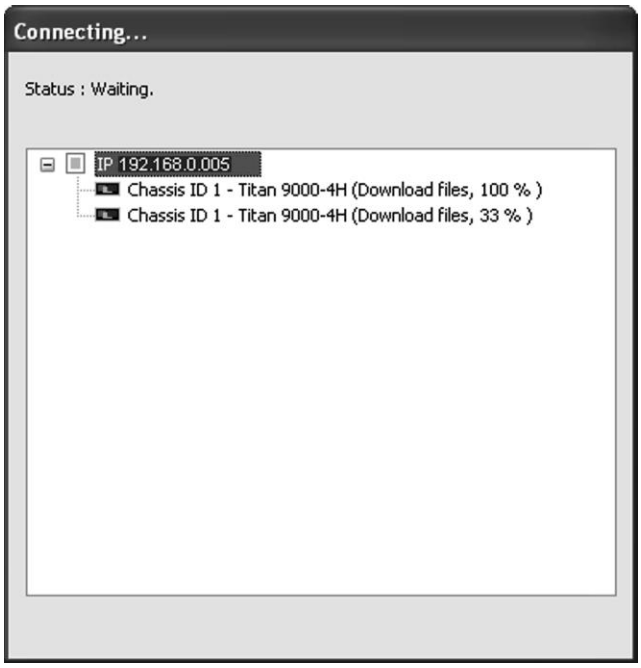


Figure 4-4 Phoenix-Q Software: Connection Progress

*When cascading the Titan 9000 make sure each chassis has a different rotary ID setting selected (e.g., **1 – 2 – 3**) on their rear chassis.*

*The **Group View** window will list the card(s) found and will initially be listed under **Idle Group**.*

1. *If you have 2 or more chassis cascaded they should also be detected.*
2. *Make sure that the slave chassis' baud rate and resolution is the same as the master chassis.*

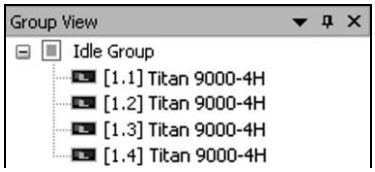


Figure 4-5 Phoenix-Q Software: Idle Group

*Step 4. Click **System→Configuration**.*

Figure 4-6 Phoenix-Q Software: Click "System"→"Configuration"

*The **Group Setup** window will appear.*

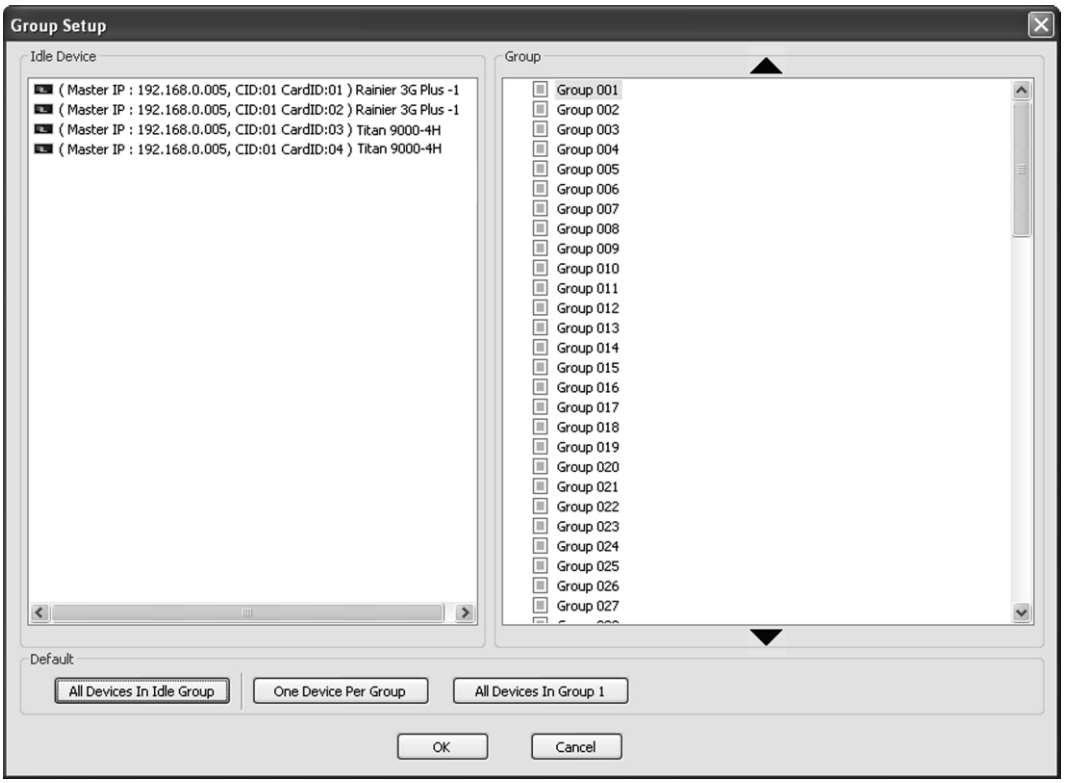


Figure 4-7 Phoenix-Q Software: Group Setup

*Step 5. To assign the grouping drag the **Idle Device** on the left panel to the desired **Group #** on the right panel (e.g., **Group 001**).*

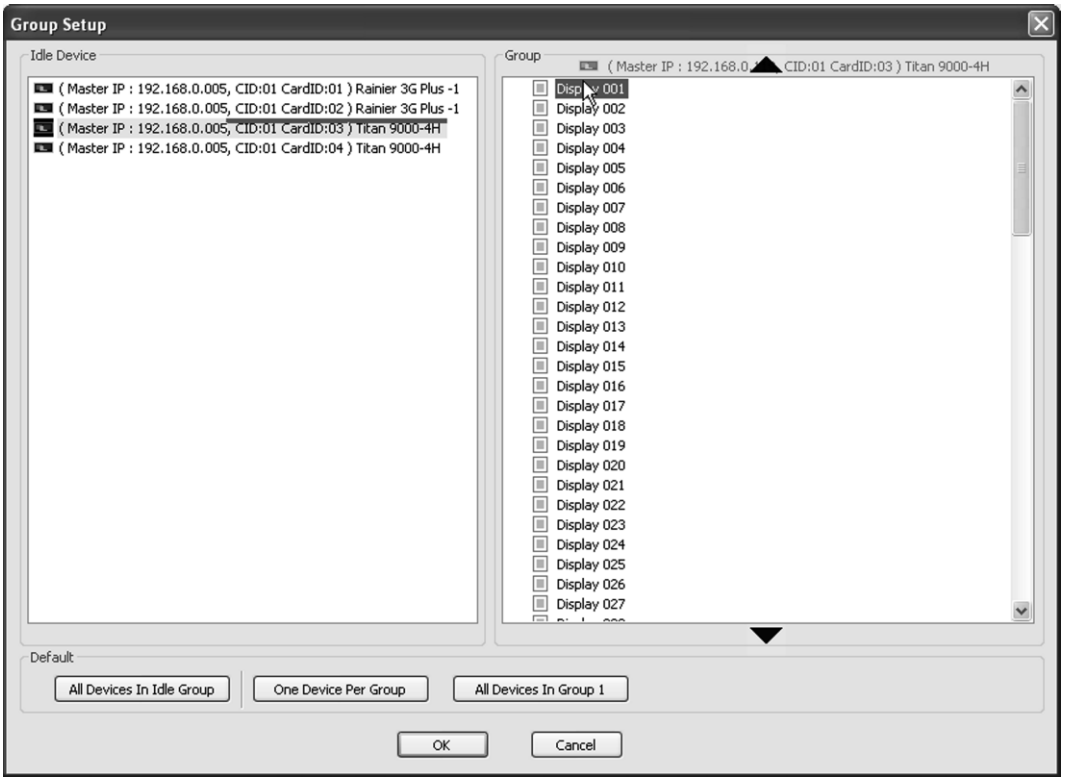


Figure 4-8 Phoenix-Q Software: Assign Group # to Idle Device

*Or, click the **One Device Per Group** button to assign a card to each group or click **All Devices in Group 1** to assign all cards to belong to **Group 1**.*

The Titan 9000-HOB card must be assigned a group by itself.

After dragging/assigning the card, it is displayed as belonging to the assigned group.

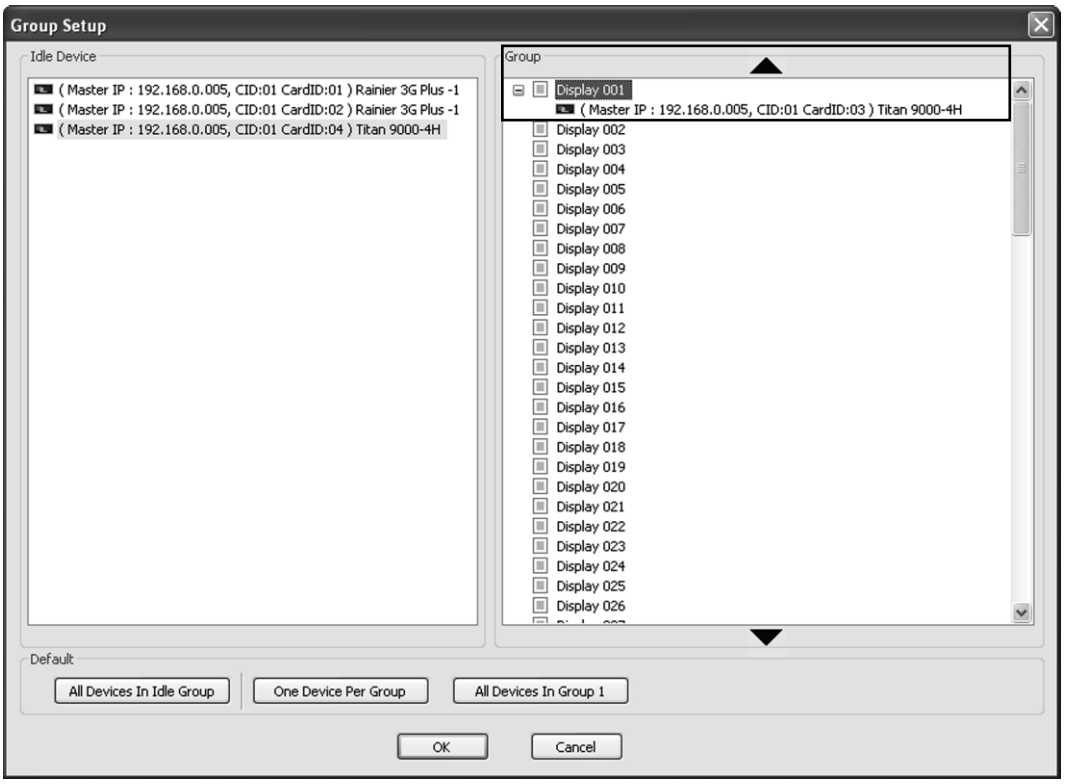


Figure 4-9 Phoenix-Q Software: Idle Device Assigned to Group 001

*Step 6. Repeat the previous step for any additional **Idle Device**(s), if any. Next, click **OK** to exit the **Group Setup** window. Phoenix-Q will save the configuration file "System.agi" to the device's flash memory*

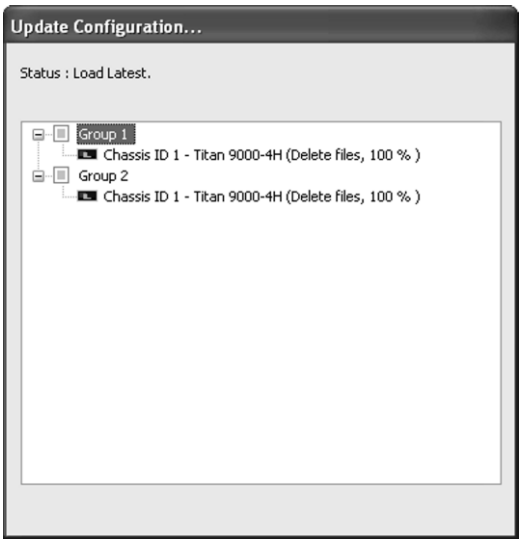


Figure 4-10 Phoenix-Q Software: Update Configuration Progress

After group setup has been completed and every time IP address of master chassis has been changed (see Appendix E), perform the simple step of entering Group Setup window and then clicking "OK" to exit (there is no need to re-assign grouping). This will help maintain system integrity when running ASCII X command.

The next figure shows sample idle devices assigned to groups.
The "[1.1]" appearing before the card name signifies the chassis ID and card ID number. Hence "[1.2]" would signify chassis ID 1 and card ID 2.
The "(O:H)" appearing after the card name signifies audio "O"utput that is "H"DMI OUT.

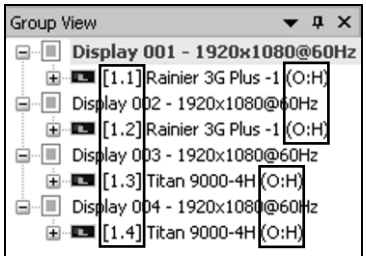


Figure 4-11 Phoenix-Q Software: Chassis and Card ID

*Place the mouse pointer over a specific card ID to show various information such as "**Master IP**" / "**Chassis ID** #" / "**Card ID** #" / "**Audio Output**" reference guide.*

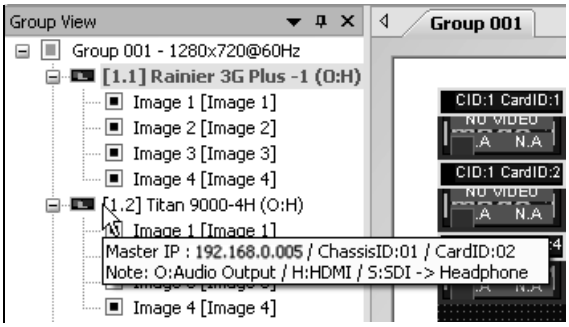


Figure 4-12 Phoenix-Q Software: Device Information and Reference

4.4 Obtaining the UMD (Under Monitor Display) Data from Router

*Step 1. Click **System→Disconnect**.*

Figure 4-13 Phoenix-Q Software: Click "System"→"Disconnect"

*Then click **OK** to confirm system disconnection via Phoenix-Q software.*

Figure 4-14 Phoenix-Q Software: Confirm Disconnection

The progress of disconnection will appear on screen.

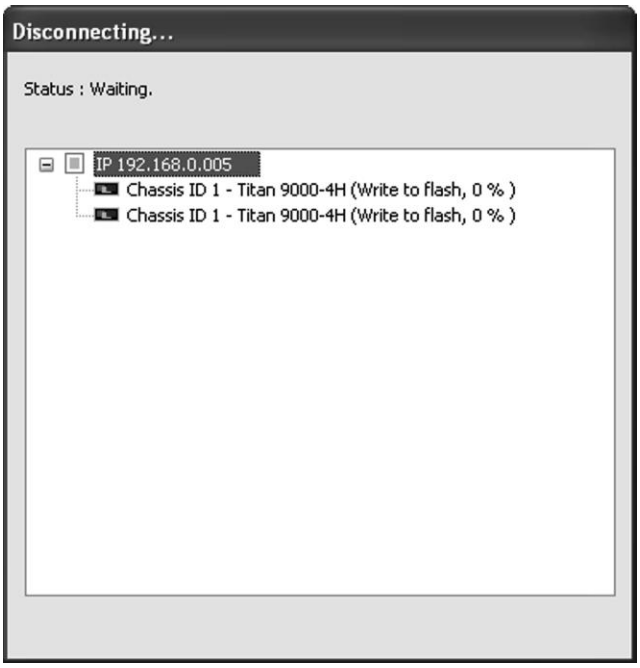


Figure 4-15 Phoenix-Q Software: Disconnection Progress

*Step 2. Click **System→Options**.*

Figure 4-16 Phoenix-Q Software: Click “System”→”Options”

*Step 3. On the **Options** screen click **External Device** and make sure that **Device Enable** is set **On**.*

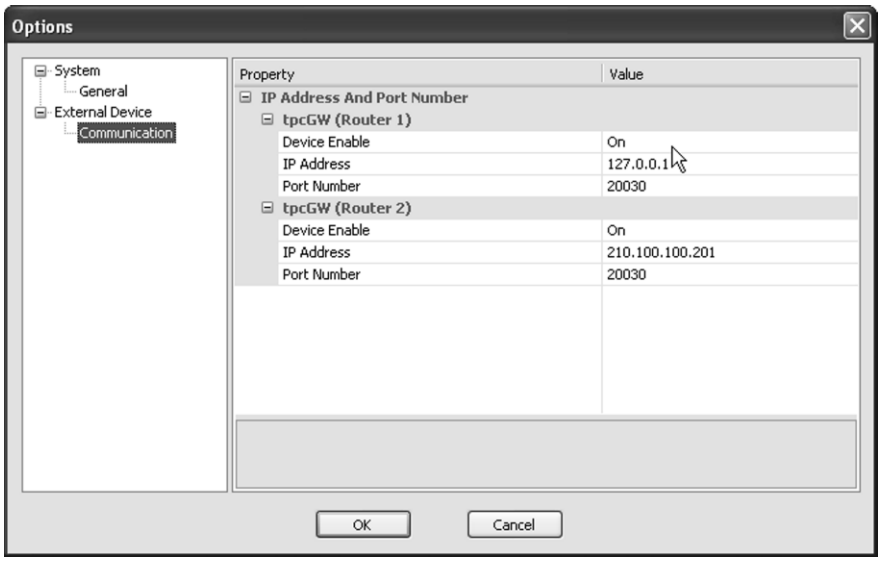


Figure 4-17 Phoenix-Q Software: Enable External Device

*Step 4. Make sure that the **IP Address** corresponds to the IP address of the computer running the tpcGW utility. If not, click the IP Address button "…" and when the **IP Address** screen appears, enter the correct value. Then click **OK** to exit.*

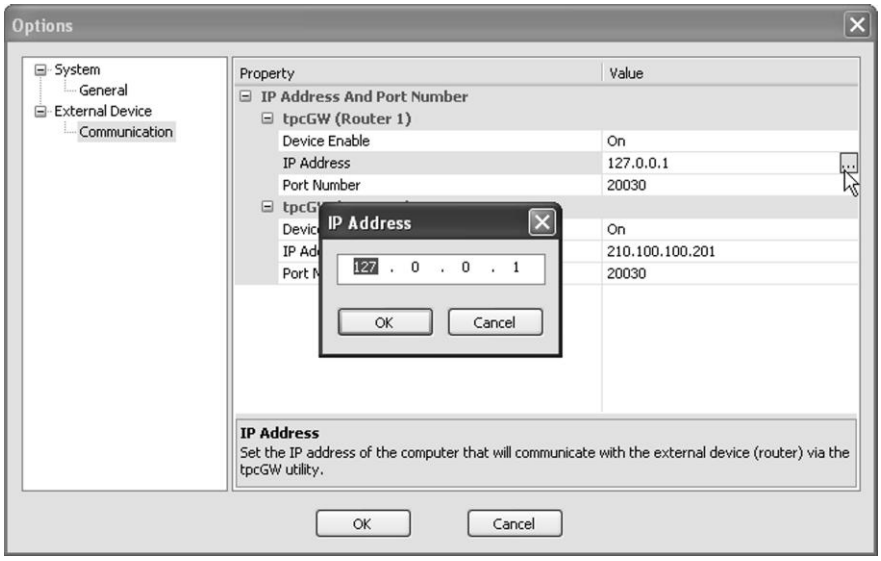


Figure 4-18 Phoenix-Q Software: Enter Correct IP Address

*Step 5. Lastly, make sure that the **Port Number** shown is correct. If not, enter the value directly or click the up/down arrow button. Then click **OK** to exit the **Option** screen setup.*

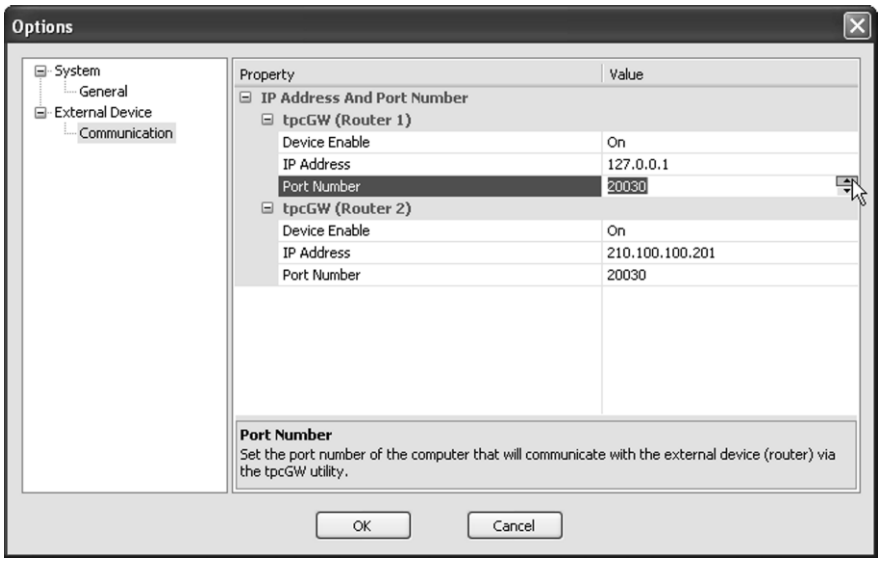


Figure 4-19 Phoenix-Q Software: Enter Correct Port Number

*Make sure the value appearing for both **IP Address** and **Port Number** are similar to the value entered in the tpcGW utility, they must be to be able to successfully connect to the router.*

Step 6. To allow the Phoenix-Q software to connect to the router, use the tpcGW utility (refer to the tpcGW Utility Quick Reference Guide for details).

4.5 Window Layout

4.5.1 Arranging Windows (by Group)

For a quick layout setup of your video windows, right-click the **Group ###** tab to access the **Group Layout** menu. Select from **2×2** up to **13×13** as possible grid positions on the monitor.

The layout size available for your particular model will depend on the monitor's resolution as well as the smallest window size limitation.

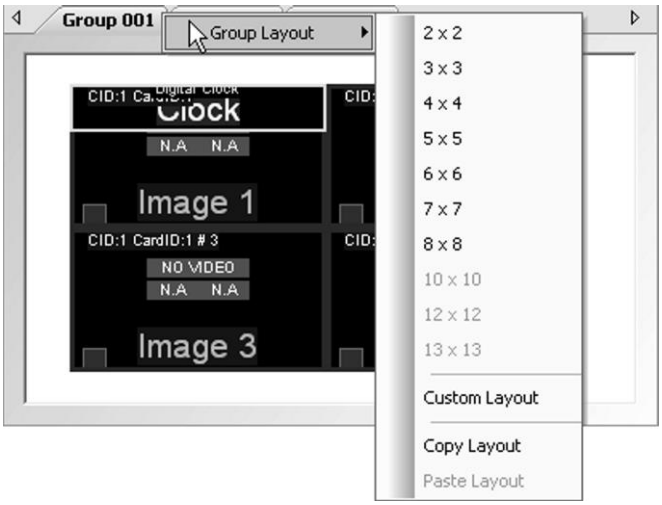


Figure 4-20 Phoenix-Q Software: Group Layout

Upon selecting **Custom Layout**, specify the **Window Ratio** (**Normal** / **4:3** / **16:9**). If **Normal** is selected, then you can set the **Horizontal** and **Vertical** number of windows (**2** to **8**) as possible grid positions on the monitor. If **4:3** or **16:9** is selected, then you can only set the **Horizontal** number of windows (**2** to **8**).

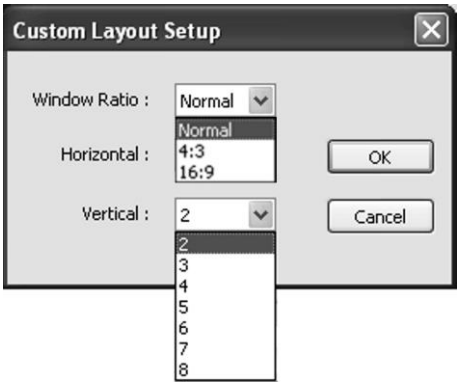


Figure 4-21 Phoenix-Q Software: Set Custom Layout

4.5.2 Resizing Window

Perform the following steps to resize a window:

*Method 1. Right-click a window, and then select **Size**. Followed by the desired preset size.*

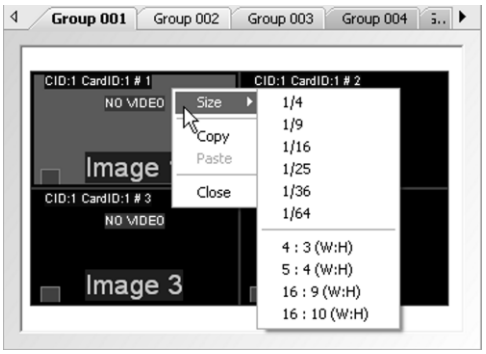


Figure 4-22 Phoenix-Q Software: Select a Preset Size

Method 2. Resize a window by dragging the border of a window to the desired size. Keep in mind that there is a scaling limitation for each window that limits the minimum scalable size to 128×80 pixels for NTSC/PAL video (320×180 for Titan 9000-HOB).

To reposition a window, drag the center of a window and drop to a new position. It will be updated on the monitor. Or, upon selecting a window, use the left/right/up/down arrow buttons on your keyboard.

4.5.3 Full Screen Mode; Swap Window Contents

Full Screen Mode

Double-click a window to enter full screen mode. Double-click again to return from full screen mode.

Swap Window

*Move cursor to the bottom left hand corner of a window until a letter **S** appears.*

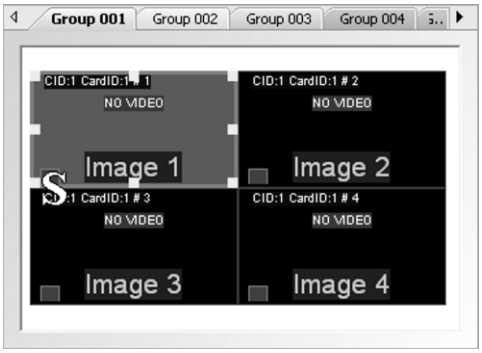


Figure 4-23 Phoenix-Q Software: Swap Window

*Click the letter **S** to select a source window and then click again at a destination window where you want to swap the contents from the source. This will swap all the contents and properties of the source window to the destination window.*

4.5.4 Visual Studio

For a quick global view of monitors installed in the studio, use the Visual Studio tab to easily glance the present set ups.

Step 1. To configure how the monitors will appear in the Visual Studio tab, right-click anywhere inside the Visual Studio tab and click "Visual Studio Setting."

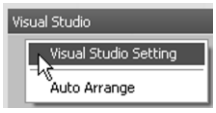


Figure 4-24 Visual Studio: Click "Visual Studio Setting"

Step 2. ❶ *Click to select the particular **Group** ### (card ID) on the left column.*
❷ *Click the destination **Visual Studio** ### (group) on the right column.*
❸ *Click the right arrow button* [>>].
*Select other **Group** ### (card ID) to belong to a **Visual Studio** ### group.*
*Multiple **Group** ### (card ID) can be assigned to the same **Visual Studio** ### group.*
Finally, click "OK" to exit the "Visual Studio Setup" window.

*To remove a particular **Group** ### from the previously assigned **Visual Studio** ### on the right column; click to select it. Then, click the left arrow button* [<<] .

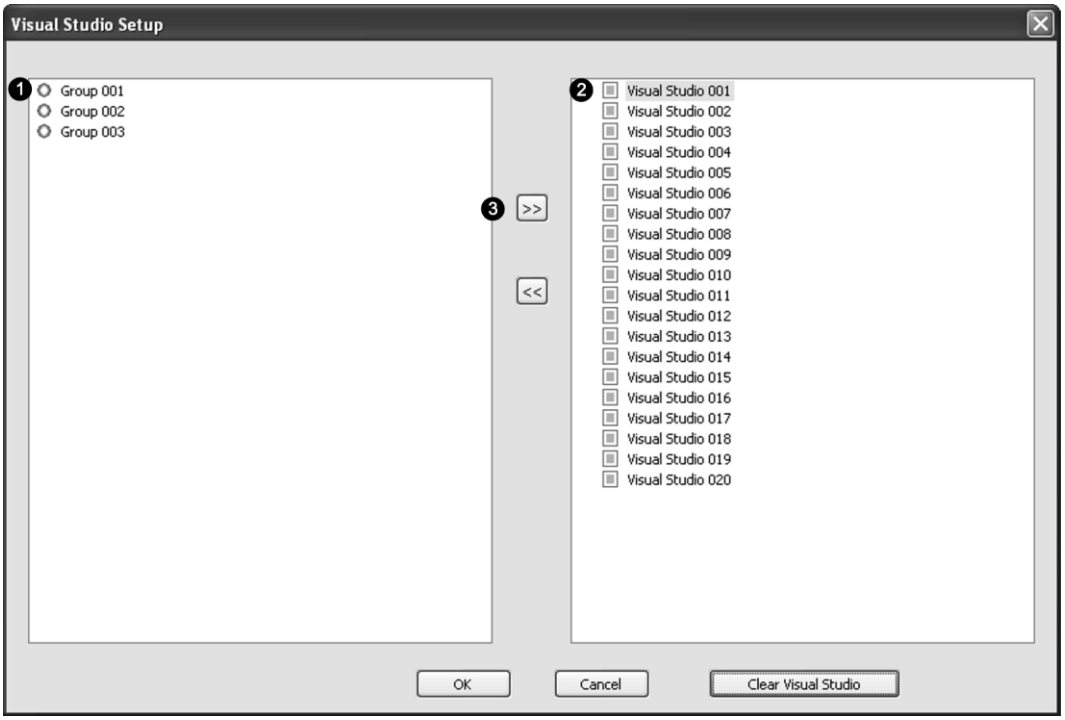


Figure 4-25 Visual Studio Setup: Assigning Visual Groups

*Step 3. On the Visual Studio tab select the desired layout by right-clicking anywhere and clicking "Layout." Select from **2×2** up to **10×10** as possible grid positions, as well as specify a fixed 1 row by "N" columns or "N" rows by 1 column*

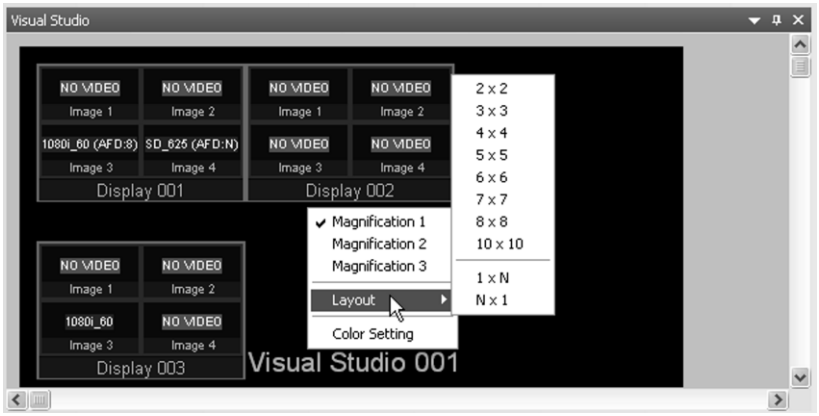


Figure 4-26 Visual Studio: Select the "Layout"

If more than one card ID was assigned to a Visual Studio group, initially the card IDs appearing on the Visual Studio tab may be stacked on top of each other. Assign the "Layout" to display the other card ID.

Quick Information

Positioning the cursor on top of a window will provide a quick information of the window. As well as the prompt "Double-click → (window label)" to allow you to quickly bring up the particular group's layout view in the main window of Phoenix-Q.

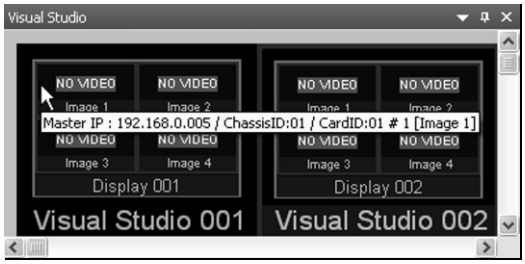


Figure 4-27 Visual Studio: Window Quick Information

Magnification

Right-click anywhere on a window to select from the 3 available magnifications.

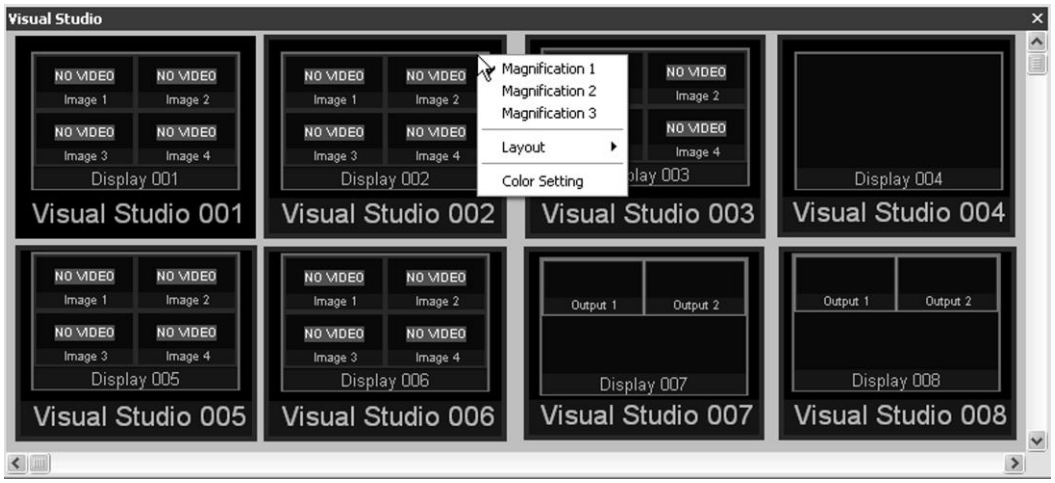


Figure 4-28 Visual Studio: Select the Magnification

Color Setup

*To set the border color and label color (font and background), right-click anywhere on a window and click **Color Setting**.*

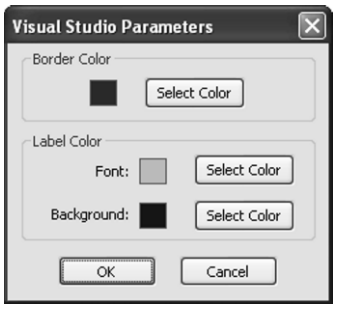


Figure 4-29 Visual Studio: Set the Border and Label Color

Auto Arrange

Allow the system to automatically arrange the layout of the windows appearing in the Visual Studio tab.

Figure 4-30 Visual Studio: “Auto Arrange”

4.5.5 Available Windows

Image windows that are disabled (turned off) reside in a tab called “Available Windows.”

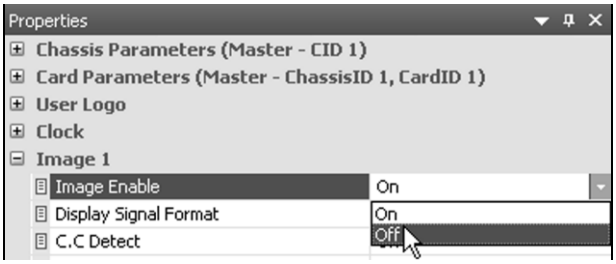


Figure 4-31 Properties Tab: Turn Off Image Window

To turn image window back on (re-enable), you can use any of the below 2 methods:

Method 1. Select the desired image window to be turned on and in the "Properties" tab click "Image Enable"→ "On".

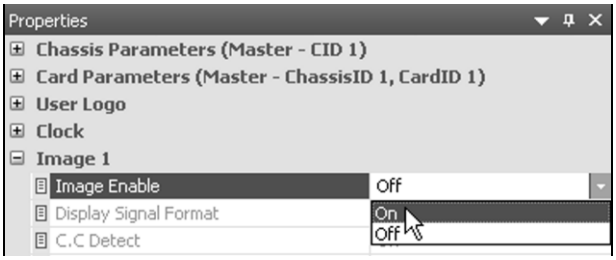


Figure 4-32 Properties Tab: Turn On Image Window

Method 2. Drag the window to be enabled to the "Group xxx" tab.
Action ❶ (drag window to an empty location) will allow the selected window to appear in the previously empty space.
Action ❷ (drag window on top of another window) will cause the former occupant window to be disabled (turned off) and moved to "Available Windows" tab ❸.

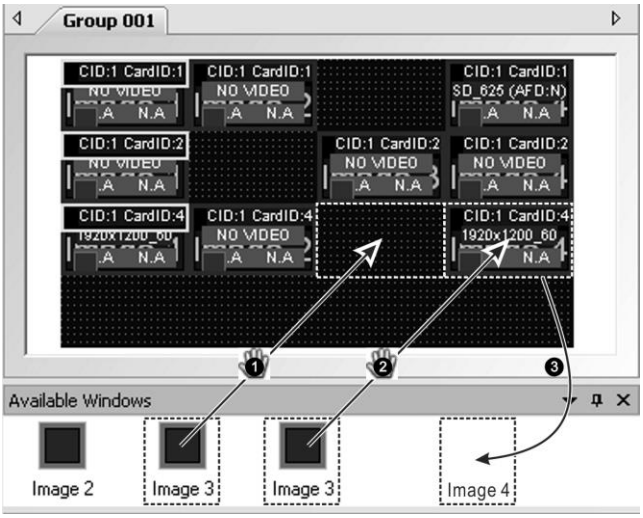


Figure 4-33 Properties Tab: Turn On Image Window

Placing the mouse pointer on top of a window residing in the “Available Windows” tab displays information about the image window.

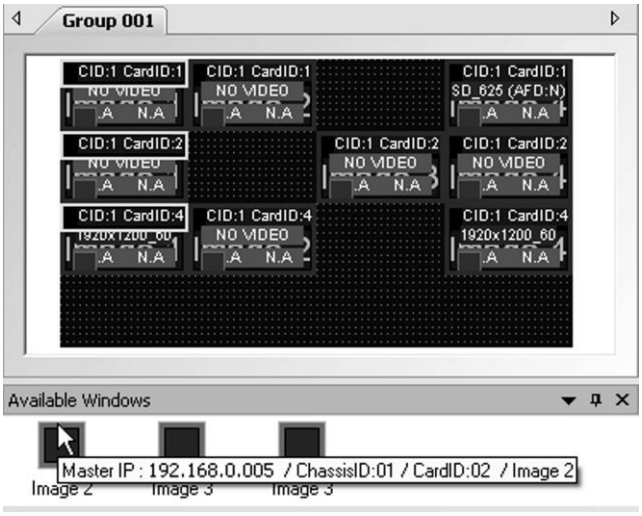


Figure 4-34 Available Windows Tab: Image Window Information

4.5.6 Copy Window Properties

*Right-click an item (with icon) on the **Properties** window (except with icon) and click the following to quickly apply the settings to –*

1. *all the windows (**Card→All**)*
2. *to a particular window (**Card→Image 1/2/3/4**)*
3. *all the cards belonging to the same (**Group**)*
4. *to the entire (**System**)*

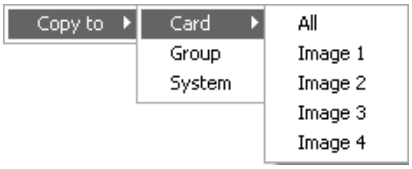


Figure 4-35 Phoenix-Q Software: Right-click Item to Quickly Apply Settings to Card/Group/System

The properties of a window can be copied to another window on the same card, as well as between cascaded chassis.

*Right-click a window, select **Copy to**, and click the following to quickly apply the settings to –*

1. *all the windows (**Card→All**)*
2. *to a particular window (**Card→Image 1/2/3/4**)*
3. *all the cards belonging to the same (**Group**)*
4. *to the entire (**System**).*

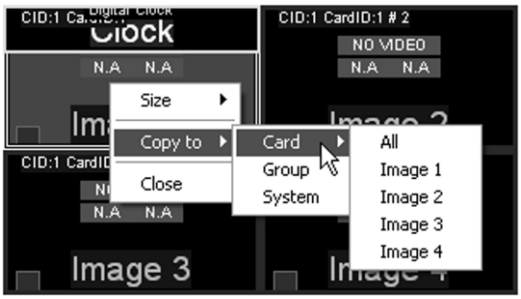


Figure 4-36 Phoenix-Q Software: Right-click Window and Click “Copy”

The properties that can be copied include the following:

- ✓ *Window size:*
  1. *width, and*
  2. *height*
- ✓ *Label:*
  1. *on/off switch*
  2. *type (ANSI or BMP label)*
  3. *font color, and*
  4. *background color*
- ✓ *Aspect ratio:*
  1. *on/off switch*
  2. *sync type, and*
  3. *fit image size*
- ✓ *Safe area:*
  1. *on/off switch*
  2. *horizontal and vertical markers*
- ✓ *Meter:*
  1. *on/off switch*
  2. *layout and alarm trigger*
  3. *group*
  4. *width*
  5. *vertical coordinates, and*
  6. *VU/PPM switch*
- ✓ *Image border:*
  1. *on/off switch*
  2. *width, and*
  3. *color*
- ✓ *Video border:*
  1. *on/off switch*
  2. *width, and*
  3. *color*

*You can also close a particular window by clicking **Close**. The Window would appear as an icon on the **Available Windows** pane. To activate the window again just drag the window into the main area.*

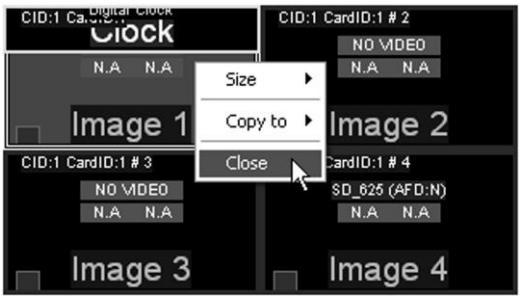
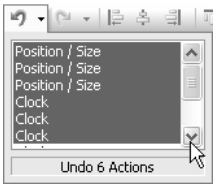
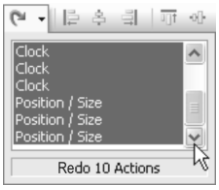


Figure 4-37 Phoenix-Q Software: Right-click Window and Click “Close”

4.5.7 Undo/Redo Changes

Clicking the  allow you to undo the previous step; while clicking the  allow you to redo the previous step that was undone.

To undo 

or redo 

multiple actions click the drop-down arrow symbol beside the undo/redo button, then highlight and click the actions to be undone or redone. Click the scrollbar to highlight more than 6 actions.

The following actions will clear the list of undo/redo actions:

- ✓ *load/save preset file*
- ✓ *set display resolution*
- ✓ *group reset*
- ✓ *change group setup*
- ✓ *set to default state*

4.5.8 Align Windows

You can align a set of windows horizontally or vertically. You can choose how you want the windows to line up in relation to each other. For example, clicking the **Align Right** button (

) aligns the right edges of the windows with each other.

To align a set of windows horizontally/vertically:

*Step 1. Select the windows by clicking the first window with the left mouse button and the succeeding windows using the keyboard's **Ctrl** key + left mouse button.*

*Other computer applications that are currently running which use the same **Ctrl** key + left mouse button hot-key may disable multiple window selection in your Phoenix-Q software. Close the other program first before using the **Ctrl** key + left mouse button in Phoenix-Q.*

Step 2. To indicate how you want the windows to line up with each other click one of the following buttons. The alignment follows the position of the last window selected.

- ✓ *top* 

- ✓ *middle* 

- ✓ *bottom* 

- ✓ *left* 

- ✓ *center* 

- ✓ *right* 

*To undo alignment of windows just click the **Undo** button  repeatedly according to the number of windows that were aligned with the last selected window.*

4.5.9 Copy Window Size

This function allows a set of windows to copy the width, height, and size of a window appearing on screen. For example, clicking the **Make Same Width** button () would cause the selected windows to have the same width.

To modify the window size:

*Step 1. Select the windows by clicking the first window with the left mouse button and the succeeding windows using the keyboard's **Ctrl** key + left mouse button.*

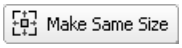
*Other computer applications that are currently running which use the same **Ctrl** key + left mouse button hot-key may disable multiple window selection in your Phoenix-Q software. Close the other program first before using the **Ctrl** key + left mouse button in Phoenix-Q.*

Step 2. To indicate how you want the windows to appear on screen, click one of the following buttons. The window's size will follow the width/height/size of the last window selected.

✓ *copy width* 

✓ *copy height* 

*To prevent distortion on the window's image (for "interlaced" input signal), make sure the height of the image (excluding label and border) **IS NOT** smaller than one-half of the vertical active region of input source (e.g., if resolution is set at 1080i 50Hz then the image's height must not be less than 540 pixels).*

✓ *copy size* 

*To undo window's size modification just click the **Undo** button repeatedly according to the number of windows that were modified except the last selected window.*

*By default the main display area of your Phoenix-Q program is shown at a **50 %** magnification; meaning the entire layout (single or multiple windows) is visible at one-half magnification within the main display area. However, you can set a custom level of magnification for viewing windows. Zoom in (**100 %**) to get a closer look at image detail; zoom out to (**25 %**) view a larger portion of the image or the entire image.*

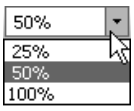


Figure 4-38 Phoenix-Q Software: Set Custom Level Magnification for Viewing Windows

4.5.10 Remove Horizontal/Vertical Spacing

You can eliminate the space between a set of windows horizontally or vertically. You can choose how you want the windows to line up in relation to each other. For example, clicking the **Remove Vertical Spacing** button (Remove Vertical Spacing) eliminates the vertical space between a set of windows.

To position a set of windows side-by-side by removing the horizontal/vertical space:

*Step 1. Select the windows by clicking the first window with the left mouse button and the succeeding windows using the keyboard's **Ctrl** key + left mouse button.*

*Other computer applications that are currently running which use the same **Ctrl** key + left mouse button hot-key may disable multiple window selection in your Phoenix-Q software. Close the other program first before using the **Ctrl** key + left mouse button in Phoenix-Q.*

Step 2. To indicate whether you want to eliminate the vertical/horizontal spacing between the windows click one of the following buttons. The position of the last window selected do not change but the other window(s) changes position to remove any vertical/horizontal spacing in-between.

✓ *horizontal* Remove Horizontal Spacing

✓ *vertical* Remove Vertical Spacing

1. *"Remove Horizontal Spacing" button is disabled (grayed-out) if any of 2 consecutive windows selected are overlapped horizontally (x-axis perspective).*
2. *"Remove Vertical Spacing" button is disabled (grayed-out) if any of 2 consecutive windows selected are overlapped vertically (y-axis perspective).*

4.6 Log Window

Aside from letting you view the various system messages in Phoenix-Q, you can also export the log messages as a text file. This is most helpful when monitoring incidences of video loss/freeze/black, audio high/low/lost, metadata display (AFD) Active Format Description and closed caption detection.

*Step 1. Right-click anywhere inside **Log Window** and when the menu appears, click **Export**.*

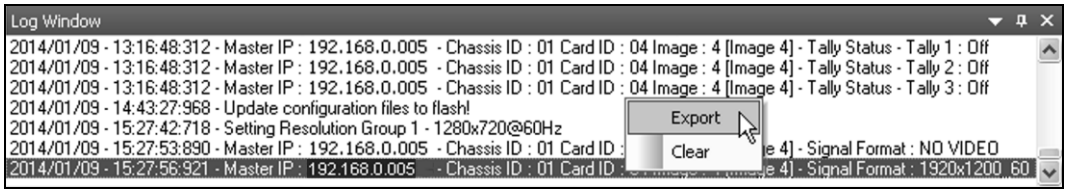


Figure 4-39 Log Window: Right-click "Export"

*Step 2. Assign a filename and click **Save** to store the data.*

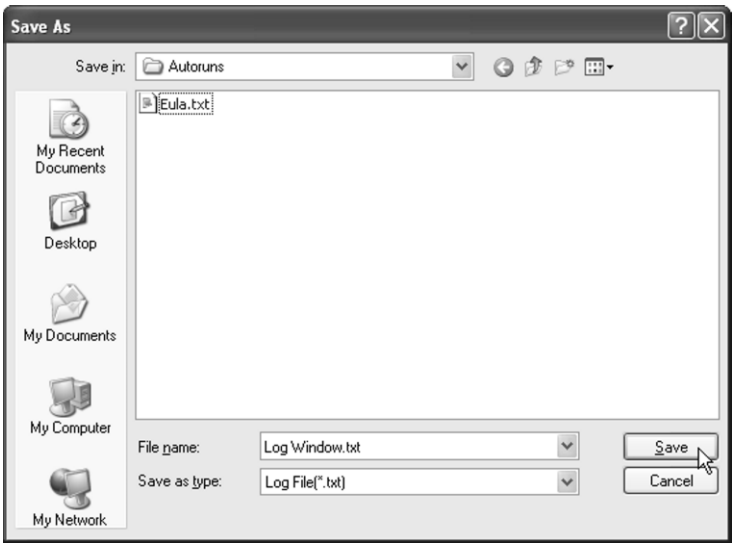


Figure 4-40 Phoenix-Q Software: Save Log Window Information

You can also refer to your computer's hard drive (C:/Avitech/Backup/Backup_date_time/Log/ folder) for various system log messages text file.

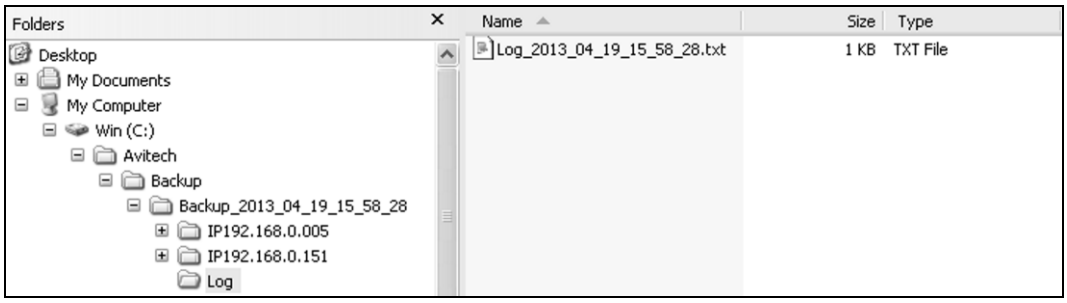


Figure 4-41 Phoenix-Q Software: Location of Auto-save Log File

5. Basic Setup Using the Phoenix-Q Software

This chapter introduces you to the Phoenix-Q software for setting the features of your Titan 9000; as well as familiarizes you with the menus appearing on the Phoenix-Q software.

Some items appearing on the menus of the Phoenix-Q software may not be available (grayed-out).

5.1 File Menu

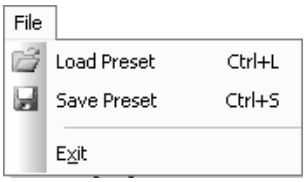


Figure 5-1 Phoenix-Q Software: File Menu

All the presets you create are stored in the Titan 9000 flash memory, not on your computer. After creating a preset you will need to "save to flash" in order to write all the presets into the internal flash memory of the Titan 9000. To save a preset, perform the following steps:

"Save Preset" is not available for Titan 9000-HOB.

Step 1. Configure the window layout to how you want it to be displayed.

*Step 2. Click **Save Preset**.*

*Step 3. Enter a unique filename for the preset, and select **OK** to save. Repeat these steps for each additional preset.*

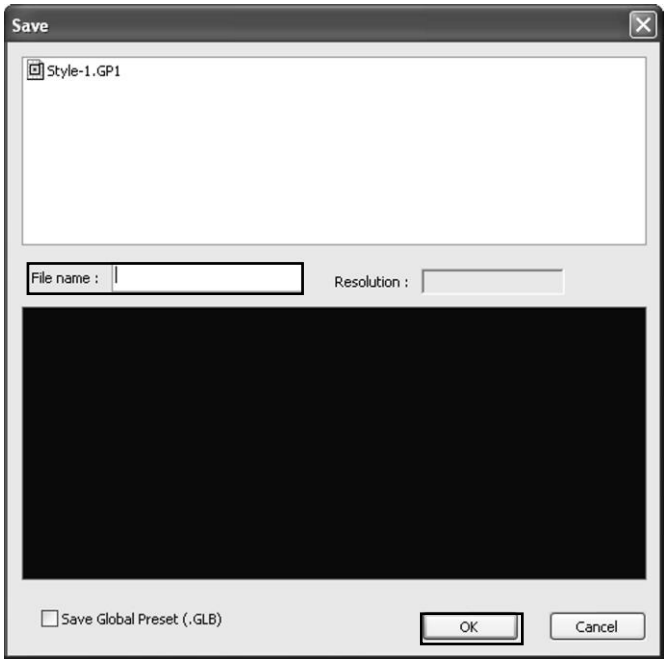


Figure 5-2 Phoenix-Q Software: Enter Unique Filename for Preset

*1. The file extension **GP#** will be automatically added to the filename of a group's preset.*
*2. Click to select **Save Global Preset** (with checkmark) if you wish to save a group preset that can be applied to all the groups. The file extension **GLB** will be automatically added to the filename.*

*You can delete a file appearing on the **Save** window by right-clicking the filename and clicking **Delete**.*

Figure 5-3 Phoenix-Q Software: Delete File in Save Window

*To delete all the files appearing on the window right-click anywhere inside the window (except on the filename itself) and click **Delete All**. When the confirmation window appears, click **OK** to proceed.*

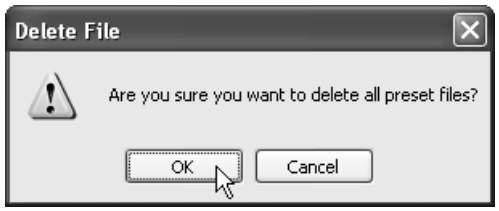


Figure 5-4 Phoenix-Q Software: Delete All Preset Files Confirmation

*Step 4. After you are done creating presets load the file that you want to be the master layout which gets loaded when the Titan 9000 is powered on by clicking **Load Preset**.*

*Step 5. Select a saved file and then click **OK** to load the preset.*
Opening a preset file with "GP#" as filename extension loads a single group preset; while opening a preset file with "GLB" as filename extension loads a preset that applies to all groups (global preset).

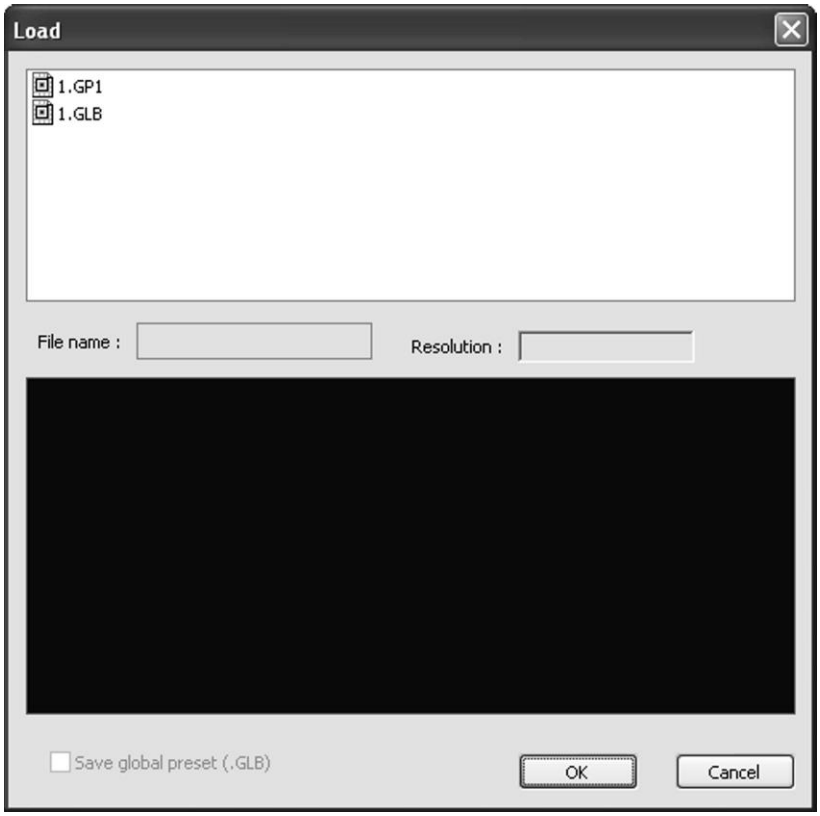


Figure 5-5 Phoenix-Q Software: Load Preset File

*Just like the **Save** window you can delete a file appearing on **Load** window by right-clicking filename and clicking **Delete**. To delete all files appearing on the window right-click anywhere inside the window (except the filename itself) and click **Delete All**. When the confirmation window appears, click **OK** to proceed.*

*Step 6. Click **Exit** to close the Phoenix-Q software and all the changes would be automatically saved to the configuration file "System.agi" in the device's flash memory.*

5.2 Edit Menu

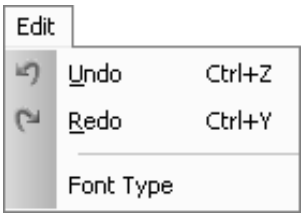


Figure 5-6 Phoenix-Q Software: Edit Menu

Edit Menu	
Undo	Click **Undo** to cancel the previous step.
Redo	Click **Redo** to repeat the previous step that was cancelled.
Font Type	Click **Font Type** to set the **Font**, **Font style**, and **Size**.

Table 5-1 Phoenix-Q Software: Edit Menu Description

Font Type: *Click **Font Type** to select the **Font**, **Font style**, and **Size**. Then, click **OK**.*

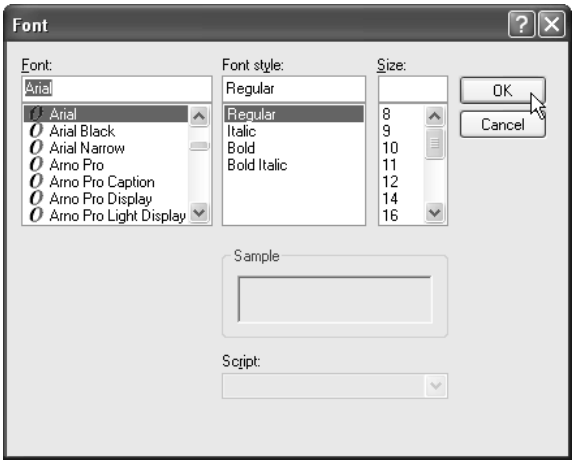


Figure 5-7 Phoenix-Q Software: Set Font Properties

***For Windows 7:** When using the Phoenix-Q in a different language other than English the **Font** "Arial" might not appear as the default font-type. This may cause the label appearing in the window to appear askew. Perform the following steps to return the default font type to **Arial**.*

*Step 1. Click **Control Panel** and when next screen appears click **Appearance and Personalization**.*

*Step 2. On the next screen click **Change Font Settings** under **Fonts**.*

*Step 3. On the next screen click **Font settings**.*

*Step 4. On the next screen click to unselect the **Hide fonts based on language settings** checkbox. Then click **OK** to exit.*

*Step 5. On the Phoenix-Q software click to select **Arial** as the default **Font** and click **OK**.*

5.3 View Menu

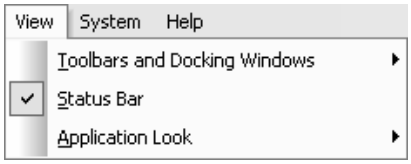


Figure 5-8 Phoenix-Q Software: View Menu

View Menu	
Toolbars and Docking Windows	Enable (with checkmark) or disable the display of any of the toolbars or windows as well as **Customize** the display. *See figure 5-9
Status Bar	When selected (with checkmark) the status bar is displayed on the bottom of the Phoenix-Q software. Click to select or deselect.
Application Look	Click **Application Look** to select the overall design and theme of the Phoenix-Q software. *See figure 5-11

Table 5-2 Phoenix-Q Software: View Menu Description

Toolbars and Docking Windows:

Enable (with checkmark) or disable display of **Standard** toolbar, **Available Windows** panel, **Log Window** panel, **Group View** panel, **Properties** panel, **Briefing** panel, as well as **Customize** display.

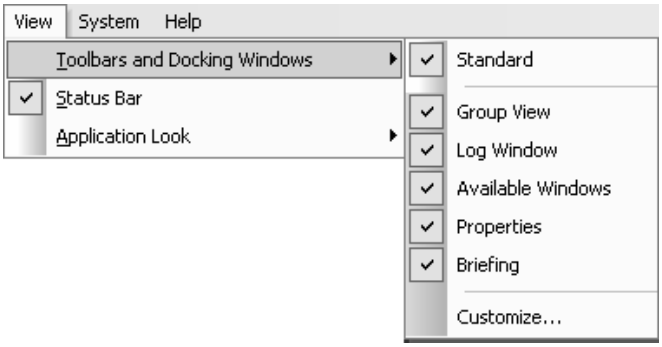


Figure 5-9 Phoenix-Q Software: "Toolbars and Docking Windows" Menu

Customize:

Click **Customize** to design the look of the menus and commands appearing on the Phoenix-Q software. Click the particular folder (**Commands**, **Toolbars**, **Menu**, and **Options**) and then make the necessary changes. Click **Close** when finished to exit.

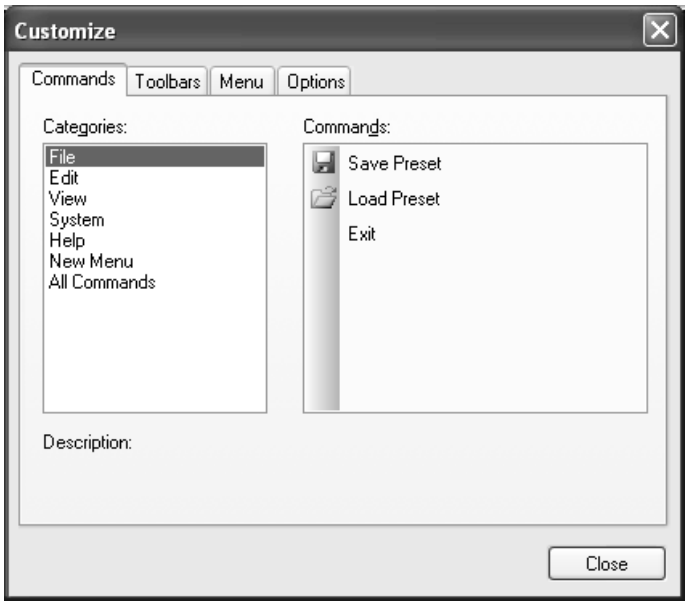


Figure 5-10 Phoenix-Q Software: "Customize the Toolbars" Window

Application Look:

Click **Application Look** to select the overall design and theme of the Phoenix-Q software. Click on the themes title to view the theme.
*Note: The "dot" in front of **Visual Studio.NET 2005** signifies that it is the currently selected theme.*

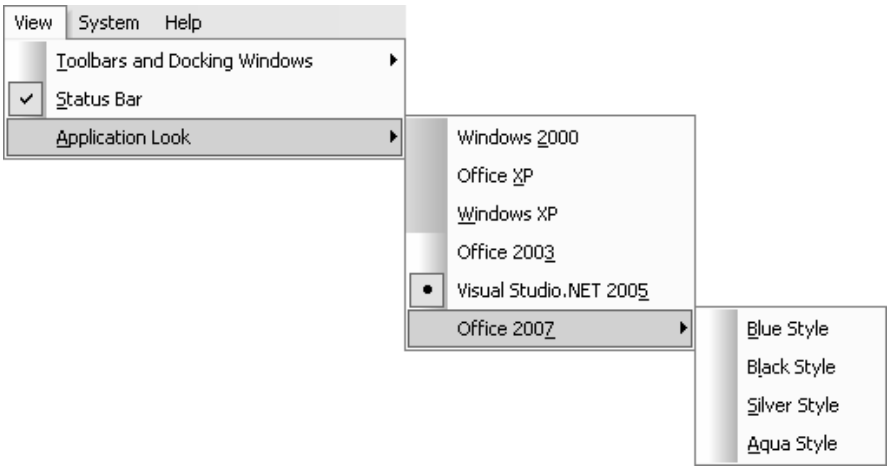


Figure 5-11 Phoenix-Q Software: "Application Look" Menu

5.4 System Menu

Figure 5-12 Phoenix-Q Software: System Menu

System Menu	
Connect or **Disconnect**	**Connect** the computer and Titan 9000 via Ethernet connection; or **Disconnect** it. Before connecting make sure that the correct configurations are entered under the item **Communication**.
Reconnect	When you have unplugged the Ethernet cable and re-connected it, click **Reconnect** to continue the configuration process.
Configuration	Click **Configuration** to assign the groupings. Create the configuration of a particular group (for example move the card to another group as so desired by dragging the card listed under **Group 001** to **Group 003**) and then click **OK**. Phoenix-Q will save the configuration file "System.agi" to the device's flash memory.
Communication	Click **Communication** to select the **IP Port** "Ethernet" mode of connection between the computer and Titan 9000. *Note: This item is not available when the computer is connected to the Titan 9000.*
Simulation	*Note: For factory testing only, this item is not available.*
Restore	To restore a preset follow the steps outlined in figures (5-13 to 5-16).
Setup Speaker ID	Use Setup Speaker ID to set up which speakers monitor audio sources.
Import	Import image labels or alarm sound file from a .txt file. See figures (5-19 to 5-22) for details.
Export	Export image labels or alarm sound parameters to be edited externally. See figures (5-19 to 5-22) for details.
Options	Options open up a popup window which allows you to customize a number of default settings for Phoenix-Q. These settings are organized into the following categories; System, General, External Device, and Communication. See figures (5-23 to 5-34) for details.

Table 5-3 Phoenix-Q Software: System Menu Description

Restore: *To manually **Restore** a preset perform the following steps.*

Step 1. Set the Titan 9000 to the factory-default value (see Appendix F for details).

*Step 2. Make sure that the rotary **ID** setting of the chassis being restored matches the old chassis' setting (if the restoration to be attempted is not for the same chassis).*

*Step 3. Click **System→Restore→Configuration and Files**.*

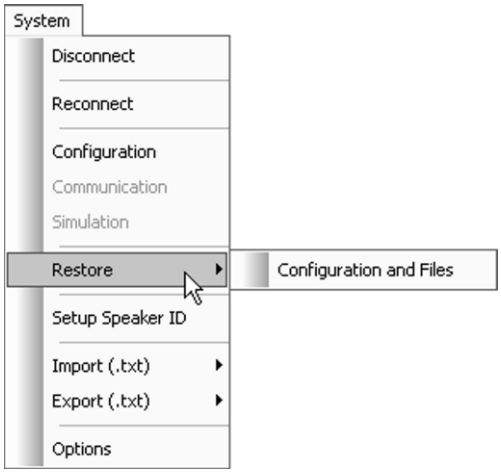


Figure 5-13 Phoenix-Q Software: Click "System"→"Restore"→"Configuration and Files"

*Step 4. The **Date** window shows various folders with the date (automatically generated) when preset(s) were previously saved. The **Preview Configuration** window shows the setup of the just selected folder. The **Present Configuration** window shows the present setup of Titan 9000.*

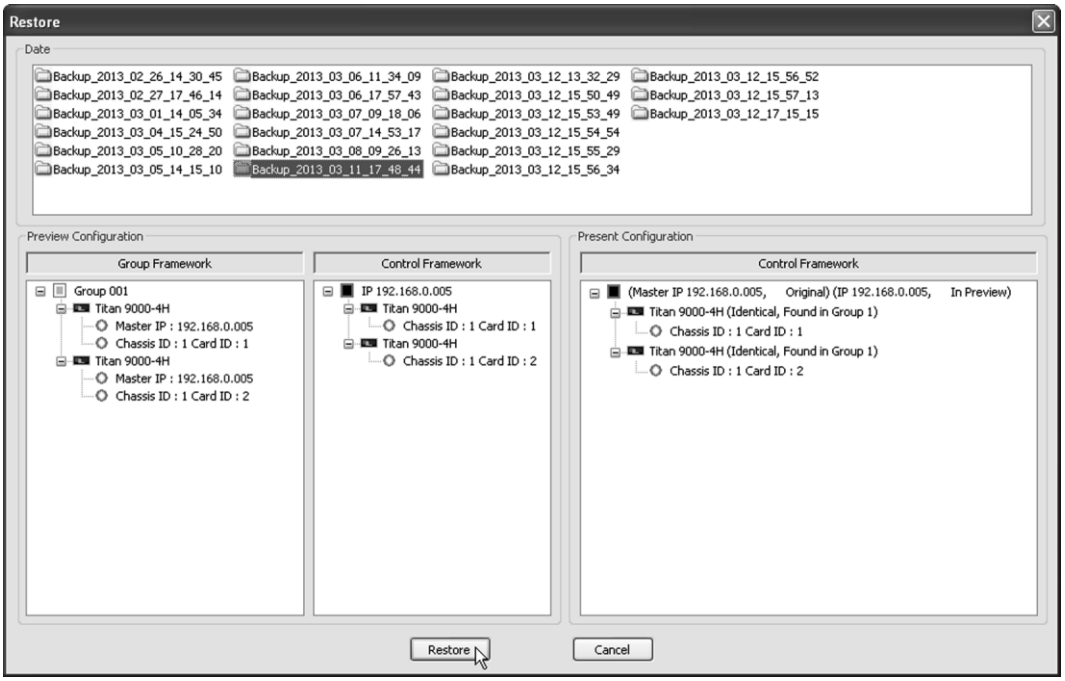


Figure 5-14 Phoenix-Q Software: "Restore" Window

*Step 5. Click to select a restore point (e.g., **Backup_2013_03_11_17_48_44**). System will automatically compare the setup listed in **Present Configuration** window with the setup listed in **Preview Configuration** window (e.g., **Identical**, **Different**, **New Device**).*

*When the setup of the **Present Configuration** window is different from the setup in the **Preview Configuration** window (e.g., upon selecting **Backup_2013_03_05_14_15_10** folder in the **Date** window) then restore is not allowed by the system and the **Restore** button remains grayed-out.*

*Step 6. Click **Restore**. The progress of restoration will be shown.*

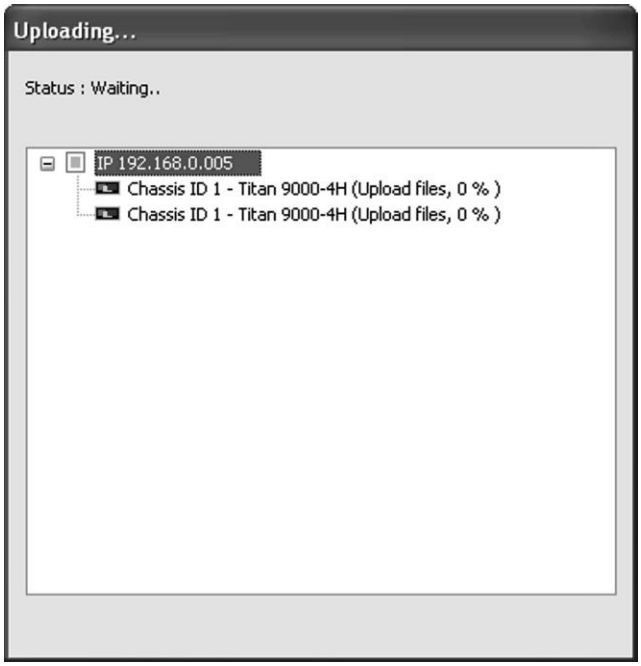


Figure 5-15 Phoenix-Q Software: ”Restore” Progress

Step 7. Reboot the Titan 9000 to complete the “Restore” process.

Figure 5-16 Phoenix-Q Software: Reboot Device

Setup Speaker ID: *When you have 2 or more cascaded chassis ID,* ***Setup Speaker ID*** *allows you to assign each card ID to output to which chassis ID headset connector. Make sure to first assign 2 or more chassis ID cards to the same group.*

Figure 5-17 Phoenix-Q Software: Click “System”→”Setup Speaker ID”

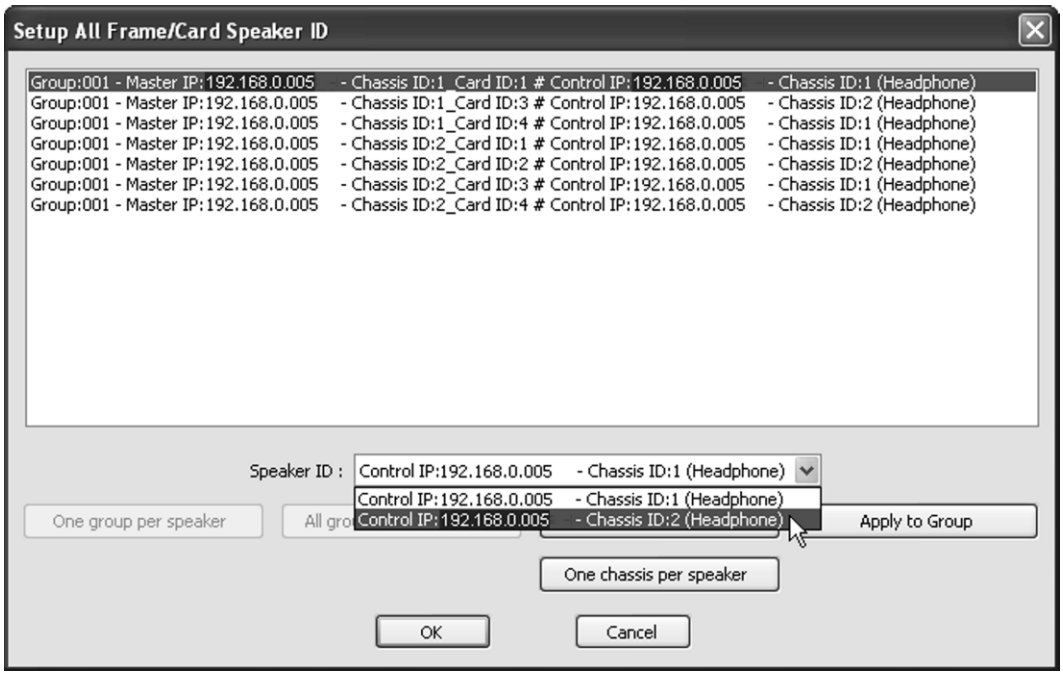


Figure 5-18 Phoenix-Q Software: Card Speaker ID

This item is only available when the computer is connected to the Titan 9000.

Import and Export Labels / Alarm Sound

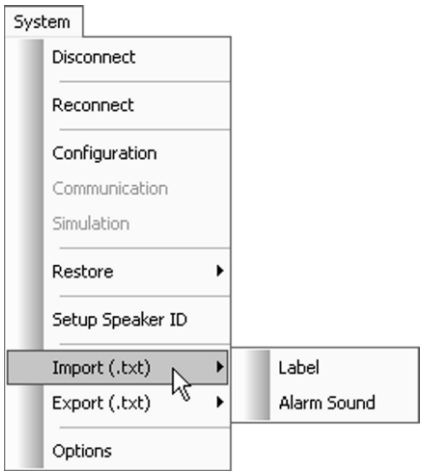


Figure 5-19 Phoenix-Q Software: Click "System"→"Import/Export Label (.txt)"

1. *"Label" settings here will affect all the labels of the Groups in the System.*
2. *These items are only available when the computer is connected to the Titan 9000.*
3. *Refer to Appendix D for complete details on using the "Import"/ "Export"→"Alarm Sound" function.*

Export the label to be edited externally. The most convenient way is to export the file (label) as:

- ✓ ***ANSI*** *– up to 30 characters; can contain the English characters A–Z, a–z, 0–9, or*
- ✓ ***BMP Label*** *(Unicode – up to 15 characters; useful for displaying text other than the English language)* ***txt*** *file*

*Step 1. Click **System→Export (.txt)→Label** and assign a filename. Then click **Save**.*

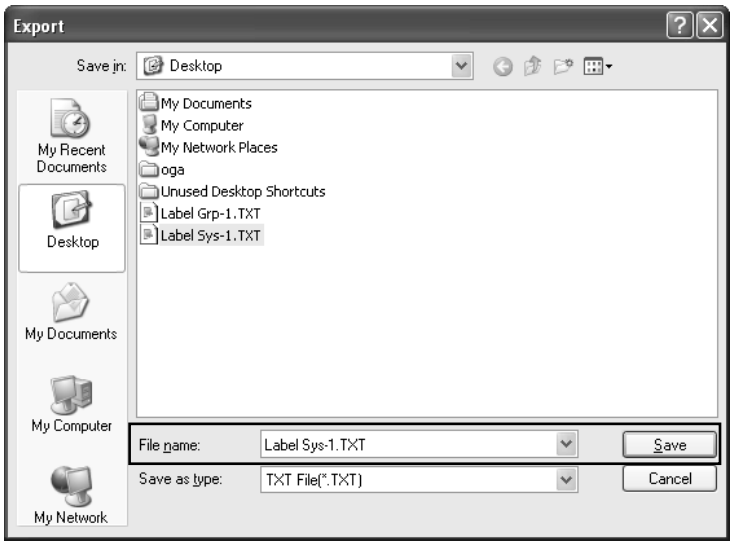


Figure 5-20 Phoenix-Q Software: Export Label

*Step 2. Open the exported text file. The first row of text provides a guide to the two types of labels (**A** for **ANSI** / **B** for **BMP Label**). Change the label type as desired by typing **A** or **B** after the dash "**–**" (highlighted as shown below).*

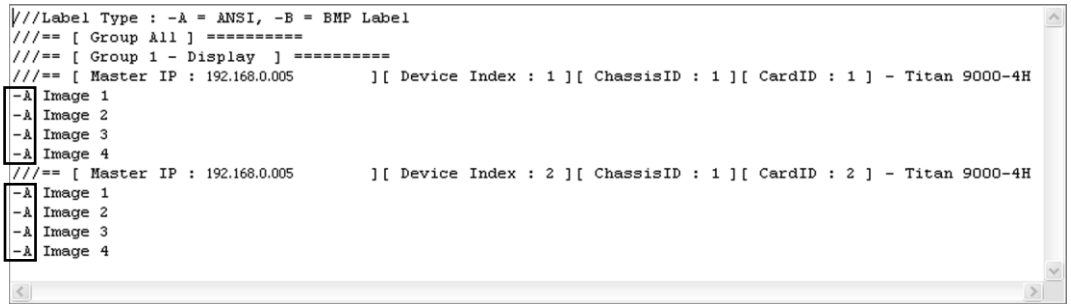


Figure 5-21 Phoenix-Q Software: Change Label Type

*Step 3. Then edit the text in the file (highlighted as shown below). When you are done editing the label save the **txt** file and import it. The on screen labels will be updated.*

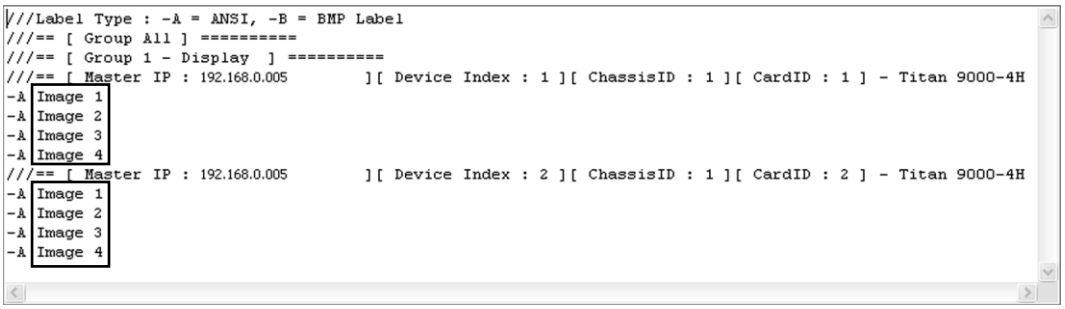


Figure 5-22 Phoenix-Q Software: Change Label Text

Options: *Opens a popup window with system configuration settings.*

Figure 5-23 Phoenix-Q Software: Click "System"→"Options"

✓ ***General→Backup Path***

The default backup path "C:\Avitech\Backup\" contains the system configuration, preset files, system log data, and firmware version information. To change the backup path, type the desired path in the ***Value*** *column (available when Phoenix-Q is not connected to chassis).*

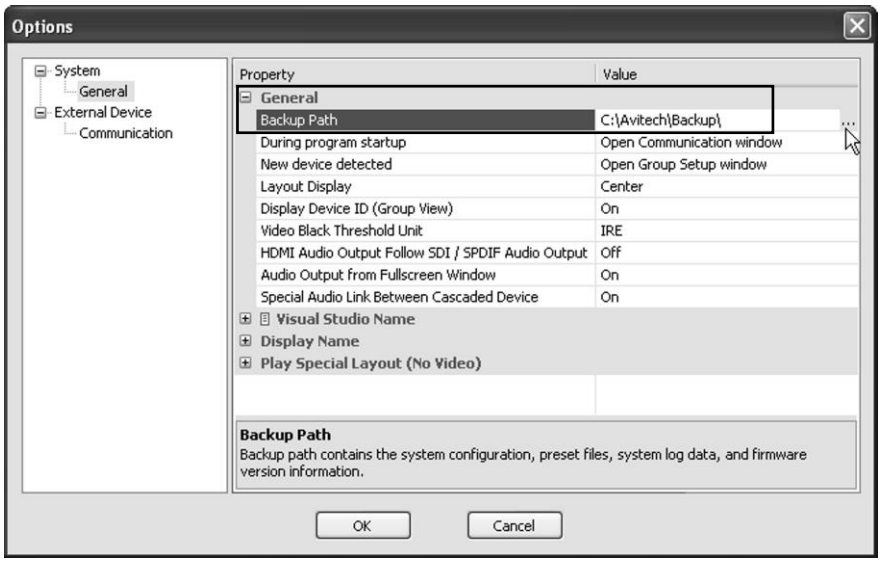


Figure 5-24 Options: "System"→"General"→"Backup Path"

*Or click the select folder button "…" and when the **Select Folder** screen appears select from the existing folders or click the **Make New Folder** button to create a new folder. Then click **OK** to exit.*

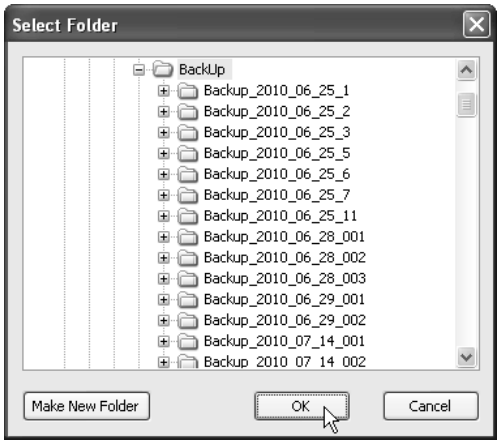


Figure 5-25 Phoenix-Q Software: Select Folder Window

✓ ***General→During Program Startup***
*Click the drop-down button (click the cell's rightmost portion) to select **Open Communication window** that allows the Phoenix-Q program to automatically open the **Communication** window upon startup.*

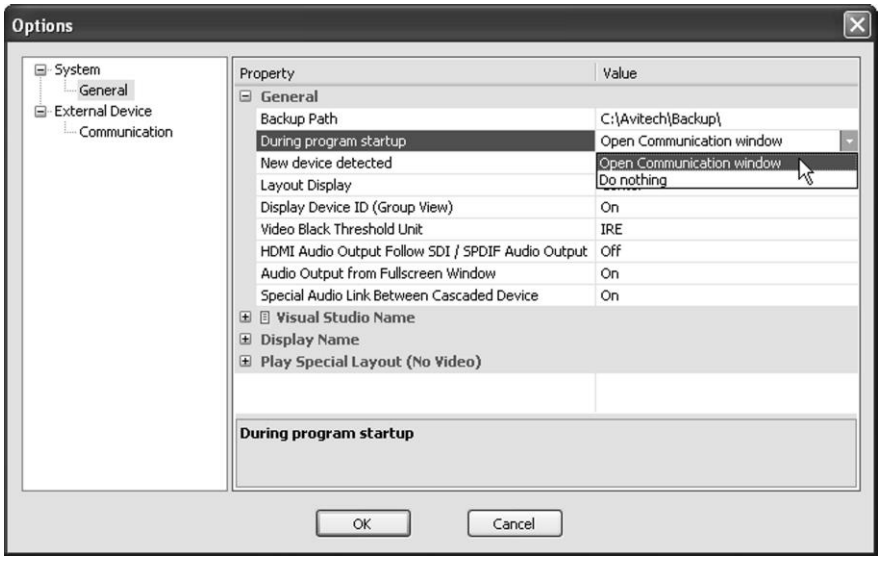


Figure 5-26 Options: "System"→"General"→"During Program Startup"

✓ ***General→New Device Detected***

Click the drop-down button (click the cell's rightmost portion) to select ***Open Group Setup window*** *that allows the Phoenix-Q program to automatically open the* ***Group Setup*** *window when a new device has been detected.*

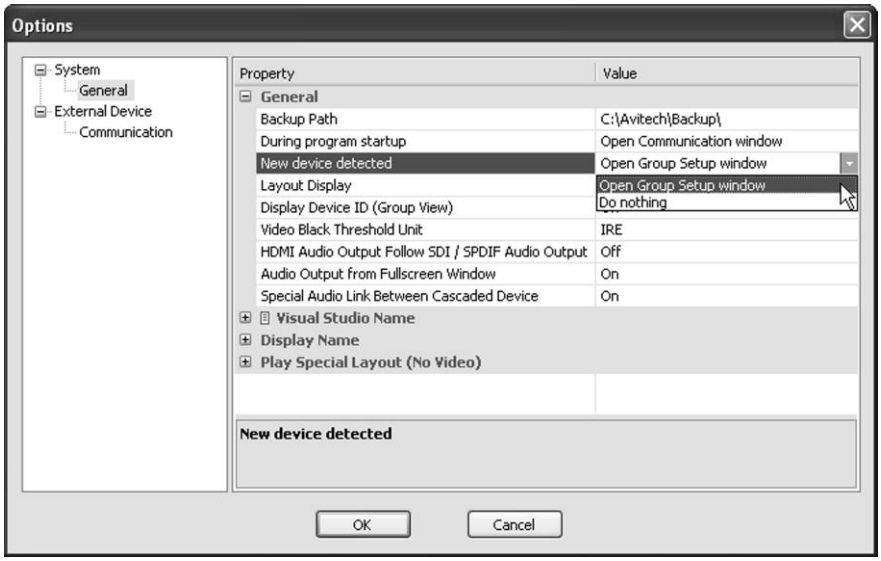


Figure 5-27 Options: "System"→"General"→"New Device Detected"

To prevent error when detecting the new device it is highly recommended the new device to return to its default setting before connecting it to the present setup.

✓ ***General→Layout Display***

Click the drop-down button (click the cell's rightmost portion) to select ***Center*** *or* ***Upper left corner*** *that allows the preview window to be displayed in the center or upper left corner.*

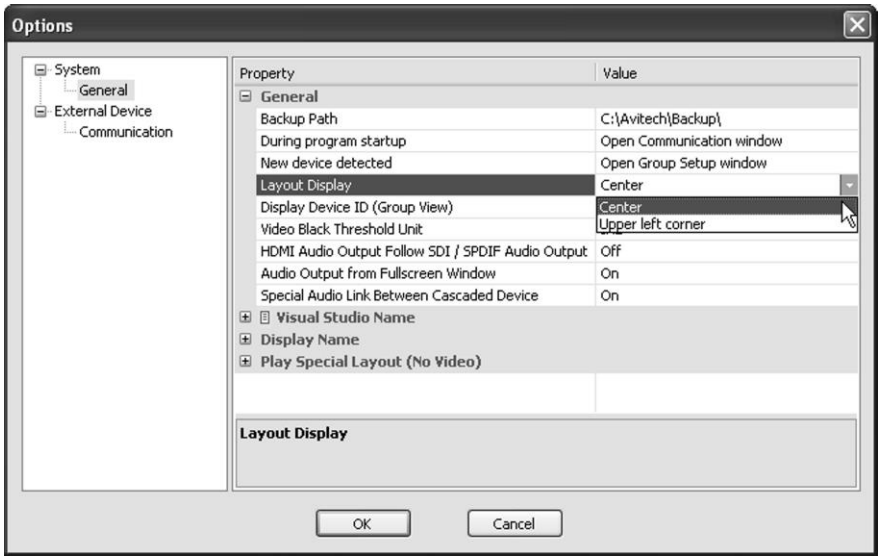


Figure 5-28 Options: "System"→"General"→"Layout Display"

✓ ***General→Display Device ID (Group View)***

*To display the device ID information in the **Group View** panel, make sure **Display Device ID (Group View)** is enabled (set **On**). Click the drop-down button [click the **Display Device ID (Group View)** cell's rightmost portion] to select **On**.*

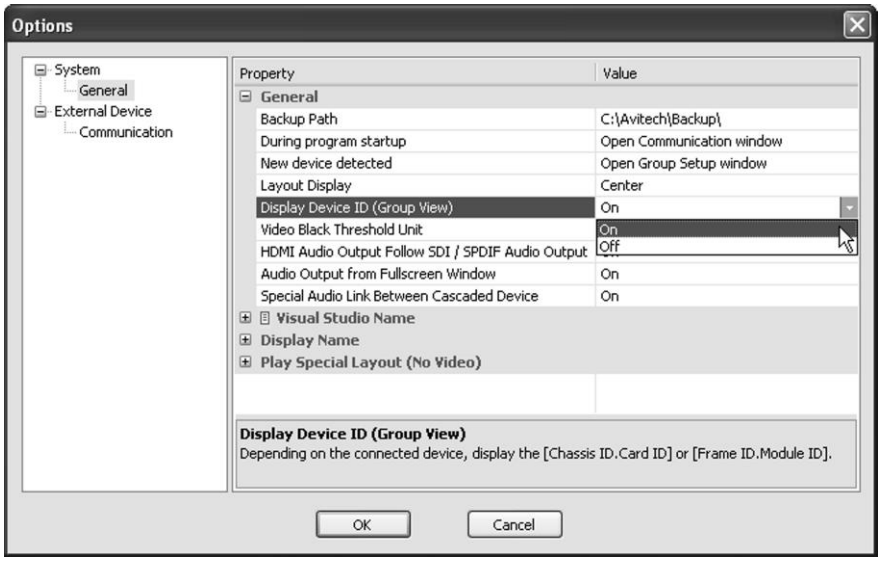


Figure 5-29 Options: "System"→"General"→"Display Device ID (Group View)"

✓ ***General→Video Black Threshold Unit***

*Set the level (in **IRE** or **mV**) below which the signal will be considered to be black. Click the drop-down button [click the **Video Black Threshold Unit** cell's rightmost portion] to select **IRE** or **mV**.*

***IRE** is a unit used in the measurement of composite video signals. Its name is derived from the initials of the Institute of Radio Engineers. While **mV** stands for millivolt.*

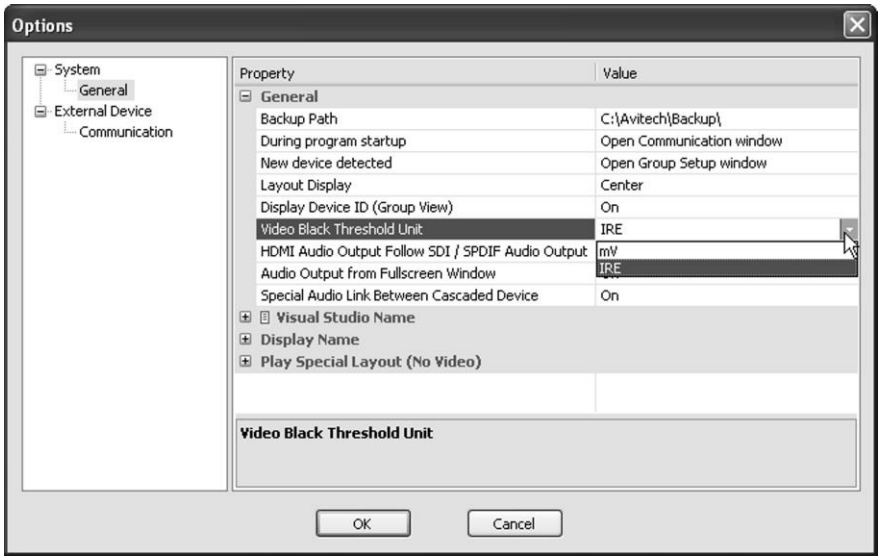


Figure 5-30 Options: "System"→"General"→"Video Black Threshold Unit"

✓ ***General→HDMI Audio Output Follow SDI / SPDIF Audio Output***
*To allow the HDMI audio output to have the same audio output as SDI (**Properties** portion – **Card Parameters→Headphone (Local)→Source**), make sure **HDMI Audio Output Follow SDI / SPDIF Audio Output** is enabled (set **On**). Click the drop-down button [click the **HDMI Audio Output Follow SDI / SPDIF Audio Output** cell's rightmost portion] to select **On**.*

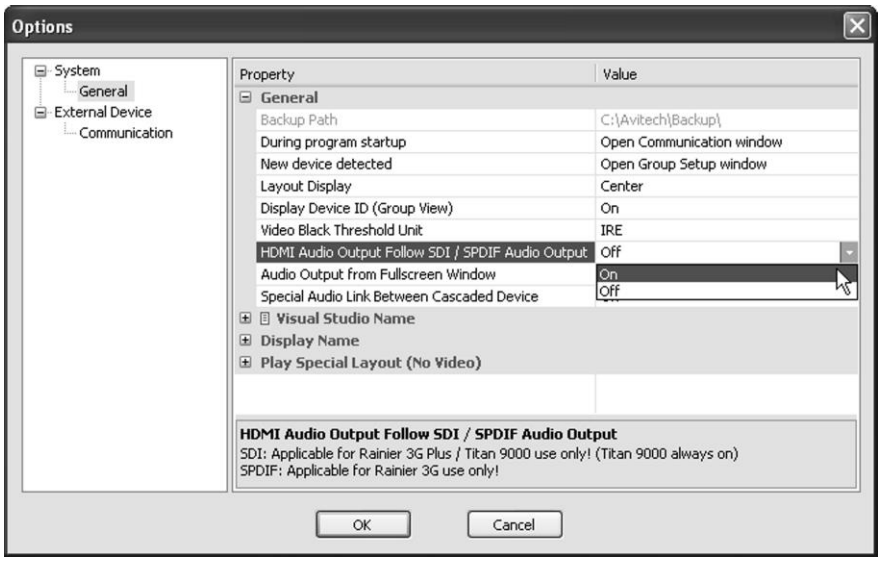


Figure 5-31 Options: "System"→"General"→"HDMI Audio Output Follow SDI / SPDIF Audio Output"

*Upon selecting **On** the following reminder appears.*

Figure 5-32 Reminder Upon Enabling "HDMI Audio Output Follow SDI / SPDIF Audio Output"

✓ ***General→Audio Output From Full Screen Window***
*To allow audio output to switch to the window that just entered full screen mode, make sure **Audio Output From Full Screen Window** is enabled (set **On**). Click the drop-down button [click the **Audio Output From Full Screen Window** cell's rightmost portion] to select **On**.*

Audio output will return to the previous window source upon exiting from full screen mode.

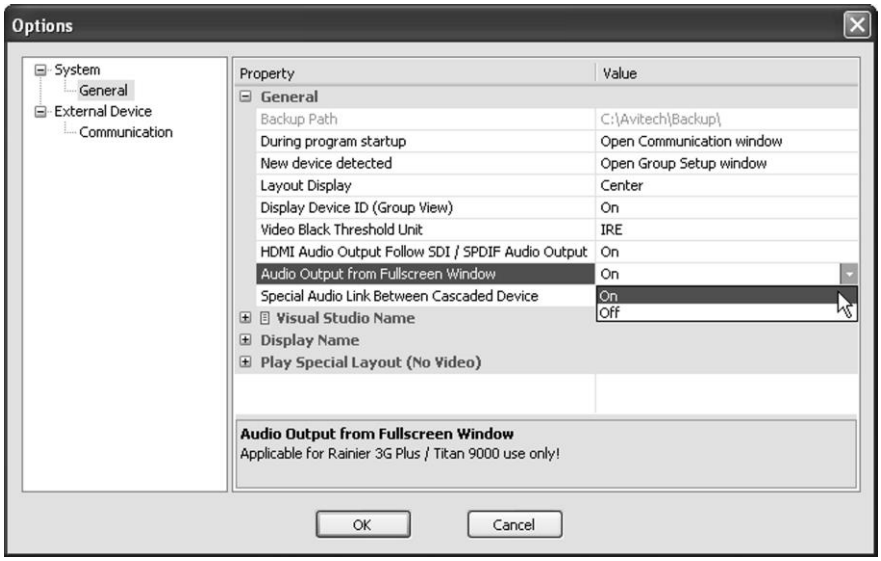


Figure 5-33 Options: "System"→"General"→"Audio Output From Full Screen Window"

Not applicable when Titan 9000 is cascaded with Rainier 3G.

✓ ***General→Special Audio Link Between Cascaded Device***
*To allow the audio signal to pass through between cascaded Titan 9000 and Rainier 3G (both device must belong to the same group), make sure **Special Audio Link Between Cascaded Device** is enabled (set **On**). Click the drop-down button [click the **Special Audio Link Between Cascaded Device** cell's rightmost portion] to select **On**.*

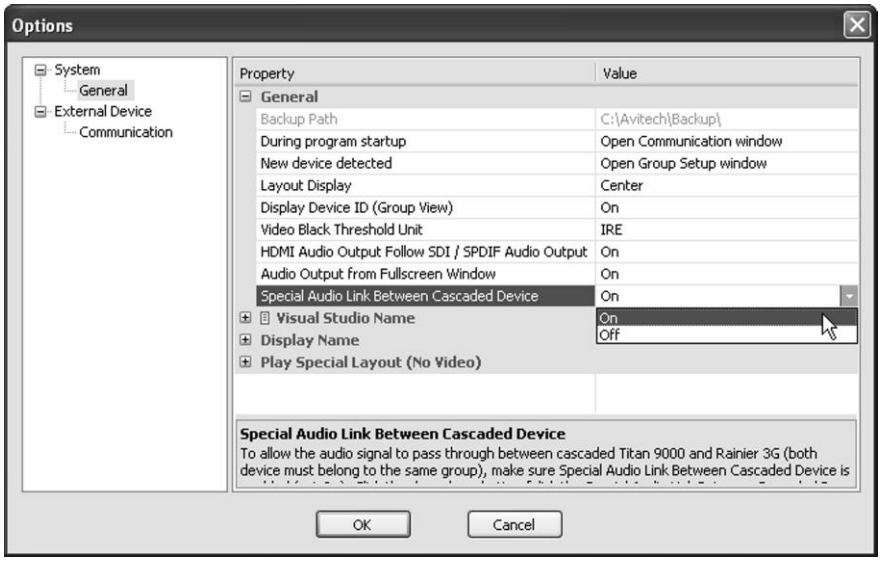


Figure 5-34 Options: "System"→"General"→"Special Audio Link between Cascaded Device"

✓ ***General→Visual Studio Name***
Type the Visual Studio group's new name (up to 30 characters).

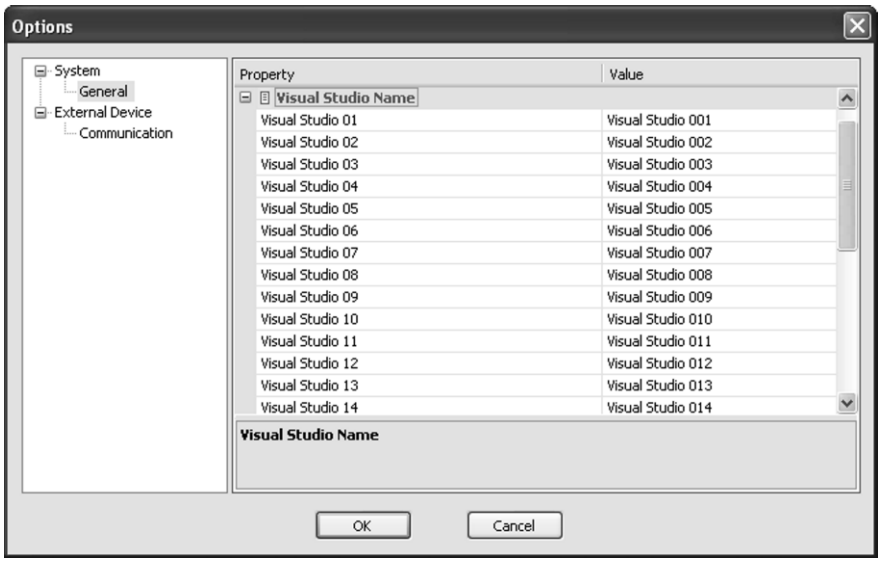


Figure 5-35 Options: "System"→"General"→"Visual Studio Name"

✓ ***General→Display Name→Type***
*To change the group's displayed name, select **Custom**. Click the drop-down button [click the **Type** cell's rightmost portion] to select **Custom**.*

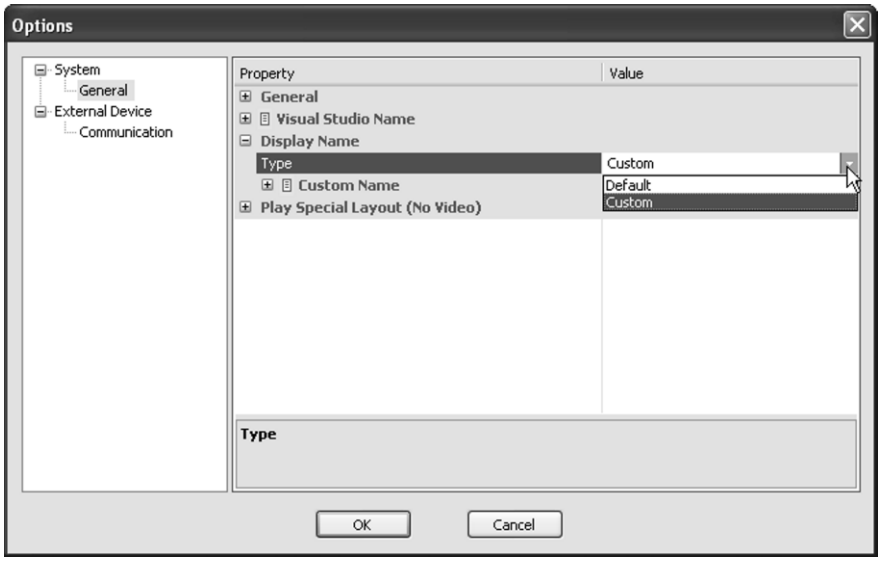


Figure 5-36 Options: "System"→"General"→"Type"

✓ ***General→Display Name→Custom Name***
Type the group's new name (up to 30 characters).

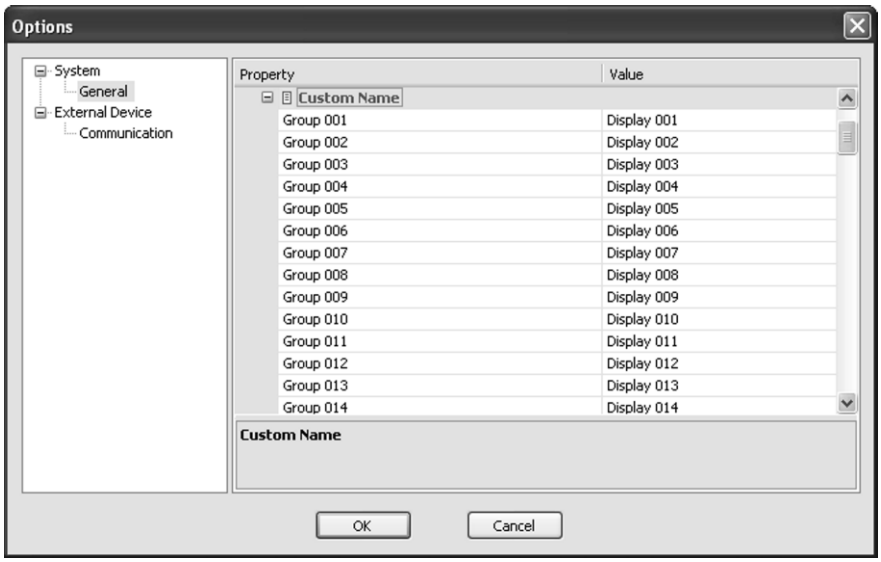


Figure 5-37 Options: "System"→"General"→"Custom Name"

✓ ***Play Special Layout (No Video)***
*Make sure that **Play Special Layout** when **No Video** occurs is **Enable**d (set **On**). Click the drop-down button (click the **Display Type** cell's rightmost portion) to select **Quad** or **Full screen**.*

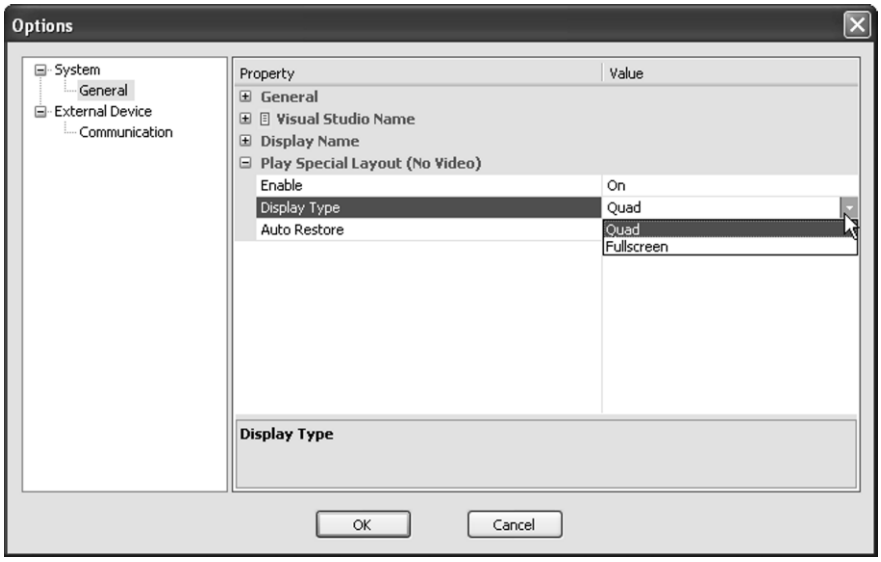


Figure 5-38 Options: "System"→"Play Special Layout (No Video)"→"Display Type"

Display Type*: *Quad/Full screen
The following sample scenarios may occur:

Sample scenario 1 – a single window loses video signal
Regardless of the present monitor's window layout, the quad/full screen layout would be displayed and the single window without video signal would occupy the top-left position/full screen to warn user that the particular window has no video signal.

Sample scenario 2 – three windows lose video signal
Regardless of the present monitor's window layout, the quad layout would be displayed and the three windows without video signal would occupy the top-left, top-right, and bottom-left positions to warn the user that the three windows have lost video signal.
Or, the last detected missing video signal of the three windows would occupy the full screen to warn the user.

Auto Restore
The following sample scenarios may occur:

Sample scenario 1 – a single window loses video signal
*Allows the window layout to revert back to where it was before signal loss occurred. Click the drop-down button (click the **Auto Restore** cell's rightmost portion) to select **On**. When **Auto Restore** is disabled (set **Off**) then right-click the window and select **Close** to allow the window layout to revert back to where it was before signal loss occurred.*

Sample scenario 2 – window #2 has regained video signal out of the three windows that lost video signal
*Allows window #2 that has regained video signal to be removed from the screen. Click the drop-down button (click the **Auto Restore** cell's rightmost portion) to select **On**. When **Auto Restore** is disabled (set **Off**) then right-click the window and select **Close** to allow the window layout to revert back to what it was before signal loss occurred. For **Quad Display Type** (previous item) then window #3 would occupy the place vacated by window #2. Or, for **Full screen Display Type**, then the second-to-the-last window that lost video signal would occupy the whole screen.*

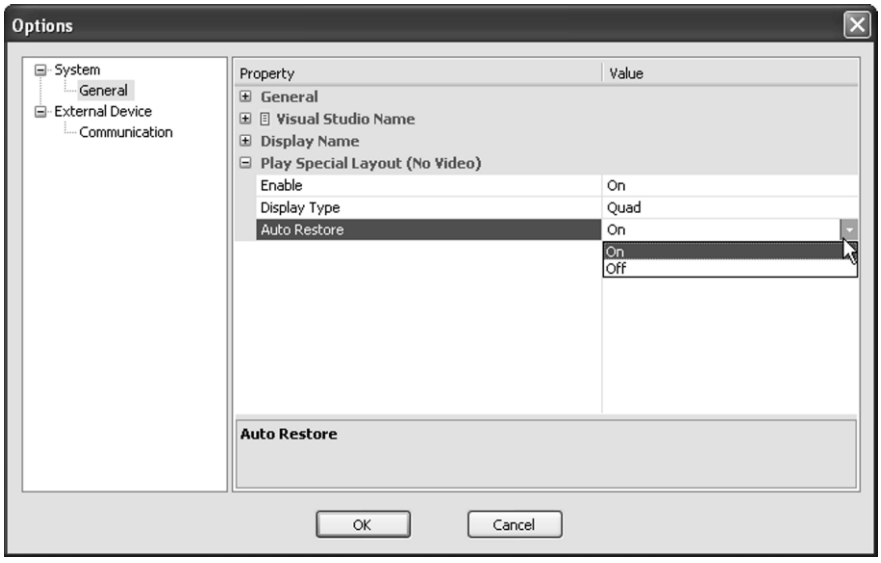


Figure 5-39 Options: "System"→"Play Special Layout (No Video)"→"Auto Restore"

✓ ***External Device→Device Enable***

*To allow the Phoenix-Q software to get the UMD (under monitor display) data from the router (when necessary) click **External Device** and make sure that **Device Enable** is set **On**.*

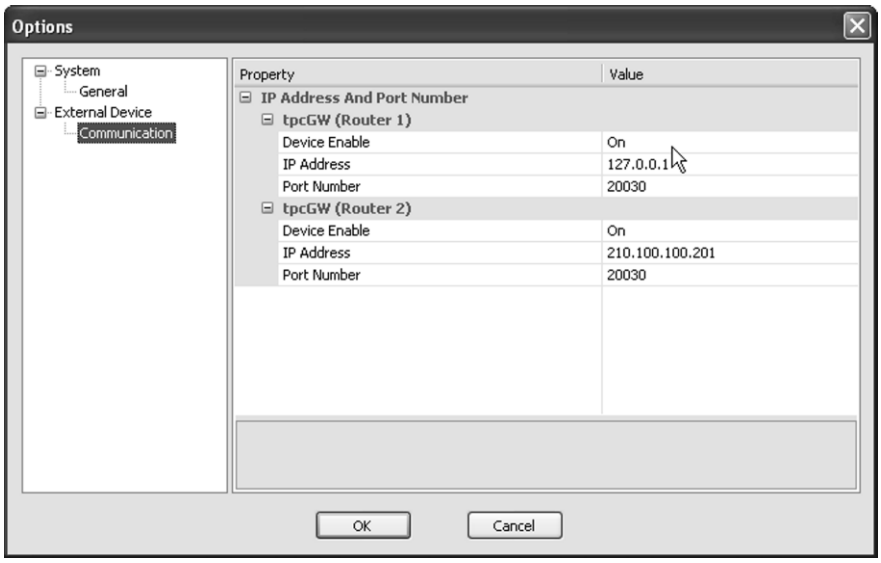


Figure 5-40 Options: "External Device"→"Communication"→"Device Enable"

✓ ***External Device→IP Address***

*Make sure that the **IP Address** corresponds to the IP address of the computer running the tpcGW utility. If not, click the IP Address button "…" and when the **IP Address** screen appears, enter the correct value. Then click **OK** to exit.*

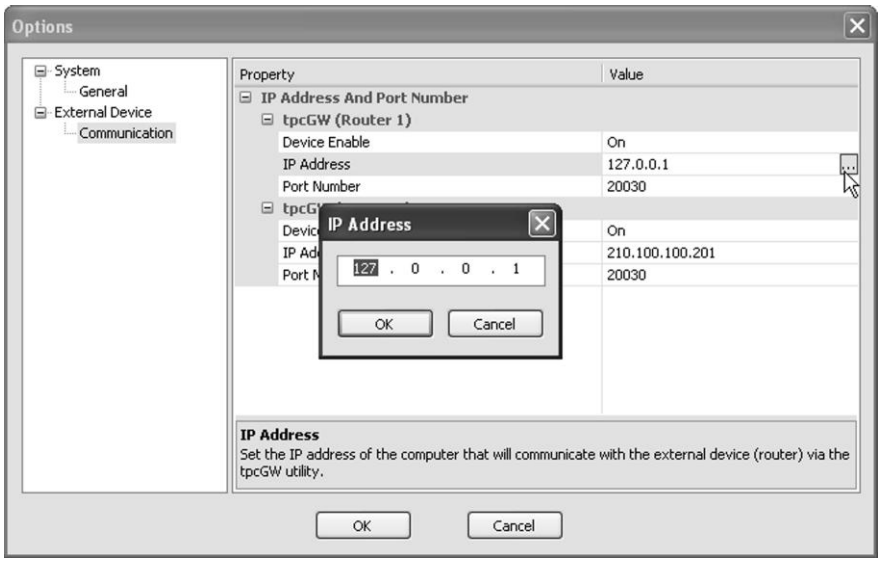


Figure 5-41 Options: "External Device"→"Communication"→"IP Address"

✓ ***External Device→Port Number***
*Make sure that the **Port Number** shown is correct. If not, enter the value directly or click the up/ down arrow button. Then click **OK** to exit the **Options** screen setup.*

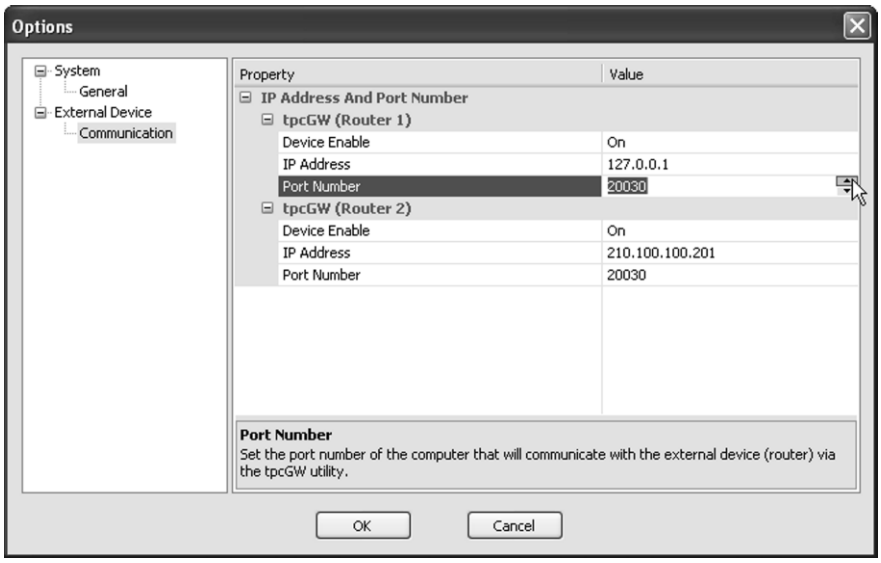


Figure 5-42 Options: "External Device"→"Communication"→"Port Number"

*Make sure the value appearing for both **IP Address** and **Port Number** must be similar to the value entered in the tpcGW utility to be able to successfully connect to the router.*

5.5 Help Menu

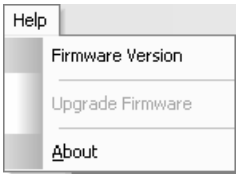


Figure 5-43 Phoenix-Q Software: Help Menu

Help Menu	
Firmware Version	Click to export as a .txt file.
Upgrade Firmware	Click **Upgrade Firmware** to bring the device's firmware up-to-date (see "Firmware Upgrade Reference Guide" for details).
About	Click **About** to see a pop-up window which displays information about the Phoenix-Q software. i.e., version number.

Table 5-4 Phoenix-Q Software: Help Menu Description

Firmware Version

*Step 1. Click **Firmware Version**.*

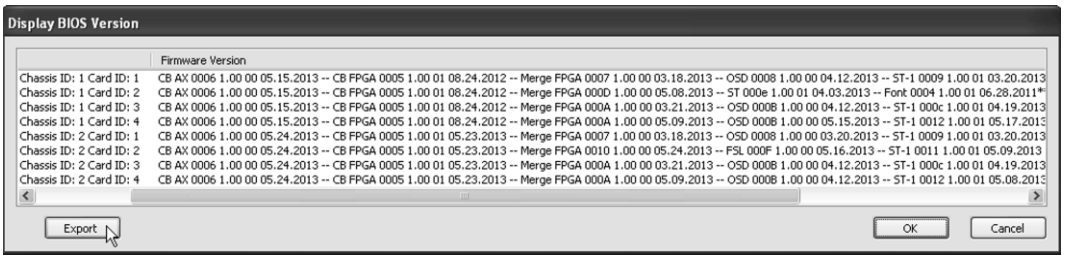


Figure 5-44 Phoenix-Q Software: Firmware Version

*Step 2. Click **Export**.*

*Step 3. Assign a filename and click **Save** to store the data.*

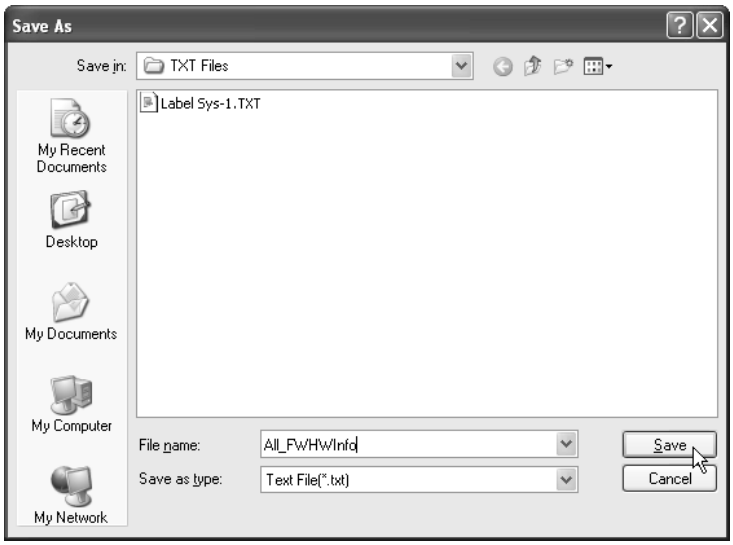


Figure 5-45 Phoenix-Q Software: Save Firmware Version Information

Upgrade Firmware: *Click **Upgrade Firmware** to bring the device's firmware up-to-date (see "Firmware Upgrade Reference Guide for Titan 9000" for details).*

Click "System"→"Disconnect" first before firmware upgrade.

About: *Click **About** to see a pop-up box showing the Phoenix-Q software information.*

Figure 5-46 Phoenix-Q Software: Version Information

5.6 Briefing

This function allows you to cycle between presets for a slideshow effect.

*Step 1. Right-click the title bar and when the menu appears, click **Add**.*

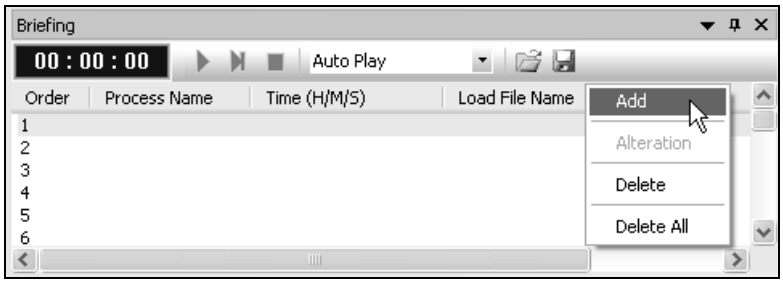


Figure 5-47 Briefing: Click “Add”

*Step 2. Enter the **Process name**, specify the **Time (H : M : S)**, then select the previously saved preset **File**. Click **OK** to continue. Continue adding new processes as necessary.*

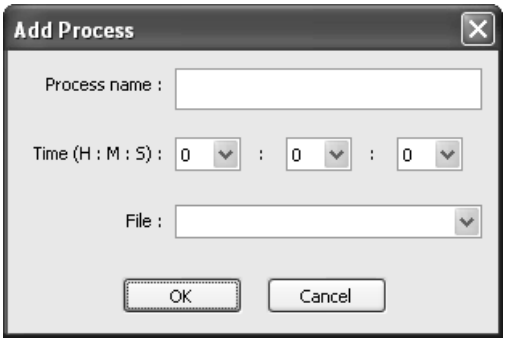


Figure 5-48 Phoenix-Q Software: “Add Process” Window

*Step 3. On the drop-down menu you can select **Auto Play**, **Auto Play (Repeat)**, **Manual**, or **Manual (Repeat)**. Click play ▶ to start viewing the slideshow.*

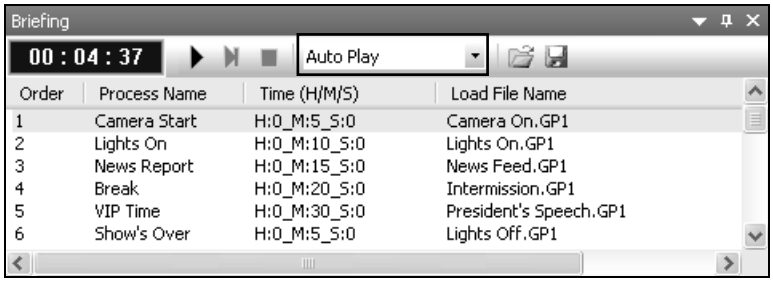


Figure 5-49 Briefing: Select Type of Playback

6. Setting the Group/Card Properties

To set the properties of the Titan 9000, click to select the Card on the **Group View** window (left panel) and the **Properties** window (right panel) would list the parameters available for setup.

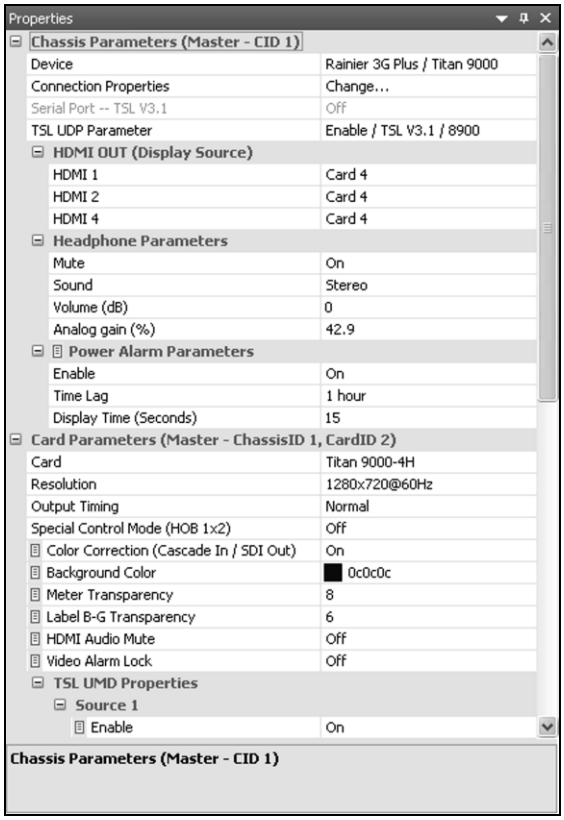
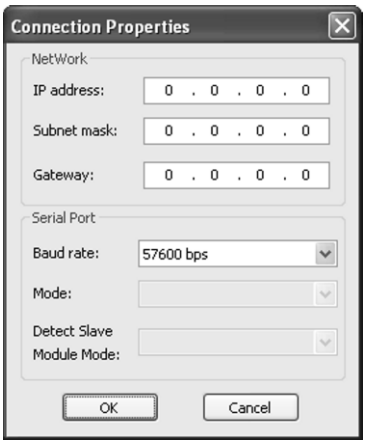


Figure 6-1 Phoenix-Q Software: Properties Window

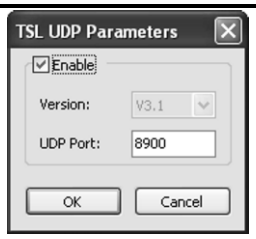
*Some of the items appearing on the **Properties** window may or may not be available for your Titan 9000.*

6.1 Titan 9000-2H2V / 4H Properties Setup

Connection Properties	
Change . . .	Set the network **Connection Properties** by entering the **IP address**, **Subnet mask**, and **Gateway**. Or, set the **Baud rate** when using the **Serial Port** to connect.  *Note: This item is available for slave chassis (cascaded) only.*

Serial Port – TSL V3.1	
On **Off**	Enable/Disable **TSL V3.1** for the configuration of the **RS-232** port with a TSL connection. *Note: **RS-232** port is **not** for connecting to a computer for configuration (Phoenix-Q utility). Likewise, it **cannot** be used for entering any Avitech ASCII commands.* When configuring, connect the (*Master* Titan 9000) to the controlling computer via an **Ethernet** connection and then connect the (*Master* Titan 9000) **RS-232** port to the **TSL router**. *Note: To implement TSL, aside from selecting "On"* ✓ *"TSL UMD Properties" must be "On" and "Display Address / Option" must be configured.* ✓ *"Label→Display Type" for the particular Window must be configured "UMD" or "D-Name/UMD"*

TSL UDP Parameter

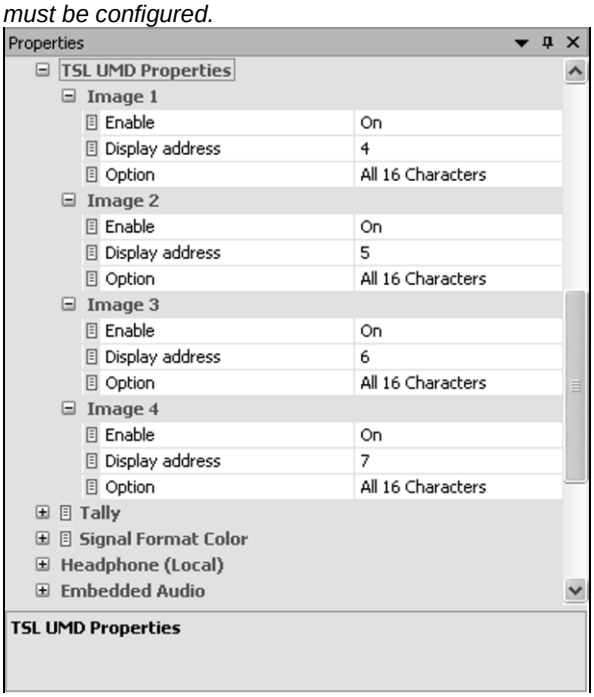


Enable/Disable **TSL V3.1** for configuration of **IP** port with TSL connection.

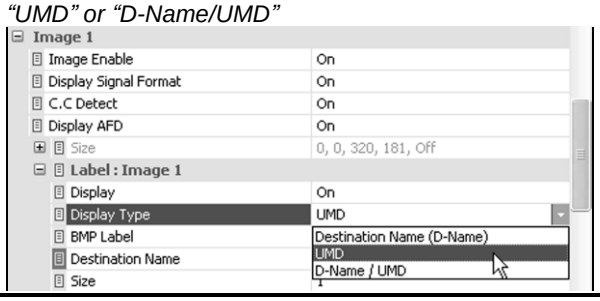
Make sure to enter the correct **UDP Port** (User Datagram Protocol) value that matches the connected router.

Note: To implement TSL, aside from selecting "Enable"

✓ *"TSL UMD Properties" must be "On" and "Display Address / Option" must be configured.*



✓ *"Label→Display Type" for the particular Window must be configured "UMD" or "D-Name/UMD"*



*When **TSL UDP Parameter** is enabled, **Serial Port – TSL V3.1** will automatically be disabled.*

HDMI OUT (Display Source)

HDMI 1/2/3/4
(Card 1/2/3/4, Cascade In)

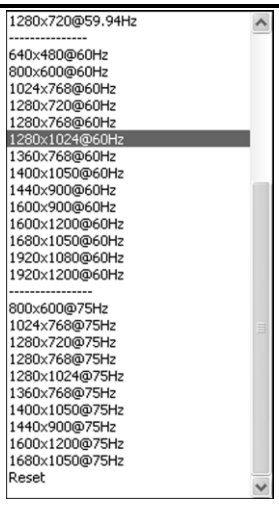
Select the display source for output to each card's **HDMI OUT** port. You can select another card's **HDMI/DVI IN** source as output to another card's **HDMI OUT** port. Or, use the source signal coming into the chassis' **CASCADE IN** port as output to a card.

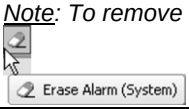
Note:
1. Only 720p and 1080p 50Hz/60Hz input source signal from another Titan 9000 is allowed when cascading (Cascade In).
2. When the Titan 9000 contains an HOB card it will automatically be removed from the list since its function is different from a 2H2V / 4H card.

HDMI OUT (Display Source)	
	A Titan 9000-HOB card must be assigned a group by itself.

Headphone Parameters	
Mute (On / Off)	Turn off the audio output coming from the headphone connected to audio output port.
Sound Stereo Mono Left Mono Right	Select whether audio output is one-sided or coming from both sides of the headphone.
Volume (dB) (–64 up to 12)	Set the volume level of audio output from headphone.
Analog gain (%) (0.0, 14.6, 28.6, 42.9, 57.1, 71.4, 85.7, 100.0)	Adjust the proper volume level (previous item) and proper audio analog amplifier's gain (this item) to achieve the best SNR (signal-to-noise ratio). Signal-to-noise ratio is a measure used in comparing the level of a desired signal to the level of background noise.

Power Alarm Parameters	
Enable (On / Off)	Turn on the power alarm feature that is triggered when either one of the power from redundant power source is cut-off.
Time Lag (Always on, 1 5, 10, 30 minutes, 1, 2, 6, 12, 24 hours)	Set the time interval between cut-off of one of redundant power source and when power alarm is shown on screen.
Display Time (Seconds) (1 to 120)	Set the length of time that power alarm remains on screen.

Card Parameters	
Resolution Set the display resolution	 *Note: Make sure that the resolution of the input source is the same as the resolution of the **HDMI OUT** port for video output to the monitor.* *Only 720p and 1080p 50Hz/60Hz output resolution is available when cascading.*
Output Timing Normal VESA	**Normal** output timing is designed for some brands of monitor that do not support the **VESA** standard.
Special Control Mode (HOB 1×2)	Allows the proportional display of Titan 9000-HOB 1×2 wall display windows in the “Visual Studio” tab.

Card Parameters	
Color Correction (Cascade In / SDI Out) (On / Off)	Turn on or off the encoder (signal in/out stage) to completely fix any color anomaly that may appear on color edge.
Background Color	 Set the card's background color.
Meter Transparency (1 up to 8)	Use the slider to set the transparency (default is 8, no transparency) of the meter appearing on screen.
Label B-G Transparency (1 up to 8)	Use the slider to set the background transparency level (default is 8, no transparency) of the label appearing on screen.
HDMI Audio Mute (On / Off)	Turn on or off HDMI signal's embedded audio output. (supports linear pulse-code modulation only)
Video Alarm Lock (On / Off)	Turning on video alarm lock allows the alarm during occurrence of "NO VIDEO / VIDEO BLACK / VIDEO FREEZE" to remain on screen even after video image signal has resumed streaming from the input source. This feature is most useful when the operator is away and wants to keep track of occurrence of "no video / video black / video freeze." *Note:* *1. To remove "NO VIDEO" text on screen click "Erase Alarm" button.*  *2. VIDEO BLACK / VIDEO FREEZE only appears for Rainier 3G Plus – (1 card).*
Audio Alarm Lock (On / Off)	Turning on audio alarm lock allows the alarm during occurrence of "NO AUDIO / OUT OF PHASE" to remain on screen even after audio signal has resumed streaming from the input source. This feature is most useful when the operator is away and wants to keep track of occurrence of "no audio / out of phase." *Note: To remove "NO AUDIO" text on screen click "Erase Alarm" button.* 

TSL UMD Properties	(Image 1/2/3/4)
Enable (On / Off)	Allow the UMD (under monitor display) to be shown.
Display Address (0 up to 126)	Select the display address. The address should match the TSL controller's configured address connected to the router output feeding the corresponding Avitech input. Upon right-clicking **Display Address** and clicking **Quick Setting**, set the starting and ending number (**0**-**126**) to be displayed for each four sources (e.g., Set **100** as the **Start Number** for **Image 1** and set **126** as the **End Number**. Then **100** would be shown as the **Display Address** for **Image 1**, **101** for **Image 2**, and so forth.)
Option First 8 Characters All 16 Characters	Select to display 8 or 16 dynamic characters (if the TSL implementation allows it).

Tally	
Enable (On / Off)	Enable tally for a window or all the windows in a group.
Flash (On / Off)	Enable flashing tally for a window or all the windows in a group.

Tally	
Tally1/2/3 Color (LED1/2/3)	 Select tally color of your preference. Click **Others** for more color choices (**Standard** tab) or customize the color (**Custom** tab) by setting the **Hue**/ **Saturation**/**Luminance** as well as the **Red**/**Green**/**Blue** values.
Event	*Submenu of Tally 1 / 2 / 3. (Serial Event)*
LED 1/2/3 (On / Off)	Turn on or off the LED in case a serial event occurs.
Label (On / Off)	Turn on or off the label in case a serial event occurs. *Note: Tally 1/2/3 can trigger either Label or Border, but there is only one border or label. If tally 1/2/3 are triggered simultaneously, the display priority will be tally 1, tally 2, and then tally 3.*
Border (On / Off)	Turn on or off the border in case a serial event occurs.

Signal Format Color	
Font Color	 Select the font color on the signal of your preference. Click **Others** for more color choices (**Standard** tab) or customize the color (**Custom** tab) by setting the **Hue**/**Saturation**/**Luminance** as well as the **Red**/**Green**/ **Blue** values.
B-G Color	 Select the background color on the signal of your preference. Click **Others** for more color choices (**Standard** tab) or customize the color (**Custom** tab) by setting the **Hue**/**Saturation**/**Luminance** as well as the **Red**/**Green**/**Blue** values.

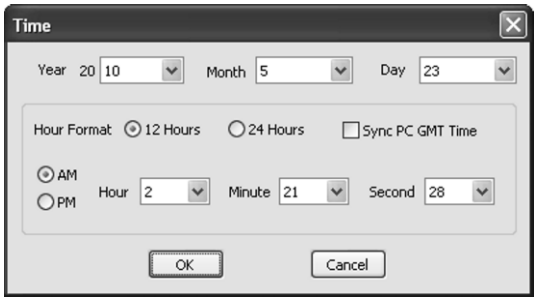
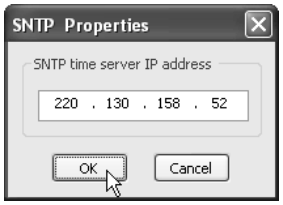
Headphone (Local)	
Enable (On / Off)	Allow audio output from headphone connected to audio output connector.
Source	Select the source of the audio signal to be played on headphones. Window 1/2/3/4 embedded audio, or pass through embedded audio. (supports linear pulse-code modulation only)
Channel	Select the source of audio signal to be played on headphone. (**Primary**/**Secondary Group CH1**/**CH2** / **CH3**/**CH4**)
Audio delay (0 to 2700 millisecond)	Allows adjustment of headphone audio output to optimize the relative timing of the audio and video signals on the monitor wall display. Use the slider to adjust the audio monitoring delay until the headphone audio output and video are well synchronized on the monitor wall display. *Note: By design, audio signal is approximately 10.6 ms ahead of video.*

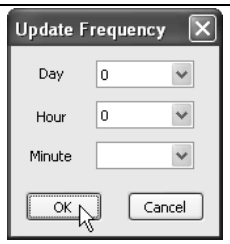
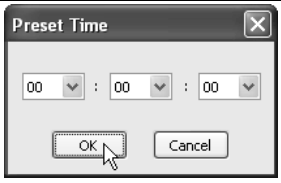
Embedded Audio	
SDI Out Type	(**Pass through** embedded audio, or **Local**) *Note: Refer to Appendix C for details on when item is available for setup.*
HDMI Out Type	Select the source of embedded audio signal that will be outputted through **HDMI OUT** port; whether **Local** (from the card's **HDMI IN** port) or **Pass through embedded audio** (from cascaded signal source) *Note: Refer to Appendix C for details on when item is available for setup.*

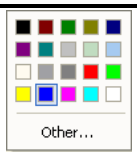
Embedded Audio	
Source	Select the source of embedded audio signal; from each window's **HDMI IN** port. (Window 1/2/3/4 embedded audio)
Primary Group	Assign the primary embedded audio group to belong to group 1/2/3/4.
Secondary Group	Assign the secondary embedded audio group to belong to group 1/2/3/4.

User Logo	
Enable (On / Off)	Allow the display of user logo.
Display Foreground Background	Set the user logo to be a part of the image in the window (display in foreground) or to appear as a background on the image window.
Hide – **Full screen mode** (On / Off)	Allow the display of user logo during full screen mode. *Note: This item is only available when you select **Foreground** in the previous item **Display**.*
Picture Upload	Click the cell's rightmost portion "open" button [...] to select bitmap file to upload as user logo (e.g., 1920×1200 image would take approximately 180 seconds or more depending on the system's resource allocation). *Note: To fill the entire screen of monitor, the size (pixel) of the user logo picture must be the same as the monitor resolution. In case the size of the file is larger than the card's output resolution (see **Card Parameters→ Resolution**) the system will automatically detect and prevent it from displaying as your user logo picture.*
Position	
X **Y**	Specify the location of the screen logo appearing on screen by setting the X and Y coordinates.

Clock	
Enable (On / Off)	Allow the display of clock on screen.
Border Enable (On / Off)	Allow the display of border on digital clock.
Hide – **Full screen mode** (On / Off)	Allow the display of clock during full screen mode.
Clock Font Color	 Set color of the font appearing on the clock. Click **Others** for more color choices (**Standard** tab) or customize the color (**Custom** tab) by setting the **Hue**/**Saturation**/**Luminance** as well as the **Red**/**Green**/**Blue** values.
Clock Background Color	 Set background color appearing on the clock. Click **Others** for more color choices (**Standard** tab) or customize the color (**Custom** tab) by setting the **Hue**/**Saturation**/**Luminance** as well as the **Red**/**Green**/**Blue** values.
Clock Background Transparency (0 to 8)	Set the background transparency level of the clock. **0** signifies total transparency.
Size	
X **Y**	Specify the location of the clock appearing on screen by setting the X and Y coordinates.
Width **Height**	Specify the size of the clock appearing on screen by setting the **Width** and **Height** values.

Time	
Source RTC SNTP LTC Counter Sync to Master	Activate Time Code feature by selecting **RTC**, **LTC** or **Counter**. You can also synchronize the clock of the Master card by selecting **Sync to Master**. The **SNTP** Time Code feature allows the card to synchronize the clock with an external SNTP time server. The **IP** port on the rear of the chassis can control, as well as receive, Time Code information simultaneously.
RTC Properties Change . . .	Set the time appearing on the real time clock.  *Note: This item is only available when you select **RTC** in **Source**.*
SNTP Properties Change . . .	Set the **SNTP time server IP address** for synchronizing the clock with an external SNTP time server.  *Note: This item is only available when you select **SNTP** in **Source**.*
Pause (On / Off)	Allows you to pause/resume the time count. *Note: This item is only available when you select **Counter** in **Source**.*
Count (Up / Down)	Select the counting method: **Up** (forward) or **Down** (reverse). *Note: This item is only available when you select **Counter** in **Source**.*
Reset Counter	Allows you to reset the counter. *Note: This item is only available when you select **Counter** in **Source**.*
Format 12-hour 24-hour	Select the clock display format. *Note: This item is not available when you select **Counter** in **Source**.*
Display Frame (On / Off)	Enable the video's frame per second (fps) value to be shown on screen. *Note: This item is only available when you select **LTC** in **Source**.*
Daylight Saving Time (On / Off)	Enable the Daylight Saving Time function. *Note: This item is not available when you select **Counter** in **Source**.*

Clock	
Time Zone	Specify the desired time zone shown on a particular monitor.  *Note: This item is not available when you select **Counter** in **Source**.*
Broadcast Sync Time (On / Off)	Allows card to synchronize the clock with an external SNTP time server. *Note: This item is only available when you select **SNTP** in **Source**.*
Sync Time (Day:Hour:Minute)	 Set the frequency of update. *Note: This item is only available when you select **SNTP** in **Source**.*
Preset Time	
Select Index (For Counter)	Select which index preset time to use. (**1**/**2**/**3**/**4**/**5**/**6**/**7**/**8**) *Note: This item is only available when you select **Counter** in **Source**.*
Index 1/2/3/4/5/6/7/8 Change . . .	 Set the preset time displayed for each input source. *Note: This item is only available when you select **Counter** in **Source**.*
Label:Clock	
Display (On / Off)	Allow the display of the clock's label (default label is "Clock").
BMP Label (On / Off)	Allow the display of universal fonts for the on screen clock.
Text	Change the content of label string by directly typing.
Size 1/2/3/4	Specify the clock label's size.
Label Font Color	 Specify the clock label's font color. Click **Others** for more color choices (**Standard** tab) or customize the color (**Custom** tab) by setting the **Hue**/ **Saturation**/**Luminance** as well as the **Red**/**Green**/**Blue** values.

Clock	
Label Background Color	 Specify the clock label's background color. Click **Others** for more color choices (**Standard** tab) or customize the color (**Custom** tab) by setting the **Hue**/**Saturation**/**Luminance** as well as the **Red**/**Green**/**Blue** values.

*The following table shows the **Properties** setting for each window in the Titan 9000-2H2V / 4H.*

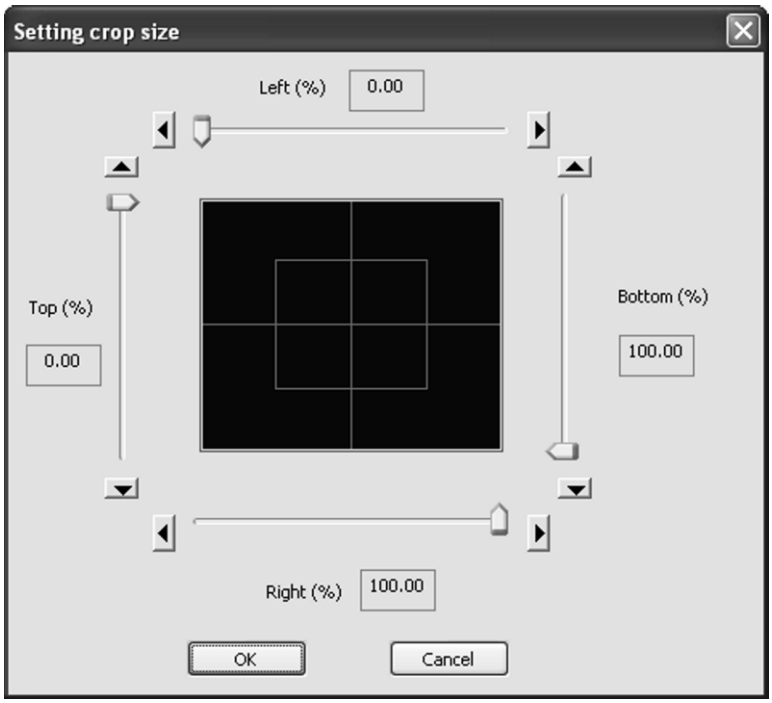
Image	
Enable (On / Off)	Show/hide selected window on monitor. Upon selecting **Off**, hidden window will appear on **Available Windows** panel (see below). To show window just drag icon into main screen (can also drag multiple windows). 
Display Signal Format (On / Off)	Allow the display of window's input signal format.
Crop Area Size (%)	Set the specific size of the crop (zoom in) image on a particular window. Freely adjust the horizontal (**L**eft and **R**ight) and vertical (**T**op and **B**ottom) markers to set the size of the cropped image. You can also click the buttons to make smaller adjustments. *Note:* *1. Any adjustments using the marker/button is shown on the monitor in real-time.* *2. This item is not available for the following conditions:* *a. when window is in full-screen mode* *b. the image has previously been cropped* *c. "Aspect Auto Detect"→"Fit Image Size" was turned on.*
Crop Image	 After setting the parameters and clicking "OK" a cropped (zoomed in) image of the former window will be created.

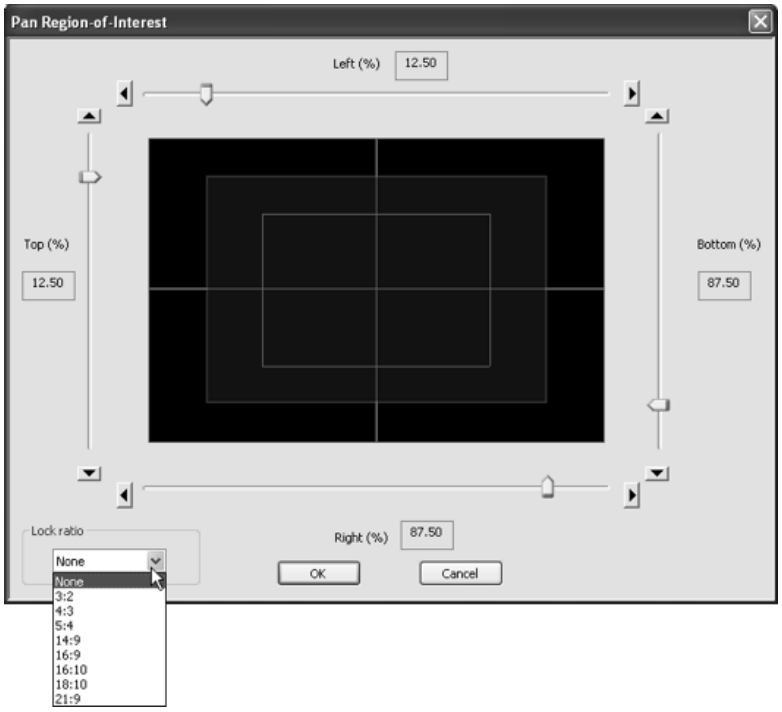
Image	
Pan Region of Interest	To pan is to move the "zoomed in" area around in the image window. Panning changes the image view in the same way that scrolling moves the image up, down, to the left, or to the right in the image window. When the entire image is not displayed you can quickly pan to see parts of the image that were previously hidden. Freely adjust the horizontal (**Left** and **Right**) and vertical (**Top** and **Bottom**) markers to set a pan region. You can also click the buttons to make smaller adjustments to the markers. Then use the mouse (drag with the symbol) to pan the cropped image window (zoomed in area). You can also set the "Lock ratio" to be fixed **3:2**, **4:3**, **5:4**, **14:9**, **16:9**, **16:10**, **18:10**, **21:9**, or **None**.  *Scenario 1: Using "Crop Image" and then "Pan Region of Interest."* Using the "Pan Region of Interest" does not affect the size or position of the cropped image window. After creating the cropped image (zoomed in area), you can still click the buttons to make smaller adjustments to the markers. Then use the mouse (drag with the symbol) to pan the cropped image window (zoomed in area). The viewing area is only limited to the cropped image (zoomed in area). Freely adjusting the horizontal (**Left** and **Right**) and vertical (**Top** and **Bottom**) markers would cause a stretching/ shrinking of original cropped image (zoomed in area). *Scenario 2: Using "Pan Region of Interest" without "Crop Image."* Freely use the horizontal (**L**eft and **R**ight) and vertical (**T**op and **B**ottom) markers to set a pan region. After creating the pan region (zoomed in area), you can still click the buttons to make smaller adjustments to the markers. Then use the mouse (drag with the symbol) to pan the image window (zoomed in area). Notice that the zoomed in area would fill up the whole window area.
Restore Image	Allows you to undo the previous cropping action and restore the image prior to cropping (1:1). Then adjust (enlarge) the window size manually by dragging on the sides/corners.

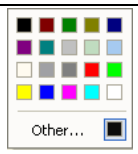
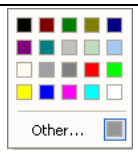
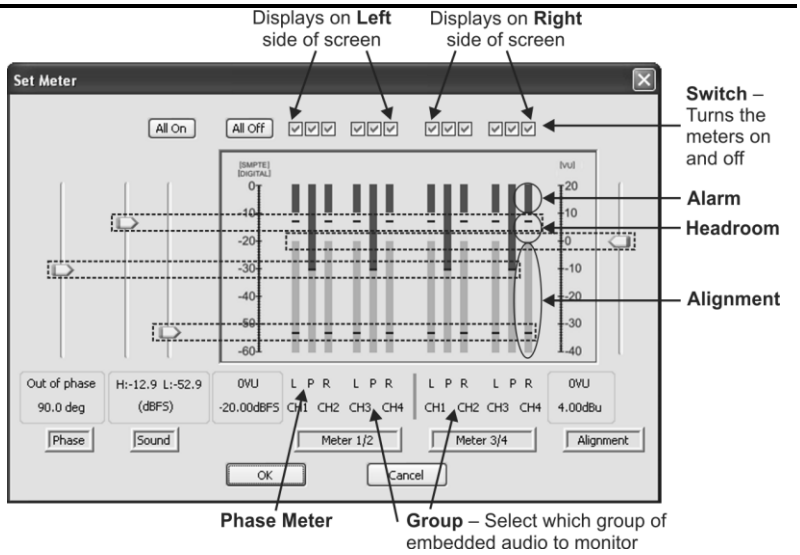
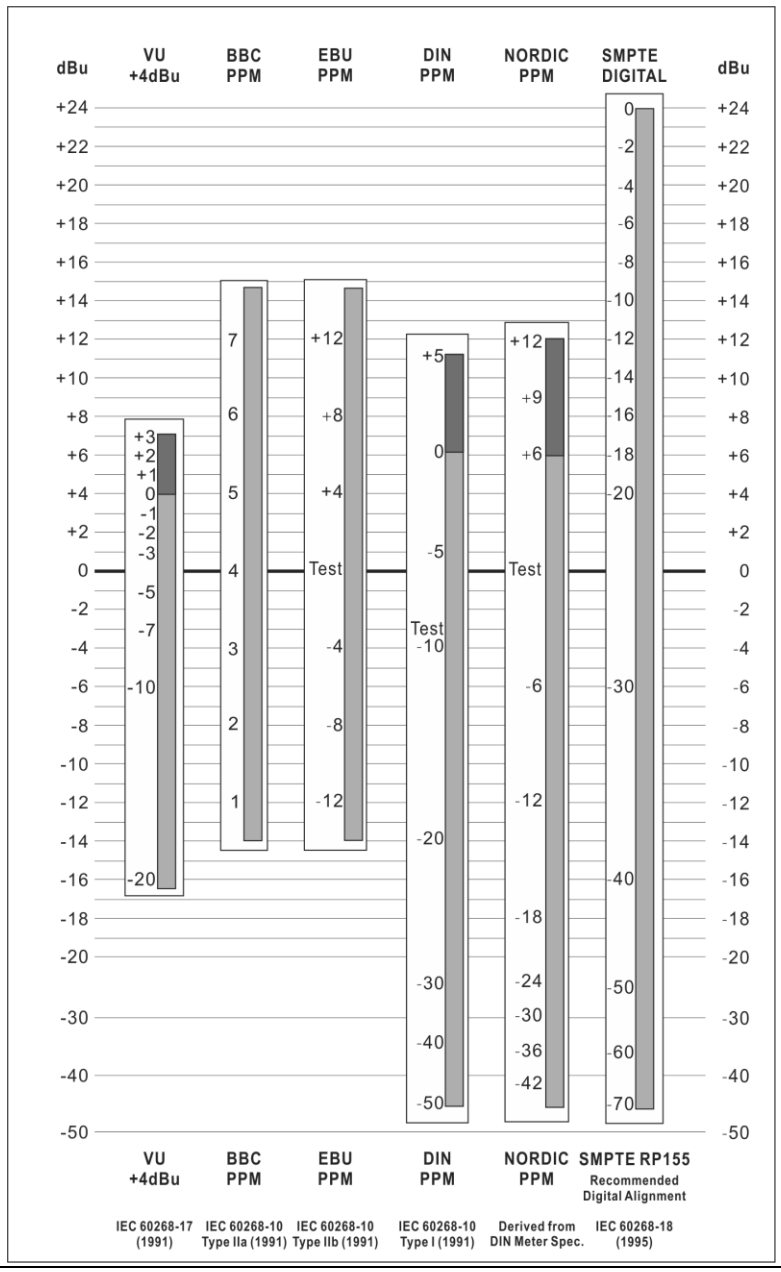
Image	
C.C Detect (On / Off)	Allow the detection of closed captioning. “NO C.C” would be displayed if detection is enabled but input signal is without closed captioning. *Note: This item only appears for Rainier 3G Plus – (1 card).*
Display AFD (On / Off)	Standard AFD (active format description) codes provide information about where in coded picture active video is and also "protected area" which is area that needs to be shown. Outside of the protected area, edges at the sides or the top can be removed without missing anything significant. The Rainier 3G Plus can then use this information, together with knowledge of the display shape and user preferences, to choose a presentation mode. *Note:* *1. Item is only available when you select **On** in **Display Signal Format**.* *2. This item only appears for Rainier 3G Plus – (1 card).*
Size	
X **Y**	Specify the location of the window appearing on screen by setting the **X** and **Y** coordinates.
Width **Height**	Specify the size of the window appearing on screen by setting the **Width** and **Height** values. You can directly input the value, use the left/right button (**Width**) and up/down button (**Height**), as well as the keyboard’s **Ctrl** + left/right arrow (**Width**) and **Ctrl** + up/down arrow (**Height**) keys. *Note: To prevent distortion on window's image (for "interlaced" input signal), make sure height of image (excluding label and border) **IS NOT** smaller than one-half of vertical active region of input source (e.g., if resolution is set at 1080i 50Hz then image’s height must not be less than 540 pixels)*
Lock Position (On / Off)	Lock or unlock the position of the window appearing on screen.
Label	
Display (On / Off)	Show the label appearing on the window. Keep in mind that each window supports one line of text.
Display Type	
Destination Name (D-Name)	Display the destination name.
UMD	Display the under monitor display.
D-Name / UMD	Display both the destination name and under monitor display.
BMP Label (On / Off)	Allow the use of universal fonts for the window’s on screen label.
Destination Name	Input the text string appearing on label of window (up to 32 characters).
Size (1/2/3/4)	Specify the window’s label size.
Font Color	 Specify the window label’s font color. Click **Others** for more color choices (**Standard** tab) or customize the color (**Custom** tab) by setting the **Hue**/**Saturation**/**Luminance** as well as the **Red**/**Green**/**Blue** values.
Background Color	 Specify the window label’s background color. Click **Others** for more color choices (**Standard** tab) or customize the color (**Custom** tab) by setting the **Hue**/**Saturation**/**Luminance** as well as the **Red**/**Green**/**Blue** values.
Fill Background (On / Off)	Allow the label background to fill the entire width of the window.
Position (Top / Bottom)	Place the label on top/bottom of the window.

Image	
Outside (On / Off)	Place the label outside the window.
Aspect Auto Detect	
Enable (On / Off)	Allow automatic detection of the input signal's aspect ratio.
Sync Type Default AFD	Upon selecting **Default**, aspect ratio will follow settings on next two items: **HD-SDI** (fixed at **16:9**) and **SD-SDI/Composite** (**4:3/16:9**). Upon selecting **AFD**, "protected area" shown on screen takes priority. *Note: This item only appears for Rainier 3G Plus – (1 card).*
Fit Image Size (On / Off)	Upon selecting **On**, the image will fit the window size.
Meter	
Meter Enable (On / Off)	Allow the audio meter for the particular window to appear on screen.

Image



Audio meter scale:



Layout and Alarm Trigger

Change . . .

Image

- ***Switch**: turn on/off any of the following meters*
  - METER1_L
  - PHASE1
  - METER1_R
  - METER2_L
  - PHASE2
  - METER2_R
  - METER3_L
  - PHASE3
  - METER3_R
  - METER4_L
  - PHASE4
  - METER4_R
- ***Group**: **Meter**'s **1** & **2** and **Meter**'s **3** & **4** can be assigned to any of 4 groups. However, (**1** & **2**) and (**3** & **4**) cannot share same **Group**.*
- ***Phase Meter**: 90 deg (default); When monitoring a stereo signal, the coherence between the 2 channels (i.e., how similar they are) greatly affects its mono compatibility. The phase meter indicate the relative phase of the 2 channels and thereby provide some measure of mono compatibility. Phase meter reading in the upper half of the scale indicate acceptable mono compatibility, whereas lower half readings warn of a potential compatibility problem.*
- ***Alignment**:*
  –20 dBFS in SMPTE digital unit or 4 dBu in VU unit (default); user adjustable; also known as the safe range.
- ***Alarm**: 0 to –9.9 dBFS (default);*
  0 to –20 dBFS depending on "alignment" setting;
  the "alarm" range is equivalent to the upper half of 0 dBFS minus previous item "alignment" setting.
- ***Headroom**: –10 to –19.9 dBFS (default);*
  –20.7 to –41.58 dBFS depending on "alignment" setting the "headroom" range is equivalent to the lower half of 0 dBFS minus "alignment" setting; also known as the headroom before alarm range is reached.

dBFS *(Decibels Relative to Full Scale)*
VU *(volume unit)*

The Titan 9000 is capable of displaying embedded audio as VU (volume unit) meters inside the video window. Embedded audio is divided into four groups (**CH1** to **CH4**), with a master (**Meter 1/2**) and secondary channel (**Meter 3/4**) for each group. This allows you to display the left and right VU meter of either the master or secondary channel on the left and right side of the window just as the menu depicts. Adjust the **Phase** (**Out of phase** slider), **VU** (one slider), **Sound** (**H**/**L** sliders). If there is no audio detected, you will NOT see any VU meters.

Audio Meters & Groups:

Along with the video signal(s), each input signal may contain up to sixteen channels (8 pairs) of embedded audio.
Typically, 48kHz, 20-bit audio; (extendable to 48kHz, 24-bit audio).

Use the **Group** setting to select which group of embedded audio to monitor. In accordance with SMPTE standards incoming audio may be embedded in up to 4 groups with each group containing 4 channels. For example; a simple stereo signal would typically use: **Ch**annels **1** & **2** which can also be thought of as **Meter 1**-**L**eft and **Meter 1**-**R**ight. The Titan 9000 is capable of displaying 8 Channels (2 Groups) at a time. **Meter**s **1/2** are always displayed on the left side of the screen and **Meter**s **3**/**4** are always displayed on the right side of the screen. However, you can associate any Group to any **set** of meters which, for instance; would allow **Group 2** to be displayed on the left side of the screen.

Recap:

Any of the 4 **Group**s can be assigned to **Meter**s **1** & **2** and any of the 4 **Group**s can be assigned to **Meter**s **3** & **4**.

*Note: Upon changing audio source entering **DVI-I/HDMI IN** port; make sure to refresh audio meters by either re-selecting "**On**" option in "**Meter Enable**" menu. Or, by physically disconnecting and then reconnecting signal cable entering **DVI-I/HDMI IN** port. Refreshing audio meters is necessary for **Meter**s **3** & **4** to display correct dynamic meter bars.*

Outside (On / Off)	Allow the location of the audio meter to be outside the video area.

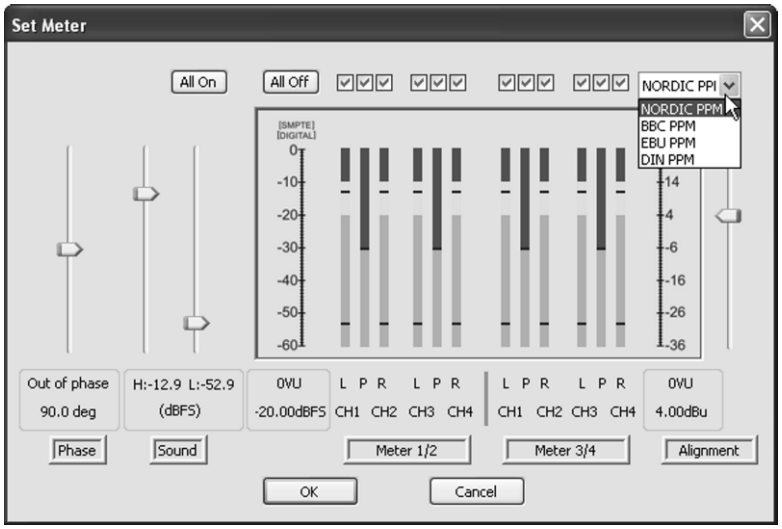
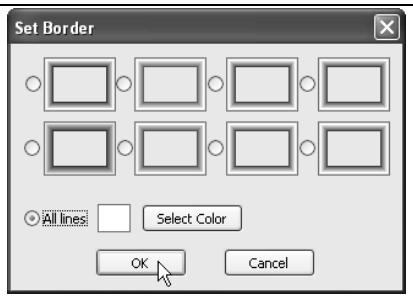
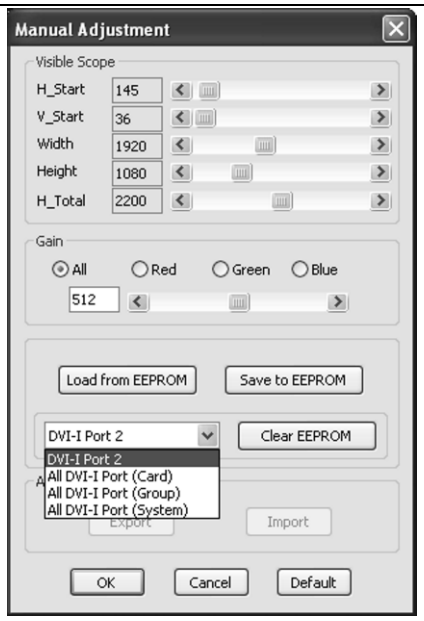
Image	
Meter 1/2 Group	Select the audio meter's group (embedded audio).
Meter 3/4 Group	*Note: These items only appears for Rainier 3G Plus – (1 card).*
Width	Select the audio meter's width. (**2** / **4** / **6** / **8** / **10** / **12** / **14**)
Vertical Offset (0 to 144)	Specify the location of the meter appearing on screen by setting the vertical coordinate.
Ballistics PPM VU	Select the meter's ballistics. Meters which monitor audio levels are typically one of two varieties: VU (Volume Unit) or PPM (Peak Program Meters). Though both perform the same function, they accomplish the function in very different manners. A VU meter displays the average volume level of an audio signal. A PPM displays the peak volume level of an audio signal. For a steady state sine wave tone, the difference between the average level (VU) and the peak level (PPM) is about 3 dB. But for a complex audio signal (speech or music), the difference between the average level (VU) and the peak level (PPM) can be 10 to 12 dB. This difference between the reading of a VU meter and a PPM is known as the crest factor. Upon selecting PPM, clicking **Layout and Alarm Trigger→Change . . .** allows you to select the type of PPM scale (**Nordic**/**BBC**/**EBU**/**DIN**).  Whereas the VU meter has fairly equal attack and release times, the PPM is characterized by having a very slow fall-back time, taking over 1.5 seconds to fall back 20dB (the specifications vary slightly for Type I and II meters). The reasoning for the slow fall-back was to reduce eye-fatigue and make the peak indication easier to assimilate. The specifications of all types of PPM are detailed in IEC 60268-10 (1991), and the scale used by the BBC comprises the numbers 1-7 in white on a black background. There are 4dB between each mark, and PPM 4 is the reference level (0dBu). EBU, DIN and Nordic variants of the PPM exist with different scales. The EBU version replaces the BBC numbers with the equivalent dBu values, while both the Nordic and DIN versions accommodate a much wider dynamic range.
Safe Area	
Enable (On / Off)	Display the safe area marker of window. *Note: Default settings are 0% and 100% thus you need to first create and save parameters using Phoenix-Q before safe area will display a result.*
Left/Right **Top/Bottom** (0 to 100)	Freely adjust the horizontal (**Left** and **Right**) and vertical (**Top** and **Bottom**) markers. *Note: This item is only available when the previous item is set **On**.*
Image Border	
Enable (On / Off)	Display the border of image.

Image	
Width (2/4/6)	Set width of the border for image.
Default Type	 **Set Other Type:** Select the type of 3D border for the image.
Color	 Change image border color as each pixel/line can have a different color. (**Line 1/2/3/4/5/6**)
Video Border	
Enable (On / Off)	Display the border of video.
Width (1 to 6)	Set width of the border for video.
Color	 Change the video border color.
Image Adjustment	
Brightness (–128 to 127)	Adjust the brightness or darkness of the input signal. This control can correct exposure problems caused by too much light (overexposure) or too little light (underexposure).
Saturation (0 to 1023)	Adjust the vividness of color of the input signal. For example, by moving the slider to the right, you can increase the vividness of a blue sky in an image. By moving the slider to the left, you can reduce the vividness of color. You can create a black-and-white image effect by moving the slider all the way to the left, so that all color in the image is removed. *Note: This item only appears for Rainier 3G Plus – (1 card).*
Contrast (0 to 1023)	Adjust the difference in tone between the dark and light areas of the input signal. Moving the slider to the right makes the light areas lighter and the dark areas darker. For example, if the image has a dull, gray tone, you can sharpen the detail by increasing the contrast.
Hue (–1024 to 1023)	Adjust the intensity of color of the input signal. *Note: This item only appears for Rainier 3G Plus – (1 card).*
Sharpness (–128 to 127)	Adjust the sharpness to increase contrast, enhance image edges, or reduce shading of the input signal.

Manual Adjustment	
	
Manual Image Setting	The Titan 9000-2H2V's DVI connector allows for VGA/YPbPr input source (a DVI to VGA / DVI to YPbPr adapter is required). If the image appears off-centered (does not completely fill the upper and left portion), this function can help correct it. This may occur when using the VGA/YPbPr input source with the same resolution but with different display card, or when using the same display card but with different resolution.
Set Parameters	Use the slider to increase the **H_Start** value. The window will start moving towards the left, the dark portion will be reduced. Continue the adjustment until the image is aligned horizontally. Use the slider to increase the **V_Start** value. The window will start moving upwards, the dark portion will be reduced. Continue the adjustment until the image is aligned vertically. *Note:* *1. This item only appears for Titan 9000-2H2V card.* *2. The values of **H_Start** plus **Width** must not exceed **H_Total**.* *3. The value of V_Total based on the values of **V_Start** plus **Height** must not exceed the value automatically computed (by the software) based on the input signal's pre-determined value for V_Total.* Change the **Gain**'s value if necessary. This function can fix the image coloring problem (intensity). Select if the adjustments are to be applied to the particular window only (**DVI-I Port 2**), **All DVI-I Port (Card)**, **All DVI-I Port (Group)**, or **All DVI-I Port (System)**. Click **Save to EEPROM** to save the new adjustments in EEPROM as the VGA/YPbPr parameters are not saved automatically. Click **Load from EEPROM** to use the saved parameters. To extract the VGA/YPbPr modes stored in EEPROM and burn-in these modes to all the new cards, click **Export**. Assign a filename and click **Save** when the next screen appears. Click **Clear EEPROM** to return to the factory-default values.
Alarm	
Enable (On / Off)	Activate the various alarm features.
Video Alarm	
Enable (On / Off)	Activate the video signal alarm feature.

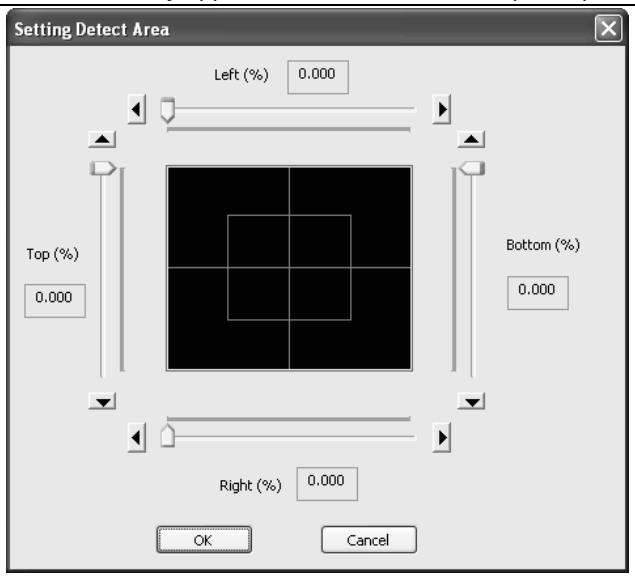
Video Black	
Enable (On / Off)	Activate the "video black" alarm feature. *Note:* *1. Analog input signal is not supported.* *2. This item only appears for Rainier 3G Plus – (1 card)*
Video Detect Area (L/T/R/B, %) Change . . .	 Freely adjust the horizontal (**L**eft and **R**ight) and vertical (**T**op and **B**ottom) markers to set the scope of area to be monitored when "no video" occurs. *Note: This item is only available when the previous item is set **On**.* *If the **Safe Area** item has been previously set, **Video Alarm** will temporarily use the mask area border to help you set **Video Alarm**.* *This item only appears for Rainier 3G Plus – (1 card).*
Threshold (mV/IRE) (0 to 140 for mV) (0 to 20 for IRE)	Set the level (IRE/mV) of the "detect area" below which the signal will be considered to be black. *Note:* *1. This item only appears for Rainier 3G Plus – (1 card).* *2. IRE/mV unit will depend on your choice in "System"→ "Option"→ "General"→ "Video black threshold unit".*
Set Duration (1 to 255 seconds)	Set the time interval to wait before triggering an alarm once the criteria (video detect area and threshold) for "video black" has been detected. *Note: This item only appears for Rainier 3G Plus – (1 card).*
Video Freeze	
Enable (On / Off)	Activate the "video freeze" alarm feature. Freeze detection is done by comparing successive frames based on the parameters set on the next two items (Sensitivity Level and Set Duration). Once the alarm is triggered it will only be released if no other freeze condition is detected. *Note:* *1. Analog input signal is not supported.* *2. This item only appears for Rainier 3G Plus – (1 card).*
Sensitivity Level (1 to 128)	Set the motion sensitivity of image when "video freeze" alarm will be triggered. Adjust the sensitivity according to the signal being monitored, on a range of **1** (for filtering out noise in a noisy signal) to **128** (for a clean signal). Also, the lower the "sensitivity" level set, a "not so noticeable difference" in frame by frame content comparison (e.g., a talk show video where the background is constant and the only motion detectable is the announcer's lip movement) may trigger the alarm. In this case consider increasing the "sensitivity level" or "set duration" (next item) values. *Note: This item only appears for Rainier 3G Plus – (1 card).*

Image	
Set Duration (5 to 255 seconds)	Set the time interval to wait before triggering an alarm once the criteria (sensitivity level) for "video freeze" has been detected. *Note:* *1. It may take up to one second more than the value of the "Set Duration" parameter to trigger a video freeze alarm.* *2. This item only appears for Rainier 3G Plus – (1 card).*

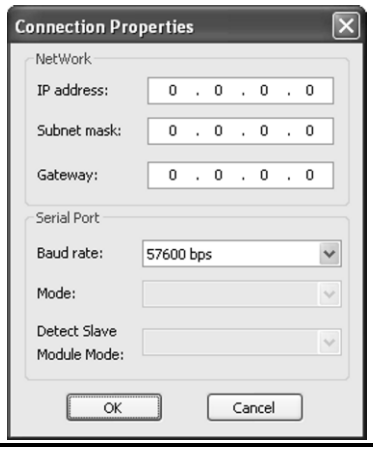
***Video Black** (no video) and **Video Freeze** cannot happen simultaneously. When both conditions exist, **Video Black** has the higher priority.*
Likewise, both functions are not available for analog input signal.

Image	
Border	
Red Color (On / Off)	Set the image border to the color **Red** as warning.
Flash (On / Off)	Set the image border to **Flash** as warning.
Audio Alarm	
Enable (On / Off)	Activate audio loss detection to be monitored on a single channel or group.
No Audio Alarm (Single Meter) (On / Off)	Activate the alarm that is triggered when no audio is detected.
Border Red Color (On / Off)	Set the image border to the color **Red** as warning.
Flash (On / Off)	Set the image border to **Flash** as warning.
Response Time Signal In/Out (0.25 to 49.75)	Set the **Signal In**/**Out** alarm response time, such as when inputting the signal or change of status from "abnormal" to "normal."
Alarm Sound	
Video	
Enable (On / Off)	Activate playback of alarm sound when no video / video black/freeze is detected in a particular window. *Note: To enable alarm sound playback, click "Start Alarm Sound (System)" icon (will become grayed-out).* 
Set Playback Duration (5 to 3600 seconds, Always on)	Set "video alarm" sound playback duration (second) for specific window. *Note: To shut off alarm sound playback before the time set has elapsed, click "Stop Alarm Sound (System)" icon (will become grayed-out).* 
File Change	Click the cell's rightmost portion "change" button [...] to select the audio file as the video alarm sound for the particular window. *Note: Only the "WAV" audio file format is supported.*
Audio	
Enable (On / Off)	Activate playback of alarm sound when no audio is detected in a window. *Note: To enable alarm sound playback, click "Start Alarm Sound (System)" icon (will become grayed-out).* 

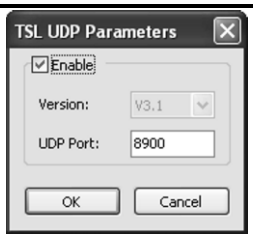
Image	
Set Playback Duration (5 to 3600 seconds, Always on)	Set "audio alarm" sound playback duration (second) for specific window. *Note: To shut off alarm sound playback before the time set has elapsed, click "Stop Alarm Sound (System)" icon (will become grayed-out).* 
File Change	Click the cell's rightmost portion "change" button [...] to select the audio file as the audio alarm sound for the particular window. *Note: Only the "WAV" audio file format is supported.*
Time Code	
Display (On / Off)	Display the Time Code (form of media metadata). *Note: This item only appears for Rainier 3G Plus – (1 card).*
Background (On / Off)	Display the Time Code's background. *Note: This item only appears for Rainier 3G Plus – (1 card).*
Transparency (0 to 8)	Set the background transparency level of the Time Code. **0** signifies complete transparency and **8** signifies complete opaqueness. *Note: This item only appears for Rainier 3G Plus – (1 card).*
Position X (%) (0 to 75)	Specify the location of the Time Code appearing on screen by setting the X and Y coordinates (percentage in relative position to the screen). *Note: This item only appears for Rainier 3G Plus – (1 card).*
Position Y (%) (0 to 98.5)	Specify the location of the Time Code appearing on screen by setting the X and Y coordinates (percentage in relative position to the screen). *Note:* *1. For SDI (HD/SD) signal type, it is recommended to set the value of Position Y between **92%** and **96%**.* *2. This item only appears for Rainier 3G Plus – (1 card).*
Size Width (%) (11.5 to 90)	Specify the size of the Time Code appearing on screen by setting the **Width** (percentage). *Note: This item only appears for Rainier 3G Plus – (1 card).*

Table 6-1 Phoenix-Q Software: Setting Group/Card Properties for Titan 9000-2H2V / 4H

6.2 Titan 9000-HOB Properties Setup

Connection Properties	
Change . . .	Set the network **Connection Properties** by entering the **IP address**, **Subnet mask**, and **Gateway**. Or, set the **Baud rate** when using the **Serial Port** to connect. 

Serial Port – TSL V3.1	
On **Off**	Enable/Disable **TSL V3.1** for the configuration of the **RS-232** port with a TSL connection. *Note: The **RS-232** port is **not** for connecting to a computer for configuration (Phoenix-Q utility). Likewise, it **cannot** be used for entering any Avitech ASCII commands.* When configuring, connect the (*Master* Titan 9000) to the controlling computer via an **Ethernet** connection and then connect the (*Master* Titan 9000) **RS-232** port to the **TSL router**.

TSL UDP Parameter	
	 Enable/Disable **TSL V3.1** for configuration of **IP** port with TSL connection. Make sure to enter the correct **UDP Port** (User Datagram Protocol) value that matches the connected router.

*When **TSL UDP Parameter** is enabled, **Serial Port – TSL V3.1** will automatically be disabled.*

Cascade In Color Correction (HDMI)	
On **Off**	Turn on/off encoder (signal in/out stage) to fix any color anomaly that may appear on color edge of signal entering the **CASCADE IN** (HDMI port).

HDMI OUT (Display Source)	
HDMI 1/2/3 (Card 1/2/3, Cascade In)	Select the display source for output to each Titan 9000-HOB card's **DVI-D OUT** port. You can select another card's **HDMI/DVI IN** source as output to Titan 9000-HOB card's **DVI-D OUT** port. Or, use the source signal coming into the chassis' **CASCADE IN** port as output. *Note: Titan 9000-HOB card will automatically be removed from the list since its function is different from a 2H2V / 4H card.* *Titan 9000-HOB card(s) must be assigned a group by itself.*

Card Parameters	
Resolution Set the display resolution	 *Note: It is highly recommended to input at 1920×1080 and output at 1920×1080 resolution.*

Card Parameters	
Output Timing Normal VESA	**Normal** output timing is designed for some brands of monitor that do not support the **VESA** standard.
Bezel Gap Adjustment (Test Pattern) (On / Off)	Turn on or off the display of proprietary test pattern on screen for seamless image alignment in 1×2 wall display and 2×2 wall display. *Note: This item is only available when the item after next is set **Wall**.*
Color Correction (On / Off)	Turn on or off the decoder (signal in stage) to completely fix any color anomaly that may appear on color edge. *Note: Make sure to turn this function off when cascading with non-Rainier 3G Plus/Quad and Titan 9000 cards.*
Output Display Mode Single Wall	Select between using the Titan 9000-HOB card as direct output of input source signal to monitor (Single) or to do 1×2 / 2×2 wall display (Wall).
Source Card 1/2/3 Cascade In	Specify the source of the input signal for wall display (default is signal from Cascade In port of Control Card – HDMI). *Note: This item is only available when the previous item is set **Wall**.*

*The following table shows the **Properties** setting for each window in the Titan 9000-HOB.*

Display	
Source	
Card 1/2/3 Cascade In	Specify the source of the input signal for direct output to monitor (default is signal from Cascade In port of Control Card – HDMI). *Note: This item is only available when the item "Output Display Mode" is set **Single**.*
Crop Size	
X **Y**	Specify the location of the window appearing on screen by setting the **X** and **Y** coordinates. *Note: Item only available when item "Output Display Mode" is set **Wall**.*
Width **Height**	Specify the cropped size of the window appearing on screen by setting the **Width** and **Height** values. You can directly input the value, use the left/ right button (**Width**) and up/down button (**Height**), as well as the keyboard's **Ctrl** + left/right arrow (**Width**) and **Ctrl** + up/down arrow (**Height**) keys. *Note:* *1. The smallest cropped size should not be smaller than 320×180.* *2. To prevent distortion on the window's image (for "interlaced" input signal), make sure the height of the image (excluding label and border) **IS NOT** smaller than one-half of the vertical active region of input source (e.g., if resolution is set at 1080i 50Hz then the image's height must not be less than 540 pixels)* *3. This item is only available when item "Output Display Mode" is set **Wall**.*
Lock Position (On / Off)	Lock or unlock the position of the window appearing on screen. *Note: Item only available when item "Output Display Mode" is set **Wall**.*
Bezel Gap Adjustment (Pixel)	
Left/Right **Top/Bottom** (0 to 80)	*Note: Refer to Appendix B for instructions on configuring the "Bezel Gap Adjustment (Pixel)" to set up 1×2 or 2×2 wall display.*
Image Adjustment	
Brightness (–128 to 127)	Adjust the brightness quality of the input signal.
Contrast (0 to 1023)	Adjust the contrast quality of the input signal.

Display	
Sharpness (0 to 14)	Adjust the sharpness quality of the input signal.

Table 6-2 Phoenix-Q Software: Setting Group/Card Properties for Titan 9000-HOB

6.3 Setting Group Parameters

The settings here only affect the cards included in a particular group. Upon right-clicking a particular Group # heading portion the following menu will appear.

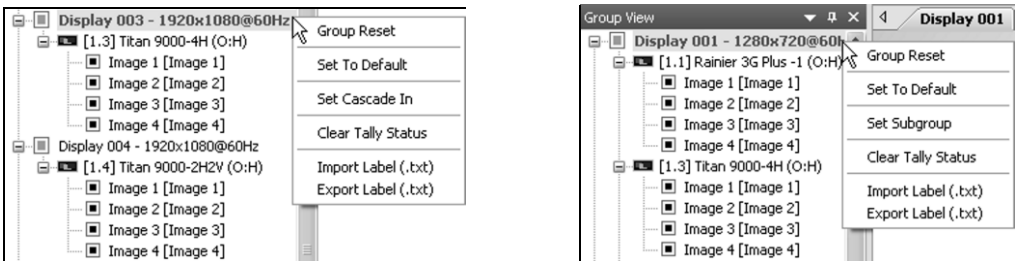


Figure 6-2 Phoenix-Q Software: Set Group Parameter

1. ***Set Cascade In*** *appears for an individual card in a group setup.*
   Set Subgroup *appears for multiple cards in a group setup.*
2. *For Titan 9000 – (HOB card), only the first 2 options* ***Group Reset*** *and* ***Set to Default*** *is available.*

✓ *Click* ***Group Reset*** *to refresh all cards belonging to the same group.*

✓ *Click* ***Set to Default*** *to return all cards belonging in the same group to its default settings:*

- ✓ *1920×1080 output resolution, 60 Hz vertical frequency*
- ✓ *Normal output timing*
- ✓ *Default preset layout (8 windows per row; total number of rows depending on number of cards on each chassis as well as the total number of cascaded chassis if any)*
- ✓ *Label is set "On" (background color "dark grey" with RGB value of 31; font color "grey" with RGB value of 200; fill background set "On," transparency set 6)*
- ✓ *Border is set "On" (2 pixel in width, line 1 and line 2 color "grey" with RGB value of 58)*
- ✓ *Clock is set "Off"*
- ✓ *Meter is set "Off"*
- ✓ *Alarm is set "Off"*
- ✓ *Signal Type is set "Off"*

✓ *Click **Set Cascade In** / **Set Subgroup**. Depending on the card installed in your Titan 9000, the default cascaded configuration **within a particular group** will be displayed:*
– *the broken lines signify internal cascading between the cards within a Titan 9000 (left figure below)*
– *the solid line linking the third and fourth unit signify external cascading between 2 Titan 9000 (right figure below). Likewise, a solid line links the last internal cascaded card or last external cascaded card to the monitor.*

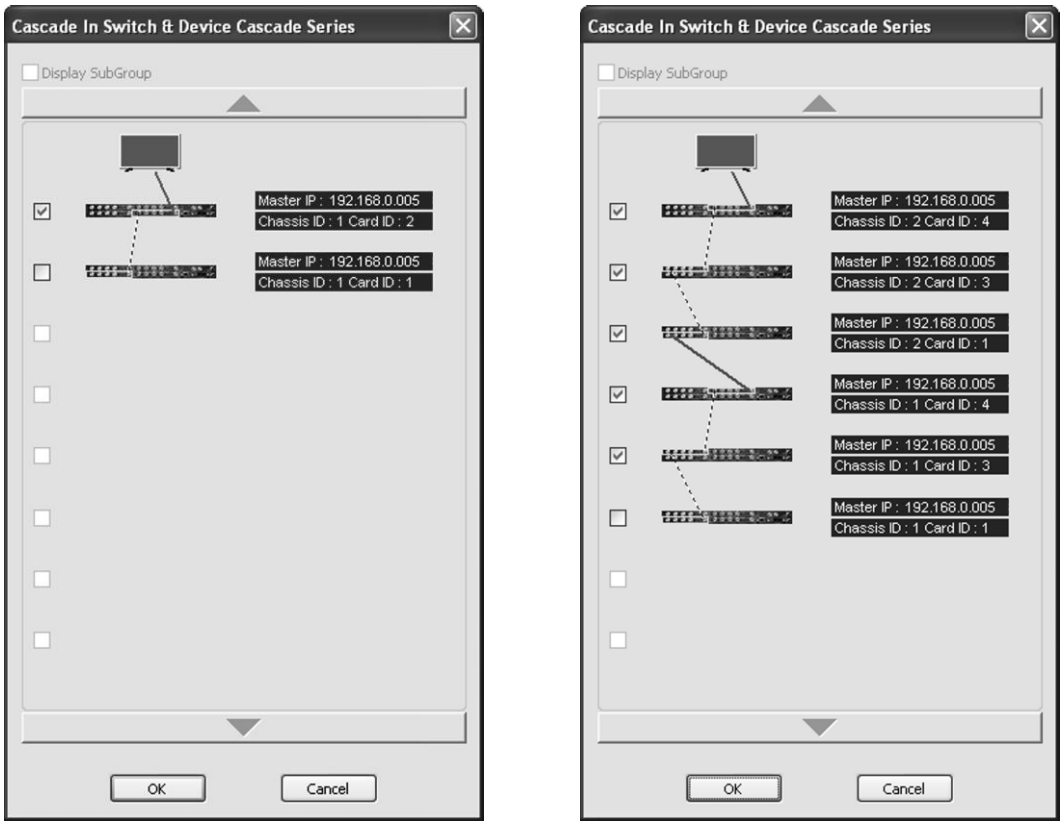


Figure 6-3 Phoenix-Q Software: “Cascade In Switch & Device Cascade Series” Window (standalone Titan 9000 – left; 2 cascaded Titan 9000 – right)

Click the checkbox to enable (default setting) or disable "cascade in" for each ID number. Disabling (or removing the checkmark) would cause the previous link on the particular ID number to be broken. This would cause the monitor to only display the linked windows after the broken link.

Change the ID number designation only (by dragging using the symbol); this will not affect the actual physical connection of the Titan 9000.

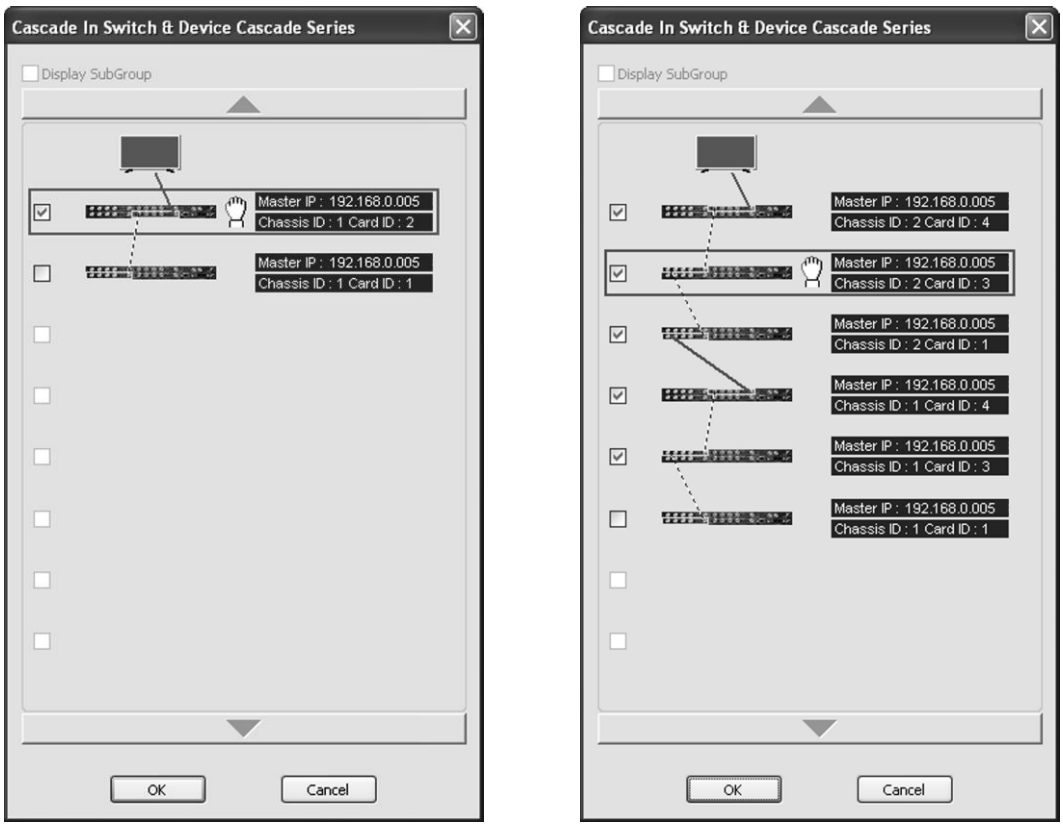


Figure 6-4 Phoenix-Q Software: Drag to Change the ID Number Designation Only

Make sure the ID number designation must match the actual physical connection of the cascaded Titan 9000.

✓ *Click **Clear Tally Status** to clear up any tally that has appeared on screen.*

✓ ***Import (.txt)→Label** from / **Export (.txt)→Label** to be edited externally. The most convenient way is to export the file (label) as:*
- ✓ ***ANSI** – up to 30 characters; can contain the English characters A–Z, a–z, 0–9, or*
- ✓ ***BMP Label** (Unicode – up to 15 characters; useful for displaying text other than the English language) **txt** file*

1. *Settings here will only affect the labels of the windows within the selected Group. However, the process of editing and importing the labels is the same as described on page 60.*
   Note: To change all the labels in the System see page 60.
2. *These items are only available when the computer is connected to the Titan 9000.*

Appendix A Using the LCD Panel

This chapter discusses the process of using the LCD panel to set up Titan 9000.

LCD panel allows for control of the Titan 9000 including; output resolution and signal adjustment, user logo, audio (headphone and HDMI), cascade, HDMI output source, preset file, color correction, clock, window display parameters, alarm, aspect ratio adjustment, safe area and operational status report. The LCD panel consists of 5 buttons:

▲ Go to next selection (up arrow button)
▼ Go to previous selection (down arrow button)
◀ Move to left of present cursor position (left arrow button)
▶ Move to right of present cursor position (right arrow button)
SET Enter the next level of a menu, or select the current highlighted item.

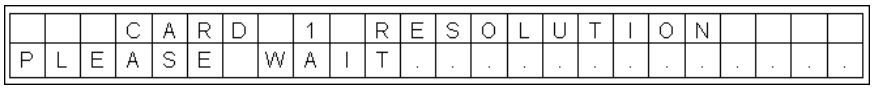


Figure A-1 LCD Panel: Busy State

1. *When the busy state "**PLEASE WAIT . . . .**" message is displayed on the LCD panel (see sample screen above), **DO NOT** disconnect or connect any signal cables as, a fault may occur.*
2. *Also, **DO NOT** change any of the incoming signal's display resolutions while the Titan 9000 is in the busy state.*
3. *LCD panel is unavailable for configuration when Phoenix-Q is connected to the Titan 9000 ("**Ethernet Login**" is displayed).*

A.1 Welcome Screen

Upon starting up the LCD panel, the welcome screen is shown for a few seconds.

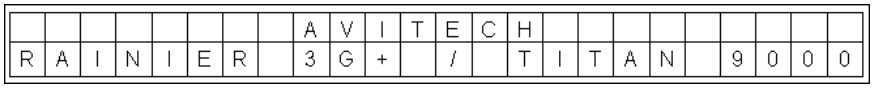


Figure A-2 LCD Panel: Welcome Screen

Then the following screen is displayed.

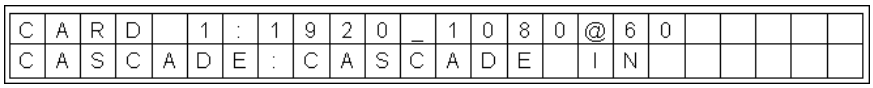


Figure A-3 LCD Panel: Initial Screen

This screen displays the card's settings.
1. *First line (video): Display the first card's current video output settings.*
2. *Second line (cascade method): Display the first card's cascade method.*

Settings made through the LCD panel will be saved automatically upon turning off power to the Titan 9000.

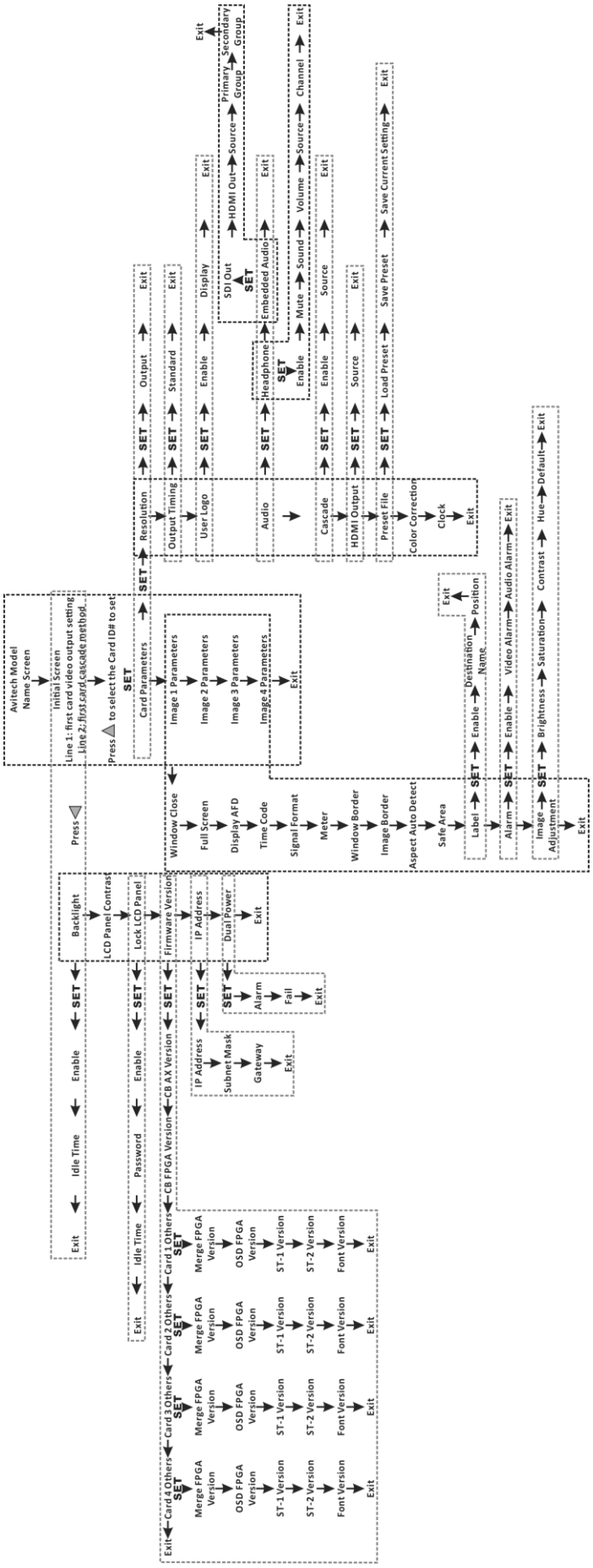


Figure A-4 LCD Panel: Menu Tree

A.2 Navigating the Main Menu

1. Press the SET button from the default initial screen to enter the main menu.
2. Use the buttons on the front panel to navigate: (▲ / ▼ / ◀ / ▶ / SET)
3. The following sections are setup items on the main menu, details of each are in the following tables, respectively:

Resolution	
Output	Select the desired display resolution and frequency. ❖ ***1920×1200*** *@* ***50, 60*** *(Hz) – not available for Titan 9000 – (HOB)* ❖ ***1920×1080*** *@* ***50, 60*** *(Hz)* ❖ ***1680×1050*** *@* ***50, 60, 75*** *(Hz) – 75 Hz not available for – (HOB)* ❖ ***1600×1200*** *@* ***50, 60, 75*** *(Hz) – not available for – (HOB)* ❖ ***1440×900*** *@* ***50, 60, 75*** *(Hz)* ❖ ***1400×1050*** *@* ***50, 60, 75*** *(Hz) – 75 Hz not available for – (HOB)* ❖ ***1360×768*** *@* ***50, 60, 75*** *(Hz)* ❖ ***1280×1024*** *@* ***50, 60, 75*** *(Hz)* ❖ ***1280×768*** *@* ***50, 60, 75*** *(Hz)* ❖ ***1280×720*** *@* ***50, 59.94, 60, 75*** *(Hz)* ❖ ***1024×768*** *@* ***50, 60, 75*** *(Hz)* ❖ ***800×600*** *@* ***50, 60, 75*** *(Hz) – not available for Titan 9000 – (HOB)* ❖ ***640×480*** *@* ***60*** *(Hz) – not available for Titan 9000 – (HOB)* *Note: The following 2 conditions may confine your choice of resolution to* ***1920×1080*** *@* ***50, 60*** *(Hz) and* ***1280×720*** *@* ***50, 60*** *(Hz) only –* *1. When "Cascade" is turned on for the particular card.* *2. When a particular card belongs to a "group" (via Phoenix-Q software).*
Exit	Exit the output resolution and frequency setup menu.

Table A-1 Output Resolution and Frequency

Output Timing	
Standard	**Normal** **VESA**: select this for HDMI/DVI output.
Exit	Exit the output timing setup menu.

Table A-2 Output Timing

User Logo	*Not available for Titan 9000 – (HOB card)*
Display	**On**: enable the user logo display feature. Foreground can only be selected upon turning on user logo (default setting is **Background**). ❖ ***Background*** ❖ ***Foreground*** **Off**: disable the display of the user logo. *Note: To fill the entire screen of monitor, the size (pixel) of the user logo picture must be the same as the monitor resolution. In case the size of the file is larger than the card's output resolution (see* ***Output Resolution****) the system will automatically detect and prevent it from displaying as your user logo picture.*
Exit	Exit the user logo setup menu.

Table A-3 User Logo

Audio	*Not available for Titan 9000 – (HOB card)*
Headphone	**On**: listen to the audio output via headphones. ❖ ***Mute****: disable the audio output via headphone feature.* ✓ ***On/Off*** ❖ ***Sound****: select the left/right/both channels.* ✓ ***Stereo*** ✓ ***Mono L*** *(left)* ✓ ***Mono R*** *(right)* ❖ ***Volume****: adjust the volume.* ✓ ***–64*** *up to* ***12*** *(level)* ❖ ***Source****: select from available 4 source windows or pass through.* ✓ ***Image 1/2/3/4*** ❖ ***Channel****: select the group and master/slave channels.* ✓ ***Group 1/2/3/4 Master/Slave*** **Off**: disable the audio output via headphones.
Embedded Audio	Audio signal from HDMI input ❖ ***SDI Out****:* ✓ ***Local*** ✓ ***Pass Through*** ❖ ***HDMI Out****:* ✓ ***Local*** ✓ ***Pass Through*** ❖ ***Source****: select from available 4 source windows.* ✓ ***Image 1/2/3/4*** ❖ ***Primary Group****: select the primary group for HDMI audio.* ✓ ***Group 1/2/3/4*** ❖ ***Secondary Group****: select the secondary group for HDMI audio.* ✓ ***Group 1/2/3/4***
Exit	Exit the headphone audio setup menu.

Table A-4 Audio

Cascade	
Status	**On**: enable the card's cascade feature. ❖ ***SOURCE****: select the card's (1/2/3/4) cascade source.* ✓ ***Card 1/2/3/4*** ✓ ***Cascade In*** **Off**: disable the card's cascade feature. *Note: Make sure that the cascaded card must belong to the same group and have the same resolution.*
Exit	Exit the cascade setup menu.

Table A-5 Cascade

HDMI Output	*Not available for Titan 9000 – (HOB card)*
	Signal to HDMI output (1080p or 720p 50/60 Hz) ❖ ***Source****: select the card's (1/2/3/4) HDMI output source.* ✓ ***Card 1/2/3/4*** ✓ ***Cascade In*** *Note: Titan 9000-(HOB) card is not included in the selection.*
Exit	Exit the HDMI output setup menu.

Table A-6 HDMI Output

Preset File	
Action	User created preset file. ❖ ***Load Preset****: recall from the previously saved preset file.* ❖ ***Save Preset****: save the current parameters as a preset file (preset.GPx). The filename (preset) can be up to 18 characters in length, while the "x" in "GPx" would be assigned automatically based on the current group number (1 up to 99).* *Use the ▲ / ▼ buttons to scroll through the available ASCII characters for use as filename.* *A quick press of the ◀ button moves the cursor one character to the left, while a long press deletes the character to the left of the current cursor position.* *Pressing the ▶ button moves the cursor one character to the right. Upon reaching the last character, a space will be added.* *Note: 14 user-created preset files can be assigned per card/group.* ❖ ***Save Current Setting****: saves the current parameters as a "latest" system file to be loaded the next time the Titan 9000 is turned on.* *Note: This action is similar to the automatic system parameter save when quitting the Phoenix-Q program.*
Exit	Exit the preset file setup menu.

Table A-7 Preset File

Color Correction	
Status	**On:** enable the color correction feature. **Off:** disable the color correction feature.
Exit	Exit the color correction setup menu.

Table A-8 Color Correction

Pattern	*Available for Titan 9000 – (HOB card) only*
Status	Display of proprietary test pattern on screen for seamless image alignment in 1×2 wall display and 2×2 wall display ❖ ***Line Pattern*** ❖ ***Color Bar*** ❖ ***Gray Scale*** **Off:** disable the display of test pattern.
Exit	Exit the pattern setup menu.

Table A-9 Pattern

Clock	*Not available for Titan 9000 – (HOB card)*
Status	**On:** enable the clock to be displayed on screen. **Off:** disable the on screen clock display.
Exit	Exit the clock setup menu.

Table A-10 Clock

Window Close	*Not available for Titan 9000 – (HOB card)*
Status	**On**: close the selected window. **Off**: window appears on screen.
Exit	Exit the close window menu.

Table A-11 Window Close

Full Screen	*Not available for Titan 9000 – (HOB card)*
Status	**On**: allow the selected window to appear in full screen mode (default setting is **OFF**). **Off**: window appears in its present configuration.
Exit	Exit the window full screen menu.

Table A-12 Window Full Screen

The next 2 items in the LCD panel "Display AFD" and "Time Code" is only available for setup on Rainier 3G Plus – (1 card). (lock symbol on right corner of LCD panel for Titan 9000 cards)

Display AFD	*Not available for Titan 9000 card*
Status	**On**: display the AFD (**Active Format Description**). Standard AFD (active format description) codes provide information about where in the coded picture the active video is and also the "protected area" which is the area that needs to be shown. Outside of the protected area, edges at the sides or the top can be removed without missing anything significant. The Rainier 3G Plus can then use this information, together with knowledge of the display shape and user preferences, to choose a presentation mode ❖ *Active area signaling allows the display device to process the incoming signal to make the highest resolution and most accurate picture possible. While aspect ratio signaling allows the display device to produce the best image possible***.** **Off**: disable the AFD display feature. *Note: This item is only available when you select **On** in **Signal Format**.*
Exit	Exit the display AFD setup menu.

Table A-13 Window Display AFD

- ✓ *When the **Display AFD** feature is set **ON** and AFD is present in the input signal, then the **Aspect Auto Detect** function (later item) will be automatically disabled.*
- ✓ *When the **Display AFD** feature is set **ON** but AFD is not present in the input signal, then this function is invalid and the **Aspect Auto Detect** function (later item) will not be affected.*

Note: AFD (Active Format Description) has been added to many digital interfaces for the purpose of identifying the video payload. AFD solves a problem in the transition from conventional 4:3 display devices to widescreen 16:9 displays. Active area signaling allows the display device to process the incoming signal to make the highest resolution and most accurate picture possible.*

**Video payload is defined as the picture carried by a digital interface and comprising a matrix of horizontal and vertical pixels. The matrix usually comprises a multiplex of luminance and color components.*

Time Code	*Not available for Titan 9000 card*
Status	**On**: display the Time Code (form of media metadata). **Off**: disable the Time Code display feature.
Exit	Exit the Time Code setup menu.

Table A-14 Window Time Code

Signal Format	*Not available for Titan 9000 – (HOB card)*
Status	**On**: display the window's input signal format. **Off**: disable the display of the window's input signal format.
Exit	Exit the signal format setup menu.

Table A-15 Window Signal Format

Meter	*Not available for Titan 9000 – (HOB card)*
Status	**On**: display the audio meter for the particular window. **Off**: disable the display of the window's audio meter.
Exit	Exit the meter setup menu.

Table A-16 Window Meter

Window Border	*Not available for Titan 9000 – (HOB card)*
Status	**On**: display the border for the particular window. **Off**: disable the border of the window.
Exit	Exit the window border setup menu.

Table A-17 Window Border

Image Border	*Not available for Titan 9000 – (HOB card)*
Status	**On**: display the border for the particular image. **Off**: disable the border of the image.
Exit	Exit the image border setup menu.

Table A-18 Image Border

Aspect Auto Detect	*Not available for Titan 9000 – (HOB card)*
Status	**On**: allow automatic detection of the input signal's aspect ratio. **Off**: disable automatic detection of the input signal's aspect ratio feature.
Exit	Exit the aspect automatic detection setup menu.

Table A-19 Window Automatic Aspect Ratio Detection

Safe Area	*Not available for Titan 9000 – (HOB card)*
Status	**On**: display the safe area marker of window. *Note: the default settings are 0% and 100% thus you will need to first create and save parameters using Phoenix-Q before safe area will display a result.* **Off**: disable the safe area marker of the window.
Exit	Exit the safe area setup menu.

Table A-20 Window Safe Area

Label	*Not available for Titan 9000 – (HOB card)*
Status	**On**: display the label for the particular window. ❖ ***Destination Name****: input the text string appearing on label of the window (up to 32 characters).* *Use the ▲ / ▼ buttons to scroll through the available ASCII characters for use as label.* *A quick press of the ◀ button moves the cursor one character to the left, while a long press deletes the character to the left of the current cursor position.* *Pressing the ▶ button moves the cursor one character to the right. Upon reaching the last character, a space will be added.* ❖ ***Position*** ✓ ***Bottom*** ✓ ***Top*** **Off**: disable the display of the window's label.
Exit	Exit the label setup menu.

Table A-21 Window Label

Alarm	*Not available for Titan 9000 – (HOB card)*
Status	**On**: turn on the alarm feature for the particular window. ❖ ***Video Alarm****: activate alarm to be triggered when "no video" occur* *Note: analog input signal is not supported.* ✓ ***On/Off*** ❖ ***Audio Alarm****: activate alarm to be triggered when "no audio" occur* ✓ ***On/Off*** **Off**: disable the alarm feature of the window.
Exit	Exit the alarm setup menu.

Table A-22 Window Alarm

Image Adjustment	
Parameters	Adjust the parameter of the image appearing in the particular window. ❖ ***Sharpness****: adjust the sharpness quality of the input signal.* ✓ ***0*** *to* ***24*** *Note: "Sharpness" is only available for Titan 9000 – (HOB card).* ❖ ***Brightness****: adjust the brightness quality of the input signal.* ✓ ***–128*** *to* ***127*** ❖ ***Saturation****: adjust the saturation quality of the input signal.* ✓ ***0*** *to* ***1023*** ❖ ***Contrast****: adjust the contrast quality of the input signal.* ✓ ***0*** *to* ***1023*** ❖ ***Hue****: adjust the hue quality of the input signal.* ✓ ***–1024*** *to* ***1023*** ❖ ***Default***
Exit	Exit the image adjustment setup menu.

Table A-23 Window Image Adjustment

Depending on the type of video signal, ***SATURATION*** *and* ***HUE*** *may not be available.*

A.3 Navigating the System Parameters Menu

Backlight	
Status	**On**: enable the LCD panel backlight. ❖ ***Idle Time****: select the time before LCD panel backlight will turn off.* ✓ ***5*** *to* ***60 Minutes*** *(adjustment in increment of 5 minutes)* **Off**: disable the LCD panel backlight (default is **On**).
Exit	Exit the image adjustment setup menu.

Table A-24 LCD Panel Backlight

LCD Panel Contrast	
	Adjust the LCD panel contrast. ❖ ***0*** *to* ***26***

Table A-25 LCD Panel Contrast

Lock LCD Panel	
Status	**On**: enable the lock LCD panel feature when a set idle time has elapsed. ❖ ***Password****: input the text string for unlocking the LCD panel (up to 7 characters). (Default is "Avitech")* *Use the ▲ / ▼ buttons to scroll through the available ASCII characters for use as label.* *A quick press of the ◀ button moves the cursor one character to the left, while a long press deletes the character to the left of the current cursor position.* *Pressing the ▶ button moves the cursor one character to the right. Upon reaching the last character, a space will be added.* ❖ ***Idle Time****: select the time between the last button in LCD panel was pressed and before it will be locked.* ✓ ***1*** *to* ***60 Minutes*** **Off**: disable the lock LCD panel feature
Exit	Exit the lock LCD panel setup menu.

Table A-26 Lock LCD Panel

In case you forgot the password for unlocking the LCD panel, just press both ◀ and ▶ buttons simultaneously and enter "Avitech" (default password).

Firmware Version	
Reference	Show the various current firmware version for reference. ❖ ***CB AX*** *(controller board)* ❖ ***CB FPGA*** *(field-programmable gate array)* ❖ ***Cx Merge FPGA*** *(C stands for card; x the card number 1 to 4)* ❖ ***Cx OSD*** *(on screen display)* ***FPGA*** ❖ ***Cx ST-1*** *(chip 1)* ❖ ***Cx ST-2*** *(chip 2)* ❖ ***Cx Font***
Exit	Exit the firmware version setup menu.

Table A-27 Firmware Version

IP Address	
Status	Allow user to modify the following based on their Ethernet environment. ❖ ***IP Address*** ❖ ***Subnet Mask*** ❖ ***Gateway***
Exit	Exit the IP address setup menu.

Table A-28 IP Address

Dual Power	
Status	**Alarm**: turn on the power alarm feature that is triggered when either one of the power source in redundant power supply is cut-off. ✓ ***On/Off*** **Fail**: displays which power source in redundant power supply is cut-off if the previous item is set **On**.
Exit	Exit the dual power alarm setup menu.

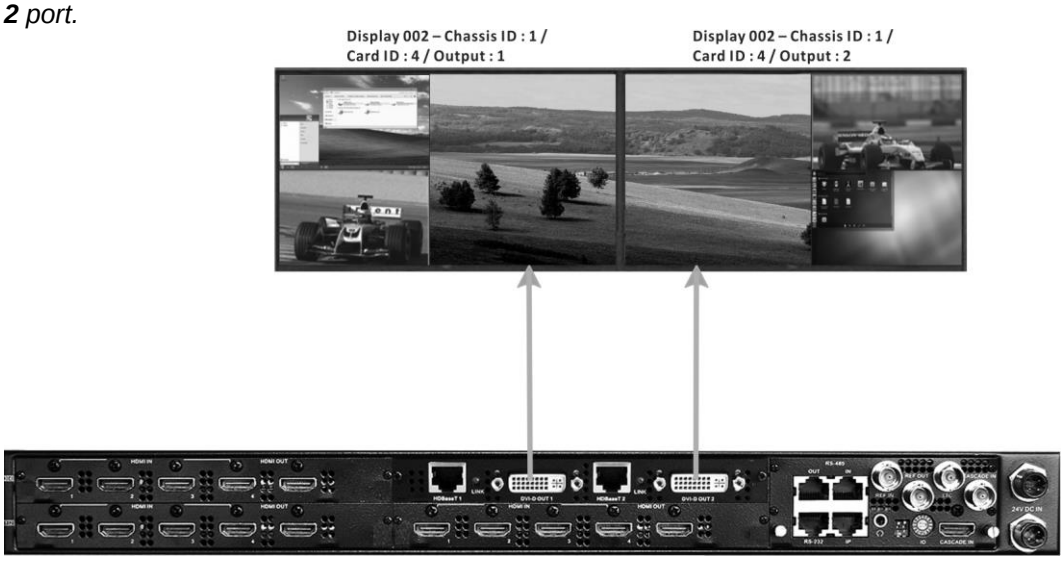
Table A-29 Dual Power Alarm

Appendix B Setting Up 1×2 / 2×2 Wall Display

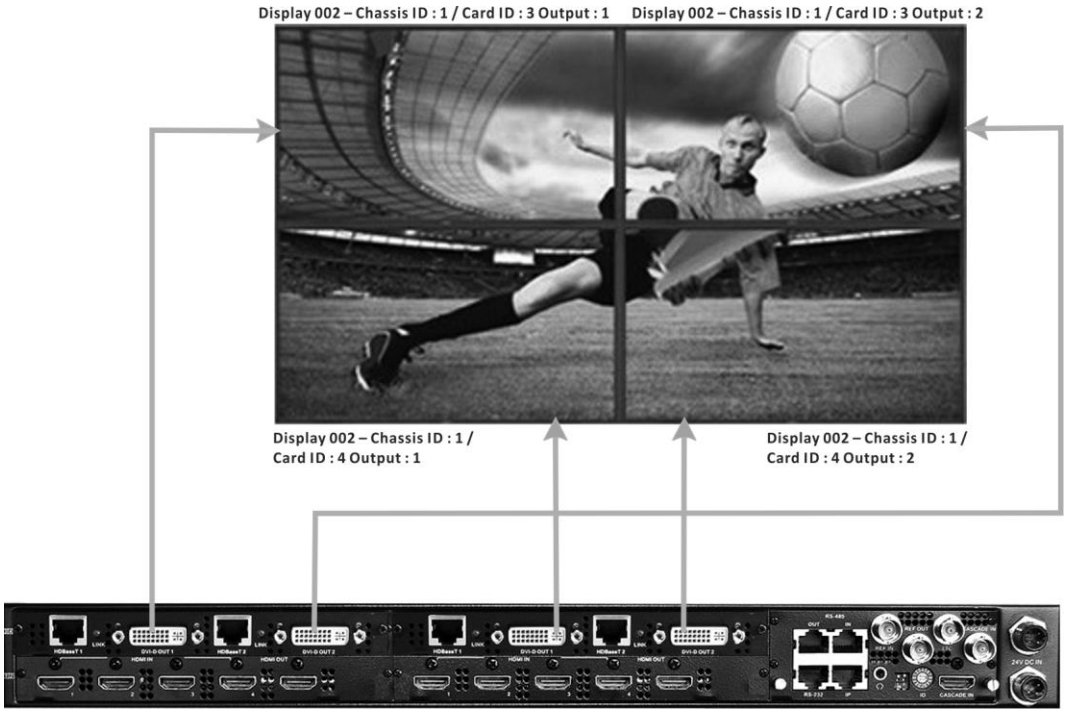
1. *One Titan 9000 – (HOB card) can do 1×2 wall display.*
   Likewise, two Titan 9000 – (HOB cards) can do 2×2 wall display.
2. *The system only allows a set of "Bezel Gap Adjustment" configuration at a time (via Phoenix-Q software).*
   *Make sure to **use an identical model and size of monitors** when outputting a signal source simultaneously to two 1×2 wall display or two 2×2 wall display.*
3. *It is highly recommended to input at 1920×1080 and output at 1920×1080 resolution.*

B.1 Physical Connection and Bezel Gap Adjustment

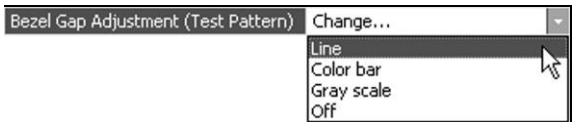
Step 1. ***For a 1×2 wall display configuration**; with 2 monitors (identical model and size of monitors) placed side-by-side on a wall –*
*connect a monitor to Card ID 4 **DVI-D OUT 1** port and another monitor to Card ID 4 **DVI-D OUT 2** port.*



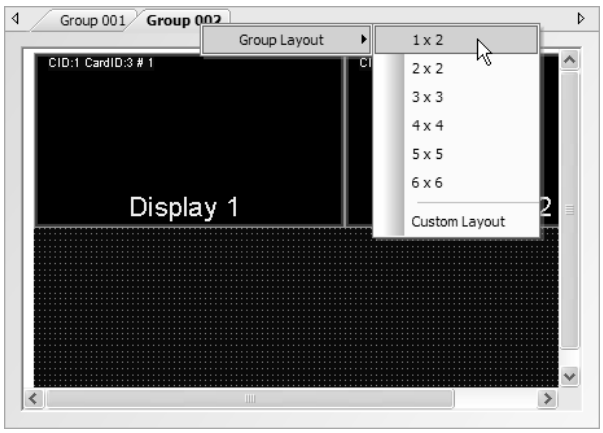
***For a 2×2 wall display configuration**, with 4 monitors (identical model and size of monitors) placed together on a wall –*
*connect the first monitor to Card ID 3 **DVI-D OUT 1** port,*
*second monitor to Card ID 3 **DVI-D OUT 2** port,*
*third monitor to Card ID 4 **DVI-D OUT 1** port,*
*and fourth monitor to Card ID 4 **DVI-D OUT 2** port.*



Step 2. *Enable the "Line" test pattern to align the 2 monitor display for a 1×2 wall display configuration. Or align the 4 monitor display for a 2×2 wall display configuration.*



Step 3. ***For 1×2 wall display configuration only***
Select the 1×2 "Group Layout" display configuration.

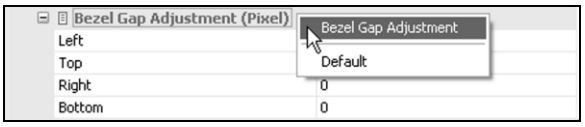


Step 4. *Perform "Bezel Gap Adjustment" in Phoenix-Q.*

This setting need be performed only once unless the Titan 9000-HOB card is assigned to a different group.

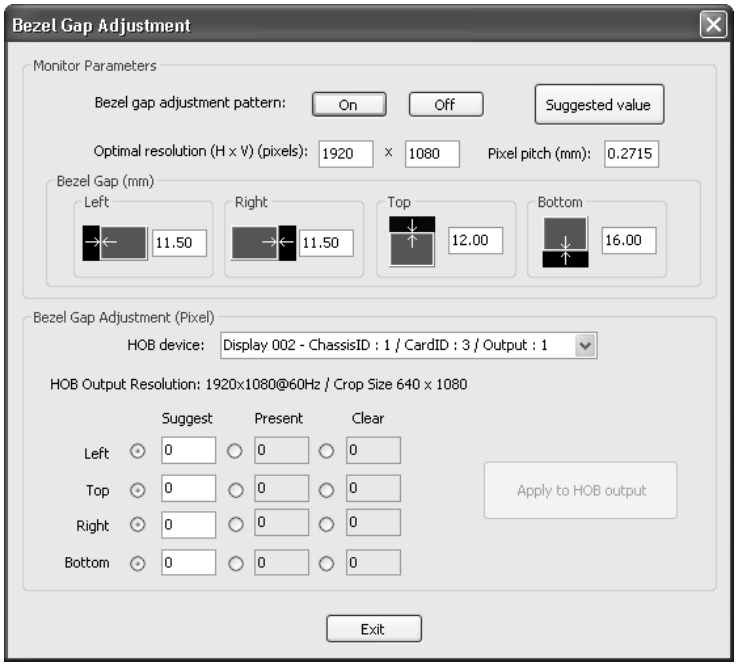
For 2×2 wall display sample configuration

Right-click the "Bezel Gap Adjustment (Pixel)" and click "Bezel Gap Adjustment."



2×2 Wall Display

The "Bezel Gap Adjustment" window allows Phoenix-Q to calculate (based on the data provided) just how much (pixel) offset is needed to align the image seamlessly in your 2×2 wall display.



***Step 1**. Allow the bezel gap adjustment test pattern to appear on screen by clicking the "On" button.*

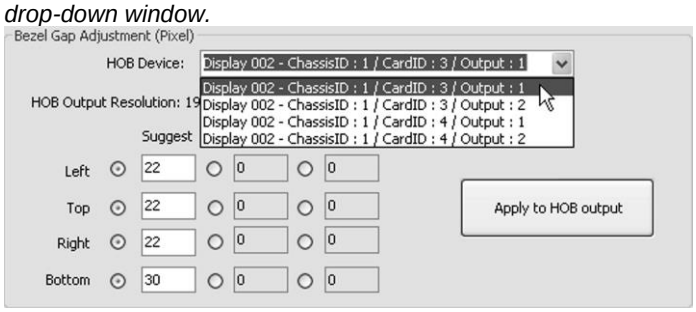
***Step 2**. Enter the optimal resolution of the monitor (e.g., 1920×1080).*

***Step 3**. Enter the pixel pitch (mm) of the monitor (data obtained from monitor specification).*

***Step 4**. Enter the bezel gap (mm – 4 sides) of the monitor. When this information is not included in the documentation that came with the monitor, then use a ruler to measure.*

***Step 5**. Click the "Suggested Value" button. Notice that the (Left/Top/ Right/Bottom) windows under the "Suggest" column will be updated.*

***Step 6**. For setting the top left monitor of 2×2 wall display*
Select the output port for the top left monitor from the "HOB Device" drop-down window.



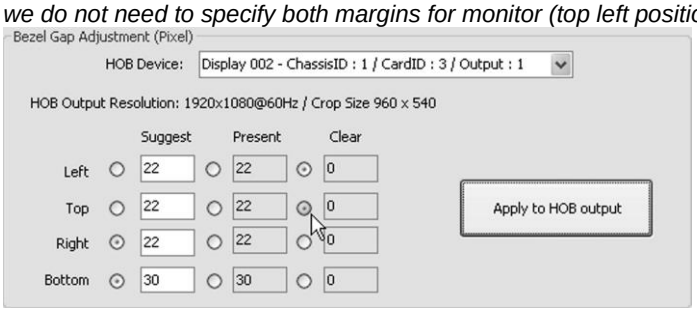
Note: For the purpose of our illustration:
"Display 002 – Chassis ID : 1 / Card ID : 3 / Output : 1" corresponds to monitor (top left position of 2×2 wall display) connected to Card ID 3 ***DVI-D OUT 1*** *port.*
"Display 002 – Chassis ID : 1 / Card ID : 3 / Output : 2" corresponds to

monitor (top right position of 2×2 wall display) connected to Card ID 3 ***DVI-D OUT 2*** *port.*

"Display 002 – Chassis ID : 1 / Card ID : 4 / Output : 1" corresponds to monitor (bottom left position of 2×2 wall display) connected to Card ID 4 ***DVI-D OUT 1*** *port.*

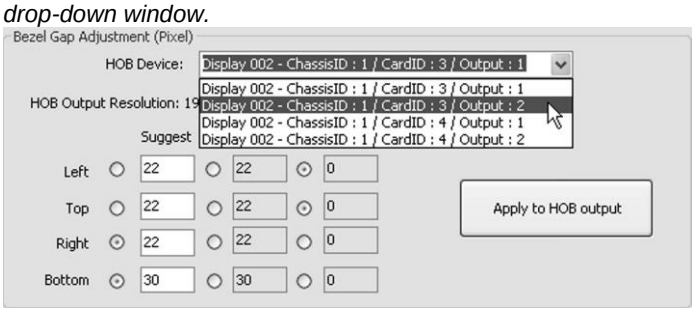
"Display 002 – Chassis ID : 1 / Card ID : 4 / Output : 2" corresponds to monitor (bottom right position of 2×2 wall display) connected to Card ID 4 ***DVI-D OUT 2*** *port.*

On the "Clear" column click the radio button for "Left" and "Top" because we do not need to specify both margins for monitor (top left position)

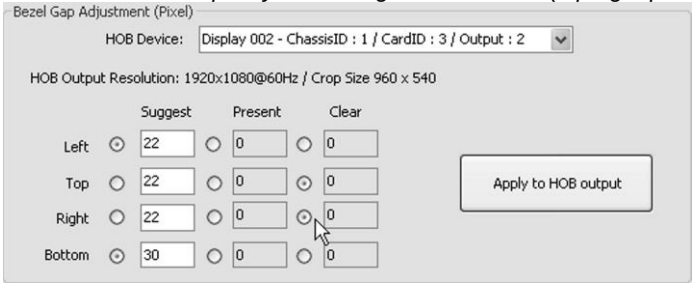


Click the "Apply to HOB output" button.

Step 7*. For setting the top right monitor of 2×2 wall display*
Select the output port for the top right monitor from the "HOB Device" drop-down window.

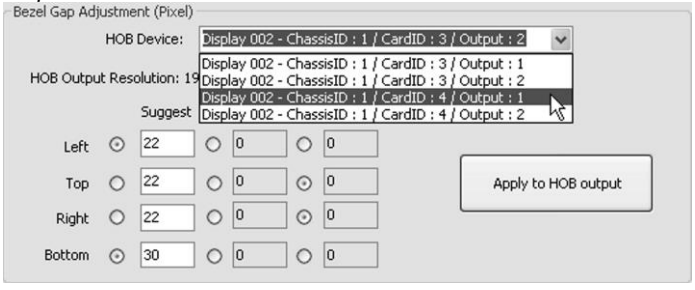


On the "Clear" column click the radio button for "Right" and "Top" because we do not need to specify both margins for monitor (top right position)

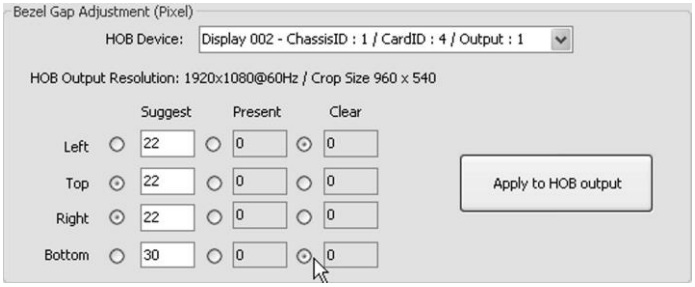


Click the "Apply to HOB output" button.

Step 8*. For setting the bottom left monitor of 2×2 wall display*
Select the output port for the bottom left monitor from the "HOB Device" drop-down window.

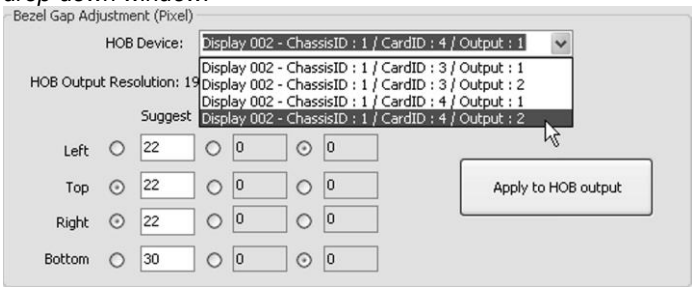


On the "Clear" column click radio button for "Left" and "Bottom" because we do not need to specify both margins for monitor (left bottom position)

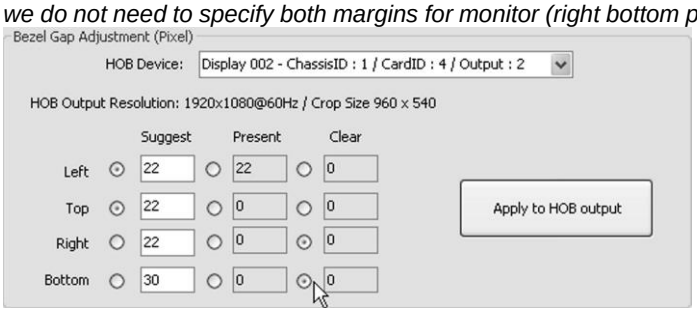


Click the "Apply to HOB output" button.

***Step 9**. For setting the bottom right monitor of 2×2 wall display*
Select the output port for the bottom right monitor from the "HOB Device" drop-down window.



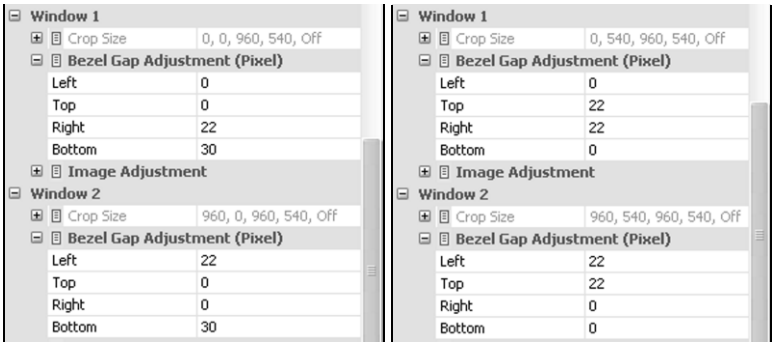
On the "Clear" column click radio button for "Right" and "Bottom" because we do not need to specify both margins for monitor (right bottom position)



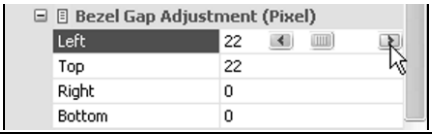
Click the "Apply to HOB output" button.

***Step 10**. Click "Exit" button.*

The figure below on the left shows the new values for Window 1 and 2 of Card ID 3, while the figure on the right shows the new values for Window 1 and 2 of Card ID 4.

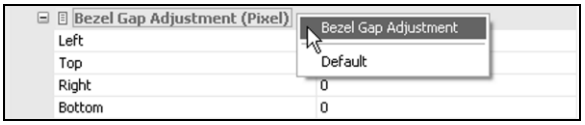


Is the image aligned to your satisfaction? If not, use the slider (2 pixel increments) to make your final adjustments.



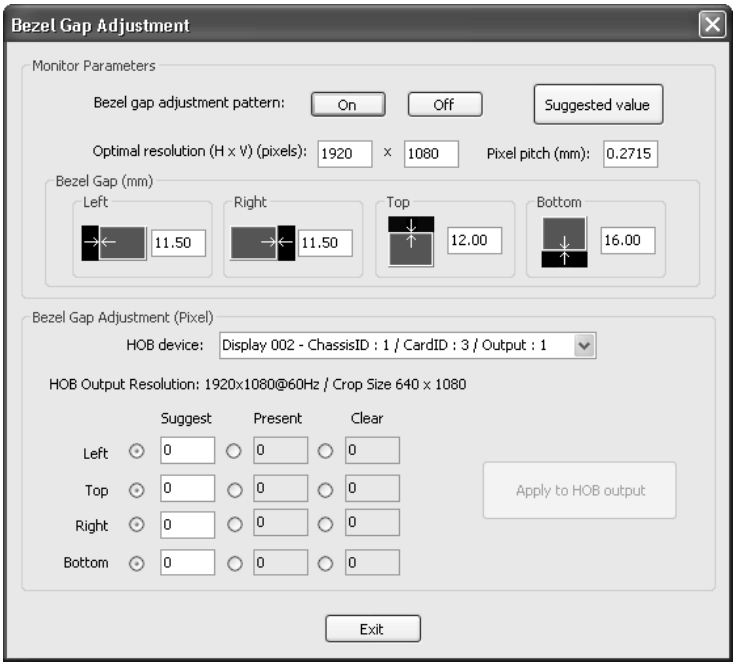
For 1×2 wall display sample configuration

Right-click the "Bezel Gap Adjustment (Pixel)" and click "Bezel Gap Adjustment."



1×2 Wall Display

The "Bezel Gap Adjustment" window allows Phoenix-Q to calculate (based on the data provided) just how much (pixel) offset is needed to align the image seamlessly in your 1×2 wall display.



***Step 1**. Allow the bezel gap adjustment test pattern to appear on screen by clicking the "On" button.*

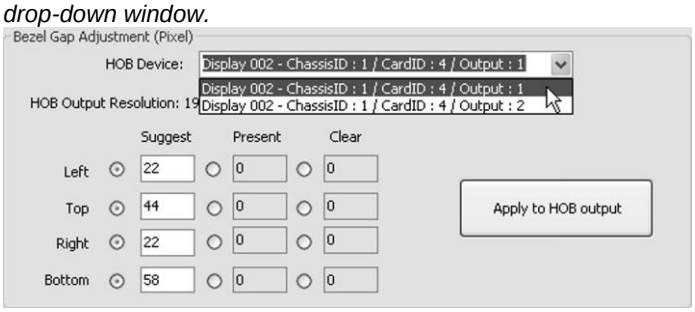
***Step 2**. Enter the optimal resolution of the monitor (e.g., 1920×1080).*

***Step 3**. Enter the pixel pitch (mm) of the monitor (data obtained from monitor specification).*

***Step 4**. Enter the bezel gap (mm – 4 sides) of the monitor. When this information is not included in the documentation that came with the monitor, then use a ruler to measure.*

***Step 5**. Click the "Suggested Value" button. Notice that the (Left/Top/ Right/Bottom) windows under the "Suggest" column will be updated.*

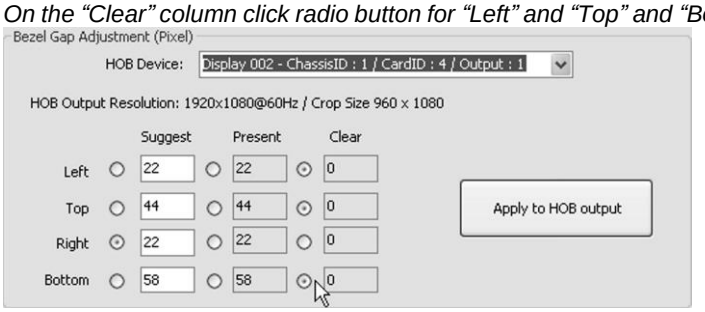
***Step 6**. For setting the left monitor of 1×2 wall display*
Select the output port for the left monitor from the "HOB Device" drop-down window.



Note: For the purpose of our illustration:
*"Display 002 – Chassis ID : 1 / Card ID : 4 / Output : 1" corresponds to monitor (left position of 1×2 wall display) connected to Card ID 4 **DVI-D OUT 1** port.*

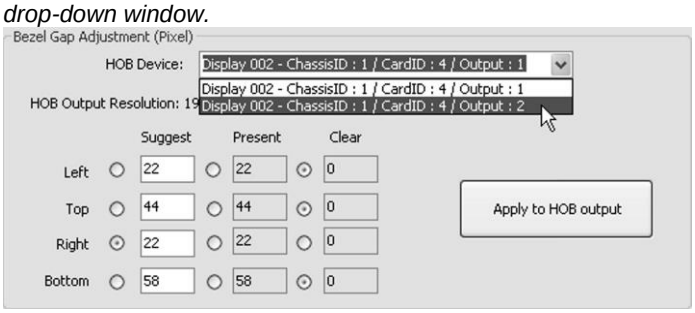
*"Display 002 – Chassis ID : 1 / Card ID : 4 / Output : 2" corresponds to monitor (right position of 1×2 wall display) connected to Card ID 4 **DVI-D OUT 2** port.*

On the "Clear" column click radio button for "Left" and "Top" and "Bottom."

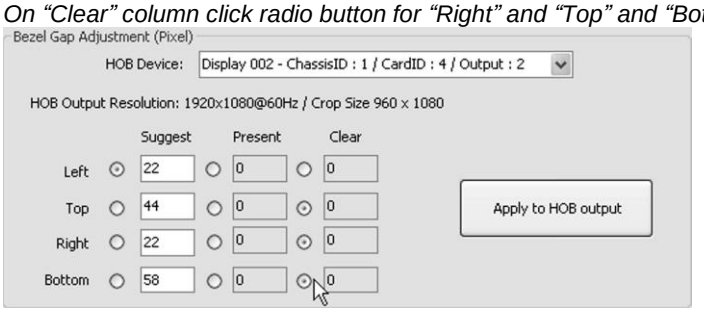


Click the "Apply to HOB output" button.

***Step 7**. For setting the right monitor of 1×2 wall display*
Select the output port for the right monitor from the "HOB Device" drop-down window.



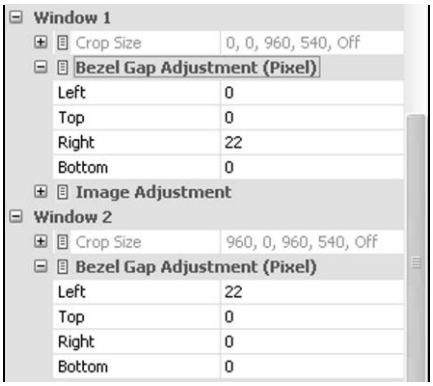
On "Clear" column click radio button for "Right" and "Top" and "Bottom."



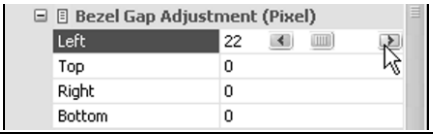
Click the "Apply to HOB output" button.

***Step 8**. Click "Exit" button.*

Figure below shows new values for Window 1 and 2 of single HOB Card.



Is the image aligned to your satisfaction? If not, then use the slider (2 pixel increments) to make your final adjustments.



Step 4. Disable the "Line" test pattern by selecting "Off" to allow input signal source to be displayed.

Step 5. For benefit of duplicating 1×2 or 2×2 wall display configuration to 100m (328ft) distance –

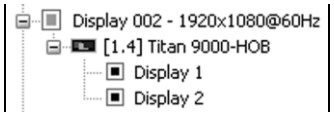
For a 1×2 wall display configuration –
Connect an Ethernet cable from Card ID 4 ***HDBaseT 1*** *port to the first Pacific X-HDUR* ***HDBaseT*** *port; then connect a monitor to the* ***HDMI OUT*** */* ***DVI OUT*** *port.*
Connect an Ethernet cable from Card ID 4 ***HDBaseT 2*** *port to the second Pacific X-HDUR* ***HDBaseT*** *port; then connect a monitor to the* ***HDMI OUT*** */* ***DVI OUT*** *port.*

For a 2×2 wall display configuration –
Connect an Ethernet cable from Card ID 3 ***HDBaseT 1*** *port to the first Pacific X-HDUR* ***HDBaseT*** *port; then connect a monitor to the* ***HDMI OUT*** */* ***DVI OUT*** *port.*
Connect an Ethernet cable from Card ID 3 ***HDBaseT 2*** *port to the second Pacific X-HDUR* ***HDBaseT*** *port; then connect a monitor to the* ***HDMI OUT*** */* ***DVI OUT*** *port.*
Connect an Ethernet cable from Card ID 4 ***HDBaseT 1*** *port to the third Pacific X-HDUR* ***HDBaseT*** *port; then connect a monitor to the* ***HDMI OUT*** */* ***DVI OUT*** *port.*
Connect an Ethernet cable from Card ID 4 ***HDBaseT 2*** *port to the fourth Pacific X-HDUR* ***HDBaseT*** *port; then connect a monitor to the* ***HDMI OUT*** */* ***DVI OUT*** *port.*

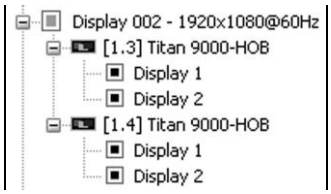
B.2 Software Configuration

Step 1. Assign the grouping

For a 1×2 wall display configuration;
assign the 3 Titan 9000 – (4H cards) to the same group and,
assign the Titan 9000 – (HOB card) to a group by itself.



For a 2×2 wall display configuration,
assign the 2 Titan 9000 – (4H cards) to the same group and,
assign the 2 Titan 9000 – (HOB cards) to the same group.



For the sample 1×2 wall display configuration,
"Card 3" would be assigned as the input signal source for the Titan 9000 – (HOB card) under Card Parameters.

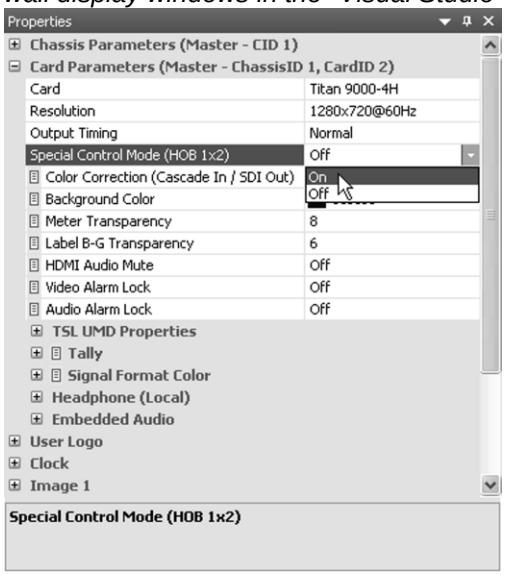
Source	Card 3 (Display 001)

For the sample 2×2 wall display configuration,
"Card 2" would be assigned as the input signal source for the Titan 9000 – (HOB card) under Card Parameters.

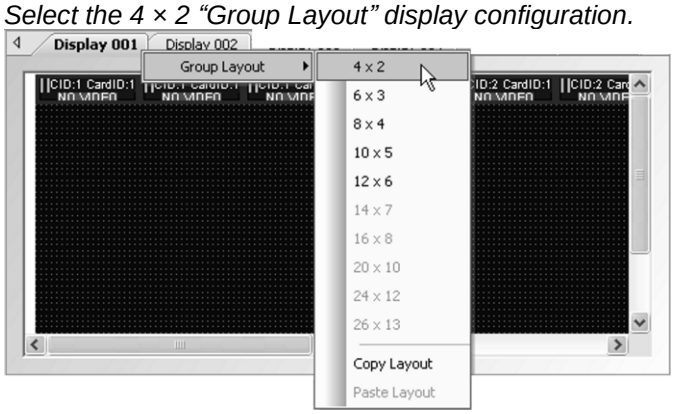
Source	Card 2 (Display 001)

The following steps (2 to 5) need be performed for 1×2 wall display configuration only.

Step 2. Enable the "Special Control Mode (HOB 1×2)" option to allow the proportional display of 1×2 wall display windows in the "Visual Studio" tab.



Step 3. Select the 4 × 2 "Group Layout" display configuration.



Step 4. Out of the 12 source windows, close 7 windows so that only 5 windows remain on screen.

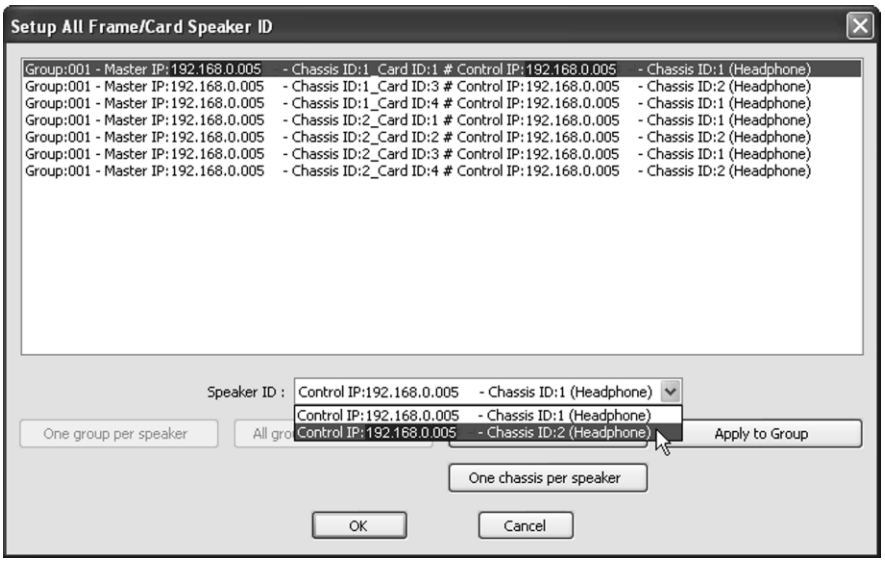
Step 5. Manually re-size and rearrange the 5 windows to obtain the below example display.

Appendix C Setting Up Audio

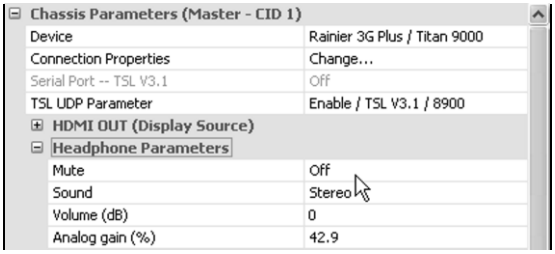
Step 1. ***For 2 or more cascaded chassis ID***

*The **System →Setup Speaker ID** function allows you to assign where each card will output to a particular chassis' headset connector.*

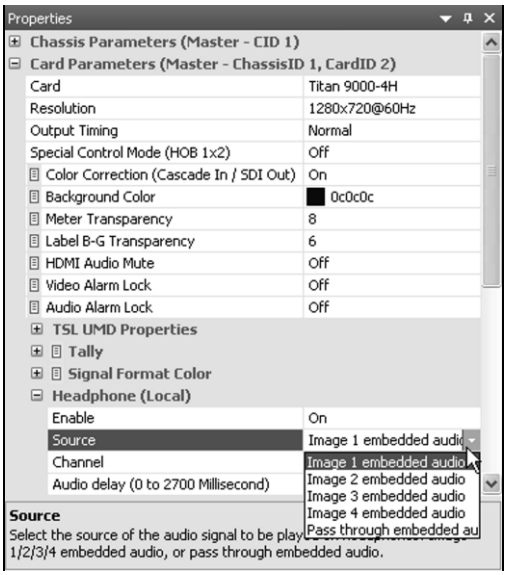
Make sure that 2 or more cascaded chassis' cards belong to the same group.



Step 2. *To allow audio monitoring via the headphone connected to the headset port of the chassis, make sure to make the correct settings for the items under "Headphone Parameters" (Mute=Off; Sound; Volume (dB) and Analog gain (%)).*



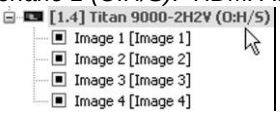
Step 3. To further allow audio monitoring via the headphone connected to the headset port of the chassis, make sure to make the correct settings for the items under "Headphone (Local)" (Enable=On and Source).



Headphone will be disabled upon selecting "Pass through embedded audio."

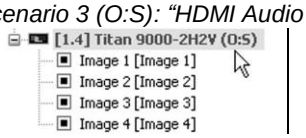
"Group View" column provides quick information on 2 settings in "Properties→Card Parameters" section:

Scenario 1 (O:H/S): "HDMI Audio Mute"=Off; "Headphone (Local)"→Enable=On



Scenario 2 (O:H): "HDMI Audio Mute"=Off; "Headphone (Local)"→Enable=Off

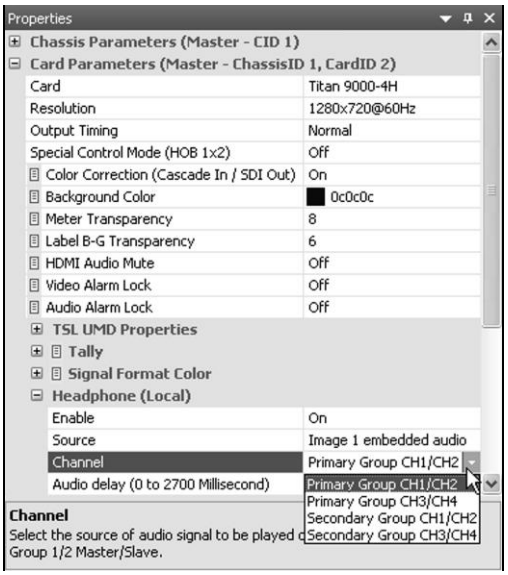
Scenario 3 (O:S): "HDMI Audio Mute"=On; "Headphone (Local)"→Enable=On

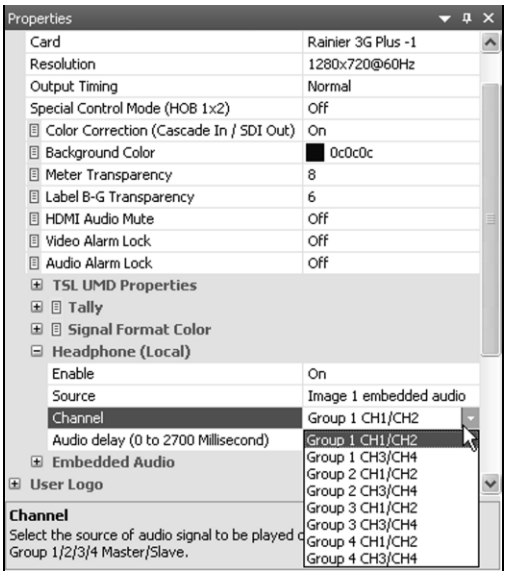


Step 4. Select the audio channel to monitor via headphone.

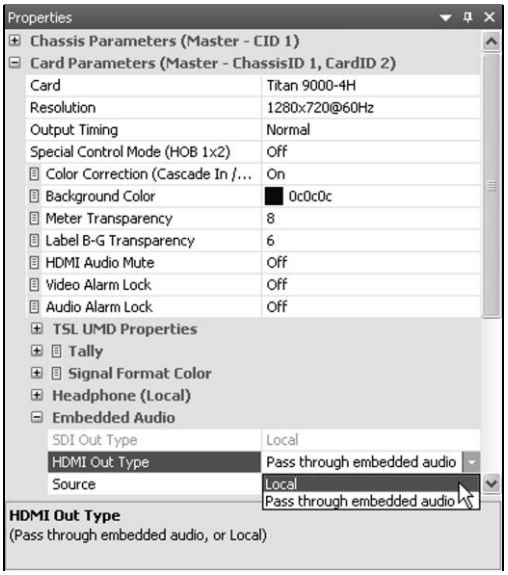
for an eight-channel (7.1) and six-channel (5.1) surround audio system, select from any of the first 2 groups listed in the drop-down menu
(Primary Group CH1/CH2 or CH3/CH4 for Titan 9000 card)
(Group 1 CH1/CH2 or CH3/CH4; Group 2 CH1/CH2 or CH3/CH4 for Rainier 3G Plus card)

for a two-channel (stereo) audio system, only the first group is applicable
(Primary Group CH1/CH2 for Titan 9000 card)
(Group 1 CH1/CH2 for Rainier 3G Plus card)





Step 5. Select the output type of embedded audio signal (when available, see below "Note").
Select "Local" to allow output to come from the embedded audio signal of the selected "Source" image (next item).
Select "Pass through embedded audio" to allow audio output signal to come from another internally cascaded card or another externally cascaded chassis' card.

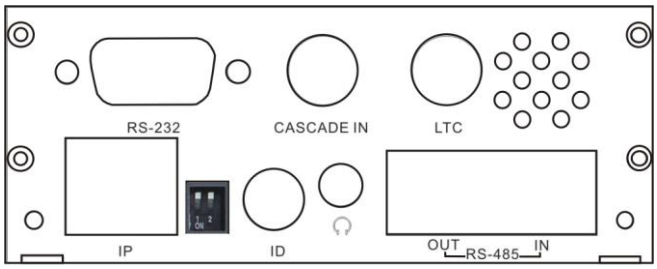


Important principles to consider when "SDI Out Type" (for Rainier 3G Plus card) and "HDMI Out Type" (for Rainier 3G Plus and Titan 9000 cards) is available for setting (not grayed out):

1. *Upon setting one card in group for Rainier 3G Plus (–Q card) and "System→Options→HDMI audio output follow SDI audio output→Off".*

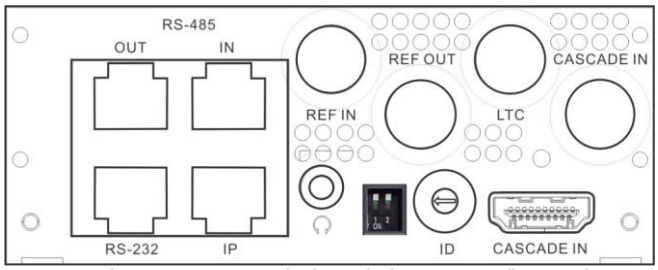
   Both "SDI Out Type" and "HDMI Out Type" is available for setting.

2. *a. For previous SDI Cascade In control board version –*



Upon setting 2 or more cascaded cards in a group (both internal and external cascade).

b. For new HDMI Cascade In control board version –



Upon setting 2 to 4 cascaded cards in a group (internal cascade only).

c. When one card in group and "System→Options→HDMI audio output follow SDI audio output→Off"

"SDI Out Type" is grayed out but "HDMI Out Type" is available for setting.

3. *Upon setting 2 or more cascaded cards in a group (external cascade only), and one of the chassis is the new HDMI Cascade In control board version.*

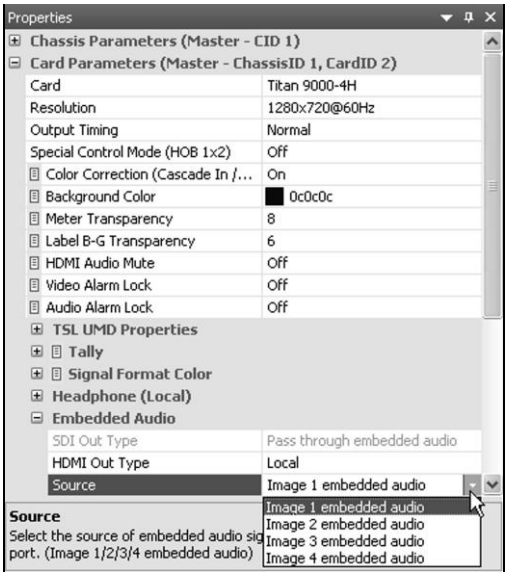
   Both "SDI Out Type" and "HDMI Out Type" is grayed-out.

Important principles to consider when "HDMI Out (Display Source)" is set at "Cascade In" –

Scenario 1:
Upon setting one card in group, then "Card Parameters"→"Embedded Audio"→"HDMI Out Type" will automatically be set at "Pass through embedded audio" to allow HDMI output signal to contain both video and audio signals.

Scenario 2:
Upon setting two or more cards in group, then "Card Parameters"→"Embedded Audio"→"HDMI Out Type" will automatically be set at "Pass through embedded audio" but HDMI output signal only contain video signal and no audio signal.

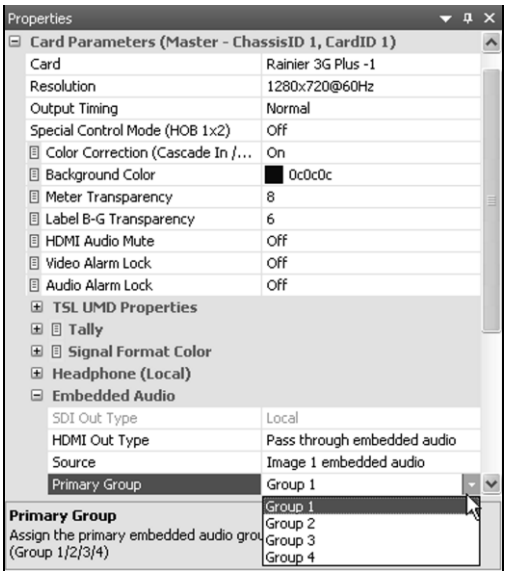
Step 6. Select the source of embedded audio signal to output to HDMI OUT port of the particular card ID. Only applicable when you select "Local" on the previous item "HDMI Out Type."



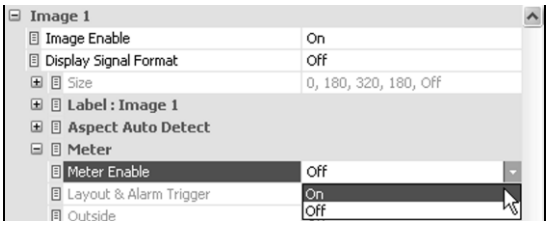
Step 7. ***For Rainier 3G Plus card only*** *–*
Select the combination of "Primary Group" and "Secondary Group" to be monitored.

for an eight-channel (7.1) and six-channel (5.1) surround audio system, select "Group 1" or "Group 2"

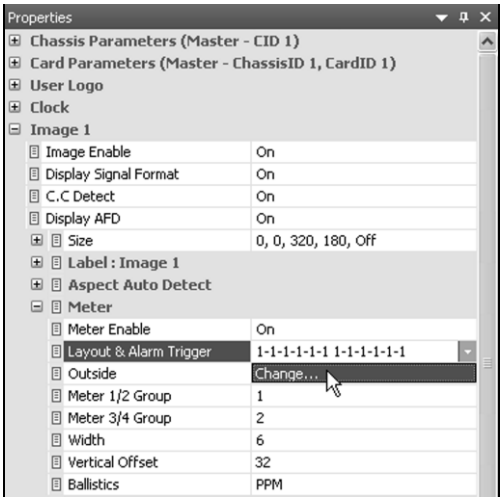
for a two-channel (stereo) audio system, only Group 1 is applicable for both Primary Group and Secondary Group.

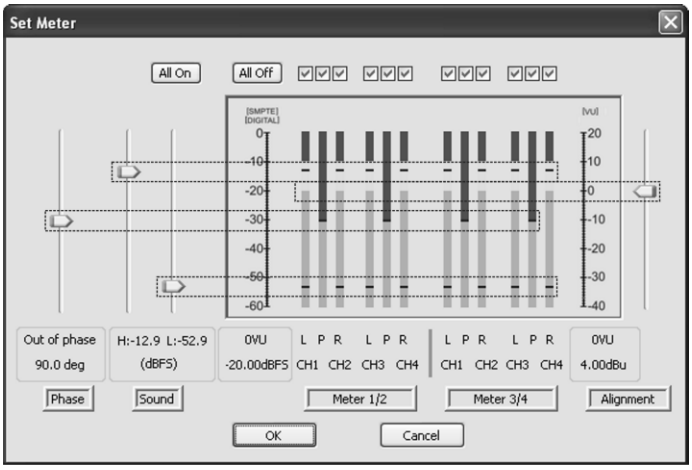


Step 8. Turn on audio meter monitoring.



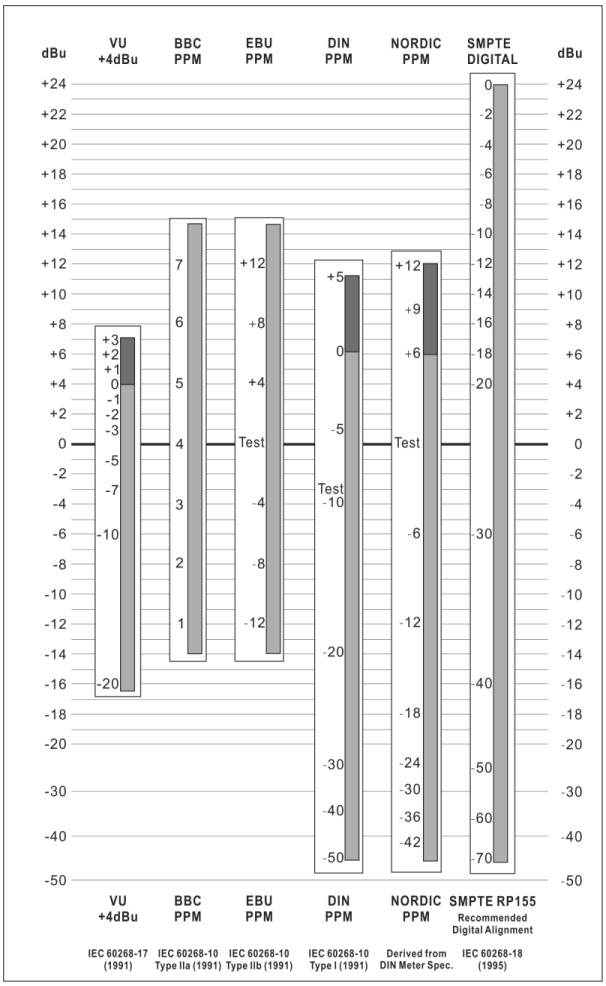
Step 9. Click "Change" in "Layout & Alarm Trigger."



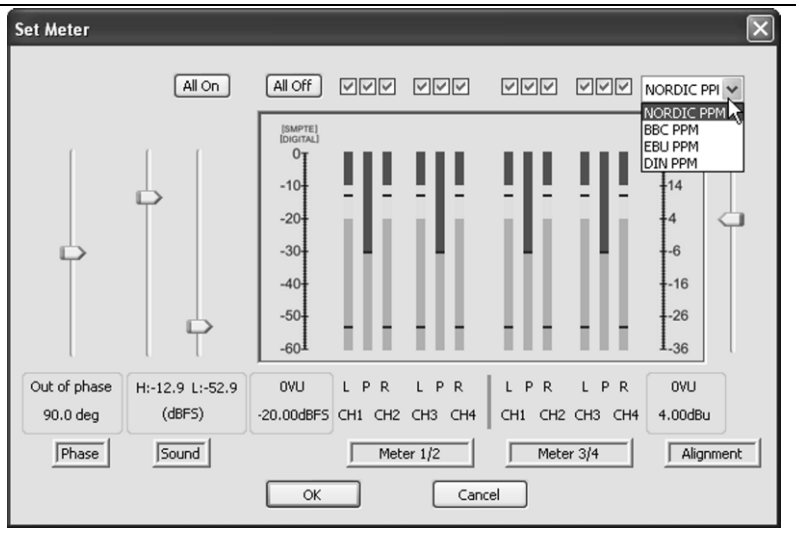


*Embedded audio as VU (volume unit) meters can be displayed inside the video window. Embedded audio is divided into four groups (**CH1** to **CH4**), with a master (**Meter 1/2**) and secondary channel (**Meter 3/4**) for each group. This allows you to display the left and right VU meter of either the master or secondary channel on the left and right side of the window just as the menu depicts. Adjust the **Phase** (**Out of phase** slider), **VU** (one slider), **Sound** (**H/L** sliders). If there is no audio detected, you will NOT see any VU meters.*

The following figure shows the audio meter scale as reference:



Outside (On / Off)	Allow the location of the audio meter to be outside the video area.
Meter 1/2 Group Left (6) bars **Meter 3/4 Group** Right (6) bars	Select the audio meter's group (embedded audio) to be shown in the window. *Note: These items only appears for Rainier 3G Plus – (1 card).*
Width	Select the audio meter's width. (**2** / **4** / **6** / **8** / **10** / **12** / **14**)
Vertical Offset (0 to 144)	Specify the location of the meter appearing on screen by setting the vertical coordinate.
Ballistics PPM VU	Select the meter's ballistics. Meters which monitor audio levels are typically one of two varieties: VU (Volume Unit) or PPM (Peak Program Meters). Though both perform the same function, they accomplish the function in very different manners. A VU meter displays the average volume level of an audio signal. A PPM displays the peak volume level of an audio signal. For a steady state sine wave tone, the difference between the average level (VU) and the peak level (PPM) is about 3 dB. But for a complex audio signal (speech or music), the difference between the average level (VU) and the peak level (PPM) can be 10 to 12 dB. This difference between the reading of a VU meter and a PPM is known as the crest factor. Upon selecting PPM, clicking **Layout and Alarm Trigger→Change . . .** allows you to select the type of PPM scale (**Nordic**/**BBC**/**EBU**/**DIN**).



Whereas the VU meter has fairly equal attack and release times, the PPM is characterized by having a very slow fall-back time, taking over 1.5 seconds to fall back 20dB (the specifications vary slightly for Type I and II meters). The reasoning for the slow fall-back was to reduce eye-fatigue and make the peak indication easier to assimilate. The specifications of all types of PPM are detailed in IEC 60268-10 (1991), and the scale used by the BBC comprises the numbers 1-7 in white on a black background. There are 4dB between each mark, and PPM 4 is the reference level (0dBu). EBU, DIN and Nordic variants of the PPM exist with different scales. The EBU version replaces the BBC numbers with the equivalent dBu values, while both the Nordic and DIN versions accommodate a much wider dynamic range.

Sample illustration 1

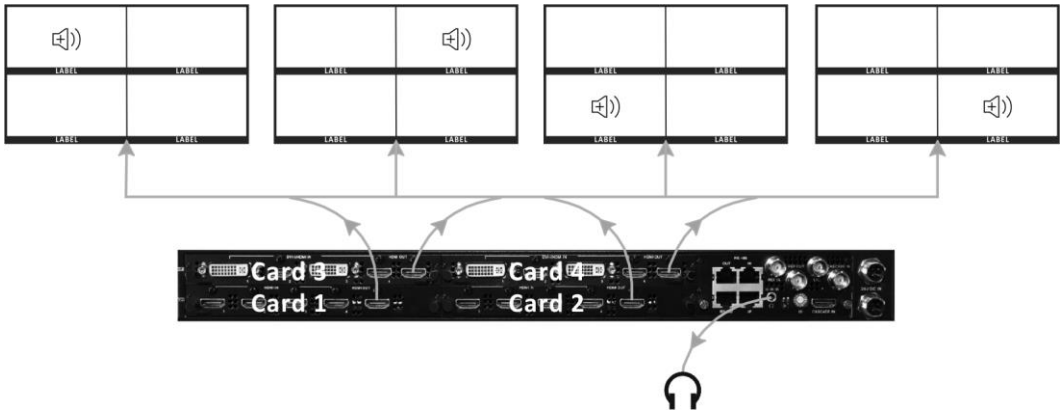


Figure C-1 Audio Output From Each Card's HDMI OUT Port Plus Headset

✓ *To allow audio output from chassis' headset port and from each card's HDMI OUT port –*
Headphone Parameters→Mute→Off *(chassis level so this includes all 4 cards)*
Headphone (Local)→Enable→On *(card level so this must be set for each of the 4 cards; take note that only 1 card can be enabled at a time, turning on one card's local headphone will cause the other card's local headphone to be turned off automatically)*
Headphone (Local)→Source *(card level; select from among the 4 image's audio signal)*
Headphone (Local)→Channel→Group 1 CH1/CH2 *(default setting; card level; depending on the signal source select another group to monitor if available)*
Embedded Audio→Source *(card level; select from among 4 image's audio signal for each card)*

Sample illustration 2

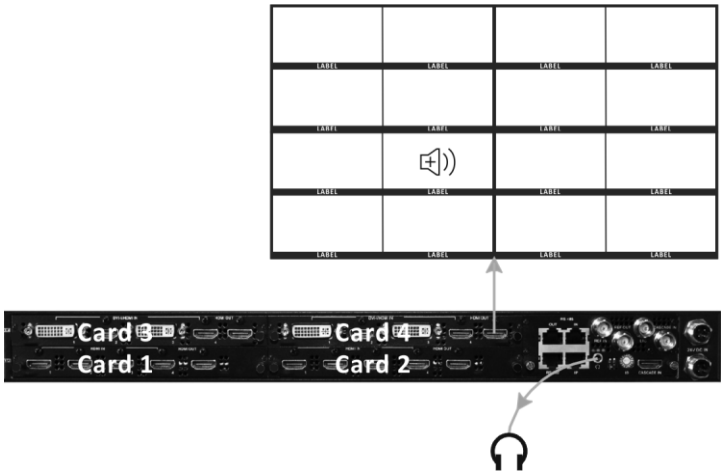


Figure C-2 Audio Output From Card ID 3 Image 2 Plus Headset

✓ *To allow audio output from chassis' headset port and from card ID 3 image 2 embedded audio –*
Headphone Parameters→Mute→Off *(chassis level so this includes all 4 cards)*
Headphone (Local)→Enable→On *(card level so this must be set for card ID 3; take note that only 1 card can be enabled at a time, turning on card ID 3's local headphone will cause the other card's local headphone to be turned off automatically)*
Headphone (Local)→Source *(card level; select from among the 4 image's audio signal)*
Headphone (Local)→Channel→Group 1 CH1/CH2 *(default setting; card level; depending on the signal source select another group to monitor if available)*
Embedded Audio→Source *(card level; card ID 1 and card ID 2 and card ID 4 select "Pass through embedded audio"; card ID 3 select "Image 2 embedded audio")*

Sample illustration 3

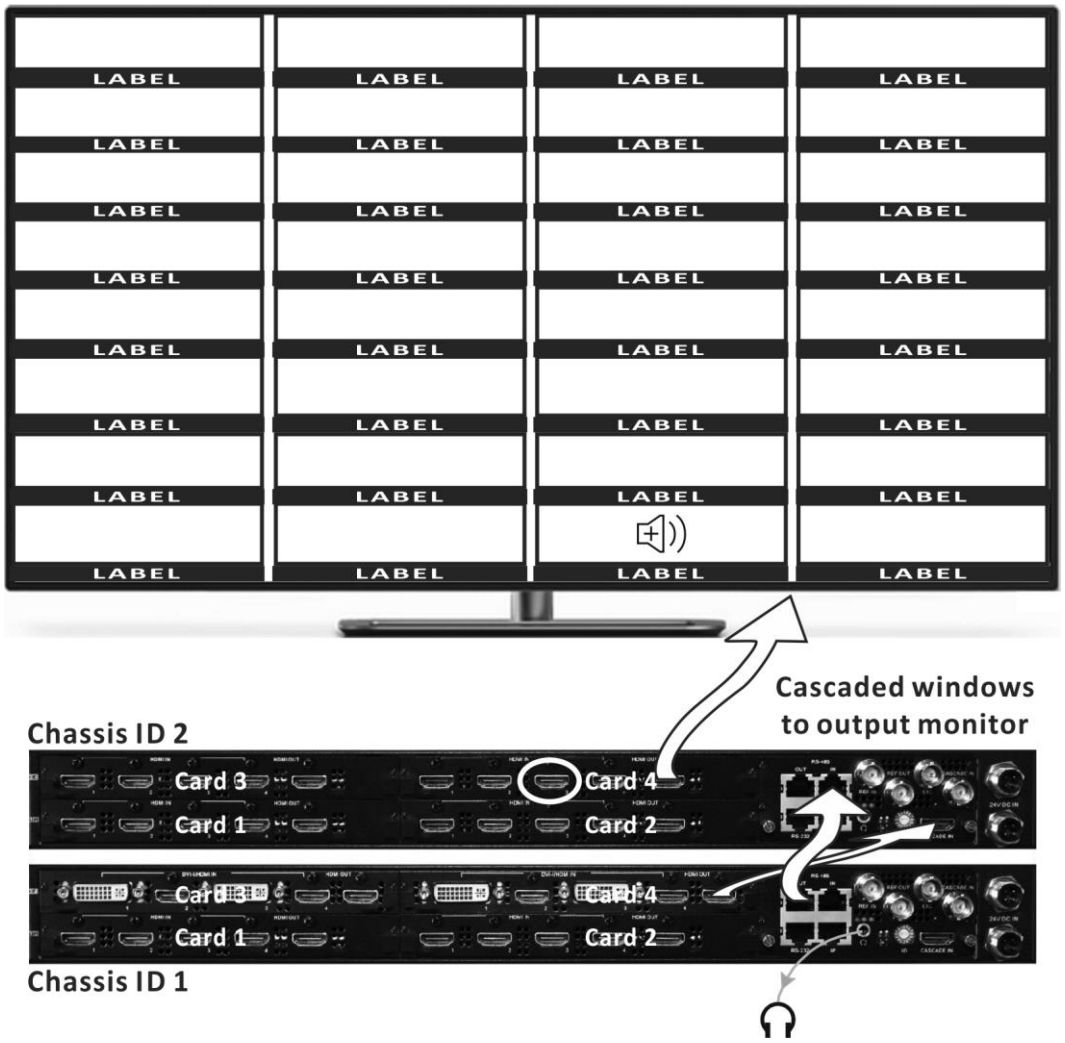
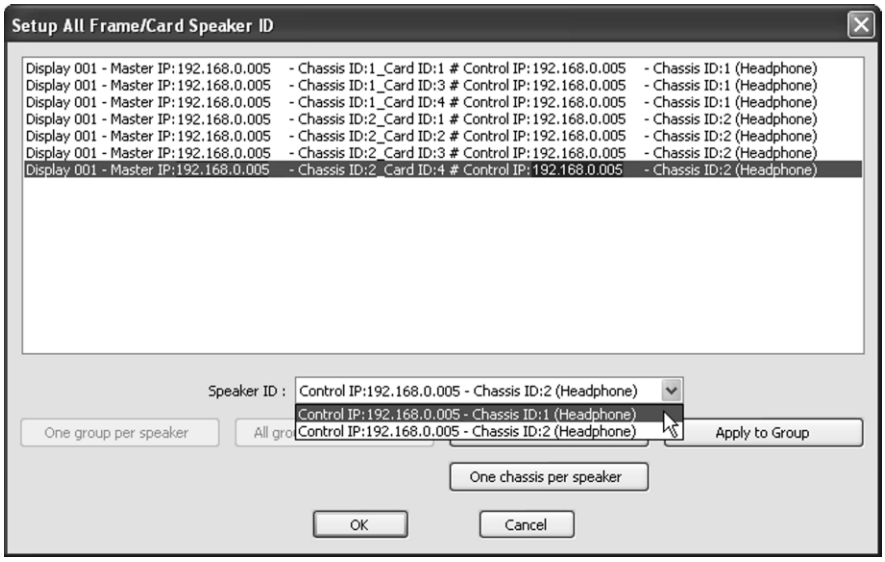


Figure C-3 Audio Output From Chassis ID 2 Card ID 4 Image 3 Plus Chassis ID 1 Headset

✓ *To allow audio output from chassis ID 1 headset port and from chassis ID 2 card ID 4 image 3 embedded audio–*
Assign all 8 cards to 1 group
System→Setup Speaker ID *(set chassis ID 2 card ID 4 output audio to chassis ID 1 headset port)*



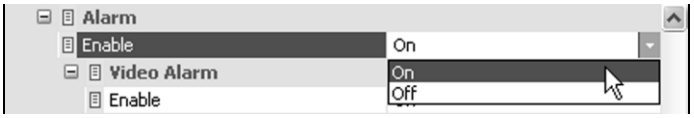
Headphone Parameters→Mute→Off *(chassis ID 1; chassis level so this includes all 4 cards)*
Headphone (Local)→Enable→On *(card level so this must be set for chassis ID 2 card ID 4; take note that only 1 card can be enabled at a time, turning on card ID 4's local headphone will cause the other card's local headphone to be turned off automatically)*
Headphone (Local)→Source *(card level so this must be set for chassis ID 2 card ID 4; select "Image 3 embedded audio")*
Headphone (Local)→Channel→Group 1 CH1/CH2 *(default setting; card level; depending on the signal source select another group to monitor if available)*
Embedded Audio→Source
(chassis ID 1 card ID 1 to card ID 4 select "Pass through embedded audio";
chassis ID 2 card ID 4 select "Image 3 embedded audio"; card ID 1 to card ID 3 select "Pass through embedded audio")

Appendix D Setting Up the Alarm Sound

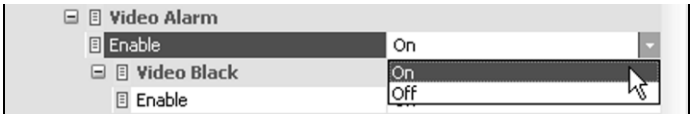
An audible alarm sound ("WAV" file format only) can be played during occurrence of (no video / video black / video freeze) / (no audio) in each image source window to allow for easy monitoring. This appendix lists the steps to setup playback of alarm sound.

D.1 Alarm Sound Setup for No Video / Video Black / Video Freeze Occurrence

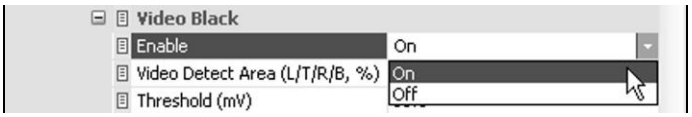
Step 1. Select "On" in "Alarm"→"Enable" to activate the various alarm features.



Step 2. Select "On" in "Video Alarm"→"Enable" to activate the various video signal alarm feature.

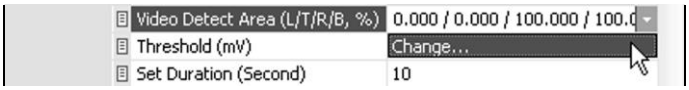


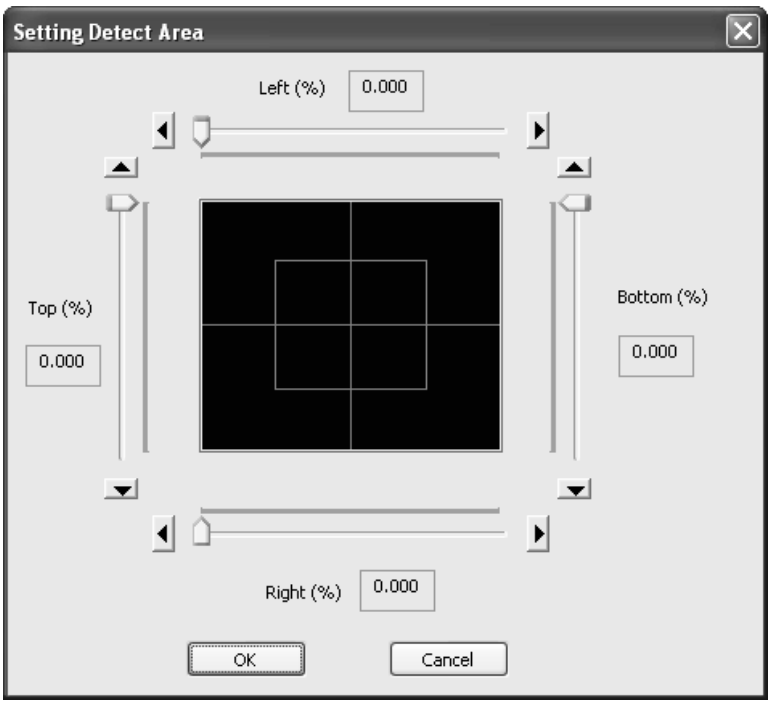
Step 3. Select "On" in "Video Black"→"Enable" to activate the "video black" alarm feature.



Analog input signal is not supported.

*Step 4. Click "Change" in "Video Detect Area" to freely adjust the horizontal (**Left** and **Right**) and vertical (**Top** and **Bottom**) markers to set scope of area to monitor when "no video" occurs.*





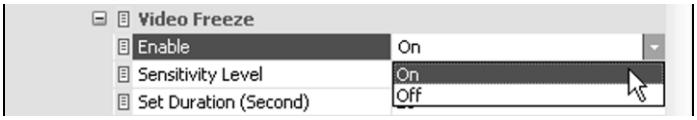
*If the **Safe Area** item has been previously set, **Video Alarm** will temporarily use the mask area border to help you set **Video Alarm**.*

Step 5. Set the level (mV/IRE) of the "detect area" below which the signal will be considered to be black.

IRE/mV unit will depend on your choice in "System"→ "Option"→ "General"→ "Video black threshold unit".

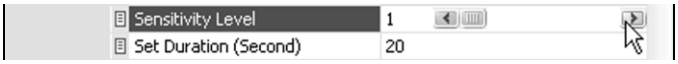
Step 6. Set the "video black" alarm response time (second).

Step 7. Select "On" in "Video Freeze"→"Enable" to activate the "video freeze" alarm feature.



Analog input signal is not supported.

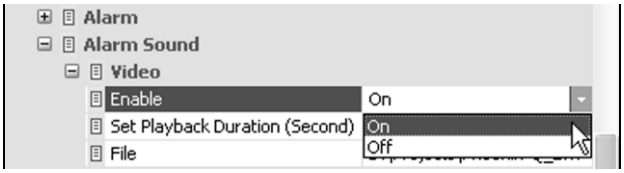
*Step 8. Set the motion sensitivity of image when "video freeze" alarm will be triggered. Adjust the sensitivity according to the signal being monitored, on a range of **1** (for filtering out noise in a noisy signal) to **128** (for a clean signal). Also, the lower the "sensitivity" level set, a "not so noticeable difference" in frame by frame content comparison (e.g., a talk show video where the background is constant and the only motion detectable is the announcer's lip movement) may trigger the alarm. In this case consider increasing the "sensitivity level" or "set duration" (next item) values.*



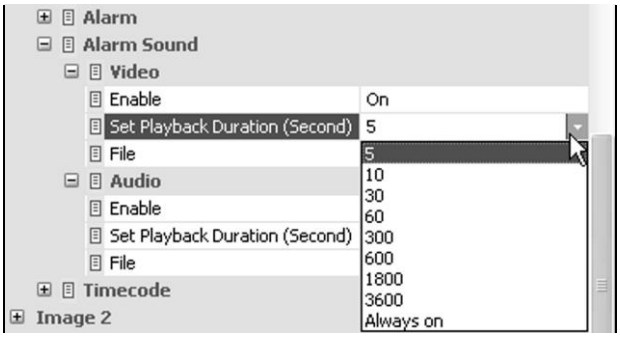
Step 9. Set the "video freeze" alarm response time (second).

***Video Black** and **Video Freeze** cannot happen simultaneously. When both conditions exist, **Video Black** has the higher priority.*
Likewise, both functions are not available for analog input signal.

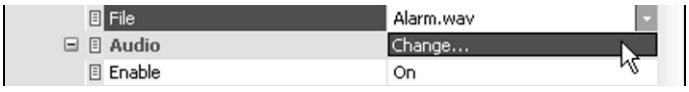
Step 10. Select "On" in "Alarm Sound"→"Video"→"Enable" to activate playback of alarm sound when no video / video black / video freeze is detected in a particular image source window.



Step 11. Set the "video alarm" sound playback duration (second) for particular image source window.



Step 12. Click "Change" in "File" to choose another alarm sound to play when video alarm occurs for the particular source image window.



Click the "browse" button to select the location of the audio file. Click "Play" to hear a sampling of the alarm sound selected. Then click "OK" to exit.

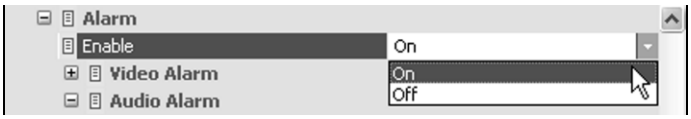
At present, only the "WAV" audio file format is supported.

Step 13. To enable alarm sound playback, click "Start Alarm Sound (System)" icon (this functions as the main switch – will become grayed-out).

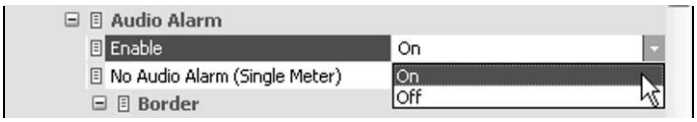
To shut off alarm sound playback before the time set has elapsed (duration), click "Stop Alarm Sound (System)" icon (will become grayed-out).

D.2 Alarm Sound Setup for No Audio Occurrence

Step 1. Select "On" in "Alarm"→"Enable" to activate the various alarm features.

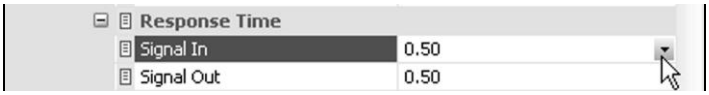


Step 2. Select "On" in "Audio Alarm"→"Enable" to activate audio loss detection to be monitored on a single channel or group.

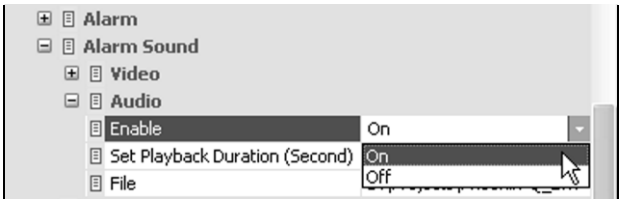


Step 3. Select "On" in "No Audio Alarm (Single Meter)" to activate the alarm that is triggered when no audio is detected on any of the meters you have enabled (with checkmark) in "Set Meter" dialog box (refer to step 9).

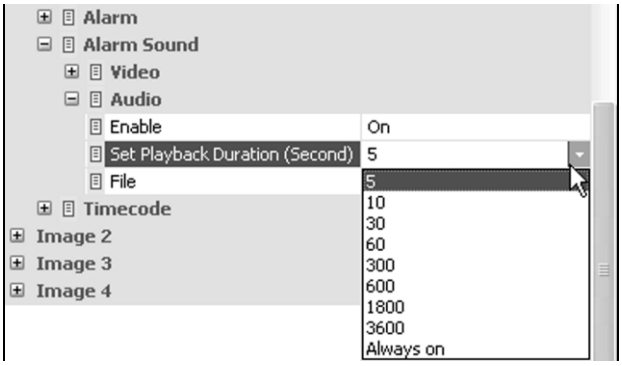
Step 4. Set the "Signal In/Out" alarm "Response Time," such as when inputting the signal or change of status from "abnormal" to "normal."



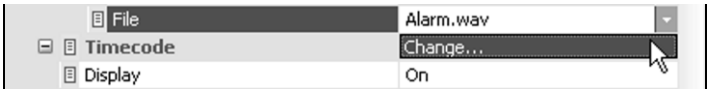
Step 5. Select "On" in "Alarm Sound"→"Audio"→"Enable" to activate playback of alarm sound when no audio is detected in a particular image source window.



Step 6. Set the "audio alarm" sound playback duration (second) for particular image source window.



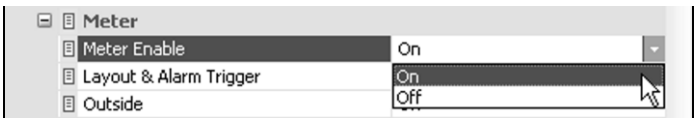
Step 7. Click "Change" in "File" to choose another alarm sound to play when audio alarm occurs for the particular source image window.



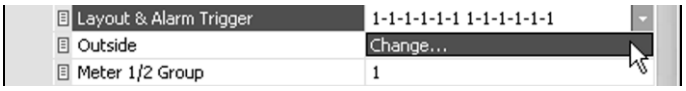
Click the "browse" button to select the location of the audio file. Click "Play" to hear a sampling of the alarm sound selected. Then click "OK" to exit.

At present, only the "WAV" audio file format is supported.

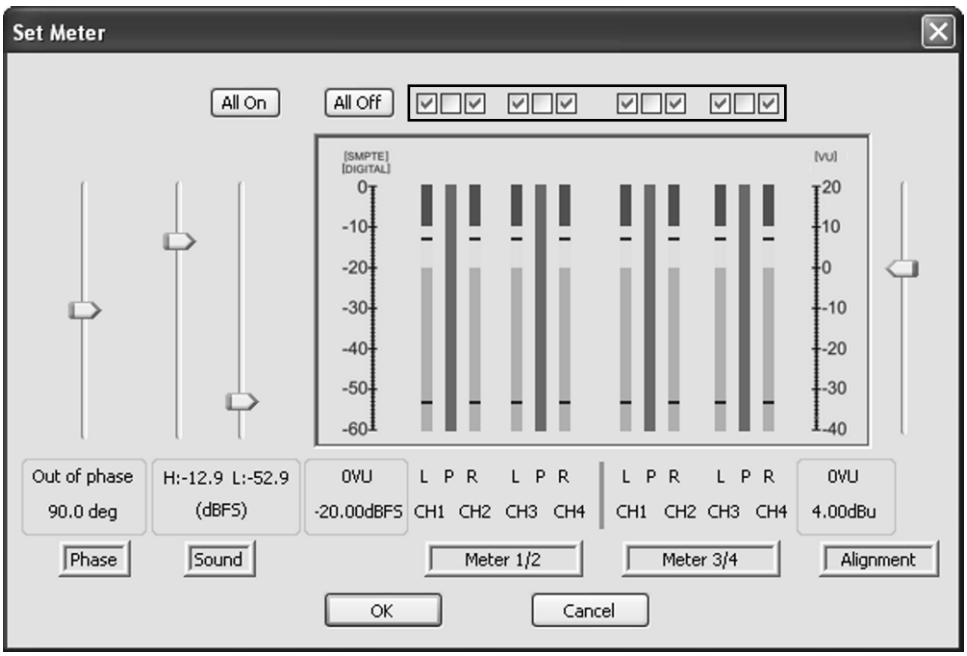
Step 8. Select "On" in "Meter"→"Meter Enable" to turn on audio meter monitoring.



Step 9. Click "Change" in "Layout & Alarm Trigger."



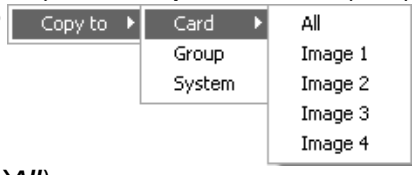
*Click to select (with checkmark) the **L**(eft) and **R**(ight) **Meter 1/2** / **3/4** to monitor. Then click **OK** to exit.*



Step 10. To enable alarm sound playback, click "Start Alarm Sound (System)" icon (this functions as the main switch – will become grayed-out).

To shut off alarm sound playback before the time set has elapsed (duration), click "Stop Alarm Sound (System)" icon (will become grayed-out).

*Right-click an item (with icon) on the **Properties** window (except with icon) and click the following to quickly apply the settings to*



- ✓ *all the windows (**Card→All**)*
- ✓ *to a particular window (**Card→Image 1/2/3/4**)*
- ✓ *all the cards belonging to the same (**Group**)*
- ✓ *to the entire (**System**)*

D.3 Import and Export Alarm Sound

Export the “Alarm Sound” parameters to be edited externally using a text editor (e.g., Microsoft® Notepad), and then import it.

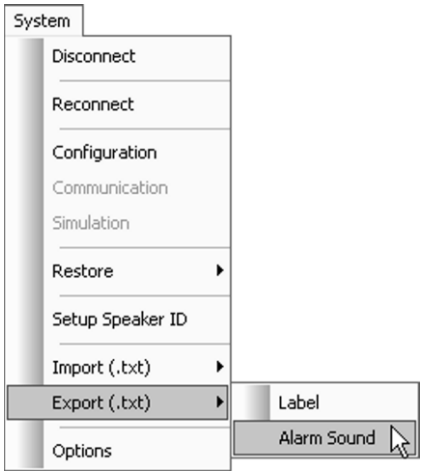


Figure D-1 Phoenix-Q Software: Click “System”→”Import/Export (.txt)”→”Alarm Sound”

*Step 1. Click **System→Export (.txt)→Alarm Sound** and assign a filename. Then click **Save**.*

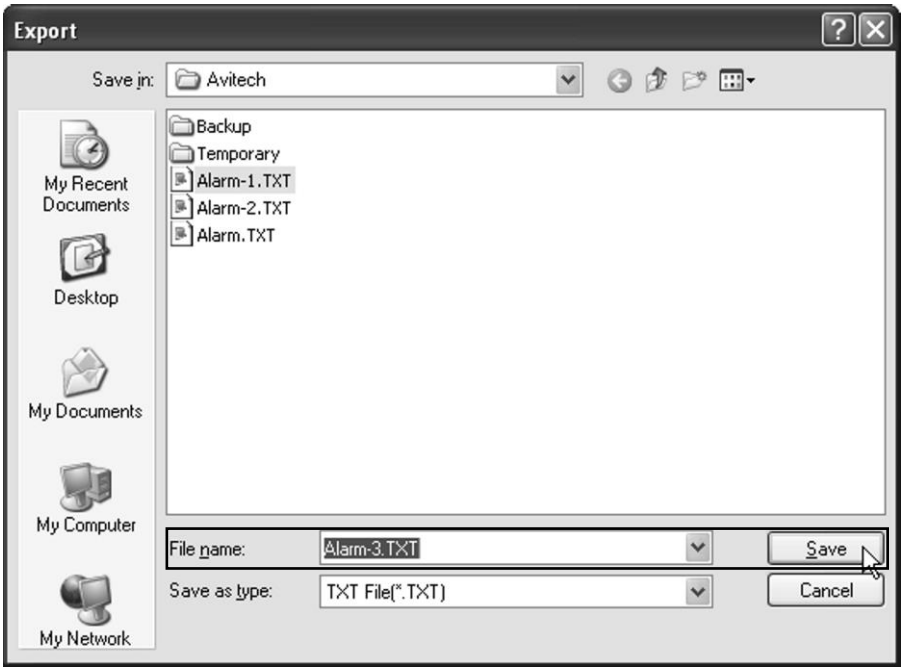


Figure D-2 Phoenix-Q Software: Export Alarm Sound

Step 2. Edit the text in the file (highlighted as shown below).
Make sure to follow correct syntax "Video Sound File – file path\filename.wav" where only a space must be located before and after the dash (–).

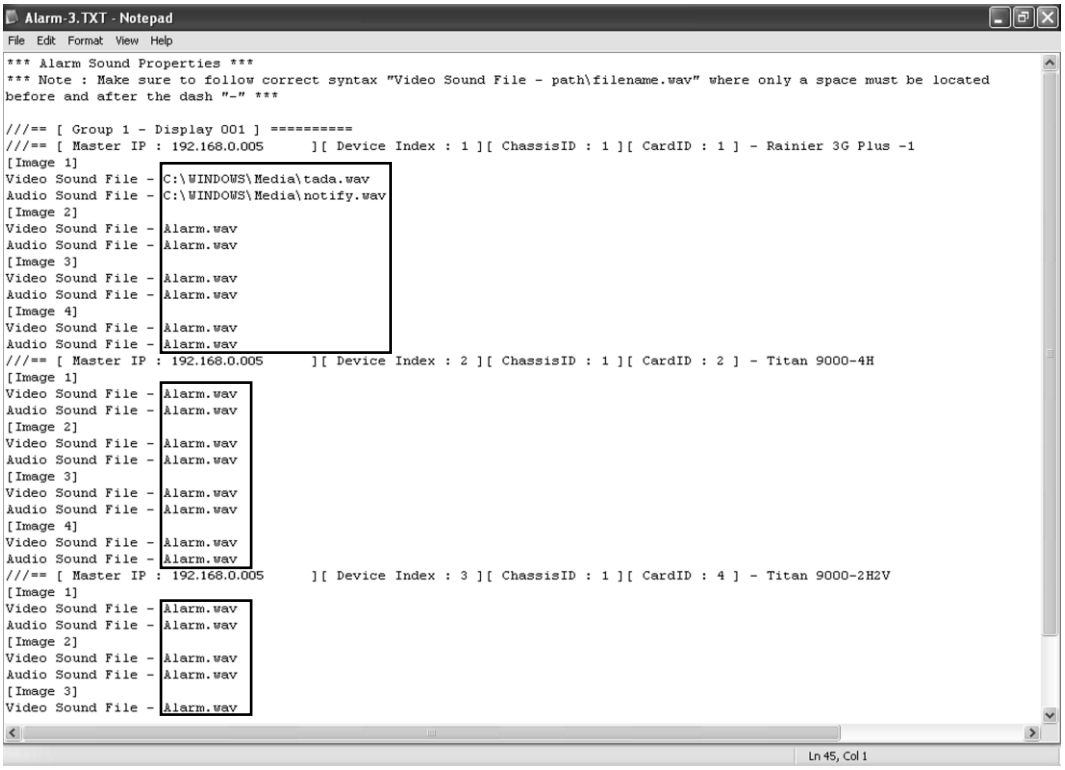


Figure D-3 Phoenix-Q Software: Change Alarm Sound File

*Step 3. When you are done editing the alarm sound filename save the **txt** file and import it. The alarm sound WAV file(s) will be updated.*

D.4 Special Layout

Before starting or stopping display of special screen layout when no video occurs, make sure to enable the feature. To find out, click **System→Options** on the Phoenix-Q software's drop-down menu.

The highlighted item must be set at **On**.

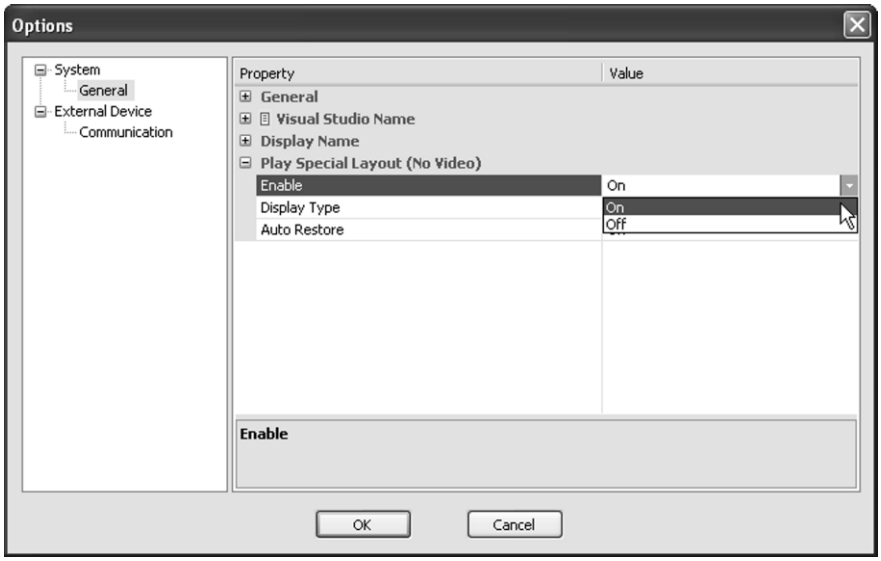


Figure D-4 Options: Enable Special Layout

Otherwise, the icon would be disabled (grayed-out). Click the third icon to activate special screen layout alert when **No Video** occurs.

Figure D-5 Phoenix-Q Software: Enable Special Layout Button

When the special screen layout alert occurs and you want to deactivate it, click the last icon. Notice that when the special screen layout alert occurs, many functions on the Phoenix-Q software are disabled (e.g., **Group View** window, **Properties** window, main layout area move or resize window, etc).

Figure D-6 Phoenix-Q Software: Shut Off Special Screen Layout Alert Button

Appendix E Setting Up Static IP

The following two methods allow Titan 9000 to be in same network mask with the connected computer.

Method 1: Change the IP Address of the Titan 9000 Master Chassis

*Step 1. Run the Phoenix-Q software by double-clicking **Phoenix-Q.exe**.*

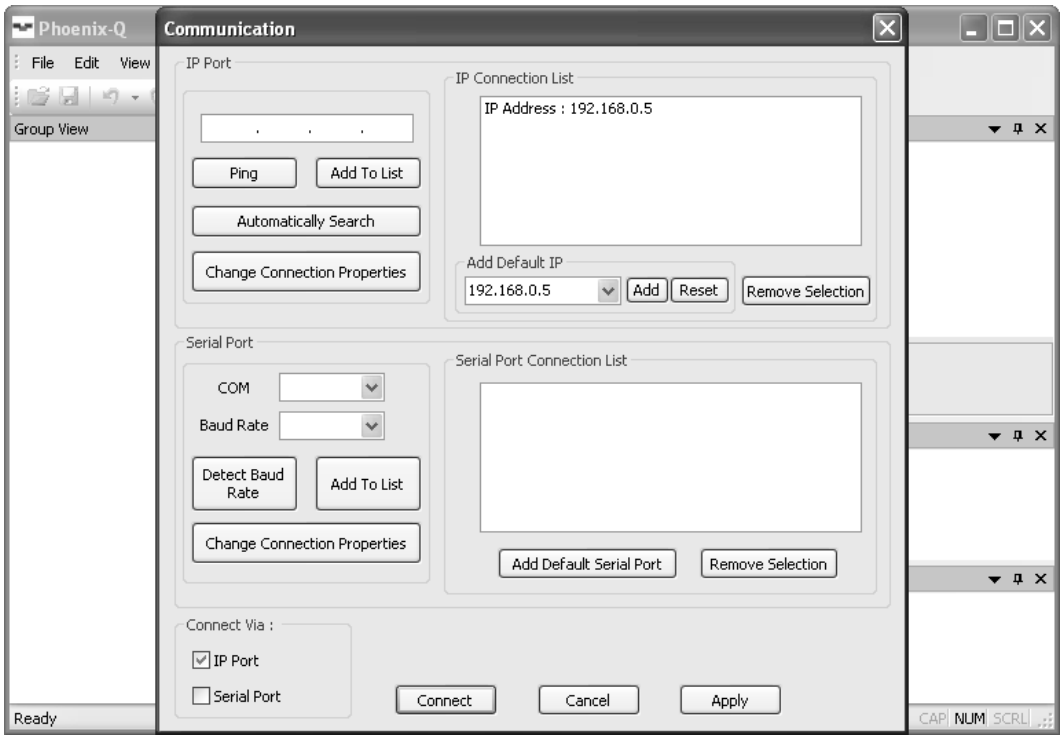


Figure E-1 Phoenix-Q Software: Initial Screen

*Step 2. Change the IP address by first clicking the default **IP Address: 192.168.0.5** entry in the **IP Connection List** window. Then, click **Change Connection Properties**.*

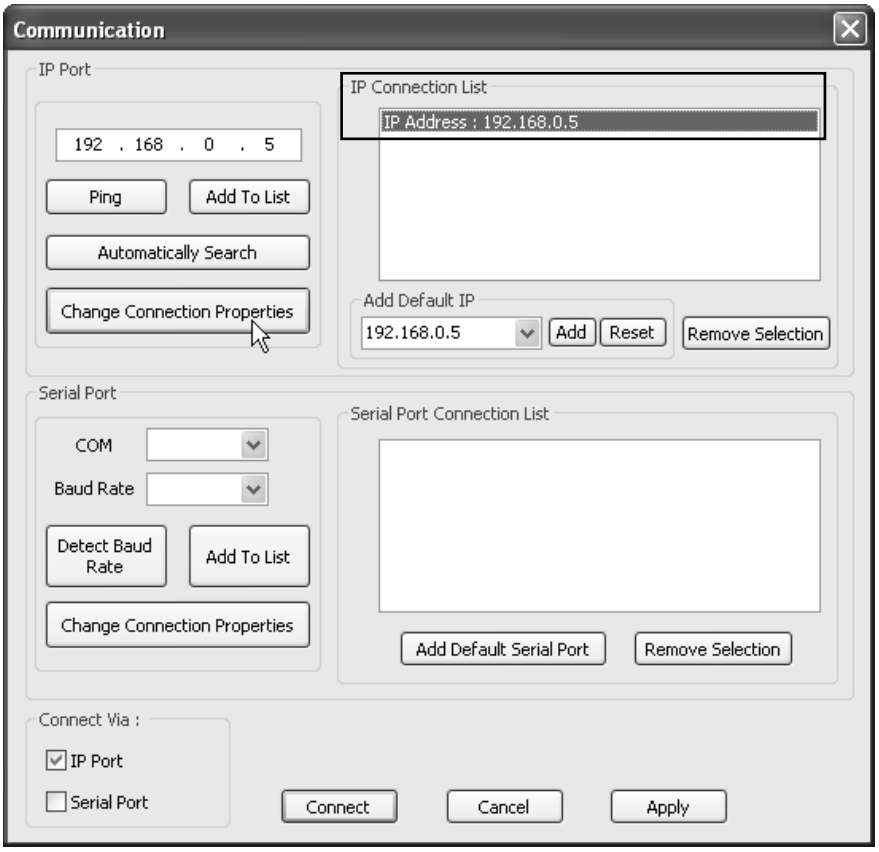


Figure E-2 Phoenix-Q Software: Click “Change Connection Properties”

*The present IP address is shown in the **IP address** field. The corresponding **Subnet Mask** and **Gateway** belonging to the present IP address is also displayed.*

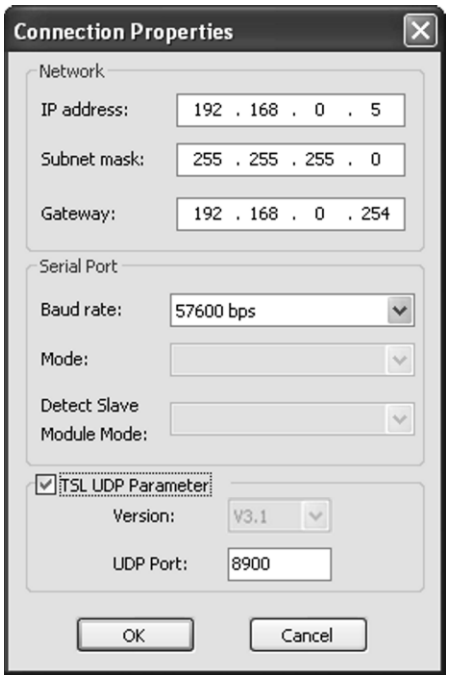


Figure E-3 Phoenix Q Software: “Connection Properties” Screen

*Step 3. Enter the new **IP address**. Edit the **Subnet Mask** and **Gateway** as necessary. Then, click **OK**. The IP address will be changed for the target device (saved to flash memory of Titan 9000).*

*Step 4. Click **OK** to exit.*

Figure E-4 IP Address Change Successful

Method 2: Change the IP Address of the Controlling Computer

For Windows XP

*Step 1. Click **Start**, and then right-click **My Network Places**, and click **Properties**.*

*Step 2. When the next screen appears, right-click **Local Area Connection** icon, and click **Properties**.*

*Step 3. When next screen appears, click to highlight **Internet Protocol (TCP/IP)**, and click **Properties**.*

*Step 4. When the next screen appears, click the radio button to select **Use the following IP address:**, and then enter the **IP address: 192 . 168 . 0 . x** (where **x** is any value from **1 – 4** or **6 – 253**), and **Subnet mask: 255 . 255 . 255 . 0**.*

*Step 5. Click **OK** to exit.*

For Windows 7

*Step 1. Click **Start** and type in **Network and Sharing Center**.*

*Step 2. Click **Change Adapter Settings** on the left.*

*Step 3. Right-click the **Local Area Connection** the Titan 9000 is connected to and select **Properties**.*

*Step 4. When the next screen appears, click to highlight **Internet Protocol Version 4 (TCP/IPv4)**, and click **Properties**.*

*Step 5. When the next screen appears, click the radio button to select **Use the following IP address:**, and then enter the **IP address: 192 . 168 . 0 . x** (where **x** is any value from **1 – 4** or **6 – 253**), and **Subnet mask: 255 . 255 . 255 . 0**.*

*Step 6. Click **OK** to exit.*

Appendix F Resetting to the Factory-Default State

Step 1. Power-off the Titan 9000 by cutting off power from the power strip.

*Step 2. Push the number **2** dip switch located on the control card downward to the **ON** position.*

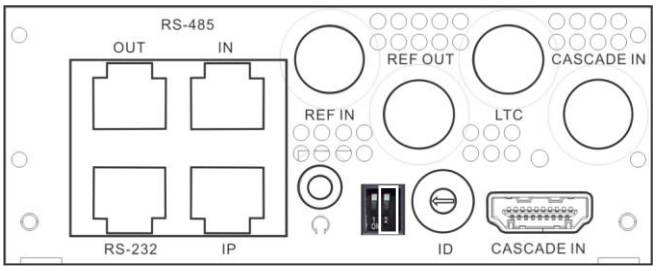


Figure F-1 Push Number 2 Dip Switch Downward

Step 3. Power-on the Titan 9000 by restoring power from the power strip.

*Step 4. Push back the number **2** dip switch upward to the default position.*

Appendix G Compatibility With Tally Interface Device

The Titan 9000 (together with Pacific GPIO + RS-232 to 422 converter + mini null modem adapter + re-worked serial cable) system supports production switchers and other tally interface devices; via a serial connection. The combined devices can dynamically update monitor wall elements to reflect text and status updates from the device. This appendix describes how Titan 9000 can be configured to receive dynamic labels and status from tally interface devices.

At the time of writing of this manual, the Titan 9000 has been tested to support the Sony switcher. Other production switchers may be added in the future.

G.1 Using the Pacific GPIO Box as GPI Interface

Pacific GPIO is a General Purpose Input/Output box for GPIO (General Purpose Input/Output Interface) task assignment. By using the RS-232 to 422 converter plus mini null modem adapter (DB9 male to DB9 male) plus re-worked serial cable, it serves as a bridge between Titan 9000 and Sony switcher.

Pacific GPIO box serves as the GPI interface to receive tally information from a switcher whose specific protocol the multiviewer does not support. This is based on the assumption that the switcher is capable of communicating via GPI.

No software configuration is needed on Pacific GPIO box, only the hardware connection is necessary.

But for the Titan 9000 to receive status information from a Sony switcher through the Pacific GPIO box, and to display the Pacific GPIO box's contribution on the monitor wall as visual tally information, you need to configure your Titan 9000 by performing the following setting in Phoenix-Q software:

Step 1. Run the Phoenix-Q software (see chapter 4 for details).

Step 2. Make sure you have set the correct IP address (see Appendix E for details).

*Step 3. On the **Properties** window under **TSL UDP Parameter**, click the rightmost portion and click **Change**.*

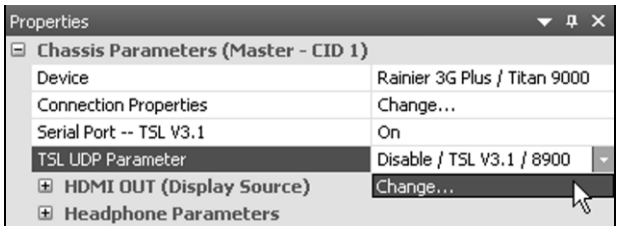


Figure G-1 Properties: Change TSL UDP Parameters

*Step 4. Click **Enable**. Enter the correct **UDP Port** (User Datagram Protocol) value that matches the connected switcher. Click **OK** to exit.*

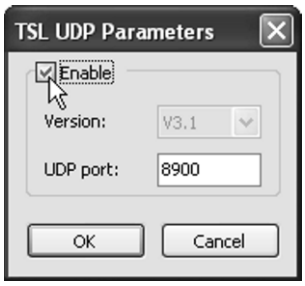


Figure G-2 Enable TSL UDP Parameters

*Step 5. On the **Properties** window under **TSL UMD Properties**, make sure that **Enable** is set **On** for the **Image #** of a particular Card ID the Sony switcher wishes to communicate with.*

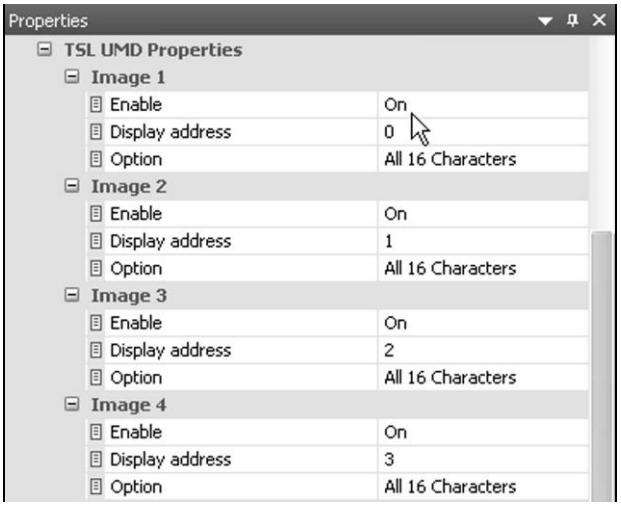


Figure G-3 Phoenix-Q Software: Enable Image #'s TSL UMD Properties

*Step 6. Make sure that the **Display Address** corresponds to the assigned value of the Sony switcher. If not, select the correct value from the drop-down menu.*

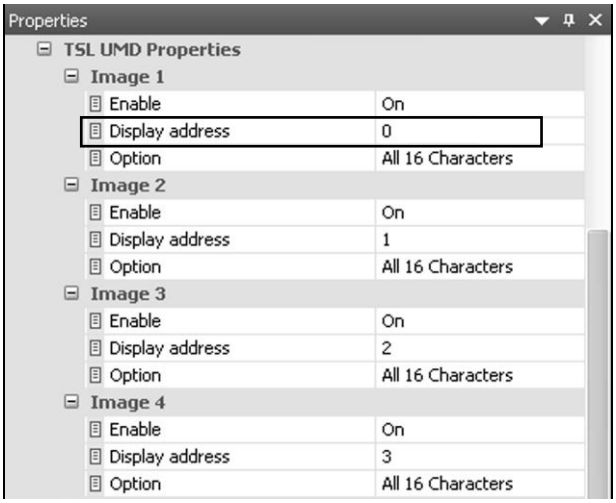


Figure G-4 Phoenix-Q Software: Select the Correct Display Address That Matches the Sony Switcher

Setting the next item "Option" is not necessary.

*Step 7. Make sure that the **Display Type** is set at **Destination Name (D-Name)**.*

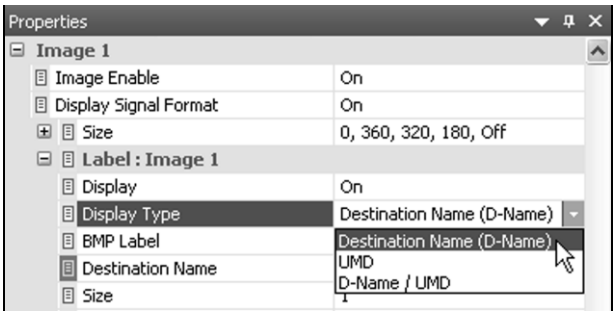


Figure G-5 Phoenix-Q Software: Select the Correct Display Type

G.2 Sony Production Switcher

Titan 9000 can receive dynamic source names and tally information from a Sony switcher. The procedure below describes how to set up Titan 9000 to interface with a Sony production switcher.

*Step 1. Connect an Ethernet cable between Titan 9000 **IP** port and router.*

*Step 2. Connect an Ethernet cable between Pacific GPIO **IP** port and router.*

Step 3. Connect a special re-worked serial cable between Sony switcher's RS-422 serial tally port and RS-232 to 422 converter.

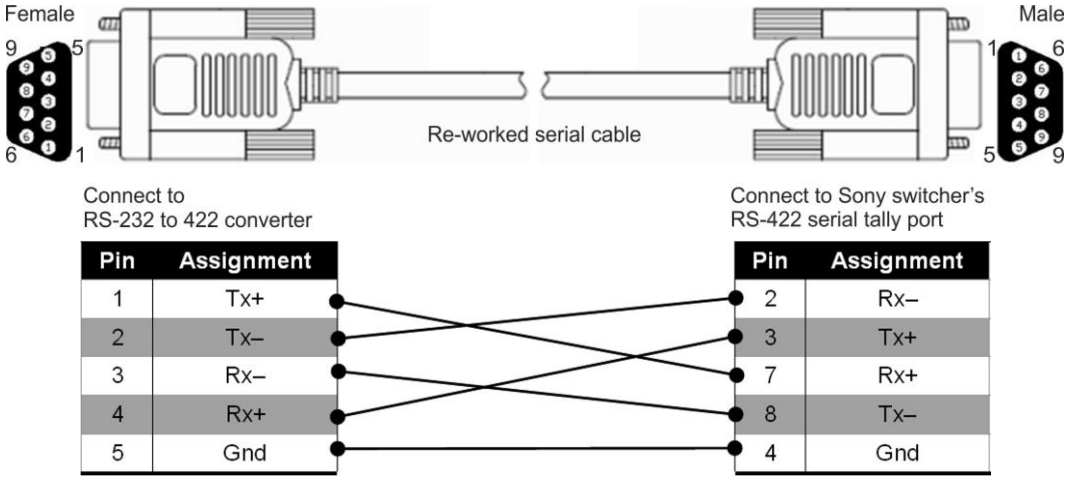


Figure G-6 Re-worked Serial Cable Pin Assignment

*Step 4. Connect one end of the mini null modem adapter (DB9 male to DB9 male) to the RS-232 to 422 converter; and the other end to the Pacific GPIO **RS-232 (1)** port.*

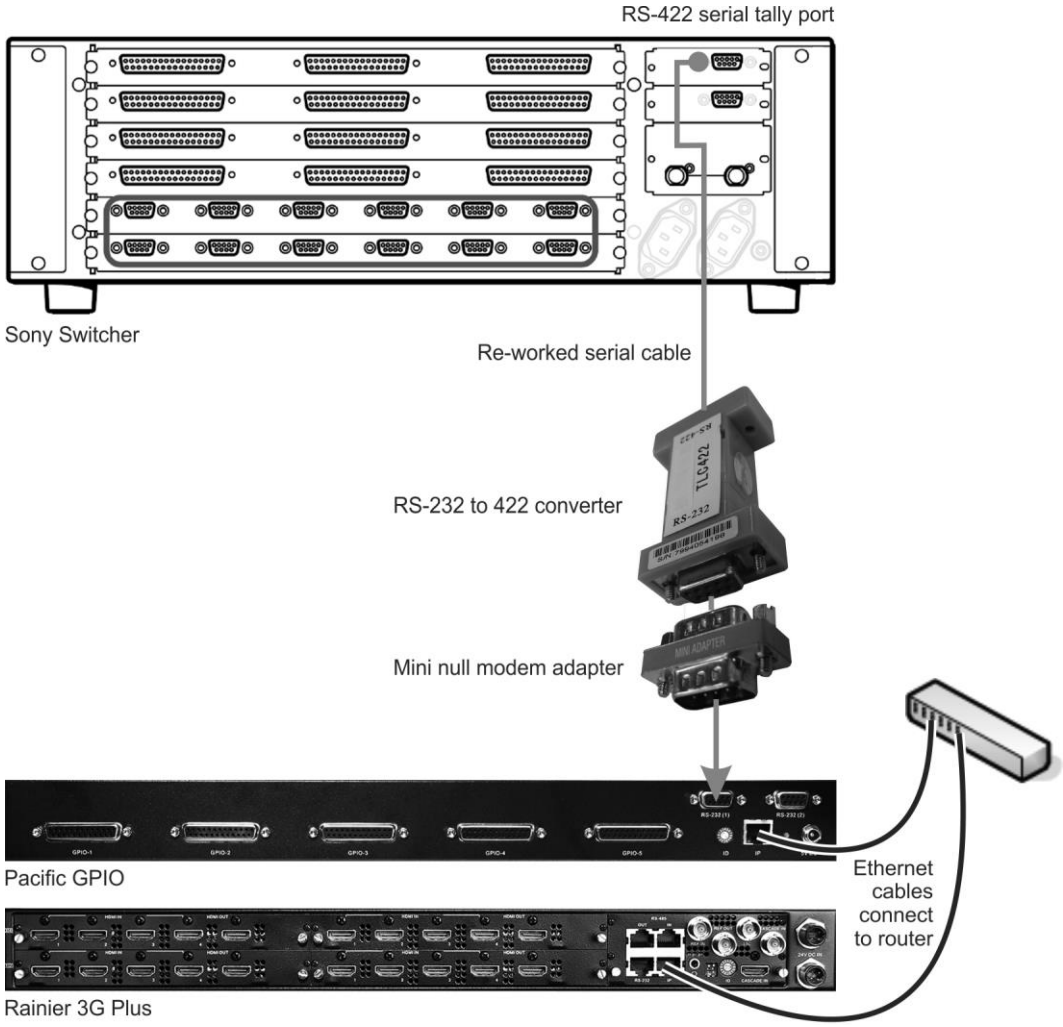


Figure G-7 Physical Connection (Sony Switcher)

*Only the **RS-232 (1)** port in Pacific GPIO can be used to connect to the mini null modem adapter.*

Step 5. Enable serial tally on one of the switcher's ports (refer to Sony Production Switcher System User's Guide for details).

Appendix H ScreenCropT Utility

The Titan 9000 comes with a windows-based user interface called ScreenCropT. Avitech's ScreenCropT utility is easy to use and hosts several powerful tools that include:

- ✓ *Input port selection for single or cascaded setup (chassis ID, card ID, image ID)*
  Note: For a cascaded Titan 9000 setup, it is highly recommended to set all the chassis to the same IP address but with different rotary ID setting.
- ✓ *Live Pan Preview*
- ✓ *Area of Interest cropping (supports 2 instances)*
- ✓ *Cropped-area scaling*

When used together with the Synergy freeware, it integrates the functions of a KVM *(keyboard video mouse)* switch, allowing you to use just one set of mouse and keyboard (configured as the "server" computer in Synergy freeware) to control multiple computers connected to several cascaded Titan 9000.

⚠ *The ScreenCropT utility can only be used with the Windows operating system.*

With ScreenCropT utility:

- ✓ *Easily air Microsoft PowerPoint presentations and other computer-based content.*
- ✓ *Select and scale YouTube windows to fit any broadcast output resolution.*
- ✓ *Crop out extraneous interface toolbars and broadcast clean Google Earth maps.*
- ✓ *Output any video stream playing on any media player, such as QuickTime, VLC, or Windows Media Player.*

H.1 ScreenCropT Utility Control Panel

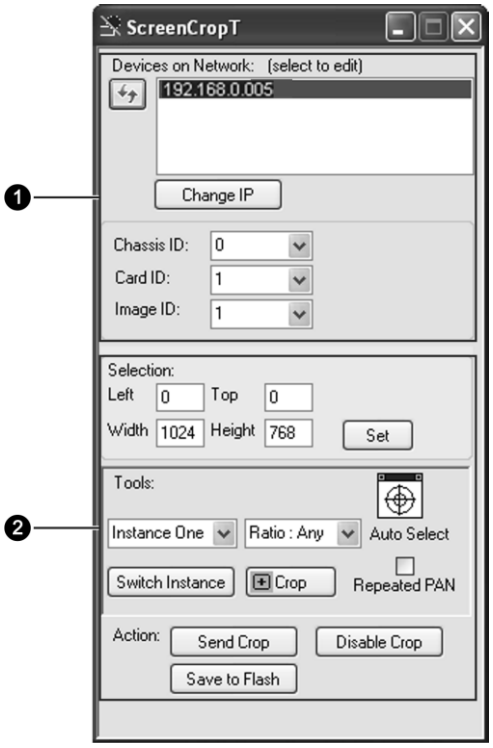


Figure H-1 ScreenCropT Utility Control Panel

Status Information (1)	
Devices on Network	Displays all detected Avitech's Titan 9000 multiviewers in the same network mask. *Note: In the case of cascaded setup, it is highly recommended to set all the Titan 9000 to the same IP address, but set with different rotary ID setting, and then using the "Chassis ID" drop-down menu to select.*
IP Address List Refresh Button	Click the IP address list refresh button  to update the connected Avitech devices' IP address in the same network mask.
Change IP	Changes the IP address of selected Titan 9000.
Chassis ID **Card ID** **Image ID**	Follows the Phoenix-Q utility designation for single or cascaded system.

Cropping Feature (2)	
Left/Top/Width/ Height	Displays and adjusts the cropped instance's size and related location.
Set	After entering/adjusting the **Left**/**Top**/**Width**/**Height** parameters, click this button to change the location of the 4 green cropping corners.
Instance	Chooses between 2 different area of interest instances (**Instance One** or **Two**) and then sets the cropping parameters. (Refer to section H.4 for details)
Switch Instance	If both **Instance One** and **Instance Two** cropping parameters have been set, then clicking the **Switch Instance** button toggles between the 2 instances and automatically output the cropping parameters.
Ratio	Sets a fixed (**1:1**, **3:2**, **4:3**, **5:4**, **16:9**) aspect ratio or a non-fixed (**Any**) aspect ratio for any area of interest.
Auto Select	 Automatically selects a window/object to be cropped by positioning the crosshair on the desired window/object. ❖ For example, auto-selects a YouTube window or a Google Map.
Crop	Crops an area by dragging the cursor. Upon releasing the left mouse button, 4 green cropping corners will display the area just selected (area of interest). (Refer to section H.3 for details)
Repeated Pan	Enables the pan feature for cropped instance (pan anywhere). (Refer to section H.5 for details)
Send Crop	Sends the cropped instance to the selected Titan 9000.
Disable Crop	Disables the cropping. This is equivalent to pressing "Ctrl + Esc" hot-keys to "disable crop" in "server" window or pressing "Esc" hot-key to "disable crop" in "client" window.
Save to Flash	Saves the current ScreenCropT session's parameter to the flash memory of the Titan 9000. The settings can be automatically loaded on the next ScreenCropT session. *Note: The "Save to Flash" action must be performed for each Card ID of the Titan 9000.*

Table H-2 ScreenCropT Utility Control Panel Description

H.2 Using the ScreenCropT Utility Together With the Synergy Freeware

Before using the ScreenCropT utility to control the Titan 9000, you need to set it in the same network mask with the connected computer. Refer to "Appendix E" for details on setting up the network mask.

To use the Synergy freeware, perform the following steps for each of the connected computers:

Step 1. On your computer browser, go to http://synergy-foss.org/.

Step 2. Click the "download" link and select the type of Windows operating system of your computer (32-bit or 64-bit).

Step 3. Save the installer file to your computer's hard drive.

Step 4. Double-click the installer file and follow the on screen instructions to complete the installation.

Step 5. Allow "Windows Explorer" to be restarted when the prompt appears.

Step 6. On the "Server or Client" selection screen, select "Server" for the first computer you are configuring. Your keyboard and mouse are connected to this computer. This will allow you to move your mouse over to another computer's screen.

Select "Client" if you have already set up a server. This is a computer you wish to control using the keyboard and mouse connected to the server computer.

1. There can only be one server in your setup; but there can be many clients in your setup.
2. Click the link "http://synergy-foss.org/wiki/Manual" for details on using the Synergy freeware. It covers everything from installing the freeware, configuring the server and client, and troubleshooting.

*Step 7. Double-click **Synergy.exe**.*

*A Windows Security Alert screen may appear upon using Synergy freeware for the first time on a computer. Click **Unblock**, and the Windows Alert will not appear on subsequent uses of Synergy.*

Step 8. Click to select the checkbox for "Server (share this computer's mouse and keyboard)" for the first computer you are configuring. The IP address(es) associated with your computer will be listed. Click the "Configure Server" button and proceed to step 9.

Or, click to select the checkbox for "Client (use another computer's keyboard and mouse)" if you have already set up a server. Enter the correct "Server IP" in the box provided to be able to use that computer's keyboard and mouse.

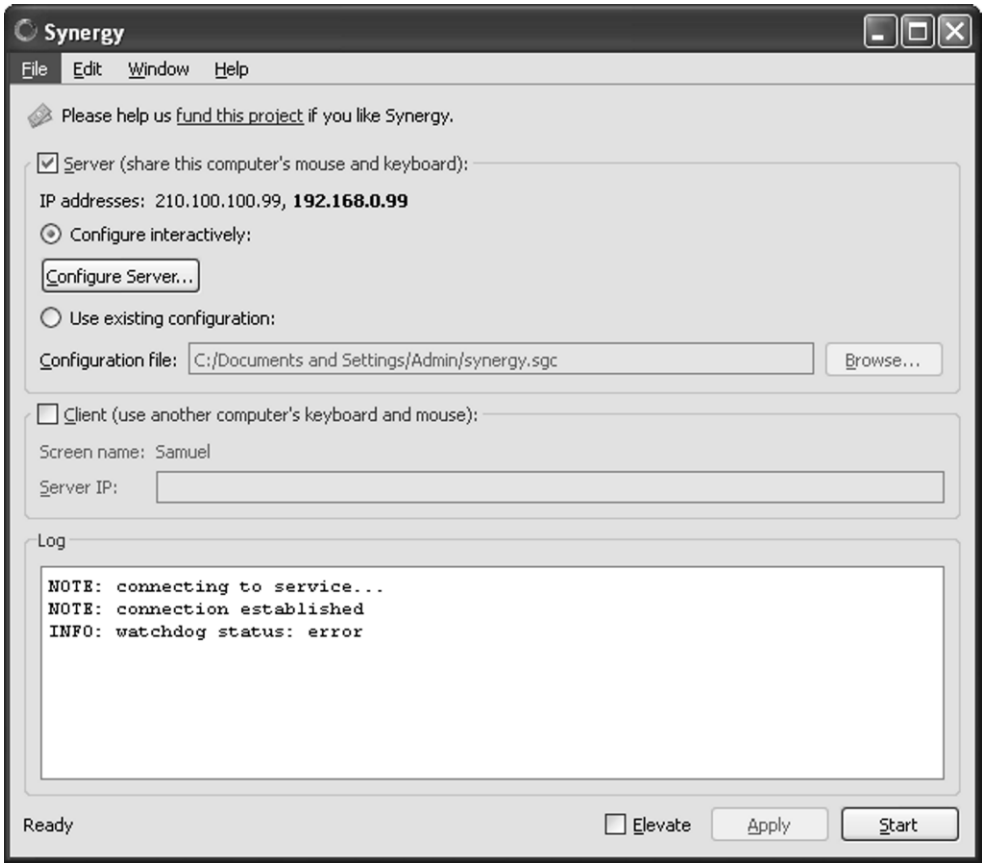


Figure H-2 Synergy Freeware Configuration Window

Step 9. (If you previously selected "Server" then this step is a continuation of the previous "step 8")
Based on your desired Synergy layout setup (KVM function); you can:
- ✓ *drag new screens to the grid or move existing ones around*
- ✓ *drag a screen to the trashcan to delete it, or*
- ✓ *double-click a screen to edit its settings.*

Then click "OK" to return to the previous screen.

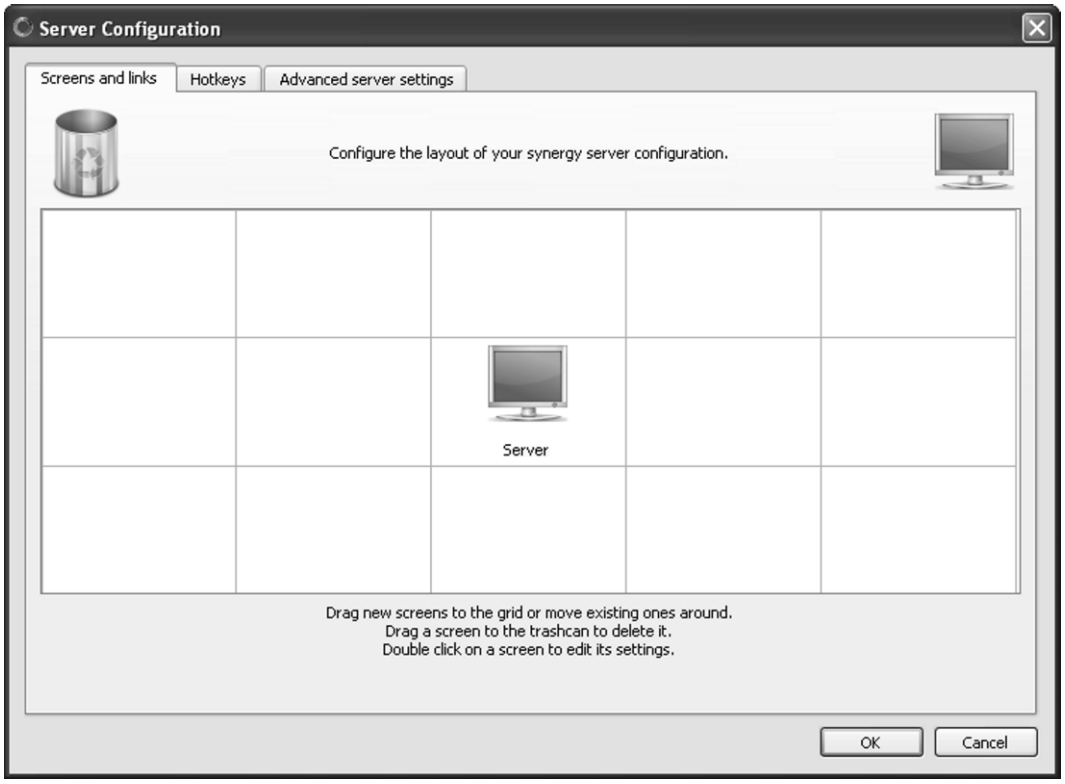


Figure H-2 Synergy Freeware Server Setup Window

Make sure that the layout you set in this window matches the actual physical setup of your Titan 9000.

Step 9. Click "Start" and then "Apply."

If in case any of the following occurs for any of the connected computers (server or client):
✓power was loss
✓network connection was disrupted, or
✓any change on the desired Synergy layout setup
click "Apply" on this configuration window of the affected computer again in order for KVM to work properly.

To use the ScreenCropT utility, perform the following steps for each of the connected computers that will be part of the Synergy configuration:

Step 1. Copy the three ScreenCropT utility system files to the computer.

*Step 2. Double-click **ScreenCropT.exe**.*

*A Windows Security Alert screen may appear upon using ScreenCropT utility for the first time on a computer. Click **Unblock**, and the Windows Alert will not appear on subsequent uses of ScreenCropT.*

H.3 Cropping Feature

ScreenCropT utility sets 2 instances of “area of interest.” The associate contents can then be transmitted to the intended audiences. To crop areas of interest, perform the following steps.

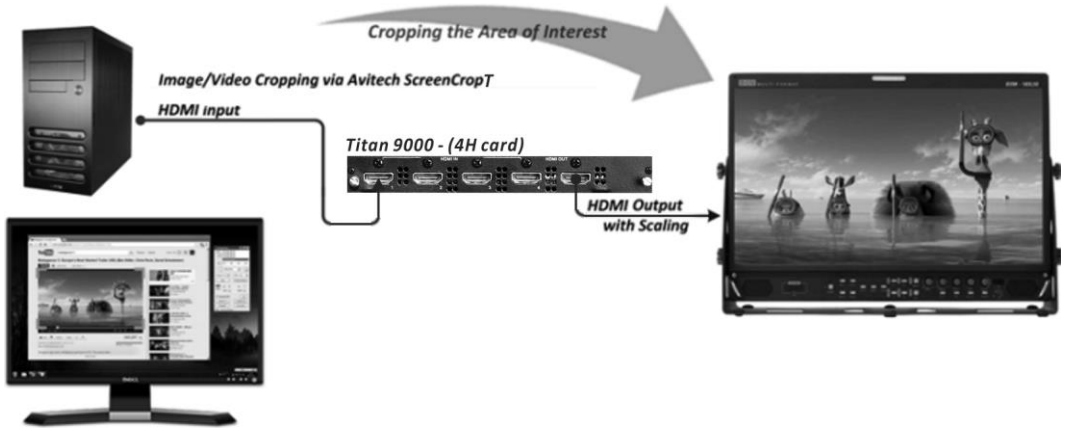


Figure H-3 Cropping a Defined Area of Interest

Step 1. Click to select the detected Titan 9000 multiviewer in the “Devices on Network” window. In the case of cascaded setup, it is highly recommended to set all the Titan 9000 to the same IP address, but set with different rotary ID setting, and then using the “Chassis ID” drop-down menu to select.

Step 2. Click to select the “Chassis ID” (in the case of cascaded setup and that the Titan 9000 are set to the same IP address), “Card ID,” and “Image ID” to perform cropping.

*Step 3. Click the **Crop** button and use the cursor to select an area to crop. Upon releasing the left mouse button, 4 green cropping corners will display the selected area.*

- ✓ *A floating 5× magnifying window will display any nearby graphics at 5x and other relevant cursor information (e.g., position and RGB value).*

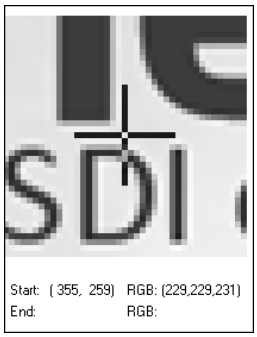


Figure H-4 Magnified Floating Window Showing Cursor and RGB Value

- ✓ *Click and drag any of the 4 green cropping corners to enlarge/reduce the area just selected. You may also use the keyboard’s top/left/right/down buttons to fine-tune the scope of the area to be cropped instead of using the mouse button.*

- ✓ *For additional fine tuning, you may manually enter the values of the **Left**/**Top**/**Width**/ **Height** and click the **Set** button. This will modify the scope of area to be cropped at pixel-level accuracy.*

*When cropping, **Left**/**Top** position, **Width**, and **Height** are calculated based on module's input display size. The value for **Width** and **Height** must be greater than 20% of the panel width and the panel height.*

- ✓ *For example, if the module's input display timing is 1280×1024 @ 60Hz, then the panel width is 1280 and the panel height is 1024. The cropped window size must be greater than 256 (20% of 1280) × 204 (20% of 1024).*

*Depending on the display resolution, a minimal change in the cropping parameters (**Left**/**Top**/**Width**/**Height**) may not produce any noticeable effect.*
It is highly recommended to set the displayed image to fill up the monitor's whole screen (use your monitor's built-in display settings to fill the entire screen) to prevent black bar(s) from appearing after cropping.

*Step 4. Click the **Send Crop** button to send the cropped image back to the Titan 9000 card for it to be displayed on the output monitor via the **HDMI OUT** connector.*

*Image scaling methods may differ per different graphics cards in the market, causing a pixel or more to be left on the screen (residue from the 4 green corners). Adjust the value of **Left**/**Top**/**Width**/**Height**, and then click the **Set** button to fine-tune the display area for the residue to disappear.*

- ✓ *Automatically selects a window or object to be cropped by clicking and dragging the crosshair button onto the desired window/object to be cropped.*
  - ■ ***Notice** how the mouse cursor has become a crosshair. As you continue to hold the mouse button and move around the screen, 4 green corners and a violet rectangle will surround the edge of the selected window/object. When the desired window has been selected, release the left mouse button.*

- ✓ *To do another screen crop, perform these steps once again.*

- ✓ *To discard the area selected, click the **Disable Crop** button.*
  Or, press "Ctrl + Esc" hot-keys to "disable crop" in "server" window or press "Esc" hot-key to "disable crop" in "client" window.

*Step 5. In order to store the parameters (**Left**/**Top**/**Width**/**Height**) of the last crop for every window in each Card ID, click the **Save to Flash** button to allow the parameters to be automatically shown upon the utility's next start-up.*

The "Save to Flash" action must be performed for each Card ID of the Titan 9000.

Step 6. Close the ScreenCropT utility to disconnect the computer from the Titan 9000.

If the current screen resolution is different than the last resolution, then the parameters for cropping will need to be re-adjusted based on the new resolution upon restarting the ScreenCropT utility.

H.4 Cropped Instances Switching

ScreenCropT utility not only crop areas of interest, but it also allows for the selection of 2 separate instances that can be switched accordingly. Perform the following steps to switch between 2 cropped instances.

*Step 1. Use the drop-down menu to select **Instance One** or **Two**, and then set cropping parameters.*

*Step 2. Switch between the two "Instances" by clicking the **Switch Instance** button.*

Figure H-5 Area of Interest (First/Second Instance)

H.5 Pan Anywhere

The “Pan” feature allows transfer of a previously-set area of interest to another portion of the screen by clicking the **Repeated Pan** checkbox. Upon clicking the **Repeated Pan** checkbox, the following dialog box will appear.

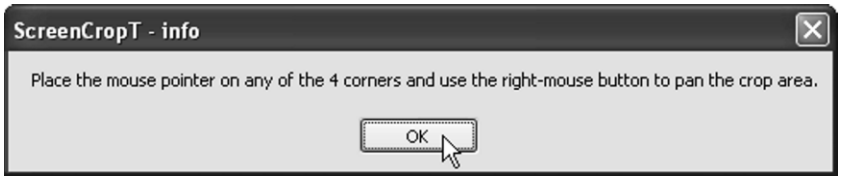


Figure H-6 Pan Instruction

Follow the instructions in the dialog box: Place the mouse pointer on any of the 4 cropping corners, and then use the right-mouse button to pan the area of interest.

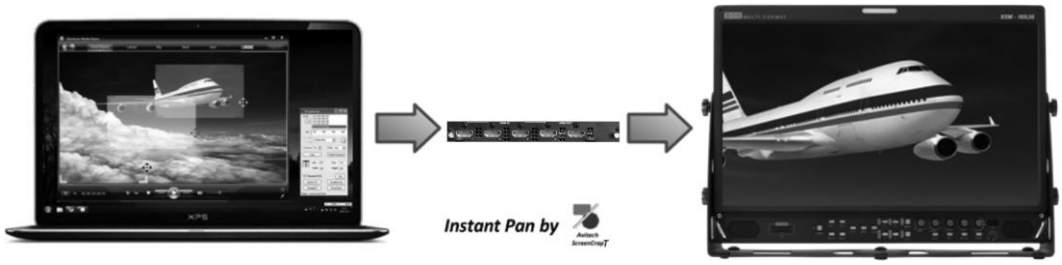


Figure H-7 Pan Area of Interest